

Radboud University

Nijmegen School of Management

Nijmegen, The Netherlands

Radboud Universiteit



The Effect of Income Frequencies on Saving Behavior

Sabina Pieterse

Master Thesis in Financial Economics

Master Thesis (MAN-MTHECFE)

Version 2.0

Student Number: s1007169

Nijmegen, July 2019

Supervisor Radboud University:

Prof. Dr. Stefan Zeisberger

Abstract

This paper aims to review empirical evidence on savings activity of consumers within the vast different income disbursement frequencies. Through a survey the focus lies on collecting data on saving habits and the variables that influence it, including income frequency and present-biased. The results align with previously confirmed variables that influence savings behavior; including college completion, age, savings balance, and negatively influenced by level of debt, excluding mortgage(s). The data shows a biased preference towards more frequent income payments because participants assume it stimulates short-term consumption smoothing and improves saving behavior. Evidence from the survey resulted in savings activity that is not significantly different from more frequent income payments. As a result, participants overestimate the benefits of frequent income disbursement and their preferred frequencies do not align with the results. Moreover, present-biased participants did not have a significantly different savings activity though the likelihood of overspending increases. Regardless of the fabricated perception of frequent income deviating from reality, companies and government regulators can make use of this perception to stimulate improved levels of saving and an overall improvement in personal finance.

Keywords: Savings rate, Income frequency, Hyperbolic discounting, Present-bias, Short-term Consumption smoothing

Table of Contents

1.	Introduction.....	3
2.	Literature Review.....	5
3.	Research Design.....	8
3.1.	Survey data collection.....	8
3.1.1.	Sample Selection.....	8
3.1.2.	Testing the data.	8
3.3.	Independent Variables.....	10
4.	Results.....	12
4.1.	Summary Statistics.....	12
4.2.	Quasi-Hyperbolic Discounting	12
4.3.	Spending and Savings Habits.....	13
4.4.	Influence on Annual Savings Rate.....	13
4.5.	Preferences on Payday Frequency	14
4.6.	Life Satisfaction and Budget Use Effect.....	15
4.7.	Hypotheses	15
5.	Discussion and Conclusion	16
5.1.	Major findings.....	16
5.2.	Similar studies.....	16
5.3.	Alternative Explanations.....	17
5.4.	Limitations	18
5.5.	Future Research.....	19
5.6.	Conclusion	19
6.	Bibliography	21
7.	Figures and Tables	24

1. Introduction

Economic models suggest that individuals smooth their income over a specified period to prepare for unforeseen changes in future income. However, studies have found that households are less likely to smooth consumption, namely low-income households (Stephens, 2003; Mastrobuoni and Weinberg, 2009). Consumption smoothing depends on the frequency of income disbursement and therefore has an impact on how much you can save and consume (Aguila, Kepteyn, & Francisco, 2017; Pagel & Vardardottir, 2016). Therefore, an increase in the income frequency may lead to short-term consumption smoothing more efficiently over a short period of time or be seen as less of a challenge (Aguila et al., 2017).

Studies have shown that consumption increases after receiving income (Carvalho, Meier, and Wang, 2016; Zhou et al., 2016). Parsons & Van Wesep (2013), would argue that an increase in consumption is in fact linked to low pay frequencies¹. They created a model that identifies the ideal payment frequency especially for employees with self-control problems and those who express hyperbolic discounting preferences. People who are present-biased are more prone to spend disproportionately after receiving their pay due to hyperbolic discounting (Parsons & Van Wesep, 2013). Therefore, they concluded that weekly payment schemes are good for people who are present-biased.

Throughout the world, the frequency of getting paid varies significantly. As most countries settle for monthly disbursement schemes, some countries are not so universal. More specifically, in the United States, employers can choose the frequency of paying their employees and this can vary for instance by weekly, bi-weekly, semi-monthly, or monthly. Other cultures vary on frequency payments, however in the United States the frequencies are relatively evenly distributed.

Research has shown that paycheck frequency has an influence on consumer spending behavior, however, lacks the analysis of whether their saving patterns are different. Given that some people are myopic (short-sighted) and present-biased, they should have more frequent income to promote consumption smoothing (Parsons & Van Wesep, 2013). The literature lacks causation defined in the research. We know from Parsons & Van Wesep's (2013) research, that the optimal contract for people that lack self-control should be a frequent payment scheme and should be regulated to help the consumer save themselves. However, there still lies the question, does pay frequency lead to less saving or does present-bias lead to less saving, or both? In this analysis a combination of these two causes are considered to analyze the significance.

The purpose of this study is to explore whether income frequency restrains or encourages the ability of consumers to save. The two main objectives of the research include:

¹ Pay frequency, income frequency, and income disbursement are used interchangeably in this report

1. To determine the relationship between income frequency and the rate of savings
2. To determine whether people that are present biased are more inclined to a reduced saving activity.

An additional objective to complete the research is:

3. To determine the overall preference of income frequency in which stimulates savings and short-term consumption smoothing as well as overall wellbeing.

This research will therefore answer the question, “How does income frequency influence the saving behavior of consumers?”

Based on the literature review in Section 2, the following hypotheses are created. We know there is a positive correlation with income frequency and consumption (Parsons & Van Wesep, 2013). Therefore, the first hypothesis is that there is a negative correlation with income frequency and savings. Namely, the more frequent the income is, the less one can save. Furthermore, it is hypothesized that the people classified as present-biased have reduced levels of saving. Finally, it is hypothesized that the overall preferred income frequency would be more frequent because it stimulates short-term consumption smoothing.

The results show that one of the three hypotheses are rejected. The majority of the respondents preferred a more frequent income scheme because they believed that their savings would increase and improve their financial situation. However, evidence from the individual respondents was not significantly different from other income frequencies. Therefore, respondents believe that income disbursement frequencies have an influence on annual savings rates, however evidence shows that there is no significant difference in saving behavior between the income frequencies. Furthermore, there is not enough evidence to show that present-biased individuals have different savings patterns. Hence, the

This research report continues as follows: first, a concrete review of the existent literature to related topics. Section three will address the research model and the methodology for obtaining the data in the survey. The fourth section analyzes the results obtained and summarizing the statistics found. Finally, the last section will discuss the limitations of the research and further explanations to the results as well as further research followed by the conclusion.

2. Literature Review

Consumers continue to struggle with consumption smoothing when it comes to spreading their income. Their income must be distributed steadily with the intention of ensuring sufficient funds until the following payday. Zhou, Montgomery, and Gordon (2016), found that monthly-paid consumers have more gradual spending habits compared to weekly and bi-weekly paid consumers. Regardless of the payday frequency consumption smoothing is amongst many consumers a challenge. Zaki (2015) claimed that payday loans² enabled people to better smooth their consumption but leads to temptation purchases. Facing such a challenge every pay period leads to inconsistent patterns of spending or saving. Evidence has shown that people tend to spend more money on payday rather than before payday (Carvalho et al., 2016; Zhou et al., 2016). Such actions align with the fact that receiving income brings happiness therefore, consumers yearn for payday (Easterlin, 2008).

Aguila et al. (2017) presented that the frequency of disbursements has an impact on social programs. They tested consumption smoothing differences between monthly and bi-monthly programs. The more frequent disbursements (monthly) resulted in a smoother consumption behavior whereas (bi-monthly³), less frequent programs provided the chance to own durable goods including more valuable expenses due to the larger amount received.

A phenomenon in economics since the time of Adam Smith is intertemporal choice. It involves the tradeoff between the sacrifices we make to receive rewards in a different period compared to receiving rewards today. The decision involved is whether the utility of the reward exceeds the utility of the sacrifice. These decisions occur with an abundance of decisions faced on a daily basis which may influence an individual's wealth and overall wellbeing (Frederick, Loewenstein, & O'Donoghue, 2002). Intertemporal choice is what forces consumers to make spending and savings decisions that align with their values and utility preferences. This research will analyze the variables that influence these decisions to save.

In many cases, the intertemporal choice to save, involves an incentive to consume less today to be able to afford something in the future. The utility of saving must exceed the utility of consuming today in order to prefer to consume at a later date. However, occasionally the utility is highly imbalanced due to a certain cognitive bias, such as being present-biased or short-sighted. These biases distort the ability to make rational decisions. The concept of hyperbolic discounting is a cognitive bias that is a time inconsistent discount model, whereby the discount is larger in the short run than in the long run (Angeletos, Laibson, Repetto, Tobacman, & Weinberg, 2001). Therefore, hyperbolic preferences tend

² Payday loans are loans that help consumers smooth their consumption in which they are lent a predefined amount of money to be repaid on their next payday. This line of credit helps consumers get a cash advance to cover their living expenses until they receive money again. For simplicity of the research, this is however excluded from the research.

³ Every other month

to be the smaller and prior rewards versus the larger-future reward because the tradeoff of waiting bears heavier on the consumer than the tradeoff of receiving a smaller reward. Angeletos et al. (2001), concluded that households who have hyperbolic discounting functions have more illiquid than liquid assets and therefore smoothing consumption is difficult. Hyperbolic consumers usually value the future less than the present and often their actions today will not reflect the behavior needed to meet their future goals (Angeletos et al., 2001). Therefore, consumers prefer events occurring in the present, otherwise known as present biased. Present-biased preferences represent that individuals' value short-term well-being more than well-being in the long run (O'Donoghue & Rabin, 1997). People that have present-biased preferences, tend to delay important financial considerations when it comes to retirement savings (Brown & Previtro, 2016).

Contrary to the research conducted on the psychology of receiving things, research has been conducted the other side of the spectrum: namely, billing frequencies. Contract agreements with companies for goods and services regularly offer a choice of a few different billing frequencies such as a yearly payment (in some instances with a discount) or the annual amount split into monthly payments. Monthly billing is more financially attainable for consumers because it helps smooth out consumption. For an annual contract, the costs precede the benefits and therefore frames the consumer to classify this as a sunk cost (Thaler, 1980). Thaler (1980), claimed that consumers go against economic theory and do consider sunk costs. Once there is an advanced payment before utilizing the good or service, this increases the degree to which the good will be exploited (Thaler, 1980). For instance, if they pay for a whole year of a gym membership, but hurt their elbow, they will still consider going to the gym because they already paid for it; which is known as the sunk-cost effect.

Evidence has shown that members who choose for an annual payment, went to the gym regularly in the first few months after the costs was incurred, which reflected a large sunk-cost effect, however as time passed the frequency of using the gym tapered off (Gourville & Soman, 2002). Behavior for semi-annual and quarterly payment schemes, was similar, after payments the utilization of the gym was most and slowly tapered off. For monthly however, usage was evenly smoothed out due to the frequency of payments. The monthly membership resulted in the most consistency and were the most likely to renew the membership after one year (Gourville & Soman, 2002). Gourville & Soman (1998) claimed that after time, costs depreciate as they get closer to the consumption of the benefit. Thus, when advance payments are conducted, consumers need to scrutinize the discount that the firm offers compared to their own discounting function.

The behavior with billing frequencies reflects the loss aversion as a result of postponed consumption, however costs are incurred. Loss aversion is not applicable to receiving money, because consumers prefer to receive more but pay less. We can conclude that more frequent billing payments results in a sufficiently smoothed out consumption and use of the contract. These results are consistent with Parsons & Van Wesep (2013) for income disbursement, the more frequent the 'reminder', in a



sense, the smoother the distribution. Therefore, receiving and billing frequencies are incentives to distribute usage.

3. Research Design

The following section states the methodology chosen to fulfill the research requirements. Additionally, expectations for the results are mentioned supported by existing research.

3.1. Survey data collection

The data was collected by distributing an online survey via Amazon MTurk. The survey was created to collect major independent variables, including the frequency of their income, that would influence the dependent variable; savings rate. Furthermore, respondents were able to indicate their preferences for income frequency and whether an increase or decrease will influence their financial situation and increase their annual savings rate.

3.1.1. Sample Selection

The online survey was distributed to 197 MTurk workers in May 2019. The survey has numerous checks and filters to eliminate false responses and irrelevant characteristics. The required characteristics included living in the US, because the distribution of income frequency is quite vast. In addition, they must be employed by an employer, not self-employed or employed by an agency because income must be certain, otherwise each month has a different income amount and frequency. The last qualification is that their income must come at a steady frequency. Respondents with income dependent on demand, have to smooth their income differently than those that are paid the same certain amount weekly. Therefore, for simplicity those with these characteristics were eliminated to have comparable results.

3.1.2. Testing the data.

The analysis has risk of multicollinearity because not only may income frequency cause savings to change, income frequency can cause a person to be present biased. As a result, such implications may change the initial model, and therefore bias the results. The results show that the VIF score was not high and therefore multicollinearity is not a concern in the research.

Another concern in the data was heteroskedasticity, which is very common in cross-sectional data. The data showed that the residuals had an upward trend and therefore the data is imprecise. Heteroscedasticity does not express biased coefficients but rather they are less precise. As a result, the standard errors and p-values are smaller than they should be. To resolve this in the instances where necessary, the standard errors were changed into Huber-White robust standard errors.

3.2. Measuring Present Bias

People that are present biased are considered to prefer a reward today rather than having to wait for it. Theoretically, the utility of acquiring something today is higher than receiving it in the future, for people whom are present-biased. Similarly, consumers can be present-biased when it comes to saving. When the utility of spending today is larger than the utility of saving for tomorrow, then the likelihood of spending is higher than saving, which reflects the actions of present-biased consumers.

Using relative time preference measures as used in the German Socio-Economic Panel Study (SOEP) (Wagner, Frick, & Schupp, 2007). The study analyzed the extent to which survey respondents agreed with this sentence: “I live for today and do not think about tomorrow.” Respondents indicate their complete disagreement as a 1 and 7 being complete agreement. The insight behind this question is that any valuation above 5 would indicate a person that is present biased (Pinger, 2016).

Hyperbolic discounting, originally defined by Robert Strotz (1956), is used for a number of empirical facts including excess co-movement of income and consumption, asset-specific marginal propensities to consume, and low-levels of precautionary savings (Cuthbertson & Nitzsche, 2004). The hyperbolic discounting model is different from the original Samuelson’s discounted utility function because it considers that over time, the discount rate declines. Whereas, in with the original utility model the discount rate is stationary.

Laibson (1997) created the quasi-hyperbolic discounting model, which is different from Samuelson’s discounted utility function because it considers that people have time-inconsistent preferences. The model contrasts with the hyperbolic discounting model because the preferences at time t are inconsistent with time $t+1$ about the future. In other words, when comparing a future event with the present has different utility than the choice between two future events. Therefore, the function is a discrete time function with values $\{1, \beta\delta, \beta\delta^2, \beta\delta^3, \dots\}$. These inconsistencies are captured with the quasi-hyperbolic discount model (Laibson, 1997):

$$U_t = E_t \left[u(c_t) + \beta \sum_{\tau=1}^{T-t} \delta^\tau u(c_{t+\tau}) \right]$$

Where the farther away in time, the discount rate decreases. Therefore, events in the future are discounted heavier than in the present. Quasi-hyperbolic discounting is used in this research in order to define present bias amongst the respondents.

Laibson (1997) and Thaler and Shefrin (1981), measured individual’s point of indifference between a specified amount immediately or the individuals amount at the next period. This survey also uses this method, to identify if the respondents are present-biased. Respondents indicated the point of indifference between receiving 200 immediately or x_1 in one month. Likewise, they indicated the point of indifference between receiving 200 in 12 months or x_2 in 13 months.

Utility model for comparing today with the future:

$$u(200) = \beta\delta u(x_1)$$

Utility model for comparing two future events:

$$u(200) = \delta u(x_2)$$

Where the discount rate between now and the next period is: $\frac{1-\beta\delta}{\beta\delta}$ and the discount rate between any two future periods is: $\frac{1-\delta}{\delta}$. A respondent that has a different opinion for x_1 and x_2 is where short-

sightedness is captured. Using this test, the beta must amount to less than one to be classified as present-biased. Namely, when x_1 is larger than x_2 . Respondents who are not present-biased should portray x_1 and x_2 as the same amount or have a larger x_2 . Delta represents the discount factor for time in both situations.

3.3. Independent Variables

Independent variables help enhance the regression model. The following section briefly describes some of the variables that have an influence on the rate of savings of consumers.

3.3.1. Demographics.

The following demographics were used to find influencers of financial well-being; age, income frequency, income, college degree. Furthermore, additional demographics used were the amount of savings and debt balance they have now (excluding a mortgage). Age was chosen because as people age, savings reduces because older people save less, have less to save, or have less to save for. However, there is evidence that older people and younger people save less than middle aged individuals (Chawla, et al., 2007). Higher income gives consumers more chances to save at larger amounts, given the same living standards, therefore this variable was considered in the research. Furthermore, people with college degrees tend to have a positive effect on saving behavior (Porter, 2018).

3.3.2. Life satisfaction.

Well-being is often linked to the liquidity of financial resources. People with insufficient funds do not have the opportunity to invest in things that add value to their lives, which leads to a decrease in overall life satisfaction. People that have the funds, have more opportunities because of their increase in buying power (Campara, Vieira, & Potrich, 2017). For this reason, life satisfaction was taken into consideration in the results. Life satisfaction was measured by the Satisfaction with Life Scale (SWLS) by Diener, Emmons, Larsen, and Griffin (1985). The scale asks participants to indicate on a agree/disagree scale from 1-7 whether they agree with five statements. These statements include;

- In most ways my life is close to my ideal.
- The conditions of my life are excellent.
- I am satisfied with my life.
- So far, I have gotten the important things I want in life.
- If I could live my life over, I would change almost nothing.

A sum of the scores given indicates the extent to which the respondent is satisfied with their life. As a result, a life satisfaction variable is created from this score, the larger the number, the more satisfied they are with their life. Amounting to a minimum value of 5 and maximum of 35.

3.4. Research Model

Parsons & Van Wesep (2013) created a model that shows the optimal payment contract that corrects for people whom do not possess self-control. This model lacked a real reasoning behind the results and if the results were caused by the payment frequency or just a coincidence. This research conducted regressions using the survey results to find the answers to the hypotheses. The model for the independent variables is the following:

$$\begin{aligned} \text{Savings rate } (\%)_i = & \beta_0 + \beta_1 \text{Income Frequency}_i + \beta_2 \text{College} + \\ & \beta_3 \text{Income}_i + \beta_4 \text{Present biased}_i + \beta_5 \text{Age} + \beta_6 \text{SavingsBalance} + \beta_7 \text{Debt Balance} \\ & + \beta_8 \text{Life Satisfaction} + \epsilon_i \end{aligned}$$

Where the independent variable income frequency is a categorical variable in which the higher the category, the less frequent the income⁴. The explanation for the variables is that college, income frequency, income, life satisfaction, and savings balance is to have a positive relationship with the annual savings rate of the participants. Whereas the present biased dummy, debt balance, age, are expected to decrease the savings rate, therefore they are expected to be negative coefficients. The main objective, however, is to see if income frequency has a significant relationship with the annual savings rate of the respondents.

⁴ (1=weekly and 4= monthly)

4. Results

The results captured from the survey are summarized and analyzed to the extent that the research question can be answered.

4.1. Summary Statistics

After eliminating respondents that failed the attention check and were unqualified for the survey frame, the final number of respondents amounted to 116. The respondents ranged from ages 20 to 69 with annual income from \$3,000 to \$276,000. The respondents saved between 0% to 85% of their annual income, where 35% were present biased. Those participants who have completed a bachelor's and master's degree, the majority are paid monthly. Whereas those that completed an associate degree and high school degree are mostly paid bi-weekly.

4.2. Quasi-Hyperbolic Discounting

Based on the questions in the survey regarding the indifference of receiving money today versus a future period, the following characteristics were found. The average beta coefficient was 1.16 which means on average the respondents were not present-biased. The delta, or the discount factor that makes them indifferent to 200, was on average 0.77. Therefore,

Utility model for comparing getting 200 in 12 months or x_2 13 months:

$$u(200) = 0.77 * u(x_2)$$

Therefore, the average respondent would require \$259 in order to be indifferent from receiving \$200 after 12 months and \$259 in 13 months.

Utility model for comparing today with the future:

$$u(200) = 1.16 * 0.77 * u(x_1)$$

Likewise, when comparing a future event with today, an additional discount rate is required to adjust the utility to present value. Therefore, the average value to receive in one month to be indifferent with receiving 200 today is 224. They require a 12% return for waiting one month. Whereas waiting one month but having known about it for one year has a different discount rate. They require almost 30% in interest to wait. As a result, it seems that the respondents are on average not present-biased but future biased. If they were rational, they would choose the same values, however knowing one year in advance has influenced their compensation of waiting that year regardless.

Of those that had a beta of less than zero (35% of the sample), the average beta was 0.62 and a delta of 0.93. Therefore, using the same formulas above, the present-biased respondents require on average \$350 in one month to be indifferent from receiving \$200 today. However, if they were to wait 12 months to receive \$200, they would be indifferent from this amount if they received \$215 after 13 months. These respondents are present biased because having waited 12 months already, the amount to be compensated for an extra month is minimal compared to receiving something today or waiting one month. Rational respondents would answer the same indifference amount for both situations because the difference in time is the same; one month. Within behavioral economics most people are

not rational and such instances do test their rationality as well as biases including being present-biased.

4.3. Spending and Savings Habits

The spending habits of the respondents were captured by these statements in Table 2. This method of analysis was used by Pinger (2016) to measure if being present-biased and their discount rate for waiting have an influence on these statements. This methodology helps define whether present-biased participants respond differently to these statements. Table 3 presents the order logit regressions for these ordinal likert-scale statements with relation to the present-biased dummy and delta. The significant result is that when someone is considered present-biased, the odds of overspending increase by 2.5. Additionally, those that were present-biased in the survey, were positively correlated with those that knew they were present-biased. This confirms that the experiment from Laibson (1997) provides an accurate indication and the respondents are aware of their short-sighted view point.

4.4. Influence on Annual Savings Rate

Using combinations of the independent variables, the hierarchical regressions are displayed in Table 4. The hierarchical regressions were created to find the best combination of variables that would make a reliable model for the data. All explanatory variables were proven to have an influence on savings in previous research, however, not yet income frequency. Therefore, these combinations were used to show that adding new variables has an influence on the validity of the data but also the significance that income frequency has on annual savings.

The objective of the research was to see if income frequency or being present-biased (or a combination of both) has an influence on annual savings rates. Therefore, the first, second and third regressions aim to meet this objective. Solely income frequency has a significant positive relationship with the indicated savings rate, whereas the dummy variable for being present-biased does not influence the savings rate significantly. A combination of the two entails that again only income frequency has a significant relationship with the annual savings rate. However, with the addition of other variables from the data collected, the significance is shifted to other variables including the amount currently on their savings account increases the savings rate, the amount of debt they have has a negative effect, and age has a negative effect. A large effect on savings is the respondents that completed a college degree increases the savings rate by 12%. The stronger model (regression 5) concludes that income frequency and being present-biased are both not significant therefore, there is not enough evidence to prove that there is an effect on annual savings rate.

Taking into consideration the self-indicated present-biased variable, the regressions were considered in Table 5. Table 3 noted that the correlation between these variables were significant and therefore the results in Table 5 are similar to those in Table 4. However, the results differ in that present-biased respondents are significant. Indicating that the more present-biased they are, the more they save as a percentage of their income. The model is more defined using this variable because the R^2 is larger and therefore is a more accurate model. However, above a 5 out of 7 is indicated as present-biased and

as a result does not show that there is a clear influence whether they are present-biased or not, and if this influences savings. Self-indication is sometimes a tricky source because of biased responses, or they respond in the way that they think they should be responding. Thus, the regressions in Table 4 shows a less biased indication because of the quasi-hyperbolic discounting test done in the survey.

4.5. Preferences on Payday Frequency

The survey asked respondents what their income frequency was and what they would prefer if they had the option to change this frequency. Some of the results stand out, such as those that are currently paid bi-weekly, 63% of those prefer to be paid weekly. Such a preference is predominately explained by the fact that these respondents are liquidity constrained. Hence, 68% of those that prefer weekly income frequency, have less than \$10,000 on their savings accounts, and therefore their preference is dependent on their need for money. Another explanation is that 36% of those that prefer to be paid weekly instead of bi-weekly are present-biased and therefore are not able to withstand the temptation of large amounts of money. Two thirds of the group that have less than \$10,000 on their savings account indicated that they have a hard time withstanding the urge to spend money after they receive their paycheck, regardless of the consequences they may face at the end of the payment period. The majority followed through with this urge and spent their money. These results align with previous studies that spending increases after payday (Carvalho et al., 2016; Zhou et al., 2016; Pagel & Vardardottir, 2016). Parsons & Van Wesep (2013) suggested that weekly payment frequencies were strategically the best frequency for those that are present-biased because it improves consumption smoothing and wellbeing. However, Pagel & Vardardottir (2016), suggest that frequent income payment can be a cause of a higher level of overall consumption.

Furthermore, those that are currently paid on a monthly basis, 50% would like to be paid more frequently. Of those 50%, 60% have less than \$10,000 saved and one quarter of which are present biased. Half of the participants that have less than 10,000 saved, believe that an increase in income frequency will enable them to save more. The majority that would like to have more frequent income are all educated with a college degree. Additionally, those that have liquidity available to them are those that have a preference that is independent of whether they are in need of the money.

In general, 60% of the respondents believe that receiving their income more frequently, will enable them to save more money. 60% believed that if their income frequency decreased, then it was unlikely that they would save more. Therefore, there is a clear bias towards more frequent income. 72% of the participants also indicated that receiving money at a different frequency would improve their financial situation. The distribution between both more frequent and less frequent were equivalent. Assuming that their income would stay the same amount, there is a bias here amongst the participants. In a perfect world where consumers are skilled at smoothing their consumption, there would be no bias. The amount of income in the end of all situations is the same, so there should be no preference if they were rational. We can conclude that the majority have a preference towards more frequent income distribution regardless if all expenses are monthly.

4.6. Life Satisfaction and Budget Use Effect

Using the SWLS scale, the participants were in general mostly satisfied with their life. Table 6 shows the correlations between all the variables. Life satisfaction has a significant positive correlation with savings rate, income, and college. It also has a negative significant correlation with the amount of debt one has.

Parsons and Van Wesep (2013) claim that those who receive income more frequently have an improved wellbeing. However, we found in this research that the happiest are those that are paid monthly. Those that are paid semi-monthly, the majority are unsatisfied with their life. Therefore, we cannot conclude that the most frequent brings the most happiness.

Whether consumers use a budget has an influence on their consumption and saving activity. There is also a positive correlation of 0.3 between how diligently people follow a budget and whether they consume less today to be able to consume more tomorrow. However, they are not significantly different variables in order to explain the rate at which they save on an annual basis.

4.7. Hypotheses

***Hypothesis 1:** There is a negative correlation with income frequency and savings*

As a counter argument from the findings of Parsons & Van Wesep (2013), there was no significant evidence that the income frequency had a negative effect on savings. Therefore, we fail to reject the first hypothesis.

***Hypothesis 2:** People that are classified as present-biased have reduced levels of saving*

Using the hyperbolic discounting model to measure whom are present-biased, there was no evidence that there was a significantly different spending behavior amongst those that are present-biased and those that are not. Hence, we fail to reject hypothesis two.

***Hypothesis 3:** The overall preferred income frequency would be weekly because it stimulates and eases short-term consumption smoothing*

The vast majority of the respondents preferred a more frequent income scheme because they believed that their savings would increase and improve their financial situation. Therefore, respondents believe that income disbursement frequencies have an influence on annual savings rates, however evidence shows that there is no significant difference in saving behavior between the income frequencies. Thus, the third hypothesis can be rejected but we fail to reject hypothesis one.

5. Discussion and Conclusion

5.1. Major findings

The objective of the research is to investigate whether income frequency has an impact on savings rate just as it has been proven to have a significant influence on spending habits. The data was collected by a MTurk survey to collect savings habits as well as other variables that influence savings habits, such as whether they are present-biased.

The results portray that annual savings rate as a percentage of income is influenced by whether respondents completed college, their age, the balance on their savings account, and the balance of their debt, excluding mortgage(s). As a result, the frequency of income, does not have a significant impact on the rate of savings of the respondents. However, their preferences portray conflicting results. The majority of the respondents indicate that if their income frequency would increase, their financial situation would improve, and their savings rate would increase. Of the respondents that prefer a more frequent payment scheme, the majority had less than 10,000 on their savings account and therefore indirectly indicating that they need the money. The majority of whom were considered present-biased, admitted to having trouble with large amounts of money and the temptation to spend after payday. The data analysis concludes that if a respondent is present-biased, the likelihood of overspending increases. However, being present-biased does not have a significant influence on the annual savings rate of the respondents.

5.2. Similar studies

The results confirm previous research that there is a positive correlation with college and savings rates (Porter, 2018). In previous studies, income disbursement has been correlated with consumption behavior. Pagel & Vardardottir (2016), suggested that frequent income payment can cause a higher level of overall consumption. Moreover, present-biased and short-sighted survey respondents proved to have a weakness when it came to spending their income immediately after receiving it. This confirms that spending increases after payday (Carvalho et al., 2016; Zhou et al., 2016; Pagel & Vardardottir, 2016). The majority also believe if their income frequency would increase, their savings behavior would improve, however these were short sighted respondents. We can conclude that the respondents in this analysis whom are present-biased, overestimate their future selves. Consequently, confirming the idea of Brown & Previtro (2016) that people who have present-biased preferences, tend to delay important financial considerations when it comes to retirement saving.

Parsons & Van Wesep (2013) suggested that weekly payment frequencies were strategically the best frequency for those that are present-biased because it improves consumption smoothing and wellbeing. Although there was evidence for the other end of the spectrum, consumption, there is not enough evidence to prove there was a correlation with savings as a contra effect, where one would expect more consumption means less saving.

5.3. Alternative Explanations

It was hypothesized that income frequency and annual savings rate are correlated. The results established more significance towards other demographics including college completion, age, savings balance, and debt balance. Given that income frequency does not influence the savings rate, other explanations for the results are gathered.

The results portrayed that there was no significant difference in savings activity for the different income disbursement types. Therefore, each individual did not seemingly have an individual effect. However, there may be a certain change within the same individual. Overtime, individuals may express a different savings pattern, as it has been proven that age has an influence, however comparing certain individuals' overtime may result in other results. There is a cohort effect in this case; if an older person were to save less today, it is uncertain whether they saved that rate their whole life or they saved the same amount as a 25-year-old when they were the same age. Furthermore, savings can be different for different generations. Those that are brought up in times of depression are more risk averse than those in other time periods (Malmendier & Nagel, 2011). Therefore, certain generations can be more vigilant with their money than others.

Another explanation is that there is an optimism bias. Respondents were confident that there would be a change in their savings behavior if there would be a change in frequency, however, others that had frequent payment schemes did not behave significantly different. As a result, financial intentions are not necessarily what actual behavior will reflect. Choi, Laibson, Madrian, & Metrick (2006) were able to prove that all participants planned to save more regularly after watching a collection of seminars, however in reality only 14% actually saved more before. In reality, the effort needed and intended deviate from each other. Consequently, respondents represent a biased opinion because they have a false illusion of the alternative. However, they lack personal experience with the alternative and/or have a mere-exposure effect where peers in their close circle express positive experience.

Humans are creatures of habit, where preferences are based upon what they are accustomed to. One can prefer a certain payment frequency because they have experience with that frequency however, no other experience with another frequency. Kahneman (2011) would classify this as a cognitive illusion in which System 1 would perceive what they are used to (a habit) as an easier preference. System 2 involves deeper thought process and involves choosing something that is unfamiliar. Research has shown that cognitive flexibility⁵ helps solve problems more efficiently (Laureiro-Martinez & Brusoni, 2018). It enables the decision maker to identify fast decision modes (System 1) and slow decision modes (System 2), where fast decision modes are sticking to habits and slow decision is when automatic reaction is not enough, and more deliberate effort is necessary. Therefore, choosing habits is an easier and automatic reaction in decision making, however choosing an alternative demands

⁵ Cognitive Flexibility is the process of matching system 1 or 2 towards the type of problem to be solved.

extra cogitative attention. As a result, the participants prefer income frequencies they are familiar with because it requires less effort. Others may argue that respondents prefer the current frequency they are accustomed to because of a status quo bias. Their reference point is their current frequency, and any other option is felt as a failure. Anything involving change is difficult and requires adjustment to their daily habits. As a result, some may have an allergy towards change and avoid it at all costs.

Finally, a change in frequency can cause a temporary overreaction to the event effect. Where consumers first need to become accustomed to the new payment scheme and therefore act cautiously before the payment scheme is familiar. After time, the new payment scheme will be familiar and cautious saving behavior will slowly taper off and resort back to old habits. The cycle of change shows that there is a dip in confidence but as time progresses, people learn to accept and adapt to the transition after a changing event (Young & Lockhart, 1995).

5.4. Limitations

Firstly, a limitation of the research is that the frequency of income does not show clearly what defines a person's character. Many habits are related to personal goals and values and therefore limits or defines their saving behavior. Whether their income frequency enhances their savings habits or are a coincidence to how they behave is still unknown. Furthermore, the frequency of income is for the majority not a choice, but rather what is given to them, therefore their income frequency does not define who they are. We cannot classify this as a characteristic of a person, but rather a coincidence that some characteristics are correlated with each other.

Furthermore, the research is limited to not containing a certain event. If there was an event in time that consumers income frequency would change, there would be more evidence to prove that an increase or decrease in income frequency causes a change in savings. This research is taken in one moment in time, and therefore there is no evidence to prove if there is a causal effect. The data is limited to solely concluding if there is a correlation between the two variables.

Moreover, decisions in the making of the survey were made to improve the quality of the results however have some downsides. One way of quantifying debt was to ask this specifically, but what you would find is an overload of debt correlated with the extent to their income. In other words, people with high income tend to have high mortgages. This would create correlated explanatory variables which would bias the results. Therefore, we made the decision to remove the mortgage to reduce the risk of multicollinearity. This has limitations because those that have a relatively high mortgage in proportion with their income, have less of their income left over to spend and/or save. This is another variable that can be researched in the future however, if added to this research it may have tampered with the validity of the results.

Brown & Previtro (2016) showed that present-biased consumers tend to delay saving because they are so short-sighted. Because this was a cross-sectional research, there is no evidence that people delay their savings. The survey only relies on the trust that the respondents respond truthfully about

their savings activity. What is not known is if this is every year the same, or if the same person had other saving behavior when they were younger. The younger respondents may not see the necessity in saving now, therefore overtime their behavior may change.

5.5. Future Research

As a result of this research results, there are still more areas for further research. First, it would be interesting to test what kind of products people buy in a time series experiment. Aligning with the research of Aguila et al., (2017), it can be analyzed whether those with more frequent income frequencies purchase more non-durable goods. They found that payment schemes that were every two months purchased more durable goods whereas monthly purchased more non-durable items. It would be interesting to see if this is also the case with weekly and monthly or bi-weekly. It can be conducted by way of an experiment or access to bank accounts.

Whether people are biased because they know no other payment scheme, or if they are not influenced by payment schemes, but rather it is their personality, is not clear. Therefore, it is interesting to conduct an experiment in a real setting where a company changes their payment scheme for a period of time and records their saving activity before and after the change. In this way, personality or habit is less of an issue as a result of using the same people, after an event. The only personal tribute visible would be their ability to adapt to change. As a result of the event, the researcher would be able to conclude whether there is a causal relationship between income frequency and savings behavior. It may be the case that there is only an effect because of the event, and because participants need to adapt to change. Additionally, this analysis would be able to see if there is a personal change in saving behavior and if the change causes them to change the behavior permanently or only in the transition phase.

Finally, due to the small scale of the research and as a result a limited number of respondents the results may not be enough to reject the hypotheses. Therefore, conducting the survey again with more respondents may have potential to gather more evidence of significantly different savings behavior.

5.6. Conclusion

The objectives of the research were (1) to determine the relationship between income frequency and the rate of savings, (2) to determine whether people that are present biased are more inclined to a reduced saving activity, and (3) to determine the overall preference of income frequency in which stimulates savings and short-term consumption smoothing as well as overall wellbeing. The data shows that there is not enough evidence to prove that being present biased and having a different income frequency have an influence on their personal annual rate of savings. However, the participants highlight a preference for income frequency which is more frequent (i.e. weekly). Respondents were

confident that a more frequent payment scheme would improve their financial situation and increase their annual savings.

The results contribute to existing research because the research emphasizes variables that effect consumer's annual savings rate. In addition, there is evidence that there is a bias towards frequent income payments because it is assumed to stimulate consumption smoothing and improve saving behavior according to the participants. Evidence has shown that in reality, savings activity is not significantly different for more frequent income payments. Therefore, there is a biased preference for more frequent disbursement as a result of short sightedness, there is an indication that the respondents overestimate their future selves as well as classify weekly income as an easier approach to savings. Given the future research expressed in the previous section, these results create a path towards the future developments in the field. The biased reputation of weekly income creates an interesting future for payment frequency in the future. Future analysis on the topic will enable businesses to indicate at which frequency is best for their employees to promote a healthy saving amount. Regardless of the fabricated perception of frequent income deviating from reality, companies and government regulators are able to make use of this perception to stimulate improved levels of saving and an overall improvement of personal finance amongst the population.

6. Bibliography

- Aguila, E., Kepteyn, A., & Francisco, P.-A. (2017, May). Consumption Smoothing and Frequency of Benegit Payments on Cash Transfer Programs. *American Economic Review*, 107(5), 430-435. doi:10.1257/aer.p20171147
- Angeletos, G.-M., Laibson, D., Repetto, A., Tobacman, J., & Weinberg, S. (2001, August). The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation. *Journal of Economic Perspectives*, 1-29.
- Berniell, I. (2016). *Waiting for the Paycheck: Individual and Aggregate Effects of Wage Payment Frequency*. European University Institute. Max Weber Programme. Retrieved from http://cadmus.eui.eu/bitstream/handle/1814/40804/MWP_2016_05.pdf
- Bleichrodt, H., Potter van Loon, R. J., Prelec, D., & Wakker, P. P. (2017). Beta-Delta or Tau-Delta? A Reformation of Quasi-Hyperbolic Discounting. *Erasmus University*, 1-16. Retrieved from <https://personal.eur.nl/bleichrodt/Taudelta6Apr2017.pdf>
- Brown, J. R., & Previtro, A. (2016, October). Saving for retirement, Annuities and Procrastination. pp. 1-48. Retrieved from http://www.aleprevitro.com/wp-content/uploads/2016/11/Brown_Previtro_Procrastination_201610-1.pdf
- Campara, J. P., Vieira, K. M., & Potrich, A. C. (2017). Overall Life Satisfaction and Financial Well-Being: Revealing the Perceptions of the Beneficiaries of the Bolsa Familia Program. *Brazilian Journal of Public Administration*, 51(2), 182-200. doi:10.1590/0034-7612156168
- Carvalho, L. S., Meier, S., & Wang, S. W. (2016). Poverty and Economic Decision-Making: Evidence from Changes in Financial Resources at Payday. *American Economic Review*, 106(2), 260-284. doi:10.1257/aer.20140481
- Chawla, M., Betscherman, G., Banerji, A., Bakilana, A. M., Feher, C., Mertaugh, M., . . . Burns, A. (2007). Aging, Savings, and Financial Markets. In *From Red to Gray* (pp. 117-150). Washington, DC: The World Bank. doi:10.1596/978-0-8213-7129-9
- Choi, J., Laibson, D., Madrian, B., & Metrick, A. (2006). Saving for Retirement on the Path of Least Resistance. In E. McCaffrey, & J. Slemrod, *Behavioral Public Finance: Toward a New Agenda* (pp. 304-351). New York: Russel Sage Foundation.
- Cuthbertson, K., & Nitzsche, D. (2004). *Quantitative Financial Economics: Stocks, Bonds, and Foreign Exchange*. West Sussex, England: John Wiley & Sons Ltd.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- Easterlin, R. A. (2008). Income and Happiness: Towards a Unified Theory. *The Economic Journal*, 111(473), 465-484. doi:10.1111/1468-0297.00646
- Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002, January 30). Time Discounting and Timer Preference: A Critical Review. *NYU*, pp. 1-82. Retrieved from <https://www.nyu.edu/econ/user/bisina/FredLoew.pdf>

- Gourville, J. T., & Soman, D. (1998). Payment Depreciation: The Behavioral Effects of Temporally Separating Payments from Consumption. *Journal of Consumer Research*, 25(2), 160-174. doi:<https://doi.org/10.1086/209533>
- Gourville, J. T., & Soman, D. (2002, September). Pricing and the Psychology of Consumption. *Harvard Business Review*.
- Kahneman, D. (2011). *Thinking, Fast and Slow*. Penguin Books.
- Laibson, D. I. (1997). Golden Eggs and Hyperbolic Discounting. *Quarterly Journal of Economics*, 112(2), 443-477. doi:<http://dx.doi.org/10.1162/003355397555253>
- Laureiro-Martinez, D., & Brusoni, S. (2018). Cognitive flexibility and adaptive decision-making: Evidence from a laboratory study of expert decision makers. *Strategic Management Journal*, 39(4). doi:<https://doi-org.ru.idm.oclc.org/10.1002/smj.2774>
- Malmendier, U., & Nagel, S. (2011). Depression Babies: Do Macroeconomic Experiences Affect Risk-Taking? *The Quarterly Journal of Economics*, 126(1), 373-416.
- Mastrobuoni, G., & Weinberg, M. (2009). Heterogeneity in Intra-monthly Consumption Patterns, Self-Control, and Savings at Retirement. *American Economic Journal: Economic Policy*, 1(2), 163-89.
- O'Donoghue, T., & Rabin, M. (1997). Doing It Now or Later. *University of California at Berkeley*, 97(253). Retrieved 2019, from <https://escholarship.org/uc/item/7t44m5b0>
- Pagel, M., & Vardardottir, A. (2016, April 29). The Liquid Hand-to-Mouth: Evidence from Personal Finance Management Software. pp. 1-48. Retrieved from <https://www.wiwi.hu-berlin.de/de/professuren/vwl/wtm2/seminar-schumpeter/PaydayLiquidity.pdf>
- Parsons, C. A., & Van Wesepe, E. D. (2013). The Timing of Pay. *Journal of Financial Economics*, 109, 393-397. doi:<https://doi.org/10.1016/j.jfineco.2013.03.005>
- Pinger, P. R. (2016, October 13). Thinking about Tomorrow? Predicting Experimental Choice Behavior and Life Outcomes from a Survey Measure of Present Bias.
- Porter, B. (2018). Examining the Effect of Education on Financial Savings Behavior. *Undergraduate Honors Theses*, 1620. Retrieved from https://scholar.colorado.edu/honr_theses/1620
- Stephens, M. (2003). '3rd of the Month': Do Social Security Recipients Smooth Consumption between Checks? *American Economic Review*, 93(1), 406-22.
- Thaler, R. (1980). Toward a Positive Theory of Consumer Choice. *Journal of Economic Behavior and Organization*, 1, 39-60. Retrieved from <http://www.eief.it/butler/files/2009/11/thaler80.pdf>
- Thaler, R., & Shefrin, H. M. (1981). An Economic Theory of Self-Control. *Journal of Political Economy*, 89(2), 392-406.
- Wagner, G. G., Frick, J. R., & Schupp, J. (2007). The German Socio-Economic Panel Study (soep) - scope, evolution and enhancements. *Journal of Applied Social Science Studies*, 127(1), 139-169.



Young, A., & Lockhart, T. (1995, March). A Cycle of Change: The Transition Curve. CCED/CS027-01/TL-AY: Cranfield University School of Management. Retrieved from <https://www.ucd.ie/t4cms/Transition%20Curve%20Cranfield%20Article.pdf>

Zaki, M. (2015). *Access to Short-term Credit and Consumption Smoothing within the Paycycle*. University of Maryland, Department of Agricultural and Resource Economics. College Park: University of Maryland. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2741001

7. Figures and Tables

Table 1

Summary Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Savings	116	.2119	.189	0	0.85
Income	116	2.612	1.185	1	4
Frequency					
β	116	1.156	1.02	.133	10
δ	116	.768	.526	.04	5
Present-Biased	116	.353	.480	0	1
Dummy					
Present-Biased	116	3.431	1.73	1	7
Self indication (1-7)					
Life Score	116	22.76	5.608	7	32
Income	116	59,372.84	42464.63	3,000	276,000
College	116	.836	.371	0	1
Dummy					
Age	116	33.29	9.62	20	69

Note. Present-biased dummy variable indicates whether respondents were present-biased in the hyperbolic discounting survey questions. Present-biased self-indication is the extent to which the respondents agree with “I live for today and do not think about tomorrow” 7-point Likert scale. College is a dummy showing the likelihood that if participants are present-biased, if they completed college.

Table 2

Personal spending construct statements

Construct	Statement
Cash	I always try to have some money set aside for unexpected expenses
Save	I consume less today to be able to afford more tomorrow
Overspend	My monthly expenses are often higher than what I can actually afford

Table 3

Present-Biased with other Dependent Variables (1-7)

	Cash	Save	Overspend	College	Self-indicated present-biased
	β (log odds) estimates (Std. Err.)				
Present-Biased	.076 (.356)	-.425 (.348)	.918*** (.355)	.748 (.614)	.729** (.357)
δ	-.051 (.301)	.128 (.297)	-.013 (.288)	.439 (.715)	.675** (.344)
Cut 1	-4.76 (1.03)	-4.81 (1.03)	-2.22 (.409)		-1.00 (.354)
Cut 2	-2.76 (.459)	-2.81 (.460)	-.963 (.318)		.245 (.319)
Cut 3	-1.52 (.343)	-1.77 (.355)	.000 (.304)		.914 (.325)
Cut 4	-.937 (.277)	-1.04 (.326)	.657 (.313)		1.482 (.340)
Cut 5	-.049 (.305)	.396 (.318)	1.375 (.329)		2.559 (.398)
Cut 6	1.38 (.335)	1.64 (.356)	2.75 (.417)		5.79 (1.124)
Constant				1.10** (.543)	
Log Likelihood	-196.47	-192.67	-216.79		-204.58

Note. Present-biased dummy variable indicates whether respondents were present-biased in the quasi-hyperbolic discounting questions (where $\beta < 1$). δ is the discount variable for respondents using hyperbolic discounting. The dependent variables are ologit regressions for the extent to agreeing with the statements in Table 1. College is a dummy showing the likelihood that if participants are present-biased, if they completed college.

* indicates $p < .10$. ** indicates $p < .05$, *** indicates $p < .01$

Table 4

Hierarchical Regression Analysis for Annual Savings Rate (% of salary)

	(1)	(2)	(3)	(4)	(5)
Income Frequency	.029** (.015)		.029** (.015)	.009 (.015)	.008 (.015)
Present Biased Dummy		0.012 (0.037)	.007 (.037)	-.006 (.035)	.004 (.033)
Age				-.003** (.002)	-.005*** (.002)
Income				<.000* (<.000)	<.000 (<.000)
College				.104*** (.029)	.119*** (.031)
Savings Balance					.048*** (.015)
Debt Balance					<.000** (<.000)
Life Satisfaction					.0006 (.004)
Constant	.133*** (.043)	.208*** (.022)	.237*** (.062)	.139*** (.045)	.083 (.099)
R ²	.0352	0.0008	.0622	.1771	.2672

Note. Dependent variable is Annual Savings (% of income). In parenthesis are the robust standard errors due to heteroscedasticity. * indicates $p < .10$. ** indicates $p < .05$, *** indicates $P < .01$

Table 5

Hierarchical Regression Analysis for Annual Savings Rate (% of salary)

	(1)	(2)	(3)	(4)	(5)
Income Frequency	.029** (.015)		.023 (.014)	.003 (.015)	.003 (.014)
Present Biased (1-7)		.035*** (.009)	.033*** (.009)	.029*** (.009)	.035*** (.009)
Age				-.003 (.002)	-.005*** (.0017)
Income				<.000*** (<.000)	<.000 (<.000)
College				.081* (.046)	.096** (.044)
Savings Balance					.060*** (.015)
Debt Balance					<.000* (<.000)
Life Satisfaction					-.0004 (.003)
Constant	.133*** (.042)	.091** (.037)	.040 (.049)	.044 (.079)	-.021 (.094)
R ²	.0267	.1039	.1078	.2116	.3116

Note: The regressions are almost identical to Table 3, however using a different variable for Present bias. This table uses the self-indicated Present-biased score (1-7), where >5 is considered present-biased, instead of the present-biased dummy as a result of the survey experiment.

* indicates $p < .10$. ** indicates $p < .05$, *** indicates $p < .01$

Table 6

Correlation Matrix of all Variables

	Saving	Present-Biased Dummy	Age	Income Frequency	Income	College	Saving Balance	Debt Balance	Life Satisfaction
Saving	1.0000								
Present-Biased dummy	0.0289	1.0000							
Age	-0.1548	-0.0847	1.0000						
Income Frequency	0.1876**	0.0597	0.0497	1.0000					
Income	0.3140**	0.0084	0.0870	0.3157**	1.0000				
College	0.3044**	0.1323	-0.1153	0.2888**	0.2655**	1.0000			
Savings Balance	0.2614**	-0.0817	0.3757**	0.0890	0.4524**	0.0122	1.0000		
Debt Balance	-0.1506	0.0593	-0.0212	-0.0905	-0.0140	0.0613	0.0596	1.0000	
Life Satisfaction	0.1850**	-0.1403	-0.0348	0.1237	0.2250**	0.1860**	0.1647	-0.1903**	1.0000

Note: * indicates $p < .10$. ** indicates $p < .05$, *** indicates $p < .01$