MONEY ON MY MIND: INVESTIGATING THE DYNAMICS OF FINANCIAL WORRY

Technical Report

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Abstract

Many households in affluent industrialised countries have low incomes and regularly forego on needs such as heating their house or buying essential clothing. Undoubtedly, COVID-19 since 2020 and rising inflation since 2022 will have exacerbated the situation considerably. Many households will have financial worries, or 'money on their mind'. We have studied how financial worries vary over time, by surveying households in The Netherlands, Belgium and Australia bi-weekly over a period of 4 to 6 months. We find that financial worries and most of its theoretical outcomes such as psychological health, social capital investments and work self-efficacy, vary meaningfully over time. They vary, for instance, with the occurrence of positive financial events such as a gift from family/friend or tax returns. At the within-person level, changes in financial worries mainly go hand in hand with changes in mental well-being, and these associations are quasi-identical across countries. At the between-person level, people with higher levels of financial worries tend to have lower levels of well-being. People with higher levels of financial worries are less likely to grow their social networks or feel competent at work. The association between financial worries and mental well-being can be dampened by several personal factors. For instance, the results suggest that extraverted and open-minded people cope better with financial worries than their introverted and close-minded counterparts. This inspires one of our recommendations, that companies develop interventions that increase employees' psychological capital so that employees can better cope with stressors, especially financial uncertainty, and its associated worries.

Keywords: *Financial worries, financial stress, well-being, labour market behaviour, panel data*

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1. Introduction

A substantial share of households in affluent industrialised countries such as The Netherlands, Belgium and Australia have incomes too low to cover all basic needs, and regularly forego on needs such as heating their house or buying essential clothing. Undoubtedly, COVID-19 since 2020 and rising inflation since 2022 will have exacerbated the situation considerably. It is therefore likely that many households have financial worries, or 'money on their mind'. We have studied how financial worries vary over time, by surveying households bi-weekly over a period of 4 to 6 months and pay particular attention to the broader impact of financial worry on households' day-to-day decision making. Hence, the overall research question guiding our study is: "To what extent and under which conditions (i.e., when/for whom) does financial worry influence personal well-being, social and human capital, and labour market behaviour?"

In this report we answer the following more detailed research questions:

1. To what extent does financial worry vary over time? To what extent do personal well-being, social and human capital and labour market behaviour vary over time?
2. How strongly is financial worry associated with personal well-being, social and human capital and labour market behaviour, at the within- and between-person level?
3. Which micro-, meso-, and macro-level factors moderate the presumed negative within-person and between-person associations between financial worry and personal well-being, social and human capital, and labour market behaviour?

a) To what extent does personality mitigate (e.g., self-efficacy) or exacerbate (e.g., risk aversion) the negative effects of financial worry?

b) To what extent do work-based and nonwork-based social support mitigate the negative effects of financial worry?

c) To what extent are the effects of financial worry similar across cultures?

Although not the primary focus of this study, the data will also allow us to answer the following questions:

4. What is the relationship between objective (i.e., household income) and subjective financial stress (i.e., financial worry)?
5. Keeping household income and other financial indicators constant, who is more likely to experience financial worry?

This is the first study that investigates whether and if so why the detrimental effects of financial distress are reinforced over time. Our longitudinal design allows the investigation of the often cited but rarely tested cyclical (or spiralling) effect of poverty, and short-term effects that play out within rather than between individuals. The results of our research have implications for individuals in financially precarious situations (consumers) and the stakeholders in public sector policymaking, practitioners and private sector (financial) institutions.

2. Theoretical framework

2.1 Financial worry defined

There is a growing number of individuals who participate in the mainstream economy, but do not earn enough to maintain a reasonable standard of living. Paid employment does not guarantee immunity or an escape from poverty and a substantial proportion of those who are employed, often full-time and in more than one job, find themselves trapped in a cycle of poverty. Among the unemployed, poverty is even more prevalent. Given the vast and far-reaching consequences of poverty for individuals, organizations, and societies, it is imperative to investigate the temporal dynamics underlying the poverty cycle. Typically, researchers tend to assess poverty according to various objective poverty indicators or poverty lines (e.g., household incomes below 60% of the country median or the income-to-needs ratio). However, objective poverty indicators are not necessarily representative of whether or not individuals consider themselves poor[1]. Two individuals with an identical poverty background may feel and consequently behave differently (e.g., low versus high self-efficacy, low versus high locus of control) as a result of a different appraisal of their situation. Moreover, there is emerging evidence that the subjective assessment of one's financial situation can better predict individuals' cognitive functioning than objective poverty indicators[2]. In this study, the focus is on the subjective component of financial precarity, which we refer to interchangeably as "financial worry" or "financial distress". Consistent with previous research[3], we define financial worry as "the extent to which people are concerned that they do not have sufficient financial resources to meet their needs."

2.2 Financial worry over time

Several scholars have argued that poverty is not a one-off state and is subject to temporal changes[4–7]. Whereas one's objective financial situation may gradually improve or worsen over time, or suddenly in the event of financial shocks, we expect much more intra-individual changes in the subjective component of financial precarity, i.e., financial worry. For example, someone may feel very worried about his or her financial situation immediately after checking his or her balance. Financial worries may linger for a while, and after a few days eventually drop back to lower levels. Unanticipated events that are out of control of the individual may induce financial worries. The announcement of a pay cut, reduction of unemployment benefits and unforeseen expenses, versus a pay raise, an increase of unemployment benefits, and a financial stroke of luck, are examples of how external events may produce changes in financial distress, in that individuals may worry about their financial situation one week, but that these concerns may dissipate (quickly), and the following week the person may feel assured, or worry even more because of additional setbacks[8]. We hypothesize that moments of above average financial distress affect a person's feelings, cognitions and behaviours more negatively than moments of average or below average financial distress.

We argue that to better understand the dynamic effects of poverty, research needs to employ longitudinal designs that allow investigating the often cited but rarely tested cyclical (or spiraling) effect of poverty, and the short-term effects that play out within rather than between individuals. Between-person and within-person research constitute domains of inquiry that are conceptually independent and may lead to different (or even contradictory) conclusions, in particular when the constructs under investigation fluctuate over time[9–11]. To the extent that intra-individual variation in financial worry exists, within-person designs may yield different results from between-person designs[12,13]. For example, it may be that people with above average levels of financial distress are generally more willing to invest time in professional development (between-person) than people with below average levels of

financial distress, but that the actual decision to invest time is mostly a function of people's momentary thoughts and feelings, resulting in a negative relationship (within-person).

2.3 Financial worry as predictor of feelings, cognitions and behaviours

Having argued that financial worry fluctuates over time, the question arises as to what extent changes in financial worry are predictive of changes in people's feelings, cognitions and behaviours. While the adverse well-being consequences of financial distress are widely documented[14–16], little is known about whether and why financial distress influences outcomes (other than well-being) that may be instrumental in breaking or perpetuating the poverty cycle[17]. Therefore, we have examined the influence of financial worry not only on personal well-being, but also on people's ability and willingness to get access to and accumulate social capital, to develop their human capital, and to search for (better) employment. We define social capital in terms of the nature and accessibility of resources embedded in relationships, which has two components: (1) social resources (e.g., information, referral benefits), and (2) network structure and position (e.g., the individual's position in the social structure)[18,19]. Despite the fact that the social consequences of financial distress are central to modern perspectives on poverty and marginalization, research seldomly studies this relationship empirically, and methodological shortcomings hamper the few studies that exist[20]. A second potential outcome of financial worry is human capital investment. Human capital refers to the knowledge, expertise, and skill one accumulates through education and training[21]. People in unemployment or precarious employment experiencing financial distress may be so preoccupied with their situation and focused on keeping their heads above water that they miss out on opportunities to improve themselves. As such, financial distress may prevent people from investing in personal and professional development, thereby reinforcing the poverty cycle. Related, a third potential outcome concerns labour market behaviour. We broadly define labour market behaviour as employed and unemployed individuals' behaviour intended to improve their labour market position, including goal orientation, self-regulation, job search intensity and job search quality, but also affective-motivational variables such as attitude towards work, job search intentions, turnover intentions, and work engagement. People in unemployment or precarious employment experiencing financial worry may be so focused on keeping their heads above water that financial worry harms the quality of their job search efforts[22,23] or they miss out on opportunities to improve themselves because financial worry for instance reduces their goal orientation, self-regulation or engagement.

2.4 Moderators at the micro-level

If financial worry indeed prevents individuals from exhibiting self-improvement behaviour (e.g., professional development, job search, self-care), there is much value in identifying factors that buffer the negative effects of financial worry. Moderators may reside at the micro-level, meso-level, and macro-level. Moderators at the micro-level include, amongst others, personality and demographic background variables. Based on contemporary theories on stress[24-26], we propose that agentic personality traits, such as internal locus of control (i.e., the degree to which people believe that they have control over the outcome of events in their lives, as opposed to external forces beyond their control)[27], self-efficacy (i.e., the degree to which people believe that they have the capability and confidence to perform specific tasks or behaviours)[28], self-esteem (i.e., an individual's subjective evaluation of their own worth)[29], and future time perspective (i.e., an individual's beliefs and perceptions in relation to how much time is left available in their future life)[30], and neuroticism (i.e., the disposition to experience negative affect)[31], and risk aversion (i.e., a sense that more risk is worse and that risk is undesirable)[32], may moderate the effects of financial worry. For example, given identical levels of financial distress, we hypothesize that individuals with a high (versus low) internal locus of control are more likely to positively reappraise their financial situation (e.g., "this is a temporary setback", "this is something I can deal with") and to initiate actions to improve their current situation. In terms of background

variables, we propose that educational level and work experience buffer against the negative effects of financial worry, because highly educated and experienced individuals perceive themselves as having more opportunities on the labour market[33]. We have also explored the possibility that the negative effects of financial worry differ as a function of age and/or employment situation and history.

2.5 Moderators at the meso-level

Moderators at the meso-level include support provided by family and friends (nonwork-based social support) and support derived from others at the workplace (work-based social support). Support provided by family and friends might help individuals cope with worries regarding the inability to make ends meet and hence keep individuals from spiraling down into inactivity. Family and friends may play a critical role in helping individuals to react less negatively to economic stressors such as financial worry[34]. Similarly, support from work colleagues and supervisors may produce the companionship and perform emotional functions, which may create a supportive and conducive work atmosphere in the organization, thereby mitigating individuals' stress reactions in response to their financial situation. Work colleagues and supervisors may help individuals to reappraise their financial situation so that it becomes more manageable and less threatening[34]. Similarly, reemployment counselors / caseworkers provide support which may mitigate the effects of financial stress for the financially worried unemployed.

2.5 Moderators at the macro-level

Moderators at the macro-level include cultural dimensions (i.e., uncertainty avoidance, long-term orientation) and welfare state generosity. Uncertainty avoidance reflects the extent to which ambiguous situations may be felt as threatening within a society[35]. Societies high on uncertainty avoidance rely on social norms, rules and procedures to alleviate the unpredictability of future events. As regards financial issues, such societies are also likely to have norms, rules and procedures in place to assist people in dealing with the uncertainties that come with financial worry. Accordingly, we expect the negative effects of financial worry to be less pronounced in societies featuring high (as opposed to low) uncertainty avoidance. Long-term orientation refers to the degree to which a society focuses on the long-term consequences of actions taken today or considers only their short-term consequences[36]. Societies with a high short-term orientation put a premium on instant rewards, while societies with a high long-term orientation put relatively higher value on rewards in the long term. Research has shown that societies with a high long-term orientation have a conservative attitude toward money (e.g., are less likely to donate to charities) that deters prosocial behaviour[37,38]. Since financial need is less socially accepted in societies with a high long-term orientation, we expect the negative effects of financial worry to be more pronounced in such societies. Another potential macro-level moderator is a country's social safety net. This is a socio-economic characteristic referring to the extent of government regulation of the labour market and governmental social protection programs designed to protect workers from job loss and significant income declines. Such safety net programs generally include: (a) income transfer programs designed to lift employees and their families out of poverty; (b) in-kind programs providing access to health insurance or affordable housing; and (c) social insurance programs such as disability benefits and social security. Such social safety nets serve the purpose of protecting and buffering individuals from economic shocks. As such, we expect the negative effects of financial worry to be less pronounced in countries with a generous social safety net - in our study The Netherlands and Belgium as opposed to Australia.

3. Data and measures

3.1 Data collection procedure

We collected our data by means of electronic surveys among households in The Netherlands, Belgium and Australia. We recruited respondents via snowball sampling, using the networks of several partner organizations who have an interest in the topic of financial worries[2]. These include, for instance, unions, budgeting institutes and community wellbeing organizations. There organizations used their newsletters, websites and social media to invite people in their following to participate in our study, with reference to a purpose-built participant recruitment and informative website we developed (www.financialwellbeingstudy.com). Here, potential participants could register their interest to participate in our study by filling out their e-mail address. On this website, we provided information about the research project and survey content, length and frequency, so potential participants understand the commitment, should they decide to participate. We continued the recruitment of partner organizations and concomitant participants after we started the fieldwork with a first batch of participants that signed up on our website. Therefore, we ended up with two batches of participants. On Monday the 20th of September 2021 the first batch of participants started with their six-month bi-weekly participation in our study. The second batch started on 1 November 2021 on a four-month bi-weekly schedule[3].

The first survey wave was the longest wave, as this also included an informed consent page, and collected information on (1) characteristics that are presumed stable over the six-month survey period (e.g., demographics including country and control variables), personality and social support (nonwork-based), and (2) variables for which we needed to establish a baseline level (such as financial resources (e.g., household income)). In addition, at each bi-weekly short survey, respondents rated their recent level of financial worry, human and social capital investments (work-based), labour market behaviour, personal well-being, and (un)anticipated shocks to their financial situation. At waves 7 and 14, we measured some additional dependent variables that we expected might not change on a bi-weekly basis.

Our choices for bi-weekly surveys over a six-month period was guided by the literature, arguing that it is the variability in the phenomenon that one wishes to observe (i.e., financial worry) that should guide the choice of the time scale (i.e., length of the temporal interval used to test theory[39]. Financial worry may vary quickly, on a weekly or even daily basis. Yet, in this study we chose to use bi-weekly measurements in order not to overload participants, thereby reducing the risk of participant drop-out. We deem bi-weekly intervals to be more sensitive to detect changes in financial worry than longer (e.g., monthly) time intervals that carry the risk of dismissing meaningful variation in financial worry. To reduce response time and prevent participant drop-out, we measured the time-varying constructs using shortened versions of established scales. We established the linguistic equivalence of our measures using translation-back-translation procedures.

[2] See appendix 8.1 for a list of the organizations.
[3] See appendix 8.2 for a timeline of our fieldwork.

3.2 Measures

3.2.1 Financial worry

We use several measures of financial worry.

First, we measure our main variable, *financial worry*, using the financial worry scale by Meuris and Leana[3]. This scale consists of four items, such as "In the two weeks before this survey, …:

1. how often have you felt worried about your financial situation?"
2. satisfied with your financial situation?"
3. overwhelmed by your financial obligations?"
4. that you did not have enough money?"

Respondents answer these items on a 5-point scale comprising "never", "rarely", "sometimes", "often", and "always". These four items were collected in each of our 14 survey waves. Cronbach's alpha for these items ranges between 0.86 and 0.93 across the 14 waves. For the analyses presented in this report we constructed a financial worry variable from these items for each respondent and wave, by calculating the average (first reversing the answer categories for item 2). In addition, we also performed some analyses using single items of this scale as measures of financial worry or financial satisfaction (for instance in section 4.2.3).

Second, following for instance Gerards and Welters[22,23] and Summerfield *et al.*[40], we measure whether respondents experience liquidity constraints, cash-flow problems and financial hardship. We asked if respondents experience any of the following in the two weeks before each survey wave.

1. Could not pay electricity, gas or telephone bills on time
2. Could not pay the mortgage or rent on time
3. Pawned or sold something
4. Went without meals
5. Was unable to heat or cool home
6. Was unable to buy new clothes
7. Asked for financial help from friends or family
8. Asked for help from welfare/ community organisations

For each of our 14 waves, we constructed binary variables indicating if respondents experienced liquidity constraints, cash-flow problems and/or hardship. The binary variable for *liquidity constraints* is coded in the affirmative if any of the items is answered with yes. The binary variable for *cash-flow problems* is coded in the affirmative if any of the items 1, 2, 6 or 7 is answered with yes. The binary variable for *financial hardship* is coded in the affirmative if any of the items 3, 4, 5, or 8 is answered with yes.

Third, we measured respondents' appraisal of their financial situation compared to their close contacts, by asking them in each of our 14 waves, to what extent they agree with the statement: "My current financial situation is better than that of my closest contacts/friends." This statement was answered on a 5-point Likert scale from "Strongly disagree" to "Strongly agree". We labelled this variable as '*comparative financial position*'.[41]

3.2.2 Dependent variables

3.2.2.1. Personal well-being

We use two measures to investigate the relation between financial worry and personal well-being: *psychological health* and *life satisfaction*. As a psychological health measure, we use the five-item Mental Health Inventory (MHI-5), which is a short-form mental health index stemming from the SF36 health survey[42]. Example items are "During the past two weeks, how often were you a happy person" and "During the past two weeks, how often have you felt downhearted and blue". These items were answered on the same 5-point scale from "never" to "always" as the items regarding financial worry. This measure was collected in each of our 14 survey waves. Cronbach's alpha for this measure ranges between 0.85 and 0.90 across the 14 waves. We constructed the psychological health variable from these items for each respondent and wave by calculating the average.

Next, we measured life satisfaction in each of the 14 waves with a single items life satisfaction measure, asking respondents to score between 0 (completely dissatisfied) and 100 (completely satisfied) how satisfied they are with their life as a whole. Single item life satisfaction scales are known to perform nearly identical to multiple items versions[43].

3.2.2.2. Social- and human capital investments

We use several measures regarding social and human capital investments.

We measure (work-based) *social capital investments* using the three-item network building scale[44]. An example is "I am building a network of contacts or friendships with colleagues to obtain information about how to do my work or to determine what is expected of me." These items were answered on a 5-point Likert scale from "Strongly disagree" to "Strongly agree". These items were collected in three waves of our study, in the first wave, the middle wave and the final wave. We constructed the social capital investments measure from these items for each respondent and these waves by calculating the average. Cronbach's alpha for this measure ranges between 0.67 and 0.74 across the three waves.

In addition, we measure participation in learning activities. We asked respondents to tick all activities (from a list of learning activities, including for example talking with a job coach / counsellor and attending evening classes), in which they participated in the preceding three months. These items were collected in three waves of our study, in the first wave, the middle wave and the final wave. We constructed the *learning participation* variable from these items for each respondent and these waves by creating a dichotomous variable (1 = Yes, if respondents ticked at least one learning activity).

3.2.2.3. Other labour market behaviours

In addition to social and human capital investments, we use several other measures regarding labour market behaviour.

For those respondents who report to be in employment or self-employment, we measure *work self-efficacy* using three items from Spreitzer[45]. An example item is "I am confident about my ability to do my job." These items were answered on a 5-point Likert scale from "Strongly disagree" to "Strongly agree". These items were collected in three waves of our study, in the first wave, the middle wave and the final wave. We constructed the self-efficacy measure from these items for each respondent and wave by calculating the average. Cronbach's alpha for this measure ranges between 0.85 and 0.93 across the three waves.

For those respondents who report to be unemployed and looking for work, we measure if they looked for a job in the two weeks before the survey with a binary yes/no question. Those who responded 'yes' were asked how many hours they spent on job search activities in the two weeks before the survey. We label this variable *search hours*.

We also asked respondents who indicated to be looking for work to rate their *job-search self-efficacy* using a 4-item scale[46]. An example item is "I am confident in my ability to look for job openings on the Internet (e.g., "visiting job sites")". These items were answered on a 5-point Likert scale from "Strongly disagree" to "Strongly agree". However, response numbers on this scale were too low for meaningful analysis.

3.2.3 Events that may affect financial worry

In waves 2 through 14 we asked respondents three questions regarding events that had negative or positive financial consequences. Such events have the potential to affect the level of financial worries.

The first question asked respondents which type of unexpected expenses (if any), requiring a sizeable withdrawal from their bank account, their household experienced in the two weeks before the survey. Respondents could tick all answers that applied, including for instance "Having to repair or replace one or more important household items (e.g., car / washing machine / air-conditioning / heating)" or "Having to pay a large health care bill". We label this variable '*unexpected large expenses*'. We constructed this variable in a dichotomous manner, where 1 equals the experience of any unexpected expenses.

Second, we asked respondents which type of event(s) with negative financial consequences (if any) their household experienced in the two weeks before the survey. Answer options included a respondent experiencing job loss (or loss of hours), ineligibility for subsidies (*e.g.*, housing assistance, healthcare assistance and child support) or unemployment benefits, increases in rents, a divorce or any other events with negative financial consequences that respondents reported in a particular wave. We label this variable '*negative financial events*'. We constructed this variable in a dichotomous manner, where 1 equals the experience of any negative financial events.

Third, we asked respondents which type of event(s) with positive financial consequences (if any) their household experienced in the two weeks before the survey. Answer options included a respondent obtaining an inheritance, a salary increase (or a bonus), better (paying) employment, a tax return, a gift from family or friends or any other events with positive financial consequences that respondents reported in a particular wave. We label this variable '*positive financial events*'. We constructed this variable in a dichotomous manner, where 1 equals the experience of any positive financial events.

Related to this topic, we asked respondents the binary question: Does the timing of important transactions on your bank account cause you stress? For instance, the moment of periodic payments (such as periodic rent, loan or mortgage payment, health insurance payment, utilities payment and childcare) and the moment on which you receive your periodic income (such as periodic wage, benefits or government subsidies)? Those who answered in the affirmative, we subsequently asked: Would you experience less stress if there was a better alignment between the moment at which you receive your periodic income and the moment at which you pay periodic expenses? Later in this report we refer to these questions as the *timing of transactions events.*

3.2.4 *Control variables*

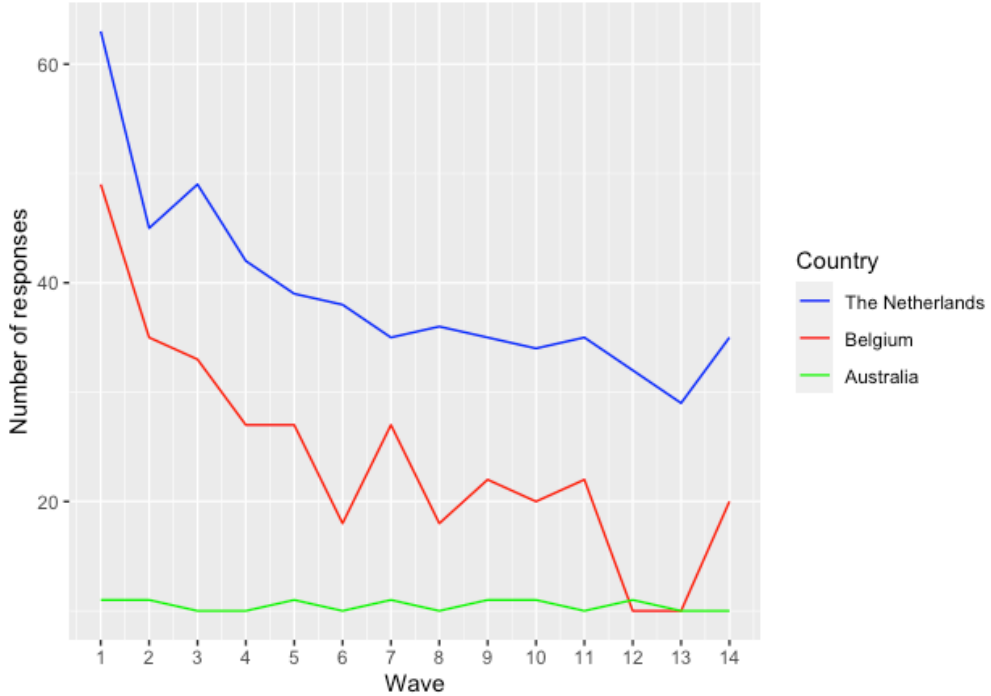
We collected information in the first wave of our study to construct the following control variables: gender, age, country of birth, country of current residence, postal code, household composition, household financial situation, time horizon for financial planning, household income, three largest recurring expenditures, highest level of education, home-ownership status, personality traits (short version of the Big 5, TIPI)[47], self-esteem, risk-aversion, and perceived social support (nonwork-based).

3.3 Sample statistics

3.3.1. Response development per country and wave

Participant recruitment has proven more challenging than expected. Despite the hundreds of thousands of households with financial problems in our countries, finding ways to reach them and motivate them to participate in a six-month long study during the COVID-19 pandemic has been difficult, even when working together with key organisations in the field. Nevertheless, we obtained 245 participant registrations through our website for the first batch (145 NL, 64 BE and 36 AU) and an additional 62 for the second batch (9 NL, 50 BE, 3 AU). Out of 245 registrations of the first batch, 101 completed the informed consent on the first page of the first survey wave. The remaining 144 registered persons were also invited, but did not give consent and were discarded from the study. For the second batch, 26 out of the 62 registered participants gave consent and the remaining were discarded. Figure 1 shows the ensuing response development per country and wave. Of the 127 respondents who provided informed consent in wave 1 (101 respondents from the first and 26 from the second batch), 123 completed the first survey with sufficient detail to be included in the analysis.

Figure 1. Response development per country and wave



Note: N Wave 1= 123, N Wave 7= 73, N Wave 14= 65

3.3.2. Demographic characteristics of our sample

The average age of the 123 respondents at wave 1 is 48 years. A small majority (54%) of our sample is female. In terms of education, our sample is skewed towards the higher end of educational attainment, that is, 69% have completed tertiary education as highest level of education, 24% secondary education and 6% primary education.

Regarding residential tenancy, we observe that nearly half (49%) of the respondents are renters. The remainder either own their dwelling outright (11%) or are mortgagors (36%). With respect to household composition, we note that 37% of the respondents are single, 22% live in a couple household with (20%) or without (22%) children living at home, whilst 11% are single with children living at home.

3.3.3. Financial background characteristics of our sample

When asked to describe their household's financial situation, 28% save regularly by setting aside money monthly, 7% spend regular income and save other (windfall) income, 25% save irregularly only when there is money left, 24% do not save and usually spend their entire income, 15% do not save and usually spend more than their income,. When asked about their most important time horizon for planning their expenditures and savings, 7% indicate 'the next week' is most important, 33% indicate the next few months, 21% answer 'the next year', 15% answer 'the next 2-4 years', 18% answer 'the next 5-10 years' and 7% answers 'more than 10 years ahead'. When asked to list the three types of expenditures that usually take up most of their income, the top answers are rent/mortgage (84% of respondents), food (58%), utilities (gas/water/electricity) (42%), insurance premiums (28%), car costs (18%), and medical costs (13%).

3.3.4. Summary statistics and correlations for our main variables of interest

Tables 1, 2 and 3 present the summary statistics of our main variables of interest of our sample at respectively waves 1, 7 and 14. These are the waves for which we have the most extensive list of dependent variables, including for instance social and human capital investments and labour market behaviours that were only asked in these particular waves. In the correlation matrix we see that as expected *financial worry* is strongly negatively correlated with *psychological health*, ranging from -.70 (wave 7) to -.62 (wave 1). Moreover, we observe a strong negative correlation between *financial worry* and *life satisfaction*, ranging from -.53 (wave 7) to -.67 (wave 14). Furthermore, *financial worry* correlates negatively with the other subjective financial well-being indicator which is the *comparative financial position*. In addition, *financial worry* correlates positively with the objective financial wellbeing measure *liquidity constraints* and with its derivatives *cash-flow problems* and *financial hardship* in each of these waves. As expected, the correlation between *financial worry* and *financial hardship* is consistently larger in size as compared to the correlation between *financial worry* and *cash-flow problems*, underscoring that financial hardship is the more severe type of liquidity constraint, with the largest impact on subjective financial well-being. Similarly, we observe the same pattern of negative correlations between the subjective financial well-being measure *comparative financial position* and the objective measures *liquidity constraints*, *cash-flow problems*, and *financial hardship*. This shows consistency in the relations between subjective and objective measures of financial well-being.

Next, Tables 2 and 3 show that *unexpected large expenses* and *negative financial events* are correlated positively with *financial worry*, whereas *positive financial events* are not statistically significantly related to *financial worry*. However, statistically significant correlations between *positive financial events* and *liquidity constraints* and *financial hardship* in Table 2, show tentative evidence that positive financial events might help mitigate the most severe type of liquidity constraint. Further, Tables 1 and 2 show a negative correlation between *financial worry* and *work self-efficacy*, whereas Table 1 shows negative correlations between *financial worry* and *learning participation* and *social capital investments*.

Table 1. Summary statistics of Wave 1.

	Mean	SD	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Financial Worry	3.00	1.05	124	--											
2. Psychological Health	3.51	.72	124	-.62***	--										
3. Learning Participation (1=Yes)	.85	.36	123	-.23*	.26**	--									
4. Social Capital Investments	3.51	.79	59	-.28*	.16	.20	--								
5. Work Self Efficacy	4.13	.78	59	-.27*	.42***	.24	.31*	--							
6. Liquidity Constraints (1=Yes)	.51	.50	125	.63***	-.44***	-.15	-.30*	-.14	--						
7. Cash-flow Problems (1=Yes)	.33	.47	124	.46***	-.23**	.01	-.28*	.06	.69***	--					
8. Financial Hardship (1=Yes)	.45	.50	125	.65***	-.48***	-.16	-.32*	-.16	.88***	.51***	--				
9. Comparative Financial Position	2.40	1.08	125	-.66***	.49***	.14	.18	.30*	-.43***	-.30***	-.49***	--			
10. Life satisfaction	66.98	21.95	122	-.64***	.75***	.17	.23	.38**	-.42***	-.33***	-.47***	.59***	--		
11. Looking for work (1=Yes)	.64	.50	14	-.13	.22	.37	C	C	-.03	.26	-.14	.28	-.22	--	
12. Job Search Self Efficacy	3.92	1.21	9	.14	-.42	C	C	C	-.22	-.36	-.42	.17	-.32	C	--

Notes. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.
C. Cannot be computed because at least one of the variables was not measured for these respondents due to survey-routing or non-response.

Table 2. Summary statistics of Wave 7.

	Mean	SD	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Financial Worry	2.55	1.07	74	--												
2. Psychological Health	3.65	.75	74	-.70***	--											
3. Learning Participation (1=Yes)	.76	.43	74	-.13	.25*	--										
4. Social Capital Investments	3.85	.68	40	-.07	-.21	.16	--									
5. Work Self Efficacy	4.20	.58	40	-.33*	.17	.01	.21	--								
6. Liquidity constraints (1=Yes)	.28	.45	74	.72***	-.58***	-.13	.05	.00	--							
7. Cash-flow Problems (1=Yes)	.11	.31	74	.53***	-.49***	-.12	.11	-.08	.55***	--						
8. Financial Hardship (1=Yes)	.25	.43	73	.61***	-.49***	-.12	-.01	.03	.93***	.35**	--					
9. Comparative Financial Position	2.51	1.10	74	-.60***	.47***	.09	.10	.29	-.52***	-.28*	-.49***	--				
10. Life satisfaction	70.05	20.70	73	-.53***	.68***	.25*	.06	.08	-.48***	-.27*	-.47***	.51***	--			
11. Unexp. Large Expenses (1=Yes)	.38	.49	74	.40***	-.27*	.18	.09	-.26	.31**	.27*	.22	-.19	-.11	--		
12. Neg. Fin. Events (1=Yes)	.20	.41	74	.56***	-.53***	-.03	.25	-.10	.58***	.58***	.45***	-.27*	-.35**	.51***	--	
13. Pos. Fin. Events (1=Yes)	.16	.37	74	-.09	.07	.16	.00	-.40*	-.28*	-.15	-.25*	-.04	-.03	-.12	-.22	--

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Table 3. Summary statistics of Wave 14.

	Mean	SD	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Financial Worry	2.61	1.05	64	--												
2. Psychological Health	3.62	.79	65	-.69***	--											
3. Learning Participation (1=Yes)	.72	.45	65	-.04	.07	--										
4. Social Capital Investments	3.59	.80	35	-.25	.16	.32	--									
5. Work Self Efficacy	4.09	.76	35	-.30	.28	.28	.53**	--								
6. Liquidity Constraints (1=Yes)	.35	.48	65	.70***	-.58***	.10	-.12	-.18	--							
7. Cash-flow Problems (1=Yes)	.17	.38	65	.54***	-.38**	.01	-.19	-.24	.61***	--						
8. Financial Hardship (1=Yes)	.32	.47	65	.67***	-.57***	.06	-.16	-.19	.93***	.48***	--					
9. Comparative Financial Position	2.58	1.09	65	-.66***	.50***	.05	.20	.24	-.46***	-.24*	-.50***	--				
10. Life satisfaction	67.22	23.57	65	-.67***	.74***	.18	.37*	.33	-.50***	-.22	-.55***	.62***	--			
11. Unexp. Large Expenses (1=Yes)	.40	.49	65	.50***	-.44***	.23	-.22	-.22	.51***	.39**	.51***	-.36**	-.32*	--		
12. Neg. Fin. Events (1=Yes)	.28	.45	65	.42***	-.40***	.15	.17	.06	.48***	.09	.46***	-.24	-.34**	.27*	--	
13. Pos. Fin. Events (1=Yes)	.20	.40	65	-.09	-.03	.05	.21	-.08	.11	.08	.15	.05	.11	.06	-.05	--

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

4. Answers to the research questions

4.1 To what extent does financial worry vary over time? To what extent do personal well-being, social and human capital and labour market behaviour vary over time?

To answer this question, we first look at average *financial worry*, *psychological health* and *life satisfaction* per country and wave. Second, we show the variance of our repeated measures at both the between and within-person level.

Figure 2 shows the average financial worry per wave per country. We observe that *financial worry* varies over time even when averaged over all respondents per wave/country. The average financial worry of Belgian respondents appears higher and more dynamic as compared to Dutch and Australian respondents.

Figure 2. Financial Worry for respondents in each Country over Time (September 2021 – March 2022)

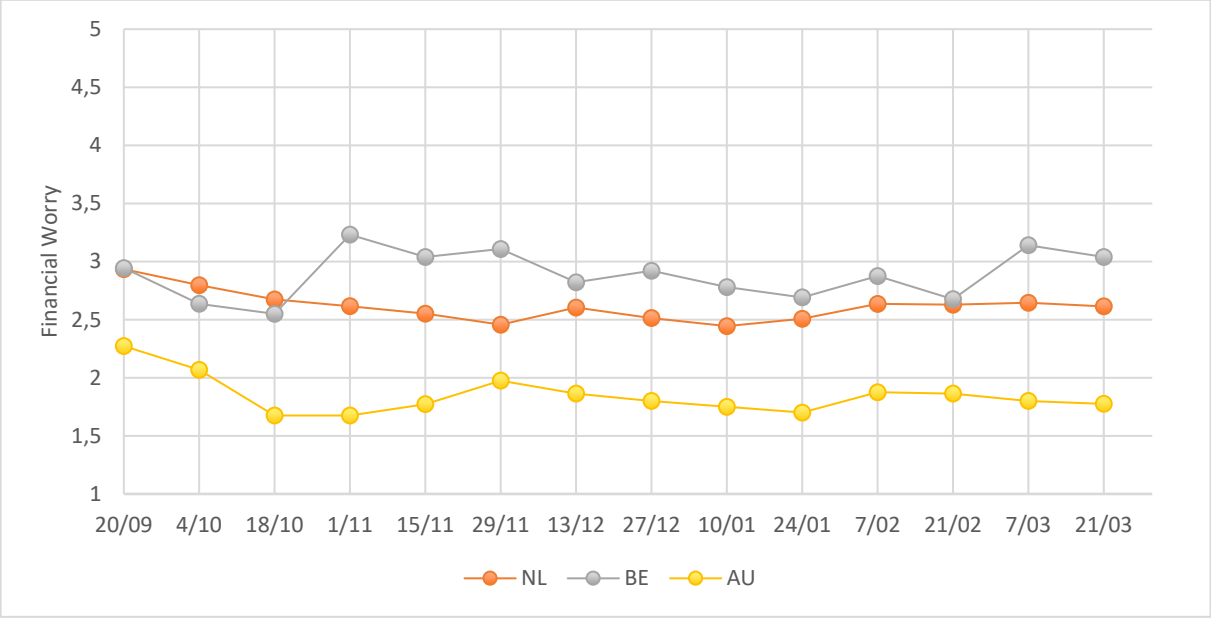


Figure 3 shows the average psychological health per wave per country. We observe that *psychological health* is rather stable among respondents across these countries and waves. In absolute terms *psychological health* is consistently well above the mid-point value of the scale for Australian and Dutch respondents and slightly above for Belgian respondents.

Figure 4 shows the average life satisfaction per wave per country. We observe that *life satisfaction* is rather stable for Australian and Dutch respondents. For Belgian respondents, it seems to show a slight declining trend over the study period.

Figure 3. Psychological Health for respondents in each Country over Time (September 2021 – March 2022)

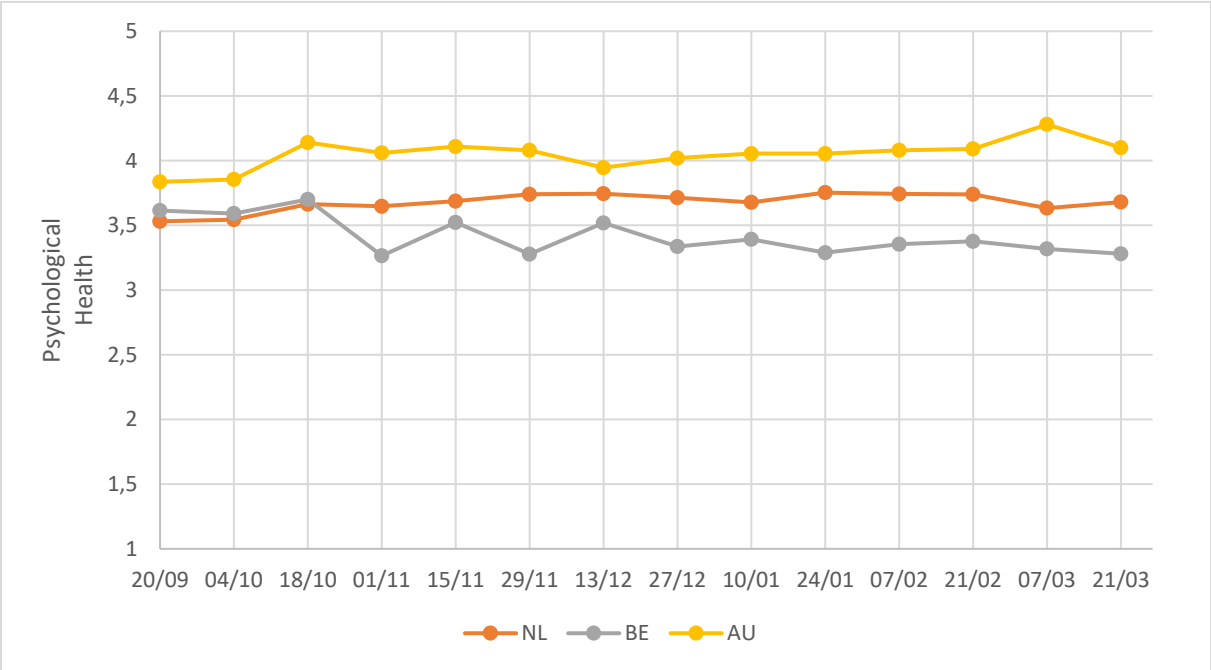


Figure 4. Life Satisfaction for respondents in each Country over Time (September 2021 – March 2022)

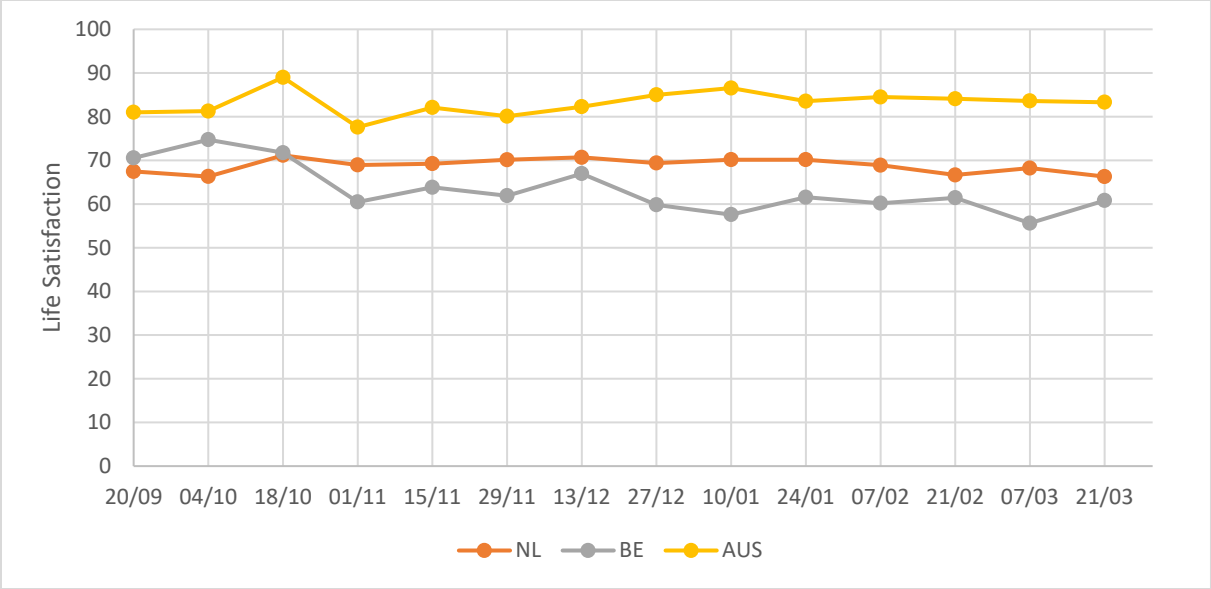


Table 4 shows the variance at both the between and within-person level for each of the variables. This analysis pools the observations from all three countries. With regard to within person variation, the literature considers 10 percent the threshold above which researchers can conclude that there is individual variation over time. We see that apart from *life satisfaction* (.09), all variables have a within-person variance higher than 10 percent, meaning that these variables show statistically significant within-person variation across our survey waves. In addition, we note high between-person variation for most of the variables, signalling that our sample is very diverse in terms of respondent experience and perception of financial worry and other measures.

Table 4. Between and Within-Person variance of the repeated measures.

	N observations	N waves measured	Between-person variance (ICC)	Within-person variance
Financial Worry	1032	14	.85	.15
Psychological Health	1035	14	.81	.19
Learning Participation (1=Yes)	264	3	.36	.64
Social Capital Investments	134	3	.45	.55
Work Self Efficacy	134	3	.58	.42
Liquidity Constraints (1=Yes)	913	14	.75	.25
Cash-flow Problems (1=Yes)	912	14	.62	.38
Financial Hardship (1=Yes)	912	14	.77	.23
Comparative Financial Position	1038	14	.76	.24
Life Satisfaction	1010	14	.91	.09
Search Hours	16	3	.13	.87

4.2 How strongly is financial worry associated with personal well-being, social and human capital and labour market behaviour, at the within- and between-person level?

4.2.1. Within person associations of financial worry and the outcome variables

The within-person associations between financial worry and the outcome variables are shown in Table 5. The upper part of the table shows the results from analyses pooling the observations from all three countries. *Financial worry* is negatively related to *psychological health* and *life satisfaction*, suggesting that *at times when* individuals experience an increase in financial worries their subjective psychological health and level of life satisfaction drops. These results remain statistically significant when we look at only the Dutch or Belgian respondents in our sample (respectively middle and lower parts of Table 5). Additionally, the middle part of the table shows that among Dutch respondents, a one-unit increase in *financial worry* is associated with a 0.46 decrease in *work self-efficacy*.

Table 5. Association between Financial Worry and the outcome variables at the Within-person Level.

	Financial Worry			
	Coefficient	Confidence Interval	p-value	No. of observations
	Pooled data from all three countries			
Psychological Health	-0.23***	[-0.28, -0.18]	<.001	1027
Learning Participation (1=Yes)	-0.01	[-0.11, 0.11]	0.99	261
Social Capital Investments	-0.06	[-0.32, 0.20]	0.64	134
Work Self-Efficacy	-0.06	[-0.28, 0.16]	0.57	134
Life Satisfaction	-4.29***	[-5.33, -3.24]	<.001	1003
Search Hours	8.79	[-45.12, 62.71]	0.73	16
	The Netherlands			
Psychological Health	-0.16***	[-0.23, -0.09]	<.001	525
Learning Participation (1=Yes)	0.06	[-0.10, 0.23]	.46	133
Social Capital Investments	-0.30	[-0.80, 0.21]	.25	58
Work Self-Efficacy	-0.46*	[-0.88, -0.05]	.03	58
Life Satisfaction	-3.10***	[-4.61, -1.59]	<.001	527
Search Hours	-8.18	[-97.01, 80.66]	.82	9

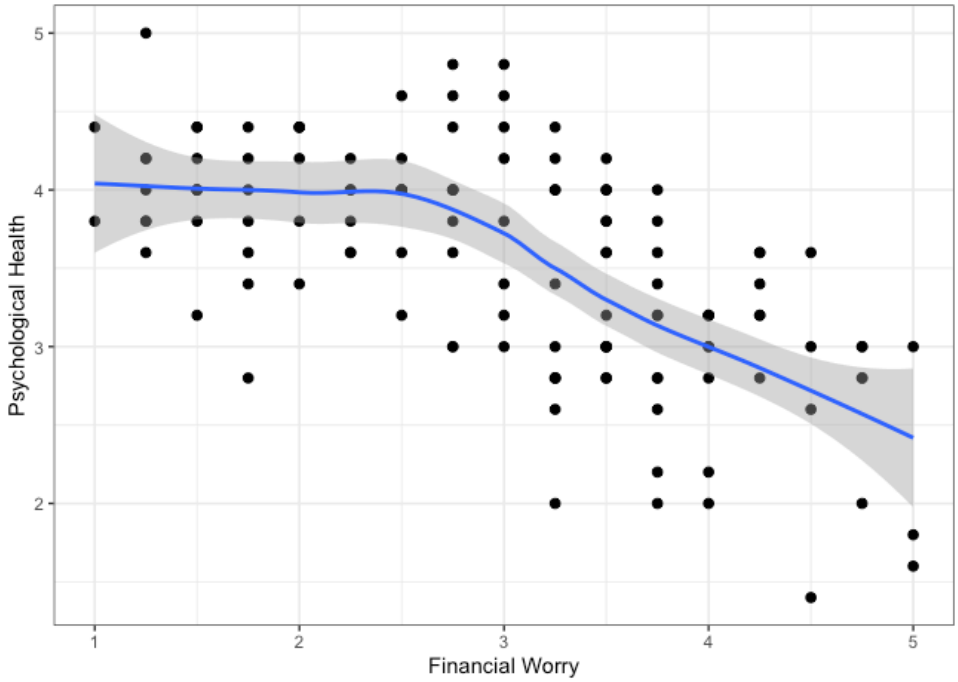
	Belgium			
Psychological Health	-0.29***	[-0.38, -0.21]	<.001	335
Learning Participation (1=Yes)	-0.04	[-0.20, 0.11]	.57	96
Social Capital Investments	0.05	[-0.28, 0.39]	.75	54
Work Self-Efficacy	0.14	[-0.19, 0.47]	.41	54
Life Satisfaction	-5.62***	[-7.30, -3.93]	<.001	329
Search Hours	C	C	C	C

Notes. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.
C = The analysis was not possible on *search hours* for Belgium due to a very small sample.

4.2.2. Between-person associations of financial worry and the outcomes variables

The between-person associations presented here were examined using data collected during wave 1. First, we tested the between-person association between *financial worry* and *psychological health*. The bivariate association between both variables is visually depicted by means of a scatterplot (see Figure 5), the scatterplot shows that people with high (versus low) levels of financial worry tend to have lower (versus higher) levels of subjective psychological health.

Figure 5. Association between Financial Worry and Psychological Health (N=123) (between-person level)



Next, we conducted a multivariate regression analysis, regressing *psychological health* on *financial worry*, demographics (i.e., gender, age, educational level), emotional stability, household income, liquidity constraints, and comparative financial position (see Table 6). Financial worry is negatively related to psychological health (regression coefficient = - 0.43, $p < 0.001$). This means that a one-unit increase in financial worry is associated with a 0.43 decrease in psychological health. Even after accounting for the effect of demographics, emotional stability, household income, liquidity constraints, and comparative financial situation, the relationship between financial worry and psychological health remained statistically significant (regression coefficient = - 0.29, $p < 0.001$).

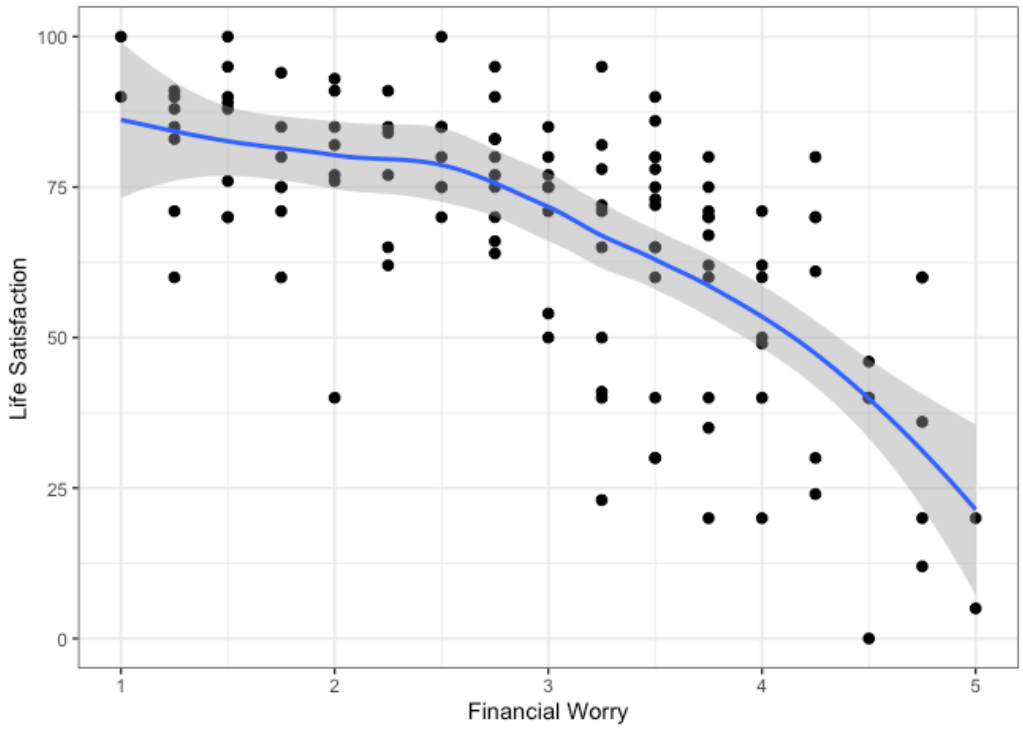
Table 6. Adding Control Variables to the Relation between Financial Worry and Psychological Health (Between-person level analysis)

	Estimating Psychological Health					
	Model 0: Financial Worry	Model 1: Added demographics (age, gender, level of education)	Model 2: Added Emotional Stability	Model 3: Added Income	Model 4: Added Liquidity Constraints	Model 5: Added Comparative Financial Position
Intercept	4.80***	4.40***	2.93***	2.98***	3.04***	3.06***
Financial Worry	-0.43***	-0.43***	-0.31***	-0.33***	-0.29***	-0.29***
Age		0.01	-0.00	-0.00	-0.00	-0.00
Female		0.05	0.14	0.17	0.14	0.14
Level of education		0.02	0.04	0.03	0.03	0.03
Emotional Stability			0.38***	0.37***	0.37***	0.38***
Household Income				-0.01	-0.01	-0.01
Liquidity Constraints					-0.17	-0.17
Comparative Financial Position						-0.01
Total R^2	.38***	.37***	.57***	.57***	.58***	.57***
R^2 Change		-.01	.20***	0	.01	-.01
N of observations	123	122	121	120	120	120

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Second, we performed the same type of analyses using *life satisfaction* as the dependent variable, producing very similar visual results (Figure 6).

Figure 6. Association between Financial Worry and Life Satisfaction (N=121) (Between-person level analysis)



Next, we conducted a multivariate regression analysis (see Table 7). *Financial worry* is negatively related to *life satisfaction* (regression coefficient = - 13.55, $p < 0.001$): a one-unit increase in financial worry is associated with a 13.55 drop in life satisfaction. After accounting for the effect of demographics, emotional stability, household income, liquidity constraints, and comparative financial position, the relationship between financial worry and life satisfaction remains statistically significant (regression coefficient = - 8.02, $p < 0.001$).

Table 7. Adding Control Variables to the Relation between Financial Worry and Life Satisfaction (Between-person level analysis)

	Estimating life satisfaction					
	Model 0: Financial Worry	Model 1: Added demographics (age, gender, level of education)	Model 2: Added Emotional Stability	Model 3: Added Income	Model 4: Added Liquidity Constraints	Model 5: Added Comparative Financial Position
Intercept	107.36***	91.74***	61.46***	55.99***	56.24***	45.79**
Financial Worry	-13.55***	-13.44***	-11.04***	-10.41***	-10.23***	-8.02***
Age		0.14	0.02	0.05	0.05	0.07
Female		1.70	3.44	3.91	3.82	3.07
Level of education		2.29	2.13	1.06	1.04	0.49
Emotional Stability			7.91***	7.79***	7.81***	6.92***
Household Income				0.57	0.54	0.43
Liquidity Constraints					-0.75	-0.98
Comparative Financial Position						3.90*
Total R^2	.41***	.40***	.50***	.50***	.50***	.52***
R^2 Change		-.01	.10***	0	0	.02*
N of observations	121	120	120	119	119	119

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Turning to the relation between *financial worry* and *social capital investments*, Figure 7 suggests that there may be a negative relationship, as high levels of financial worry appear to be associated with lower levels of social capital investments. This visual impression is confirmed by the results of a bivariate linear regression analysis (see Table 8): the relation between financial worry and social capital investments is statistically significant at $p < 0.05$ (regression coefficient = - 0.23, $p = 0.03$). However, the effect becomes statistically insignificant after controlling for respondents' education level, which absorbs most of the bivariate effect of financial worry on social capital investments.

Figure 7. Association between Financial Worry and Social Capital Investments (N=59) (Between-person level analysis)

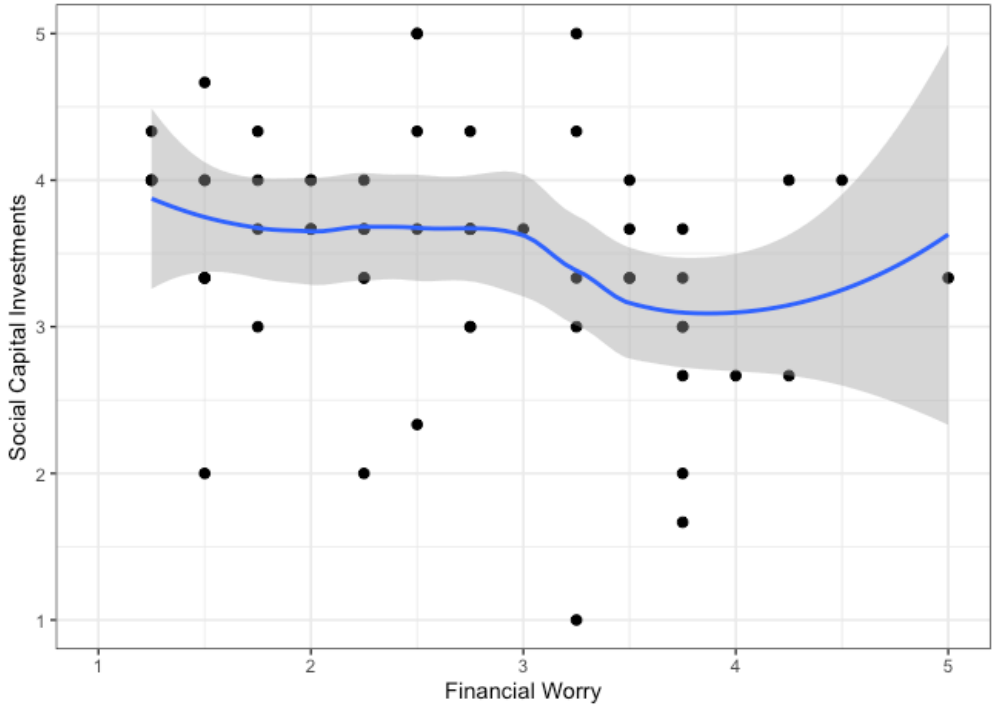


Table 8. Adding Control Variables to the Relation between Financial Worry and Social Capital Investments (Between-person level analysis)

	Estimating social capital investments					
	Model 0: Financial Worry	Model 1: Added demographics (age, gender, level of education)	Model 2: Added Emotional Stability	Model 3: Added Income	Model 4: Added Liquidity Constraints	Model 5: Added Comparative Financial Position
Intercept	4.13***	2.35*	2.21*	2.02	2.31	2.13
Financial Worry	-0.23*	-0.14	-0.13	-0.10	-0.06	-0.04
Age		-0.01	-0.01	-0.01	-0.01	-0.01
Female		-0.11	-0.11	-0.09	-0.13	-0.14
Level of education		0.70**	0.70**	0.66*	0.61*	0.63*
Emotional Stability			0.04	0.04	0.02	0.02
Household Income				0.02	0.01	0.01
Liquidity Constraints					-0.25	-0.23
Comparative Financial Position						0.04
Total R^2	.06*	.15*	.14*	.12	.12	.10
R^2 Change		.09*	-.01	-.02	0	-.02
N of observations	59	58	58	57	57	57

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Figure 8 shows no association between *financial worry* and *learning participation*, which is corroborated in the statistical analyses. We find that financial worry is not statistically significantly associated to learning participation

(regression coefficient = - 0.37, p = 0.77). Multivariate regression analyses in Table 9 confirm this statistically insignificant relation.

Figure 8. Association between Financial Worry and Learning Participation (N=122) (Between-person level analysis)

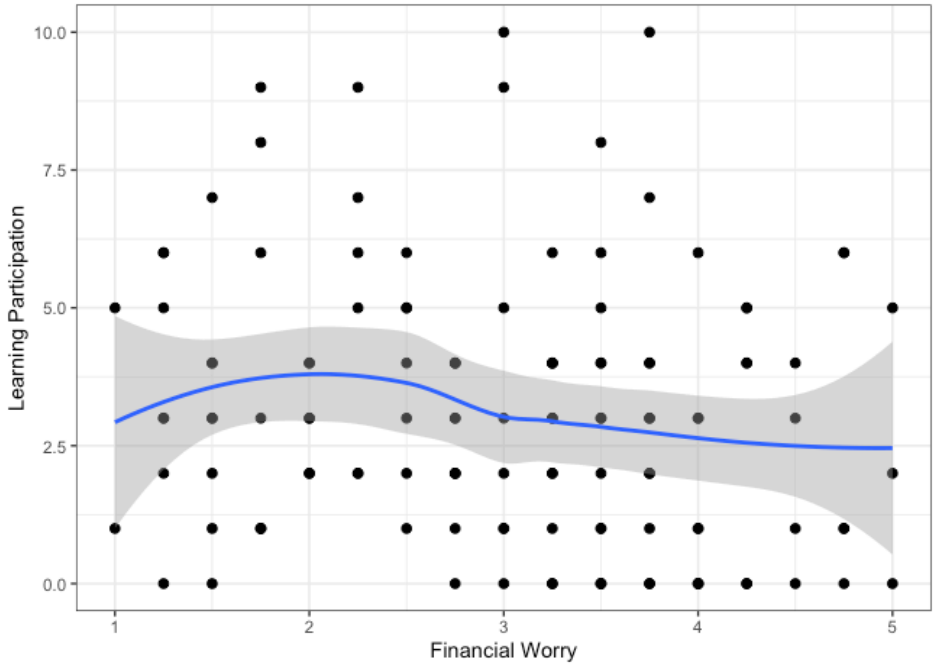


Table 9. Adding Control Variables to the Relation between Financial Worry and Learning Participation (Between-person level analysis)

	Estimating learning participation					
	Model 0: Financial Worry	Model 1: Added demographics (age, gender, level of education)	Model 2: Added Emotional Stability	Model 3: Added Income	Model 4: Added Liquidity Constraints	Model 5: Added Comparative Financial Position
Intercept	4.21***	5.79***	3.09	2.31	2.08	2.23
Financial Worry	-0.37	-0.30	-0.05	0.09	-0.08	-0.11
Age		-0.04*	-0.05**	-0.05**	-0.05**	-0.05**
Female		-0.18	-0.06	-0.10	-0.01	0.00
Level of education		0.23	0.22	0.11	0.13	0.14
Emotional Stability			0.68**	0.68**	0.67**	0.68*
Household Income				0.09	0.11	0.12
Liquidity Constraints					0.67	0.67
Comparative Financial Position						-0.06
Total R^2	.02	.05*	.10**	.10**	.10**	.09*
R^2 Change		.03	.05**	0	0	-.01
N of observations	122	121	120	119	119	119

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Finally, Figure 9 shows the association between *financial worry* and *work self-efficacy* at the between-person level. In this case, it is quite challenging to draw conclusions based on visual inspection of the graph. The linear regression analyses in Table 10 provide more insights. The table shows that financial worry is negatively related to work self-efficacy (regression coefficient = - 0.22, p = 0.04). The relation remains statistically significant in model 1 where we control for basic demographics, but becomes statistically insignificant as soon as we control for emotional stability.

Figure 9. Association between Financial Worry and Work Self-Efficacy (N=59) (Between-person level analysis)

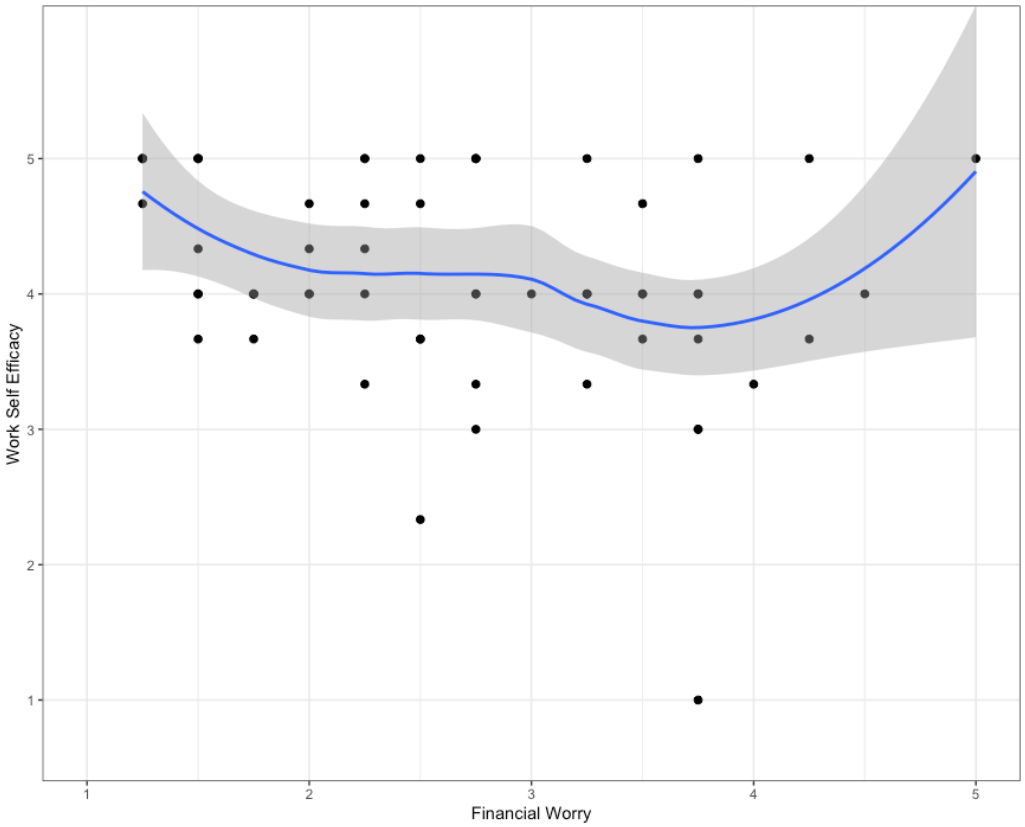


Table 10. Adding Control Variables to the Relation between Financial Worry and Work Self-Efficacy (Between-person level analysis)

	Estimating work self-efficacy					
	Model 0: Financial Worry	Model 1: Added demographics (age, gender, level of education)	Model 2: Added Emotional Stability	Model 3: Added Income	Model 4: Added Liquidity Constraints	Model 5: Added Comparative Financial Position
Intercept	4.72***	3.96***	2.78**	2.77*	2.55*	1.96
Financial Worry	-0.22*	-0.23*	-0.13	-0.13	-0.16	-0.08
Age		0.01	-0.00	-0.00	-0.00	-0.00
Female		0.12	0.11	0.11	0.13	0.10
Level of education		0.09	0.14	0.14	0.18	0.23
Emotional Stability			0.34**	0.34**	0.36**	0.34*
Household Income				0.00	0.01	0.01
Liquidity Constraints					0.18	0.22
Comparative Financial Position						0.14
Total R^2	.06*	.03	.14*	.12	.11	.11
R^2 Change		-.03	.11**	-.02	-.01	0
N of observations	59	58	58	57	57	57

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

4.2.3 How do events that may happen to households relate to financial worry / satisfaction?

4.2.3.1. Effects of unexpected large expenses and unexpected negative and positive financial events

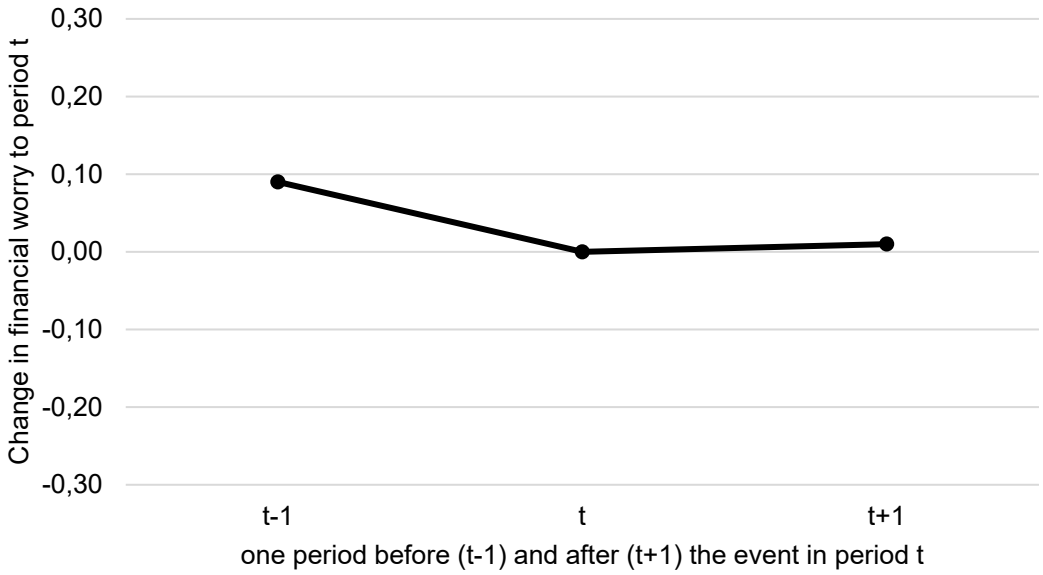
Unexpected large expenses or events with negative (positive) financial consequences may also influence a respondent's financial worry or their life satisfaction. Therefore, we looked at *financial worry* and *life satisfaction* one period before and one period after a respondent reported *unexpected large expenses*, a *negative financial event*, or a *positive financial event* to explore changes in financial worry and life satisfaction around unexpected large expenses or financial events.

To ensure we capture the effect of a particular unexpected large expense or a negative or positive financial event on a respondent's financial worry or life satisfaction, we focused on incidences in which respondents reported one expense / event, but no other expenses / events in the same wave or the waves immediately preceding or following the wave in which the respondent reported the expense / event.

We identified 67 unexpected large expenses in our data set (most prevalent unexpected large expenses are household item repairs and health care bills), 43 events with negative financial consequences (most prevalent negative events are employment loss / or loss of working hours and increased energy costs) and 53 events with positive financial consequences (most prevalent positive events are gifts from family/friends, tax returns and bonuses/salary increases at work). In the below graphs we show the average deviation in financial worry and life satisfaction in the wave preceding the expense / event and the wave following the expense event compared to financial worry or life satisfaction in the wave in which the event occurred.

Figure 10 illustrates the effect of an *unexpected large expense* on *financial worry*. We note that financial worry is higher immediately before (wave *t* – 1) and marginally higher after (wave *t* + 1) the unexpected large expense in wave *t*. The former does not align with expectation.

Figure 10. Effect of an unexpected large expense in period *t* on financial worry (N=67)



The effect of an unexpected large expense on life satisfaction does accord with expectation. That is, Figure 11 shows that life satisfaction is higher immediately before (wave *t* – 1) the incidence of the unexpected large expense and does not (or only marginally) recover after in wave *t* + 1, suggesting the impact of an unexpected large expense on life satisfaction is longer lasting.

Figure 11. Effect of an unexpected large expense in period *t* on life satisfaction (N=67)

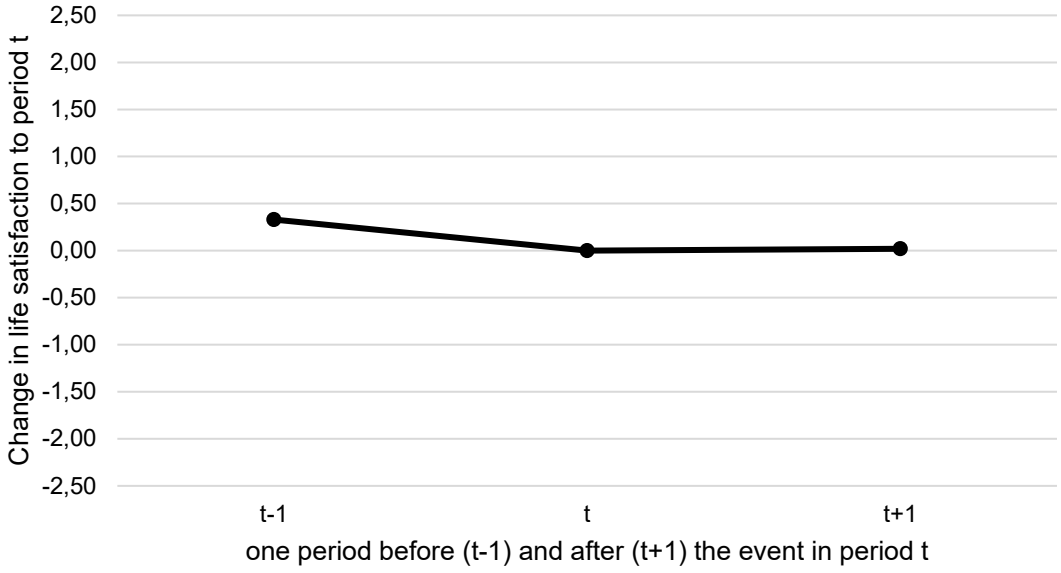


Figure 12 shows the effect of an event with negative financial consequences on financial worry. We note that financial worry is lower immediately before (wave *t* – 1) and after (wave *t* + 1) the event with negative financial consequences in wave *t*. That is, the event with negative financial consequences indeed raises financial worry, but does so only momentarily.

Figure 12. Effect of a negative financial event in period *t* on financial worry (N=43)

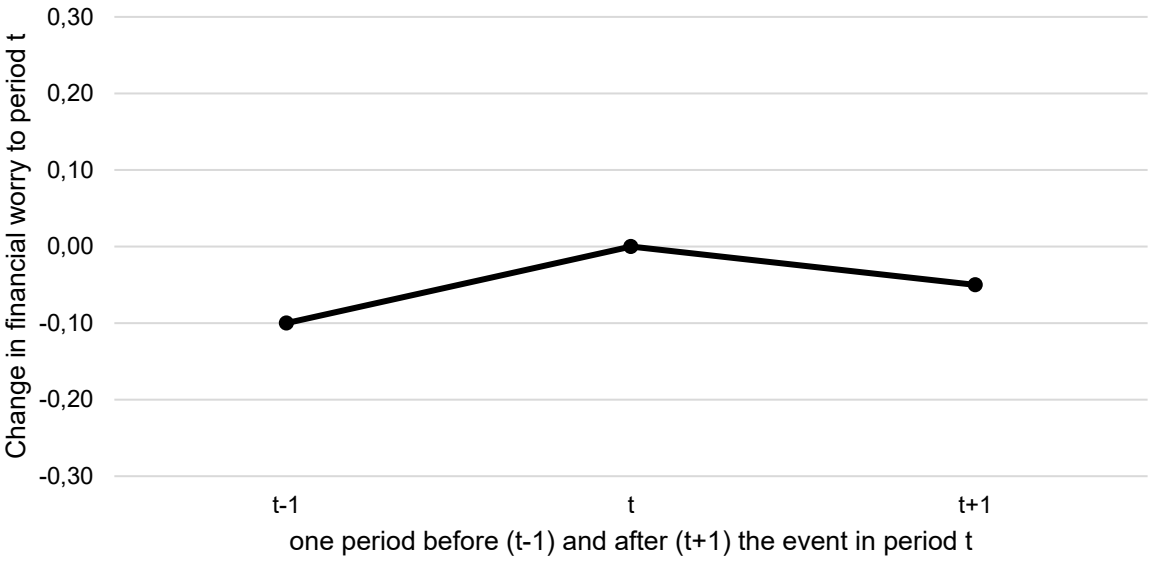
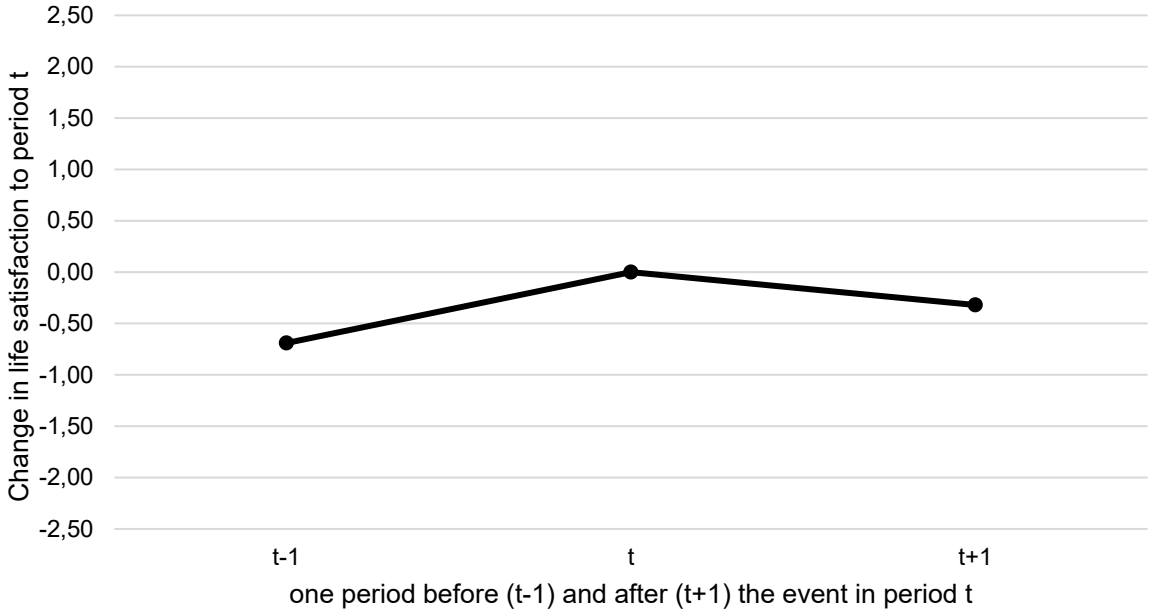


Figure 13 presents the effect of a negative financial event on life satisfaction. We find counterintuitive results. Life satisfaction is lower immediately before (wave *t* – 1) and after (wave *t* + 1) the event with negative financial consequences in wave *t*, which is unexpected given that a negative financial event raises financial worry.

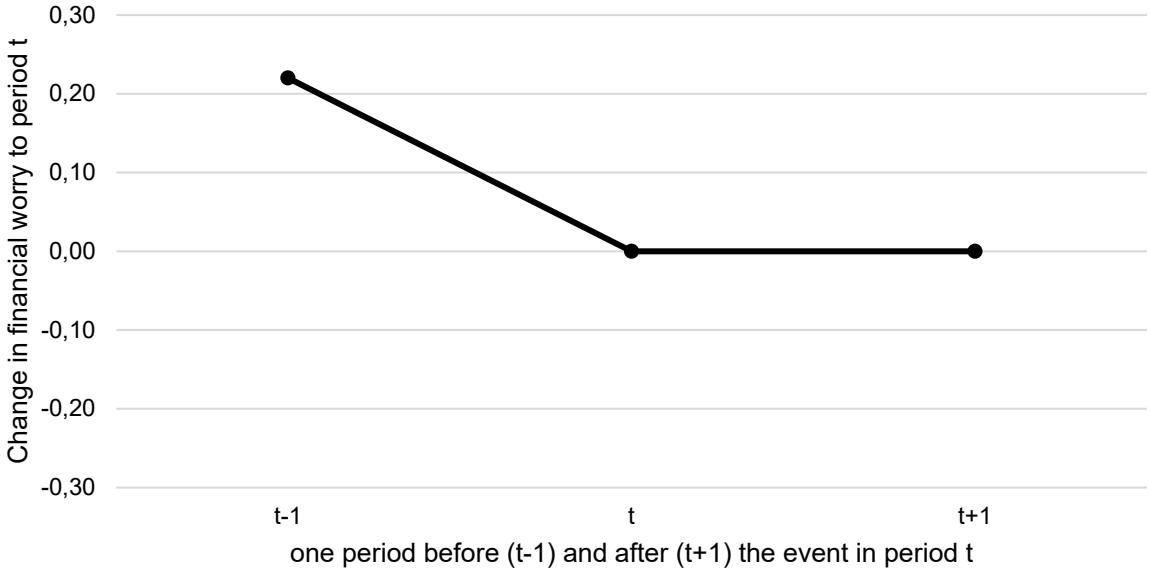
Figure 13. Effect of a negative financial event in period *t* on life satisfaction (N=43)



Turning our attention to events with positive financial consequences, we note that an event with positive financial consequences softens financial worry in the wave in which the event occurs and it continues to have these effects

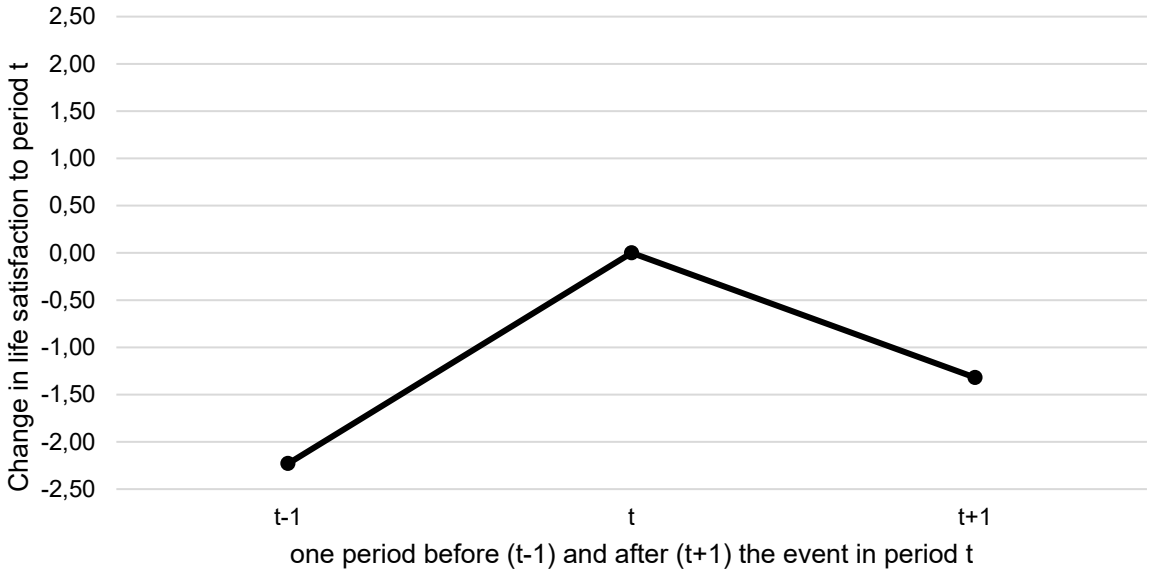
in the following period, suggesting events with positive financial consequences have positive effects on financial worry beyond the wave in which respondents report these events.

Figure 14. Effect of a positive financial event in period *t* on financial worry (N=53)



A similar picture emerges from Figure 15, which illustrates the effects of an event with positive financial consequences on life satisfaction. Life satisfaction increases when an event with positive financial consequences eventuates, then drops in the following wave, but not to the level prior to the event, suggesting longer lasting effects of an event with positive financial consequences on life satisfaction.

Figure 15. Effect of a positive financial event in period *t* on life satisfaction (N=53)



4.2.3.2. A note on timing of transaction events

A specific source of financial worry for almost one third of the respondents is the timing of important transactions on their bank account. For instance, the moment when periodic payments are deducted (e.g., payments for rent, loan or mortgage, health insurance or utilities) and the moment when periodic income is deposited (e.g., wage, benefits or government subsidies). Respondents who perceive this timing as a source of stress report above average levels of financial worry (3.7 on a 5-point scale as opposed to 2.5 for respondents who do not perceive this as a source of stress ($p < 0.001$)). Almost all respondents who indicate that this timing of periodic transactions on their bank account causes them stress also indicate that they would experience less stress if the moment at which they receive their periodic income and the moment at which they have to pay periodic expenses would better align.

4.3 Which micro-, meso-, and macro-level factors moderate the presumed negative within-person and between-person associations between financial worry and personal well-being, social and human capital, and labour market behaviour?

We investigate several variables that may have the potential to act as a buffer (or 'moderator') against the negative effects of financial worry on well-being, social and human capital and labour market behaviour. First, we look at the potential buffering effects of several personality traits. Second, we look at the potential buffering effects of work-based and nonwork-based social support. Finally, we look at the effects that country differences may have. We conduct all steps for both the within- and between-person level.

4.3.1 To what extent does personality mitigate (e.g., self-efficacy) or exacerbate (e.g., risk aversion) the negative effects of financial worry?

Paragraphs 4.3.1.1 through 4.3.1.6 present the results of within-person analyses, followed by paragraphs 4.3.1.7 through 4.3.1.12, which present the results of between-person analyses.

4.3.1.1. Within-person associations between psychological health, financial worry and personality

We investigated the moderating role of personality (i.e., extraversion, openness, agreeableness, conscientiousness, emotional stability, self-esteem, and risk taking) on the within-person relation between financial worry and psychological health. We found that self-esteem is the only personality trait that moderates the within-person relation between financial worry and psychological health (interaction coefficient = 0.05, $p = 0.03$). The statistically significant interaction term indicates that the within-person association differs across levels of self-esteem. A simple slope test (see Figure 16) shows a drop in psychological health when experiencing financial worry across the range of persons from low (1 Standard Deviation (SD) below the sample mean) to high (1SD above the sample mean) levels of self-esteem. However, this drop is more pronounced in low self-esteem (slope = - 0.28, $p < 0.001$) than in high self-esteem respondents (slope = - 0.17, $p < 0.001$). This suggests that interventions aimed at boosting individuals' self-esteem can reduce financial worry-induced psychological health problems.

4.3.1.2. Within-person associations between life satisfaction, financial worry and personality

The within-person relationship between financial worry and life satisfaction is moderated by several personality traits. First, similar to the results for psychological health, we find that self-esteem buffers the negative effect of financial worry on life satisfaction (interaction coefficient = 2.10, $p < 0.001$). The statistically significant interaction term indicates that the within-person association differs across levels of self-esteem. Here too, a simple slope test (see Figure 17) shows a drop in life satisfaction when experiencing financial worry across the range of persons with low (1SD below the sample mean) to persons with high (1SD above the sample mean) levels of self-esteem, but this drop is more pronounced in low self-esteem (slope = - 6.15, $p < 0.001$) than in high self-esteem respondents

(slope = - 1.69, p =0.03). This suggests that interventions aimed at boosting individuals' self-esteem can amend financial worry-induced life satisfaction reductions.

Figure 16. Cross-level interaction between Financial Worry and Self-esteem on Psychological Health ($N_{observations}$=1011; N_{ID}=123)

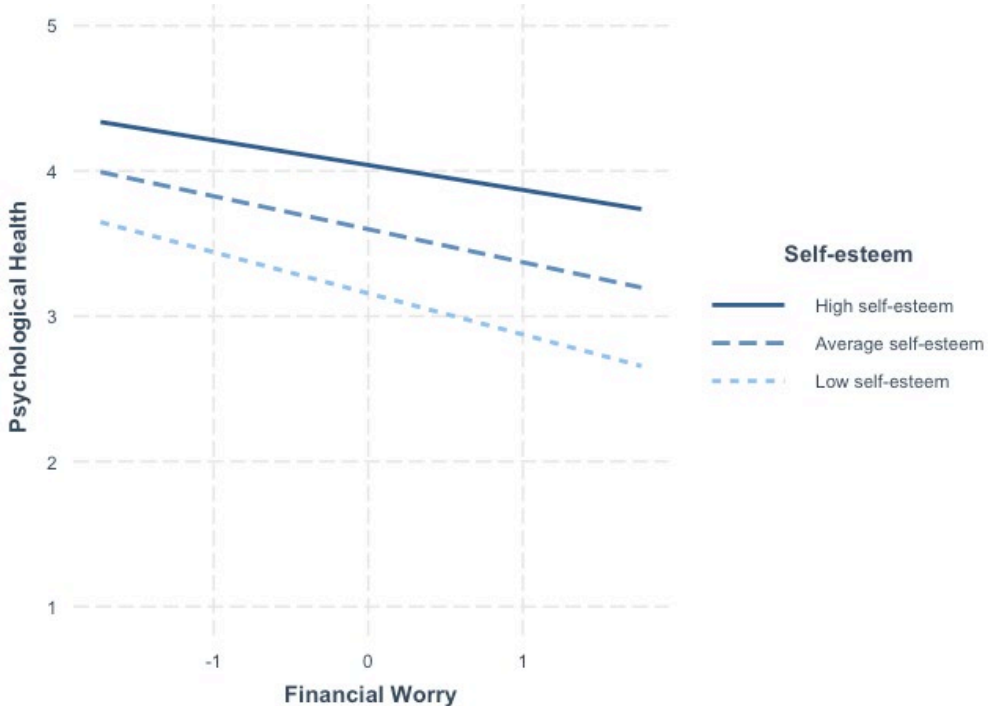
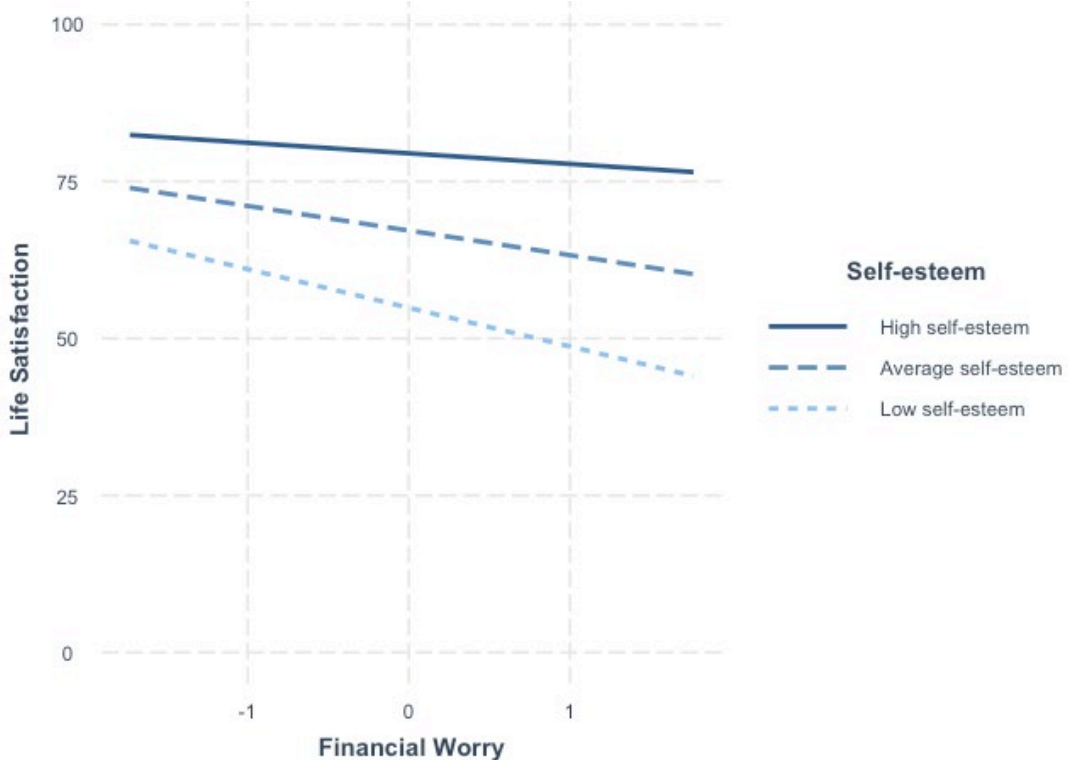
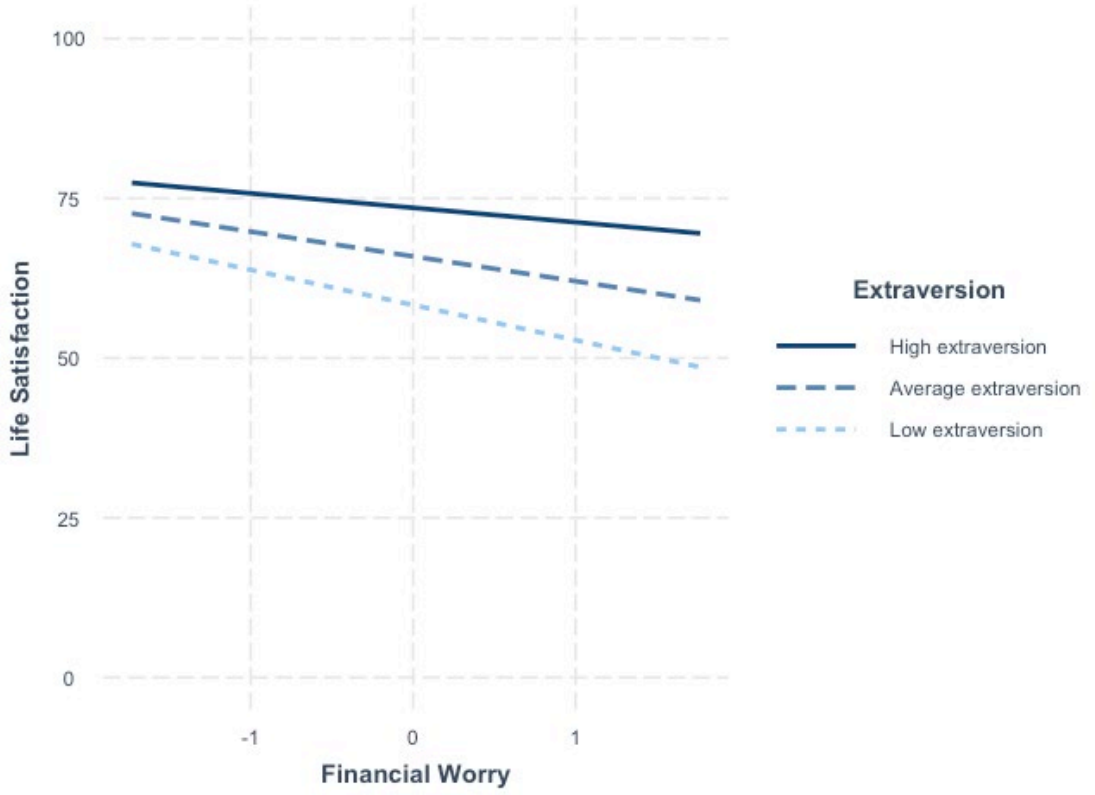


Figure 17. Cross-level interaction between Financial Worry and Self-esteem on Life Satisfaction ($N_{observations}$=988; N_{ID}=121)



Furthermore, we find that extraversion buffers the within-person relationship between financial worry and life satisfaction (interaction coefficient = 1.71, $p = 0.002$). The statistically significant interaction term indicates that the within-person association differs across levels of extraversion. Again, a simple slope test (see Figure 18) shows that more introverted persons (1SD below the sample mean) as well as more extraverted persons (1SD above the sample mean) experience a drop in life satisfaction when worrying about finances, but that this drop is more pronounced in the introverted (slope = - 5.50, $p < 0.001$) than in the extraverted group (slope = - 2.26, $p = 0.01$).

Figure 18. Cross-level interaction between Financial Worry and Extraversion on Life Satisfaction ($N_{observations}$=1000; N_{ID}=122)



Next to self-esteem and extraversion, also emotional stability moderates the relationship between financial worry and life satisfaction (interaction coefficient = 2.27, $p < 0.001$). The statistically significant interaction term indicates that the within-person association differs across levels of emotional stability. Here, a simple slope test (see Figure 19) shows that persons exhibiting below average emotional stability (1SD below the sample mean) experience a drop in life satisfaction when worrying about finances (slope = - 5.64, $p < 0.001$), but that the level of life satisfaction of persons exhibiting above average emotional stability is not impacted by increasing levels of financial worry (slope = - 1.33, $p = 0.09$).

Lastly, the within-person relation between financial worry and life satisfaction is buffered by risk taking (interaction coefficient = 1.06, $p < 0.001$). The statistically significant interaction term indicates that the within-person association differs across levels of risk-taking. Here too, a simple slope test (see Figure 20) shows that persons ranging from low (1SD below the sample mean) to high (1SD above the sample mean) levels of risk-taking experience a drop in life satisfaction when worrying about finances, but that this drop is more pronounced in risk averse (slope = - 6.41, $p < 0.001$) than in risk-seeking respondents (slope = - 1.79, $p = 0.03$).

Figure 19. Cross-level interaction between Financial Worry and Emotional Stability on Life Satisfaction ($N_{observations}$=1003; N_{ID}=123)

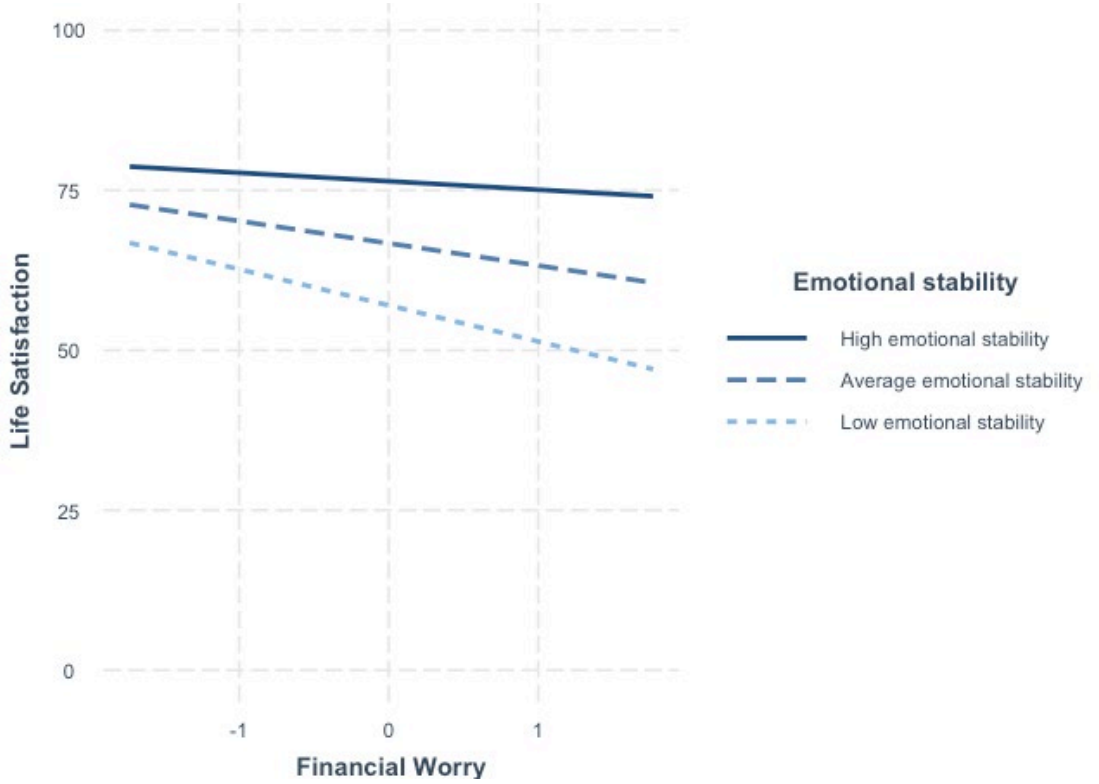
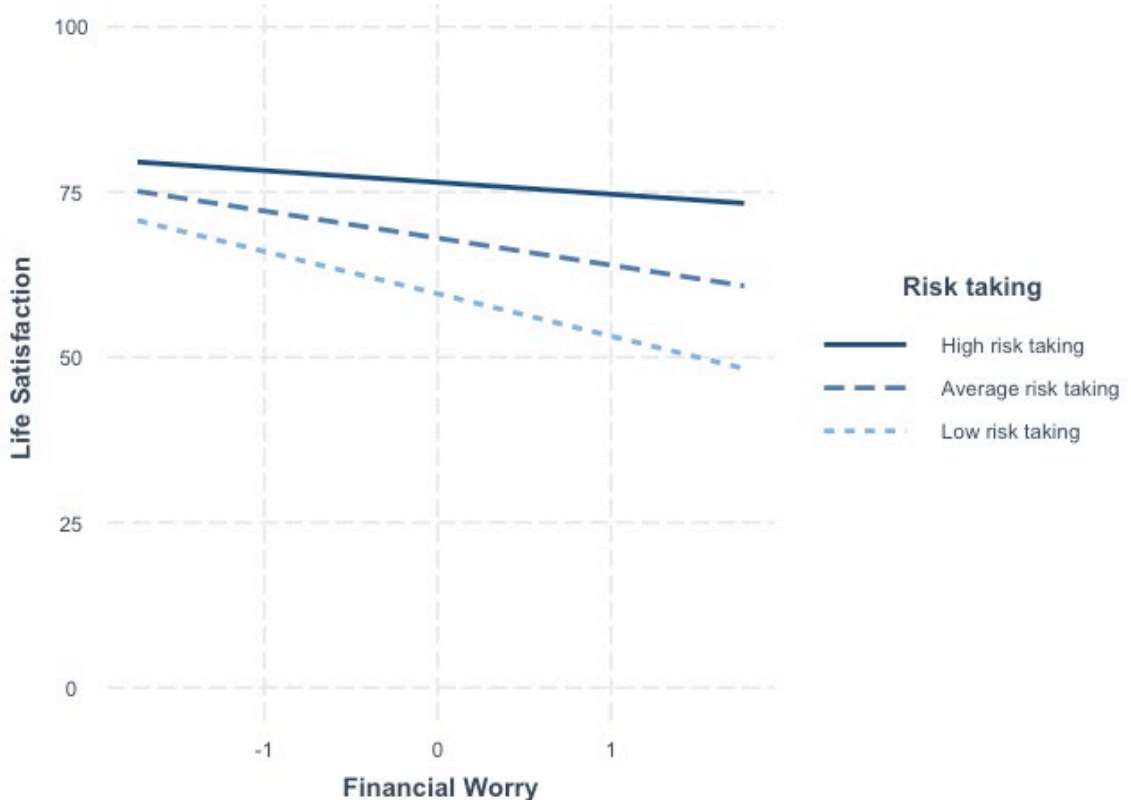


Figure 20. Cross-level interaction between Financial Worry and Risk Taking on Life Satisfaction ($N_{observations}$=923, N_{ID}=112)



4.3.1.3. Within-person associations between social capital, financial worry and personality

Personality traits did not moderate the within-person association between *financial worry* and *social capital investments*.

4.3.1.4. Within-person associations between learning participation, financial worry and personality

Personality traits did not moderate the within-person association between *financial worry* and *learning participation* (human capital).

4.3.1.5. Within-person associations between labour market behaviour, financial worry and personality

Due to sample size restrictions, we could not meaningfully test the effects of potential moderators on labour market behaviour.

4.3.1.6. Within-person associations between work self-efficacy, financial worry and personality

Personality traits did not moderate the within-person association between *financial worry* and *work self-efficacy*.

We also tested if any of the abovementioned personality traits (i.e., extraversion, openness, agreeableness, conscientiousness, emotional stability, self-esteem, and risk taking) moderate the effect of *financial worry* on the outcome variables at the between-person level. We present the results in the next paragraphs.

4.3.1.7. Between-person associations between psychological health, financial worry and personality

We only found *extraversion* to be a moderator of the between-person relationship between *financial worry* and *psychological health* (Interaction coefficient = 0.13, $p = 0.01$). The statistically significant interaction term indicates that the between-person association differs across levels of extraversion. A simple slope test (see Figure 21) showed that generally financial worry is negatively associated with psychological health, but that this negative relationship is more pronounced among introverted people (1SD below the sample mean; slope = - 0.52, $p < 0.001$) than among extraverted people (1SD above the sample mean; slope = - 0.29, $p < 0.001$).

4.3.1.8. Between-person associations between life satisfaction, financial worry and personality

At the between-person level, *openness* was the only personality trait that buffered the relationship between *financial worry* and *life satisfaction* (Interaction coefficient = 3.87, $p = 0.04$). The statistically significant interaction term indicates that the between-person association differs across levels of openness. A simple slope test (see Figure 22) showed that generally financial worry is negatively associated with psychological health, but that this negative relationship is more pronounced among people with low levels of openness (1SD below the sample mean; slope = - 16.56, $p < 0.001$) than among people with high levels of openness (1SD above the sample mean; slope = - 10.52, $p < 0.001$).

Figure 21. Interaction between Financial Worry and Extraversion on Psychological Health (N=121)

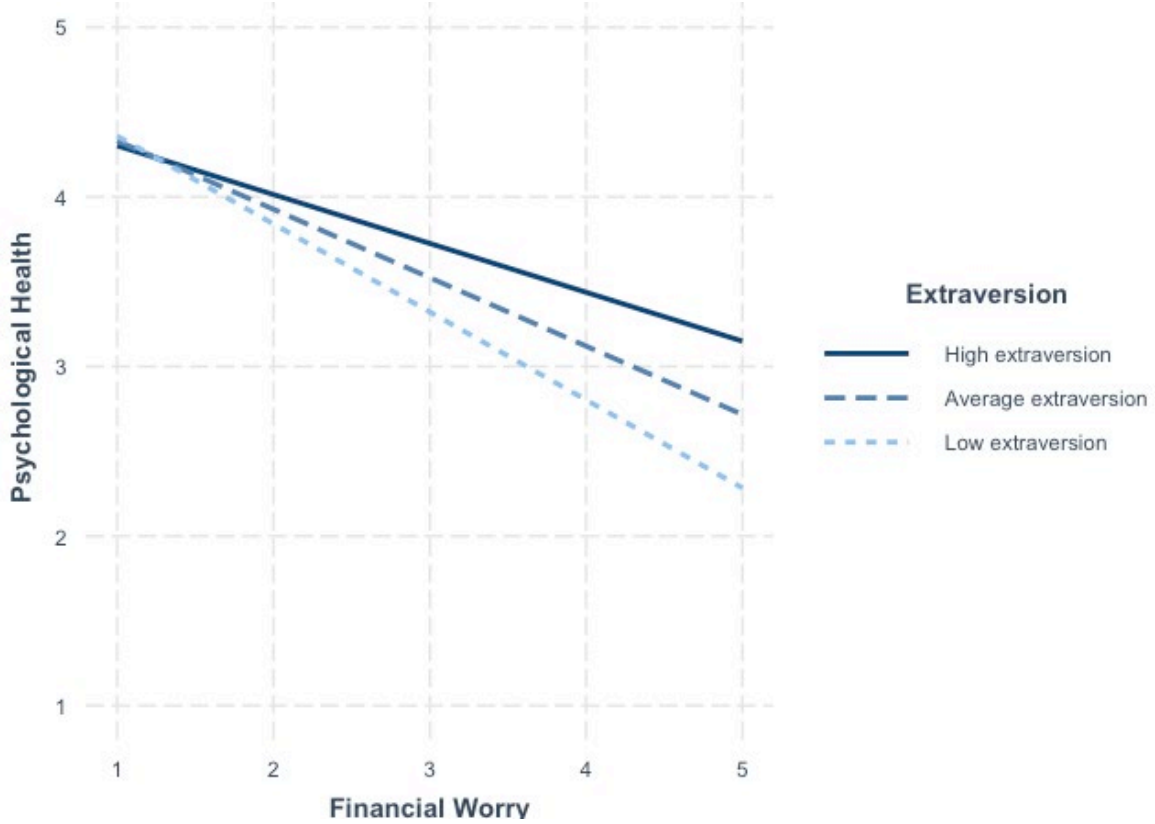
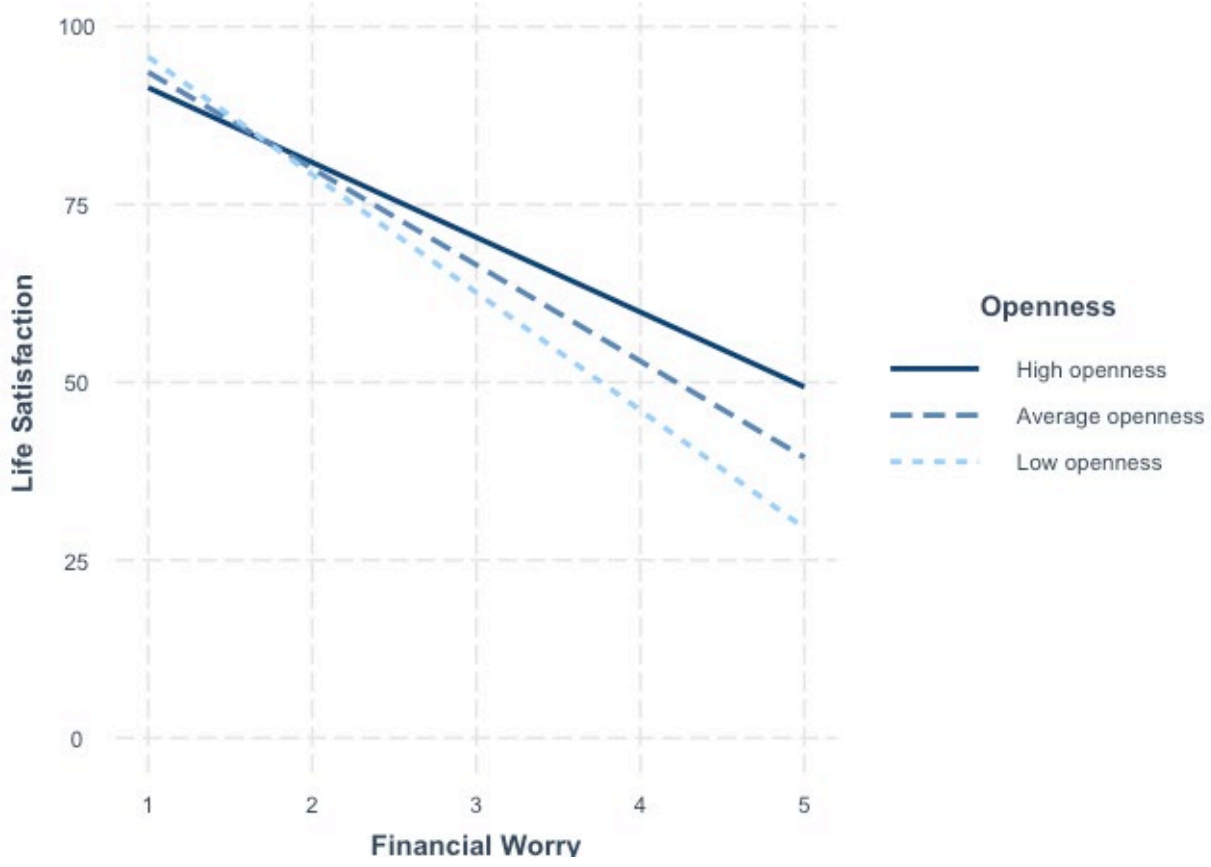


Figure 22. Interaction between Financial Worry and Openness on Life Satisfaction (N=121)



4.3.1.9. Between-person associations between social capital investments, financial worry and personality

Personality traits did not moderate the between-person association between *financial worry* and *social capital investments*.

4.3.1.10. Between-person associations between learning participation, financial worry and personality

Personality traits did not moderate the between-person association between *financial worry* and *learning participation* (human capital).

4.3.1.11. Between-person associations between labour market behaviour, financial worry and personality

Due to sample size restrictions, we could not meaningfully test the effects of potential moderators on labour market behaviour.

4.3.1.12. Between-person associations between work self-efficacy, financial worry and personality

Personality traits did not moderate the between-person association between *financial worry* and *work self-efficacy*.

4.3.2 To what extent do perceptions of work-based and nonwork-based social support mitigate the negative effects of financial worry?

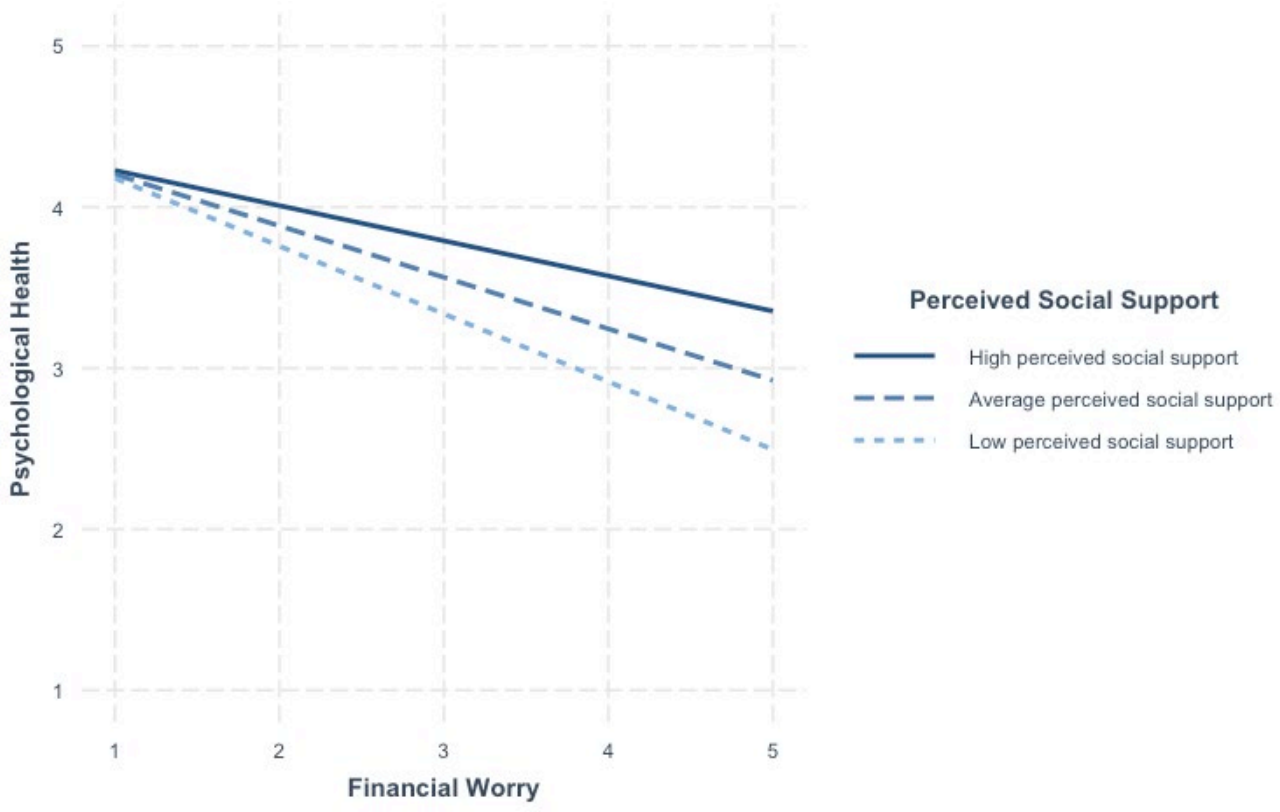
4.3.2.1. Within-person associations

At the within-person level we found no cross-level interaction effect between *financial worry* and *perceived social support* on any of the outcome variables. We conclude that *perceived social support* does not function as a buffer against the negative effects of *financial worry* on *psychological health* or *life satisfaction* for our sample of Dutch, Belgian and Australian respondents. These findings suggest that offering social support does not help reduce the instantaneous effect of financial worries. Or in other words, at times when people experience financial worries this is associated with less subjective quality of life (i.e., psychological health and life satisfaction) regardless of the level of social support offered.

4.3.2.2. Between-person associations

At the between-person level we found that *perceived social support* buffered the relationship between *financial worry* and *psychological health* (Interaction coefficient = 0.11, $p = 0.04$). The statistically significant interaction term indicates that the between-person association differs across levels of *perceived social support*. A simple slope test (see Figure 23) showed that generally financial worry is negatively associated with psychological health, but that this negative relationship is more pronounced among people with low perceived social support levels (1SD below the sample mean; slope = - 0.42, $p < 0.001$) than among people with high perceived social support levels (1SD above the sample mean; slope = - 0.22, $p < 0.001$).

Figure 23. Interaction between Financial Worry and Perceived Social Support and Psychological Health (N=121)



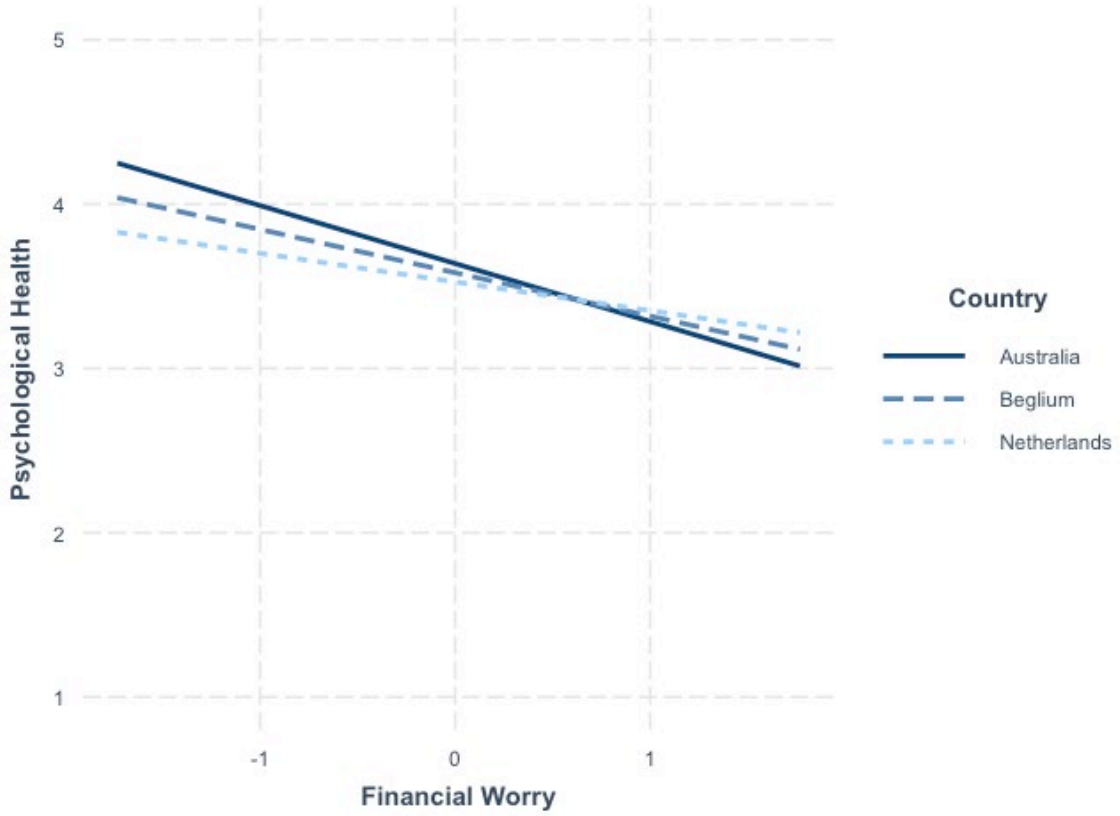
4.3.3 To what extent are the effects of financial worry similar across countries?

Paragraphs 4.3.3.1 through to 4.3.3.6 present the results of within-person analyses, followed by paragraphs 4.3.3.7 through to 4.3.3.12, which present the results of between-person analyses.

4.3.3.1. Within-person associations between psychological health, financial worry and country

We found country to be a statistically significant moderator on the within-person relationship between *financial worry* and *psychological health* (Interaction coefficient = - 0.09, p = 0.02). The statistically significant interaction term indicates that the within-person association differs across countries. Here, a simple slope test (see Figure 24) shows that persons from the Netherlands, Belgium and Australia all experience a drop in psychological health when worrying about finances. This drop is more pronounced in persons from Australia (slope = - 0.35, p < 0.001) than in persons from Belgium (slope = - 0.26, p < 0.001) or the Netherlands (slope = - 0.17, p < 0.001).

Figure 24. Cross-level interaction between Financial Worry and Country on Psychological Health ($N_{observations}$=1026; N_{ID}=125)



4.3.3.2. Within-person associations between life satisfaction, financial worry and country

Country did not moderate the within-person association between *financial worry* and *life satisfaction*.

4.3.3.3. Within-person associations between social capital investments, financial worry and country

Country did not moderate the within-person association between *financial worry* and *social capital investments*.

4.3.3.4. Within-person associations between learning participation, financial worry and country

Country did not moderate the within-person association between *financial worry* and *learning participation* (human capital).

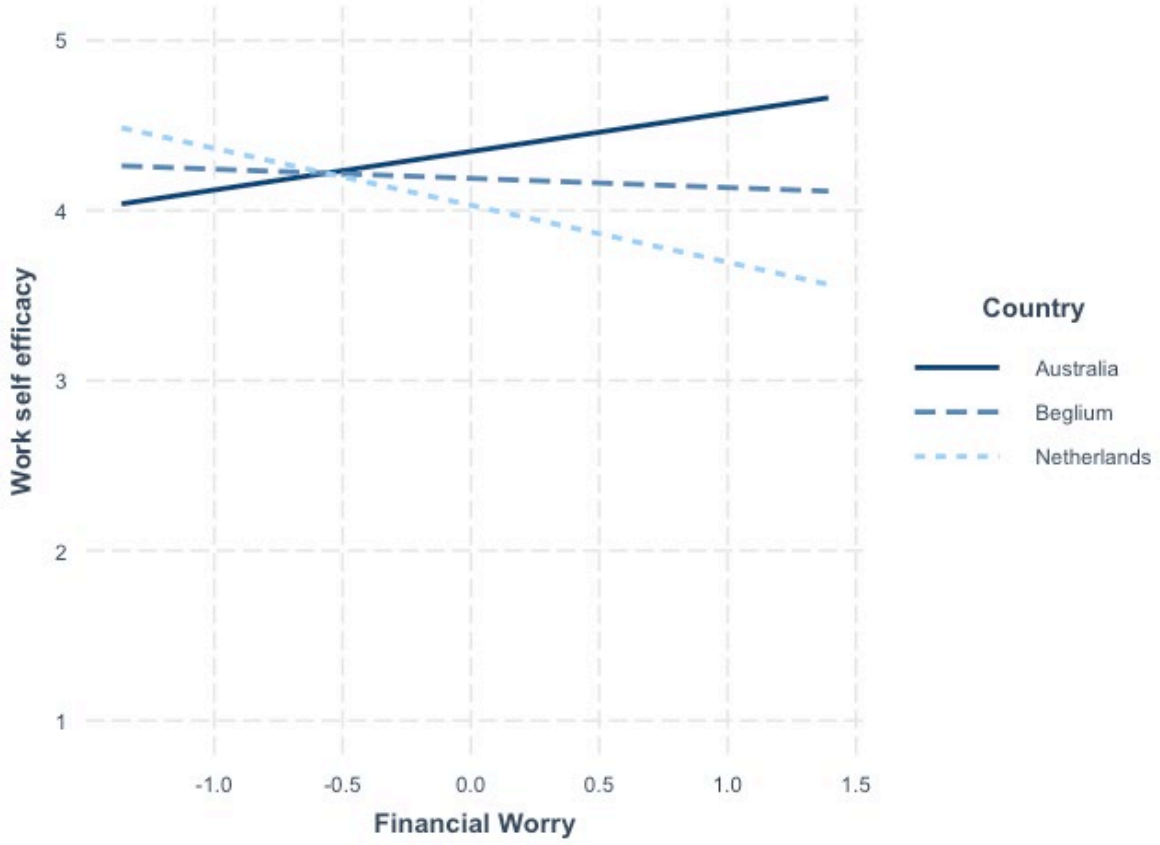
4.3.3.5. Within-person associations between labour market behaviours, financial worry and country

Due to sample size restrictions, we could not meaningfully test the effects of potential moderators on labour market behaviour.

4.3.3.6. Within-person associations between work self-efficacy, financial worry and country

We found country to be a statistically significant moderator on the within-person relationship between *financial worry* and *work self-efficacy* (Interaction coefficient = 0.28, p = 0.049). The statistically significant interaction term indicates that the within-person association differs across countries. Here, a simple slope test (see Figure 25) shows that persons from the Netherlands experience a drop in work self-efficacy when worrying about finances (slope = - 0.33, p = 0.049) but that the level of work self-efficacy in persons from Belgium (slope = - 0.05, p = 0.62) and Australia (slope = 0.23, p = 0.22) was not impacted by increasing levels of financial worry.

Figure 25. Cross-level interaction between Financial Worry and Country on Work Self-Efficacy ($N_{observations}$=134, N_{ID}=66)



4.3.3.7. Between-person associations between psychological health, financial worry and country

Country did not moderate the between-person association between *financial worry* and *psychological health*.

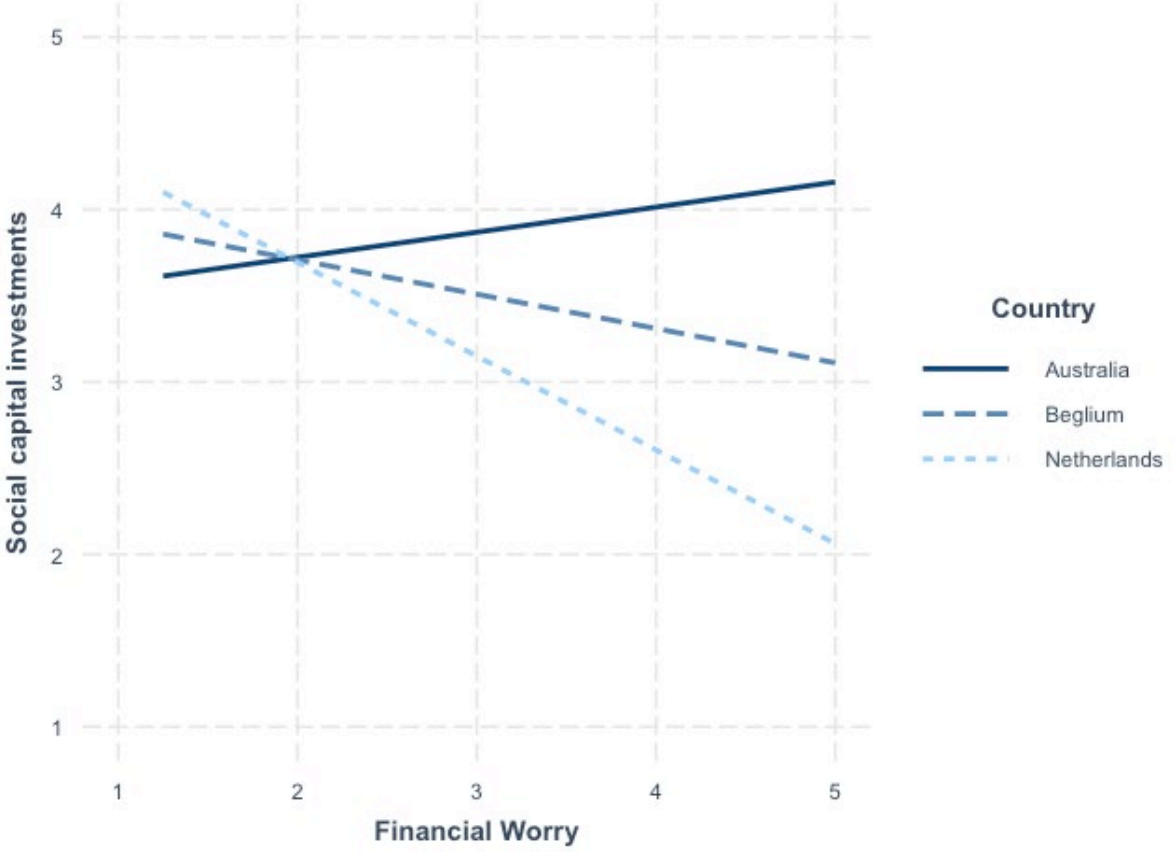
4.3.3.8. Between-person associations between life satisfaction, financial worry and country

Country did not moderate the between-person association between *financial worry* and *life satisfaction*.

4.3.3.9. Between-person associations between social capital investments, financial worry and country

At the between-person level, country buffers the relationship between *financial worry* and *social capital investments* (Interaction coefficient = 0.34, p = 0.02). The statistically significant interaction term indicates that the between-person association differs across countries. A simple slope test (see Figure 26) shows that, for persons from the Netherlands, financial worry is negatively associated with social capital investments (slope = - 0.54, p < 0.001) but that this was not the case for persons from Belgium (slope = - 0.20, p = 0.06) or Australia (slope = 0.15, p = 0.44).

Figure 26. Interaction between Financial Worry and Country on Social Capital Investments (N=59)



4.3.3.10. Between-person associations between learning participation, financial worry and country

Country did not moderate the between-person association between *financial worry* and *learning participation*.

4.3.3.11. Between-person associations between labour market behaviours, financial worry and country

Due to sample size restrictions, we could not meaningfully test the effects of potential moderators on labour market behaviour.

4.3.3.12. Between-person associations between work self-efficacy, financial worry and country

Country did not moderate the between-person association between *financial worry* and *work self-efficacy*.

4.4 What is the relationship between objective (i.e., household income) and subjective financial stress (i.e., financial worry)?

First, we visually investigate the relation between objective and subjective financial indicators. Figure 27 shows that higher household income seems related to lower levels of financial worry. Higher than average levels of financial worry are relatively more often observed for respondents with gross yearly household income below € 30,000 (AU$ 50,000), compared to respondents with higher household incomes. However, even among households with higher income levels (up to € 100,000 / AU$ 150,000) there is still considerable variation in the level of financial worry. Thus, the incidence of financial worry is not exclusive to lower income households. Second, Table 11 shows the correlations between the various objective and subjective indicators of a respondent's financial position that our study includes. All correlations between our subjective (*financial worry* and *comparative financial position*) and

objective indicators (*household income*, *liquidity constraints*, *cash-flow problems*, and *financial hardship*) are statistically highly significant and have the expected sign.

Figure 27. Association between Household Income and Financial Worry (based on wave 1; N=123)

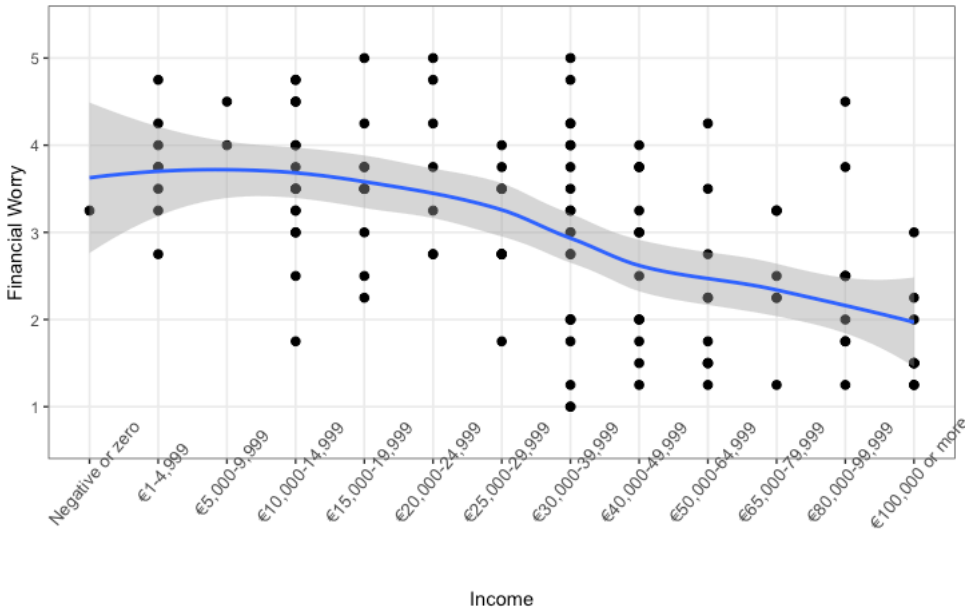


Table 11: Summary statistics and correlations of subjective and objective financial indicators (wave 1)

	Mean	SD	N	1.	2.	3.	4.	5.	6.
1. Financial Worry	3.00	1.05	124	--					
2. Household Income	7.55	3.19	124	-.54***	--				
3. Liquidity Constraints (1=Yes)	.51	.50	125	.63***	-.54***	--			
4. Cash-flow Problems (1=Yes)	.33	.47	124	.46***	-.56***	.69***	--		
5. Financial Hardship (1=Yes)	.45	.50	125	.65***	-.47***	.88***	.51***	--	
6. Comparative Financial Position	2.40	1.08	125	-.66***	.44***	-.43***	-.30***	-.49***	--

Notes. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. As household income was asked in income brackets, mean value 7.55 translates to a mean income amount between the lower bound of category 7 and the upper bound of category 8 (i.e., between € 25,000 / AU$ 40,000 and € 39,999 / AU$ 59,999).

4.5 Keeping household income and other financial indicators constant, who is more likely to experience financial worry?

Table 12 shows the results of bi- and multivariate analyses of *financial worry*, progressively holding constant other financial indicators as well as some background characteristics, based on data from wave 1 of our study. The analyses consistently show that a higher household income is related to lower levels of financial worry. Moreover, the objective experience of financial hardship is a strong predictor for financial worry. Simultaneously, we find that the comparative financial position (respondent's financial position vis-à-vis the financial position of close contacts) reduces the respondent's experience of financial worry, i.e., we find evidence that financial worry is a relative concept. Finally, financial worry levels are higher among females. Age, the level of education, emotional stability and experiencing cash-flow problems do not affect the level of financial worry when controlling for the

abovementioned statistically significant variables. Thus, we observe a strong relation between the objective experience of financial hardship with the subjective perception of financial worry. Next to this strong connection, perceiving one's own financial position more positively as compared to that of close contacts, seems to alleviate financial worry.

Table 12. Adding controls to the linear regression estimation of financial worry (wave 1)

	Estimating financial worry				
	Model 0: Income	Model 1: Added financial hardship and cash flow problems	Model 2: Added comparative financial position	Model 3: Added demo-graphics	Model 4: Added emotional stability
Intercept	4.33***	3.19***	3.99***	3.05***	3.23***
Income	-0.18***	-0.09***	-0.06*	-0.06*	-0.05*
Financial hardship		1.03***	0.71***	0.75***	0.69***
Cash flow problems		0.13	0.16	0.19	0.29
Comparative financial position			-0.39***	-0.39***	-0.35***
Age				0.00	0.00
Female				0.33**	0.32**
Level of education				0.09	0.10
Emotional Stability					-0.11
Total R^2	.28***	.48***	.59***	.61***	.62***
R^2 Change		.20***	.11***	.02*	.01
N of observations	123	123	123	122	121

5. Conclusion and discussion

5.1 To what extent does financial worry vary over time? To what extent do personal well-being, social and human capital and labour market behaviour vary over time?

Academic literature has mainly focused on how people with high versus low levels of financial worries differ on health outcomes. Recently, researchers have also started to pay attention to the effects of financial worries on work behaviour. In our view, what is conspicuously missing from the academic conversation on financial well-being is attention to the immediate effects of financial worries: what are the consequences of financial worries (in terms of well-being and behaviour) *at the moment* a person experiences them? This question implies that financial worry and its outcomes can fluctuate within persons. Accordingly, a first question we aimed to answer with this study is to what extent financial worry and its correlates vary over time.

Most of the differences in financial worries (85%) are related to between-person differences: individuals differ in the extent to which they experience financial worries. The remaining variance in financial worries (15%) can be attributed to within-person differences: the level of financial worries varies within persons. The ratio of variances is strikingly similar to what has been reported on other economic stressors, especially job insecurity[8, 48], and suggests that idiosyncratic events, such as financial windfalls or setbacks, may influence the level of financial concerns. We will come back to this later. Similarly, almost all theoretical outcomes of financial concerns show meaningful within-person variance with rates between 19% (psychological health) and search hours (87%). The exception is life satisfaction which appears to be the most stable with only 9% within-person variance. A note on these results is that for some correlates, the number of observations was very limited due to the limited number of measurement occasions and the small sample size.

In conclusion, the answers to the above questions (5.1) are that financial worries and most of its theoretical outcomes vary meaningfully over time and, consequently, it makes sense not only to examine the associations between these variables at the between-person level, but also at the within-person level. We discuss these within- and between-level associations in the next paragraph.

5.2 How strongly is financial worry associated with personal well-being, social and human capital and labour market behaviour, at the within- and between-person level?

5.2.1 Within-person level

The results showed that financial worries were related to wellbeing outcomes (i.e., psychological health and life satisfaction), indicating that when people worry more than usual about their financial situation, they experience a decrease in psychological health and life satisfaction compared to when they worry less. Specifically, a one-unit increase in financial worry resulted in a 0.23 unit decrease in psychological health (measured on a 5-point Likert scale) and a 4.29 unit decrease in life satisfaction (measured on a 0-100 scale). Contrary to expectations, financial worry was unrelated to learning participation, social capital investments, work efficacy and search hours (i.e., the number of hours spent on looking for a (new) job). The statistically non-significant results can be at least partly explained by the small number of observations for some of these variables. However, for Dutch participants, the relationship between financial worries and job self-efficacy was statistically significant: a one-unit increase in financial worries resulted in a 0.46 unit decrease in work self-efficacy (measured on a 5-point Likert scale). However, due to the low number of observations, this result should be interpreted with caution.

In summary, changes in financial worries mainly go hand in hand with changes in mental well-being, and these associations are quasi-identical across countries.

5.2.2 Between-person level

We now turn to the results at the between-person level. In line with the within-person results, financial worry was negatively associated with well-being outcomes, even after accounting for the influence of demographics, personality, and objective financial explanatory variables. However, the between-level results have a different meaning than those at the within-person level: Individuals with higher (versus lower) levels of financial worry have lower (versus higher) levels of psychological health and life satisfaction. Specifically, a one-unit between-person increase in financial worries resulted in 0.29 unit lower psychological health (measured on a 5-point Likert scale) and 8.02 unit lower life satisfaction (measured on a 0-100 scale). Hence, for well-being outcomes, the results from the between-person analyses mirror those of the within-person analyses. Moreover, these findings are consistent with the results of previous research[14-16] showing that financial concerns are negatively associated with health outcomes.

Unlike the within-person results, we found that financial worry was also negatively related to outcomes other than well-being. We found a negative relationship with social capital investments, such that a one-unit between-person increase in financial worries resulted in 0.23-unit lower social capital investments (measured on a 5-point Likert scale). Consistent with our expectations and with findings from poverty research[17], these results seem to suggest that financial worries are associated with a shrinking work-based social network. However, we cannot exclude from our analyses that the smaller work-based social network is (also) at the root of financial worries. Financial worry was also negatively related to work self-efficacy, such that a one-unit between-person increase in financial worry one-unit resulted in 0.22 unit lower work self-efficacy (on a 5-point Likert scale). This finding supports the idea that the effects of financial worries spill over into the workplace and can also influence employees' behaviour at work[17]. However, we cannot yet rule out that work self-efficacy is at the root of financial worries or that a third factor (e.g., job performance) is responsible for the negative association, because it may simultaneously influence financial worries and work self-efficacy. Note that after controlling for demographics, personality, and objective financial explanatory variables, the effect of financial worry on social capital investments and work self-efficacy was no longer statistically significant. It turns out that educational level is the strongest predictor of social capital investments, and that emotional stability is the strongest predictor of work self-efficacy. In none of the analyses were financial worries related to learning participation.

In short, people with higher (versus lower) levels of financial worries tend to have lower (versus higher) levels of well-being. People with higher (versus lower) levels of financial worries are less (versus more) likely to grow their social networks or feel competent at work, although other factors than financial worry are more important in predicting social capital investments and work self-efficacy.

5.2.3 How do events that may happen to households relate to financial worry / satisfaction?

We explored the effect of the occurrence of three types of events with financial repercussions on the dynamics of financial worry and life satisfaction. The three types of events were ‘unexpected large expenses’ (think major household item repairs and health care bills), ‘negative financial events’ (think employment loss / or loss of working hours and increased energy costs) and ‘positive financial events’ (think gifts from family/friends, tax returns and

bonuses / salary increases at work). To capture the dynamics, we compared financial worry and life satisfaction two weeks before, at the time of and two weeks after the event.

The results showed that unexpected large expenses indeed reduce life satisfaction at the time of the expense (compared to two weeks earlier). Two weeks after the expense, life satisfaction does not recover, suggesting longer lasting effects of an unexpected large expense. However, we were not able to replicate this finding for financial worry.

We find the reverse for negative financial events. A negative financial event raises financial worry at the time it occurs (compared to two weeks earlier) and recovers slightly (but not completely) two weeks later, suggesting longer lasting effects. In the case of negative financial events, we were not able to replicate the results for life satisfaction.

The differential effects of unexpected large expenses and negative financial events on financial worry and life satisfaction may relate to the contrasting features of the two types of events. Unexpected large events are both unexpected and transitory, whereas negative financial events are to some degree foreseeable and lasting. Perhaps one-off events resonate more closely with financial worry than with life satisfaction.

Regarding events with positive financial consequences, the results show that such events soften financial worry at the time they occur and continue to have this effect in the two weeks thereafter. This suggests that events with positive financial consequences have positive effects on financial worry potentially even beyond the two weeks at which these events occurred. Moreover, life satisfaction increases when an event with positive financial consequences occurs, then drops in the two weeks thereafter, but not to the level prior to the event. This also suggests a longer lasting effect of an event with positive financial consequences on life satisfaction.

Further, our results show that almost a third of the respondents indicate that the timing of important transactions on their bank account causes them stress. For instance, the moment when periodic payments are deducted (e.g. payments for rent, loan or mortgage, health insurance or utilities) and the moment when periodic income is deposited (e.g. wage, benefits or government subsidies). Respondents who perceive this timing as a source of stress also report statistically significantly higher levels of financial worry. However, almost all the respondents who indicate that this timing of periodic transactions on their bank account causes them stress also indicate that they would experience less stress if there was a better alignment between the moment at which they receive their periodic income and the moment at which they have to pay periodic expenses.

5.3 Which micro-, meso-, and macro-level factors moderate the presumed negative within-person and between-person associations between financial worry and personal well-being, social and human capital, and labour market behaviour?

5.3.1 To what extent does personality mitigate (e.g., self-efficacy) or exacerbate (e.g., risk aversion) the negative effects of financial worry?

Earlier, we saw that variations in financial worries are associated with variations in well-being, such that well-being decreases (versus increases) at the time when individuals have more (versus less) financial worries than usual. The results show that this contemporaneous correlation is not equally strong for everyone. For example, the association is less strong for individuals with high levels of self-esteem, extraversion, and emotional stability. We interpret these results as if experiencing financial worries does not immediately lead to reduced mental well-being because these individuals have more resilience and more positive self-evaluations[49,50]. Interestingly, we found that

in risk-averse individuals well-being drops the moment they experience financial worries, whereas the drop in well-being is less pronounced in risk-tolerant individuals. This finding supports the idea that financial worries are associated with uncertainty that is harder to cope with by people with high risk aversion[32]. Again, however, caution is needed because we cannot make causal statements based on the repeated cross-sectional design (reduced well-being may also underlie financial concerns).

Personality also moderated some of the between-person associations between financial worry and well-being. Specifically, the results suggest that extraverted and open-minded people cope better with financial worries than their introverted and close-minded counterparts. We speculate that extraverts discuss their financial concerns more readily and are therefore less at risk of social isolation. Open-minded people are known to attach less importance to material things[31] and therefore may not give as much weight to their financial position. These post-hoc explanations obviously are fertile areas for further research.

5.3.2 To what extent do work-based and nonwork-based social support mitigate the negative effects of financial worry?

The results showed a nuanced picture regarding the buffering role of social support. On the one hand, respondents with a lot of social support appear to experience less strong negative effects (in terms of psychological health) than those with little social support. This finding is consistent with our expectations and is an indication that employers and social support providers can play an important role in helping employees cope with financial worries. On the other hand, the results also showed that at times when people experience more financial worries than they usually do, subjective quality of life (i.e., psychological health and life satisfaction) decreases, independent of the level and type of social support offered. We interpret this finding as evidence that the immediate negative effect of financial worries cannot be easily remedied by offering social support. Perhaps current support channels are not geared to offering immediate help. An example of instant help could be a hotline where employees can go with their financial problems.

5.3.3 To what extent are the effects of financial worry similar across cultures?

The impact of financial worries varies from country to country. For instance, we found that participants from Australia, when worried about their finances, experienced a stronger decline in psychological health than participants in Belgium and the Netherlands. A possible explanation is that the negative impact is stronger because financial worries are less prevalent in Australia than in Belgium and the Netherlands (see Figure 2). Because of the small sample, caution in interpretation is required. We also found Dutch participants to experience a stronger drop in work self-efficacy when worrying about finances than participants from Belgian and Australia. While the effect of financial worries manifests itself in Australian participants through reduced well-being, we observe a decrease in work motivation in Dutch participants. A similar result is found when looking at participants with few versus many financial worries in the three countries. In the Netherlands, individuals having financial worries invest less in social networking than those who worry less. This is not the case in Belgium and Australia, where participants network equally, regardless of their level of financial concerns.

5.4 What is the relationship between objective (i.e., household income) and subjective financial stress (i.e., financial worry)?

The results show that a higher household income relates to lower levels of financial worry. Higher than average levels of financial worry are relatively more often observed for respondents with gross yearly household income below € 30,000 (AU$ 50,000), compared to respondents with higher household income. However, even among

households with higher income levels (up to € 100,000 / AU$ 150,000) there is still considerable variation in the level of financial worry. Thus, financial worries are not exclusive to lower income households. Further, correlations between our subjective (financial worry and comparative financial position) and objective indicators (income, liquidity constraints, cash flow problems, and financial hardship) are statistically highly significant and have the expected sign. Thus, objective and subjective indicators of financial stress are correlated and behave as expected.

5.5 Keeping household income and other financial indicators constant, who is more likely to experience financial worry?

The results show that having a lower income, experiencing financial hardship, perceiving one's financial position worse than one's close contacts, and being female, are simultaneously and independently related to higher levels of financial worry. When these aforementioned factors are controlled for, other factors such as age, the level of education, emotional stability and the experience of cash-flow problems do not affect the level of financial worry.

The finding that your financial position relative to that of your closest contacts matters for a person's financial worry aligns with the literature on relative deprivation[41]. Beyond the well-established importance of relative income for wellbeing[51], there may be another explanation for this finding. Having people in your social network who experience financial worry (i.e., your financial position is better than theirs) may offer first-hand access to strategies to alleviate financial worry or provide more determination to avoid poor (financial) decisions that may cause financial worry. If the latter argument does not apply, the importance of the relative financial position for a person's financial worry, implies that reported financial worry is likely an underestimate of objective measures of the person's underlying financial predicament in poverty-dense environments (for example low-income suburbs), where peer effects mediate a person's perceptions of financial worry. Future research is certainly needed to explore these policy-relevant questions.

6. Implications outside academia

6.1 Implications of our main findings for consumers.

First, consumers might find comfort in the finding that the immediate decrease in measures of wellbeing that can result from unexpected large expenses (such as household item repairs and health care bills) or other events with negative financial consequences (such as job loss or increased energy costs), seems to be short lived and that wellbeing levels rise again within two weeks of such an event. However, this is conditional upon this being an isolated event, not followed by a new financially negative event two weeks later. Furthermore, consumers might also find comfort in the finding that events with positive financial consequences, such as gifts from friends or family, tax returns or a wage increase/bonus, seem to have a lasting cushioning effect on financial worries.

Second, the results suggest that persons who experience higher levels of financial worry seem to invest less in their social network as compared to persons who experience lower levels of financial worry. At the same time, the result show that persons with stronger social support experience smaller drops in psychological health due to financial worries as compared to persons with less strong social support. Thus, while social support seems to have the potential to partially mitigate the detrimental effects of financial worry, investments in social network seem to suffer from financial worries. For consumers, being aware of this potentially vicious cycle may help to consciously try to maintain their investment in social networks, even when confronted with financial worries.

Third, the results show that stress caused by the timing of important transactions on respondents' bank accounts, can be alleviated if creditors would be willing to adjust the timing of the payment transaction upon request of people who experience financial worry. For consumers this implies that they could identify what the least stressful timing of periodic payments and deposits would be, and subsequently try to engage with financial institutions to arrange these periodic transactions as optimally as possible.

6.2 Implications of our main findings for policy makers and financial institutions.

Financial worries fluctuate over time and are not limited to people living below the poverty line. Unforeseen events can cause even affluent people to experience (temporary) financial worries. These worries are associated with reduced mental well-being and affect people's functioning, also in the workplace. The fluctuations suggest that interventions by policymakers should not be limited to one particular target group and should not be limited in time.

A robust finding of our research is that financial concerns do not have the same effect on everyone. Individuals with a positive self-evaluation and high levels of 'psychological capital' are less affected by financial worries. We recommend that companies develop interventions that increase employees' psychological capital so that they can better cope with stressors, especially financial uncertainty, and its associated worries.

Offering support helps the group of employees with financial worries but, for now, cannot prevent individuals' quality of life from declining at the time financial worries surface. Therefore, we think it may be a good idea if policy makers, financial institutions and employers consider establishing a hotline aimed at providing psychological support for acute concerns. The help offered may include emotional support and practical advice.

From the responses we obtained on the questions regarding the stress caused by the timing of important transactions on respondents' bank accounts, we learn that this source of stress could be alleviated if creditors would be willing to adjust the timing of the payment transaction upon request of people who experience financial worry. Financial institutions could pro-actively play a role and engage with their household clients to look at the timing of their periodic payments and deposits.

7. References

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8. Appendices

8.1 List of partner organizations

Netherlands:

- FNV (Labour union)
- CNV Team Geldzorg (Labour union)
- Nibud (National budgetting institute)
- Platform31 (Knowledge and network organization connecting policy, practice and science)
- Municipality of Utrecht's policy advisors on poverty and debt
- Ministry of Finance: Wijzer in Geldzaken
- Verbond van Verzekeraars
- MUG magazine

Belgium:

- CEBUD (the Belgian budgeting institute and sister organisation of the Dutch Nibud)
- Obelisk (individual coaching, career counselling, job search training and more)
- VDAB (public employment service of Flanders)
- ABVV (large labour union in Belgium)

Australia:

- Catholic Education Queensland (overarching body that is responsible for Catholic Education in the state of Queensland)
- Townsville Enterprise (advocacy organisation for businesses in the city of Townsville)
- CentaCare North Queensland (organisation focusing on community wellbeing)
- Tropical Brain and Mind Foundation (organisation focusing on mental health in Townsville)
- Australian Workers' Union (large labour union in Australia)
- Financial Sector Union of Australia (large labour union in Australia)

8.2 Fieldwork timeline

Batch 1				Batch 2			
Wave number	Version of survey	Start	End	Version of survey	Start	End	Wave number
1	W1	20-09-2021	27-09-2021				
2	W2-6/8-13	04-10-2021	11-10-2021				
3	W2-6/8-13	18-10-2021	25-10-2021				
4	W2-6/8-13	01-11-2021	08-11-2021	W1	01-11-2021	11-11-2021	1
5	W2-6/8-13	15-11-2021	22-11-2021	W2-6/8-13	15-11-2021	22-11-2021	2
6	W2-6/8-13	29-11-2021	06-12-2021	W2-6/8-13	29-11-2021	06-12-2021	3
7	W7	13-12-2021	20-12-2021	W2-6/8-13	13-12-2021	20-12-2021	4
8	W2-6/8-13	27-12-2021	03-01-2022	W2-6/8-13	27-12-2021	03-01-2022	5
9	W2-6/8-13	10-01-2022	17-01-2022	W7	10-01-2022	17-01-2022	7
10	W2-6/8-13	24-01-2022	31-01-2022	W2-6/8-13	24-01-2022	31-01-2022	8
11	W2-6/8-13	07-02-2022	14-02-2022	W2-6/8-13	07-02-2022	14-02-2022	9
12	W2-6/8-13	21-02-2022	28-02-2022	W2-6/8-13	21-02-2022	28-02-2022	10
13	W2-6/8-13	07-03-2022	14-03-2022	W2-6/8-13	07-03-2022	14-03-2022	11
14	W14	21-03-2022	28-03-2022	W14	21-03-2022	28-03-2022	14

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