

Original Research Reports

A Brighter Future: The Effect of Social Class on Responses to Future Debt

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Abstract

The present study serves as an exploratory investigation of the role of social class in responses to the threat of future debt. Previous work has shown that individuals of high and low subjective social class differ in the ways that they respond to a broad range of threats and uncertainties about the future. Across three studies, we found that lower social class individuals expect more future debt and suffer greater attendant stress than higher class individuals (Study 1). We found that experimental manipulations of debt salience increased stress for lower class and not for higher class individuals (Studies 2-3). Likewise, we found that higher class individuals experienced higher affect balance and perceptions of personal control when the possibility of future debt was made salient, specifically as a function of decreased fatalism about future debt (Study 3). These three studies reveal yet another situation in which individuals of lower and higher social class respond differently to threat, and serve as an important step toward understanding the psychological ramifications of rising debt in the United States.

Keywords: debt, social class, stress, control, subjective wellbeing, threat

Non-Technical Summary

Background

Levels of personal debt in the United States have risen substantially over the past few decades. Debt can be a very challenging experience, characterized by stress and uncertainty. As levels of debt are likely to continue to rise in the years to come, it is important to investigate how individuals respond to the threat of going into debt in the future.

Why was this study done?

Previous research suggests that debt negatively impacts psychological and physical health, including increased stress, elevated blood pressure, and increased depression symptoms. Social class, or an individual's sense of where they stand economically in society relative to other people, also can have significant impact on psychological and physical health. Lower social class individuals tend to be more stressed, feel less in control of their lives, and focus more on the present than on the future, especially when thinking about a threatening concept like debt. No prior research has investigated the possibility that debt may lead to worse psychological health for lower social class individuals. When thinking about debt, people who are less economically well off may experience a greater sense of uncertainty and inability to get out of debt than more wealthy individuals, resulting in higher stress.

What did the researchers find?

We conducted a survey and two experiments to test whether the expectation of future debt is more stressful for lower than for higher social class individuals. In a survey, we measured how much debt individuals expected five years in the future, their subjective social class, and their current stress. Higher debt expectations led to higher stress for lower social class individuals and not for higher social class individuals. In two experiments, we got participants to temporarily think about the possibility of going into debt in the future. We then measured psychological health outcomes like stress and

perceived personal control. Lower social class individuals felt more stressed and less in control due to the belief that they would not be able to handle their future debts.

What do these findings mean?

These findings suggest that while debt can be a stressful experience for anyone, it is especially stressful for lower social class individuals. Lower social class individuals feel that they will be incapable of managing debt in the future, while higher social class individuals are confident in their abilities to manage the burden of debt in the future. Our results suggest that an individual's social class not only affects psychological wellbeing in the present, but it also influences how individuals think about their future finances and wellbeing.

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Since the “Great Recession” of 2008, problematic personal debt has become a central issue in the lives of an increasing number of Americans. The average U.S. household has credit card debt equal to 30% of the median household income (McNally, 2011). Median student debt for those with a Bachelor’s degree was \$25,000 in 2016 (\$45,000 for those pursuing advanced degrees) and those with student debt are twice as likely to have to work a second job to make ends meet (Cilluffo, 2017). A large body of evidence suggests that debt has deleterious psychological effects. For instance, credit card debt relates to increased psychological stress and debt predicts higher blood pressure and worse physical health (Shen, Sam, & Jones, 2014; Sweet, Nandi, Adam, & McDade, 2013).

Along with debt, social class more broadly contributes significantly to stress and adversely affects psychological wellbeing. Low social class was found to relate to chronic stress, anxiety, depression symptoms, and more unhealthy, stress-related behaviors (Baum, Garofalo, & Yali, 1999; Santiago, Wadsworth, & Stump, 2011). It is important to note that lower class individuals have taken on relatively more debt to keep up with the rapid pace of contemporary consumer culture (Leicht & Fitzgerald, 2006; Porter, 2012a).

Surprisingly, little prior research has investigated how the psychological ramifications of the experience of debt might differ as a function of social class. Beyond the economic reality that lower class individuals often accumulate more debt, it is also likely that such individuals believe they have less control over their ability to cope with financial stressors, resulting in higher associated psychological distress (Caplan & Schooler, 2007). Employing both correlational and experimental methods, the current research provides an exploratory investigation of the possibility that lower class individuals will have different responses to the threat of debt compared to higher class individuals. More specifically, we investigate whether lower class persons’ lower optimism and expectations that even more debt will accumulate in the future lead to a spiral of stress and fatalism in response to debt reminders. Conversely,

we also investigate whether higher class individuals are more optimistic about their ability to avoid future debt, and so feel more in control of and less stressed about their future debt. This proposed model of social-class-contingent debt responses is summarized in [Figure 1](#).

Debt as a Function of Social Factors

Despite the social importance and increasing prevalence of debt, the psychological ramifications of debt are not widely studied. Likewise, the pivotal role that social, cultural, and demographic factors play in individual responses to debt has seldom been investigated. Some research has focused on individual differences in debt proclivity (e.g., [Joireman, Sprott, & Spangenberg, 2005](#); [Watson, 2003](#)). Although this approach is useful, it obscures cultural and situational factors that contribute to these individual differences. Other research has shown that social factors such as downward mobility, parental values, and time orientation affect attitudes and proclivities toward debt ([Porter, 2012b](#); [Webley & Nyhus, 2001](#)). African Americans and Latinos accrue more debt and suffer more attendant stress ([Grable & Joo, 2006](#); [Lawless & Cohen, 2012](#); [McNally, 2011](#)). Clearly, sociodemographic factors play a significant role in the psychological experience of and response to debt.

One vital social factor that contributes to debt and debt psychology is social class. We will briefly review three related literatures in support of this contention: First, the literature on social class differences in habitual response to a variety of threats and stressors; second, the literature on social class differences in temporal orientation; and third, the literature on social class differences in perceptions of control and fatalism. Considering these literatures simultaneously suggests that social class should moderate the relationship between the prospect of future debt and stress responses, such that lower class individuals will be more stressed and higher class individuals more optimistic.

Social Class and Threat Response

Social class can be defined as an individual's economic and social standing in society relative to others. This determines the resources the individual has access to, as well as their power over the use and allocation of those resources ([Rucker, Galinsky, & Magee, 2018](#)). Understood in this way, social class stands out as a likely moderator of responses to threatening information and events, and recent empirical investigations have revealed differential responses to various types of threats as a function of social class. For example, when confronted with the threat of future uncertainty, lower class individuals resorted to more community-centered coping mechanisms, while upper class individuals resorted to a reliance on personal wealth ([Piff, Stancato, Martinez, Kraus, & Keltner, 2012](#)). Likewise, [Mittal and Griskevicius \(2014\)](#) showed that individuals with a lower childhood subjective social class behaved more impulsively after being threatened with the notion of future financial uncertainty. After experiencing social threat in a teasing exercise, lower class individuals exhibited heightened sensitivity to the threat and heightened expectations for future hostility ([Kraus, Horberg, Goetz, & Keltner, 2011](#)).

Together, these studies provide evidence of differential threat sensitivity as a function of social class, leading to divergent coping mechanisms which may generate different responses to debt-related threat. If higher class individuals respond to threat by relying on their financial resources, and if individuals lower in subjective status are more likely to experience stress after threat overall, it follows that lower class individuals will experience relatively more, and higher class individuals relatively less, stress after being reminded of the prospect of personal future debt.

Social Class and Temporal Cognition

One way to define these differential responses to threat is in terms of social class differences in temporal orientation. Social class significantly shapes the way that individuals perceive and relate to time. Past literature shows that higher class individuals tend to exhibit a higher degree of future orientation than lower class individuals (Guthrie, Butler, & Ward, 2009; Koenig, Swanson, & Harter, 1981; Zimbardo & Boyd, 2015). Future orientation can be defined as the extent to which an individual plans for the future by focusing on more abstract goals and on the future consequences of current behavior. Fieulaine and Apostolidis (2015) reviewed research showing that lower class individuals suffer from lower future aspirations as a function of their reduced future orientation. Along with conceptions of the future, social class also influences the way that individuals relate to the present: a present orientation is more adaptive for securing short-term needs for individuals in a precarious socioeconomic situation, further reducing future-orientation (Fieulaine & Apostolidis, 2015).

An important addition to this body of research on social class differences in temporal orientation is the notion that these differences are exacerbated by threatening situations. Lower class individuals faced with threats such as the inevitability of death or future economic uncertainty tend to discount delayed rewards more than high class individuals (Griskevicius, Tybur, Delton, & Robertson, 2011; Mittal & Griskevicius, 2014). The threat of indebtedness is similar to mortality salience and economic uncertainty in that it is fundamentally a threat to one's future wellbeing. Given the present-focused coping tendencies of lower class individuals, and the future-oriented coping strategies of higher class individuals, these previous findings further support the contention that social class will be associated with differential responding to the threat of future debt.

Social Class and Perceived Control

Individuals experiencing socioeconomic precariousness adopt a greater degree of fatalism as future uncertainties – financial and otherwise – constrict their time horizon (Carvounas & Ireland, 2008). Fatalism can be defined as the extent to which an individual feels that their future is controlled by forces outside of their control (Kohn & Schooler, 1983). A large longitudinal study found that lower class individuals show more emotion-focused, and less practical problem-focused, coping with financial stress as a function of greater fatalism about their ability to determine their financial future (Caplan & Schooler, 2007). As in the case of temporal cognitive processes, past literature has shown that class differences in perceived personal control are exacerbated under conditions of threat. Lower class individuals felt less in control following an economic uncertainty manipulation, resulting in greater impulsivity (Mittal & Griskevicius, 2014). These findings highlight the important role of perceptions of personal control in the relationship between social class and debt-related threat response. Higher class individuals may feel more in control of their future debt and therefore less stressed about its effects than lower class individuals.

Evidence suggests that lower social class can contribute to heightened focus on the present due to lack of control over the future and lower self-confidence, leading to more emotion-based financial coping. The opposite tendencies seem to apply for higher class individuals, who tend to be more future-oriented and to feel highly confident about their ability to handle future financial difficulties. An untested possibility – which will be the focus of this investigation – is that lower class individuals are both more stressed and more fatalistic about their ability to cope with future debt. Such an investigation will contribute to our understanding of one of the many ways that lower social class creates disadvantages that can be self-perpetuating.

Overview of Present Research

This paper presents findings from three studies that provide exploratory evidence of the divergent ways that individuals of high and low social class respond to the threat of future debt. Past literature suggests that lower class individuals will respond with greater stress and more fatalism than higher class individuals in response to the threat of future debt. In Study 1, we assess the role that social class plays in the relationship between expectations of future debt and stress using a correlational design. We assess participants' objective and subjective social class, as well as their expected future debt and perceived stress. In Studies 2 and 3, we attempt to provide causal evidence for the role of debt expectations in stress responses with social class as a moderator. In Study 2, we assess participants' social class using subjective measures, and then expose them to either a debt-salience or control condition prior to assessing expected debt and resultant stress. In Study 3, we build on this experimental design by assessing fatalism about future debt, a new stress measure similar to anxiety, situational subjective wellbeing, and perceived personal control after a debt reminder. An overview of the conceptual model and the hypothesis that social class will moderate responses to debt can be seen in Figure 1, and a list of operationalizations of outcome measures in the three studies can be seen in Table 1. Together, these studies provide exploratory evidence of the moderating role that social class plays in the relationship between the threat of expected debt and stress responses.

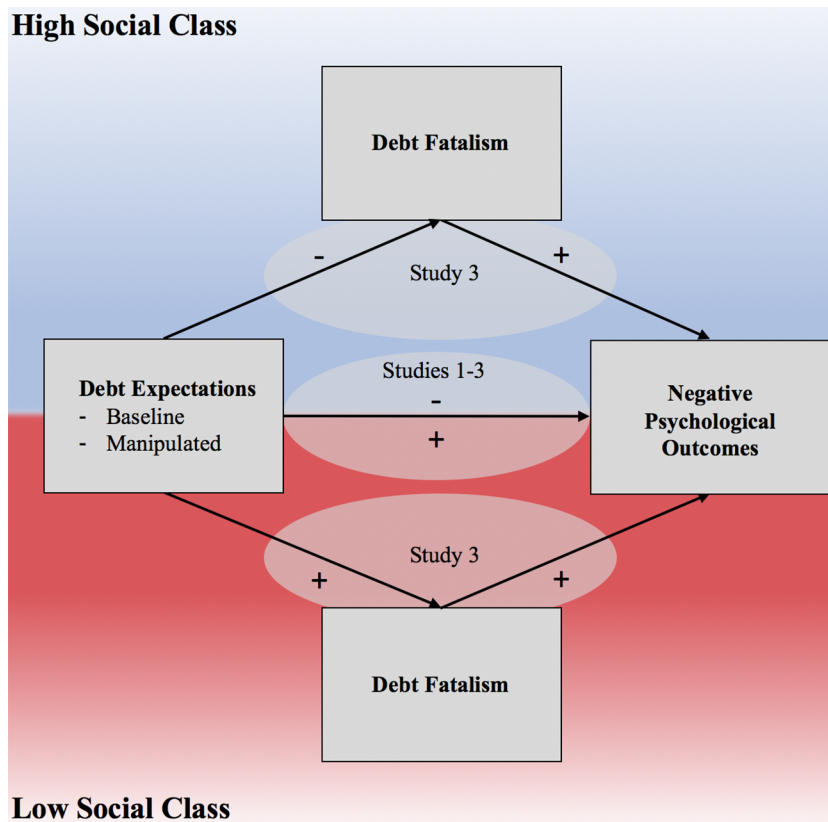


Figure 1. Conceptual model representing the moderating role of social class in the relationship between debt and psychological outcomes.

Table 1

Overview of Variables Used in the Present Investigation

Study	Debt Expectations	Debt Confidence/Fatalism	Psychological Outcomes
Study 1	Baseline debt expectations for 5 years in the future	-	Perceived Stress Scale
Study 2	Experimentally manipulated	-	Perceived Stress Scale
Study 3	Experimentally manipulated	Fatalistic debt expectations	Affect balance, Anxiety, Personal control

Study 1

Study 1 offers a first correlational test of our prediction that social class moderates the relationship between expectations of future debt and stress. To do so, we assessed social class using both objective and subjective indicators as well as current debt levels, expectations about future debt, and general stress level. It is important to note that some studies suggest that subjective social class may predict threat responses even better than objective indicators. Higher subjective social class is related to lower physiological and psychological stress, and is a stronger predictor than actual income (Ghaed & Gallo, 2007). Subjective measures may reflect a broader set of underlying social factors like cultural capital, social ties, education, health, and higher future certainty (Singh-Manoux, Adler, & Marmot, 2003). Thus, while objective indicators of social class certainly play a role in the likelihood, amount, and quality of debt (e.g., the likelihood of debt delinquency), it is important to note that subjective social status may be a more important contributor to debt-related stress. Accordingly, the present study utilizes both objective and subjective measures of social class to test their relative merits in predicting debt responses.

To test whether the predicted effects were due specifically to social class differences, we additionally tested whether any observed moderation of social class held after statistically controlling for baseline differences in personality and current levels of debt. There is considerable evidence that neuroticism, in particular, predicts greater daily stress (e.g., Gunthert, Cohen, & Armeli, 1999) and poorer coping in stressful situations (e.g., Boyes & French, 2010). Accordingly, McCrae (1990) has argued that studies of stress must statistically control for neuroticism to address the essential role of this variable. We anticipated that the effects of class would be unique from any role of neuroticism and that, accordingly, controlling for personality will not attenuate any interaction between social class and expected debt.

Method

Participants

The sample for Study 1 included 297 American adults recruited through Prolific Academic for £1. Of these, 30 were excluded from analysis a priori due to failing an attention check (they indicated a response to the item “Leave this item blank”), and 3 were excluded for failure to complete the expected debt measure. This left a sample for analysis of 264 (91 Men, 169 Women, 3 Other Gender, 1 NA; $M_{\text{age}} = 33.40$, $SD_{\text{age}} = 11.47$; 81% White/Caucasian, 2% Black/African-American, 2% Hispanic/Latinx, 8% Asian, 0.8% Native American, 4% Multiracial, 0.3% Other, 0.8% NA).

These participants were recruited for a larger pilot study including personality dimensions and temporal orientation. For the purpose of our present analysis, we focus specifically on the subset of variables described below, but a full list of debt-related measures can be found in the supplemental materials.

Procedure

Subjective class and income — Among other demographic items, participants were asked to indicate both their subjective social class using the MacArthur Ladder scale and their household's annual income. The ladder scale asks participants to select a rung of the ladder that describes their standing in society and it is anchored with the bottom rung (1) indicating the least well off and the top (10) indicating the most well off. Responses to the scale were highly variable in the current sample, although tended toward the midpoint ($M = 4.76$, $SD = 1.76$). To assess income, we simply asked people to use income brackets (1 = Below \$15k; 2 = 15,001-25k; 3 = 25,001-35k; 4 = 35,001-50k; 5 = 50,001-75k; 6 = 75,001-100k; 7 = 100,001-150k; 8 = Greater than 150k). Twelve participants chose not to complete this item and participants who did complete the measure tended to be slightly below the midpoint ($M = 3.43$, $SD = 1.89$). Income was positively skewed, and a Shapiro-Wilk normality test revealed that it was significantly non-normal ($W = .92$, $p < .001$).

Personality traits — Participants also completed the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). The scale asks participants to rate themselves on ten items each comprised of two adjectives (e.g., "Extraverted, enthusiastic"; "Reserved, quiet"). Each of the Big-5/OCEAN traits was measured with two such items to provide a quick and general assessment of personality variation. Each subscale showed adequate reliability ($r_O = .31$, $r_C = .48$, $r_E = .58$, $r_A = .25$, $r_N = .58$; all $ps < .001$) and scores were summed after appropriate reverse scoring ($M_O = 10.17$, $SD_O = 2.37$; $M_C = 9.81$, $SD_C = 2.78$; $M_E = 6.94$, $SD_E = 3.20$; $M_A = 10.04$, $SD_A = 2.41$; $M_N = 7.90$, $SD_N = 3.14$).

Current debt — Participants reported their current level of credit card, student loan, home loan, auto loan, friends/family loan, and other loan debt. The amount of all six types of debt was summed to create a total debt variable ($M = \$42,636$, $SD = \$114,111.30$). 37 participants chose not to report any information on their current amount of debt. Total debt was also positively skewed, and a Shapiro-Wilk normality test revealed that it was significantly non-normal ($W = .35$, $p < .001$). Due to the wide range and skewedness of the total debt data, we placed participants in debt amount categories that matched the income categories (1 = Below \$15k; 2 = 15,001-25k; 3 = 25,001-35k; 4 = 35,001-50k; 5 = 50,001-75k; 6 = 75,001-100k; 7 = 100,001-150k; 8 = Greater than 150k). We then created a variable that measured each participant's debt to income ratio by dividing the debt category by the income category ($M = .94$, $SD = .97$).

Expected debt — Participants completed a single ad-hoc item assessing their expected future debt: "In FIVE years, do you expect to have more debt, less debt, or about the same?" (1 = Far less debt; 5 = About the same amount of debt; 9 = Far more debt). On the whole, participants tended to be somewhat optimistic about their future financial prospects ($M = 3.86$), but there was considerable variability in response ($SD = 2.42$; Range: 1-9).

Stress — At the end of the survey, participants were asked to complete the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). The scale asks participants to rate (1 = Never; 5 = Very often) how often they have experienced 14 stressful feelings and experiences (e.g., "In the last month, how often have you felt that you

were unable to control the important things in your life?”). The scale formed a reliable composite and scores were averaged ($\alpha = .85$, $M = 2.96$, $SD = .68$).

Results

Correlations between all reported measures are summarized in Table 2. As expected, stress reliably covaried with every other observed variable except current debt and debt to income ratio. Specifically, those who were objectively or subjectively higher in social class tended to experience lower levels of stress overall, as did participants who were more open, conscientious, extraverted, agreeable, and less neurotic. Those who expected greater debt in their future also reported greater levels of stress overall.

Table 2

Correlations Between Observed Variables (Study 1)

Variable	Income	O	C	E	A	N	Debt to			Stress
							Current Debt	Income Ratio	Expected Debt	
Subjective Class	.53***	-.02	.24***	.23***	.03	-.20***	.22***	-.14*	-.12†	-.33***
Income	-	-.07	.22***	.10	.06	-.18**	.22***	-.36***	-.11†	-.17**
O		-	.19**	.31***	.17**	-.21***	-.02	.02	-.04	-.26***
C			-	.16**	.33***	-.40***	.12†	-.12†	-.18**	-.37***
E				-	.08	-.22***	-.01	-.06	-.02	-.22***
A					-	-.21***	.03	.02	-.11†	-.22***
N						-	-.15*	.01	.16**	.66***
Current Debt							-	.64***	-.18**	-.12†
Debt to Income Ratio								-	.01	.04
Expected Debt									-	.17**
Stress										-

Note. O = Openness; C = Conscientiousness; E = Extraversion; A = Agreeableness; N = Neuroticism.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Current Debt and Social Class

We tested the relationship between current levels of debt and subjective social class, as well as the relationship between debt to income ratio and subjective social class. Subjective social class was positively correlated with current debt, as measured by debt amount categories, $r = .22$, $t(226) = 3.38$, $p < .001$, and negatively with debt to income ratio, $r = -.14$, $t(218) = -2.05$, $p = .041$. These relationships held for income as well, such that income was positively correlated with current debt, $r = .22$, $t(218) = 3.41$, $p < .001$, and negatively with debt to income ratio, $r = -.36$, $t(218) = -5.77$, $p < .001$. This suggests that individuals who are subjectively and objectively higher in social class tend to have higher objective amounts of debt, but the amount of debt relative to income decreases with both measures of social class.

Stress and Social Class

We investigated the relationship between objective and subjective social class and stress. Both income, $\beta = -.18$, $SE = .02$, $t(250) = -2.88$, $p = .004$, and subjective social class, $\beta = -.36$, $SE = .04$, $t(262) = -6.21$, $p < .001$, negatively predicted stress. In order to assess the added predictive strength of subjective social class over income,

we tested the mediating role of subjective social class in the relationship between income and stress. The direct effect of income on stress was no longer significant when accounting for the effect of subjective social class, suggesting full mediation, direct effect: $\beta = .003$, $SE = .02$, $t(249) = .10$, $p = .920$; indirect effect: $\beta = -.07$, $SE = .01$, 95% CI [-.09, -.04]. See [Figure 2](#) for a summary of this mediation model.

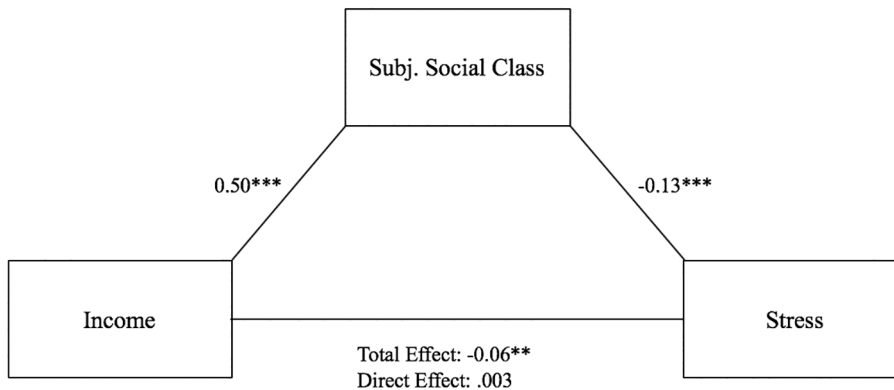


Figure 2. Full mediation of the relationship between income and stress by subjective social class (Study 1).

Note. Full model: $F(2, 249) = 16.77$, $R^2 = .12$, $p < .001$.

Subjective Class and Expected Debt

We then tested the role of subjective class as a moderator of the link between expected debt and stress. To test this, we regressed perceived stress onto expected debt, subjective class, and their interaction. The interaction term was not significant, $\beta = -.08$, $SE = .03$, $t(260) = 1.49$, $p = .138$. Regression diagnostics indicated that two participants deviated dramatically from the rest of the sample (Standardized Residuals greater than 3 SD). Exclusion of these outlying values yielded a final model in which the interaction was not significant, $\beta = -.18$, $SE = .01$, $t(258) = -1.74$, $p = .084$. For the purposes of the manuscript, we will probe this interaction model excluding the two extreme values (see supplemental materials for analyses that include the outliers).

Probing this interaction by levels of subjective class indicated that expected debt predicted greater stress, but only at specific levels of subjective class. Tests of simple slopes revealed that expected debt predicted greater stress among those low ($-1 SD$) in subjective class, $\beta = .30$, $SE = .07$, $t(258) = 2.82$, $p = .005$. In contrast, among those high ($+1 SD$) in subjective class, there was no association between expected debt and stress, $\beta = -.006$, $SE = .07$, $t(258) = -.06$, $p = .952$. A Johnson-Neyman test indicated that expected debt significantly predicted greater stress at all values of subjective class below $.34 SD$ above the mean. In other words, those slightly above mean levels of subjective class were effectively immune to any link between stress and expected debt (see [Figure 3](#)).

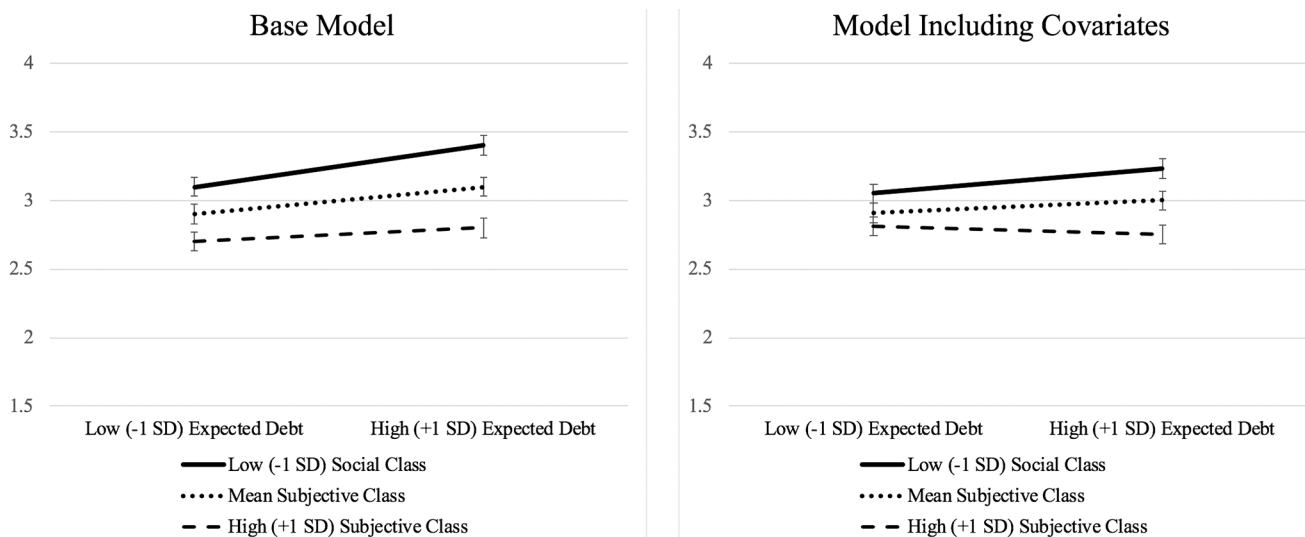


Figure 3. Stress as a function of social class, expected debt, and their interaction (Study 1).

Note. Both scales ranged from 1-5 with higher scores indicating greater expected debt and stress. Error bars indicate standard errors of the estimate.

However, the initial pattern of correlations indicates that income and personality traits covaried with subjective class and were also predictive of stress. Further, gender, age, and ethnicity are important covariates for socioeconomic demographics. Accordingly, we fit additional models controlling for the effects of income, debt to income ratio, personality, gender, age, and ethnicity separately to test the specific moderating role of subjective class. The predicted interaction between expected debt and social class on stress was robust to adding these covariates ($p = .048$; for full model parameters see Table 3).

Table 3

Models Predicting Stress by Expected Debt, Subjective Class, and Their Interaction With and Without Additional Covariates (Study 1)

Model	<i>b</i> [β]	<i>SE</i>	<i>p</i>
Base Model			
Intercept	2.82 [0]	.07	< .001
Expected Debt	.04 [.15]	.02	.011
Subjective Class	-.13 [-.19]	.07	.072
Subj Class \times Expected Debt	-.02 [-.18]	.01	.084
Controlling for Income and Debt to Income Ratio			
Intercept	2.77 [0]	.15	< .001
Expected Debt	.04 [.14]	.02	.031
Subjective Class	-.17 [-.25]	.09	.052
Income	.01 [.04]	.03	.659
Debt to Income Ratio	-.01 [-.02]	.05	.798
Subj Class \times Expected Debt	-.02 [-.18]	.01	.191

Model	<i>b</i> [β]	<i>SE</i>	<i>p</i>
Controlling for Personality			
Intercept	2.62 [0]	.24	< .001
Expected Debt	.01 [.05]	.01	.303
Subjective Class	-.05 [-.08]	.06	.374
O	-.03 [-.10]	.01	.042
C	-.01 [-.06]	.01	.291
E	-.007 [-.03]	.01	.494
A	-.01 [-.04]	.01	.379
N	.11 [.53]	.01	< .001
Subj Class \times Expected Debt	-.02 [-.17]	.01	.051
Controlling for Ethnicity, Age, and Gender			
Intercept	3.19 [0]	.18	< .001
Expected Debt	.03 [.10]	.02	.080
Subjective Class	-.13 [-.20]	.07	.050
Ethnicity	.02 [.05]	.03	.390
Age	-.02 [-.30]	.003	< .001
Gender	.13 [.10]	.07	.072
Subj Class \times Expected Debt	-.03 [-.18]	.01	.038
Controlling for All Covariates			
Intercept	2.73 [0]	.31	< .001
Expected Debt	.01 [.03]	.01	.617
Subjective Class	-.12 [-.18]	.07	.091
Debt to Income Ratio	.01 [.02]	.04	.743
Income	.04 [.10]	.02	.110
O	-.03 [-.10]	.02	.082
C	-.01 [-.06]	.01	.302
E	0 [.01]	.01	.861
A	0 [0]	.01	.989
N	.11 [.50]	.01	< .001
Ethnicity	.02 [.05]	.02	.369
Age	-.01 [-.18]	.003	.001
Gender	-.05 [-.03]	.07	.517
Subj Class \times Expected Debt	-.03 [-.19]	.01	.048

Note. O = Openness; C = Conscientiousness; E = Extraversion; A = Agreeableness; N = Neuroticism.

Income and Expected Debt

A parallel model testing the interaction between income and expected debt on stress failed to return evidence of an interaction, $\beta = -.10$, $SE = .01$, $t(247) = -0.68$, $p = .495$. Controlling for subjective class did not substantively change the interaction parameter, $\beta = -.09$, $SE = .01$, $t(247) = 0.67$, $p = .501$, nor did controlling for personality variation on the OCEAN traits, $\beta = -.14$, $SE = .006$, $t(247) = -1.22$, $p = .225$, or debt to income ratio, $\beta = -.13$, $SE = .01$, $t(214) = -.76$, $p = .450$.

Discussion

The results of Study 1 indicated that expecting future debt tended to correspond with greater stress in general, and subjective social class tended to moderate this relationship. Specifically, higher class participants showed

no meaningful association between expected debt and stress, while this relationship became stronger for those who felt subjectively lower in class. It is also notable that this interaction did not track income (an objective index of social class). It is those participants who felt subjectively poorer for whom expected debt and stress were more strongly related, regardless of actual earnings. One possible reason that the subjective measure of social class, rather than income, moderated the expected debt to stress relationship is that regional differences in median income across the US may make income comparisons less meaningful. Put another way, an annual income of \$40,000 may go a long way in rural Mississippi, while it would barely allow a Californian to scrape by. As such, subjective feelings of wealth and status may better reflect the financial security (and its associated psychological benefits) that is afforded by the regionally-contingent income measure (Krieger, Williams, & Moss, 1997).

We also found that the higher in income and subjective social class participants were, the more debt they had in objective terms. Interestingly, the reverse trend was true for the relationship between income and subjective social class and debt to income ratio. This implies that while higher class individuals tend to have more debt in absolute terms, lower class individuals tend to have more debt compared to their income. This discrepancy could partially explain social class differences in stress as a function of future debt expectations. Higher class individuals may expect to maintain a more comfortable and manageable debt to income ratio in the future while lower class individuals expect a more burdensome debt to income ratio, resulting in greater stress.

These data are also notable because they highlight that the effects of subjective class hold even after controlling for baseline variation in personality and other demographics. We found that controlling for variation in negative emotionality did not diminish the overall effect of subjective status in predicting lower stress nor its moderating effect on the link between expected debt and stress. This was true for age, gender, and ethnicity as well, which indicates that further tests of the specific role of subjective social class in responses to debt are warranted.

While this analysis broadly supports the view that expected debt is particularly stressful for those lower in social class, it relies on a cross-sectional correlational design examining variables that are all highly related. For example, an alternative explanation for these findings might be that subjective status tends to protect individuals from stress or, alternately, that individuals who experience more stress just feel more disadvantaged compared to their less stressed peers. To test our model in a more controlled format, we turn next to an experimental design.

Study 2

Our second study had two primary goals. The first goal was to provide causal evidence for our hypothesis that expected debt is more stressful for lower class (and less stressful for higher class) individuals. We devised a *debt salience* manipulation to situationally cue the prevalence of problematic debt. Specifically, we exposed participants to one of two articles describing either the rapid rise of debt or a control article describing economic issues not directly involving personal debt. Further, we asked participants in our debt salience condition to reflect on their own personal debt. This manipulation served to heighten expected future debt, rather than rely on existing variation in debt expectations. We examined the interaction between randomly assigned debt salience and subjective social class, with expected debt as a manipulation check and general stress as our outcome of interest. We did not comparably control for personality in Study 2 because the experiment relies on random assignment to condition to mitigate any direct effects of personality.

The second goal of Study 2 was to test for the mediating role of expected debt in the relationship between debt threat and stress, specifically for lower social class individuals. More specifically, we test for a moderated mediation model such that expected debt will mediate the relationship between manipulated debt salience and stress only for lower class individuals. Such a model will signify that when reminded of debt, higher class individuals may respond more optimistically than lower class individuals about their expected future debt, resulting in the absence of elevated stress when threatened.

Additionally, in Study 2 we expanded our assessments of both subjective social class and expected future debt. In both cases, we added an additional item to ensure that Study 1 effects were not due to specific item wording. The added subjective social class item was intended to assess perceived status with terms that may be more ecologically valid to participants (e.g., “middle class”) than the rungs of the MacArthur ladder scale. Finally, we did not measure income given the relative strength of the subjective measures of social class over income in Study 1.

Method

Participants

One-hundred ninety-five Amazon MTurk Workers completed the study in exchange for \$2.00 ($M_{\text{age}} = 34.55$, $SD_{\text{age}} = 9.74$; 119 Men/75 Women; 84.6% White / 6.2% African American / 5.6% Latino/Hispanic / 3.1% Asian American).

Procedure

Subjective social class — Subjective social class was measured with both the MacArthur Ladder ($M = 4.67$, $SD = 1.55$) and a 6-point scale at the end of the study (1 = lower class, 2 = working class, 3 = lower-middle class, 4 = middle class, 5 = upper-middle class, 6 = upper class). The sample reported the full range of possible social class scores, but the median (3) indicated lower-middle class and the mode (4) indicated middle class. While the social class category measure is indeed an ordinal variable, it was roughly normally distributed, so we treated it as a continuous variable. Because these subjective social class measures were highly correlated ($r = .74$, $p < .001$), scores were standardized to put them on the same metric and then averaged. Given that in Study 1, the effect of income on stress was fully mediated by subjective social class, the income measure was excluded from Study 2 to focus on subjective social class. (See supplemental materials Table S2 for comparisons between models that used the social class items separately).

Debt salience manipulation — Participants were randomly assigned to read one of two online articles ostensibly from *The Economist* (the articles were designed by the experimenters to achieve maximum impact, but reported factual information based on actual articles from other sources). In the debt salience condition ($n = 102$), participants read an article that stressed the resurgence and problem of debt in the United States since the Great Recession. The article discussed rising levels of student, auto, and credit card debt, as well as delinquency and default rates, and the problems individuals face as a consequence of debt. It contained statements such as, “Debt can have disastrous effects, from bankrupting families to ruining their credit scores, which makes it more difficult for them to borrow responsibly in the future.” After reading the article, participants were instructed to “relate this information to your own financial situation” by writing a paragraph “about your own level of household debt and any concerns you have about how your debt might affect you in the future.” This article manipulation served to cue the possibil-

ity of personal future debt and the very real problems that many people face directly because of debt. The brief writing task served to make the threatening information in the article personally relevant and threatening.

By contrast, in the control condition ($n = 76$), participants read an article about difficulties that experts face trying to attain valid information about the state of the economy. The article was fairly technical and discussed a variety of different ways of assessing economic indicators (e.g., assessing pay growth by using either average weekly earnings or median household disposable income). After reading, participants were asked to write a paragraph “about your own difficulties managing and interpreting information about trends in the economy.”

We assessed participants’ attention to the manipulation with two checks. All participants responded on 5-point scales to the items, “The article stated that recent changes in the economy are not very well reflected in the current methods of calculating GDP” and “The article stated that many Americans have difficulty managing their debt.” Condition had strong effects for the first item, $F(1, 179) = 156.46, p < .001, d = 1.88$, as well as the second, $F(1, 179) = 191.40, p < .001, d = 1.96$, in the expected directions.

Expected debt — We assessed the outcome of expected debt using two items, for which participants rated on 5-point scales whether, in the next five years and the next ten years, they expect to have 1 = less debt, 3 = about the same debt, or 5 = more debt. These two items, $r = .88, t(190) = 23.22, p < .001$, were averaged to form an indicator of expected debt, $M = 2.46, SD = 1.21$.

Stress — We assessed the outcome of stress using the Perceived Stress Scale (Cohen et al., 1983), and it formed a reliable composite ($\alpha = .91, M = 2.55, SD = 0.73$).

Results

Correlations between measures are presented in Table 4 and separated by condition. No main effects of debt salience condition were observed on either expected debt, $F(1, 192) = 1.04, p = .310$, or stress, $F(1, 191) = .40, p = .526$.

Table 4

Correlations Between Observed Variables by Condition (Debt Salient/Control; Study 2)

Variable	Expected Debt	Stress
Subj. Class	-.21*/.07	-.28**/.04
Expected Debt	-	.41***/.30**
Stress		-

* $p < .05$. ** $p < .01$. *** $p < .001$.

Expected Debt

We regressed expected debt onto debt salience condition (dummy coded: 0 = control, 1 = debt salient), the combined subjective class index, and their predicted interaction. We observed evidence of an interaction between debt salience condition and class, $\beta = -.22, SE = .18, t(190) = -1.94, p = .054$. Interestingly, the interaction revealed that subjective class predicted significantly lower expected debt when debt was salient, $\beta = -.26, SE = .12, t(190) = -2.79, p = .006$, but there was no association in the control condition, $\beta = .02, SE = .14, t(190) = .20, p = .841$.

Tests of simple slopes further indicated that at high (+1 *SD*) subjective class, the debt salience prime ironically lowered expectations of future debt, $\beta = -.22$, $SE = .24$, $t(190) = 2.19$, $p = .030$. No difference was observed at low (-1 *SD*) subjective class, $\beta = .06$, $SE = .25$, $t(190) = 0.58$, $p = .560$. This interaction is summarized in Figure 4. While it would seem logical to expect debt expectations to rise for all participants in the debt salience condition, the literature reviewed above suggests that higher social class individuals respond to financial threats more optimistically. The observed effect here may reflect a realistic response among higher social class individuals when debt is salient, in that they may indeed have (expect to have) the resources, social capital, and occupational prestige to reduce the burden of their future debt. This effect holds when controlling for gender, ethnicity, and age.

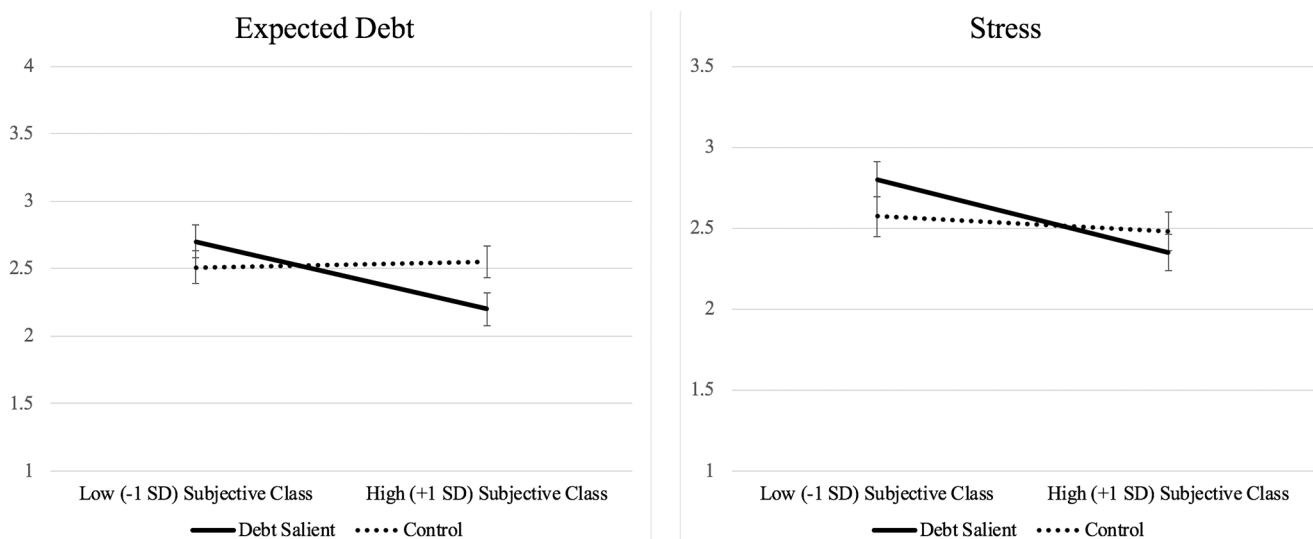


Figure 4. Expected debt and stress as a function of debt salience and social class (Study 2).

Note. Both scales ranged from 1-5 with higher scores indicating greater expected debt and stress. Error bars indicate standard errors of the estimate.

Stress

We then regressed stress onto the same model. There was once again evidence of an interaction between debt salience condition and social class, $\beta = -.22$, $SE = .10$, $t(189) = -2.03$, $p = .044$. When debt was made salient, subjective class predicted significantly lower stress, $\beta = -.35$, $SE = .06$, $t(189) = -3.87$, $p < .001$, but there was no association in the control condition, $\beta = -.06$, $SE = .08$, $t(189) = -.58$, $p = .565$. The effect of debt salience on stress at low (-1 *SD*) subjective class was positive, but not significant, $\beta = .18$, $SE = .13$, $t(189) = 1.77$, $p = .079$. No difference was observed at high (+1 *SD*) subjective class, $\beta = -.11$, $SE = .13$, $t(189) = -1.11$, $p = .269$. While the tests of simple slopes did not show significant differences at +/- 1 *SD* of subjective class, a Johnson-Neyman test revealed that at all levels of subjective class lower than 2.07, debt salience condition significantly increased stress. This interaction is summarized in Figure 4. It is important to note that this effect did not hold when controlling for gender, age, and ethnicity, although none of these individual measures was a significant predictor of stress in the model.

Finally, we tested our predicted moderated mediation model to test whether the interactive effect of condition and subjective class increased stress by increasing expected future debt. In a model treating debt salience condition as the predictor, expected debt as the mediator, and stress as the outcome, there was evidence of mediation moderated by social class (difference in indirect effect between -1 *SD* and +1 *SD* social class = .16, $p = .047$,

95% CI [.0034, .3253]; summarized in Figure 5). Debt salience condition significantly predicted lower expected debt for high class participants, and debt expectations in turn significantly predicted stress. For lower class participants however, there was no association between debt salience condition and expected debt, but debt expectations still significantly predicted stress. We observed full mediation of the relationship between condition and stress by debt expectations for lower, and not higher, class participants. This model held when controlling for gender, age, and ethnicity.

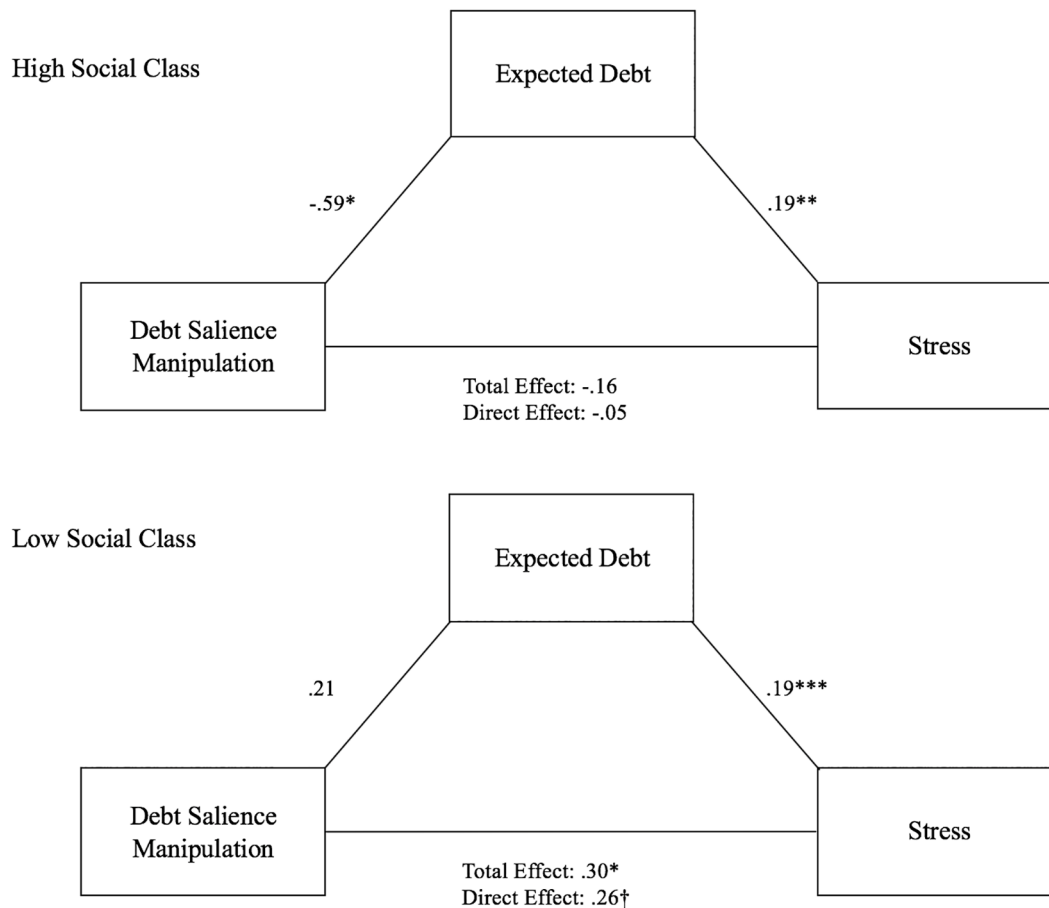


Figure 5. Moderated mediation of debt salience condition on stress by expected debt for high (+1 SD) and low (-1 SD) social class (Study 2).

Note. Models separated by high and low social class for ease of interpretation. Full model: $F(4, 158) = 10.15$, $R^2 = .20$, $p < .001$. Average difference between indirect effects for high and low social class = .16, $p = .047$, 95% CI [.0034, .3253].

Discussion

Study 2 was designed to provide an experimental validation of Study 1 and to explore the role of social class as a moderator of the relationship between situational debt cues and stress. As predicted, subjective social class moderated the relationship between manipulated debt salience and our outcomes of interest. When debt was salient, those of higher status reported lower stress. Higher social class individuals also reported expecting less debt when debt was salient, likely reflecting their greater optimism and confidence when faced with financially threatening information. Further, the pattern of moderated mediation indicated that for lower class individuals,

higher stress reported by those in the debt salience condition was in part a function of the higher debt they anticipated. In contrast, for higher class individuals, there was no observable mediation by debt expectations of the relationship between debt salience and stress. While the tested moderation mediation model was significant, not all of the tested pathways were significant as hypothesized. Specifically, the debt salience manipulation did not significantly raise debt expectations for lower class participants, while it did significantly lower debt expectations for higher class participants. The manipulation also only raised stress for lower, and not higher, class participants. As such, it is necessary to test a similar moderated mediation model in subsequent investigations. By changing the operationalizations of debt expectations and stress in Study 3, we will test a better fitting model.

The interaction between debt salience condition and social class on stress did not hold when controlling for gender, ethnicity, and age. This could be due to the limitations associated with using the Perceived Stress Scale in this context. The Perceived Stress Scale asks participants to rate their stress over the past month and has been shown to covary with several socioeconomic variables, age, ethnicity, gender, and other life domains (Lee, 2012). As such, the lack of a significant interaction when controlling for these covariates a limitation of using the Perceived Stress Scale to assess situational stress. In Study 3, we changed our measure of stress to be more situationally relevant so as to focus situational rather than general stress.

Another potential limitation of Study 2 is the uneven sample sizes between conditions ($N_{\text{Control}} = 76$, $N_{\text{Debt Salient}} = 102$) that occurred due to failure to evenly assign participants to conditions in Qualtrics. However, our results were nearly identical when accounting for sample size differences by utilizing Type III sums of squares (Langsrud, 2003). While the observed effects in Study 2 hold when accounting for unequal sample sizes, it is possible that the sample size differences resulted in reduced power and increased Type I error likelihood (Rusticus & Lovato, 2014). As such, we ensured equal sample sizes in Study 3 to increase power and to reduce the likelihood of Type I error.

Study 3

Studies 1-2 presented correlational and experimental evidence of the moderating role of social class in the relationship between debt expectations (baseline and manipulated) and stress, such that lower class individuals tend to experience greater stress when made to think about the likelihood of personal future debt. Study 2 also showed that this may be in part due to higher class individuals' heightened confidence and optimism about future debt. Study 3 used the same debt salience manipulation as in Study 2 to assess the extent to which lower social class individuals experience diminished subjective well-being, feel more anxious, and feel less in control as a result of heightened future debt expectations.

First, we sought to build on the observed interactions and moderated mediation model from Study 2. Second, we sought to go beyond looking at social class differences in global stress responses by including subjective wellbeing as a potential outcome that may differ as a function of social class. As such, we included a measure of affect balance to assess situational subjective wellbeing (Busseri & Sadava, 2011). Affect balance was an ideal operationalization for this purpose because it also permitted us to isolate the effect of debt salience on the negative affective components of anxiety, thereby providing an opportunity for a conceptual replication of Study 2 using a more immediate visceral and emotional form of stress response. Noting that higher class individuals responded to the debt salience manipulation in Study 2 by reporting lower expected future debt, in Study 3 we assessed future

debt expectations in such a way that better captured the hypothesized debt confidence that high class individuals and the debt fatalism that low class individuals would experience when debt is salient. In line with confidence and fatalism over future debt, we sought to investigate the possibility that along with feeling more stressed following reminders of debt, lower social class individuals might also experience lower perceived personal control as a result of higher debt fatalism. We used a different combination of measures of subjective social class in order to investigate how the observed effects from Study 2 hold up under different operationalizations of social class. The reported measures for Study 3 come from a larger investigation on debt-related threat and construal level.

Method

Participants

Two hundred sixty-four Prolific Academic Workers completed the study in exchange for \$3.00 (M = 28.03, SD = 8.26; 127 Men/136 Women/1 unreported; 83.3% White / 3.4% African American / 8.0% Latino/Hispanic / 6.8% Asian American / 2.7% "Other"). Four participants were removed from analysis due to failure of attention check items.

Procedure

After giving consent to participate in the study, participants filled out relevant demographic information. Among these demographics were age, gender, economic and social conservatism-liberalism, religiosity, and several measures of both objective and subjective socioeconomic status. The present analyses utilize only a portion of the data collected from these participants as part of a larger investigation. For the purposes of the present paper, we only discuss the relevant measures of subjective social class, affect balance, anxiety, fatalistic debt expectations, and personal control.

Subjective social class — We measured subjective social class using the MacArthur Ladder as in Studies 1 and 2. Participants also completed three items on 5-point Likert Scales that measured their subjective experience of wealth and economic security, including items such as "I have enough money to buy things I want" (Mittal & Griskevicius, 2014). We standardized and averaged these four (α = .90, M = 2.98, SD = .94).

Debt salience manipulation — Following the demographic measures, every participant completed the same manipulation as in Study 2. There were 133 participants in the debt salience condition and 131 participants in the control condition. Participants then completed the same writing task as in Study 2 to help make the manipulation personally relevant. We used the following item as a manipulation check (1 = Strongly Disagree; 7 = Strongly Agree): "I have a difficult time understanding large-scale trends in the economy" (M = 4.46, SD = 1.55). There was a significant effect of condition for the manipulation check in the expected direction such that participants in the control condition reported greater agreement than those in the debt salience condition, $F(1, 261) = 37.8$, $p < .001$, $d = .76$. Given that in Study 2, social class moderated the effect of debt salience condition on debt expectations and on stress, we did not use a comparable manipulation check that focused on debt-related stress or expectations in Study 3. Rather we used a measure of fatalistic debt expectations as the potential mediator.

Fatalistic debt expectations — For our expected debt measure, all participants rated their agreement with the following item on a 7-point Likert Scale (1 = Strongly Disagree; 7 = Strongly Agree): "I fear that I will have more debt than I can handle in the future" (M = 3.67, SD = 1.74). We used this measure, as opposed to the debt expectations measures in the previous studies, to more directly assess fear and fatalism around debt expectations.

Personal control — Participants completed a 4-item scale of personal mastery ($\alpha = .733$, $M = 5.13$, $SD = .93$) that measured the extent to which participants felt personally in control of their life outcomes on a 7-point Likert Scale (1 = Strongly Disagree; 7 = Strongly Agree) (Lachman & Weaver, 1998). Included on this scale were items such as “Whether or not I am able to get what I want is in my own hands.” We assessed this variable to investigate the possibility that lower social class individuals would not only feel more stressed when debt was salient, but would also feel less in control than higher social class individuals as a function of greater debt expectations.

Anxiety/Negative affect — Next, all participants ranked their current experience of 20 single-item measures of various emotions on a 9-point Likert scale (with similar anchor points used in the Positive and Negative Affect Scale; Watson, Clark, & Tellegen, 1988). Of these, 9 items represented negative affect that indicates situational anxiety: “uncomfortable, anxious, scared, tense, upset, distressed, nervous, irritable, and jittery.” Scores on these items were averaged to create an anxiety score for each participant ($\alpha = .939$, $M = 3.72$, $SD = 1.91$) (see Motro and Sullivan (2017) for previous use of this measure). We operationalized stress response using negative affective components of anxiety to assess a more situationally immediate response than the Perceived Stress Scale.

Affect balance — Eight of the remaining emotion items were indicative of positive affect: “enthusiastic, determined, excited, inspired, alert, strong, proud, and attentive.” Participants rated their current experience of these 8 emotions on a 9-point Likert scale. Scores on these items were averaged to create a positive affect score for each participant ($\alpha = .86$, $M = 5.38$, $SD = 1.63$). We then created an affect balance score by dividing positive affect scores by anxiety scores ($M = 1.97$, $SD = 1.36$). Higher scores on this measure imply a greater ratio of positive affect to negative affect, which has been linked to greater subjective wellbeing and better mental health (Diehl, Hay, & Berg, 2011; Larsen & Prizmic, 2008). The remaining 3 emotion items on the scale were “guilty, ashamed, and hostile,” but these measures were not used in the present investigation.

Results

We observed no main effects of condition on Affect Balance, $F(1, 262) = .09$, $p = .765$, Anxiety, $F(1, 262) = 1.691$, $p = .194$, Personal Control, $F(1, 262) = .228$, $p = .633$, or Fatalistic Debt Expectations, $F(1, 262) = 3.06$, $p = .081$. This was expected, based on findings from Study 2 and the hypothesized moderating effect of social class. Correlations separated by condition can be found in Table 5. It is important to note that controlling for gender, ethnicity, and age did not substantively change any of the outcomes reported for Study 3.

Table 5

Correlations Between Observed Variables by Condition (Debt Salient/Control; Study 3)

Variable	Fatalistic Debt Exp.	Affect Balance	Anxiety	Personal Control
Subj. Class	-.48***/.18*	.45***/.15	-.44***/.06	.30***/.29***
Fatalistic Debt Exp.	-	-.44***/.11	.42***/.16	-.37***/.08
Affect Balance		-	-.77***/.74***	.41***/.20*
Anxiety			-	-.27**/.11
Personal Control				-

* $p < .05$. ** $p < .01$. *** $p < .001$.

Fatalistic Debt Expectations

We regressed Fatalistic Debt Expectations onto debt salience condition, subjective class, and their predicted interaction. We observed evidence of an interaction between debt salience condition and class, $\beta = -.56$, $SE = .21$, $t(259) = -2.74$, $p = .007$.

The interaction revealed that subjective class predicted significantly lower fatalistic debt expectations in the control condition, $\beta = -.32$, $SE = .16$, $t(259) = -2.08$, $p = .037$, but this association was much stronger in the debt salience condition, $\beta = -.49$, $SE = .15$, $t(259) = -6.19$, $p < .001$. Tests of simple slopes further indicated that at high (+1 SD) subjective class, the debt salience prime again lowered expectations about future debt, $\beta = -.88$, $SE = .28$, $t(260) = -3.12$, $p = .002$. As in Study 2, no difference was observed at low (-1 SD) subjective class ($\beta = .21$, $SE = .28$, $t(260) = .74$, $p = .462$). This interaction is summarized in Figure 6.

Affect Balance

We then regressed affect balance onto the same model and found evidence of an interaction between debt salience condition and class, $\beta = .60$, $SE = .17$, $t(259) = 2.94$, $p = .004$. When debt was made salient, subjective class predicted significantly higher affect balance, $\beta = .48$, $SE = .12$, $t(259) = 6.05$, $p < .001$, but there was no significant association in the control condition, $\beta = .14$, $SE = .12$, $t(259) = 1.67$, $p = .097$. Tests of simple slopes further indicated that at low (-1 SD) subjective class, the debt salience prime led to lowered affect balance, $\beta = -.54$, $SE = .22$, $t(260) = -2.44$, $p = .015$, and at high (+1 SD) subjective class, the debt salience prime had a non-significant positive effect on affect balance, $\beta = .39$, $SE = .22$, $t(260) = 1.74$, $p = .083$. A Johnson-Neyman test revealed that the debt salience manipulation significantly predicted lower affect balance at all levels of subjective class less than .57 SD below the mean and more than 1.14 SD above the mean. This interaction is summarized in Figure 6.

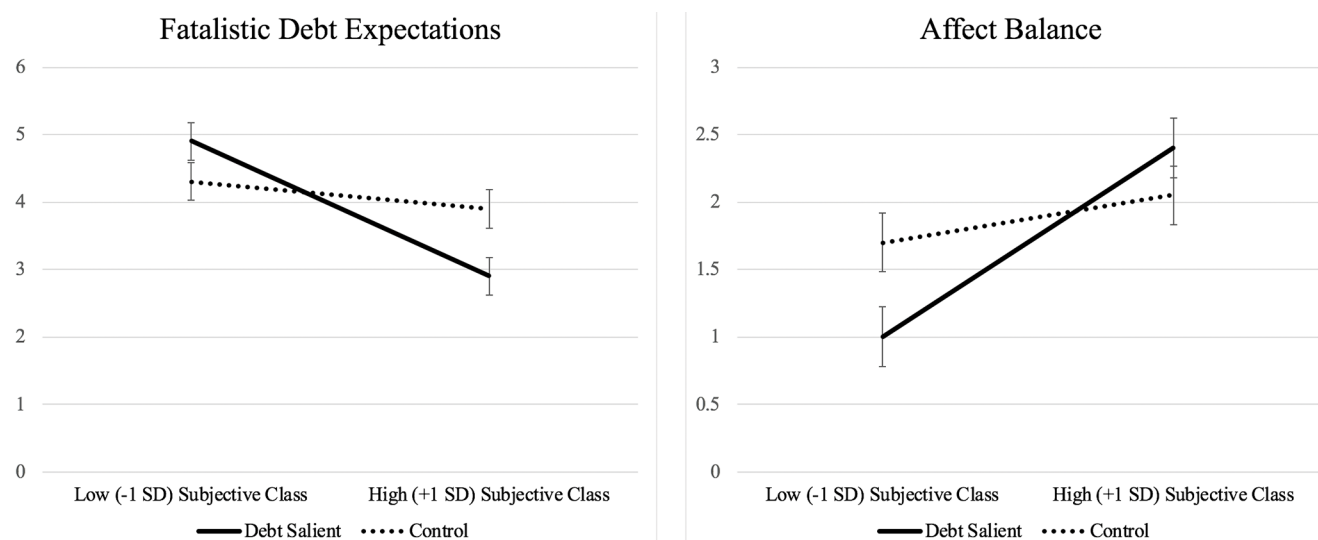


Figure 6. Fatalistic debt expectations and affect balance as a function of debt salience and social class (Study 3).

Note. Fatalistic debt expectations ranged from 1-7 and Affect Balance ranged from 0-9 with higher scores indicating greater fatalistic debt expectations and affect balance. Error bars indicate standard errors of the estimate.

We tested a similar moderated mediation model as in Study 2, such that the relationship between debt salience condition and affect balance would be mediated by fatalistic debt expectations for low class individuals. In a model treating debt salience condition as the predictor, fatalistic debt expectations as the mediator, and affect balance as the outcome, there was evidence of a mediation moderated by social class (difference in indirect effect between +1 *SD* and -1 *SD* social class = $-.16$, $p = .023$, 95% CI $[-.3165, -.0272]$; summarized in Figure 7). Debt salience condition significantly predicted lower fatalistic debt expectations for high social class participants, and fatalistic debt expectations in turn significantly predicted affect balance.

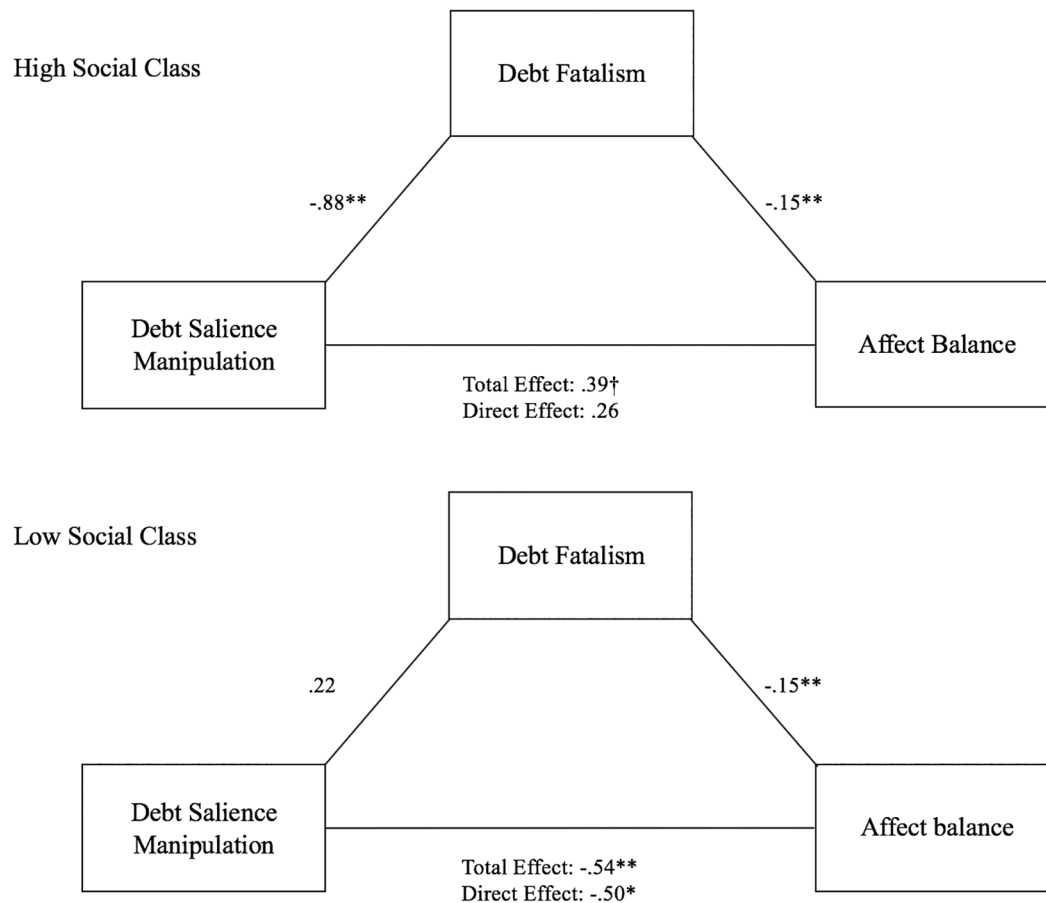


Figure 7. Moderated mediation of debt salience condition on affect balance by fatalistic debt expectations for high (+1 *SD*) and low (-1 *SD*) social class (Study 3).

Note. Models separated by high and low social class for ease of interpretation. Full model: $F(4, 258) = 12.62$, $R^2 = .16$, $p < .001$. Average difference between indirect effects for high and low social class = $-.16$, $p = .023$, 95% CI $[-.3165, -.0272]$

Anxiety/Negative Affect

We also wanted to determine whether we conceptually replicated the stress effect observed in Study 2. Accordingly, we also regressed anxiety scores onto the same model. There was once again evidence of an interaction between debt salience condition and class, $\beta = -.81$, $SE = .24$, $t(259) = -3.36$, $p < .001$. When debt was made salient, subjective class predicted significantly lower anxiety, $\beta = -.45$, $SE = .16$, $t(259) = -5.57$, $p < .001$, but there was no association in the control condition, $\beta = -.05$, $SE = .17$, $t(259) = -.64$, $p = .522$. Tests of simple slopes further

indicated that at low (-1 SD) subjective class, the debt salience prime increased anxiety, $\beta = 1.09$, $SE = .31$, $t(260) = 3.45$, $p < .001$, and at high ($+1$ SD) subjective class, the debt salience prime had no effect on anxiety, $\beta = -.42$, $SE = .32$, $t(260) = -1.32$, $p = .190$. Further, a Johnson-Neyman test revealed that the debt salience manipulation significantly predicted stress at all levels of subjective class less than $.13$ SD below the mean and more than 1.41 SD above the mean. This provides a conceptual replication of the findings in Study 2 using a situational measure of stress and a slightly different operationalization of subjective social class, only in this study, the debt salience condition ironically lowered anxiety for very high class participants. This interaction is summarized in Figure 8.

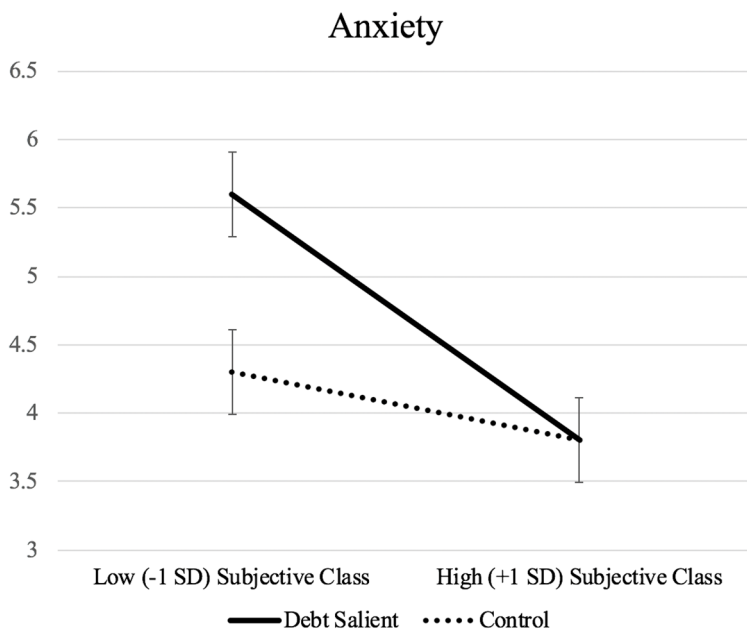


Figure 8. Anxiety as a function of debt salience and social class (Study 3).

Note. Anxiety ranged from 1-9 with higher scores indicating higher anxiety. Error bars indicate standard error of the estimate.

Personal Control

We tested another similar moderated mediation model where heightened fatalistic debt expectations for lower class participants in the debt salience condition would result in lower personal control. In a model treating debt salience condition as the predictor, fatalistic debt expectations as the mediator, and personal control as the outcome, there was evidence of a mediation moderated by social class (difference in indirect effect between $+1$ SD and -1 SD social class = $.13$, $p = .030$, 95% CI [.0272, .2680]; summarized in Figure 9). While there was no total effect of debt salience condition on personal control, previous theorizing on typologies of mediation analyses suggests that the social class differences in indirect pathways may still be meaningful (Zhao, Lynch, & Chen, 2010). This model suggests that for higher social class individuals, debt salience condition significantly decreased fatalistic debt expectations, and this in turn increased global sense of control.

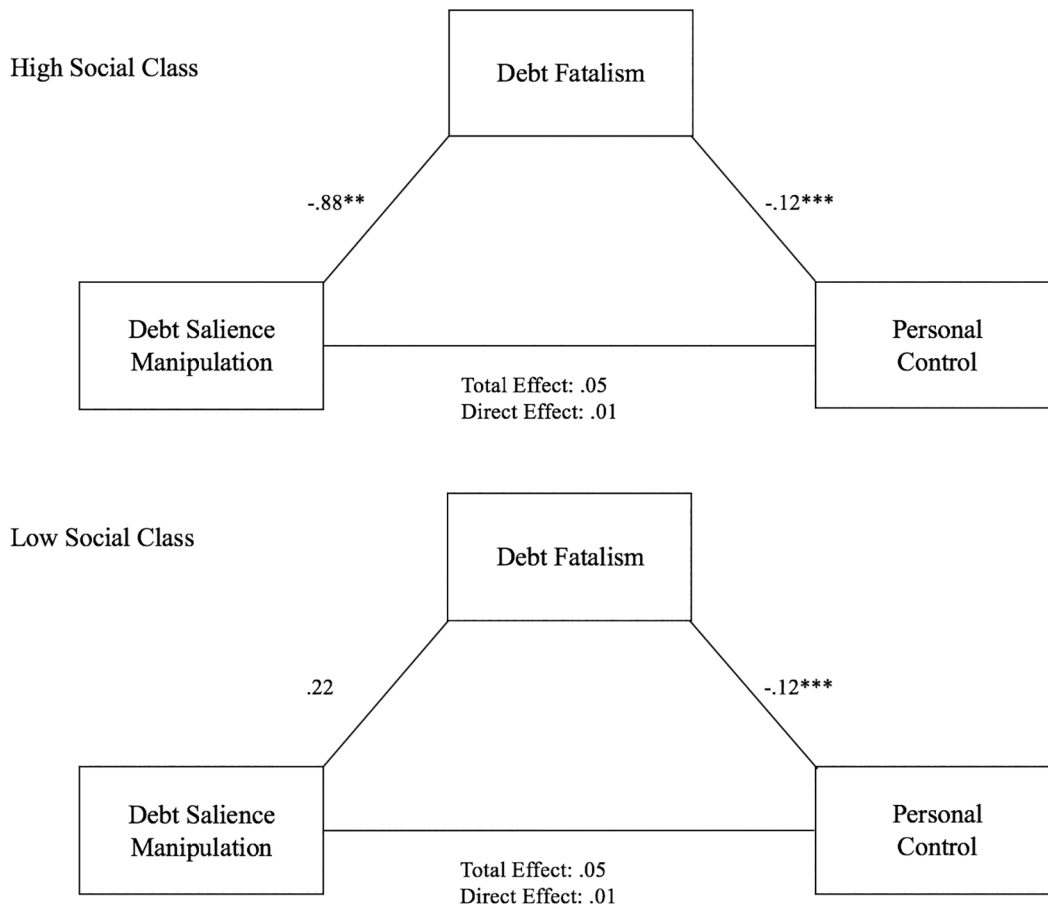


Figure 9. Moderated mediation of debt salience condition on personal control by fatalistic debt expectations for high (+1 SD) and low (-1 SD) social class (Study 3).

Note. Models separated by high and low social class for ease of interpretation. Full model: $F(2, 261) = 7.16$, $R^2 = .05$, $p < .001$. Average difference between indirect effects for high and low social class = .13, $p = .030$, 95% CI [.0272, .2680].

Discussion

Study 3 sought to extend the findings from Study 2 by investigating subjective well-being (affect balance), a more situational stress measure (anxiety), and perceptions of personal control as further outcomes that differ based on social class. We found that social class moderated the effect of condition on fatalistic debt expectations, where higher class individuals expected less problematic future debt after reading the debt salience article. We further conceptually replicated findings from Study 2 that social class moderated the effect of condition on stress, where low class participants felt more anxiety when the issue of future debt was made salient. We extended the findings from Study 2 to show that along with stress, the ratio of positive to negative affect in response to thinking about future debt differed as a function of social class. Higher (lower) social class individuals experienced more (less) affect balance when debt was salient than in the control condition.

The relationship between debt salience and affect balance was also mediated by decreased fatalistic debt expectations for higher class individuals. This shows that the realistic optimism that higher class individuals carry with them in the face of threatening financial information buffers them against the negative effects of such a threat

observed in lower class individuals. This model better illustrates the hypothesized relationships between the variables than the model tested in Study 2, as the debt salience manipulation affected affect balance for both high and low social class individuals. Study 3 also shows that when the threat of future debt is made salient, higher class individuals experience higher global perceived control as a function of lower fatalistic debt expectations. It is important to note that in both moderated mediation models tested in Study 3, the mediational pathways were significant for high social class participants, and not for low social class participants. This may suggest that in the context of debt-related threat, the social class differences in fatalism and optimism may be driven specifically by higher social class individuals' boost in confidence in the face of financial threat.

General Discussion

Across three studies we found exploratory evidence that while the weight of expected future debt can be quite stressful, this is not a burden that people carry equally. Study 1 showed how existing debt expectations may serve to contribute to the oft observed social class differences in stress, such that those who felt subjectively higher in social class tended to show a weaker connection between existing debt expectations and stress. Studies 2 and 3 offered experimental support for divergent responses to future debt among higher and lower social class individuals. We found that people with greater subjective social class responded to situational reminders of debt with considerably lower expectations of future debt and, accordingly, lower stress overall (Studies 2 and 3) and higher positive affect relative to negative affect (Study 3). We also showed that along with lower stress, higher social class individuals felt significantly more in control as a result of decreased fatalistic debt expectations when debt was salient. These findings offer a first exploratory glimpse of how debt may serve as a poignant source of stress, particularly for lower class individuals.

Our studies show social class differences in optimism about future debt. In Study 2, we showed that higher class individuals tended to be more optimistic about their future financial prospects when debt was salient by expecting to have less debt in 5 and 10 years. Then, by rewording the debt expectation measure to reflect more fatalistic debt expectations in Study 3, we showed that higher class individuals were significantly more optimistic about their ability to manage future debt. These social class differences in optimism and pessimism likely reflect realistic expectations about future financial wellbeing and coping capabilities. Our results may reflect the way that higher social class individuals have the resources to cope with and work off their future debt, and may suggest that wealthier individuals see debt as a tool, rather than a threat.

The relationship between subjective social class and subjective wellbeing is notably complex (Haught, Rose, Geers, & Brown, 2015). The present study provides support for the general findings that higher subjective social class predicts greater subjective wellbeing (Singh-Manoux et al., 2003). Our results add to this literature in that class-based differential threat response may contribute to social class differences in subjective wellbeing, as operationalized by the affect balance measure in Study 3. It could be that higher class individuals consistently are able to respond to threat and uncertainty with lower stress, higher affect balance, and higher perceived control due to the security of their material resources. This in turn could contribute to consistent higher levels of subjective wellbeing.

Taken together, these studies expose yet one more way in which differences in social class have far-reaching psychological implications. In line with previous research showing that resource scarcity increases attentional focus

on the present, impedes cognitive function, and reduces perceptions of control (Mani, Mullainathan, Shafir, & Zhao, 2013; Mittal & Griskevicius, 2014; Shah, Shafir, & Mullainathan, 2015), the current studies demonstrate that social class directly influences how people appraise future financial outcomes. Given the steadily increasing prevalence of personal debt in the United States, these studies offer a first step toward integrating previous literature on class-based divergent threat responses with the unprecedented social issue of rising debt.

Limitations and Future Directions

One notable limitation of the present studies is that they rely on self-report for all variables of interest. Future work could explore the extent to which class and expected debt interact to influence behavior or other practically important health outcomes (e.g., physical symptoms). These studies suggest that class may directly promote general well-being by buffering financial stress, but whether this effect holds for physiological health remains an open question. Other pathways not investigated for the moderated mediation models tested in the present investigation should also be considered, as each of these studies measured the variables of interest at one time point. For instance, while the second moderated mediation model in Study 3 suggests that higher class individuals perceive greater personal control as a function of their decreased fatalistic debt expectations when threatened with future debt, it could be that greater perceived control contributes to lower debt fatalism more specifically. Future studies should measure the variables of interest in the present investigation in a longitudinal design to more convincingly test the mediational pathways for debt expectations, social class, and stress.

Another standing issue is that the current studies relied on existing variation in subjective social class. Subjective class can be directly manipulated (e.g., Piff et al., 2010), for example, by asking participants to think of their wealth in reference to particularly low/high status reference groups. A strong test of the protective role of subjective class could employ this experimental procedure to directly test the privileged protective status that comes with greater perceived wealth.

Another important goal for future development of this research is a consideration of broader socioeconomic variables. Although debt is a central element of modern market economies, lower status individuals must also navigate these economies with dramatically lower income and lower agency than higher status individuals. Additionally, they may experience other incentive structures that reward short-term, but ultimately more costly decisions (e.g., eating a lower-cost but less healthy diet). Previous research also suggests that an important factor in social class disparities in psychological distress is the uneven distribution of social capital across high and low social class groups (Song, 2011). Higher social class individuals tend to have more resources that are embedded in their social relationships (e.g. having friends and family in professional careers who have more financial resources and expert advice to offer). In the context of the present study, it could be that higher class participants can lean on the potential of financial support from their social networks when threatened with future debt, while lower social class participants can only lean on their social networks for emotional support. In short, there are a number of both clear and less obvious advantages provided to higher status individuals and this work only highlights one subtle, yet important, example.

The current studies are also limited in the samples they have employed. All three studies relied on convenience samples collected through online research platforms. However, past research shows that such samples are often not representative even if they do typically provide quality data (Peer, Brandimarte, Samat, & Acquisti, 2017). Future research should employ more diverse samples with greater variation in subjective and objective wealth.

Future research should not only investigate different outcomes, but should also attempt to apply these findings to intervention research. [Mittal and Griskevicius \(2014\)](#) showed that boosting participants' sense of personal control buffered lower class individuals' impulsivity following an uncertainty manipulation. We expect that boosting lower class individuals' sense of personal control might buffer them against heightened stress and fatalism when faced with the prospect of future debt. While Study 3 showed that perceived control functioned as an outcome variable, it could be that an experimental boost to sense of control would decrease fatalistic debt expectations for lower class individuals, which could in turn contribute to a higher global sense of control. This heightened sense of control may in turn result in more adaptive debt-related financial coping strategies ([Caplan & Schooler, 2007](#)). Further, it has been shown that manipulating individuals' sense of future self-continuity increases adaptive financial behaviors such as saving ([Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009](#); [Hershfield et al., 2011](#)). Future research should manipulate future self-continuity and other aspects of temporal cognition (e.g. future orientation, abstract processing of information) to further bolster lower class individuals against the oft observed present-focused, fatalistic, and stressful cycle of responses to threat.

Conclusion

Despite these limitations, the current studies offer exploratory insight into an unseen advantage afforded to those who are, or at least feel, higher in status in society. In particular, higher status individuals effectively experienced lower stress and higher perceived control as a function of future debt. This suggests that in addition to feeling wealthier in the present, these individuals also can effectively decouple current stress from concerns about the future. As research on social class develops, it will be important to begin exploring not only the privileges afforded to wealthy individuals in the present, but also those advantages that extend beyond the here-and-now.

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Competing Interests

The authors have declared that no competing interests exist.

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Supplementary Materials

The supplemental materials file contains supplemental analyses for each of the studies, including the main interactions of interest separated by gender, the main analyses of interest controlling for ethnicity, gender, and age, and the moderated mediation analyses for Studies 2 and 3 formatted such that debt salience (rather than social class) is the moderator (for access, see Index of [Supplementary Materials](#) below).

Index of Supplementary Materials

Schmitt, H. J., Keefer, L. A., Sullivan, D., Stewart, S., & Young, I. F. (2019). *Supplementary materials to "A brighter future: The effect of social class on responses to future debt"*. PsychOpen. <https://doi.org/10.23668/psycharchives.2728>

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