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**Title of article**

On the association of debt attitudes with socio-economic characteristics and financial behaviors

**Abstract**

This study investigates time trends in debt attitudes, the socio-economic profiles of members in three debt attitudes groups, implications for borrowing, banking, and spending behaviors, and the relationship of debt attitudes with planned borrowing and saving behaviors. Based on a representative online survey data of the German population, gender, income, and educational attainment are found to distinguish a larger group of emergency debtors from two smaller, about equally-sized, groups of debt refusers and debt pragmatists. Debt refusers report less engagement in current borrowing, banking, and spending behaviors compared to emergency debtors and debt pragmatists. Results hold after controlling for psychological responses such as economic outlook, financial planning, and debt stress. Implications for attitude-focused interventions are discussed.

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**Keywords:** Debt attitude, borrowing behavior, banking behavior, spending behavior, saving, credit use, debtors

## INTRODUCTION

A growing body of literature examines individuals' attitudes toward debt. Yet, attitudes toward debt are often overlooked in interventions targeting financial behaviors (Fernandes, Lynch, and Netemeyer 2014). Broadly speaking, attitudes are predictive of behaviors insofar as attitudes directly inform behavioral intentions (Ajzen 1991). The current study focuses on attitudes toward debt and their association with socio-economic predictors as well as with borrowing, banking, spending, and savings behaviors. Before introducing our study, we review the literature on (1) socio-economic predictors of debt attitudes; (2) predicting financial behaviors on the basis of debt attitudes; and (3) psychological responses as mechanisms that link debt attitudes with planned borrowing and savings behaviors.

### **Socio-Economic Predictors of Debt Attitudes**

Studies on socio-economic predictors of debt attitudes have suggested that a more tolerant attitude toward debt has been primarily associated with younger ages (Schooley and Worden 2010, Brennan, Zevallos, and Binney 2011, McManus and Schafer 2014) and, in a faith-based sample, with higher levels of education (Yeniaras 2016). Debt-averse attitudes have been identified particularly among individuals with black and minority ethnicities (Ekanem 2013). There is some evidence of a social dimension of attitudes toward debt, with individuals whose family and friends report positive debt attitudes also reporting more positive attitudes toward debt (Almenberg et al. 2019, Ekanem 2013). Additionally, socio-economic predictors that have been related to financial behaviors may also be related to debt attitudes. These could include gender, marital status, household size, employment status, and financial shocks (e.g., Letkiewicz and Heckman 2018, Bruine de Bruin et al. 2010, Bricker et al. 2012).

The financial planning literature further suggests distinguishing internal from external causes of financial problems when studying debt attitudes (Norvilitis 2014). Internally-caused financial problems reflect spending on choice items such as travel, entertainment, and upholding a materialistic lifestyle (Rick, Cryder, and Loewenstein 2008). Individuals with low debt tolerance may exhibit frugality if expenses for choice items require taking on debt. Frugality is associated positively with financial planning and negatively with impulse buying (Lastovicka et al. 1999, Lynch et al. 2010). In contrast, externally caused financial problems are expected to be unrelated to debt attitudes because they are caused by factors largely outside the decision-making of an individual, such as unemployment (Pearlin et al. 1981).

Together, these findings suggest that socio-economic predictors of debt attitudes include education, age, race, income, internally-caused financial problems, and household composition. However, one limitation of studies on socio-economic predictors of debt attitudes is that only three used population-representative samples, from the U.S. and the Netherlands (Schooley and Worden 2010, Almenberg et al. 2019, Webley and Nyhus 2001).

### **Predicting Financial Behaviors on the Basis of Debt Attitudes**

Attitudes have long been linked to behaviors (Ajzen 1991). Perhaps as a result, most studies of debt attitudes focus on predicting financial behaviors. Positive attitudes toward debt have been linked with intentions to take on debt (Wang, Chan, and Chen 2001), having debt (Schooley and Worden 2010), reporting higher amounts of debt (Pollin 1988, Livingstone and Lunt 1992, Lea, Webley, and Levine 1993, Chien and Devaney 2001, Schooley and Worden 2010, Zhu and Meeks 1994), having more loan products (Lea, Webley, and Levine 1993, Wang, Lu, and

Malhotra 2011, Wang, Lv, and Jiang 2011), having lower debt capacity (Schooley and Worden 2010), having experienced bankruptcy (Ekanem 2013), making higher debt repayments (Livingstone and Lunt 1992), having difficulty making repayments (Godwin 1999), having a lower credit rating, and having been sued for debt recovery (Lea, Webley, and Levine 1993). We know of one study that reported a lack of association between debt attitudes and loan amounts (Lea, Webley, and Walker 1995). More debt-averse attitudes, in contrast, have been associated with having lower debt levels (Almenberg et al. 2019), paying off loans quicker than needed (Loewenstein and Thaler 1989, Amromin, Huang, and Sialm 2007), and having a shorter-term mortgage (Amromin, Huang, and Sialm 2007).

There is a relative paucity of research about the relationship of debt attitudes with a wider range of financial behaviors, such as borrowing, banking, and spending behaviors. However, frugality, which may be an indicator of negative attitudes toward debt, is associated positively with financial planning and negatively with impulse buying (Lastovicka et al. 1999, Lynch et al. 2010). In contrast, the relationships of indebtedness with saving and banking behavior are well documented (Lusardi and Tufano 2015). Further, data from the Survey of Consumer Finances provides support for a link between internet access, online/mail-order shopping, and higher credit card balances and delinquencies (Basnet and Donou-Adonsou 2018, Donou-Adonsou and Basnet 2019). Taken together, these findings seem to suggest that a more debt-tolerant attitude is, by extension, also related to those financial behaviors.

## **Psychological Responses as Mechanisms that Link Debt Attitudes With Planned Borrowing and Savings Behaviors**

From an intervention perspective, the pathways through which debt attitudes may guide planned borrowing and savings behaviors is of most interest. Debt attitudes may be directly and indirectly related to planned financial behaviors. Debt attitudes could be directly associated with planned borrowing and saving decisions, because attitudes tend to inform people's behavioral intentions (Ajzen 1991). Additionally, debt attitudes may be indirectly related to planned borrowing and savings behaviors through psychological responses (Serido et al. 2010, Bartfeld and Collins 2017), including economic outlook, financial planning, and debt stress (for a review, see for example Altice et al. 2017). First, economic outlook has been associated with planned borrowing behavior (Keese 2012), and the macro-economic literature using consumers' economic outlook to predict their consumption decisions (e.g., Déés and Soares Brinca 2013). Second, financial planning has been identified as a key element of sound financial behavior (Lusardi and Tufano 2015, Lynch et al. 2010). Third, debt stress has been found to be related to individuals' financial plans. Debt stress has been linked to lower out-of-pocket medical spending, as documented in the financial toxicity literature (de Souza et al. 2017), higher education spending, e.g., with regard to obtaining specializations (Vengaloor Thomas et al. 2020), impulse spending (Wang et al. 2020), and the decision to delay claiming Social Security retirement benefits in a study of older adults in the U.S. (Haurin, Loibl, and Moulton 2019).

### **The Present Study**

Based on the review of the literature presented in this section, this research has three specific objectives: (1) describe the distribution of debt attitudes over time and the socio-economic

profile of different debt-attitude groups; (2) examine the relationship of debt attitudes with borrowing, banking, and spending behaviors; (3) test whether psychological responses such as economic outlook, financial planning, and debt stress mediate any relationship of debt attitudes with planned borrowing and savings behaviors. The investigated relationships are illustrated in Figure 1.

[Figure 1 about here]

## **METHOD**

### **Sample**

The data set was collected from residents in Germany through a commercial consumer panel on behalf of Creditreform Boniversum GmbH (short “Boniversum”), a German credit-reporting agency. Data were collected in 20 quarterly waves in the five years from January 2012 to October 2016, at which point the effort was discontinued. The sampling period represents a stable period in the German economy, as indicated with the household debt to GDP ratio in Figure 2.

The credit-reporting agency used the quarterly surveys as a marketing tool.<sup>1</sup> A “debtor climate index” was created from the survey responses each quarter, which was widely reported in German news media. In addition, the credit-reporting agency used the quarterly surveys to offer industry clients the opportunity to add questions to the survey. The add-on questions varied widely. Examples of such add-on questions include questions about consumer banking behaviors and preferences for online/mail-order shopping. The repeated core questionnaire was small and

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<sup>1</sup> An example of a quarterly report on the Debtor Climate Index is here (in German language): [https://www.boniversum.de/wp-content/uploads/2016/05/Tabellenband\\_SchuldnerKlima-Index\\_Herbst\\_2015.pdf](https://www.boniversum.de/wp-content/uploads/2016/05/Tabellenband_SchuldnerKlima-Index_Herbst_2015.pdf)



consisted of 10 questions. The sample sizes of the 20 cross-sectional waves range from 1,005 to 1,135 responses, for a total of 20,966 responses. We focus most of the analysis on the July 2015 wave, for which the research team was invited to add measures.

The July 2015 wave was collected during three weekdays from July 21 to 23, 2015. A total of 1,013 individuals completed the online survey. Germany's online population is nearly identical to the full population, and because a stratified sample was used, we can assume that the survey is representative (Blasius and Brandt 2010). However, we are aware that online representativeness does not fully equal representativeness of the population. Based on data from the German Statistical Office (Statistisches Bundesamt 2015), the survey sample is therefore somewhat different from the general population in Germany in 2015, as discussed below in the paragraph about the sample's socio-economic characteristics. We do not use additional weights for the sample, though, because the primary focus of this study is not on the prevalence of the debt types in Germany. Rather, the goal is to examine relationships, such as the predictors of debt attitudes and debt-attitudes' relationship with borrowing, banking, and spending behaviors.

This study uses two data sets. For Research Objective 1, concerning the distribution of debt attitudes over time and their socio-economic predictors, the data source is the 20 waves of survey data collected quarterly from 2012 to 2016. Socio-economic differences in debt attitudes are analyzed using multinomial regression analysis, based on the July 2015 wave. For Research Objective 2, which examines relationships between debt attitudes and borrowing, banking, and spending behaviors, the analysis is based on data from the July 2015 survey wave. For Research Objective 3, which investigates the role of psychological responses in the relationship of debt attitudes with planned borrowing and savings behaviors, the analysis uses data of the July 2015

survey wave. The number of missing values was small in the July 2015 wave, less than 10 percent for any variable, and missing variables were not replaced in the analysis.

## **Measures**

### ***Debt Attitudes***

Debt attitudes are measured by asking participants to select one of four statements that best describes their debt attitudes: (1) “I am in principle against borrowing money because I feel that one should only spend money that one has at one's disposal;” (2) “I only borrow money in case of emergency, when I have no alternative;” (3) “I borrow money if I want to achieve a certain goal, for instance if I want to buy a necessary and useful product, or to realize a lifetime dream;” and (4) “Borrowing money allows me to increase my quality of life, because I can pay for special things on short notice.” The translation of the German text follows the suggestions of two experts in the German and American-English languages.

The core question and its four response options were self-developed by the research staff at the credit-reporting agency and not drawn from other surveys. The items were developed based on their experience from working professionally with people who are in debt. The debt attitudes question was then pretested as part of the core instrument over the course of 5 quarterly online survey waves from October 2010 to October 2011 with an online representative survey sample of German residents ranging from n=1,006 to n=1,052, until a final core instrument was settled upon. The single-item debt-attitudes measure reduced survey length, repetition, and respondent burden.<sup>2</sup> Both the credit-reporting agency's experience and pretests of participants' responses to develop this question support external and internal validity; however, the question

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<sup>2</sup> Findings based on single-item measures tend to replicate findings based on multi-item measures (Bergkvist and Rossiter 2007, Wanous, Reichers, and Hudy 1997).

does not have an established record of reliability and validity in the academic literature. The debt attitudes question, together with a debt stress and an economic outlook question, was used by the German credit bureau Boniversum to create a numerical “Debtor Climate Index” score which ranged between a score of about 90 and 110 over the years.

Only twelve individuals selected the fourth statement. The group is too small to provide statistical power for the analyses so it is not included in the study. Research from the Deutsche Bank provides evidence that the majority of German consumers do not use revolving credit cards, which indicates that they are responding to this question appropriately (Mai and Kaya 2018). The Deutsche Bank research states that the “majority of credit cards in Germany are actually delayed debit cards. All payment obligations incurred during a four-week settlement period are debited in full to the cardholder’s bank account at the end of this period” (p. 2) (Mai and Kaya 2018). The Deutsche Bank report also states that in 2017, Germans used debit or credit cards an average of 84 times that year. Of these, only about 1 card payment was made with a revolving credit card (Mai and Kaya 2018). We label the three remaining debt attitudes in the current study “debt refusers,” “emergency debtors,” and “debt pragmatists.” Based on the wording of the debt attitude statements, we cannot assume a natural order in the responses to the debt attitudes question and decided to use the measure as a categorical rather than an ordinal variable (IDRE 2018).

To further investigate the validity of the debt attitudes measure, we compare the distribution of the debt attitudes in the current study to the results of a similar study by the financial services company EOS Group, which surveyed an online-representative sample in Germany, the U.S., and Russia in 2015 and 2017 (EOS 2017). The EOS study supports the debt attitudes constructs and their distribution. The EOS study’s debt attitudes measure is based on

responses to 21 statements about debt; examples include, “Debt is normal for me”, “Lenders make it very easy to take on debt”, “Debt is emotionally stressful for me”, and “I try to keep my debt load as low as possible.” Response options ranged from “do not agree at all” (coded as 0) to “fully and completely agree” (coded as 10). The EOS study used cluster analysis and identified five debt attitudes; factor analysis was used to confirm the results of the cluster analysis.

Appendix Tables 1 and 2 present the debt-attitudes distribution of the current Boniversum study and the EOS study and additional information about the composition of the debt attitudes. The comparison of the two studies affirms that our debt attitudes categories are similar to the categories of other works of this type. Appendix Table 1 also presents the results for the U.S. sample.

### ***Borrowing, Banking, and Spending Behaviors***

The July 2015 questionnaire assessed borrowing, banking, and spending behaviors with five questions. Most variables were coded as binary (yes/no) although some were coded as continuous, as outlined below.

The measure of borrowing behavior was labeled “current loans” and inquired about six types of loans currently held by the respondent, including consumer loans, bank loans, car loans, mortgages, loans from friends and family, and other loans such as outstanding tax obligations or rent payment. The six loan types were coded as binary variable (yes=1, no=0); don’t know responses and refusals were coded as missing. We also created a count measure of the number of current types of loans (range from 0 to 6) and a measure of whether a person does not hold loans currently (yes=1, no=0).

The measure of planned borrowing behavior was labeled “planned credit-based purchases” and inquired about borrowing plans for the next three months, “Do you plan in the next 3 months (additional) purchases, which you want to pay for with loans and not from your own, available financial means?” The four response options included purchase of consumer goods (for example, TV, computer, kitchen appliances, mobile phone); purchase of a car; purchase of real estate; other purchases and other liabilities (e.g., tax debts or rent arrears). The four response options were coded as binary variables (yes=1, no=0); don’t know responses and refusals were coded as missing. The number of affirmative answers was also summed for a count measure (range from 0 to 4), and we created a measure of whether a person had no plans for credit-based purchases in the next three months (yes=1, no=0).

The measure of banking behavior was labeled “Number of financial institutions contacted for loans” and inquired about with the question, “Who would be your first contact person or your first point of contact if you were to plan to take out a consumer loan?” Six response options included my bank; another bank in my town; online bank; online comparison portal; online private lending sites (e.g., auxmoney.com); and other. Respondents could check any number of outlets, and the number of affirmative answers to the six banking categories were added up for data analysis (range from 1 to 6); don’t know responses and refusals were coded as missing.

The measure of shopping behavior was labeled “preferences for online/mail-order shopping” and inquired, “Which of the following items do you prefer to purchase at online and mail-order businesses compared to traditional retail stores?” Response options included the following 12 categories: clothes / textiles / shoes; electronics for entertainment / video and recording devices; computer and accessories; telecommunication / mobile phone and accessories; jewelry and watches; toys; medication; food, deli, wine; furniture and decorating articles; DIY /

gardening and flowers; gift cards of different issuers; and books. Responses to each category included prefer to purchase at online and mail-order businesses (coded as 1) and prefer to purchase at traditional retail stores (coded as 0); don't know responses and refusals were coded as missing. The number of affirmative answers was summed to create a measure of preferences for online/mail-order shopping (range from 0 to 12).

The measure of "savings capacity" was inquired with the question, "Are you currently able, besides your general financial obligations, to put aside money for purchases, holidays, or the future more generally?" Response options included yes, I save regularly; yes, but I save only irregularly and only small amounts; no, I cannot save currently; no, it has never been enough to save regularly; don't know responses and refusals were coded as missing. The two affirmative responses were coded as 1; the two negative responses as 0.

### ***Psychological Responses***

To examine the pathways that link debt attitudes and planned borrowing and savings behaviors, the three measures economic outlook, financial planning, and debt stress were included and labeled "psychological responses." Economic outlook was measured as the arithmetic difference in responses to two questions, "How do you assess your own economic situation for the upcoming months, i.e., your income situation, and your financial opportunities?" and "How do you assess your own current economic situation, i.e., your income situation, and your financial opportunities, at this point in time?" Response options included excellent (coded as 6); better than average (coded as 5); average (coded as 4); below average (coded as 3); very bad (coded as 2); failed (coded as 1); don't know responses and refusals were coded as missing.

Financial planning was measured with the established six-item scale by Lynch et al. (2010). The scale uses the time horizon of the next 1 to 2 months as long-term financial planning measure, as opposed to a short-term measure of 1 to 2 days. Example items are “I set financial goals for the next 1 to 2 months for what I want to achieve with my money” and “I decide beforehand how my money will be used in the next 1 to 2 months.” Response options included I disagree completely (coded as 1); I somewhat disagree (coded as 2); I somewhat agree (coded as 3); I agree completely (coded as 4); don’t know responses and refusals were coded as missing. Cronbach’s alpha was 0.89.

Debt stress was measured with the question, “In the past 12 months, have you ever had the feeling that your financial obligations could “grow over your head”? Response options included yes, many times (coded as 4); yes, sometimes (coded as 3); no, suppose not (coded as 2); and no, never (coded as 1); don’t know responses and refusals were coded as missing. This measure mirrors the single-item measures used in national consumer finances surveys (Keese 2012, del Río and Young 2008).

### ***Socio-Economic Characteristics***

Socio-economic characteristics included the binary-coded variables gender (male=1, female=0); marital status (married or living with partner=1, else=0); five binary-coded variables about educational attainment (middle school (omitted), middle school with vocational degree, secondary education, university entrance exam, university degree); four binary-coded variables for employment status (full time (omitted), part time, unemployed, and retired/stay-at-home/student); a binary-coded variable indicating West German residence (yes=1, no=0); and six binary-coded variables for monthly net household income (1,000 Euro (omitted), 1,000 to

under 1,500 Euro, 1,500 to under 2,000 Euro, 2,000 to under 2,500 Euro, 2,500 to under 3,800 Euro, and 3,800 Euro and higher) reflecting common income categories used in German market research and an average household net income in Germany in 2015 of 3,218 Euro (about \$3,600 in 2015). Additional binary-coded variables included whether participants experienced one or more internal causes of financial problems in the past 12 months including home improvements / repair, travel / enjoy life, maintain lifestyle (yes=1, no=0); whether participants indicated one or more external causes of financial problems in the past 12 months, including unemployment / unable to work, reduced income due to loss of job / overtime (yes=1, no=0); and whether they indicated no financial problems in the past 12 months (yes=1, no=0). Continuous variables included number of children under age 18 living in the household, and household size. Age was coded in five categories (18-29=1, 30-39=2, 40-49=3, 50-59=4, 60 and older=5). Don't know responses and refusals were coded as missing in all variables.

Table 1 provides the descriptive statistics of the socio-economic characteristics of the survey sample by debt attitudes and in the overall sample. The table also indicates mean differences based on chi-square for two binary variables and t-tests for binary and non-binary variables. Comparing the survey sample with the general population in Germany based on publications from the German Statistical Office (Statistisches Bundesamt 2015), the survey sample is younger with an average age of 39 (general population: 44), has a higher portion of unemployed individuals (6% versus 5%) and a slightly higher proportion of West German participants, compared to East Germans (85% vs. 80%). Survey respondents also live in larger households of 2.3 persons, including children (general population: 2.0), and are better educated with a larger number of survey participants, about 22%, reporting a university degree (general population: 16%). Only about one-third of the survey sample is married or living with a partner



(general population: 52%). Similar to the general population, slightly less than 50% of the survey sample is male (general population: 49%) and has an average of 1.42 children in their households (general population: 1.47). The average household net income of the survey sample is lower; 87% of the survey sample earns 3,800 Euro or less (about \$4,260 in 2015) compared to the German Statistical Office's reporting of 67% of the general population earning 3,600 Euro or less (about \$4,000 in 2015), which is the threshold of the governmental statistics in Germany. The differences between the sample and the German Statistical Office's data about the general population is intended to provide transparency about the study sample rather than serving as a focus of the analysis.

[Table 1 about here]

Table 2 provides the descriptive statistics for borrowing, banking, and spending behaviors and psychological responses in the survey sample and reports comparisons by debt attitude. On average, participants have one loan type, most often bank loans (38%). About one-third of participants carry no debt. The average number of financial institutions approached for a loan is 2. Of the twelve product categories, an average of five are preferred for online/mail-order shopping. On average, participants plan to take out none or one loan type in the upcoming three months, most likely for consumer goods (21%). About half have no borrowing plans (53%). Close to two-thirds of participants report that they are able to save either regularly or irregularly. The economic outlook of the sample is about neutral, neither diverting in the positive or the negative direction. The same finding applies to the average debt stress of the sample population. The average reporting of financial planning is higher among the German sample (2.81 if standardized to a reverse-coded scale), compared to studies in the U.S. which show average means of 3.42 to 4.08 (Lynch et al. 2010).

[Table 2 about here]

### *Analysis Plan*

For Research Objective 1, the distribution of debt attitudes over time and their socio-economic predictors, we first regress binary measures of debt attitudes on survey-year and survey-quarter dummies to identify trends in debt attitudes over time. Second, socio-economic differences in debt attitudes are analyzed using multinomial regression analysis. Debt attitudes serve as the dependent variable and socio-economic variables serve as predictors. The regression specifications are of the form shown in Equations 1 to 3:

$$\ln (P(DA_i = \text{Debt refuser})/P (DA_i = \text{Other})) = \beta_0 + \beta_1 R_i + \beta_2 HH_i + \beta_3 FP_i + \varepsilon_i \quad (1)$$

$$\ln (P(DA_i = \text{Emergency debtor})/P(DA_i = \text{Other})) = \beta_0 + \beta_1 R_i + \beta_2 HH_i + \beta_3 FP_i + \varepsilon_i \quad (2)$$

$$\ln (P(DA_i = \text{Debt pragmatist})/P(DA_i = \text{Other})) = \beta_0 + \beta_1 R_i + \beta_2 HH_i + \beta_3 FP_i + \varepsilon_i \quad (3)$$

where  $DA_i$  is the measure of one of the three debt attitudes for the  $i$ -th study respondent; Other reflects the remaining two debt attitudes.  $R$  is a set of respondent characteristics, including gender, age, educational attainment, employment, and marital status.  $HH$  is a set of household characteristics, including household size, number of children, household net income and residence in West or East Germany.  $FP$  includes measures of financial problems with external and internal financial causes, as well as a measure of no financial problems.  $\varepsilon$  is a normally distributed random error component.

For Research Objective 2, relationships of debt attitudes with borrowing, banking, and spending behaviors are examined by regressing reports of these behaviors occurring in the past

on debt attitudes and socio-economic variables. The regression specification is of the form shown in Equation 4:

$$FB_{ai} = \beta_0 + \beta_1 DA_i + \beta_2 R_i + \beta_3 HH_i + \beta_4 FP_i + \varepsilon_i \quad (4)$$

where  $FB_{ai}$  is a measure of the specific borrowing, banking, and spending behaviors ( $a=1$  to 10) of the  $i$ -th study respondent. The ten behavioral measures include one count measure of the number of currently-held types of loans, six binary measures of each individual currently-held type of loan (consumer loans, bank loans, car loans, mortgages, loans from friends and family, other loans), one binary measure of no currently-held types of loans (borrowing behaviors), one count measure of the number of financial institutions contacted for loans (banking behavior), and a count measure of the preferences for online/mail-order shopping (spending behavior) of the  $i$ -th study respondent. We control for respondent ( $R$ ) and household ( $HH$ ) characteristics, and causes of financial problems ( $FP$ );  $\varepsilon$  is a normally distributed random error component. We estimate the binary variables with logistic regressions and the count variables with negative binomial regressions.

For Research Objective 3, which examines pathways underlying the association of debt attitudes with planned borrowing and savings behaviors, a blockwise regression model is fitted to the data. The first specification includes debt attitudes, the number of current debts, and socio-economic control variables. The second specification adds the three psychological responses, specifically economic outlook, financial planning, and debt stress. The final specification is of the form shown in Equation 5:

$$FB_{bi} = \beta_0 + \beta_1 DA_i + \beta_2 PSY_i + \beta_3 DO_i + \beta_4 R_i + \beta_5 HH_i + \beta_6 FP_i + \varepsilon_i \quad (5)$$

where  $FB_{bi}$  is a measure of planned borrowing and savings behaviors ( $b=1$  to  $5$ ) of the  $i$ -th study respondent. The six planned behavioral measures include one count measure of the number of planned credit-based purchases, three binary measures of each individual planned credit-based purchase (consumption, car, real estate), one binary measure of no credit-based purchases planned, and one binary measure of the savings capacity for the  $i$ -th study respondent. The model includes debt attitudes ( $DA$ ), as well as psychological responses regarding economic outlook, financial planning, and debt stress ( $PSY$ ). We control for the number of current debt obligations ( $DO$ ), respondent ( $R$ ) and household ( $HH$ ) characteristics, and causes of financial problems ( $FP$ );  $\varepsilon$  is a normally distributed random error component. We estimate the binary variables with logistic regressions and the count variable with a negative binomial regression.

## RESULTS

### **Research Objective 1: Distribution of Debt Attitudes Over Time and Consumer Profiles**

The distribution of debt attitudes across the 20 waves is largely stable. As shown in Table 3, the largest group of respondents (53.47%;  $n=545$ ) are emergency debtors. A total of 25.32% of respondents identify themselves as debt refusers ( $n=220$ ) and a similarly-sized group, 21.22%, are debt pragmatists ( $n=236$ ). Binary logistic regression indicates that the proportion of debt pragmatists increases in the years 2015 and 2016 compared with 2012.

[Table 3 about here]

Figure 2 illustrates this finding; the ratio of household debt to GDP serves as a macroeconomic indicator. The gains in debt pragmatist attitude from 2012 to 2015 are most likely at the expense

of debt refusers, considering the sizes of the beta coefficients of debt refusers and debt pragmatists. In 2016, the gains in debt pragmatist attitude, compared to 2012, are more likely at the expense of both emergency debtors and debt refusers, but the changes in both attitudes are slight and not significant at the 5% level. We do not find seasonal effects of the four quarters on debt attitude.

Compared to the five-year average, the percentage of emergency debtors (54.45%; N=545) is about the same in the July 2015 wave as in the 5-year average, indicating a robust debtor type. The difference of 0.98 percentage points is within one standard deviation of the five-year average. The proportion of debt refusers in the July 2015 wave is about 3.34 percentage points smaller than the five-year average of debt refusers. It totals 21.98% in the July 2015 wave (N=220). This difference is within two standard deviations of the five-year average. The proportion of debt pragmatists in the July 2015 wave is 2.35 percentage points larger than the five-year average. It totals 23.58% in the July 2015 wave (N=236). This difference is within one standard deviation of the five-year average.

[Figure 2 about here]

To examine the distribution of debt attitudes across consumer profiles, multinomial regression results of the July 2015 survey wave are presented in Table 4. To obtain actual probabilities, average marginal effects were calculated from the multinomial logistic regression model. Debt refusers differ from the other two debt-attitude groups with regard to the higher presence of women, lower educational attainment, lower income, and the absence of financial problems as shown in Column (1) of Table 4. Specifically, debt refusers are 6% less likely to be male compared to individuals holding the other two debt attitudes. They show lower educational attainment; for example, they are 18% less likely to hold a university degree. They report lower

incomes; for example, they are 18% less likely to be in the most common category of 2,500 to 3,800 Euro monthly net income. Despite lower likelihoods of higher educational attainments and incomes, debt refusers are 12% more likely to report having no financial problems. Emergency debtors differ from the other two debt-attitude groups predominately with regard to their higher educational attainment as shown in Column (2) of Table 4. For example, members of this attitude category are 27% more likely to have a university degree than individuals holding the other two debt attitudes. Further, this attitude group is less likely to report internal causes of financial problems and less likely to report not having financial problems.

Debt pragmatists differ from the other two debt-attitude groups with regard to the higher presence of men, higher incomes, and the number of internal causes of financial problems as shown in Column (3) of Table 4. Specifically, debt pragmatists are 7.9% more likely to be male, slightly older, and earn net income in the most common category of 2,500 to 3,800 Euro monthly. Individuals with a debt pragmatist attitude are 12% more likely to report internal causes of financial problems for expenses related to home improvements/repair, travel/enjoy life, and maintaining lifestyle. Across the three debt-attitude groups, marital status, household size, employment status, residence in East or West Germany, and external financial causes do not predict membership in the three debt attitudes groups.

[Table 4 about here]

## **Research Objective 2: Relationship of Debt Attitudes With Borrowing, Banking, and Spending Behaviors**

Regression results, shown in Table 5, indicate that emergency debtors differ from debt refusers in their borrowing behaviors; debt pragmatists differ from debt refusers in their borrowing and banking behaviors, and emergency debtors differ from debt pragmatists in their borrowing,

banking, and spending behaviors. Results are reported as odds ratios (OR) for binary dependent variables and incidence rates (IRR) for count variables.

First, emergency debtors are compared to debt refusers in Column (1) of Table 5. The individuals holding these two debt attitudes differ in a number of expected, but important ways. Emergency debtors are more likely than debt refusers to hold a larger number of loan types. For example, they are more than twice as likely as debt refusers to hold bank loans and almost twice as likely to hold car loans, mortgages, and loans from family and friends.

Second, debt pragmatists are compared to debt refusers in Column (2) of Table 5. Debt pragmatists show higher utilization of loan types and banks compared to debt refusers for all related measures in the analysis. For example, they utilize bank loans about 5 times as often as debt refusers. In addition, they are more likely to approach a larger number of banks for credit.

Third, debt pragmatists are compared to emergency debtors in Column (3) of Table 5. Debt pragmatists show a higher utilization of loan types and banks compared to emergency debtors. The largest differences between debt pragmatists and emergency debtors is for the utilization of consumer loans, bank loans, and car loans. The one exception is mortgage loans, which individuals in both groups utilize to similar extents. In addition to borrowing and banking behaviors, the scope of emergency debtors' preferences for online/mail-order shopping is also more limited.

[Table 5 about here]

### **Research Objective 3: Role of Psychological Responses**

After examining differences in the socio-economic profile of the three groups of debt attitudes (Objective 1) and differences in borrowing, banking, and spending behaviors (Objective 2), the

third set of analyses examines the relationship of debt attitudes and planned borrowing and savings behaviors. The results, shown in Table 6, indicate that the association of debt attitudes with planned borrowing and savings behaviors is robust after accounting for the three psychological responses. The results do not support a role of economic outlook, financial planning, and debt stress. Specifically, the size of the coefficients and the strengths of the associations between debt pragmatist and debt refuser attitude remains stable for the number of planned credit-based purchases, the odds of borrowing for consumption, car, or real estate purchases, the odds of not planning credit-based purchases, and the measure of savings capacity after adding the three measures of psychological responses.

The association of debt attitudes and planned behaviors is strongest for the variable “no credit-based purchases planned.” Both emergency debtors and debt pragmatists are only 58% and 38% as likely as debt refusers to respond affirmatively. The result is stable across the three psychological responses, see Columns (9) and (10) of Table 6. A significant association is also found for the debt pragmatist attitude and the number of planned credit-based purchases. Debt pragmatists report about two-thirds more credit-based purchases compared to debt refusers before and after the addition of the three psychological responses, see Column (1) and (2) in Table 6.

Two other associations are significant. First, the association of debt attitudes and planned credit-based purchases for consumption and debt pragmatist attitude is significant with and without the inclusion of the psychological responses. Second, the association of debt attitudes with planned car purchases is marginally significant for emergency debtors and debt pragmatist after adding the three psychological responses. Finally, the regression results do not identify a significant association of debt attitudes with savings capacity or planned real-estate purchases.



[Table 6 about here]

## DISCUSSION

This study investigates socio-economic predictors of debt attitudes; identifies the relationship of debt attitudes with borrowing, banking, and spending behaviors above and beyond socio-economic variables; and evaluates the pathway that links debt attitudes to planned borrowing and savings behaviors. To the best of our knowledge, this is the first study to examine the relationship of debt attitudes with regard to a wider range of borrowing, banking, and spending behaviors and psychological-response measures in a general population sample, reaching beyond the known relationship of debt attitudes and having debt (see Kamleitner, Hoelzl, and Kirchler 2012 for a summary of literature).

We identify a large group of emergency debtors (i.e., those willing to borrow only in emergencies), and two smaller, about equally-sized groups of debt refusers (i.e., who reject debt on principle) and debt pragmatists (i.e., who use debt in a utilitarian sense). We show that the distribution of debt attitudes is generally stable between 2012 and 2016. Basic socio-demographic characteristics, specifically gender, household income, educational attainment, and the causes of financial problems can be used to identify membership in the three attitude groups. We find significant differences between the two opposing attitudes, debt refusers and debt pragmatists, with regard to a lower exposure of debt refusers to all borrowing and banking measures, except a measure of “other loans.” Interestingly, there is no difference in the online/mail-order shopping preferences of the two groups. These differences are also observed, but less pronounced, in the comparison of debt refusers to the middle group of emergency

debtors. Emergency debtors, the middle group, have less exposure than debt pragmatists to all borrowing, banking, and spending behaviors, except for mortgage borrowing.

Turning to planned borrowing and savings behaviors, the association with debt attitudes holds after accounting for economic outlook, financial planning, and debt stress. These psychological responses are not associated with the direction and strength of the relationships between attitudes and planned borrowing, or between attitudes and savings behaviors. We discuss potential avenues for future research in the following paragraphs.

### **Debt Pragmatists**

About one in five respondents identifies as a debt pragmatist in the sample. Paralleling literature on borrowing behavior (Moulton et al. 2013, Jones, Loibl, and Tennyson 2015, Reniers et al. 2017), the typical debt pragmatists can be described as male, older, with higher income. We identify a growing number of debt pragmatists in the German population in 2015 and 2016, compared to 2012, and speculate that this finding may be related to the low interest rates in the European Union since the beginning of 2015 (Bofinger et al. 2016). For example, mortgage interest rates in Germany fell for the first time below 2% in the first quarter of 2015 (Öchsner 2018).

As evidenced in earlier literature, debt pragmatists are heavy credit users (e.g., Webley and Nyhus 2001). Going beyond earlier findings, our data indicate that debt pragmatists also tend to shop for credit more widely and prefer more online/mail-order shopping than debt refusers or emergency debtors. These findings document the relationship of debt attitudes with borrowing, banking, and spending behaviors, confirming the role that has been attributed to attitudes in other contexts (Bohner and Dickel 2011).

Also of interest are the behaviors that are unaffected by attitude. For example, the likelihood of making real estate purchases in the near future is not different between debt pragmatists and emergency debtors. This finding may indicate that barriers to credit access, such as time investment and group-based decision making, which are typical for real estate purchases (Letkiewicz and Heckman 2018, Moulton et al. 2013), can help debt pragmatists alter their borrowing behavior. Popular wisdom, such as freezing your credit card in ice and requiring another person's approval before making purchases above a predefined amount, speak to the common sense of this finding.

Also noteworthy is the finding that members of the debt pragmatist group have higher odds of reporting internal, lifestyle-related causes of financial problems, as opposed to debt refusers and emergency debtors. This finding aligns with earlier research showing that higher debt tolerance is associated with higher levels of materialism (Richins and Rudmin 1994, Watson 2003, Yeniaras 2016, Ponchio and Aranha 2008, Dittmar 2005), higher levels of financial risk-seeking preference (Liao and Liu 2012) and emotions, such as confidence, doubt, desperation, and distrust, that have been investigated in relation to payday borrowing (Brown and Woodruffe-Burton 2015). Follow-up research might examine the motivation behind these lifestyle expenses, for example overconfidence with regard to debt repayment (for a review see Robb et al. 2015) or lack of financial management skills (Moulton et al. 2013, Antonides 2011).

With regards to the link of debt attitudes to planned borrowing and savings behaviors, the results suggest that it cannot be explained by potentially relevant psychological responses such as those related to economic outlook, financial planning, and debt stress. In addition, debt pragmatist attitude is associated with a higher number of planned credit-based purchases, especially for consumption and car purchases when compared to debt refusers, thus confirming

earlier literature. We also find a lack of association of debt pragmatist attitude with saving capacity, which reflects the descriptive results and perhaps the overall high savings rate in the German population, which is the second highest in the European Union after Luxembourg (Eurostat 2020).

### **Emergency Debtors**

The group of emergency debtors presents a large and relatively stable group of about 54% of respondents in the years from 2012 to 2016. The typical emergency debtor can be characterized by higher educational attainment. This characterization is in line with past studies, often based on student populations, that identify knowledge as a predictor of borrowing decisions (for a review see Robb et al. 2015). While previous studies have noted relationships between education and borrowing decisions, we offer more fidelity to that relationship by elucidating the specific debt attitudes that education is related to.

Emergency debtors are fall between debt refusers and debt pragmatists, in terms of their attitudes toward debt. Compared to debt refusers, emergency debtors also have more loans, while compared to debt pragmatists, they carry fewer current loans. This finding supports the definition of emergency debtors as refusing debt except for emergency situations, rather than accepting debt as a financial strategy. Beyond those two measures, we find that emergency debtors are less likely to prefer online/mail-order shopping compared to debt pragmatists while emergency debtors are not different from debt refusers in their online/mail-order shopping preferences.

### **Debt Refusers**

About a quarter of the German participants identifies as debt refusers during the 2012 to 2016 data collection period. During this time, this group slightly decreases in size, while the debt

pragmatist group slightly increases, perhaps suggesting a relaxation of attitudes. Mirroring debt pragmatists, debt refusers are more likely female, lower educated, and lower income. Even though about a quarter of debt refusers carry debt, they are less likely to report financial problems than the other two attitude groups. These findings raise the question about the motivation of a debt-intolerant attitude. It is possible that debt refusers either chose not to carry debt, feel they do not need to use credit, fear spending too much and use debt refusal as a self-control mechanism, or that limited access to credit underlies this attitude. Given debt refusers' stated objection to using debt and their having fewer financial problems, we might assume the former. However, given their lower incomes and the finding that about one-third of debt refusers carry debt, it is likely that these characteristics can also arise from negative experiences with debt or from having to find ways to manage financially without ready access to credit. Expanding on this point, it might not be a choice to be a debt refuser, but a response to an environment that constrains their ability to obtain credit. For example, news reports and research studies in Germany document gender discrimination in financial markets and note that women in Germany are granted fewer loan requests and at less favorable conditions with regard to both consumer loans as well as business loans (Barasinska and Schäfer 2010, Zschäpitz 2019).

The association between lower income and debt aversion has been found to some extent in college students, where lower income students are shown to be more averse to taking out student loans (Goldrick-Rab and Kelchen 2015). Future research with longitudinal data is necessary to investigate the causes of debt intolerance whether it is a result of debt stress, thus extending on the longitudinal study by Webley and Nyhus (2001), higher financial discipline (Schooley and Worden 2010), trade-offs between future-oriented expenses vs day-to-day living (Brennan, Zevallos, and Binney 2011), or due to non-financial reasons.

## **Limitations**

We would like to note that the current study is limited by the use of cross-sectional data that do not allow testing for causal relationships. In addition, this study does not distinguish between attitudes toward secured debts and unsecured debts, due to limitations of the source survey. The dual perspective on problem debt vs debt that has the potential to create value is a suggested avenue for future research. Further, although we assess many sociodemographic variables in relation to debt attitudes, the data set does not allow us to assess in similar detail the role of psychological variables (such as personality traits or cognitive performance levels) which may be central to individual differences in attitudes or behaviors. Our measure of online and mail-order shopping is a measure of preferences; we do not have information on the actual frequency or the amounts spent. We also do not have information on the motivation for online/mail-order shopping which may be due to access or transportation problems and information preferences rather than debt attitudes. Furthermore, the data are based on self-reporting of subjects and limited to participants of a commercially-maintained consumer panel of residents of Germany. It is possible that the stigma of debt leads to socially-desirable, biased responses to survey questions (Sudman and Wansink 2002). The low number of responses (1% of the sample) to the high-debt tolerance item, “Borrowing money allows me to increase my quality of life, because I can pay for special things on short notice” can reflect respondent bias. However, as shown in Appendix Tables 1 and 2, this group is also by far the smallest in the EOS study (EOS 2017). Mixed-methods approaches that include a qualitative component to explore consumer reasoning and laboratory-based experimental approaches to quantify response bias can help strengthen the validity of the debt attitudes question. Because attitudes have cultural dimensions, findings for

Germany may not apply to other countries or cultures with lesser or greater tolerance for debt. In general, Germans hold slightly lower levels of debt than the OECD average indicating a lower level of debt tolerance (OECD 2018). The findings from the EOS study, see Appendix Table 1, also indicates that Germans are much more debt averse than Americans, which also limits generalizability of the findings. A cross-cultural data set that includes some of the central psychological variables could promote a more comprehensive understanding of the psychology of debt attitudes.

Despite these limitations, the present research suggests that debt attitudes change over time, and are relevant to spending, saving, and borrowing behaviors. Such findings should help researchers as well as professionals working as financial advisors and counselors to design interventions that affect attitude strength as up-stream tools for altering debt and credit use.

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## Tables

**Table 1**

Descriptive statistics of socio-economic characteristics of the sample by debt attitudes, mean (SD) or percent

	Debt Refuser % or mean (SD)	Emergency Debtor % or mean (SD)	Debt Pragmatist % or mean (SD)	Total % or mean (SD)
<u>Socio-demographic characteristics:</u>				
Male (%)	43.18	48.44	59.32**	49.85
Age (18-69)	38.60 (14.40)	38.66 (14.21)	40.95 (13.41)	39.19 (14.09)
Education				
Middle school (%)	7.73	2.39**	5.08	4.19
Middle school, voc. degree (%)	26.36	22.75	24.58	23.97
Secondary education (%)	29.09	29.72	24.58	28.37
University entrance exam (%)	20.45	23.85	17.37	21.58
University degree (%)	16.36	21.28	28.39**	21.89
Married or living with partner (%)	29.32	31.93	33.05	31.62
Number children (0-4)	1.42 (0.71)	1.41 (0.76)	1.44 (0.79)	1.42 (0.76)
Household size (1-5)	2.27 (1.12)	2.32 (1.13)	2.33 (1.16)	2.31 (1.14)
Employment				
Full time (%)	40.91	47.89	52.97*	47.55
Part time (%)	19.55	19.08	16.10	18.48
Unemployed (%)	8.18	5.69	5.08	6.09
Retired, stay-home, student (%)	31.36	27.34	25.85	27.87
West Germany (%)	87.27	84.59	83.47	84.92
Household net income per month				
under 1,000 Euro (%)	24.09	16.15*	7.20***	15.78
1,000 to 1,500 Euro (%)	22.27	17.61	15.25	18.08
1,500 to 2,000 Euro (%)	11.82	17.43	16.53	15.98
2,000 to 2,500 Euro (%)	14.09	16.33	18.22	16.28
2,500 to 3,800 Euro (%)	13.18	20.18*	28.81***	20.68
3,800 plus Euro (%)	13.64	11.19	13.56	12.29
<u>Financial problems:</u>				
External causes (%)	25.00	30.46	20.34	26.87
Internal causes (%)	18.18	22.20	33.05***	23.88
Has no financial problems (%)	44.09	29.72***	32.63*	33.57

Notes: N=1,001; age calculated using the lower boundaries of age categories 18-29, 30-39, 40-49, 50-59, 60-69  
Means comparison chi-square and t-tests use debt refusers as base category. \*\*\* p<0.001, \*\* p<0.010, \* p<0.050

**Table 2**

Descriptive statistics for borrowing, banking, and spending behaviors and psychological responses used in the analysis by debt attitudes, mean (SD) or percent

Variables	Debt Refuser % or mean (SD)	Emergency Debtor % or mean (SD)	Debt Pragmatist % or mean (SD)	Total % or mean (SD)	N
Percent of sample (number)	21.98 (220)	54.45 (545)	23.58 (236)	100.00	1,001
<u>Borrowing, banking, and spending behaviors:</u>					
Number of current loans (0-6)	0.65 (1.18)	1.16*** (1.17)	1.74*** (1.16)	1.18 (1.22)	972
Consumer loans (%)	11.87	17.77***	32.75***	19.97	991
Bank loans (%)	18.89	37.73***	57.93***	38.36	988
Car loans (%)	7.40	15.76***	29.00***	17.03	986
Mortgages (%)	12.84	22.22***	27.46***	21.39	991
Loans from friends or family (%)	8.71	15.79**	19.91**	15.19	987
Other loans (%)	8.29	9.31	7.75	8.72	986
No current loans (%)	64.02	34.72***	14.29***	36.32	972
Number of financial institutions first contacted for loans (1-6)	1.83 (1.14)	2.02 (1.07)	2.34*** (1.22)	2.07 (1.14)	820
Preferences for online/mail-order shopping (0-12)	4.73 (3.16)	4.92 (2.71)	5.40* (2.96)	4.99 (2.88)	1,001
Number of planned credit-based purchases (0-4)	0.40 (0.86)	0.61** (0.93)	0.81*** (1.04)	0.61 (0.95)	1,001
Consumer goods (%)	15.00	19.63**	28.39**	20.68	1,001
Car (%)	8.64	16.51**	19.07**	15.38	1,001
Real estate (%)	6.36	8.07	8.47	7.79	1,001
Other purchases/liabilities (%)	10.00	16.88***	25.42***	17.38	1,001
No planned credit purchases (%)	67.72	51.37***	41.10***	52.54	1,001
Savings capacity (%)	69.27	62.38*	65.96	64.85	1,001
<u>Psychological responses:</u>					
Economic outlook (-5-5)	0.06 (0.56)	0.11 (0.61)	0.03 (0.55)	0.08 (0.58)	991
Financial planning (6-24)	17.51 (4.86)	16.70* (4.48)	16.50* (4.52)	16.83 (4.59)	988
Debt stress (1-4)	2.19 (0.97)	2.46*** (0.84)	2.47** (0.89)	2.40 (0.89)	996

Notes: Chi-squares tests are used to compare binary variables and t-tests are used to compare continuous variables. Debt refusers serve as reference category. \*\*\* p<0.001, \*\* p<0.010, \* p<0.050

**Table 3**

Annual and seasonal trends in debt attitudes between 2012 and 2016

Variables	Debt Refuser	Emergency Debtor	Debt Pragmatist
	OR (S.E.)	OR (S.E.)	OR (S.E.)
Year			
2012	omitted	omitted	omitted
2013	1.086 (0.050)	0.962 (0.044)	0.973 (0.055)
2014	0.955 (0.050)	1.057 (0.044) p=0.204	0.978 (0.054)
2015	0.868** (0.051)	0.995 (0.044) p=0.902	1.188** (0.053)
2016	0.967 (0.050)	0.941 (0.044) p=0.169	1.152** (0.054)
Quarter			
1	omitted	omitted	omitted
2	0.994 (0.045)	0.946 (0.039) p=0.153	1.085 (0.048)
3	1.025 (0.045)	0.978 (0.039) p=0.576	1.006 (0.048)
4	0.965 (0.045)	0.995 (0.039) p=0.907	1.052 (0.048)
Constant	0.349 (0.045)***	1.184 (0.040)***	0.246 (0.049)***
Chi-square	22.566**	10.860	30.108***
Nagelkerke R <sup>2</sup>	0.002	0.001	0.002
Overall %	25.3%	53.5%	21.2%

Note: N=20,966, \*\*\* p&lt;0.001, \*\* p&lt;0.010, \* p&lt;0.050

**Table 4**

Average marginal effects of multinomial logistic regression of debt attitudes on socio-economic characteristics

Variables	(1) Debt Refusers dy/dx (S.E.)	(2) Emergency Debtors dy/dx (S.E.)	(3) Debt Pragmatists dy/dx (S.E.)
<u>Socio-demographic characteristics:</u>			
Male	-0.06* (0.03)	-0.02 (0.03)	0.08** (0.03)
Age	-0.01 (0.01)	-0.01 (0.01)	0.02* (0.01)
Education (omitted: Middle school)			
Middle school, vocational degree	-0.10 (0.06)	0.22* (0.09)	-0.12 (0.07)
High school, no degree	-0.12* (0.06)	0.27** (0.09)	-0.16* (0.07)
High school, no university degree	-0.13* (0.06)	0.30** (0.09)	-0.17* (0.07)
University degree	-0.18** (0.06)	0.27** (0.09)	-0.09 (0.07)
Married or living with partner	-0.01 (0.06)	0.06 (0.08)	-0.05 (0.07)
Number children	0.02 (0.03)	-0.03 (0.03)	0.01 (0.03)
Household size	-0.01 (0.02)	0.02 (0.02)	-0.01 (0.02)
Employment (omitted: full time)			
Part time	-0.01 (0.04)	-0.01 (0.05)	0.02 (0.04)
Unemployed	0.03 (0.06)	-0.11 (0.07)	0.08 (0.06)
Retired, stay-at-home, student	0.01 (0.03)	-0.03 (0.04)	0.02 (0.03)
West Germany	0.04 (0.04)	-0.01 (0.04)	-0.04 (0.04)
Household net income per month (omitted: under 1,000 Euro)			
1,000 to 1,500 Euro	-0.04 (0.04)	-0.09 (0.06)	0.13* (0.06)
1,500 to 2,000 Euro	-0.15** (0.05)	-0.03 (0.06)	0.18** (0.06)
2,000 to 2,500 Euro	-0.12* (0.05)	-0.08 (0.06)	0.21*** (0.06)
2,500 to 3,800 Euro	-0.18*** (0.05)	-0.08 (0.06)	0.26*** (0.06)
3,800 plus Euro	-0.06 (0.05)	-0.13 (0.07)	0.19** (0.07)
<u>Financial problems:</u>			
External financial causes	0.02 (0.03)	0.05 (0.04)	-0.06 (0.04)
Internal financial causes	-0.01 (0.04)	-0.11* (0.04)	0.12*** (0.03)
No financial problems	0.12*** (0.03)	-0.10* (0.04)	-0.02 (0.03)

Note: LR Chi-square=125.47, p<0.001, df=42, Pseudo R<sup>2</sup>=0.062; N=1,001; \*\*\* p<0.001, \*\* p<0.010, \* p<0.050

**Table 5**

Results of binary logistic and negative binomial regression of borrowing, banking, and spending behaviors on debt attitude, controlling for socio-demographic characteristics

Variables	(1) Emergency Debtor (Ref: Debt Refuser) OR/IRR (S.E.)	(2) Debt Pragmatist (Ref: Debt Refuser) OR/IRR (S.E.)	(3) Debt Pragmatist (Ref: Emergency Debtor) OR/IRR (S.E.)	(4) Model fit statistics Pseudo R <sup>2</sup> , <sup>a)</sup> Wald $\chi^2$ , <sup>b)</sup> LR $\chi^2$
Number of current types of loans <sup>a)</sup>	1.56*** (0.19)	2.26*** (0.28)	1.45*** (0.09)	0.10, 401.02*** n=972
Consumer loans <sup>b)</sup>	1.47 (0.36)	3.66*** (0.99)	2.49*** (0.49)	0.12, 124.78*** n=1,001
Bank loans <sup>b)</sup>	2.18*** (0.44)	5.09*** (1.19)	2.33*** (0.41)	0.14, 190.51*** n=1,001
Car loans <sup>b)</sup>	1.93* (0.53)	4.44*** (1.31)	2.30*** (0.46)	0.12, 113.08*** n=1,001
Mortgages <sup>b)</sup>	1.74* (0.42)	1.87* (0.50)	1.07 (0.21)	0.15, 157.72*** n=1,001
Loans from friends and family <sup>b)</sup>	1.93* (0.53)	3.12*** (0.96)	1.62* (0.35)	0.12, 109.46*** n=1,001
Other loans (taxes owed, rent)	1.06 (0.31)	1.06 (0.38)	1.00 (0.29)	0.14, 89.34*** n=1,001
No current loans <sup>b)</sup>	0.33*** (0.06)	0.10*** (0.03)	0.31*** (0.07)	0.20, 252.74*** N=972
No. financial institutions contacted for loans <sup>a)</sup>	1.07 (0.06)	1.28*** (0.08)	1.19*** (0.05)	0.02, 101.88*** n=820
Preferences for online/mail-order shopping <sup>a)</sup>	0.99 (0.05)	1.10 (0.07)	1.12* (0.05)	0.01, 54.88*** n=1,001

Note: The coefficients in Column (1) and (2) in each row are taken from one regression analysis; the coefficient in Column (3) in each row presents results from a separate regression; each regression controls for the socio-economic variables listed in Table 2. a) Negative binomial regression (IRR); b) Binary logistic regression (OR), \*\*\* p<0.001, \*\* p<0.010, \* p<0.050



**Table 6**

Results of binary logistic and negative binomial regression regressing planned borrowing and savings behaviors on debt attitudes, potential psychological responses, and controlling for current debt holdings and socio-demographic characteristics

	Number of planned credit-based purchases		Planned credit-based purchases: Consumption		Planned credit-based purchases: Car		Planned credit-based purchases: Real estate	
	(1) IRR (S.E.)	(2) IRR (S.E.)	(3) OR (S.E.)	(4) OR (S.E.)	(5) OR (S.E.)	(6) OR (S.E.)	(7) OR (S.E.)	(8) OR (S.E.)
<u>Debt attitudes:</u>								
Debt refuser	omitted	omitted	omitted	omitted	omitted	omitted	omitted	omitted
Emergency debtor	1.31 (0.20)	1.33 (0.20)	1.03 (0.26)	1.05 (0.26)	1.67 (0.50)	1.80 (0.55)	1.05 (0.41)	1.22 (0.48)
Debt pragmatists	1.63** (0.27)	1.71** (0.28)	1.69 (0.48)	1.80* (0.51)	1.77 (0.60)	1.98* (0.67)	0.65 (0.30)	0.73 (0.34)
<u>Psychological responses:</u>								
Economic outlook		1.13 (0.08)		1.34* (0.19)		0.89 (0.15)		1.03 (0.25)
Financial planning		1.03** (0.01)		1.04 (0.02)		1.06** (0.02)		1.01 (0.03)
Debt stress		1.00 (0.01)		0.98 (0.05)		1.01 (0.02)		0.50** (0.10)
<u>Controls:</u>								
No. current debt obligations	1.25*** (0.04)	1.26*** (0.40)	1.41*** (0.10)	1.41*** (0.10)	1.33*** (0.10)	1.31** (0.11)	1.83*** (0.19)	2.11*** (0.24)
Socio-economic variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R <sup>2</sup>	0.10	0.11	0.14	0.15	0.14	0.15	0.23	0.26
Model fit (LR or Wald $\chi^2$ )	Wald $\chi^2$ (24)= 242.09***	Wald $\chi^2$ (27)= 255.29***	LR $\chi^2$ (24)= 134.31***	LR $\chi^2$ (27)= 142.27***	LR $\chi^2$ (24)= 116.44***	LR $\chi^2$ (27)= 125.12***	LR $\chi^2$ (24)= 121.69***	LR $\chi^2$ (27)= 133.79***
N	952	952	952	952	952	952	952	952

Note: Each regression controls for the socio-economic variables listed in Table 2; \*\*\* p<0.001, \*\* p<0.010, \* p<0.050

IRR: Negative binomial regression; OR: Binary logistic regression

**Table 6, continued**

Results of binary logistic and negative binomial regression regressing planned borrowing and savings behaviors on debt attitudes, coping measures, and controlling for current debt holdings and socio-demographic characteristics

	No credit-based purchases planned		Savings capacity	
	(9) OR (S.E.)	(10) OR (S.E.)	(11) OR (S.E.)	(12) OR (S.E.)
<u>Debt attitudes:</u>				
Debt refuser	omitted	omitted	omitted	omitted
Emergency debtor	0.61** (0.12)	0.58** (0.11)	0.76 (0.16)	0.79 (0.17)
Debt pragmatists	0.40*** (0.09)	0.38*** (0.09)	0.74 (0.19)	0.80 (0.21)
<u>Psychological responses:</u>				
Economic outlook		0.92 (0.12)		0.93 (0.13)
Financial planning		0.96** (0.02)		1.07*** (0.01)
Debt stress		1.00 (0.01)		0.99 (0.02)
<u>Controls:</u>				
No. current debt obligations	0.83** (0.06)	0.84** (0.06)	0.96 (0.07)	0.95 (0.07)
Socio-economic variables	Yes	Yes	Yes	Yes
Pseudo R <sup>2</sup>	0.10	0.11		0.20
Model fit	LR $\chi^2(24)=135.00^{***}$	LR $\chi^2(27)=144.21^{***}$	LR $\chi^2(24)=232.43^{***}$	LR $\chi^2(27)=245.66^{***}$
N	952	952	944	944

Note: Each regression controls for the socio-economic variables listed in Table 2; \*\*\* p<0.001, \*\* p<0.010, \* p<0.050

IRR: Negative binomial regression; OR: Binary logistic regression

## Appendix

**Appendix Table 1**

Distribution of debt attitudes in the Boniversum and EOS studies

	Boniversum Germany	EOS Germany	EOS USA
“Debt refusers” / “Debt avoiders”	22%	45%	37%
“Emergency debtors” / “Opportunity debtors”	54%	7%	11%
“Real-estate debtors”	--	36%	8%
“Debt pragmatists” / “Debt junkies”	23%	7%	15%
“Lifestyle debtor” / “Carefree debtors”	1%	5%	29%
Year	2015	2017	2017
N	1,013	2,017	1,005

Note: The comparison of the current study to the EOS study (EOS 2017) allows for several insights. First, the most debt-tolerant group is the smallest group in both studies. It comprises 1% in our data and 5% in the EOS study. Second, real estate debtors are not identified in our data. Based on their EOS profile, they can be considered in-between emergency debtors and debt pragmatists. If we split the 36% real-estate debtors and assign half of them to the debt pragmatists (EOS: debt junkies), the debt pragmatists group is about the same in both studies (23% Boniversum vs 25% EOS). Third, the main difference between the Boniversum and EOS studies are the size of the debt refuser and emergency debtor groups. The sizes of the two groups are about reversed (based on adding half of the real-estate debtor group to the EOS opportunity debtor group). We believe that the stringent definition of debt refusers in the Boniversum study is the cause for this finding (“I am in principle against borrowing money because I feel that one should only spend money that one has at one's disposal”). Debt avoiders in the EOS study exhibit higher than minimal debt tolerance, which is reflected their agreeing with statements, such as “I take on debts in absolute emergencies” and “I try to keep my debts as low as possible.” In conclusion, the results of the EOS study provide support for our debt attitudes measure.

## Appendix Table 2

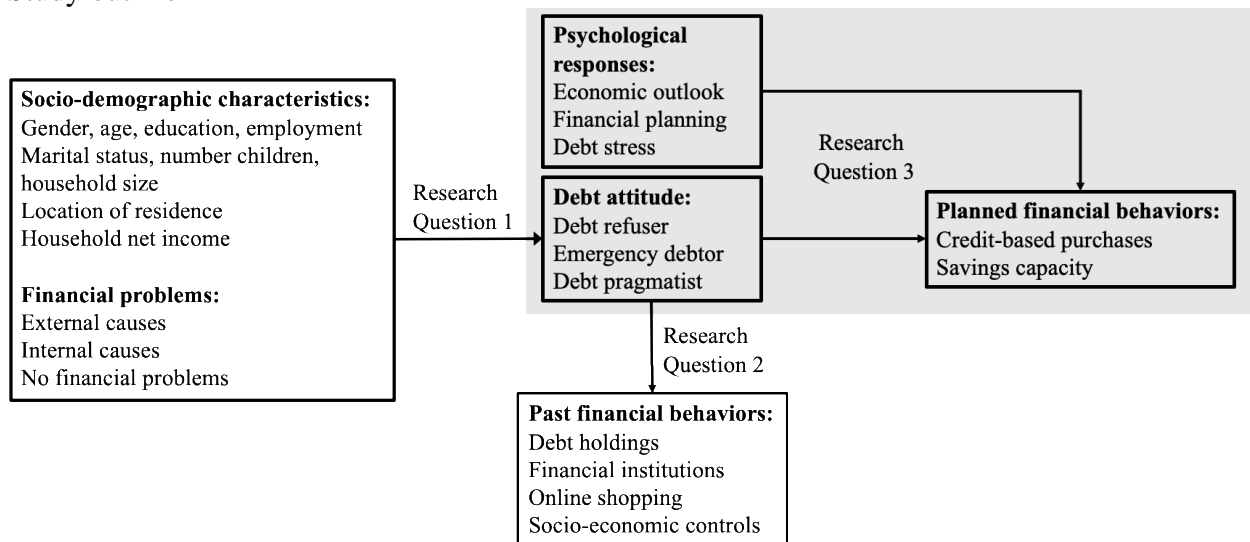
Comparison of debt-attitude statements in the Boniversum and EOS studies

Boniversum	EOS
22% Debt refusers “I am in principle against borrowing money because I feel that one should only spend money that one has at one's disposal”	45% Debt avoiders Statements with high agreement: <ul style="list-style-type: none"> <li>– Debt is emotionally stressful for me</li> <li>– Not being able to repay debts feels bad to me</li> <li>– I try to keep my debt load as low as possible</li> <li>– I only take on debt in absolute emergencies</li> <li>– I only buy something when I can afford it</li> </ul>
54% Emergency debtors “I only borrow money in case of emergency, when I have no alternative”	7% Opportunity debtors Statements with the highest scores are similar to the debt avoiders, but the responses are more moderate, indicating an overall higher willingness to take on debt.
Not included	36% Real-estate debtors Statements with high agreement: <ul style="list-style-type: none"> <li>– Lenders make it very easy to take on debt</li> <li>– Current interest rates lead to debts</li> </ul> Majority agrees with the following statements: <ul style="list-style-type: none"> <li>– I try to keep my debt load as low as possible</li> <li>– Not being able to repay debts feels bad to me</li> </ul>
23% Debt pragmatists “I borrow money if I want to achieve a certain goal, for instance if I want to buy a necessary and useful product, or to realize a lifetime dream”	7% Debt junkies Statements with high agreement: <ul style="list-style-type: none"> <li>– Lenders make it very easy to take on debt</li> <li>– Purchases on the Internet tempt you to go into debt</li> </ul> Statements with low agreement: <ul style="list-style-type: none"> <li>– I only owe debts in absolute emergencies</li> <li>– I try Keeping my debts as low as possible</li> </ul>
1% Lifestyle debtors “Borrowing money allows me to increase my quality of life, because I can pay for special things on short notice”	5% Carefree debtors Statements with high agreement: <ul style="list-style-type: none"> <li>– Debt is normal for me</li> <li>– Lenders make it very easy to take on debt</li> </ul> Statements with low agreement: <ul style="list-style-type: none"> <li>– Debt is emotionally stressful for me</li> <li>– Not being able to repay debts feels bad to me</li> <li>– I try to keep my debt load as low as possible</li> </ul>

Note: This table provides information about the attitudinal statements that compose the debt attitudes. The information was taken from the EOS study report, which does not provide the numerical results of the cluster and factor analyses (EOS 2017).

## Figures

**Figure 1**  
Study outline



**Figure 2**

Percentage of debt attitudes by quarter from 2012 to 2016, including trendlines, 95% confidence intervals, and the ratio of household debt to GDP as a macro-economic indicator

