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Master Thesis

“To what extent do anxiety, economic uncertainty and stress as a result of the COVID-19 pandemic affect the rate individuals between the ages of 18-30 spend and save?”

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Abstract

In times of economic recession, individual decision-making is affected by and changes due to psychological factors such as anxiety, economic uncertainty and stress. The objective of this research is to analyse the effect of anxiety, economic uncertainty and stress on the saving vs spending decisions individuals between the age 18-30 make. This is relevant as its sheds a light on individual decision-making during times of recession and how psychological factors influence these decisions. Using data from 126 participants via an economic experiment, no support could be found for the hypotheses. Nevertheless, the results do suggest that anxiety, economic uncertainty and stress influence the decision-making process when it comes to saving vs spending decisions.

Table of content

1.0 Introduction

Ever since the first infection of COVID-19 in 2019, its effects on the world as we know it are unprecedented. As vaccine campaigns are being rolled-out across the planet, it remains to be seen whether the world can return to being as people knew it before the pandemic.

It is an understatement to stress the immense impacts pandemics can have on all facets of life. As for economics, its impact can be immeasurable through huge economic costs that impact financial systems (Goodell, 2020). In addition, the toll on national healthcare systems is gigantic, there is massive loss of employment productivity, social distancing disrupts economic activity and the impact on tourism and foreign direct investment is unlike we have ever experienced, resulting in a global economic recession (Goodell, 2020). To combat the economic disruption, the EU's recovery plan amounts to 2364.3 Billion Euro (European Council, N.A.), with President Biden of the US issuing a 1.9 trillion recovery plan.

Previous academic literature has concluded that pandemics have been a reason of causing change in human behaviour with COVID-19 not being an exemption (Gawai et al., 2020, Pera, 2020, Salari et al., 2020, Vindegaard et Eriksen Benros, 2020). Crises affect consumers through direct tangible or an indirect intangible cognitive/emotional measure (Koos et al., 2015; Koos et al., 2017). For example, the direct, tangible impact can be on the monetary resources available to people for their daily consumption whereas at the same time, crises can deeply affect consumption attitudes and consumer behaviour (Koos et al., 2015). The longer a recession continues, the deeper and more prolonged the possibility there is of profound transformations in consumer behaviour (Quelch & Jocz, 2009). Existing literature provides good evidence concerning consumers coping strategies. For instance, there is empirical demonstration that, consumers become more concerned about their financial security during recessions (Kamakura & Du, 2012; Xiao & O'Neill, 2016). There are enough psychological mechanisms that help explain this such as consumer anticipated guilt (Hampson & McGoldrick, 2017). It is also known that during recessions consumers tend to buy less, more frequently, in smaller packages and evaluate alternatives better (Ang et al., 2000; McKenzie & Schargrodsky, 2005). Consumers also adopt more prudent, simple and savvy lifestyles (Du & Kamakura, 2008; Strutton and lewin, 2012). Furthermore, they also delay the purchases of luxury items (Ang et al., 2000). Nevertheless, despite its relevance, there is still little known about consumption during recession (e.g., Alonso et al., 2015; Kaytaz & Gul, 2014; Koos et al., 2017). In addition, COVID-19, like earlier pandemics and recessions, has caused sudden irregular increases in unemployment, causing the world economy to shrink, decreasing job security (Cavallo et al., 2013; Cross & Green, 2009; Goodell, 2020; National Center for Educational Statistics, 2009). The result is an increase in mental disorders such as anxiety, stress and depression (Cross & Green, 2009; Durante & Laren, 2016; Hampson & McGoldrick, 2017). These effects were the strongest among individuals between the ages of 18-30 whom among other groups have less financial security (Cross & Green, 2009; Mann et al., 2020; Nkire et al., 2021). Overall, the literature currently consists of several gaps in the consumption patterns of consumers during a recession, especially a recession that is a direct

result of COVID-19 where the body of research is relatively small (e.g., Alonso et al., 2015; Goodell, 2020; Kaytaz & Gul, 2014; Koos et al., 2017).

The objective of this research is to gain insight into the effects that anxiety, economic uncertainty and stress have on saving and spending ratios of young individuals of whom future society needs to build on. It has the potential of providing knowledge about how individuals have been impacted psychologically by the long-lasted pandemic and what this does to their saving and spending behaviour. It may shed a light on individual decision-making during times of recession and the effects that psychologically factors like anxiety, economic uncertainty and stress have on individual decision-making during times of recession. Therefore, showing the indirect economic effects as a result of the pandemic happening. This knowledge can serve as a basis for national policy making in the future as interest rates on saving are extremely low and there is much fear about the future economic situation.

Hence, leading to the main question of this research

To what extent do anxiety, economic uncertainty and stress as a result of the COVID-19 pandemic affect the rate individuals between the ages of 18-30 spend and save?

This paper has the following structure. Chapter 2 contains an overview of the relevant literature and hypothesis will be formulated. This chapter will focus on COVID-19 economics, previous economic effects during pandemics, behavioural economics, experiments in behavioural economics and spending habits during pandemics/ economic crises. Subsequently, in Chapter 3, the methodology that is used to answer the research question will be described. The results will be presented in Chapter 4 on which in Chapter 5 the discussion will be based.

2.0 Literature review

This chapter contains a literature review of the following topics: COVID-19 Economics, Previous Economic effects during pandemics, Behavioural Economics, Experiments in Behavioural Economics and spending habits during pandemics/ economic crises. Based on this review, hypotheses will be formulated at the end of the chapter.

2.1 COVID-19 Economics

The coronavirus pandemic has caused an unprecedented disruption to everyone's daily life. The virus has spread across the globe, infected over 100 million people and a death count of over 2 million people. The effects of the pandemic on the world economy are immense, seeing exchange indices drop drastically, a fall of oil prices and a complete shutdown of the entertainment and tourism industry as a result just to name a few (Dolbneva, 2020). According to the World-Bank (2021) the world economy shrank 4.3% in 2020 as a result of the pandemic. There is some light at the end of the tunnel however, as the global economy is supposed to grow 4% in 2021 (World-Bank, 2021). Nevertheless, as mentioned to some extent before, the pandemic is expected to have some long-lasted effects on the global economy.

Take for instance its effect on financial markets. The outbreak of the pandemic increased public fear and initiated a feeling of economic uncertainty (Pellegrino et al, 2020; Peteet, 2020). This will most likely alter the risk preferences and asset allocations of investors, leading to a change in the integration levels of markets (Ortmann et al., 2020; Wang & Young, 2020; Levy & Galili, 2006). The impact of the pandemic resulted however, in a major reduction in stock market prices around the globe (Yildirim, 2020). These conclusions resonate well with previous research conducted which showed that infectious diseases diminish market integrations, showing that international stock market integration is highly linked to human health and proving the effects of the pandemic on global stock prices (Chen et al., 2018; Yildirim, 2020). Even though the outbreak increased public fear and economic uncertainty, the S&P 500 ended at an all-time high at the end of 2020, recovering to its pre-pandemic price level in just 121 days (Shaban & Long, 2020).

How big is the contrast with economic output and global unemployment levels? For example, unemployment rates have risen significantly across OECD countries (Mayhew & Anand, 2020). Major European economies such as Germany and the UK saw unemployment rates rise to about 6% before falling back again later in 2020 (Mayhew & Anand, 2020). The difference is huge when comparing it to the United States, the biggest economy in the world, where unemployment grew to over 20 million within the space of just a month, with unemployment rates among minorities being even higher (Galea & Abdalla, 2020; Lambert, 2020). These unemployment rate increases can be traced back to effects of the pandemic on the global economy, where certain industries saw a complete standstill as a result of government interventions (Hartley, 2020). Industries severely impacted by the events happening are travel and& leisure industries. (Lee & Chen, 2020; Hartley, 2020). The global airline industry for

instance forecasted losses of 113 billion US dollars in sales as a direct result of the pandemic, 15 times higher than that during SARS in 2002-2004 (Riley, 2020).

What governmental policies have been set in place to contain the negative effects of the pandemic and maintain faith in a good and quick recovery? Many governments were taken by surprise at the start of the pandemic (Uddin et al., 2021). Countries such as United States and United Kingdom, which responded quite late to the pandemic, severed the consequences more extremely than countries such as New-Zealand and Australia (Uddin et al., 2021). This also had its impact on economic recovery policies, with President Biden of the US issuing a 1.9 trillion dollar recovery plan from the pandemic. The EU's recovery plan amounts to 2364.3 Billion Euro (European Council, N.A.). Although the measures taken by governments around the globe might have slowed down companies filing bankruptcies to some extent, there is still fear that recovering from this pandemic will be a bridge too far for many and that many will collapse as a result of the pandemic (Pandise, 2020; Wang et al, 2020).

2.2 Previous economic effects during pandemics

It is safe to say that the world has not seen such an event impact the world since the 1918 influenza pandemic. Nevertheless, the current pandemic poses a significant unforeseen shock to the global economy, with economies worldwide suffering a massive decline (Singh et al., 2021). An obvious way in which pandemics have impacted the financial system is through their enormous economic costs (Goodell, 2020). Haacker (2004) and Santaeulalia-llopi (2008) focused on the impact that the AIDS/HIV pandemic had on economic development and concluded that in countries where this was more present than in other countries, economic growth slowed down due to productivity decreases. In addition, Cavallo et al. (2013) found that extremely large disasters have a negative effect on economic output in both the short-run and long-run.

Other research has warned about how to anticipate to the economic costs of possible pandemics. Bloom et al. (2018) anticipated investments to the health system, both public and private, loss to employment productivity, social distancing disrupting economic activity and an impact on foreign direct investment. This is supported by Fan et al. (2018) who noted an unmet need for greater investment in preparedness against pandemics and epidemics. Financial institutions, such as banks, are by nature vulnerable in times of economic downturns of nonperforming loans and in the most extreme cases bank runs (Goodell, 2020). Leoni (2013) found that the spread of HIV in developing countries was associated with large increases in deposit turnover. LagoardeSegot & Leoni (2013) found that that the likelihood of a collapse of the banking sector of a developing country increases as the joint prevalence of large pandemics increases. It is yet to be seen how COVID-19 will change the practices of financial institutions, but it will for sure put pressure on financial institutions. COVID-19 will also have its effects on the cost of capital. For example, Elnahas et al. (2018) found that firms located in more disaster-prone areas adapt their financial to a less levered situation. This outcome is consistent with the trade-off view

of capital structure held by Kraus & Litzenberger (1973). While corporations are often consistent in their capital structure policy, they often respond to macroeconomic shocks (Huang et al, 2018). As for government spending, Haacker (2004) noted a permanent change in consumer behaviour stemming from the AIDS/HIV pandemic.

Based on previous academic literature, it can be said that although the pandemic caused by COVID-19 is unlike something we have ever seen. As the world has globalised, it will have an impact on the financial system though enormous economic, pressure on financial institutions will be increased and spending to areas that decrease the negative effects of the next pandemic will be increased (Bloom et al, 2018; Cavallo et al, 2013; Haacker, 2004; Goodell, 2020).

2.3 Behavioural Economics

The term behavioural economics describes an approach to understand decision making and behaviour that integrates behavioural science with economics (Camerer et al., 2004). According to traditional economist John Stuart Mill, the assumption is that humans exhibit behaviour that of a homo economicus (Persky, 1995). As a homo economicus, individuals are assumed to be aware of the costs and benefits associated with all possible actions. Thus, people will behave in a way that maximizes their long-term gain. Behavioural economists assume a contrarian stance that individuals, no matter their age or intelligence level, are rather myopic with respect to what is best for them (Reed et al., 2013). They assume irrationality in decision-making, assuming individuals are susceptible to temptations and tend to make poor and rash decisions even though it is clear there are better alternatives (Reed et al., 2013). A child might for instance choose brownie over an apple although it is clear that an apple is better for a child's long-term health.

Despite of the consensus that behavioural economics accounts for irrational behaviours, a wide continuum exists within the field of behavioural economics with respect to the principles that might explain this irrationality (Reed et al., 2013). On one end, theorists take a more cognitive perspective, and argue that irrational behaviours are the result of mentalistic/psychological causes such as stereotype biases (Camerer, 1999; Kahneman et al., 1982). On the other side is the behaviourist perspective that irrationality is grounded in principles of operant learning (Madden, 2000; Skinner, 1953), where it is assumed that environmental influences establish certain negative consequences (e.g., risk-taking, cheating on exams or unhealthy food choices) as have more reinforcing value than positive consequences (e.g., self-control, studying for a test or healthy food choices).

It is safe to say that behavioural economic theories and principles can help understand how and why observed behaviour deviates from traditional economic models of rationality (McConnell, 2013). However, many decisions we eventually take involve to a certain extent of uncertainty (Dror et al., 1998). The risk we take when taking decisions that involve uncertainty will effectively curve to one's benefit (Dror et al., 1998). People from different age groups may differ from for instance young adults

in which they perceive risk, effecting their behaviour differently in decision making (Dror et al., 1998). For example, elderly adults may be less likely than younger adults to risk an incorrect response (Botwininck, 1969). These decisions, which are perceived different by different age groups, are in essence affected by all sorts of behavioural economic factors (Chagnon et al., 1992; Dror et al., 1998; Mueller et al., 1980). Age is not the only factor that affects an individual decision making. Several studies have explored the cultural differences using well-known dimensions proposed by Hofstede et al. (2010), Trompenaars & Hampden-Turner (1998) and Schwartz (1992) among others, indicating that culture is indeed a factor affecting decision making (Horak, 2016; Oosterbeek et al., 2004; Weber & Hsee, 2000). In addition, previous research has also indicated gender related differences in decision making (Buchan & Croson, 2004; Henrich et al., 2001). There is also academic literature proving that unexpected natural events do indeed impact an individual's decision making (Kaplanski & Levy, 2010; Yuen & Lee, 2003). In some extent due to increased anxiety and uncertainty (Cen et al., 2013).

So, it is clear that the pandemic has increased anxiety and economic uncertainty (Pellegrino et al., 2020; Peteet, 2020). And it is clear that factors such as anxiety and economic uncertainty affects decision making and these is very specific per individual based on gender, age and culture (Dror et al., 1998; Henrich et al., 2001; Oosterbeek et al., 2004).

2.4 Experiments in behavioural Economics

Behavioural research usually seeks to develop a theory that is consistent with realistic aspects of human judgement and decision making, such as bounded rationality (Weber & Camerer, 2006). As a result, most behavioural research is based on the comparison between theoretic predictions and the actual behaviour of outcomes observed in economic environment (Weber & Camerer, 2006). Experiments are also useful for creating choices that distinguish between emerging theories, thus many behavioural economists are also seen as experimental economists (Weber & Camerer, 2006). The close relationship between the two subfields of economic research is best confirmed in the joint award of the 2002 Nobel Prize in economics to Daniel Kahneman, active in the field of behavioural economics and Vernon Smith, for introducing experimental methods into economics (Musshoff & Hirschauer, 2011).

Methodological considerations during the process of designing the behavioural experiment are incentives, sample size, deception and the ability to obtain true preferences from participants. For the use of incentives during experiments, psychologists and economists differ (Antonides, 2006). Many economists strongly believe in the power incentives (Binmore, 1987; Hertwig & Ortmann, 2001), whereas psychologists render financial incentives either at best counterproductive or unnecessary (Loewenstein, 1999; Rakow, 2001). Even though it possible to obtain reliable results without large incentives (Antonides, 2006).

Another methodological issue is how to get true preferences or results from participants (Antonides, 2006). Beshears et al. (2008) did research on how to obtain true preferences and found that individuals

were most likely to reveal their true preferences if they were able to make active self-reported decisions, while explicitly stating their preference. Furthermore, there is the issue of deception. Economists are strongly opposed the use of deception (Ortmann & Hertwig, 1997), whereas psychologists regard deception as an essential tool (Goodie, 2001; Hilton, 2001).

So, there is true value in doing behavioural economic experiments, whereas the validity and reliability can be increased by reducing the risk of certain pitfalls.

2.5 Spending habits during pandemics/economic crises

Consumer behaviour is a complex function of many known and unknown factors, including not just economic but also psychological, sociological and cultural variables (Jacoby, 2000). Economic recessions imply contexts in change of lifestyles, consumption patterns, routines, constituting an adequate scenario for studying modifications in consumption patterns (Puelles et al., 2016; Koos et al., 2017). The longer a recession continues, the deeper and more prolonged the possibility there is of profound transformations in consumer behaviour (Quelch & Jocz, 2009). In earlier studies, it has also been proven that attitudes people hold towards money can significantly impact the way they will spend and save regardless of economic hard times or not (Allen et al., 2006; Hayhoe et al., 1999). Crises affects individuals' consumers through direct tangible or an indirect intangible cognitive/emotional measure (Koos et al., 2015; Koos et al., 2017). For example, the direct, tangible impact can be on the monetary resources available to people available for their daily consumption whereas at the same, crises can deeply affect consumption attitudes and behaviour (Koos et al., 2015).

Existing literatures provide good evidence concerning consumers coping strategies. For instance, there is empirical demonstration that, during recessions, consumers become more concerned about their financial security (Kamakura & Du, 2012; Xiao & O'Neill, 2016). There are enough psychological mechanisms that help explain this such as consumer anticipated guilt (Hampson & McGoldrick, 2017). It is also known that consumers during recession have the tendency to buy less, more frequently, in smaller packages and evaluate alternatives better (Ang et al., 2000; McKenzie & Schargrodsky, 2005). In addition, consumers also adopt more prudent, simple and savvy lifestyles (Du & Kamakura, 2008; Strutton and Lewin, 2012). Furthermore, the purchases of luxury items are delayed (Ang et al., 2000). Nevertheless, despite its relevance, there is still little known about consumption during recession (e.g., Alonso et al., 2015; Kaytaz & Gul, 2014; Koos et al., 2017).

2.6 Hypotheses

The primary section of a literature review (Chapter 2) is to ground hypotheses (Sparrowe & Mayer, 2011). This involves the positioning of those in hypotheses in relation to related research, developing a clear and logical experiment explaining why the core variables and processes are in related in the proposed fashion, and creating a sense of coherence in the relationship among the variables and processes in the proposed model (Sparrowe & Mayer, 2011). In previous research it has been established

that factors such as anxiety, economic uncertainty and stress are psychological factors that affect the mental health of people, especially that of individuals between the age of 18-30 as a result of the COVID-19 pandemic (Cross & Green, 2009; Mann et al., 2020 Nkire et al., 2021). It has also been established that these psychological constructs play a role in the spending and saving patterns of people, affecting their decision making (Koos et al., 2015; Koos et al., 2017). For example, earlier research has concluded that stress is a resulting psychological trait that has an increased presence among people during the COVID-19 pandemic (Flaskerud, 2021; Nkire et al., 2021). In addition, stress is a factor in spending and saving decisions of individuals (Durante & Laran, 2016; Mann et al., 2020). The majority of research has established that more stressed an individual is, the higher his/her tendency to save is (Durante & Laren, 2016; Popper et al., 1989; Stone and Brownell, 1994; Torres and Nowson, 2007). Therefore, the first hypothesis is

The higher an individual's reported stress as a result of the COVID-19 pandemic among people aged 18-30, the more likely he or she will save more money compared to before the pandemic

Furthermore, another psychological disorder that has increased among people during the COVID-19 pandemic is anxiety (Bendau et al., 2020; Pellegrino et al., 2020; Peteet, 2020). It has also been established that anxiety plays a role in the decision making of individuals when it comes to spending and saving decisions (Hayhoe et al., 2012; Johnson & Peterson, 2014). The majority of the research out there indicates that increased levels of anxiety decrease an individual's propensity to save and increases an individual's propensity to spend (Hayhoe et al., 2012; Mann et al., 2020). Therefore, the second hypothesis is formulated as follows

The lower an individual reported anxiety as a result of the COVID-19 pandemic among people aged 18-30, the more likely he or she will save more money compared to before the pandemic

In addition, it has been established that the COVID-19 pandemic has increased people's economic uncertainty and that this uncertainty factor about the future plays a role in an individual's decision making and therefore, one's saving and spending decisions (Altig et al., 2020; Baker et al., 2020; Cross & Green, 2009; Nkire et al., 2021). The majority of research out there indicates that increased levels of economic uncertainty increase an individual's propensity to save and decreases an individual's propensity to spend (Kamakura & Du, 2012; Modigliani, 1970; Lunt & Livingstone, 1991; Sandmo, 1970; Xiao & O'Neill, 2016). Therefore, the third hypothesis is formulated as follows

The higher an individual reported Economic uncertainty as a result of the COVID-19 pandemic among people aged 18-30, the more likely he or she will save more money compared to before the pandemic.

To summarize, all hypotheses are formulated based on the gap in the current literature about the current behavioural conditions that affect spending and saving in a recession caused by the COVID-19

pandemic. It aims to provide insight how these psychological constructs affect an individual's decision making, therefore, showing the indirect economic effects as a result of the pandemic happening.

3.0 Research Method

This chapter describes the research method used to test the hypotheses. Attention will be paid to the composition and distribution of the economic experiment, the data sample and how the variables are measured.

3.1 Economic experiment

At the moment of writing of this research paper, there is no dataset available to test the formulated hypotheses in the previous chapter. It is for that reason that an economic experiment is created (see Appendix 7.1-7.2) to collect the required data. The economic experiment consists of three different parts. All serve as input for some sort of variable and are all relevant for this research. The first is used to retrieve data about one's spending/saving ratio, which serves as input for the dependent variable. The second part of the economic experiment is used to determine information about an individual's demographics and serves as input for the control variables. The third and final part is there to retrieve data about an individual's anxiety, economic uncertainty and stress levels and serves as input for the independent variables.

The experiment consists of three experimental groups, each group getting a different question beforehand to spark-up emotions of anxiety, economic uncertainty and stress. The experimental group is confronted before entering the experimental questions with a question where they're asked to think and recite a recent moment where they experienced stress due to COVID-19. The first control group has a similar situation, however, they are asked to think and recite a moment where they experienced stress in high-school. The second control group is asked to think and recite their favourite dinner of the week before. The intention is to increase feelings of anxiety, economic uncertainty and stress, so treatment effects can arise and causality can be established. The questionnaire is created in Qualtrics as this makes transition to STATA later in this research smoother and is created in English as the participants filling in the survey might not be that fluent in Dutch. However, people were able to fill in the survey in either English or Dutch.

3.2 Sample

As stated various times, the sample consists of individuals between the ages of 18-30. The goal set beforehand was about 40 participants per experimental group, amounting to 120 in total. In order to locate these individuals, individuals were contacted via the researcher directly, fellow Radboud University students were contacted via email and through social media, in the form of certain Facebook groups, individuals between the ages of 18-30 were asked to participate voluntarily.

The eventual sample consisted of a total of 171 respondents. After a detailed control of the data, 126 responses were fit for analysis. An overview of the sample characteristics can be found in Table 1. The table shows an overview of collected demographic characteristics. When looking at those, the majority of the individuals participating in the economic experiment were female (73.80%), while man are less present within this sample (26.20%). When looking at the age of the participants, the majority of the participants fall within the ages of 21-25 (81.75%). Other age groups that fall within this age group are less represented within this sample. Given the distribution channels, it was to be expected that the majority of this sample are students (90.48%). The minorities within this segment are participants that are not students, but employed and working (8.73%) and participants which are neither of two (0.79%). Lastly, the majority of the respondents has an average monthly income of less than 1,000 euros (75.03%), which only 8 participants within this sample making over 2000 euros per month (6.37%), which was to be expected when looking at the other demographic statistics.

Table 1

Sample characteristics (N = 126)

Characteristic	Frequency in sample	Percentage of sample
Gender		
Male	33	26.20 %
Female	93	73.80%
Age		
20	9	7.14%
21	15	11.90%
22	22	17.46%
23	30	23.81%
24	19	15.08%
25	17	13.50%
26	7	5.55%
27	3	2.38%
28	2	1.59%
29	2	1.59%
Main occupation		
Employed	11	8.73%
Student	114	90.48%
Neither of the two	1	0.79%
Income		
Between €0 – €500	47	37.30%
Between €500 – €1000	48	38.03%
Between €1000 – €1500	13	10.34%

Between €1500 – €2000	10	7.96%
More than €2000	8	6.37%

3.3 Procedure

Data collection took place between 30th of April and the 8th of May, 2021. The goal was to get at least 120 total responses, 40 per experimental group. In order accomplish this, various messages to individuals and online social groups, describing to some extent the purpose of the research, a hyperlink to the Qualtrics economic experiment and the question whether they would be willing to voluntarily participate were asked. What should be noted is that only the data of individuals who gave their consent that their response could be used in this master thesis are retrieved and used for statistical analysis. In addition, it is clearly specified that only individuals between the ages of 18-30 could participate and that further distribution of the economic experiment should only be done by the researcher to individuals that fit the sample criteria. This process was repeated a couple of times of the course of those 9 days to specify the importance of the research. In the end, 171 responses were recorded. However, only 126 responses were filled in in such a way that its data could be used for further statistical analysis.

3.4 Measurement of variables

3.4.1 Dependent variables

The dependent variable in this research in an individual's savings/spending ratio. As described in Chapter 2, an individual's saving/spending ratio is how much money a certain individual, in our case someone between the ages of 18-30, would save in a certain situation rather than spending it. The questions used to measure an individual's saving/spending ratio are based on scenario questions, where the participant would be granted an influx of money, not considered life-changing, due to a random event where people are asked how much of that money injection they would save for a short-, mid- and long-term period, as can be seen in Table 2 Previous studies like for instance Kim & Yuh (2018) and Yuh & Hanna (2010) also did something similar where they saw that the amount of money not spent as money saved. In addition, Beshears et al. (2008) did research on how to obtain true preferences and concluded that individuals were most likely to reveal their true preference if they were able to make self-reported decisions. This idea is reflected in the questions presented in Table 2. Chapter 4 goes into more detail on how this variable is translated into a variable fit for statistical analysis.

Table 2

Questions Dependent variable

Topic	Question
Saving/spending ratio	Your grandmother recently passed away. In her testimony, she granted you an amount of 5,000 euro. How much of that money would you, instead of spending it or investing that

	money put on your saving account with the purpose that in one year you would use that money to buy a car for example? 0 2500 5000 Amount put away for the purpose of saving () 
Saving/spending ratio	You win 10,000 euro via a scratch lot you got as a Christmas present. How much of that money would you, instead of spending it or investing that money put on your saving account with the purpose that in 10 years you would use that money to buy a house for example. 0 5000 10000 Amount put away for the purpose of saving () 
Saving/spending ratio	You invested some money in crypto currency back when you were a teenager. As of late, you have cashed out almost all of it out, amounting to 12,500 euro. How much of that amount would you, instead of spending it or investing that money put on your saving account with the purpose that in 30 years you would use that money for when you are retired? 0 6250 12500 Amount put away for the purpose of saving () 

3.4.2 Independent variables & Control variables

The independent variables in this research are anxiety, stress and economic uncertainty. Individuals in the third section of the economic experiment will be asked to rate their current anxiety, economic uncertainty and stress levels. Self-reported measures of course come with some biases, but are still seen as a valid way of measuring psychological constructs such as anxiety, stress and economic uncertainty according to Crosswell & Lockwood (2020). In addition, according to Beshears et al. (2008) as mentioned earlier, individuals are more likely to reveal their true preference if they were able to make self-reported decisions and this train of thought, along with the questions, is presented in Table 3. Chapter 4 goes into more detail on how these variables are translated into variables fit for statistical analysis.

The control variables in this research consists of demographic variables such as Age and gender, but also an individual main participation and monthly income are included in this research. The reason for including these variables as control variables is because chapter 2 showed that these factors do have an effect on an individual's propensity to save, so measuring these variables could later on explain

differences between actual and expected outcome. The questions used to capture the control variables are presented in table 3.

Table 3

Questions Independent variables & control variables

Topic	Question
Independent variables	
Stress	On a scale from 0-10, how stressed are you at this moment in time?
Anxiety	On a scale from 0-10, how anxious are you at this moment in time?
Economic uncertainty	On a scale from 0-10, how uncertain about your economic situation are you at this moment in time?
Control variables	
Gender	As what gender do you identify?
Age	What is your age?
Participation	What is your main participation?
Monthly Income	What is your current monthly income?

4.0 Results

4.1 Properties of measures

Before going into the correlations and hypotheses testing, first the composition of the variables used in STATA are elaborated. The data-set as it originated from STATA remodificated in order for linear regression analysis to be carried out. Most of the variables were automatically generated from Qualtrics, however, almost all needed at least some remodification in order for regression analysis to be carried out. In some instances, the outcome from Qualtrics had to be transformed into a new variable. For example, the dependent variable financial ratio was created and represents a financial ratio calculated by dividing the amount an individual wished to spent during the financial scenarios by the total amount he/she was able to save. Furthermore, variables Experimental Group and Scenario User ID are created to later serve as dummy variables to test the effect between treatments. An overview of all variable names and their meaning can be found in table 4.

Table 4

Overview of variables used in statistical analysis

Variable name in STATA	***Variable description***
UserID	Unique identifier for participants
ScenarioUserID	Unique identifier for financial scenario's
ExperimentalGroup	Unique identifier for Experimental group
FinancialRatio	A ratio determining a participant's desired saving/spending ratio
Gender	Self-reported gender

Age	Self-reported age
Participation	Student, employed or neither of the two
CurrentIncome	Self-reported level of income (ordinal variable)
Stress	Self-reported level of stress between 0-10
Anxious	Self-reported level of anxiety between 0-10
EconomicUncertainty	Self-reported level of economic uncertainty between 0-10

In addition, Table 5 presents an overview of all the key variables used within the analysis, segregated by the different experimental group. Group 1 is the experimental group, group 2 represents control group 1, whereas group 3 represents control group 2. This overview presents the number of observations, mean, standard deviation, minimum and maximum value entered of each variable. Observing this in more detail, some interesting observations can be noted. For instance, the more an individual is confronted with (COVID-related) stress prior to the experiment, the higher self-reported stress and anxiety becomes. Hence, the higher means of stress and anxiety of group 3 or/to group2/1. What is odd to see is that individuals that were subject to COVID-19 related stress reported lower number of economic uncertainty, which is quite odd considering the main consensus in academic literature on the topic is the exact opposite (Altig et al., 2020; Baker et al., 2020; Cross & Green, 2009; Nkire et al., 2021).

Furthermore, the numbers with regard to the demographics are pretty evenly spread across the three different experimental groups. What should be noted is that within every group, women are way more overrepresented than men. This applies as well to participation and current income categories, with the average individual who participated in this experiment being a student with an average income of roughly 1,000 euros. Furthermore, the average age is about 23 years old. Moreover, it is important to highlight that there are no extreme cases when looking at the standard deviation across all variables within the three groups. This is another indication that sample, in terms of sufficing the central limit theorem assumptions, is met.

Table 5

Summary of variable characteristics per Experimental Group

Variable	***Observations***	***Mean***	***Standard deviation***	***Min***	***Max***
	Experimental Group = 1				
Financial Ratio	126	0.6970	0.2549	0	1
Gender	126	1.7619	0.4276	1	2
Age	126	23.1905	2.0463	20	29
Participation	126	1.9047	0.2947	1	2
Current Income	126	2.0714	1.2078	1	5

Stress	126	5.5476	2.0923	2	10
Anxious	126	5.1429	2.2617	1	10
Economic Uncertainty	126	4.2857	2.6408	0	10
	Experimental Group = 2				
Financial Ratio	108	0.6422	0.2875	0	1
Gender	108	1.6389	0.4826	1	2
Age	108	22.9722	1.5971	20	27
Participation	108	1.9722	0.2887	1	3
Current Income	108	1.8333	1.0722	1	5
Stress	108	5.2778	2.5129	0	10
Anxious	108	4.5000	2.6738	0	9
Economic Uncertainty	108	5.3333	2.4836	1	10
	Experimental Group = 3				
Financial Ratio	144	0.6469	0.2588	0	1
Gender	144	1.7917	0.4075	1	2
Age	144	23.4583	2.0784	20	29
Participation	144	1.8958	0.3065	1	2
Current Income	144	2.2708	1.1720	1	5
Stress	144	4.7292	2.4559	0	9
Anxious	144	3.7708	2.6569	0	9
Economic Uncertainty	144	5.000	2.3355	0	9

4.2 Correlation

Table 6 presents a correlation matrix of all the relevant variables used within this research. In general, the correlation among variables is considered strong when it is higher than 0.70 (Moore & Kirkland, 2012). Taking this into consideration, some interesting things can be observed. For instance, there is a strong positive correlation between anxiety and stress, 0.7697 respectively, which corresponds with the main consensus in literature (Bystritsky & Kronemyer, 2014; Feusner et al., 2010; Poolton et al., 2011).

Furthermore, there is strong negative correlation between participation and income, namely -0.6668, which makes sense as given the structure of the experiment. An individual who spends the majority of his/her time studying will have a lower monthly income than a participant who works full-time. Besides those two correlations, some alternative correlations are noted. For instance, age negatively correlates with participation, yet positively correlates with monthly income. It makes sense that, the younger an individual is, the more likely he/she is still in school. Also, it seems logical that someone who works has a higher monthly income. With regards to correlations with the dependent variable, financial ratio,

there is negative correlation with monthly income. This implies that financial ratio goes up the lower an individual's monthly income becomes. There is also a negative correlation between economic uncertainty and financial ratio, indicating that the lower an individual self-reports his/her economic uncertainty, the higher the saving/spending ratio becomes. There is furthermore, a positive correlation between stress and financial ratio. In other words, the more an individual within this sample reports high levels of stress, the more he/she will save.

Table 6

Correlation matrix of all variables

	Financial ratio	***Gender***	***Age***	***Partici-pation***	***Current income***	***Stress***	***Anxiety***	***Economic Uncertainty***
Financial ratio	1.000							
Gender	0.1152	1.000						
Age	-0.0253	-0.0966	1.000					
Partici-pation	0.1013	0.0836	**-0.3517**	1.000				
Current income	-0.1394	-0.1608	**0.3211**	**-0.6668**	1.000			
Stress	0.1084	0.1310	-0.0234	-0.0046	0.0012	1.000		
Anxiety	-0.0059	0.0933	0.0194	-0.0578	-0.0167	**0.7697**	1.000	
Economic uncertainty	-0.1060	0.2466	0.0442	0.0909	-0.1155	0.1609	0.2340	1.000

4.3 Hypotheses and alternative testing

The general objective of this research is to determine whether causality can be determined between dependent variable financial ratio and independent variables stress, economic uncertainty and anxiety. The general idea is to apply a certain set of regressions, each with an intended purpose. All with the goal of adding structure and to see whether the effects are consistent across all models. An overview of the regression in section 4.3 can be found in Table 7 An overview of the STATA commands used to retrieve these regressions and screens of the visual outputs used as inputs for these tables can be found in Appendix 7.3.

Table 7

Overview of all regressions

Table number	*STATA regression*
8	Regression of dependent variable per experimental group
9	Regression of dependent variable and independent variable stress
10	Regression of dependent variable and independent variable anxiety
11	Regression of dependent variable and independent variable economic uncertainty
12	Regression of dependent variable and all independent variables
13	Regression of dependent variable and all independent and control variables

Table 8 is the linear regression when the effect of different experimental groups on the dependent variable, financial ratio, is analysed. In general, the model has a R-squared of 0.0086, which serves as an indication that the model as it is constructed is not a good fit as 0.86% of the variation in the dependent variable is caused by the different experimental groups. Furthermore, the coefficients of both control groups are negative, which means that the financial ratio of the experimental group to be closer to 1. This indicates that individuals that were exposed to the treatment, which was meant to increase anxiety, economic uncertainty and stress, caused individuals to save more compared to the control groups. Nevertheless, the control group variables turned out to be insignificant when measured at a α of 5%.

Table 8

Linear regression of Financial Ratio per Experimental Group

FinancialRatio	**Coef.**	**Robust Std. Err.**	**T**	**P>|t|**	**95% conf. Interval**	
Experimental Group						
2	-0.0548	0.0457	-1.20	0.233	-0.1453	0.0357
3	-0.0501	0.0383	-1.31	0.193	-0.1258	0.0256
_cons	0.6970	0.0265	26.26	0.000	0.6445	0.7496

Table 9 represents a linear regression that analysed the effect of the independent variable stress on the dependent variable financial ratio. The R-squared of the model is 0.0117, which is an indication that 1.17% of the variation in the dependent variable is caused by stress within this sample. The beta coefficient is positive. That means that the higher an individual self-reported stress is, the higher his/her tendency to save will be. However, the variable stress is insignificant in the set-up of this model when measured at an α of 5%.

Table 9

Linear regression of financial ratio and stress

FinancialRatio	**Coef.**	**Robust Std. Err.**	**T**	**P>|t|**	**95% conf. Interval**	

stress	0.0121	0.0083	1.47	0.145	-0.0042	0.0286
_cons	0.5996	0.0505	11.90	0.000	0.4999	0.6993

Table 10 is an executed linear regression where the effect of independent variable anxious on dependent variable financial ratio. What becomes apparent when observing Table 10 is that the R-squared of the model is 0.000. This means that 0% of the variation in the dependent variable is caused by anxiety within this sample. This is resembled when looking at the beta coefficient, which is small at a -0.0006. Moreover, the independent variable anxious is statistically insignificant when measured at an α of 5%, which means that it cannot be said with certainty that anxiety has an effect on an individual's saving/spending ratio.

Table 10

Linear regression of financial ratio and anxiety

FinancialRatio	**Coef.**	**Robust Std. Err.**	**T**	**P>|t|**	**95% conf. Interval**	
Anxious	-0.0006	0.0072	-0.08	0.933	-0.0149	0.0136
_cons	0.6645	0.0386	17.11	0.000	0.5880	0.7419

Table 11 represent the linear regression where the effect of the independent variable, economic uncertainty, on the dependent variable, financial ratio, is examined. In general, the model has a R-squared of 0.0112. In other words, only 1.12% of the variation in the dependent variable can be explained by economic uncertainty. The beta coefficient of economic uncertainty is negative which means that the higher an individual's self-reported economic uncertainty is, the less this individual is going to save. However, economic uncertainty in this model is statistically insignificant when measured at an α of 5%.

Table 11

Linear regression of financial ratio and economic uncertainty

FinancialRatio	**Coef.**	**Robust Std. Err.**	**T**	**P>|t|**	**95% conf. Interval**	
EconomicUncertainty	-0.0112	0.0079	-1.42	0.159	-0.0269	0.0044
_cons	0.7169	0.0433	16.55	0.000	0.6311	0.8026

Table 12 is the linear regression of independent variables anxious, economic uncertainty and stress on dependent variable financial ratio per different experimental group. Several observations are made when studying Table 12 The R-squared of the model is 0.0489. This means that 4.89% of the variation of the dependent variable is explained by the independent variables in this model. Like in table 8, the beta coefficient of the control groups are negative, indicating that individuals that are exposed to the

treatment have higher saving/spending ratio. Unfortunately, the control groups are not significant when measured at an α of 5%, similar to the result found in Table 8. The most likely reason for the insignificance is the ineffectiveness of sparking not necessarily the right emotions, but the sparking those emotions in an intense matter, such that differences between the treatment groups become more apparent and therefore, having an increased chance on becoming statistically significant differences.

As for the independent variables, the directions of the beta coefficients are the same to their individual regression in Tables 9, 10 and 11. However, in this situation, stress and anxiety are statistically significant when measured at an α 5%. This means that there is causal effect between an individual's propensity to save and his/her stress & anxiety levels. The most likely reason for this difference compared to Tables 9 and 10, is the correlation between variables anxious and stress, causing these variables to become significant in this model. As for economic uncertainty, this variable is statistically insignificant when measured at an α of 5%, which is similar compared to Table 11.

Table 12

Linear regression financial ratio and independent variables per experimental group

FinancialRatio	**Coef.**	**Robust Std. Err.**	**T**	**P>|t|**	**95% conf. Interval**	
ExperimentalGroup						
2	-0.0512	0.0470	-1.09	0.278	-0.1443	0.0419
3	-0.0486	0.0393	-1.24	0.219	-0.1265	0.0292
Stress	0.0314	0.0112	2.80	0.006	0.0092	0.0537
Anxious	-0.0224	0.0098	-2.28	0.024	-0.0418	-0.0029
EconomicUncertainty	-0.0091	0.0081	-1.13	0.263	-0.0251	0.0069
_cons	0.6769	0.0649	10.43	0.000	0.5485	0.8053

Table 13 is the linear regression where the effect of all the independent and control variables on the dependent variable per different experimental group is executed. The model has a R-squared of 0.0855, which means that 8.55% of the variation in the dependent is caused by the other variables in the model. Like Tables 8 & 11, the control group beta coefficient still remains negative, showing that the experimental group participants have a higher saving/spending ratio. However, these variables are insignificant when measured at an α of 5%. As mentioned earlier, this is most likely due to the ineffectiveness of sparking the emotional differences between treatment groups.

Furthermore, with regard to the independent variables, the beta coefficient remains similar compared to Table 12. Similar to Table 12, stress and anxiety are statistically significant when measured at an α of 5%. This makes sense given the intent of the study. This is most likely due to the correlation between the variables, as Tables 9 & 10 show insignificant results with regards to stress & anxiety. As for economic uncertainty, the results are similar to that of tables 10 and 11, With the outcome still being

insignificant when measured at an α 5%. Its insignificance is most likely due to not sparking the right intensity of feelings of economic uncertainty among participants. Given that the real impact of pandemic still needs to happen, individuals might also not experience those feelings at the moment. In addition, most participants were around 22-23 and most likely still have years of studying to go before entering the job market.

With regard to the control variables, all apart from current income have a positive beta coefficient, indicating that higher self-reported numbers increase an individual's saving/spending ratio. However, all variables within this sample are insignificant when measured at an α of 5%. Given the large overrepresentation of women and students within this sample, it makes sense that the differences within the reported values of control variables don't bear any statistical significance. An increased and more evenly spread sample across the control variables, could have caused these variables to be significant.

Table 13

Linear regression of financial ratio and all variables per experimental group

FinancialRatio	**Coef.**	**Robust Std. Err.**	**T**	**P>|t|**	**95% conf. Interval**	
ExperimentalGroup						
2	-0.0446	0.0446	-1.00	0.319	-0.1327	0.0435
3	-0.0416	0.0380	-1.09	0.277	-0.1169	0.0337
Stress	0.0302	0.0116	2.60	0.010	0.0072	0.0531
Anxious	-0.0214	0.0102	-2.10	0.038	-0.0415	-0.0012
EconomicUncertainty	-0.0144	0.0079	-1.82	0.071	-0.0302	0.0013
Gender	0.0663	0.0376	1.76	0.080	-0.0081	0.1408
Age	0.0077	0.0073	1.05	0.297	-0.0069	0.0222
Participation	0.0166	0.0788	0.21	0.834	-0.1394	0.1725
CurrentIncome	-0.0336	0.0191	-1.76	0.080	-0.0714	0.0041
_cons	0.4447	0.2706	1.64	0.103	-0.0909	0.9803

5.0 Discussion & Conclusion

The objective of this research was to analyse the effect of anxiety, economic uncertainty and stress as a result of COVID-19 on an individual aged between 18-30 propensity to save/spend. Based on ideas shaped by an extensive literature review, hypotheses were formed and the effect was analysed through linear regression. Using the data from 126 respondents, no support could be found for the hypotheses. Nevertheless, the results do suggest that anxiety, economic uncertainty and stress play a role in the decision-making process when it comes to saving/spending decisions of individuals between the ages of 18-30.

5.1 Theoretical implications

Based on the results, this research has several theoretical contributions. First of all, the results suggest to some extent that anxiety, economic uncertainty and stress have an effect on the decision-making process when it comes to saving vs spending decisions in times of recession due to COVID-19. With regards to economic uncertainty however, the results are not in line with what was initially expected. For economic uncertainty, the prediction was that the higher an individual's feeling of economic uncertainty is, the more he or she is likely to save. This expectation was based on literature suggesting that in times of an uneconomic uncertain situation, individuals experience more feelings of uncertainty and a result, decide to save more (Kamakura & Du, 2012; Modigliani, 1970; Lunt & Livingstone, 1991; Sandmo, 1970; Xiao & O'Neill, 2016). The results on the other hand, indicated the direct opposite. A reason of why that could be is that the current economic climate in Netherlands does not resemble a recession and that as a result, feelings of economic uncertainty are not raised. In addition, hypothetical scenarios might also be a reason why these feelings are not awakened as these scenarios were not actually happening to the participants (Antonides, 2006).

Secondly, as for stress, the expectation was that higher levels of stress would shows higher saving/spending ratios. The reasoning behind this is that literature suggested that in times of recession, individuals experience increased forms of stress and that this stress affects their decision-making when it comes to their saving/spending decisions (Durante & Laren, 2016; Popper et al., 1989; Stone and Brownell, 1994; Torres and Nowson, 2007). The results indicate that this is indeed the case. However, this cannot be said with statistical certainty of at least 95%, hence there is no causality established in this study between stress and an individual's saving vs spending ratio, which is opposing findings in other research (Durante & Laran, 2016; Mann et al., 2020). The most likely reason for the insignificance of stress is as mentioned to some extent earlier the ineffectiveness of raising feelings of stress over the treatment group before answering the questions (Antonides, 2006).

Thirdly, for anxiety, the prediction was that participants that reported lower levels of anxiety have the tendency to save more money than individuals with higher reported levels of anxiety. The reason is that current literature states the increased levels of fear in times of economic recession affect individual decision-making to the extent that individuals start saving less when individuals experience high levels of anxiety (Hayhoe et al., 2012; Mann et al., 2020). The results do indicate this, however, it cannot be stated at a 95% statistical confidence level that there is causal effect between anxiety and an individual's propensity to save. Even though, due to correlation, it might seem that there is a causal effect, the reason why we cannot say with certainty there is causality is most likely due to the ineffectiveness in sparking feeling of anxiety between the different treatment groups prior to answering the questions (Antonides, 2006). Not establishing causality is opposing findings in other research (Hayhoe et al., 2012; Mann et al., 2020).

Lastly, the results indicate that psychological factors like anxiety, economic uncertainty and stress play a role in the decision-making process of young individuals between the ages 18-30. Despite the fact the results showed these indications, the hypotheses could not be supported as causality could not be determined at a minimum 95% confidence level. These findings are contradicting earlier outcomes that did find causality (Cross & Green, 2009; Durante & Laren, 2016; Hampson & McGoldrick, 2017; Nkire et al., 2021). The same conclusion was drawn when looking at the demographics. This is most likely due to large differences within a relatively small sample.

5.2 Practical implications

From a practical side, this research shows people that, first of all, there is no causal connection between an individual's saving and spending preferences and its current anxiety, economic uncertainty and stress levels. This indicates that these psychological factors do not play a role in decision-making when it comes to making financial decisions. Secondly, these factors are furthermore, not influenced by demographic factors such as gender, age, participation and income. At least to the extent that these factors affect anxiety, economic uncertainty and stress within this sample. Thirdly, this shows that the decision-making process when it comes to making saving and spending decision is influenced by other factors than the ones analysed within this sample. These factors could be for instance financial knowledge, risk preferences or culture (Fuchs-Schundeln, 2020; Guiso & Paiella, 2008; Kim & Yuh, 2018).

5.3 Limitations and suggestions for future research

Next to the theoretical and practical contributions, this research has also limitations and suggestions for future research. As mentioned in Chapter 3, no current database was available to study the effect of anxiety, economic uncertainty and stress on an individual's propensity to save, nor have similar research method like the one carried out in this research been attempted before. Therefore, an economic experiment was created. This in itself brings a couple of limitations. Letting individuals fill in the economic experiment themselves increases the risk of so-called self-reporting bias. With socially desirable responding answers instead of the real situation (Van de Mortel, 2008), the validity or the research can be affected. In case of the economic experiment, individuals might not have been answering truly.

In addition, statistical analysis determined there to be no causality between an individual's saving vs spending preferences and anxiety, economic uncertainty and stress. This is opposing the main consensus in academic literature (Durante & Laren, 2016; Mann et al., 2020; Xiao & O'Neill, 2016). Due to the likelihood of the ineffectiveness of evoking the right intensity of feelings of anxiety, economic and stress within the treatment group, these factors turned out to be insignificant. Furthermore, the sample also turned out to be inconclusive with regard to the demographics. This is a limitation of the study as the main body of literature states that there are demographic differences in an individual's saving vs

spending decisions (Cross & Green, 2009; Durante & Laren, 2016; Hampson & McGoldrick, 2017; Nkire et al., 2021). The unevenly spread small sample size is most likely the reason why demographic differences were not deemed significant. A more evenly spread sample or a higher sample size should solve this issue.

Nevertheless, this research does inspire new suggestions for future research. First, this research could be conducted again, eradicate the limitations that resulted in this outcome and discover if these results come-up again. This would most likely take place in a situation where the economic situation due to COVID-19 has worsened to the point where feelings like anxiety, economic uncertainty and stress are experienced more intense.

Secondly, this research does not have to be limited to just individuals between the ages of 18-30. Earlier academic research has shown that everybody gets affected or changes their behaviour to some extent in times of economic recession. Gaining a cross demographic overview might gain more insight whom was most effected from a saving/spending point of view by the COVID-19 pandemic.

Third and lastly, literature and the outcome of this research proves that there are many determinants in understanding the behaviour in decision-making of individuals when it comes to their saving vs spending decisions in times of economic recession. Think for instance about an individual's financial knowledge, risk preferences as the crypto currency market is greater than ever or someone's culture as the world get more and more diverse.

6.0 Bibliography

Alonso, L., & Rodríguez, C., & Rojo, R. (2015). From consumerism to guilt: economic crisis and discourses about consumption in Spain. J. *Consum. Cult*, 15 (1), 66–85

Altig, D., & Baker, S., & Barrero, J. M., & Bloom, D., & Bunn, P., & Chen, S., & Davis, S. J., & Leather, J., & Meyer, B., & Mihaylov, E., & Mizen, P., & Parker, N., & Renault, T., & Smietanka, P., & Thwaites, P. (2020). Economic uncertainty before and during the COVID-19 pandemic. *Journal of Public Economics*, 191

Ang, S.H., & Leon, S. M., & Kotler, P. (2000). The Asian Apocalypse: crisis marketing for consumers and businesses. *Long. Range Plan*,

33, 97–119

Antonides, G. (2006). Classroom Experiments in Behavioral Economics, 379-404

Baker, S. R., & Bloom, N., & Davis, S. J., & Terry, S. J. (2020). COVID-Induced Economic Uncertainty. Working paper series.

Barrientos, J., & Guzman-Gonzalez, G., & Urzua, A., & Ulloa, F. (2021). Psychosocial impact of COVID-19 pandemic on LGBT people in Chile. *Sexologies*, 30(1), 35-41

Bashir, T., & Hassan, A., & Nasir, S., & Baber, A., & Shahid, W. (2013). Gender Differences in Saving Behavior and its Determinants (Evidence from Punjab, Pakistan). Journal of Business and Management, 9, 74-86

Bendau, A., & Petzold, M. B., & Wyka, S., & Pyrkosch, L., & Plag, J., & Stohle, A. (2020). Anxiety in times of COVID-19 and other health crises. *Nervenarzt*

Beshears, J., & Choi, J. J., & Laibson, A., & Madrian, B. C. (2006). How Are Preferences Revealed? The London school of Economics. Working Paper.

Binmore, K. (1987). Experimental Economics. *European Economic Review* ,257–264

Bloom, D. E., & Cadarette, D., & Sevilla, J. P. (2018). Epidemics and Economics: New and resurgent infectious diseases can have farreaching economic repercussions. *Finance and Development*, 55(2), 46-49

Botwinick, J. (1969). Disinclination to venture response versus cautiousness in responding: age differences. *The Journal of genetic psychology*, 55-62

Broota, K.D. (1989), Experimental Design in Behavioural Research, New Age International

Buchan, N., & Croson, R. (2004). The boundaries of trust: own and others' actions in the US and China. *Journal of Economic Behavior & Organization*, 55(4), 485–504

Burney, A., & Khan, A.H. (1992). Socio-economic Characteristics and Household Savings. An Analysis of Household Saving Behaviour in Pakistan. The Pakistan Development Review, 3(1), 31-48

Camerer, C. (1999). Behavioral economics: Reunifying psychology and economics. *Proceedings of the National Academies of Science*,

96, 10575–10577

Cavallo, E., & Galiani, S., & Noy, I., & Pantano, J. (2013). Catastrophic natural disasters and economic growth. *Review of Economics and*

Statistics, 95(5), 1549-1561

Cen, L., Lu, H., & Yang, L. (2013). Investor sentiment, disagreement, and the breadth–return relationship. *Management Science*, 59(5),

1076–1091

Chagnon J., & McKelvie, S. J. (1992). Age differences in performance at concentration: A pilot study. *Perceptual and motor skills*, 74(2), 412-414

Chen, M. P.; Lee, C. C.; Lin, Y. H. and Chen, W. Y. (2018). Did the SARS epidemic weaken the integration of Asian stock markets? Evidence from smooth time-varying cointegration analysis, Economic research, 31(1), 908-926.

Cross, L. B., & Green, R. (2009). The Impact of the Recession on College Students. *Journal of College Student Psychotherapy*, 24(1), 2-16

Dolbneva, D. V. (2020). The Impact of COVID-19 on the World's Economies. *The Problems of Economy*, 1(43), 20-26

Dror, I. E., & Katona, M., & Mungur, K. (1998). Age Differences in Decision Making: To Take a Risk or Not? *Gerontology*, 44(2), 67-71

Du, R., & Kamakura, W. (2008). Where did all that money go? Understanding how consumers allocate their consumption budget. *Journal of Marketing*, 72, 109–131

Durante, K. M., & Laran, J. (2016). The Effect of Stress on Consumer Saving and Spending. *Journal of Marketing Research*, 53(5), 814-828

Elnahas, H., & Dongnyoung, K., & Incheol, K. (2018). Natural disaster risk and corporate leverage. Working paper

European Council (N.A.) COVID-19: the EU's response to the economic fallout. Retrieved from https://www.consilium.europa.eu/en/policies/coronavirus/covid-19-economy/

Fan, V. Y., & Jamison, D. T., & Summers, L. H. (2018). Pandemic risk: how large are the expected losses? *Bulletin of the World Health*

Organization, 96(2), 129-134

Flaskerud, J. H. (2021) Stress in the Age of COVID-19. *Issues in Mental Health Nursing*, 42(1), 99-102

Galea, S., & Abdalla, S. M. (2020). COVID-19 Pandemic, Unemployment, and Civil Unrest: Underlying Deep Racial and Socioeconomic Divides. *JAMA*, 324(3), 227-228

Gawai, J.P., &, Singh, s., & Taksande, V.D. (2020). Critical review on impact of COVID 19 and mental health. *J Evol Med Dent Sci,*

9(30), 2158-2163

Goodell, J. W. (2020). COVID-19 and finance: Agendas for future research. *Finance Research Letters,* 35

Goodie, A. S. (2001). Are Scripts or Deception Necessary When Repeated Trials Are Used? On the Social context of Psychological

Experiments. *Behavioral and Brain Sciences*, 412

Haacker, M. (2004). The Impact of HIV/AIDS on Government Finance and Public Services. International Monetary Fund, Washington.

Hartley, K. (2020). Economics and the covid pandemic in the UK. *Peace Economics, Peace Science and Public Policy*, 26(3), 1-7

Hayhoe, C. R., & Cho, S. H., & DeVaney, S. A., & Worthy, S. L., & Kim, J., & Gorham, E. (2012). How Do Distrust and Anxiety Affect Saving Behavior? *Family and Consumer Sciences Research Journal,* 41(1), 69-85

Henrich, J., & Boyd, R., & Bowles, S. (2001). In search of homo economicus: behavioral experiments in 15 small-scale societies. *American Economic Review,* 91(2), 73–8.

Hertwig, R., and A. Ortmann. (2001). Experimental Practices in Economics: A Methodological Challenge for Psychologists. *Behavioral and Brain Sciences*, 383–451

Hilton, D. J. (2001). Is the Challenge for Psychologists to Return to Behaviorism? *Behavioral and Brain Sciences*, 415–416

Hofstede G, Hofstede GJ, and Minkov M (2010) Cultures and Organizations: Software of the Mind. New York: McGraw-Hill

Horak, S. (2016). Decision-making behavior, gender differences, and cultural context variables. *International Journal of Cross-Cultural*

Management, 16(3), 281-299

Huang, Z., & Gao, W., & Chen, L. (2018). Does the external environment matter for the persistence of firms debt policy? *Finance Research*

Letter, 2-9

Jacoby, J. (2000). Is it rational to assume consumer rationality? Some consumer psychological perspectives on rational choice theory. *Roger Williams University Law Review*, 6 (1), 83–161

Johnson, D. S., & Peterson, M. (2014). Consumer financial anxiety. *International Journal of Bank Marketing,* 32(6), 515-533

Kamakura, W., & Du, R. (2012). How economic contractions and expansions affect expenditure patterns. *Journal of Consumer Research*,

39(2), 229–247

Kahneman, D., Solvi, A. & Tversky, A. (1982). Judgment under uncertainty: Heuristics and biases. Cambridge, United Kingdom:

Cambridge University Press

Kaplan ski, G., & Levy, H. (2010). Exploitable predictable irrationality: The FIFA World Cup effect on the US stock market. *Journal of Financial and Quantitative Analysis*, 45(2), 535–553

Kayas, M., & Gul, M. (2014). Consumer response to economic crisis and lessons for marketers: the Turkish experience. *Journal of Business*

Research, 67 (1), 2701–2706

Kelley, A.C., & Williamson, J.W. (1968). Household Saving Behavior in Developing Countries: The Indonesia Case. Economic Development and Cultural Change, 16(3),

Kirk, R.E. (2012), "Experimental design", In Weiner, I.B. (Eds), Handbook of Psychology, Wiley, New York, NY, 23-45

Koos, S., (2015). Crises and consumption. In: Keller, M., & Helier, B., & Willke, T., & Truninger, M. (Eds.), Routledge Handbook on Consumption. Routledge, Oxford, pp. 131–142

Koos, S., & Vihalemm, T., & Keller, M. (2017). Coping with crises: consumption and social resilience on markets. *International Journal of Consumer Studies*, 41(4), 363–370

Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, 28(4), 911-922

Lagoarde-Segot, T., & Leoni, P. L. (2013). Pandemics of the poor and banking stability. *Journal of Banking and Finance*, 37(11), 4574-

4583

Lambert, L. (2020), 'Real Unemployment and the US has now Lost 26.5 million Jobs', Fortune.

Lee, C., & Chen, M. (2020). The impact of COVID-19 on the travel and leisure industry returns: Some international evidence. Tourism

Economics, 1-22

Leoni, P. L. (2013). HIV/AIDS and banking stability in developing countries. *Bulletin of Economic Research,* 65(3), 225-237

Levy, O., and Galili, I. (2006). Terror and trade of individual investors, The Journal of Socio-Economics, 35, 980 – 991

Lewis, S. (2007). Regression analysis. *Practical neurology*, 7(4), 259-264

Lobosco, K., & Luhby, T. (2021). Here's what's in Biden's $1.9 trillion economic rescue package. Retrieved from https://edition.cnn.com/2021/01/14/politics/biden-economic-rescue-package-coronavirus-stimulus/index.html

Loewenstein, G. (1999). Experimental Economics from the Vantage Point of Behavioral Economics. *The Economic Journal*, 25–34

Lunt, P. K., & Livingstone, S. M. (1991). Psychological, social and economic determinants of saving: comparing recurrent and total savings. *Journal of Economic Psychology*, 12(4), 621-641

Lynn, A. and Lynn, M. (2003). Experiments and quasi-experiments: methods for evaluating marketing options. The Cornell Hotel Restaurant Administration Quarterly, 44(2), 75-84

Madden, G. J. (2000). A behavioral economics primer. In W. K. Bickel & R. E. Vuchinich (Eds.), Reframing health behavior change with behavioral economics (pp. 3–26). Mahwah, NJ: Lawrence Erlbaum Associates.

Mann, F. D., & Krueger, R. F., & Vohs, K. D. (2020). Personal economic anxiety in response to COVID-19. *Personality and Individual Differences*, 167

Matilla, A. S., & Luo, A., & Xue, X., & Ye, T. (2020). How to avoid common mistakes in experimental research? International Journal of Contemporary Hospitality Management, 33(1), 367-374

Mayhew, K., & Anand, P. (2020). COVID-19 and the UK labour market. *Oxford Review of Economic Policy*, 36(1), 215-224

McConnell, M. (2013). Behavioral economics and aging. *Journal of the Economics of Ageing*, 2, 83-89

McKenzie, D., & Schargrodsky, E. (2005). Buying less, but shopping more: changes in consumption patterns during a crisis. Business School Working Papers, Universidad Torcuato Di Tella

Modigliani, F. (1970). The life-cycle hypothesis and intercountry differences. In: W. Eltis (ed.), Inflation, growth and trade. Oxford: Clarendon.

Morales, A. C., & Amir, O., & Lee, L. (2017). Keeping it real in experimental research – understanding when, where, and how to enhance realism and measure consumer behavior. Journal of Consumer Research, 44(2), 465-476

Mueller, J. H., & Kausler, D. H., & Faherty, A., & Oliveri, M. (1980).: Reaction time as a function of age anxiety and typicality. *Bull*

Psychonomic Soc, 16, 473-476

Musshoff, O., & Hirschauer, N. (2011). A behavioral economic analysis of bounded rationality in farm financing decisions First empirical evidence. *Agricultural Finance Review,* 71(1), 62-83

Myers, A. and Hansen, C.H. (2011), Experimental Psychology, Cengage Learning

Nkire, N., & Mrklas, K., & Hrabok, M., & Gusnowski, A., & Vuong, W., & Surood, S., & Abba-Aji, A., & Urichuk, L., & Cao, B., & Greenshaw, A. J., & Agyapong, V. I. O. (2021). COVID-19 Pandemic: Demographic Predictors of Self-Isolation or Self-Quarantine and Impact of Isolation and Quarantine on Perceived Stress, Anxiety, and Depression. *Frontiers in Psychiatry,* 12

Onieva-Zafra, M.D., & Fernandez-Munoz, J.J., & Fernandez-Martinez, E., & Garcia-Sanchez, F.J., & Abreu-Sanchez, A., & Parra-Fernandez, M.L. (2020). Anxiety, perceived stress and coping strategies in nursing students: a cross-sectional, correlational, descriptive study. BMC Medical Education, 20(1), 1-9

Oosterbeek, H., & Sloof, R., & Van de Kuilen, G. (2004). Cultural differences in ultimatum game experiments: evidence from a metaanalysis. *Experimental Economics,* 7(2), 171-188

Ortmann, A., and R. Hertwig. (1997). Is Deception Acceptable? *American Psychologist*, 746–747

Ortmann, R., & Pelster, M., & Wengerek, S. T. (2020). Covid-19 and investor behavior, TAF Working Paper, No. 54

Pandise, E. (2020). One year into pandemic, Main Street bankruptcies continue. Retrieved from https://www.nbcnews.com/business/consumer/which-major-retail-companies-have-filed-bankruptcy-coronavirus-pandemic-hit-n1207866

Para, A. (2020). Cognitive, behavioral, and emotional disorders in populations affected by the COVID-19 outbreak. *Front Psychol,* 11,

2263

Pellegrino, G., & Ravenna, F., & Zullig, G. (2020). The Cost of Coronavirus Uncertainty: The High Returns to Clear Policy Plans.

Australian Economic Review, 53(3), 397-401

Perry, V.G., & Morris, M.D. (2005). Who Is in Control? The Role of Self Perception, Knowledge, and Income in Explaining Consumer Financial Behavior. J. Consumer Aff, 39, 299-313

Peteet, J. R. (2020). COVID-19 Anxiety. *Journal of religion and health*, 59(5), 2203-2204

Popper, R., & Smits, G., & Meiselman, H. L., & Hirsch, E. (1989). Eating in Combat: A Survey of US Marines. *Military Medicine,* 154(12), 619–623

Puelles, M., & Diaz-Bustamante, & Carcelén, S. (2016). Are consumers more rational and informed purchasers during recession periods?

The role of Private Labels and retailing strategies. *The International Review of Retail, Distribution and Consumer Research*, 26 (4), 396–417

Quelch, J.A., & Jocz, K.E. (2009). How to market in a downturn. *Harvard Business Review*, 87 (4), 52–62

Qiu, J., & Shen, B., & Zhao, M., & Wang, Z., & Xie, B., Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19. *General psychiatry*, 33(2)

Rakow, T. (2001). Theorize It Both Ways? *Behavioral and Brain Sciences*, 425–426

Reed, D. D., & Niileksela, C. R., & Kaplan, B. A. (2013). Behavioral Economics: A Tutorial for Behavior Analysts in Practice. *Behavior*

Analysis in Practice, 6(1), 34-54

Riley C (2020) This is a crisis. Airlines face $113 billion hit from the coronavirus. Available at: https://edition.cnn.com/2020/03/05/business/airlines-coronavirus-iata-travel/index.html

Ro, H. (2012). Moderator and mediator effects in hospitality research. International Journal of Hospitality Management, 31(3), 952-961

Salari, N., & Hosseinian-Far, A., & Jalali, R., & Vaisi-Raygani, A., & Rasoulpoor, S., & Mohammadi, M. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Glob Health*, 16(1),
57

Sandmo, A. (1970). The Effect of Uncertainty on Saving Decisions. *The Review of Economic Studies*, 37(3), 353-360

Santaeulalia-Llopis, R. (2008). Aggregate effects of AIDS on development. Washington University in St. Louis Working Paper.

Schwartz, S.H. (1992). Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1–65.

Shaban, H., & Long, H. (2020). The stock market is ending 2020 at record highs, even as the virus surges and millions go hungry.

Retrieved from https://www.washingtonpost.com/business/2020/12/31/stock-market-record-2020/

Simmons, J. P., & Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: undisclosed flexibility in data collection and analysis allows presenting anything as significant. Psychological Science, 22(11), 1359-1366

Singh, V., & Roca, E., & Li, B. (2021). Effectiveness of policy interventions during financial crises in China and Russia: Lessons for the

COVID-19 pandemic. *Journal of Policy Modelling*

Skinner, B. F. (1953). Science and human behavior. New York, NY: Macmillan

Smit, V. (2018). Nationale studieschuld stijgt verder: nu 11,2 miljard euro. Retrieved from https://nos.nl/artikel/2248123-nationalestudieschuld-stijgt-verder-nu-11-2-miljard-euro.html.

Sparrowe, R., & Mayer, K. J. (2011). Grounding hypotheses in AMJ. *The Academy of Management Journal*, 54(6), 1098-1102

Spencer, S. J., & Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: why experiments are often more effective than mediational analyses in examining psychological processes. Journal of Personality and Social Psychology, 89(6), 845

Stone, A. A., & Brownell, K. D. (1994). The Stress-Eating Paradox: Multiple Daily Measurements in Adult Males and Females. *Psychology & Health*, 9(6), 425–436

Strutton, D., & Lewin, J. (2012). Investigating consumers' responses to the great recession. *Journal of Consumer Marketing*, 29 (5), 378–

388

Torres, S. J., & Nowson, C. A. (2007). Relationship Between Stress, Eating Behavior, and Obesity. *Nutrition*, 23(11), 887–894

Trompenaars F and Hampden-Turner C (1998) Riding the Waves of Culture: Understanding Cultural Diversity in Global Business. New York: McGraw-Hill.

Uddin, S., & Imam, T, & Moni, M. A., & Thow, A. (2021). Onslaught of COVID-19: How Did Governments React and at What Point of the Crisis? *Population health management*, 24(1), 13-19

Van de mortel, T.F. (2008). Faking it: social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25(4), 40

Viglia, G., & Dolnicar, S. (2020). A review of experiments in tourism and hospitality. Annals of Tourism Research, 80, 102858

Vindegaard, N., & Eriksen Benros, M. (2020). COVID-19 pandemic and mental health consequences: systematic review of the current evidence. *Brain Behavior and Immunity*, 89, 531-542

Wang, A. Y., & Young, M. (2020). Terrorist attacks and investor risk preference: Evidence from mutual fund flows, Journal of Financial

Economics in press

Wang, J., & Yang, J., & Iverson, B., & Kluender, R. (2020). Bankruptcy and the COVID-19 Crisis. Harvard Business School Working

Paper No. 21-041. Available at https://www.hbs.edu/ris/Publication%20Files/21-041_a9e75f26-6e50-4eb7-84d8-89da3614a6f9.pdf (Accessed: 24 March 2021)

Weber, R. A., & Camerer, C. F. (2006). "Behavioral experiments" in economics. *Experimental Economics: A Journal of the Economic Science Association,* 9(3), 187-192

Weber, E. U., & Hsee, C. K. (2000). Culture and individual judgement and decision making. *Applied Psychology: An International Review*, 49(1), 32–61.

Worldbank. (2021). Global Economy to Expand by 4% in 2021; Vaccine Deployment and Investment Key to Sustaining the Recovery. Retrieved from https://www.worldbank.org/en/news/press-release/2021/01/05/global-economy-to-expand-by-4-percent-in-2021-vaccinedeployment-and-investment-key-to-sustaining-the-recovery

Xiao, J., & O'Neill, B. (2016). Consumer financial education and financial capability. International Journal of Consumer Studies, 40, 712–721

Xiaolei, S., & Xiaoyang, Y., & Wang, J. (2017). Dynamic interaction between economic policy uncertainty and financial stress: A multi-scale correlation framework. Finance Research Letters, 21, 214-221

Yildirim, E. U. (2020). The Impact of COVID-19 Pandemic on the Financial Contagion among Turkey, US, and China Stock Markets. *Journal of Business Research*, 12(3), 2764-2773

Yuen, K. S., & Lee, T. M. (2003). Could mood state affect risk-taking decisions? *Journal of Affective Disorders*, 75(1), 11–18

7.0 Appendices

7.1 Survey flow

Block: Introduction message (1 Question)

BlockRandomizer: 1 - Evenly Present Elements

- **Block: Treatment group (3 Questions)**
- **Standard: Control Group 1 (3 Questions)**
- **Standard: Control group 2 (3 Questions)**

BlockRandomizer: 3 -

- **Standard: Scenario 1 (2 Questions)**
- **Standard: Scenario 2 (2 Questions)**
- **Standard: Scenario 3 (2 Questions)**

Block: Control variables (4 Questions)

Block: Dependent variable (3 Questions)

EndSurvey:

Page Break

7.2 Master Thesis Economic Experiment

Start of Block: Introduction message

*

You are invited to participate in a questionnaire. You were selected as a possible respondent because you fulfill the requirements to participate. I ask you to read this form very carefully and agree before starting the questionnaire This questionnaire is conducted by a Radboud university student. The results of this questionnaire will be used for the purpose of writing a Master Thesis in Economics. It is impossible to identify any individual in any report that comes as a result of conducting this questionnaire. **Background information:** The purpose of this questionnaire is to collect data about Economic decision-making. **Procedures:** If you agree to participate, you will be asked to complete the experiment. This questionnaire should last a maximum of about 3-4 minutes. **Risks and benefits of being in the study:** There is no immediate or expected risk of being in this questionnaire. The questionnaire is confidential. Only the questionnaire creator and instructional staff will have access to your response. Results will be destroyed no later than the end of the academic year. There are no additional benefits for participating in this questionnaire. **Confidentiality:** The records of this study will be kept private. We will not include any information that will make it possible to identify any individual in any sort of thesis that might be posted or presented. Research records will be stored securely and only researchers will have access to the records.

- ○ Yes, I do consent (1)
- ○ No, I do not (2)

Skip To: End of Survey If QID27 = 2

End of Block: Introduction message

Start of Block: Treatment group

Page Break

Q1 Take 20 seconds of your time to think of a recent situation in your life where you experienced stress(you will be able to proceed after 20 seconds).

Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

Page Break

Q2 Could you please describe this recent moment where you experienced stress in 3 or 4 sentences?

_____

_____

_____

_____

_____

End of Block: Treatment group

Start of Block: Control Group 1

Page Break

Q1 Take 20 seconds of your time to think of a moment of when you were in high-school where you experienced stress(you will be able to proceed after 20 seconds).

Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

Page Break

Q2 Could you please describe this moment where you experienced stress in high school in 3 or 4 sentences?

_____

_____

_____

_____

_____

End of Block: Control Group 1

Start of Block: Control group 2

Page Break

Q1 Take 20 seconds of your time to think about what most delicious meal you ate last week(you will be able to proceed after 20 seconds).

Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

Page Break

Q2 Could you please describe this most delicious meal in 3 or 4 sentences?

_____

_____

_____

_____

_____

End of Block: Control group 2

Start of Block: Scenario 1

Your grandmother recently passed away. In her testimony, she granted you an amount of 5,000 euro. How much of that money would you, instead of spending it or investing that money put on your saving account with the purpose that in one year you would use that money to buy a car for example?

	0	2500	5000
Amount put away for the purpose of saving ()			

Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

End of Block: Scenario 1

Start of Block: Scenario 2

You win 10,000 euro via a scratch lot you got as a Christmas present. How much of that money would you, instead of spending it or investing that money put on your saving account with the purpose that in 10 years you would use that money to buy a house for example.

	0	5000	10000
Amount put away for the purpose of saving ()			

Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

End of Block: Scenario 2

Start of Block: Scenario 3

You invested some money in crypto currency back when you were a teenager. As of late, you have cashed out almost all of it out, amounting to 12,500 euro. How much of that amount would you, instead of spending it or investing that money put on your saving account with the purpose that in 30 years you would use that money for when you are retired?

	0	6250	12500
Amount put away for the purpose of saving ()			

Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

End of Block: Scenario 3

Start of Block: Control variables

Q6 As what gender do you identify?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

Q7 What is your age?

_____

Q8 What is your main participation?

- Employed and working (1)
- Student (2)
- Neither of the two (3)

Q9 What is your current monthly income?

- ○ Between 0-500 (1)
- ○ Between 500-1000 (2)
- ○ Between 1000-1500 (3)
- ○ Between 1500-2000 euro (4)
- ○ More than 2000 euro (5)

End of Block: Control variables

Start of Block: Dependent variable

Q10 On a scale from 0-10, how stressed are you at this moment in time?

- ○ 0 (0)
- ○ 1 (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (10)

Q11 On a scale from 0-10, how anxious are you at this moment in time?

- ○ 0 (0)
- ○ 1 (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (10)

Q12 On a scale from 0-10, how uncertain about your economic situation are you at this moment in time?

- ○ 0 (0)
- ○ 1 (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (10)

End of Block: Dependent variable

7.3 STATA do-file and regressions

Untitled.do*

```
A detailed summary of every variable per Experimental group
 by ExperimentalGroup, sort: summarize FinancialRatio Gender Age Participation CurrentIncome Stress Anxious EconomicUncertainty

A correlation matrix of every variable
pwcorr FinancialRatio Gender Age Participation CurrentIncome Stress Anxious EconomicUncertainty

The commands for all linear regressions
reg FinancialRatio i.ExperimentalGroup, robust cluster ( USERID)
reg FinancialRatio Stress , robust cluster ( USERID)
reg FinancialRatio Anxious , robust cluster ( USERID)
reg FinancialRatio EconomicUncertainty , robust cluster ( USERID)
reg FinancialRatio i.ExperimentalGroup Stress Anxious EconomicUncertainty, robust cluster ( USERID)
reg FinancialRatio i.ExperimentalGroup Stress Anxious EconomicUncertainty Gender Age Participation CurrentIncome , robust cluster ( USERID)
```

```
Linear regression                               Number of obs     =        378
                                                F(2, 125)         =       1.13
                                                Prob > F          =     0.3273
                                                R-squared         =     0.0086
                                                Root MSE          =     .26604

                                    (Std. Err. adjusted for 126 clusters in USERID)
------------------------------------------------------------------------------
             |               Robust
FinancialRatio |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
ExperimentalGroup |
          2  |   -.0548341   .0457297    -1.20   0.233    -.1453389    .0356707
          3  |   -.0501069    .038257    -1.31   0.193    -.1258222    .0256084
             |
       _cons |    .6970243   .0265438    26.26   0.000     .6444909    .7495577
------------------------------------------------------------------------------
```

```
. reg FinancialRatio Stress , robust cluster ( USERID)

Linear regression                               Number of obs     =        378
                                                F(1, 125)         =       2.15
                                                Prob > F          =     0.1450
                                                R-squared         =     0.0117
                                                Root MSE          =     .26526

                                    (Std. Err. adjusted for 126 clusters in USERID)
------------------------------------------------------------------------------
             |               Robust
FinancialR~o |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Stress |   .0121434   .0082798     1.47   0.145    -.0042433    .0285302
       _cons |   .5996244   .0503753    11.90   0.000     .4999254    .6993234
------------------------------------------------------------------------------
```

```
. reg FinancialRatio Anxious , robust cluster ( USERID)

Linear regression                               Number of obs     =        378
                                                F(1, 125)         =       0.01
                                                Prob > F          =     0.9331
                                                R-squared         =     0.0000
                                                Root MSE          =     .26683

                                   (Std. Err. adjusted for 126 clusters in USERID)
------------------------------------------------------------------------------
             |               Robust
FinancialR~o |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     Anxious |  -.0006038   .0071752    -0.08   0.933    -.0148045    .0135969
       _cons |   .6649476   .0388594    17.11   0.000     .5880401    .7418552
------------------------------------------------------------------------------
```

```
.  reg FinancialRatio EconomicUncertainty , robust cluster ( USERID)

Linear regression                               Number of obs     =        378
                                                F(1, 125)         =       2.01
                                                Prob > F          =     0.1585
                                                R-squared         =     0.0112
                                                Root MSE          =     .26533

                                   (Std. Err. adjusted for 126 clusters in USERID)
------------------------------------------------------------------------------
             |               Robust
FinancialRatio |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
EconomicUncer~y |  -.0112407   .0079238    -1.42   0.159    -.026923    .0044415
       _cons |    .716867   .0433223    16.55   0.000     .6311267    .8026073
------------------------------------------------------------------------------
```

```
. reg FinancialRatio i.ExperimentalGroup Stress Anxious EconomicUncertainty, robust cluster ( USERID)

Linear regression                               Number of obs     =        378
                                                F(5, 125)         =       2.49
                                                Prob > F          =     0.0346
                                                R-squared         =     0.0489
                                                Root MSE          =     .26162

                                   (Std. Err. adjusted for 126 clusters in USERID)
------------------------------------------------------------------------------
             |               Robust
FinancialRatio |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
ExperimentalGroup |
           2 |  -.0512323   .0470551    -1.09   0.278    -.1443602    .0418956
           3 |  -.0486292   .0393594    -1.24   0.219    -.1265265     .029268
             |
      Stress |   .0313872   .0112247     2.80   0.006     .0091721    .0536023
     Anxious |  -.0223756   .0098073    -2.28   0.024    -.0417855   -.0029656
EconomicUncer~y |  -.0090839    .008073    -1.13   0.263    -.0250615    .0068936
       _cons |   .6769054   .0648847    10.43   0.000     .5484905    .8053204
------------------------------------------------------------------------------
```

Linear regression

Number of obs	= 378
F(9, 125)	= 2.29
Prob > F	= 0.0205
R-squared	= 0.0855
Root MSE	= .25792

(Std. Err. adjusted for 126 clusters in USERID)

FinancialRatio	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ExperimentalGroup						
2	-.0445633	.0445114	-1.00	0.319	-.1326568	.0435303
3	-.0415598	.0380349	-1.09	0.277	-.1168355	.0337159
Stress	.0301846	.0116123	2.60	0.010	.0072023	.0531668
Anxious	-.0213645	.0101932	-2.10	0.038	-.041538	-.0011909
EconomicUncertainty	-.0144627	.0079415	-1.82	0.071	-.0301798	.0012545
Gender	.0663264	.0376076	1.76	0.080	-.0081038	.1407565
Age	.0076752	.0073287	1.05	0.297	-.0068292	.0221796
Participation	.0165716	.0787831	0.21	0.834	-.13935	.1724931
CurrentIncome	-.0336324	.0190765	-1.76	0.080	-.0713872	.0041225
_cons	.4446779	.2706164	1.64	0.103	-.0909056	.9802614

Linear regression

Number of obs	378
F(2, 125)	1.13
Prob > F	0.3273
R-squared	0.0086
Root MSE	.26604

(Std. Err. adjusted for **126** clusters in USERID)

FinancialRatio	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ExperimentalGroup						
2	-.0548341	.0457297	-1.20	0.233	-.1453389	.0356707
3	-.0501069	.038257	-1.31	0.193	-.1258222	.0256084
_cons	.6970243	.0265438	26.26	0.000	.6444909	.7495577

```
. reg FinancialRatio Stress , robust cluster ( USERID)
```

Linear regression

Number of obs	378
F(1, 125)	2.15
Prob > F	0.1450
R-squared	0.0117
Root MSE	.26526

(Std. Err. adjusted for **126** clusters in USERID)

FinancialR~o	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Stress	.0121434	.0082798	1.47	0.145	-.0042433	.0285302
_cons	.5996244	.0503753	11.90	0.000	.4999254	.6993234

```
. reg FinancialRatio Anxious , robust cluster ( USERID)
```

Linear regression

Number of obs	378
F(1, 125)	0.01
Prob > F	0.9331
R-squared	0.0000
Root MSE	.26683

(Std. Err. adjusted for **126** clusters in USERID)

FinancialR~o	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Anxious	-.0006038	.0071752	-0.08	0.933	-.0148045	.0135969
_cons	.6649476	.0388594	17.11	0.000	.5880401	.7418552