Finances and Individual Well Being*

Justin Abando, Jin Di Liu, Marcin Jaczynski

17 March 2023

This paper discusses data taken from the 2021 US General Social Survey to analyze the relationship between finances and overall individual well being. Specifically, this paper looks to analyze and determine the relationships between financial well being and factors such as happiness, health, and marriage quality. The analysis provided a positive relationship between the two, however many confounding limitations still exist in regards to the possible interpretations of the data. Another survey is included at the end designed with the intention to better understand these variables with less limitation.

1 Introduction

The advent of 2023 is one marked with economic hardship and depression. After the pandemic, markets scrambled as inflation rose to an all time high and signs of economic downturn began creeping through in the form of layoffs and reduced spending. Because of this, we wanted to investigate the effects that finances (economic statuses and hardships) have on well being. For our investigation, we wished to interrogate elements that we believe are representative of well being in relation to financial wellbeing. Specifically, we chose to investigate factors such as happiness, health, happiness of marriage, and life excitement. We were able to identify interesting correlations between quality of health, happiness, and happiness of marriage with financial satisfaction and income.

To first get a better grasp of this investigation, we conducted a small literature review on the relationships between finances and well being in the United States. A common well known relationship between well being and finances is the positive correlation between Life Satisfaction and Economic well being (Helliwell, Layard, and Sachs 2012). Furthermore, there are other economic theories that also attempt to interrogate the relationship between happiness and economic well being such as the Easterlin Paradox (Easterlin 1974). In this regard, the positive correlation between finances and happiness is well understood. However, looking

*Code and data are available at: https://github.com/jackchinski/happiness_report

deeper into the literature, we can also identify how the deprivation of economic well being can also negatively impact an individual's quality of life. Specifically, research shows that economic hardship can impact marital quality and cause instability. This is due to an increase in occupational and financial stress that generate frustration, stress, anger and depression. (Conger et al. 1990) Furthermore, economic hardships can also inflict long-term consequences on children psychological well being in adulthood. (Sobolewski and Amato 2005). Finally, economic hardships play a major role in increasing depression levels, as depression can emerge as a byproduct of low income, education, being young, and having young children. (Ross and Huber 1985) Based on our brief literature review and the current economic climate of 2023, we were inspired to engage with the GSS 2021 survey data to answer questions about the impact of financial satisfaction with overall well being.

2 Data

This report focuses on the General Social Survey (GSS), which is a survey that observes and monitors public opinion and behavior in the United States ("US General Social Survey", 2021). Since 1972, the GSS has been conducted by the NORC at the University of Chicago, and is currently funded by the National Science Foundation (NSF) This survey was conducted annually until 1990, where it shifted towards a bi-annual schedule. Its aim is to maintain a consistent set of questions that aggregates American sentiments through similar sampling and questioning approaches. Depending on the year, political context, and contemporary academic practices, additional questions may be added or altered. However, there are still a core set of questions that are maintained and given every year. These core survey questions are mostly identity related (age, income, gender, etc.), but a few are also relevant to general opinions and well being. Additionally, the survey consists of repeating and topical modules, with each participant receiving a subset of both. For the scope of this study, we are going to look at survey responses produced from the 2021 survey.

2.1 Survey Methodology

This report focuses on the General Social Survey (GSS), which is a survey that observes and monitors public opinion and behavior in the United States ("US General Social Survey", 2021). Since 1972, the GSS has been conducted by the NORC at the University of Chicago, and is currently funded by the National Science Foundation (NSF) This survey was conducted annually until 1990, where it shifted towards a bi-annual schedule. Its aim is to maintain a consistent set of questions that aggregates American sentiments through similar sampling and questioning approaches. Depending on the year, political context, and contemporary academic practices, additional questions may be added or altered. However, there are still a core set of questions that are maintained and given every year. These core survey questions are mostly identity related (age, income, gender, etc.), but a few are also relevant to general opinions and well being. Additionally, the survey consists of repeating and topical modules, with each

participant receiving a subset of both. For the scope of this study, we are going to look at survey responses produced from the 2021 survey.

The sample for the 2021 survey consisted of adults aged 18 and older living in privately owned homes in the US. To select respondents, the "last birthday method" was used, which involves selecting the adult with the most recent birthday to when the mail was sent out. Prior to the pandemic, the selection process was more rigorous, with an interviewer physically present to assist respondents and make the selection after all adults had filled in an introductory form. For the 2021 survey, materials were mailed to participants with a web link invitation instead. The response rate was 17.4%, with 88.3% of respondents completing the survey via the web and 11.7% completing it via phone. A total of 4,032 surveys were completed between December 1, 2020, and May 3, 2021.

2.2 Survey Biases and Ethics

The lack of an interviewer implied the possibility of non-response, as participants are less socially pressured to fill out responses they may or may not feel inclined to report. To address this, an introductory form was administered to all participating adults which somewhat ensured that those taking the survey are dedicated enough to offer adequate responses.This was a trade off in the sampling approach that must be noted compared to previous years. Therefore, weights were carefully placed to account for factors such as population totals, density of surveyed addresses nearby, and non-response. The weighting system must account for new data and be similar to previous years to avoid skewing the results. However, despite all of these measures and countermeasures, the greatest challenge against the GSS (in all years) is the threat of survey bias, as all the data collected for all surveys are from participants willing to fill out a 90 minute survey. This could mean that the only people represented in the GSS survey are those with the free time and willingness to offer survey responses to NORC, potentially misrepresenting the overall population.

Furthermore, the GSS 2021 survey has made changes to the survey response options due to the shift from in-person interviews to web and phone-based interviews. The survey originally contained "volunteered responses" that were not displayed to respondents but used by interviewers. However, interviewers are unable to add volunteer responses in this year's survey because of the lack of interaction on web and phone-based interviews. The GSS adopted a new structure for volunteered responses on the web mode by creating two different versions of forms, one with and one without volunteered responses as an option. Any changes in public opinion seen in the 2021 GSS data could be due to actual changes in public opinion or the newly adopted methodology and should be closely monitored and considered in analysis.

Changes to "Don't Know" and "No Answer" responses have also been made in the 2021 GSS survey. Traditionally, these options were not shown to respondents, and it was only recorded if the respondent did not wish to answer. On the web mode, however, responders can only skip the question, and the option of "No Answer" was removed. The option of "Don't Know" was

also removed from attitudinal questions and only displayed in light-gray as an option for factual questions. Implementing these changes exposes the survey to more "No Answer" and "Don't Know" responses, which could lead to a loss of information. However, the GSS codebook has stated that there was no significant increase in respondents choosing these options, but they encourage further investigation as this finding is still preliminary.

The data that was represented in this analysis has many considerations to take into account. First, it must be considered that these results are highly generalized, as one respondent in the GSS survey corresponds to 90,000 people. This is the result of how the data was collected, and as such the data visualizations are only to be seen in a general context. In addition, we also have to consider that opinions of what people are thinking are not substantial enough to confidently argue in absolutes in regards to the correlation between well-being and the variables that were analyzed. This also applies to the fact that respondents can still lie on the survey as there is no way to verify if the respondents were answering truthfully over a survey. It must also be considered that volunteer bias is present with this survey, as those respondents that have time and access to contribute to the survey would be more likely to take part. As a result, this data may misrepresent the population as those that have the free time to offer these opinions may be more well off. While it's great to include anyone in the survey, the assumption can be made that more respondents would likely consist of individuals that are well off.

Furthermore, the nature of sentiment-based questions in the GSS can be difficult to conceptualize. In GSS Methodological Report No. 127, Tom W. Smith investigates the nature of vague questions such as SATJOB (Job Satisfaction) and how it is a subjective concept that varies in definition depending on the respondent. Specifically, he quotes another paper that writes "there probably are several types of feelings that people have which can be satisfaction or which influence their feelings of satisfaction about their job."(Wanous and Lawler, 1972) In other words, depending on the categories, feelings, and values respondents assign to their jobs, the satisfaction reported can be wildly different from one.

Similarly, we wish to highlight this limitation in the GSS, as one of our most important variables SATFIN is also a subjective sentiment-based question that we will use to gauge the financial comfort of the respondents. To address this limitation, however, we have also decided to include income into our analysis in order to somewhat quantify the varying degrees of financial satisfaction before we set out to measure its impact on various aspects of well being.

Another important vulnerability to identify is the outdatedness of certain variables. Specifically, variables such as income(respondent family income) and rincome (respondent income) are not scaled for inflation. The 12 income ranges used to represent respondents do not exceed 25 000. However, the GSS does acknowledge this, and has implemented different income ranges to accommodate for inflation. Specifically, we will be using income16 (respondent family income in 2016 and beyond) to represent the ranges of income of our respondents. Furthermore, we will be condensing these ranges during data cleaning to better visually interpret the data.

2.3 Data Collection

In order to visualize the results of the GSS, the data was extracted from the GSS Data Explorer and was imported and analyzed using R (R Core Team 2022). The tidyverse package (Wickham et al. 2019) was used to load in the dplyr package to filter variables (Wickham et al. 2023), and ggplot2 to visualize the data in graphs (Wickham 2016). Furthermore, we also employed packages gtsummary (Sjoberg et al. 2021) and (Gohel and Skintzos 2023) to create table visualizations and summaries of our findings

The data extraction process requires access to an internet browser, a file compression software such as 7zip, and Microsoft Excel. In order to acquire the GSS 2021 data that we have extracted through legal means, please follow the precise steps outlined in our README.md file, in our Github repository.

The data that was chosen to be analyzed from the GSS were variables that involved subjective opinions about the respondent's well-being in tandem with socio-economic variables that act as potential contributors to their state. These specific variables are:

- HAPPY: Subjective opinion of the respondent's happiness
- HAPMAR: Subjective opinion of the respondents' current happiness in their marriage (if they are married)
- HEALTH: Subjective opinion of the respondent's current health status
- SATFIN: Financial satisfaction of the respondent
- INCOME16: Total family income of the respondent, which includes: total income includes interest or dividends, rent, social security, other pensions, alimony or child support, unemployment compensation, public aid (welfare), armed forces or veteran's allotment.
- FINALTER: Subjective opinion of the respondent's financial situation in the past few years since 2021.

Before we chose any of the other variables, we decided to first pick out INCOME16 and SATFIN. The reason for this is because we want to be able to gauge what range of income respondents would identify as a range where they would be financially satisfied. The reason for this is to quantify financial satisfaction on the basis of income, as this allows us to translate the sentiment of satisfaction into a tangible number. Similarly, happiness in a marriage context with HAPMAR was also chosen to be analyzed as social relationships play a large role in a person's sense of belonging, and so we wanted to assess how living with a partner can affect their well-being in a measurable way. HEALTH is used to gauge how people feel about their general health condition, and can predict to a certain extent their well-being. These variables will be further explored in our data analysis (or can be demonstrated right now in a graph). Overall, our attention was turned to three specific factors: finances, relationships, and health. These

variables were chosen to be analyzed as they represent core dimensions that are interconnected with well-being and how humans experience and feel about life [@rath2010]. Discussing these factors as they affect your well-being turns them into abstract concepts for people to visualize and describe to others, and so a subjective viewpoint was taken from respondents to gain an idea of how they affect them in a general context.

We also currently have variable "- LIFE:"Subjective opinion of respondent's view on life as dull, routine, or exciting" included in the data extract. We ended up not working with this variable as it only included samples from two out of the 3 ballots employed in 2021.

2.4 Data Cleaning

In order to clean the data, we started by selecting all of the applicable columns to make two separate data frames. The first one consisted of SATFIN, which is financial satisfaction, and the INCOME16 column which is a family's yearly income. While trying to visualize the data, we decided to make more general income ranges, instead of the twenty six that were provided in the original INCOME16 column. We settled on five income ranges (which we will later discuss in discussions). We did so by creating an ifelse statement that would add an additional column "new_income_range" with our own set income ranges depending on the INCOME16 value. We then removed all invalid entries that consisted of either "incomplete", "did not answer", or "did not complete online" values. Similarly, we made another master_clean dataset, in which we selected the columns HAPPY, HAMPAR, HEALTH, FINALTER, SAFTIN, INCOME16, and GROUPED_INC. We then followed the same methodology of adding our own column for our custom income range, and removing all invalid entries from all of the invalid rows.

3 Results

Table 1: Financial Satisfaction vs. Income Ranges

	Income Ranges					
	0 to 9 999	10 000 to 19 999	20 000 to 39 999	40 000 to 89 999	90 000 to 170 000	Total
Financial Satisfaction						
More or less satisfied	90 (37%)	127 (41%)	272 (48%)	592 (50%)	462 (39%)	1,543 (44%)
Not satisfied at all	121 (49%)	152 (50%)	218 (38%)	250 (21%)	85 (7.2%)	826 (24%)
Pretty well satisfied	34 (14%)	28 (9.1%)	79 (14%)	350 (29%)	636 (54%)	1,127 (32%)
Total	245 (100%)	307 (100%)	569 (100%)	1,192 (100%)	1,183 (100%)	3,496 (100%)

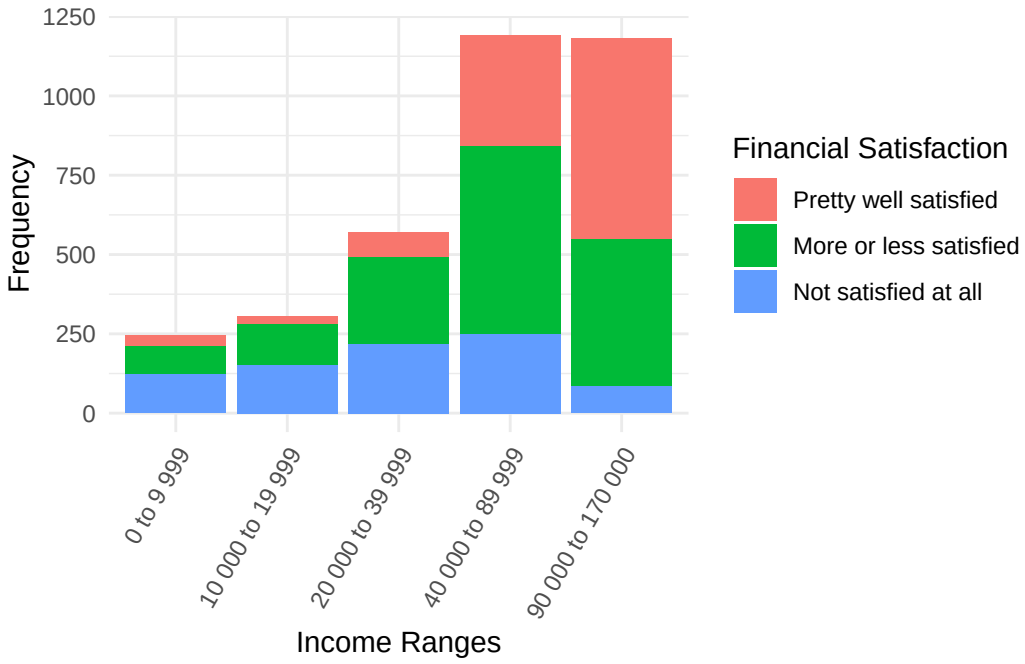

Figure 1: Visualization of financial satisfaction of respondents with respect to their relative income. There is a larger proportion of respondents that claim that they are not satisfied with their finances at lower income ranges. As the income range increases, more respondents proportionally express that they are either more of less satisfied, or are pretty well satisfied with their financial situation.

Table 2: Financial Satisfaction vs. Happiness

	Financial Satisfactions			
	More or less satisfied	Not satisfied at all	Pretty well satisfied	Total
Happiness				
Not too happy	299 (19%)	338 (41%)	151 (13%)	788 (23%)
Pretty happy	976 (63%)	393 (48%)	636 (57%)	2,005 (58%)
Very happy	264 (17%)	92 (11%)	336 (30%)	692 (20%)
Total	1,539 (100%)	823 (100%)	1,123 (100%)	3,485 (100%)

Table 3: Income Ranges vs. Happiness

	Income Ranges					
	0 to 9 999	10 000 to 19 999	20 000 to 39 999	40 000 to 89 999	90 000 to 170 000	Total
Happiness						
Not too happy	82 (33%)	107 (35%)	173 (30%)	255 (22%)	171 (14%)	788 (23%)
Pretty happy	125 (51%)	155 (51%)	312 (55%)	703 (59%)	710 (60%)	2,005 (58%)
Very happy	38 (16%)	44 (14%)	83 (15%)	226 (19%)	301 (25%)	692 (20%)
Total	245 (100%)	306 (100%)	568 (100%)	1,184 (100%)	1,182 (100%)	3,485 (100%)

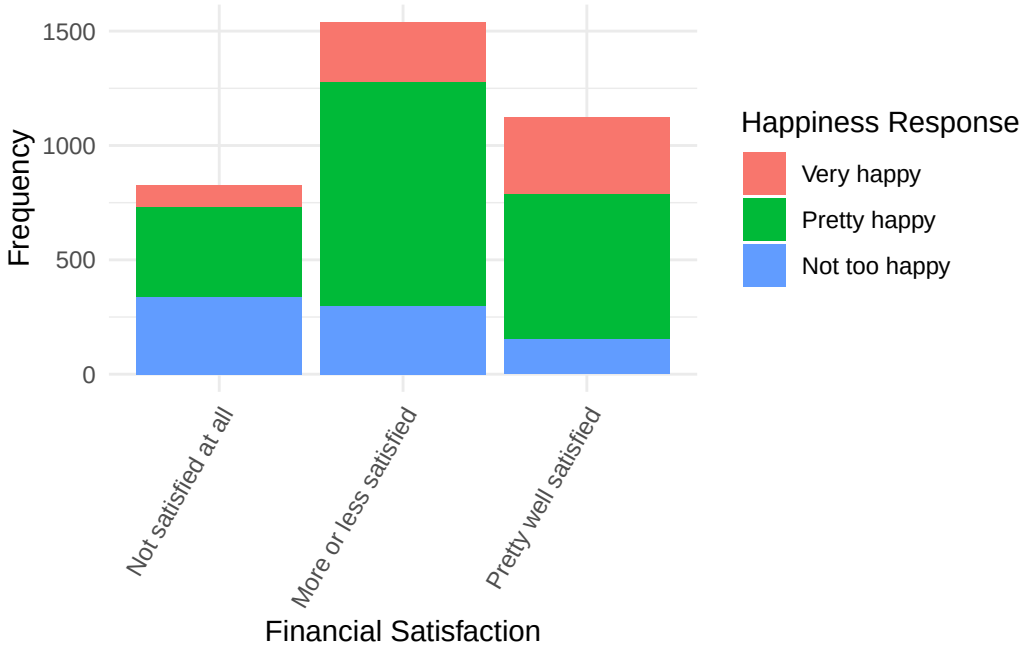

Figure 2: something3

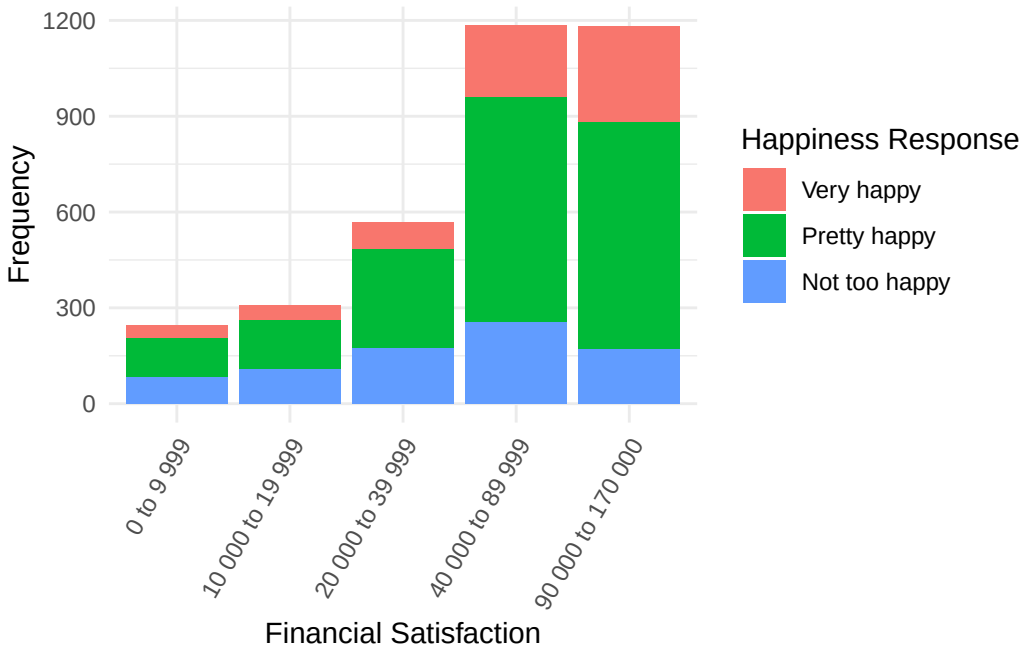
1200
900
600
300
0
Frequency
0 to 9 999
10 000 to 19 999
20 000 to 39 999
40 000 to 89 999
90 000 to 170 000
Financial Satisfaction
Happiness Response
Very happy
Pretty happy
Not too happy

Figure 3: ???

Table 4: Financial Satisfaction vs. Happiness of Marriage

	Financial Satisfactions			
	More or less satisfied	Not satisfied at all	Pretty well satisfied	Total
Happiness of Marriage				
NOT TOO HAPPY	32 (4.1%)	18 (6.8%)	14 (2.0%)	64 (3.7%)
PRETTY HAPPY	289 (37%)	117 (44%)	212 (30%)	618 (35%)
VERY HAPPY	455 (59%)	131 (49%)	483 (68%)	1,069 (61%)
Total	776 (100%)	266 (100%)	709 (100%)	1,751 (100%)

Table 5: Income Range vs. Happiness of Marriage

	Income Ranges					
	0 to 9 999	10 000 to 19 999	20 000 to 39 999	40 000 to 89 999	90 000 to 170 000	Total
Happiness of Marriage						
NOT TOO HAPPY	0 (0%)	7 (13%)	10 (6.2%)	27 (4.4%)	20 (2.3%)	64 (3.7%)
PRETTY HAPPY	15 (39%)	17 (33%)	68 (42%)	227 (37%)	291 (33%)	618 (35%)
VERY HAPPY	23 (61%)	28 (54%)	82 (51%)	363 (59%)	573 (65%)	1,069 (61%)
Total	38 (100%)	52 (100%)	160 (100%)	617 (100%)	884 (100%)	1,751 (100%)

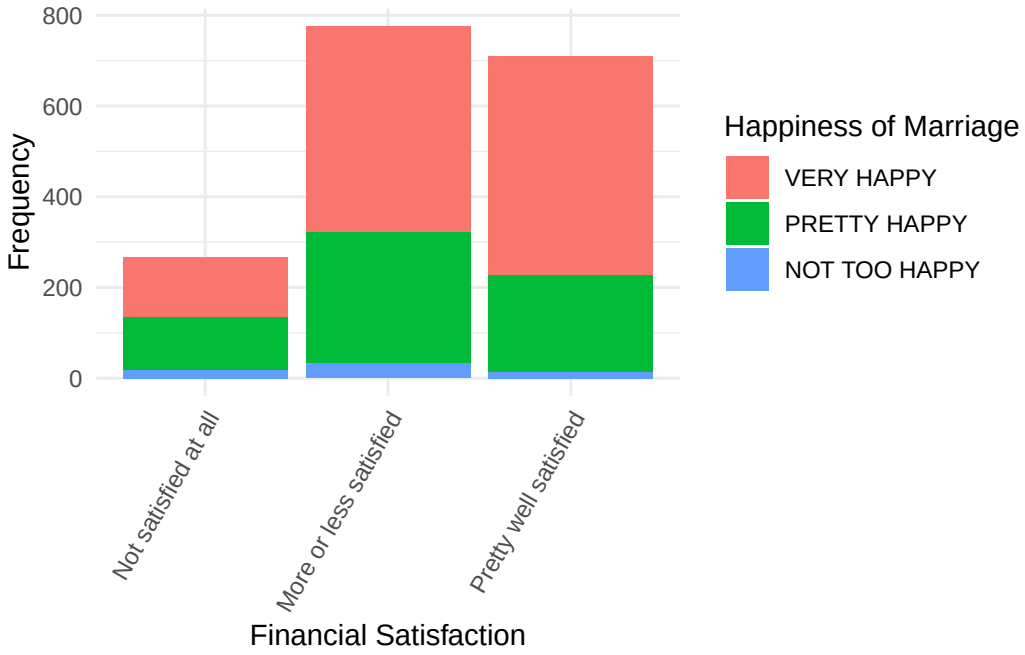

Figure 4: something2

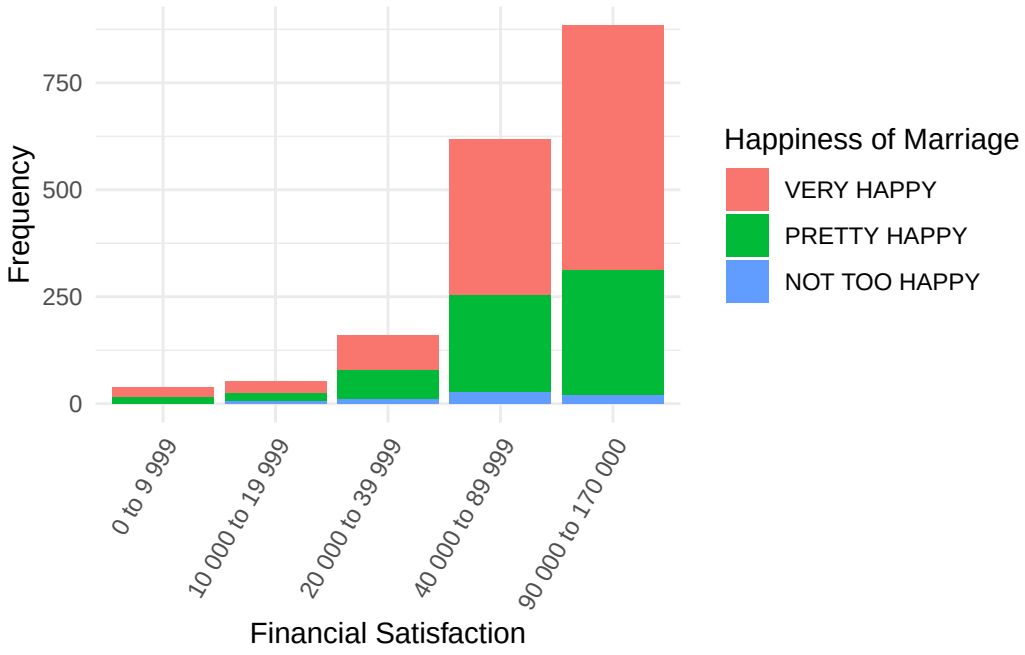
750
500
250
0
Frequency
0 to 9 999
10 000 to 19 999
20 000 to 39 999
40 000 to 89 999
90 000 to 170 000
Financial Satisfaction
Happiness of Marriage
VERY HAPPY
PRETTY HAPPY
NOT TOO HAPPY

Figure 5: ???

Table 6: Financial Satisfaction vs. Health

	Financial Satisfactions			
	More or less satisfied	Not satisfied at all	Pretty well satisfied	Total
Quality of Health				
Excellent	265 (17%)	106 (13%)	366 (32%)	737 (21%)
Fair	306 (20%)	245 (30%)	118 (10%)	669 (19%)
Good	931 (60%)	407 (49%)	635 (56%)	1,973 (56%)
Poor	40 (2.6%)	68 (8.2%)	8 (0.7%)	116 (3.3%)
Total	1,542 (100%)	826 (100%)	1,127 (100%)	3,495 (100%)

Table 7: Income Ranges vs. Health

	Income Ranges					
	0 to 9 999	10 000 to 19 999	20 000 to 39 999	40 000 to 89 999	90 000 to 170 000	Total
Quality of Health						
Excellent	34 (14%)	35 (11%)	89 (16%)	226 (19%)	353 (30%)	737 (21%)
Fair	78 (32%)	107 (35%)	144 (25%)	213 (18%)	127 (11%)	669 (19%)
Good	106 (43%)	135 (44%)	307 (54%)	734 (62%)	691 (58%)	1,973 (56%)
Poor	27 (11%)	30 (9.8%)	29 (5.1%)	19 (1.6%)	11 (0.9%)	116 (3.3%)
Total	245 (100%)	307 (100%)	569 (100%)	1,192 (100%)	1,182 (100%)	3,495 (100%)

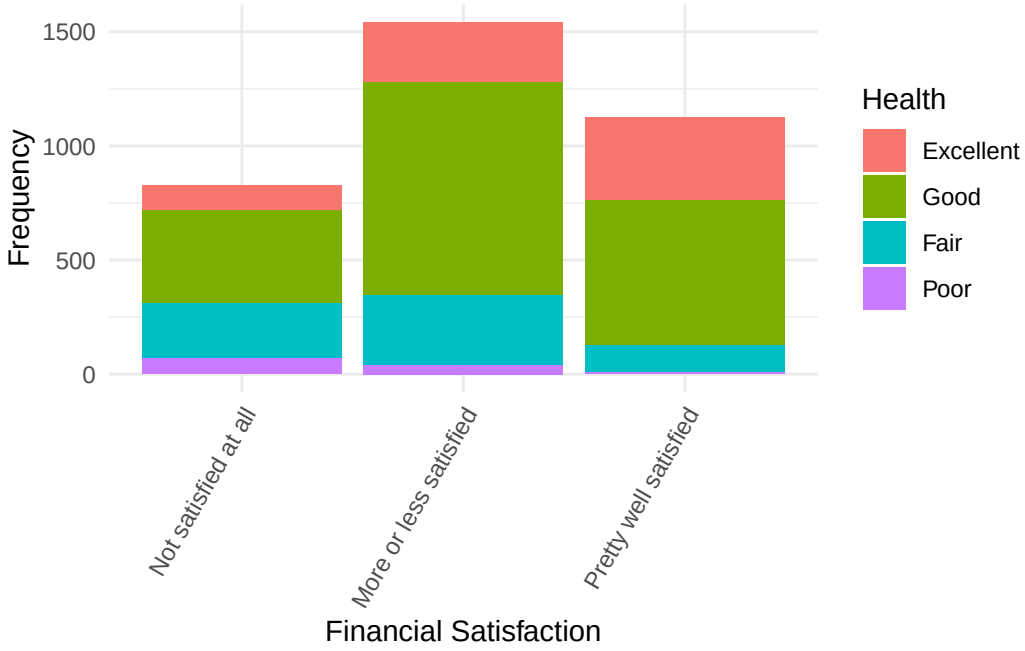

Figure 6: something2

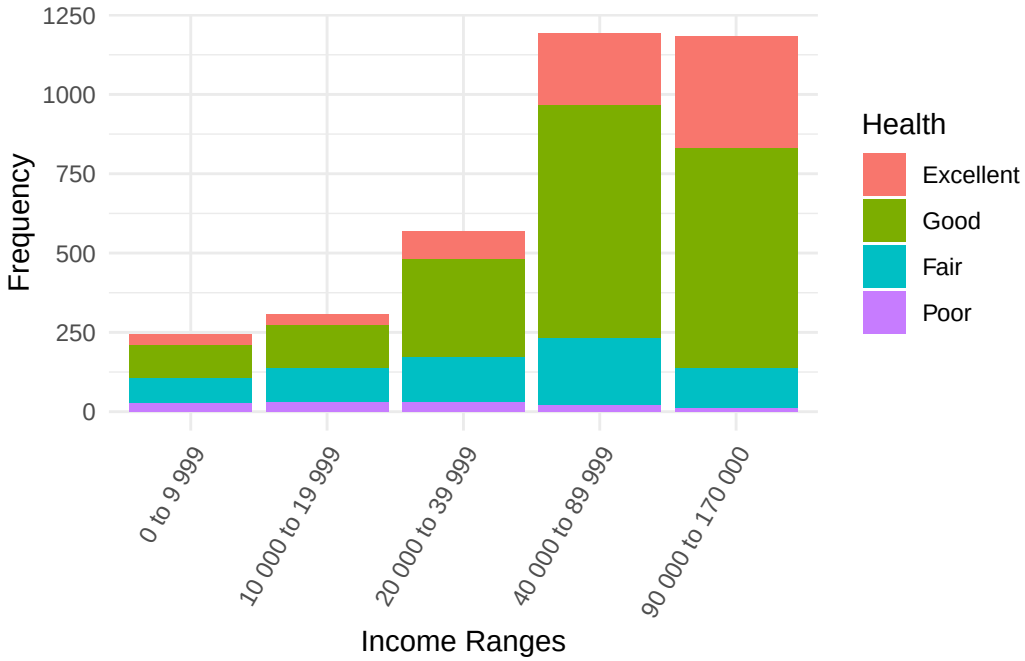

Figure 7: something2

Table 8: Financial Satisfaction vs. Changes in Finances

	Financial Satisfaction			
	More or less satisfied	Not satisfied at all	Pretty well satisfied	Total
Changes in Wealth				
Better	590 (38%)	145 (18%)	710 (63%)	1,445 (41%)
Stayed same	703 (46%)	270 (33%)	380 (34%)	1,353 (39%)
Worse	248 (16%)	411 (50%)	35 (3.1%)	694 (20%)
Total	1,541 (100%)	826 (100%)	1,125 (100%)	3,492 (100%)

Table 9: Income Ranges vs. Changes in Finances

	Income Ranges					
	0 to 9 999	10 000 to 19 999	20 000 to 39 999	40 000 to 89 999	90 000 to 170 000	Total
Changes in Wealth						
Better	61 (25%)	72 (24%)	125 (22%)	491 (41%)	696 (59%)	1,445 (41%)
Stayed same	88 (36%)	117 (38%)	254 (45%)	498 (42%)	396 (34%)	1,353 (39%)
Worse	94 (39%)	117 (38%)	190 (33%)	203 (17%)	90 (7.6%)	694 (20%)
Total	243 (100%)	306 (100%)	569 (100%)	1,192 (100%)	1,182 (100%)	3,492 (100%)

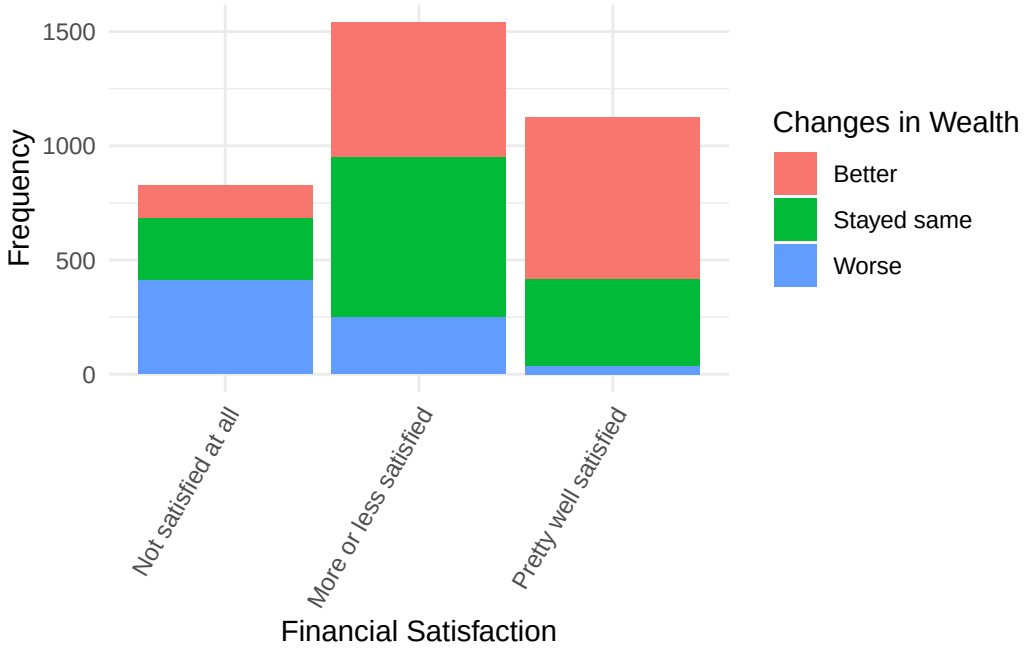

Figure 8: something2

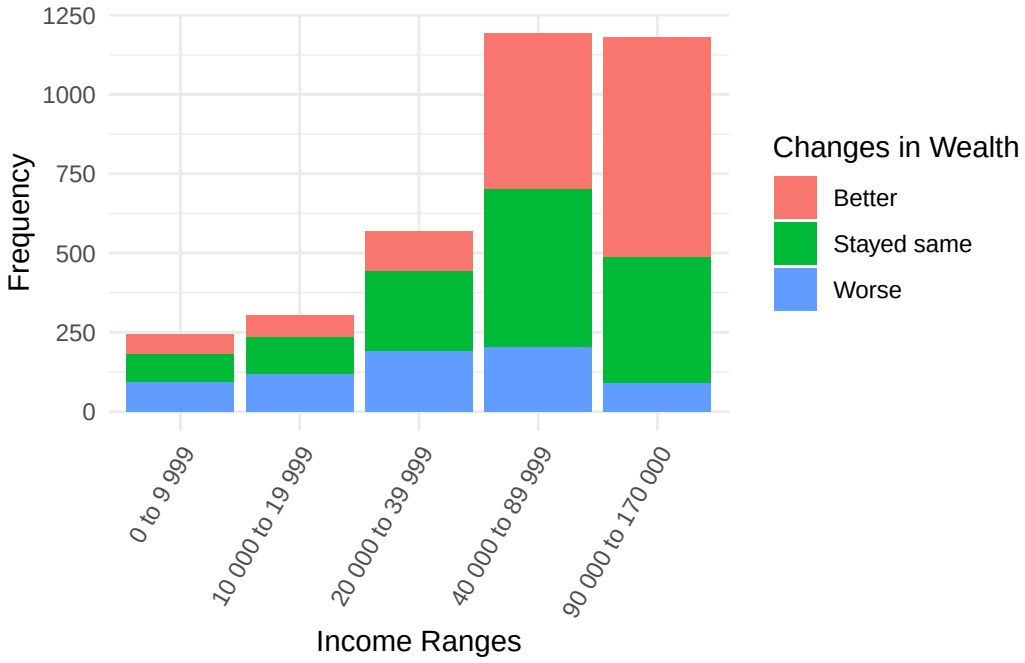

Figure 9: something2

4 Discussion

4.1 Limitations

5 Appendix

Conger, Rand D, Glen H Elder Jr, Frederick O Lorenz, Katherine J Conger, Ronald L Simons, Les B Whitbeck, Shirley Huck, and Janet N Melby. 1990. "Linking Economic Hardship to Marital Quality and Instability." *Journal of Marriage and the Family*, 643–56.

Easterlin, Richard A. 1974. "Does Economic Growth Improve the Human Lot? Some Empirical Evidence." In *Nations and Households in Economic Growth*, 89–125. Elsevier.

Gohel, David, and Panagiotis Skintzos. 2023. *Flextable: Functions for Tabular Reporting*. https://CRAN.R-project.org/package=flextable.

Helliwell, John, Richard Layard, and Jeffrey Sachs. 2012. "World Happiness Report."

R Core Team. 2022. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Ross, Catherine E, and Joan Huber. 1985. "Hardship and Depression." *Journal of Health and Social Behavior*, 312–27.

Sjoberg, Daniel D., Karissa Whiting, Michael Curry, Jessica A. Lavery, and Joseph Larmarange. 2021. "Reproducible Summary Tables with the Gtsummary Package." *The R Journal* 13: 570–80. https://doi.org/10.32614/RJ-2021-053.

Sobolewski, Juliana M, and Paul R Amato. 2005. "Economic Hardship in the Family of Origin and Children's Psychological Well-Being in Adulthood." *Journal of Marriage and Family* 67 (1): 141–56.

Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. https://ggplot2.tidyverse.org.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. https://doi.org/10.21105/joss.01686.

Wickham, Hadley, Romain François, Lionel Henry, Kirill Müller, and Davis Vaughan. 2023. *Dplyr: A Grammar of Data Manipulation*.