UNIVERSITY OF AGDER

Microfinance and Life Satisfaction in Ecuador

A study about financial determinants of life satisfaction among micro entrepreneurs in the informal economy

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This master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

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DECLARATION

I declare that this paper is a product of my own work and has never been previously submitted. All citations and external sources are referenced and cited as best as possible to acknowledge and give credit to the work of the authors and researches cited and referenced in this paper.

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Writing this paper has been an extremely challenging and rewarding experience. It has been very challenging to examine a number of previous studies, to find the proper statistical analyses to conduct, and to master a statistical program like SPSS, but all these experiences have also been rewarding. I have learned that difficult challenges can be overcome by patience and hard work. I have a great newfound respect for professional researchers who have to master the rigid rules and regulations of modern science. By working with this paper I feel that I have had a small taste of how it is to be a researcher.

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LIST OF ABBREVIATIONS

SWLS	–	the Satisfaction With Life Scale
MFI	–	Microfinance institution
SWB	–	Subjective well-being
UN	–	the United Nations
GNI	–	Gross national income
GDP	–	Gross domestic product
HDI	–	Human Development Index
GNP	–	Gross national product
USD	–	United States Dollar
PWI	–	Personal Wellbeing Index
NWI	–	National Wellbeing Index
PCA	–	Principal component analysis
EFA	–	Exploratory factor analysis
CFA	–	Confirmatory factor analysis
NTNU	–	Norwegian University of Science and Technology

ABSTRACT

This study examines if and how leverage, delayed payments, and business profit influence life satisfaction among microfinance clients in the informal economy in Ecuador. To examine this, cross-sectional data is used. A dataset is used consisting of 752 micro entrepreneurs who work within different industries and reside in 6 different provinces. Several different statistical analyses are conducted with the main analysis being a hierarchical multiple linear regression analysis. The analysis consists of 2 blocks where traditional variables often found in happiness and life satisfaction studies are used as control variables in the 1st block, and the 2nd block consisting of exploratory variables. The results indicate that leverage and life satisfaction have a concave relationship, with low and moderate amounts of leverage being positively correlated with life satisfaction, and higher leverage being negatively correlated with life satisfaction. Having delayed payments or not does not have any effect on life satisfaction. The effects of business profits are less conclusive. This research suggests that microfinance institutions and policymakers can direct attention towards the effect leverage have on people's lives. This can be important to the extent that MFIs can monitor or control the borrowers leverage ratios to make sure they do not exceed a level that potentially can decrease their life satisfaction. The findings also suggest that from a personal well-being perspective, there is an optimum level of leverage where up to a certain point debt adds to the personal well-being, after which incremental debt is not making entrepreneurs better off. Thus, microfinance institutions should be wary of the leverage effect on the personal well-being and life-satisfaction of entrepreneurs, and not push out loans above a certain maximum point.

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1. Introduction

1.1 Background and purpose

There has been done a good amount of research about life satisfaction and happiness in developed countries, but not so much in developing countries. Microfinance is a practice to aid poor people out of poverty, but what is the effect of microfinance on life satisfaction? The findings in this study show that leverage has a concave relationship with life satisfaction, indicating that leverage above 46% yields incrementally less life satisfaction. This optimal gearing point thus portrays a different perspective on an optimal leverage point. Having delayed payments does not affect life satisfaction, while business profit yields inconclusive results. To do this research, secondary data was used collected from clients of the microfinance institution Banco D-MIRO in Ecuador.

The purpose of this paper is to find the implications of finance on life satisfaction among micro entrepreneurs in Ecuador's informal economy. One of the ideas of microfinance is that people obtain better lives and move out of poverty by borrowing money and making returns that exceed the interest rates (Sinclair, 2012). Previous research on microfinance has primarily focused on female empowerment and if microfinance actually works in alleviating poverty (Duvendack et al., 2011). Thus, a gap is identified in that no one has actually studied how the financial aspects brought on by microfinance affect the entrepreneurs' perceived life satisfaction.

Several well-known researchers view life satisfaction as the cognitive component of the broader concept happiness or subjective well-being (SWB), which also consists of the emotional components of positive and negative affect (Diener, Emmons, et al., 1985; Diener, Suh, Lucas, & Smith, 1999; Erdogan, Bauer, Truxillo, & Mansfield, 2012). Theory indicates that an individual's personality is a major predictor of happiness, and that life domains do not play a large role in determining a person's happiness level (Diener et al., 1999). Thus, potential findings will not likely have very large impacts on life satisfaction. Theory also indicates that there are some, but small differences between what causes life satisfaction in poor people compared to rich people (Becchetti & Conzo, 2013; Diener & Biswas-Diener, 2002; Diener et al., 1999). Research often shows that income is positively correlated with happiness, especially in poorer people (Becchetti & Conzo, 2013; Diener & Biswas-Diener, 2002; Frijters, Haisken-DeNew, & Shields, 2004; Herrera, Razafindrakoto, & Roubaud, 2006). Other researchers have found different results depending on where they conduct their

research. The most widely researched characteristics except income and wealth is typical demographics as age, gender, marital status, etc. (Diener et al., 1999). Some researches found that some of these characteristics do not relate to life satisfaction or happiness, while other research from developing countries differs from other research and imply some kind of relationship between e.g. age and happiness (see section 3.3).

The majority of studies conducted are about subjective well-being or happiness in general, and not its cognitive life satisfaction component (Alem & Köhlin, 2014; Diener et al., 1999; Knight, Lina, & Gunatilaka, 2009; Shams, 2014). Something that remains unanswered is research about financial determinants of life satisfaction in developing countries. And there is not much research about potential financial determinants of life satisfaction among microfinance borrowers in Ecuador's informal economy.

1.2 Objective and research question

The research question in this paper is what financial determinants of life satisfaction exist among microfinance clients in Ecuador's informal economy? More specifically if a micro entrepreneur's leverage ratio, payment problems, or business profit have any influence on his or her life satisfaction. To investigate this question a dataset, consisting of data collected from 755 micro entrepreneurs from the poor coastal areas in Ecuador is used, in which 752 of them answered all the questions necessary in order to examine the research question. The dataset was made available through the courtesy of PhD Research Fellow Pontus Engström at the University of Agder.

The findings show that financial determinants of life satisfaction exist, but the effects on life satisfaction are small, partly supporting previous theory about personality being a major contributor to life satisfaction, and life domains playing a smaller role. More specifically, the findings show that leverage has a concave relationship with life satisfaction indicating that holding a low or moderate level of leverage is be positive regarding the recipients' life satisfaction, while having a too high leverage ratio has negative effects on life satisfaction. The findings also indicate, surprisingly, that having delayed payments does not significantly affect life satisfaction. The findings about business profit and life satisfaction are quite complicated showing no relationship in linear correlation- and regression analyses, but indicating a positive relationship when doing non-parametric correlation analyses.

1.3 Structure

The paper is organized in six main sections. Following the introduction in Section 1, information about Ecuador and the concepts informal economy and microfinance are provided in Section 2. Section 3 consists of theoretical background and literature review about happiness and life satisfaction, and ends by discussing the research gap and stating the hypotheses. In Section 4 the data and sample are described as well as the methodology and description of the statistical analyses. In Section 5 the reliability and validity of the life satisfaction measure is assessed, followed by the findings and results of the analyses. Lastly Section 6 is where findings are discussed and conclusions are made, followed by limitations of the study and suggestions for further research.

2. Ecuador, informal economy, and microfinance

2.1 Ecuador

Ecuador is located in South America, and borders to Colombia, Peru and the Pacific Ocean (Fig. 2-1). It is by the United Nations (UN) identified as a developing country and falls into the category of an upper middle income country based on the per capita gross national income (GNI) of 2011, shifted upward from a lower middle income country in the last year's classification (United Nations, 2012). Ecuador has a population of approximately 15.6 million people, and the official language is Spanish, as Ecuador is a former Spanish colony. Ecuador implemented dollarization in year 2000 after a banking crisis in 1999/2000 (Central Intelligence Agency, 2015; Quispe-Agnoli & Whisler, 2006). Thus the official currency is United States Dollar. The GDP is estimated to be $182 billion in 2014, making it number 64 in the world, and the GDP per capita is $11,400 making it number 123 in the world (Central Intelligence Agency, 2015). 59.6% of the GDP originates from the service sector, while industry accounts for 34.4%, and agriculture for 6% (Central Intelligence Agency, 2015). Ecuador is dependent on its petroleum resources, which accounts for more than 50% of the country's exports (Central Intelligence Agency, 2015). Other notable industries are food processing, textiles, wood products, and chemicals (Central Intelligence Agency, 2015).

Ecuador's unemployment rate was estimated to 5% in 2014, and the estimated population below the poverty line was 22.5% in 2014, a relatively steep decline from 42.2% in 2005 (Central Intelligence Agency, 2015; World Bank, 2015a). The Gini index is 48.5 as of 2013, a decline from 50.5 in 2010 (Central Intelligence Agency, 2015). A Gini index of 48.5 is relatively high, and shows that Ecuador has the 23rd most unequal income distribution in the

world (Central Intelligence Agency, 2015). By the UN's Human Development Index (HDI) Ecuador is ranked 98 in the world and barely falls into the category of high human development (United Nations, 2014). In 2013 Ecuador had a HDI of 0.711 compared to a HDI of 0.605 in 1980, following the world's general trend of increasing HDI (United Nations, 2014).

Figure 2-1 Ecuador and South America (Google, 2015)

2.2 The Informal Economy

It may be hard to grasp what informal economy really is because the informal- or the shadow economy may be viewed as the unregulated economies of developing nations. However, informal economies or shadow economies are present in all kinds of countries, both developing and developed; in Ecuador some micro entrepreneurs avoid paying taxes, in Norway some people pay carpenters without notifying the authorities, and in Poland some people pay doctors "under the table" in order to get the proper health care they are entitled to. One definition of an informal economy is "a process of income generation characterized by one central feature: *it is unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated*" (Portes, Castells, & Benton, 1989, p. 12). Another commonly used definition is; "all currently unregistered economic activities

which contribute to the officially calculated estimates of GDP" (Schneider, 2002, p. 3). According to Loayza (1996) informal economies arise "when excessive taxes and regulations are imposed by governments that lack the capability to enforce compliance" (Loayza, 1996, p. 129). This may serve as an explanation for why informal economies are mostly viewed as an issue in developing countries. Working in the informal economy can have advantages and disadvantages; there are no formal regulations to be followed thus workers can increase their income by avoiding paying taxes or other fees relating to employment or transactions. However, people do not have any formal rights or security if agreements are violated. Portes et al. (1989) writes about the lack of institutional regulations in the informal economy, and the potential consequences this may have on different parts of the work process. The lack of institutional regulations may affect the status of labor, conditions of work, the form of management of some firms (Portes et al., 1989). Further, Loayza (1996) explains that one effect of informal economies is that they negatively affect economic growth. This happens because "the availability of public services for everyone in the economy" is reduced, and because people in the informal economy cannot take advantage of policies and services favorable to them (Loayza, 1996, p. 130).

The informal economy is naturally more widespread in developing countries, where lack of control systems makes it harder to control that rules, regulations and policies are followed and respected. One of the reasons why micro entrepreneurs are excluded from the formal economy is due to the cost of entering it. Loayza (1996) writes about high entry costs in Latin American countries with costly bribes and paperwork, and business registration times ranging from one month to two years. He identifies Ecuador as one of the better Latin American countries with an average registration time of one month, but it should be noted that Loayza's paper was published in 1996. However, when checking the World Bank's statistics, 56 calendar days are needed to register a business in Ecuador in 2014 (Fig. 2-2). This is way above the world average and there have not been much improvement in recent time (World Bank, 2015b). The amount of days calculated are not even the average number; the World Bank states that the statistics show the fastest registration time including paying extra to speed up the procedure, when possible (World Bank, 2015b).

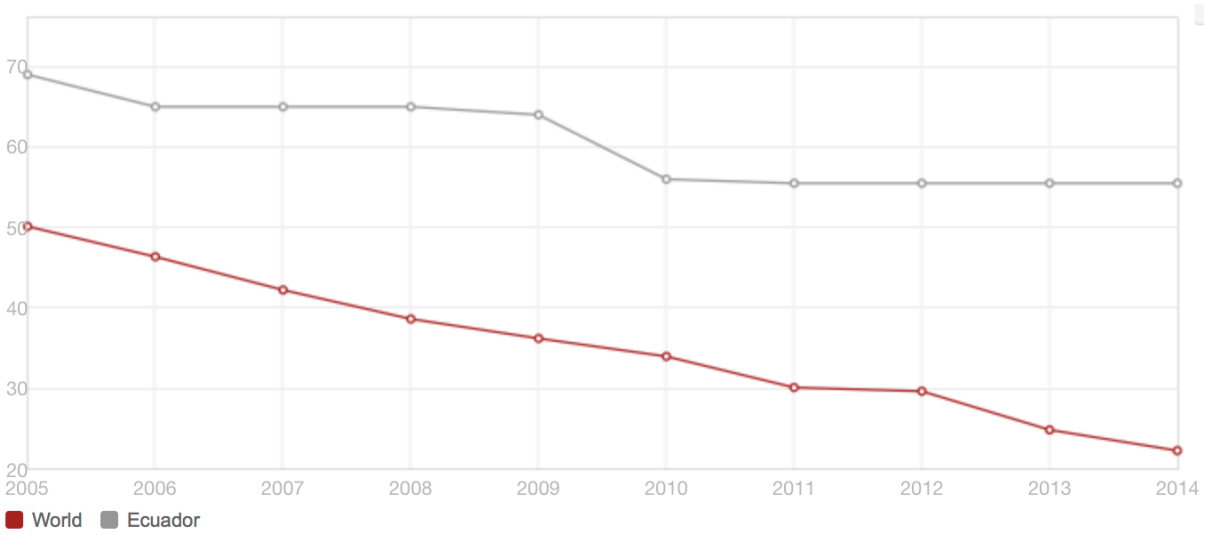

Figure 2-2 Days required to start a business in Ecuador (World Bank, 2015c)

There are also high costs to remain in the formal sector. Loayza (1996) explains that the costs of remaining in the formal economy can be divided into three categories: "taxes, regulations, and bureaucratic requirements" (p. 133). Here, labor related regulations and bureaucratic requirements accounts for the majority of the costs (Loayza, 1996). Other costs of the informal economy is not being able to use different benefits available to people in the formal economy, and costs in forms of penalties if found guilty for any violations of rules and regulations, or by paying bribes or scaling down business to avoid getting caught (Loayza, 1996). Findings by Schneider (2002) show that Ecuador has an informal economy of 34.4% of its gross national product (GNP). This indicates that Ecuador's informal economy is relatively smaller than in several other countries including its neighbors Peru (59.9%) and Colombia (39.1%) (Schneider, 2002).

2.3 Microfinance

Microfinance is financial services such as loans, savings and pensions offered to poor persons often living in developing countries, but is also extended to areas within for instance the European Union and even in Norway (European Microfinance, 2010). The idea is that by offering needed capital the poor are helped out of poverty. The typical micro borrower is a micro entrepreneur who with the help of additional funds borrowed from a MFI hopefully is able to make a profit and create a better life for himself or herself and his or her family. However, findings are not consistent in if this actually works, and it depends on different aspects (Duvendack et al., 2011; Sinclair, 2012). Sinclair (2012) explains that the most

commonly used economic argument behind microfinance is that money is allocated from people with excess capital to poor people who need capital to grow profitable businesses. This way the poor get the possibility of getting a better life, and the investors can feel good about themselves making a slight profit from an apparently ethical investment. Sinclair (2012) explains that there are several flaws with this argument. A big misinterpretation is that not all micro entrepreneurs can, nor have the abilities to manage their businesses and capital to achieve high profits, and there might not be good possibilities in general for many micro entrepreneurs to make high profits in developing countries and at the same time pay high interest rates (Sinclair, 2012).

Sinclair (2012) is a critic of the microfinance industry and states that there is "surprisingly little evidence supporting microfinance as a practical tool of poverty reduction" (Sinclair, 2012, pp. 1-2). He writes that not all microfinance is bad, but that many actors within microfinance is not involved with microfinance to help the poor, but merely to enrich themselves. One of the most well-known microfinance institutions is the Bangladeshi Grameen Bank. Muhammad Yunus who was awarded the Noble Peace Prize, together with the Grameen Bank in 2006, was the bank's founder. According to Sinclair (2012) Grameen has a maximum interest rate slightly above 20%, generous interest rates on deposits, and its profits is kept in the local community. Sinclair (2012) goes on claiming that many microfinance institutions are not philanthropic, and only exist in order to create profits for their owners. These banks can charge interest rates of over 100%, making it hard for people to pay off their debts and making people's lives worse rather than improving them (Sinclair, 2012). Sinclair (2012) goes on writing that even microfinance institutions with reasonable interest rates do not serve to be a complete solution for alleviating poverty. Sinclair (2012) is obviously very critical towards microfinance institutions, even the member/owner banks with reasonable interest rates. According to Sinclair (2012) a good model is having microfinance institutions organized as cooperative banks owned by their borrowers and funded in the local currency and not being controlled by for-profit companies. Sinclair (2012) believes well-run ethical microfinance can have a positive impact in people's lives and in alleviating poverty, but that microfinance is not suitable for everyone and must not replace other measures of improving the lives of the poor. Microfinance can indeed have very different effects and outcomes (Fig. 2-3), from increased income and empowerment to repayment problems and reduced income.

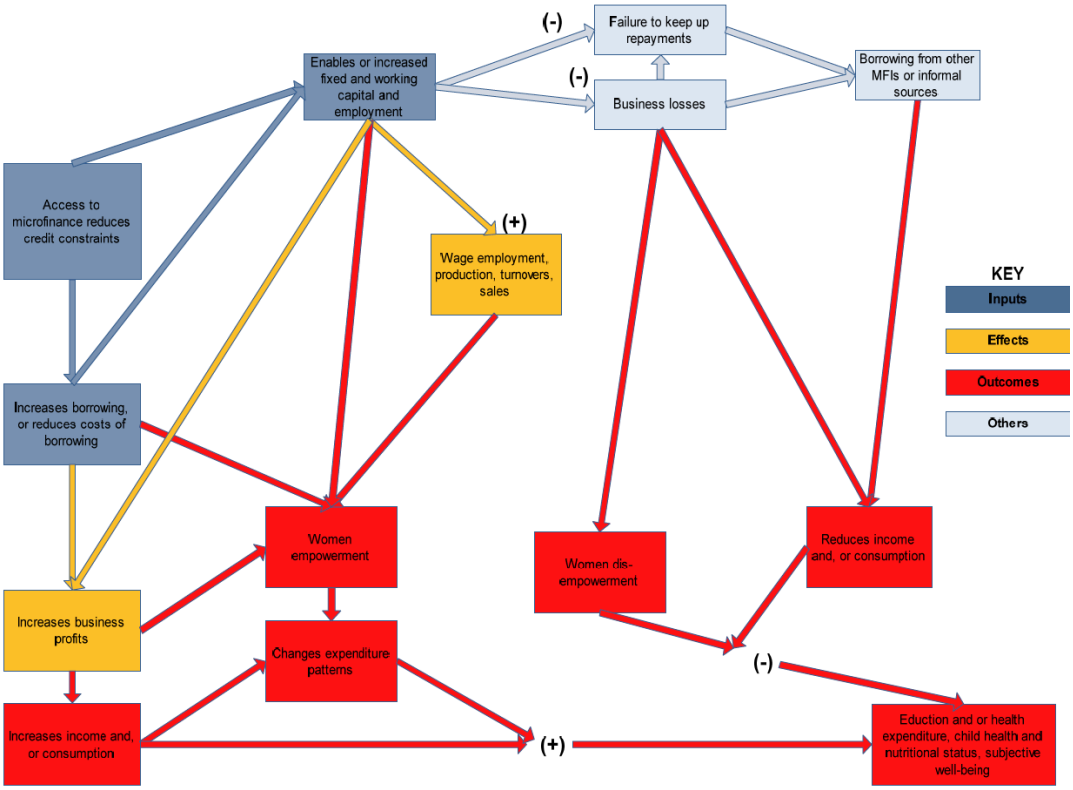

Figure 2-3 Pathways and outcomes of microfinance (Duvendack et al., 2011, p. 13)

2.3.1 Banco D-MIRO

The data used in this paper consists of a sample of micro entrepreneurs who are clients of Banco D-MIRO. Banco D-MIRO was established in 1996 and is a microfinance institution operating in Ecuador (Alliance Microfinance, 2014b). The Mission Alliance, a Norwegian evangelical and diaconal organization, is the founder of the non-profit organization Alliance Microfinance (AMAS), which again is the founder of Banco D-MIRO as well as being involved with three other MFIs in Bolivia, Liberia, and Vietnam (Alliance Microfinance, 2014a; Misjonsalliansen, 2014). The aforementioned microfinance heretic Hugh Sinclair, is the Chief Operational Officer of AMAS, and a board member of D-MIRO (Alliance Microfinance, 2014c). D-MIRO's interest rates average about 25%; their average loan size is USD 1,881; they offer loans from USD 600 to USD 20,000 with a repayment plan for up to three years, and clients do also get free medical consultation (Alliance Microfinance, 2014b). D-MIRO offers individual microcredit loans, social product for the sick and disabled, and savings accounts (Alliance Microfinance, 2014b). Banco D-MIRO received an α- rating from Micro Rate in 2012, and an A- rating from MicroFinanza in 2014 (Alliance Microfinance, 2014b; Micro Rate, 2012; MicroFinanza Rating, 2014).

3. Theoretical background and relevant literature

Life satisfaction, well-being and happiness are closely related and even inter-related terms that have been discussed by several philosophers for a very long time. In ancient Greece Herodotus brought up the topic of happiness (Rawlinson & Wilkinson, 1861) and Aristotle wrote about happiness in his *Nicomachean Ethics* where he philosophized (among other things) about the different views and interpretations of happiness (Rowe & Broadie, 2002). The priest and philosopher Thomas Aquinas wrote about happiness and Christianity (Aquinas, 1997), and Jeremy Bentham and John Stuart Mill wrote about happiness of the individual versus the happiness for the greatest number of people (Bentham, 2001; Mill, 2010).

There are several definitions, views, approaches and theories in the research of life satisfaction and its determinants (Diener et al., 1999). In this paper the most cited, well-known, and available peer-reviewed research will be examined with an emphasis on Ed Diener's work, and especially Diener, Emmons, Larsen, & Griffin's *The Satisfaction With Life Scale (1985)*. Differences between determinants of life satisfaction and happiness between developed and developing countries will be examined, and links will be made between life satisfaction and microfinance.

3.1 Relevance of happiness and life satisfaction

In recent times happiness have become a popular topic through discussions about research and economic policies (Dowling & Yap, 2013). In relatively modern times Wilson (1967) identified what he believed to be the correlates of a happy person. Wilson believed the happy person to be:

> *A young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married person with high self-esteem, job morale, modest aspirations, of either sex and of a wide range of intelligence"* (Wilson, 1967, p. 294).

Life satisfaction and happiness are still important today. In a survey where college students from 41 both industrial and less industrial countries were asked about the importance of life satisfaction and happiness, the students rated both terms as extremely important (Diener, Sapyta, & Suh, 1998). Amounts of research have been done in this field since the time of the ancient Greeks, and a lot more will be done in the future.

3.2 Basic theories and former research about life satisfaction and subjective well-being

Happiness, well-being, and pleasure have been subject of different views and philosophies as subjective well-being, objective well-being, psychological well-being and hedonism. In this paper the term subjective well-being (SWB) and its cognitive component life satisfaction is researched. This is a widely known and highly cited measure of happiness and there has also been done some research about subjective well-being in developing countries (Biswas-Diener & Diener, 2001; Cox, 2012; Diener et al., 1999; R. T. Howell & Howell, 2008; Knight et al., 2009). There are also different theories within subjective well-being that are discussed below. In this section the most central theories will be explained with an emphasis on how Diener et al. (1999) and Diener, Emmons, et al. (1985) define life satisfaction and subjective well-being. Diener, Emmons, et al. (1985) are highly cited and their life satisfaction measure are used in research in developing countries by e.g. C. J. Howell, Howell, and Schwabe (2006), Biswas-Diener and Diener (2001) and Cox (2012). After defining and discussing life satisfaction and subjective well-being measures, determinants and non-determinants of life satisfaction and subjective well-being identified in former research will be investigated and differences between developed and developing countries will be discussed.

3.2.1 A definition of life satisfaction, subjective well-being and happiness

Before investigating the determinants of life satisfaction and subjective well-being it is necessary to have a common understanding about these terms. The following definitions are well known and established definitions in this field of research. For an easier understanding about the concepts it should be mentioned that in the literature the terms subjective well-being is colloquially referred to as happiness, while life satisfaction is a component of subjective well-being (Diener, 2000; Diener, Emmons, et al., 1985; Diener et al., 1999).

The following definition of subjective well-being is from the Handbook of Positive Psychology:

> *Subjective well-being is defined as a person's cognitive and affective evaluations of his or her life. These evaluations include emotional reactions to events as well as cognitive judgments of satisfaction and fulfillment. Thus, subjective-well being is a broad concept that includes experiencing pleasant emotions, low levels of negative moods, and high life satisfaction. (Diener, Lucas, & Oishi, 2002, p. 63)*

Subjective well-being is a complex term which includes different components (Diener, Emmons, et al., 1985). Subjective well-being can be divided into 4 parts with several subparts (Table 3-1).

Table 3-1 Component of Subjective Well-Being (Diener et al., 1999, p. 277)

Components of Subjective Well-Being

Pleasant affect	Unpleasant affect	Life satisfaction	Domain satisfactions
Joy	Guilt and shame	Desire to change life	Work
Elation	Sadness	Satisfaction with current life	Family
Contentment	Anxiety and worry		Leisure
Pride	Anger	Satisfaction with past	Health
Affection	Stress	Satisfaction with future	Finances
Happiness	Depression	Significant others' views of one's life	Self
Ecstasy	Envy		One's group

In the paper *The Satisfaction With Life Scale (1985)*, Diener et al. focuses on SWB by dividing it into two parts; (1) affect, which can further be divided into the two parts positive affect and negative affect, and (2) life satisfaction. Because happiness and SWB is usually used interchangeably it can be said that life satisfaction is a major part of happiness (Diener, 2000). Affect is related to a person's emotional state. The actions and opinions of a person can be affected by the person's mood, and can therefore be viewed as an emotional assessment. Diener et al. (1985) explains that life satisfaction, on the other hand, is a subjective cognitive assessment isolated from affect. This means that measuring life satisfaction is an attempt to measure subjective satisfaction with life, without any impact from a potential emotional state (Diener, Emmons, et al., 1985; Diener et al., 2002).

3.2.2 The Satisfaction With Life Scale

As explained above, life satisfaction is a component of subjective well-being. Diener; Emmons, Larsen and Griffin created *The Satisfaction With Life Scale (SWLS)* in 1985 as a measure of global life satisfaction. SWLS is a subjective measure, which results depend on the respondents' subjective opinions about their lives (Diener, Emmons, et al., 1985). The Satisfaction With Life Scale comprises of five questions or statements (Diener, Emmons, et al., 1985, p. 72):

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

The respondents rate the statements from 1 (strongly disagree) to 7 (strongly agree), reaching the sum of minimum 5 or maximum 35 (Diener, Emmons, et al., 1985). Scoring 20 is viewed as a neutral score. A score below 20 indicates dissatisfaction with life, and a score over 20 indicates satisfaction with life (Pavot & Diener, 1993).

Not surprisingly as a component of SWB, the results from the SWLS are shown to correlate relatively well with SWB, and also correlate with different characteristics of people's personality (Diener, Emmons, et al., 1985). The SWLS is also claimed to work well with different age groups (Diener, Emmons, et al., 1985). The SWLS measures satisfaction with life by having the subjects' views cognitively compared with typical standard views (Pavot & Diener, 1993). This means that if a respondent deems the satisfaction with e.g. her marriage as very important when grading her satisfaction with life, she would most likely have a high satisfaction with life rating if she has a good marriage, and the other way around. In regards of the construct validity it is positive that people not acquainted with methodical and statistical research easily can understand that the SWLS actually works. The measure is easily understandable as it measures low satisfaction with life with prisoners, psychiatric patients and abused women, something most people view as a reasonable presumption (Pavot & Diener, 1993). To sum up why some view the SWLS as a good measure of life satisfaction is that it "emphasizes the person's own standards of evaluation. Furthermore, the respondent draws on the domains she or he finds relevant in formulating his or her judgment of global life satisfaction" (Pavot & Diener, 1993, p. 169).

3.2.3 Other Theories and Approaches

Top-down and bottom-up approach

In studies about subjective well-being researchers often distinguish between two different approaches: Top-down and bottom-up. The top-down approach views SWB as a function of personality traits, while the bottom-up approach view SWB as a function of different life domains such as family, relationships, employment, health, economy, etc. (Erdogan et al., 2012). In other words, the bottom-up approach is built on the idea by Wilson (1967) that if a person gets his or hers needs and wants fulfilled, he or she will be happy. A mix between the two views lies closest to reality (Diener et al., 1999). If a person is happy or not depends on both the personality and the person's needs and wants, or as Erdogan et al. (2012) states: "Although the two approaches are different, they are not necessarily incongruous" (p. 1042).

Discrepancy theory

Discrepancy theory involves comparing yourself with others and with yourself in the past and the future, and also what a person needs or feels he or she deserves (Michalos, 1985). A person's satisfaction level depends on any discrepancies between the standards and the individual's perceived level (Diener et al., 1999). If the individual perceives himself or herself as above standard, the person is satisfied (Diener et al., 1999). If the individual compares himself or herself to higher standards he or she becomes dissatisfied (Diener et al., 1999). Research show that social comparison affects subjective well-being, and laboratory studies have shown that satisfaction and happiness can be affected because of how we view others, at least in the short run (Diener & Fujita, 1997).

3.3 Determinants of life satisfaction and subjective well-being

When reviewing the literature of life satisfaction it is difficult to find studies that exclusively examine life satisfaction. The majority of happiness studies are about subjective well-being, and as life satisfaction is a major component of subjective well-being, studies about subjective well-being in general are also reviewed here (Diener, 2000; Diener et al., 1999). The world is big and consists of many different countries with different peoples and cultures, and "crosscultural studies reveal that different factors correlate with SWB in different societies" (Diener et al., 1999, pp. 294 - 295). Thus, there is reason to believe that the differences of the world also are reflected through different determinants of life satisfaction and happiness. Several observations from general happiness research in this section comes from Diener et al.

(1999) who have reviewed a large amount of subjective well-being research from several decades, some of these sources are unavailable thus these studies are referred to "as cited in Diener et al. (1999)". However, the main focus was finding studies from developing countries about life satisfaction and subjective well-being.

Personality

Interesting findings show that personality heavily outweighs domains and demographics when looking at the influence on subjective well-being (Diener et al., 1999). Decades of research have shown that "bottom-up factors often are responsible for only a small part of the variance in SWB" (Diener et al., 1999, p. 286), and that well-being is a subjective measure as "it appears that the way people perceive the world is much more important to happiness than objective circumstances" (Diener et al., 2002, p. 68). Personality is strongly correlated with SWB, and as a part of personality; extraversion, neuroticism and introversion correlate with SWB, through positive and negative affect (Diener et al., 1999). In individualistic countries, self-esteem correlated strongly with life satisfaction, while in collectivistic cultures relationship harmony correlated with life satisfaction (Diener et al., 1999). Being optimistic and having positive illusions were also associated with SWB (Diener et al., 1999).

Goals

Having goals contributes to higher SWB, and Diener and Fujita (1995) found that "resources such as income or physical attractiveness contribute more to the SWB of individuals who have goals related to these resources" (as cited in Diener et al., 1999, p. 284). Brunstein (1993) found that commitment to goals were also found to be associated with SWB (as cited in Diener et al., 1999). Another goal related aspect that is associated with SWB, and suggested being more important to SWB than actually achieving goals is to work towards goals (Carver, Lawrence, & Scheier, 1996). Regarding subjective well-being the journey is more important than the destination.

Adaptation

The ability to adapt is associated with SWB (Diener et al., 1999). People usually adapt to different situations and surroundings, but the amount of time this takes differ depending on the situation and the individual's personality (Diener et al., 1999). But not everything is adaptable. (Diener, Diener, & Diener, 1995) found "that respondents in very poor nations such as India and Nigeria reported much lower SWB than people in the wealthier nations

even though poverty there has been endured for centuries" (as cited in Diener et al., 1999, p. 286). The inability to adapt to poor life conditions occurs when people's income or wealth is at a level where people are not able to meet their basic needs (Diener et al., 1999).

Income and wealth

In some studies small but significant correlations are found between personal income and SWB within countries, but other studies show no correlation (Diener et al., 1999). In Diener, Horwitz, and Emmons (1985) results show that wealthy Americans are on average happier than poorer Americans. Research shows that there is a positive and strong association between college students' life satisfaction and the wealth of a nation (Diener, Sandvik, Seidlitz, & Diener, 1993). Gross national product (GNP) per capita were also associated with college students' life satisfaction across 39 nations (Diener et al., 1993). There are many differences between countries, especially when comparing wealthy and poor ones. The correlation between high GNP and high SWB is not necessarily an effect of high GNP per se. Other reasons could be how the country is governed, welfare system, health care, equality, literacy, property rights, etc. (Diener et al., 1999). Wealth also contributes "to SWB by providing the means to meet certain basic needs such as food, shelter, clean water, and health care. Thus, poverty should affect SWB if it affects basic needs" (Diener et al., 1999, pp. 288-289). Financial capability also affects happiness positively (Becchetti & Conzo, 2013; Taylor, Jenkins, & Sacker, 2009). Findings from analyzing the British Household Panel Survey showed that financial capability had relatively strong and significant effect on psychological wellbeing (Taylor et al., 2009).

Research shows conflicting views about the relationship between income and happiness (Diener et al., 1999). Veenhoven (1994), Haring, Stock, and Okun (1984), and Diener et al. (1993) found correlations of within-nation income and SWB to be significant but small, while Diener, Horwitz, et al. (1985) and A. E. Clark and Oswald (1994) found negligible or no correlations between income and SWB within nations (as cited in Diener et al., 1999). Diener et al. (2002) found that neither national or individual income changes are strongly associated with SWB (as cited in Diener et al., 1999). Findings by Easterlin (2001), often referred to as the Easterlin paradox shows that an increase in income will increase happiness in the short term, but not in the long term; because increased income creates higher aspirations which neutralizes any long term increase in happiness. Diener and Biswas-Diener (2002) found that it is usually positive to be wealthy, but "strongly desiring large amounts of money appears likely to hinder (our) chances for high SWB. Gaining more income if we are

middle-class or upper-class and (are) living in a wealthy nation is unlikely to substantially bolster (our) SWB on a long-term basis" (Diener & Biswas-Diener, 2002, p. 161).

Income has a stronger relationship with happiness and life satisfaction in poorer individuals, and increased income increases subjective well-being in very poor people (Diener & Biswas-Diener, 2002). Becchetti & Conzo (2013) write that one typical finding in studies of happiness in developing countries is that the economic theory of the implied law of decreasing marginal utility is confirmed, and can explain why income is more important in poor countries compared to rich ones. This theory is supported in a study by Herrera, Razafindrakoto and Roubad (2006) when comparing Peru and Madagascar. In this study they show that subjective well-being and income is positively correlated, and that the correlation is stronger in the poorer country (Herrera et al., 2006). They also mentioned that there is other dimensions that affect SWB in developing countries (Herrera et al., 2006). On a similar note, Becchetti and Castriota (2010) wrote that exogenous shocks on income such as a natural catastrophe, in this case a tsunami, have larger effects on life satisfaction in poorer countries. Frijters et al. (2004) also found that income is correlated with life satisfaction, especially in poorer countries. In a study of wellbeing in Algeria, Tiliouine, Cummins and Davern (2006) found a marginal significant positive correlation between high income and wellbeing when using a measure called Personal Wellbeing Index (PWI), but found no significant differences between wellbeing and income when using a measure called National Wellbeing Index (NWI). In rural Pakistan findings also showed a higher degree of happiness with increased income (Shams, 2014). In rural China past and expected future income correlate with happiness, as well as income level relative to other people in the local village; present income were less important (Knight et al., 2009). In a study in Bangladesh, people with better economy compared to others in the community were happier (Camfield, Choudhury, & Devine, 2009). In a study of an indigenous people in Malaysia the findings showed positive correlation between wealth and life satisfaction, even more so than in studies done in developed countries C. J. Howell et al. (2006). In a cohort study of distance learners from Thailand, low household income had an adverse effect on happiness (Yiengprugsawan, Somboonsook, Seubsman, & Sleigh, 2012). A study of marginalized groups in Nicaragua showed that objective income was significantly positively correlated with life satisfaction (Cox, 2012). Similarly a study among marginalized groups in Calcutta found that income was strongly associated with life satisfaction (Biswas-Diener & Diener, 2001).

Health

If there are any correlations between health and happiness depends on the interpretation and measurement of health. Self-reported health is associated with SWB (Diener et al., 1999; George & Landerman, 1984; Larson, 1978; Okun, Stock, Haring, & Witter, 1984). Objective health does not correlate with SWB (Diener et al., 1999). The reason is that people's adaptation and coping abilities neutralizes potential losses of well-being suffered from injuries or illness, but severe disability or chronic illness can influence SWB negatively (Diener et al., 1999). In other words, how an individual rates his or her health matters, but not so much how a doctor rates a person's health. In rural Pakistan, Shams (2014) found that people with low health status experience lower happiness compared to those more healthy. Research in rural China shows that being healthy is positively correlated with happiness (Knight et al., 2009), and research from Ghana shows that being healthy is strongly associated with subjective well-being (Addai, Opoku-Agyeman, & Amanfu, 2014). In a study in Bangladesh, the healthy respondents were happier, and one of the suspected reasons were that by being healthy they could work and earn an income (Camfield et al., 2009). Healthy people also showed higher life satisfaction than unhealthy people in urban Ethiopia (Alem & Köhlin, 2012).

Marital status

Research has shown that marriage is correlated with SWB and life satisfaction, but the reason is unclear (Diener et al., 1999). Discrepancy theory can be used as a potential explanation; if the norm is to be married then unmarried people have negative feelings about not being married, i.e. they lack marriage. Other theories without much evidence is that happy people marry easier, or that marriage has certain perks such as financial and emotional support which are associated with SWB (Diener et al., 1999). In rural China married people are likely to be happier than unmarried people (Knight et al., 2009). In urban Ethiopia, Alem and Köhlin (2012) found that married people were more satisfied with life than unmarried people. A cohort study of distance learners in Thailand showed that being divorced or widowed had a negative effect on happiness (Yiengprugsawan et al., 2012). In Algeria, Tiliouine et al. (2006) found no significant correlations between wellbeing and marital status.

Education

Findings by Campbell, Converse, and Rodgers (1976), Cantril (1965), and Diener et al. (1993) show small but significant correlations between education and subjective well-being

(as cited in Diener et al., 1999). Campbell et al. (1976) and Diener et al. (1993) also found that education is not correlated with SWB in some countries (as cited in Diener et al., 1999). Other research also shows that education has a negative effect on happiness and Becchetti and Conzo (2013) write that "it is well known that education raises expectations and this may have a counterbalancing (negative) effect on life satisfaction with respect to the expected positive one" (p. 1212). Becchetti and Conzo (2013) also refer to Frei and Stutzer (2002) whose findings show that happiness and educational level is not correlated, but that education and income is correlated. They explain that education contributes to happiness by claiming that education makes people more adaptable to different environments, but that education also raises people's aspirations (Becchetti & Conzo, 2013; Frey & Stutzer, 2002). In rural China, there is no significant correlation between education and happiness after controlling for other variables (Knight et al., 2009). In a study of an indigenous people in Malaysia findings showed that when zero-ordered correlations were examined, no correlation was found between education and the life satisfaction component of SWB (C. J. Howell et al., 2006). In rural Pakistan people are more likely to be happy with increasing education (Shams, 2014). Shams believes that education is positively correlated with happiness because education increases the chances of being employed (Shams, 2014). In Ghana, people who have completed elementary education is more likely to report being happy than people without any formal education (Addai et al., 2014). In urban Ethiopia, households experienced higher life satisfaction if the household consisted of highly educated people (Alem & Köhlin, 2012).

Age

Earlier it was believed that happiness declined with age, but today research cannot find consistent evidence for significant correlations between age and happiness (Diener et al., 1999). Research by Butt and Beiser (1987), Diener and Suh (1997), Inglehart (1990), Larson (1978), Stock, Okun, Haring, and Witter (1983), and Veenhoven and Jonkers (1984) found that life satisfaction tend to increase, or at least not decline with age (as cited in Diener et al., 1999). Bass (1995) found that one reason is that people today live healthier lives and have better health care opportunities than earlier, while another explanation is the previously mentioned ability to adapt to changes in life and environment (as cited in Diener et al., 1999). However, there are some studies that show some kind of relationship between age and happiness in poorer countries. In Algeria, Tiliouine et al. (2006) found that the young and the elderly experienced higher well-being than other age groups when using the measure Personal Wellbeing Index (PWI), but small and insignificant correlations when using the measure

National Wellbeing Index (NWI). However, in rural China the association between age and happiness can be viewed as U-shaped, meaning that the young and the old are more likely to be happy than the middle-aged (Knight et al., 2009). In urban Ethiopia, research also showed a U-shaped relationship with age and life satisfaction (Alem & Köhlin, 2012). On the other hand, in a study of indigenous people in Malaysia, the were no correlation between age and the life satisfaction (C. J. Howell et al., 2006). In a cohort study of distance learning adults in Thailand, there were no effects between age and happiness (Yiengprugsawan et al., 2012).

Gender

Different research shows different results, but on average women and men experience the same degree of global happiness and life satisfaction (Diener et al., 1999). Women experience stronger emotions than men, but a possible explanation for why men and women on average report the same level of happiness is that the stronger and more frequent negative and positive affects experienced by women balance each other out (Diener et al., 1999). Through demographic comparisons in Algeria, Tiliouine et al. (2006) found that women were more satisfied with their personal lives than men using the measure Personal Wellbeing Index (PWI). However, by using the measure National Wellbeing Index (NWI), there was insignificant evidence for any gender differences (Tiliouine et al., 2006). A study of well-being in rural Pakistan showed that men were less likely to be as happy as women (Shams, 2014). In rural China research also showed that females were happier than men (Knight et al., 2009). Gender had no effect on happiness in a cohort study of distance learning adults in Thailand (Yiengprugsawan et al., 2012).

Less prominent determinants of happiness and life satisfaction

Other less prominent and potential determinants of happiness and life satisfaction are: religion, employment, job satisfaction, intelligence, social support, family size, ethnicity, and food price inflation. Research has shown that religion is correlated with happiness and life satisfaction. It is believed that the reason why religion is correlated with SWB is that through religion and religious activities people meet people with similar beliefs and attitudes, they have something in common which again increase SWB through social interactions and activities (Diener et al., 1999). In Ghana, religion is correlated with well-being, but the strength of this correlation depends on the religious affiliation of the individual, and being member of some affiliations even have a negative relationship with well-being (Addai et al., 2014). Research has shown that unemployment and SWB are correlated; Banks and Jackson

(1982) and A. Clark (1998) found that unemployment causes lower happiness, while employment increases happiness (as cited in Diener et al., 1999). A study by Shams (2014) in rural Pakistan, showed that the unemployed usually reported lower happiness than the employed. And in urban Ethiopia the unemployed had lower life satisfaction than the employed (Alem & Köhlin, 2012). Research has also shown correlation between life satisfaction and job satisfaction (Diener et al., 1999). (Stones & Kozma, 1986) found that life satisfaction causes job satisfaction, and not the other way around (Diener et al., 1999). If there is any correlation between intelligence and happiness depends on how it is measured. Most research has shown that there is no correlation between intelligence and SWB (Diener et al., 1999). In a study of marginalized groups in Nicaragua findings showed that social support significantly predicted life satisfaction (Cox, 2012). In rural Pakistan, families with many children are more likely to be happy than families with a lower amount of children (Shams, 2014). In Algeria, Tiliouine et al. (2006) found no significant correlations between wellbeing and the number of children. In the study of the indigenous people of Malaysia, no correlations between family size and life satisfaction were found when examining zero-order correlations (C. J. Howell et al., 2006). In a study of subjective well-being in Ghana, it was found that ethnicity is "a significant determinant for well-being" (Addai et al., 2014, pp. 886 - 887). Similar observations were made in Madagascar (Herrera et al., 2006). In a study in urban Ethiopia researchers found that people who were negatively affected by food price inflation experienced reduced subjective well-being (Alem & Köhlin, 2014).

3.3.1 Differences between developed and developing countries

Determinants of life satisfaction and happiness in developed and developing countries are mostly similar, but some differences can be identified. In general the level of happiness is the same for both men and women on average (Diener et al., 1999). In developing countries on the other hand, gender is associated with happiness, but depending on the country studied (Knight et al., 2009; Shams, 2014; Tiliouine et al., 2006; Yiengprugsawan et al., 2012). Studies in Pakistan and China found that women were happier than men, while studies in Thailand and Algeria did not show any differences between genders, depending on the measurement (Knight et al., 2009; Shams, 2014; Tiliouine et al., 2006; Yiengprugsawan et al., 2012). In general and in developing countries, most findings showed association between marital status and happiness, while a study in Algeria did not show any correlation (Alem & Köhlin, 2012; Diener et al., 1999; Knight et al., 2009; Tiliouine et al., 2006; Yiengprugsawan

et al., 2012). In general Butt and Beiser (1987), Diener and Suh (1997), Inglehart (1990), Larson (1978), Stock et al. (1983), and Veenhoven and Jonkers (1984) found that life satisfaction does not decline with age, and often increase with age (as cited in Diener et al., 1999). Studies conducted in Malaysia and Thailand found no correlations between age and life satisfaction or happiness, but studies in China and Ethiopia found a u-shaped relationship between age and happiness, illustrating happiness more likely to be present in young or elderly people (Alem & Köhlin, 2012; C. J. Howell et al., 2006; Knight et al., 2009; Yiengprugsawan et al., 2012). Income is a heavily researched determinant, and depending on the definition of income it can both be seen as correlating with happiness, and not be correlating with happiness (Diener et al., 1999; Easterlin, 2001). But the studies reviewed show that income have a bigger impact on people living in developing countries compared to people living in developed countries (Becchetti & Castriota, 2010; Becchetti & Conzo, 2013; Diener & Biswas-Diener, 2002; Diener et al., 1993; Herrera et al., 2006). A conclusion made by Diener et al. (1999) is that income is quite important in order to be happy if an individual's income is so low that it affects his or her basic needs. Determinants of happiness across countries have some differences, but many similarities. Reasons for differences could be the level of development in the countries, cultural differences, or how the studies were conducted and the data analyzed. An overview of the studies and literature reviews evaluated is found in table 3.2 below.

Table 3-2 Findings about determinants of happiness and life satisfaction

Findings from Studies and Literature Reviews in General
Income and wealth: Diener et al. (1999); Diener et al. (2002); Diener and Biswas-Diener (2002); Easterlin (2001); Taylor et al. (2009); Diener et al. (1993); Diener, Horwitz, et al. (1985); Haring et al. (1984); A. E. Clark and Oswald (1994).
Health: Diener et al. (1999); George and Landerman (1984); Larson (1978); Okun et al. (1984).
Marital status: Diener et al. (1999).
Education: Diener et al. (1999) Campbell et al. (1976); Cantril (1965); Diener et al. (1993); Becchetti and Conzo (2013); Frey and Stutzer (2002).
Age: Diener et al. (1999); Bass (1995); Butt and Beiser (1987); Diener and Suh (1997); Inglehart (1990); Larson (1978); Stock et al. (1983); Veenhoven and Jonkers (1984)
Gender: Diener et al. (1999)
Findings from Studies in Developing Countries
Income and wealth: Diener and Biswas-Diener (2002); Becchetti and Conzo (2013); Herrera et al. (2006); Becchetti and Castriota (2010); Frijters et al. (2004); Tiliouine et al. (2006); Shams (2014); Knight et al. (2009); Camfield et al. (2009); C. J. Howell et al. (2006); Yiengprugsawan et al. (2012); Cox (2012); Biswas-Diener and Diener (2001).
Health: Shams (2014); Knight et al. (2009); Addai et al. (2014); Camfield et al. (2009); Alem and Köhlin (2012).
Marital status: Alem and Köhlin (2012); Knight et al. (2009); Yiengprugsawan et al. (2012); Tiliouine et al. (2006).
Education: Veenhoven (1994); Shams (2014); Addai et al. (2014); Alem and Köhlin (2012); Knight et al. (2009); C. J. Howell et al. (2006).
Age: Tiliouine et al. (2006); Knight et al. (2009); Alem and Köhlin (2012); C. J. Howell et al. (2006); Yiengprugsawan et al. (2012).
Gender: Tiliouine et al. (2006); Knight et al. (2009); Shams (2014); Yiengprugsawan et al. (2012).

3.4 Microfinance and life satisfaction

The available literature about microfinance and life satisfaction is limited, even more so than the available literature about life satisfaction in developing countries. Here the focus will be on identifying the effect of finance on the life satisfaction among microfinance clients.

There are different views about microfinance and if it actually works as an instrument to alleviate poverty or not (Becchetti & Conzo, 2013; Duvendack et al., 2011; Sinclair, 2012). As previously mentioned, income is positively correlated with happiness, especially in poor communities, thus it is logical to assume that the happiness of successful microfinance clients would increase when becoming more financially capable and getting an increased income. But this depends on the MFIs; it is difficult to alleviate poverty while charging interest rates over 100% as the borrowers need to make profits exceeding this rate, and that the majority of micro borrowers ability and skill to manage their capital in such an effective way is unlikely (Sinclair, 2012). It is obviously more likely that highly rated MFIs with fair interest rates would contribute in increasing people's financial capability and alleviating poverty more so than MFIs charging unfair interest rates. One study from rural Malaysia found that microfinance lead to increased quality of life (Al Mamun, Adaikalam, & Abdul Wahab, 2012). A potential effect of income change from microfinance is financial capability (Becchetti & Conzo, 2013). Taylor, Jenkins and Sacker (2009) found that poor Brits increased their level of happiness due to increased financial capability, and that "if the same nexus holds also in poor countries, part of the microfinance effect on life satisfaction may be due to the enhanced financial capability (provided that the borrower successfully repays) even though this effect may be counterbalanced by stress of repayment deadlines" (as cited in Becchetti & Conzo, 2013, p. 1201). Another interesting byproduct of microfinance is its potentially beneficial or happiness-increasing nonmonetary effects, discussed by Becchetti and Conzo (2013). They evaluate "whether access to microfinance loans has significant direct impact on life satisfaction beyond its impact via current income changes" (Becchetti & Conzo, 2013, p. 1201).

By studying poor microfinance clients in Buenos Aires, Becchetti and Conzo (2013) found that "microfinance has a significant positive effect on life satisfaction" (p. 1201). However, they explain that with their current data they are unable to identify what is the non-income effects that make microfinance increase life satisfaction (Becchetti & Conzo, 2013). They explain that "potential candidates are self-esteem, social recognition; improved expectations on future economic perspectives and enhanced trust and trustworthiness (Becchetti & Conzo, 2013, p. 1215). Becchetti and Conzo (2013) explain that microfinance

can increase life satisfaction because the individual exudes trustworthiness by being granted microloans, and as a result develops positive relationships with neighbors and people in the local community (Becchetti & Conzo, 2011, 2013). Interestingly Becchetti and Conzo (2013) view happiness and life satisfaction as synonyms without specifically writing this. The one question they use to measure life satisfaction is: "How happy do you consider yourself with your life?" (Becchetti & Conzo, 2013, pp. 1202-1203). As explained earlier, Diener et al. (1999) view life satisfaction merely as a component of SWB or happiness.

3.5 Literature comment

There are numerous studies of different magnitudes about happiness and subjective well-being. The studies have similarities and differences when it comes to how they are conducted, size, location, definition of concepts, validity, reliability and methodological approach. This results in differences in findings. The literature within general happiness is well researched, while the literature within developing countries and microfinance is much less researched. The studies reviewed about general happiness were relatively well-know studies that were referred to or conducted by well-known researchers. All studies that could be found about happiness in developing countries were reviewed, the number of available studies was much smaller than for the studies about general happiness, and the authors were not as well known.

3.6 Research gap and hypotheses

Diener et al. (1999) states that "demographic factors have surprisingly small effects on SWB, but these effects depend on the personalities of those individuals being studied" (p. 276). Most research done in the past has focused on the main determinants described in the review above, and even though there have been done cross-national studies most of them have been conducted in developed countries. There is a lack of research about financial determinants of life satisfaction in developing countries, and life satisfaction of microfinance clients in developing countries. Herrera et al. (2006) explain that it is impossible to make generalization based on the present research in developing countries due to the low number of studies, and the difference in approaches and methodologies. Becchetti and Conzo (2013) write that "most empirical studies investigate determinants of life satisfaction in high income countries, while research on the effect of development projects in low income countries, not just on economic indicators but also on broader concepts of wellbeing and life satisfaction, is still lagging behind" (p. 1204). An additional point is that the majority of studies about happiness are

about happiness in general, and there is little research specific to life satisfaction, especially in developing countries. There is a need for more research about the life satisfaction of micro entrepreneurs in developing countries, and if there is any correlation between life satisfaction and financial factors closely related to microfinance. Potential findings may be important for microfinance clients, the microfinance institutions, and for policymakers and regulators.

3.6.1 Leverage

It does not exist much research about leverage ratio and microfinance clients. But research about capital structure in companies in developed countries has received a lot of attention. A well-known theory about companies' preferred capital structure is the *pecking order theory*. Companies need funding in order to operate and grow, but in contrast to the *Miller-Modigliani theorem*, the *pecking order theory* states that the order of the funding is important to companies (Frank & Goyal, 2008). The pecking order theory states that internal funding or self-funding is the most preferred way of financing a company, followed by debt financing, and finally external financing (e.g. through issuing stocks) (Frank & Goyal, 2008).

Many or most of the micro entrepreneurs who operate in the informal economy pay little or no taxes. This may alter what they view as an optimal capital structure, because they do not have access to the same benefits as companies in the formal economy. Micro entrepreneurs in the informal economy pay relatively high interests on their microloans, but do not receive the same tax advantage as normal companies, since most of them do not pay taxes. When looking at the financing alternative of issuing equity, it is evident that officially issuing stocks is not an alternative for micro entrepreneurs in the informal economy. Alternatively they can issue equity by receiving money from friends, family or other people in the local community in exchange for a stake in their business. In conclusion, when the need for funding exceeds the micro entrepreneurs' internal capacity, their capital structure would possibly look different from a typical company in developed countries. In a paper about microenterprises and microfinance in Ecuador it was found that micro entrepreneurs have negative attitudes towards debt, and wish to avoid it (Magill & Meyer, 2005), but then again; microfinancing (with fair interest rates) offers micro entrepreneurs an opportunity to additional funding to grow their business and be self-employed. But the observation made by Magill and Meyer (2005) makes it reasonable to believe that there is a trade-off between the positive effects of microfinance and the negative effects of accumulating debt. It would be

interesting to examine how the leverage ratio of micro entrepreneurs influences their life satisfaction, especially if they have a preferred or optimal leverage ratio.

Hypothesis 1: Micro firm leverage is positively associated with life satisfaction

3.6.2 Delayed payments

There is not much literature available about the potential impact payment problems or difficulties repaying microloans have on people's satisfaction with life. It is found that people with financial difficulties have a higher chance of developing mental illnesses or depression (Skapinakis, Weich, Lewis, Singleton, & Araya, 2006). A study in the UK of people from a lower socio-economic position showed that subjective financial difficulties and depression were independently associated (Skapinakis et al., 2006). In the microfinance context, a study of Indian micro borrowers found that by increasing flexibility of repayments the clients were able to manage their money better (E. Field, Pande, Papp, & Park, 2012). As explained in Section 2 microfinance has several negative sides and much critique is aimed at the interest rates charged by the MFIs (Sinclair, 2012). With some charging over 100% making it very hard or close to impossible for most borrowers to repay their loans and at the same time move out of poverty and getting a better life (Sinclair, 2012). It is easy to assume that people with payment problems experience lower life satisfaction than people without these problems, but it is potentially more complex than that, and there is not much available research from the informal economy about this issue. It would be interesting to examine if having delayed payments would influence a person's life satisfaction, especially when the lender is a highly rated MFI with fair interest rates.

Hypothesis 2: Having delayed payments is negatively associated with life satisfaction

3.6.3 Business Profit

There is a good amount of research showing that income and happiness are positively correlated. The association is the strongest when people are very poor, and unable to meet their basic needs (Diener & Biswas-Diener, 2002; Diener et al., 1999). As previously mentioned, research shows correlations between the wealth of nations and subjective well-being, i.e. that people in wealthier countries tend to be happier than people in poorer countries (Diener & Biswas-Diener, 2002). However, within countries the correlations are weaker, but

more prominent in poorer countries (Diener & Biswas-Diener, 2002). By using business profit as a measure of income and business success, it would be interesting to examine the relationship between business profit and life satisfaction in Ecuador's informal economy.

Hypothesis 3: Business profit is positively associated with life satisfaction

3.7 Variables and theoretical framework

Dependent variable

The only dependent variable is life satisfaction, measured as the satisfaction with life scale as initially described in the theory section. In previous research either a composite score consisting of the sum of the SWLS items or some kind of average score has been used as the dependent variable. When researching life satisfaction in Calcutta, Biswas-Diener and Diener (2001) used a variant of a mean score, while Cox (2012) used the mean as the dependent variable when examining life satisfaction in Nicaragua. For this reason it was considered appropriate to use the mean score as the dependent variable, i.e. the items' total score divided by the number of items. If removing the fifth item the mean score would be calculated by dividing the total by the four remaining items.

$$\text{Life satisfaction} = \frac{(item\ 1 + item\ 2 + item3 + item4)}{4}$$

Exploratory variables

The exploratory variables used to test the hypotheses stated above is leverage, delayed payments, and business profit.

Leverage

Leverage is a continuous variable represented as the leverage ratio. The initial leverage ratio is calculated as total microdebt divided by winsorized total assets. Winsorizing means that values above and below certain percentiles are adjusted to a set value. In this case the assets are partly winsorized to the lowest 5%, i.e. values below 5% are set to the 5% value while the upper values are left as is. This is done because it is assumed unrealistic that the entrepreneurs have total assets below 5%. The leverage ratio was set to be maximum 1, as it is viewed as unrealistic that borrowers has a leverage ratio above 1. The few participants with leverage

ratios above 1 had these adjusted down to 1. To examine the effects of leverage on life satisfaction in the best possible way, the variable is mean-centered and an additional squared leverage variable is added.

$$\text{Leverage ratio} = \frac{\text{total microdebt}}{\text{winsorized assets}}$$

Delayed payments

The delayed payments variable represents repayment difficulties and is a dichotomous variable where 1 = delayed payments, and 0 = no delayed payments.

$$\text{Delayed payments} = \begin{cases} 1 = delayed\ payments \\ 0 = no\ delayed\ payments \end{cases}$$

Business profit

Business profit is a continuous variable representing monthly business net profit, and measures the participants' income from business activities. It is calculated as monthly business sales minus business costs. Business sales consist of both regular sales and credit sales, while business costs consist of purchases, salaries, and costs related to rent, phone, transport, public services, maintenance, taxes, and other cost. It should be mentioned that many entrepreneurs do not have many of these costs, e.g. does not pay taxes, or does not have any salary cost due to no additional employees, etc.

Business profit = business sales – business costs

Business sales = sales + credit sales

Business costs = purchases + salaries + rent + phone + transport + public services + maintenance + taxes + other costs

Control variables

Other factors may also have an effect on life satisfaction, thus when examining the exploratory variables relation to life satisfaction some control variables are included. The following control variables have showed both significant correlation and non-correlation with life satisfaction or SBW in past research. The variables are gender, age, marital status,

education, family members, and equity. All of these control variables are referred to as "traditional regressors used in life satisfaction estimates" (Becchetti & Conzo, 2013, p. 1209).

Male

Is a dummy variable representing the respondents' gender where 1 = male, and 0 = female.

$$\text{Male} = \begin{cases} 1 = male \\ 0 = female \end{cases}$$

Age

Age is a continuous variable with the participant's age measured in years. To examine the effects of age on life satisfaction in the best possible way, the variable is mean-centered and an additional squared age variable is added.

Married

The marital status variable is a dummy variable called *married* where 1 = married and 0 = not married, i.e. single, divorced, widow/ed, or living in a domestic partnership.

$$\text{Married} = \begin{cases} 1 = married \\ 0 = not\ married \end{cases}$$

Education

The *education* variable is a dummy variable where 1 = secondary school or higher education, and 0 = primary school or no education.

$$\text{Education} = \begin{cases} 1 = higher\ eduaction \\ 0 = lower\ education \end{cases}$$

Family members

The *family members* variable represents the number of the participants' additional family members.

Equity

The *equity* variable is a continuous variable representing the value of the respondents' equity. To get the best possible results, the equity variable used in this paper is log-transformed.

Conceptual framework

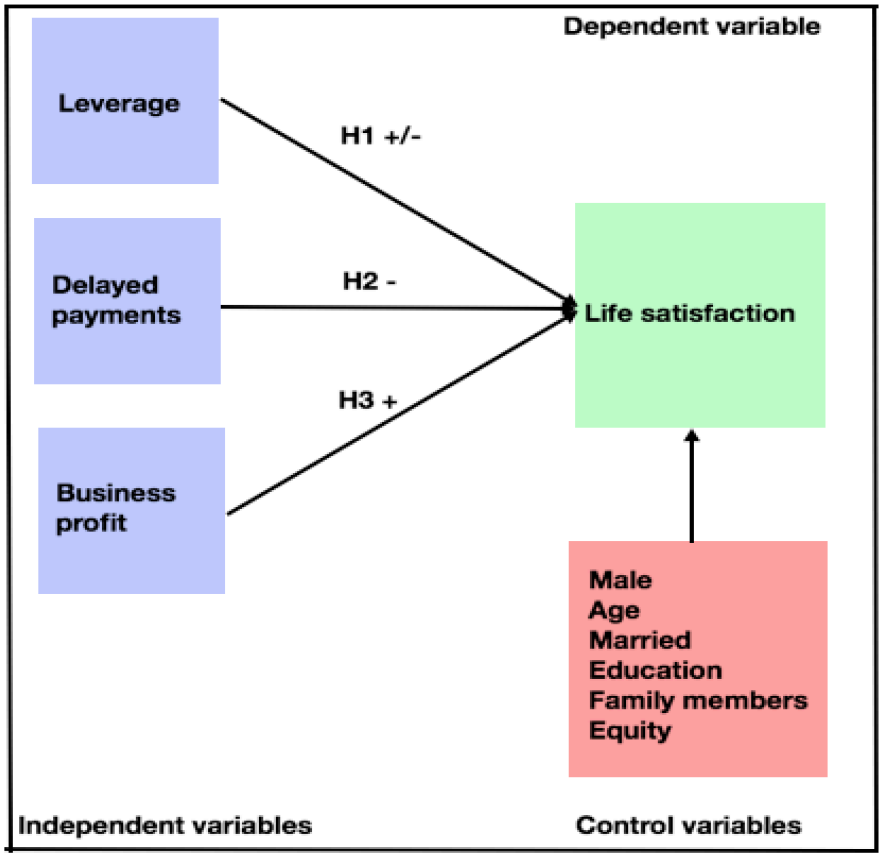

Figure 3-1 Conceptual framework

Table 3-3 Variable overview

Dependent Variable: Life Satisfaction	
Predictor variables	
Leverage	Positive/negative influence
Delayed payments	Negative influence
Business profit	Positive influence
Control variables	
Male	
Age	
Married	
Education	
Family members	
Equity	

4. Data and Methodology

In this section information about the data and the methodology is provided. The section begins by explaining the data collection procedure and describing the sample. Then the methodology is explained, including how to assess reliability, validity and sensitivity of the dependent measure. Lastly, the statistical analyses are described.

4.1 Data collection

The dataset consists of information about clients of the microfinance institution Banco D-MIRO. A structured questionnaire with different dimensions and topics where asked to the participants. The questions regarding life satisfaction were the 5 questions in the Satisfaction With Life Scale constructed by (Diener, Emmons, et al., 1985). PhD Research Fellow Pontus Engström at the University of Agder, and master students Hans Martin Espegren and Caroline Espegren at the Norwegian University of Science and Technology designed the actual questionnaire. The questions were asked via telephone, by the call center at Banco D-MIRO in November and December 2013. The credit officers at Banco D-MIRO collected the additional financial data from April – December 2013. The data was typed into in Microsoft Excel in real time by the people conducting the questionnaire, and additional financial variables where calculated by PhD Research Fellow Pontus Engström at the University of Agder. The data was finally transferred from Excel to IBM SPSS 22 by the undersigned. In SPSS several variables were translated, and were recoded and computed in accordance with the book *SPSS Explained* (Hinton, McMurray, & Brownlow, 2014). The questionnaire was naturally conducted in Spanish, and both the Spanish and the English version of the questionnaire are included in Appendix A. The initial reason for collecting the data was to understand customer loyalty and payment difficulties at Banco D-MIRO, while additional information was collected to cover topics in PhD Research Fellow Pontus Engström's upcoming thesis about financing in the informal economy. The data has been used in two articles on financing entrepreneurs, but are not yet published.

4.2 Ethical Considerations

The participants were informed that the survey was done for scientific purposes in collaboration between Banco D-MIRO and the University of Agder in Norway, and that the information they provided was kept confidential. If they chose to participate, they were given a calendar they could pick up at their local Banco D-MIRO office.

4.3 Sample data

The sample consisted of participants who were all micro entrepreneurs living in Ecuador, and were active or non-active clients of the microfinance institution Banco D-MIRO. 3,468 clients were asked to answer the survey and 755 people chose to participate. Out of the 755 people answering the questionnaire, a sample of 752 people answered all the questions about life satisfaction, i.e. a response rate of 21.5%. Through this sample there is hope to be able to generalize results over a population consisting of microfinance clients in Ecuador's informal economy. All the respondents were clients of Banco D-MIRO who lived in 6 of Ecuador's 24 provinces (Table 4-1). Even though there is a chance that the sample represents microfinance clients in Ecuador, there is some uncertainty about it. As the dataset was not intentionally collected to answer the specific hypotheses in this thesis, the data is to be considered as secondary in nature. For this reason some of the variables used are different than if the data was collected solely for this purpose.

Table 4-1 Sample characteristics

Provinces	**Number of Participants**	**Percent**
Cotopaxi	2	0.3%
El Oro	42	5.6%
Los Rios	61	8.1%
Santa Elena	63	8.4%
Manabi	110	14.6%
Guayas	474	63.0%
Total	**752**	**100.0%**

Type of Business	**Participants**	**Percentage**
Other	9	1,20%
Repair services	12	1,60%
Construction	14	1,90%
Education, health and social work	18	2,40%
Personal services	27	3,60%
Transportation	37	4,90%
Agriculture, forestry and fishing	43	5,70%
Restaurants	59	7,80%
Manufacturing	136	18,10%
Wholesale and retail	397	52,80%
Total	**752**	**100%**

Gender	**Number of Participants**	**Percentage**
Female	444	59%
Male	308	41%
Total	**752**	**100%**

Mode	Female

Age (years)	**Number of Participants**	**Percentage**
19 - 25	42	5.60%
26 - 35	185	24.60%
36 - 45	228	30.30%
46 - 55	197	26.20%
56 - 65	91	12.10%
65 - 68	9	1.20%
Total	**752**	**100%**
Min.- Max.	19 - 68	
Mean	42.34	
Median	42	
Standard deviation	11.10	

Relationship status	**Number of Participants**	**Percentage**
Married	252	33.50%
Domestic partnership	150	19.90%
Single	300	39.90%
Divorced	39	5.20%
Widow/er	11	1.50%
Total	**752**	**100%**
Mode	Single	

Level of Education	**Number of Participants**	**Percentage**
No education	14	1.80%
Primary school	257	34.20%
Secondary school	449	59.70%
Technical education	5	0.70%
University	27	3.60%
Total	**752**	**100%**
Mode	Secondary school	

Additional household members	**Number of Participants**	**Percentage**
0	172	22.90%
1	173	23.00%
2	158	21.00%
3	158	21.00%
4	61	8.10%
5	20	2.70%
6	7	0.90%
7	3	0.40%
Total	**752**	**100%**
Mean	1.82	

4.4 Research design and methodology

The hypotheses examine how the variables leverage, delayed payments and business profit influence life satisfaction. This is done with cross-sectional data, and a descriptive research design is considered appropriate to investigate these hypotheses. To examine the predictor variables' influence on life satisfaction, the most prominent variables in the literature review is used as control variables. Considering the data used and the need for certain statistical analyses to examine the hypotheses this is considered a quantitative study. The majority of similar studies of life satisfaction and happiness research use different types of regression analyses. As in this case, when the dependent variable is not binary, the two most commonly used regression analyses are OLS multiple linear regression analysis and the ordered probit/logit regression analysis (Alem & Köhlin, 2012, 2014; Becchetti & Conzo, 2013; C. J. Howell et al., 2006; Knight et al., 2009; Shams, 2014). More information about the choice of analysis is given below in the statistical analyses section. The hypotheses significance levels are set to a p-value ≤ 0.05.

4.5 Assessment of the life satisfaction measure

It is necessary to check if the satisfaction with life scale actually measures life satisfaction in the collected sample, and how well it measures the concept. Thus assessment of the scale's reliability, validity and sensitivity is to be conducted. This is done by examining the satisfaction with life scale in previous research, as well as doing reliability- and factor analyses. In the questionnaire, along with other topics, the five items of the satisfaction of life scale (explained in Section 3) where asked, the items were translated to Spanish. However, the SWLS items that usually ranges from 1 (strongly disagree) to 7 (strongly agree) where reduced to range from 1 (strongly disagree) to 5 (strongly agree). The reason for the range reduction from 7 to 5 was interpretation issues with the respondents who were able to understand 5-scale items more easily than 7-scale items. Biswas-Diener and Diener (2001) had a similar problem when measuring life satisfaction in Calcutta, India. They found that some of the respondents were not able to answer the 7-point scale and administered a 3-point scale for these individual, resulting in the additional 7-point answers being converted to a 3-point scale prior to analysis (Biswas-Diener & Diener, 2001).

4.5.1 Reliability, validity, and sensitivity

According to Zikmund et al. (2012) good measurements should pass the three criteria reliability, validity and sensitivity (p. 305).

Measurement reliability

A measurement is reliable if it has high consistency, i.e. yields relatively consistent result (Zikmund et al., 2012). A measure's reliability can be assessed through its internal consistency and its test-retest reliability. Internal consistency could be found through correlation analysis, by a method called split-half method, or by checking the coefficient alpha, also known as Cronbach's Alpha. The most widely used reliability test for multiple-item scales is the coefficient alpha (Zikmund et al., 2012). The alpha does not assess validity, but many researchers only use this test to assess the quality of a scale (Zikmund et al., 2012). An alpha score of 0.8 – 0.95 is considered to reflect very good reliability, 0.7 – 0.8 good reliability, 0.6 – 0.7 fair reliability, and 0.6> poor reliability (Zikmund et al., 2012). Diener et al. (1985) did three studies to validate the satisfaction with life scale as a measure of global life satisfaction. The first study did a test-retest with reliable results with a correlation coefficient of 0.82 and a coefficient alpha of 0.87 (Diener, Emmons, et al., 1985).

Measurement validity

Measurement validity can be explained as how accurately an instrument is measuring the concept it is suppose to measure (Zikmund et al., 2012). In other words, the satisfaction of life scale should be able to measure life satisfaction with relatively high accuracy. If it fails to do so it is not a valid measure of life satisfaction. Validity can be difficult to assess, and there are many types of validity. Six main types of validity are face validity, content validity, criterion validity, convergent validity, discriminant validity and construct validity (Zikmund et al., 2012). Face validity is how the measure is agreed upon among experts, of being a logically measurement of the intended concept (Zikmund et al., 2012). Content validity is that the measurement is located within a specific domain, e.g. that life satisfaction measures life satisfaction, and not additional concepts as enjoyment or positivity (Zikmund et al., 2012). Criterion validity is about how the measure works in practice, and can be concurrent or predictive (Zikmund et al., 2012). For example, the SWLS would have concurrent validity if it was able to measure the present life satisfaction, and the scale would have predictive validity if it e.g. could predict future life satisfaction. Convergent validity is related to reliability, and is about the measure being related to other similar measures (Zikmund et al.,

2012). Measures with high reliability also have high convergent validity, i.e. converge towards a common concept, and this can be tested through correlations (Zikmund et al., 2012). Discriminant validity is how the measure is supposed to uniquely measure a specific concept and not other concepts, and the measure should not correlate more than 0.75 with a measure designed to measure something else (Zikmund et al., 2012). Construct validity contains all the validities mentioned above, and is present if an instrument truly measures a specific concept (Zikmund et al., 2012).

In the aforementioned paper by Diener et al. (1985) a second study positively assessed convergent validity with a large amount of measures designed to measure different types of subjective-well being. In the third study described by Diener et al. (1985) criterion validity was assessed. Diener et al. (1985) conclude that SWLS is a valid measurement for life satisfaction, but also suggests that discriminant validity should be investigated further. Pavot & Diener (1993) found that the SWLS had good convergent validity with other measures, and showed discriminant validity when compared with measures of emotional well-being (Pavot & Diener, 1993).

Sensitivity

Sensitivity is the ability of an instrument to measure variability within the concept (Zikmund et al., 2012). A measure is more sensitive the more categories available on the scale (Zikmund et al., 2012). The SWLS originally consists of five items each scored from 1 to 7, which makes it more sensitive than e.g. scales with only one item, or items with fewer choices.

4.5.2 Criticism of the validity of the SWLS

The satisfaction with life scale was published in 1985. It has received validation and has been used in several studies. But its validity has also been criticized. In a discussion paper from 2012, the scale's construct validity is criticized. Findings showed that a single item question served to be a more valid measure of life satisfaction than the SWLS (van Beuningen, 2012). The question was "How satisfied are you with your life as a whole", with a rating from 1 – 10 where 1 represents "completely dissatisfied", 5 representing "neutral", and 10 representing "completely satisfied" (van Beuningen, 2012). Even though only one question reduces the sensitivity of a measure, it can be assumed to gain popularity as it becomes easier to analyze data. The OECD Better Life Index uses one question asking participants "to rate their general life satisfaction on a scale from 1 to 10" (OECD, 2014).

4.6 Statistical analyses

The statistical analyses are conducted in IBM SPSS 22. As mentioned when explaining the choice of methodology an appropriate type of analysis to examine variables' predicting effects with cross-sectional data is regression analyses. Most happiness studies use descriptive and correlational statistics, often including either multiple linear regression analysis or ordered probit regression analysis, because of the life satisfaction variable being ordinal. In psychological research ordinal scales are often viewed and treated as cardinal data in order to run e.g. OLS analyses, while economists tend to use ordered probit or logit analyses due to the ordered nature of the data (Alem & Köhlin, 2014). Through inquires with academic staff and professionals an OLS multiple linear regression analysis was chosen to examine potential predicting effects of leverage and repayment difficulties on life satisfaction, i.e. treating the dependent variable as scale data by assuming equidistance in the dependent variable. Becchetti & Conzo (2013) and Knight et al. (2009) used both OLS and probit analysis, and Howell et al. (2005) used hierarchical multiple regression analysis to examine life satisfaction associations.

To make any predicting value as easily interpreted as possible, a hierarchical multiple regression analysis will be conducted, i.e. a multiple regression analysis with the first block consists of the control variables, while the predictor variables are in the second block. This makes it easier to detect any additional explanatory effect the predictor variables have on life satisfaction when added to the control variables. The hierarchical regression is not a traditional hierarchical regression as A. Field (2005) refers to this as including variables with the highest assumed predictability first, in a step-wise manner, before lastly including the variables under exploration. Because the prediction values of our control variables are considered to be relatively uncorrelated, the forced entry method is used with one block consisting of the control variables and the second block consisting of the potential predictor variables. When the forced entry method, or merely the *enter method* is used, the order of the variables included does not matter (A. Field, 2005).

Prior to the multiple linear regression analysis, additional descriptive analyses are made in order to prepare and treat the data for analysis and checking assumptions, then correlational analyses will be conducted prior to the multiple regression analysis. Non-parametric tests are also conducted where deemed necessary to increase the former test's robustness due to possible limitations, and to get a balanced and complete view about the data.

4.6.1 Correlation analyses

Bivariate correlation is often used to check two variables' independent relationships. This can be done prior to the regression analysis in order to get an overview of potential influence of the independent variables. Values range from -1 to +1, where -1 represents perfect negative correlation, 1 represents prefect correlation, and 0 represent no correlation between the variables (A. Field, 2005). The most common way to check correlation between variables with parametric data is Pearson's correlation, often referred to as Pearson's r that measure the linear relationship between two variables (A. Field, 2005). The only requirement for Pearson's r to measure correlation as a linear relationship is that the variables are scale variables or dichotomous (A. Field, 2005). In our analyses it is assumed equidistance in the life satisfaction measure, i.e. that the variable can be treated as a scale variable. However, if statistical significance is to be established, the variables should be normally distributed, except when the variables are categorical consisting of only two categories, i.e. point-biserial correlations (A. Field, 2005). When non-normality incur, log- or square root transformations can sometimes increase normality by reducing positive skew, with square root transformation working better with larger values (A. Field, 2005). The assumptions are checked and results displayed in the results section below. Due to non-normality in some bivariate relationships, the non-parametric correlation measures Spearman's rho and Kendall's tau are conducted. Spearman's rho is the most popular one, but Kendall's tau is claimed to be more accurate as it does not inflate the statistical value as Spearman's rho can do (A. Field, 2005; Hinton et al., 2014) By violating assumptions in statistical analyses the results may be inaccurate or even flawed (A. Field, 2005). As a robustness check, the results from the different correlational analyses can be checked for any differences or deviations leading to inaccurate results.

4.6.2 Multiple linear regression analysis

According to Zikmund et al. (2012) a multiple regression analysis is "an analysis of association in which the effects of two or more independent variables on a single, interval-scaled dependent variable are investigated simultaneously" (p. 584). The goal of running a regression analysis is often to be able to generalize the result from the sample to the whole population (Zikmund et al., 2012). To be able to generalize with best possible certainty, several assumptions should be met (Hair, Black, Babin, Anderson, & Tatham, 1998). As with the bivariate correlations, if the assumptions are not met, the results may be underestimated, overestimated, flawed or misleading in some way, and generalizing the results would not be

possible. In order for the multiple linear regression analysis to yield the most correct results and to be able the generalize the results the following assumptions should be met according to A. Field (2005):

- Only continuous or dichotomous variables with the outcome variable being quantitative.
- Non-zero variance: There should be some variation between variables' values.
- No perfect multicollinearity i.e. not too high correlation between the independent variables.
- Independent variables should not be highly correlated with external variables.
- Homoscedasticity, i.e. equal variance in the residual terms, i.e. no heteroscedasticity.
- Independence in the error term or no autocorrelation can be check with Durbin-Watson test that should be about 2.
- Normal distribution in the error term.
- Independence, i.e. that the outcome value comes from different individuals.
- Linearity, meaning that observed values in the regression can be found about a straight line.

Ordinary least square (OLS) method of regression analysis is one of the most popular regression analyses. Multiple linear regression analysis is about trying to fit observations on a straight line in the best possible way, and OLS is a technique where the computed straight line will have the least amount of error when predicting Y by using X (Zikmund et al., 2012). If there is not a perfect relationship between the independent and dependent variable, it is impossible to create a straight line that connects all the observation (Zikmund et al., 2012). According to Zikmund et al. (2012) "the least squares method generates a straight line that minimizes the sum of squared deviation of the actual values from this predicted regression line. With the symbol e representing the deviations of the observations from the regression line, no other line can produce less error". According to Zikmund et al. (2012) the OLS criterion looks like this:

$$\sum_{i=1}^{n} e_i^2$$

Where: is minimum (1)

$e_i = Y_i - \hat{Y}_i$ (the residual)

Y_i = actual observed value of the dependent variable

$\hat{Y}_i$ = estimated value of the dependent variable

n = number of observations

i = number of the particular observation

A normal line can be represented by the following equation (Zikmund et al., 2012):

$$Y = b_0 + b_1X \quad (2)$$

Where:

b_0 = the intercept where the line meets the Y-axis

b_1 = the slope (the change in Y per change in X)

X = independent variable

While an OLS multiple regression analysis can be represented by the following equation (Zikmund et al., 2012):

$$Y_i = b_0 + b_1X_i + b_2X_i + b_3X_i + \ldots + b_nX_i + e_i \quad (3)$$

Where the same symbols as the straight-line equation are present, but also additional variables and an error term/residual, e_i.

The equation for our dependent and independent variables would look like this:

$$\text{Life Satisfaction}_i = b_o + b_1\text{Male}_i + b_2\text{Age}_i + b_3\text{Married}_i + b_4\text{Education}_i + b_5\text{FamilyMembers}_i + b_6\text{Equity}_i + b_7\text{Leverage}_i + b_8\text{DelayedPayments}_i + b_9\text{BusinessProfit}_i + e_i \quad (4)$$

The enter method in SPSS is used to create a hierarchical regression analysis to examine any additional variance in life satisfaction.

4.6.3 Additional analyses

For the sake of transparency and the best possible interpretation of the data and results, non-parametric correlation analyses are conducted, as previously mentioned. But in case of assumption violations the Mann-Whitney U test is to be conducted for a specific variable. This is a non-parametric version of the independent t-test and checks if there are any significant differences in life satisfaction when comparing independent samples e.g. male and females (Hinton et al., 2014). Also, additional multiple linear regression analyses and ordered probit analyses are to be conducted to increase completeness and robustness.

5. Data analyses and results

5.1 Assessing the reliability, validity, and sensitivity of the sample's SWLS

The SWLS general reliability, validity and sensitivity have been explained in the data and methodology section above. Here the SWLS's reliability, validity and sensitivity will be assessed regarding the sample under study, where this is appropriate and possible. Item 5's mean and standard deviation are quite different from the other items' score (Table 5-1). The standard deviation is higher, and the mean is lower. Similar results were found by Biswas-Diener and Diener (2001) and C. J. Howell et al. (2006), where the fifth item had a considerably lower mean score than the other items.

5-1 Mean scores and standard deviations for each life satisfaction item

	N	Min.	Max.	Mean	SD
Item 1	752	1	5	3.83	0.765
Item 2	752	1	5	3.81	0.792
Item 3	752	1	5	4.15	0.709
Item 4	752	1	5	4.05	0.768
Item 5	752	1	5	2.75	1.298

By checking the items' correlations with the total sum of the measure it is possible to check the convergent validity (Table 5-2) (Zikmund et al., 2012). When comparing the Ecuadorian sample's results with the results from a study by Diener, Emmons, et al. (1985) of American undergraduates in 1985 there are both differences and similarities (Table 5-3). The Ecuadorian sample's total item correlations are lower for item 1, 3, and 5, while similar for items 2 and 4. All of the correlations are statistically significant. It should be noted that the fifth items have lowest item-total correlations in both samples. According to A. Field (2005)

item-total correlations below 0.2 - 0.3 should count for exclusion of the item as it does not measure the intended concept well enough.

Table 5-2 The sample's item-total correlations

Item	Item-Total Correlation
1	0.57
2	0.69
3	0.69
4	0.68
5	0.47

Table 5-3 SWLS item-total correlations in study by Diener, Emmons, et al. (1985)

Item	Item-Total Correlation
1	0.75
2	0.69
3	0.75
4	0.67
5	0.57

The correlation between the items can also be checked, and by looking at the items' inter-correlations it is evident that there is something strange with the fifth item. The fifth item has very weak correlation with any of the other four items (Table 5-4), and is negatively correlated with three of them, and not any of its correlations are statistically significant. The first four items are all positively and significantly correlated with correlations ranging from 0.269 – 0.557. A more detailed with the exact significance levels is included in Appendix B.

Table 5-4 The item correlation matrix

	1	2	3	4	5
Item 1	-				
Item 2	**0.397****	-			
Item 3	**0.269****	**0.501****	-		
Item 4	**0.345****	**0.501****	**0.557****	-	
Item 5	-0.042	-0.038	0.041	-0.048	-

* $p \leq 0.05$
** $p \leq 0.01$
N = 752

To assess the samples' scale reliability a reliability analysis is done through the procedure explained in *SPSS Explained* (Hinton et al., 2014). The results (Table 5-5) show that the fifth item has a corrected item-total correlation of -0.031, and the first item has a corrected item-total correlation of 0.317. The remaining three items all have corrected item-total correlations ranging from 0. 461 – 0.498. According to Hinton et al. (2014) an item's corrected item-total correlation should ideally be above 0.3, while Leong and Austin (2005) consider a corrected item-total correlation above 0.4 as very good, 0.2-0.39 as good, and <0.19 as not well. The coefficient alpha is 0.513, which was previously explained as indicating poor reliability. The results (Table 5-6) also show that removal of the fifth item will increase the coefficient alpha to 0.749 which previously explained indicates good reliability. After doing an additional reliability analysis without the fifth item, the corrected item-total correlation for item 1 increases to 0.411, and the three remaining items' scores ranges from 0.567 – 0.604. The results also indicate that removing the first item will increase the coefficient alpha from 0.749 to 0.763, and the coefficient alpha cannot be improved further by removing additional items. More detailed tables are included in Appendix B.

Table 5-5 Corrected Item-Total Correlations

Item 1	0.317	0.411	
Item 2	0.465	0.604	0.567
Item 3	0.498	0.567	0.610
Item 4	0.461	0.604	0.608
Item 5	-0.031		

Table 5-6 Cronbach's Alpha

Cronbach's Alpha	N of Items
0.513	5
0.749	4
0.763	3

Because of the strange results regarding the fifth item, a principal component analysis (PCA) was conducted. Hinton et al. (2014) refers to principal component analysis as the most popular type of exploratory factor analysis (EFA), and this view is adopted and used in this paper. There are different views about the difference of PCA and EFA, and Hinton et al. (2014) refers to PCA as a type of EFA. This is something Suhr (2005) disagrees with, but it is not considered necessary to explain the differences between PCA and EFA in this thesis. It is

presumed that the questionnaire measures the concept life satisfaction, thus the most appropriate analysis to examine the items may have been a confirmatory factor analysis (CFA), but because (Hinton et al., 2014) do not explain the procedure of conducting a CFA and the lack of the SPSS add-on AMOS to conduct a CFA, the PCA would be the preferred analysis of choice.

PCA have a wide range of assumptions explained in more detail by Suhr (2005). As the PCA is conducted to explore the deviations of the fifth SWLS item and Hinton et al. (2014) does not mention the assumptions in detail, it is considered ok not to check them. The assumptions are considered met, e.g. that the measurement is assumed to be equidistant as it is ordinal in nature, but it is brought to attention that they have not actually been checked. The PCA was done through the procedure explained by Hinton et al. (2014). The fifth item loads on a different component, indicating that the item does not measure the same concept as the other four items (Table 5-7). The rotated PCA is included in the Appendix B and yields almost identical results. Both the component matrices indicates that item 5 does not belong in the scale, it does not measure the same concept as the other 4 items, and should be considered removed before analyzing life satisfaction.

Table 5-7 Unrotated Component Matrix

Component Matrix		
	Component	
	1	2
SWLS item 1	0.622	
SWLS item 2	0.803	
SWLS item 3	0.782	
SWLS item 4	0.810	
SWLS item 5		0.985

When assessing the scale's sensitivity, it is apparent that by reducing the items' rankings from the original 7-point items to 5-point items reduces the measure's sensitivity to some extent. This is justified as previously mentioned by the respondents' increased understanding of a 5-point item over a 7-point item.

5.1.1 Type of life satisfaction measure used

There are different ways the life satisfaction score could be calculated and used. In this paper the life satisfaction score is the mean score of items 1 to 4, excluding the fifth item because of its unreliable effect. The mean would be in the 1 – 5 range, while it would normally be in the 1 – 7 range. Alternatively, the aggregate or composite could be used, or even a component- or factor score. The mean score is chosen because it is easy to comprehend and has been used in previous studies by Cox (2012) and Biswas-Diener and Diener (2001). The mean score and the factor score had an almost perfect correlation of 0.998, thus it is deemed unproblematic to use the mean score. An additional observation is that the reliability analysis indicated that the coefficient alpha would slightly increase by also removing the first item, but a decision was made not to slightly increase reliability while possibly reducing validity. The first item is therefore not removed. The first item had a corrected item-total correlation above 0.4, it loaded on the same concept as the 3 other items, and the mean of the three remaining items has a weaker correlation than the initial mean score of the four first items.

5.2 Assumption diagnostics

Here the assumptions and data for correlation analysis and multiple linear regression analysis are examined.

5.2.1 Correlation analyses diagnostics

As mentioned in the methodology section, Pearson's correlation needs to meet specific assumptions in order to yield the most accurate results. The variables needs be either continuous or dichotomous, and normally distributed. It is assumed equidistance in the life satisfaction variable, and all the other variables are either continuous or dichotomous. The normality is usually checked either visually or with the Shapiro-Wilk normality test. The Shapiro-Wilk test does not indicate normal distribution in any of the variables, and the variables do not become significantly normal by log-transforming them. Visually several variables look fairly normal, most deviations from normality come from differences in kurtosis and skew. The life satisfaction variable is fairly normal, but leptokurtic and slightly negatively skewed. Age is fairly normal, and just slightly platykurtic. The family members variable is positively skewed, and log-transformations does not increase normality. Equity is positively skewed, and a log-transformation increases its visual normality substantially. Therefore, the variable logEquity will be used in the analyses. Business profit is also

positively skewed and increases its normality from log-transformation, but this results in missing cases due to negative- and zero-values, thus the log variable is not used. Due to different degree of non-normality of the variables, the commonly used Pearson's r is supplemented with Spearman's rho and Kendall's tau. This is done to identify potential deviation due to non-normality and linearity issues. Normality test outputs, scatterplots, and histograms are included in Appendix C.

5.2.2 Multiple linear regression analysis diagnostics

Here the assumptions for multiple linear regression analysis are checked. All the variables are either continuous or dichotomous. Multivariate normality was checked through the normal p-p plot of the regression standardized residuals, a histogram of the standardized residual plots, and the scatter plot of residual and predicted values. There are not any major problems with multivariate normality, the p-p plot does not show perfect normality, but the histogram shows multivariate normality, though being slightly leptokurtic. However, there are some outliers, four of them are outside three standard deviations of the mean, as well as two outliers that visually stand out. When checking for outliers outside two standard deviations of the mean there are 30 outliers. 10 cases have a Mahalanobis distance above 48, with two above 100, none of these cases are the ones identified outside 3 standard deviations of the mean in the case diagnostics. However, there are no cases with Cook's distance above one, in fact the maximum distance is 0.039, which indicates that there are no outliers that substantially influence the model. By removing the outliers there are small changes in the results, but as the outliers do not to have any unnaturally extreme values or influencing the model to a large degree, thus they are kept in the analysis.

There are some issues regarding linearity for some of the independent relationships. The linear relationship between the independent variables and life satisfaction is rather low (Table 5-15). By examining scatterplots it is very difficult to identify any non-linear relationships, but by conducting a curve estimation procedure in SPSS it becomes evident that the variables age, leverage, and business profit have slightly curvilinear relationships with life satisfaction. Age and leverage best fit quadratic models, while business profit could fit a cubic model. To be able to get the best possible results from the regression analysis, the business profit variable was left as is, while adjustments were made to age and leverage. To cope with the curvilinear relationship of age and leverage two variables were added, where age and leverage were squared. This caused issues of multicollinearity between the related variables,

thus the variables were mean-centered to avoid this. The new variables representing age and leverage in the analyses are mAge, $mAge^2$, mLeverage, and $mLeverage^2$. Adding squared and cubed versions of business profit does not fit well as one participant has negative business profit. Excluding this participant did not change any results of the analysis, and produced high VIF-values even when mean-centering was used.

There are no issues with multicollinearity between any of the independent variables. After the mean-centering of the squared variables the tolerance levels and VIF-values indicated no multicollinearity. The modified variables of age and leverage had VIF-values between 3-3.5, while all other variables had VIF-values below 1.6. Independence of the error terms is visually ok when looking at the scatter plot of residual and predicted values. The Durbin-Watson test was conducted to control for autocorrelation with a result of 2.033, which is considered to confirm independence in the error terms, at least for time-series or spatial data. There are not any major problems with heteroscedasticity. Levene's test was conducted for all the dummy variables, and only the predictor variable delayed payments were statistically significant indicating homoscedasticity. The multivariate histogram, scatterplot, p-p plot of the regression standardized residual, and a range of different assumption tests and diagnostics are included in appendices C and D.

5.3 Descriptive statistics

Here descriptive information about the variables is presented. Additional histograms and scatterplots are included in Appendix C.

Life satisfaction – the dependent variable

Life satisfaction consists of the mean score of SWLS items 1 – 4. The participants have scores ranging from 1 – 5, with a mean of 3.9608 (Table 5-8). The mode score is 4, with 32.6% of the participants having 4 as their mean score.

Table 5-8 Life satisfaction descriptive information

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Dev.	Mode
Life satisfaction	752	1	5	3.9608	0.57346	4

The exploratory variables

Here follows descriptive information about leverage, delayed payments, and business profit.

Leverage

In the analyses the variable is represented as the mean-centered versions of leverage and leverage^2. This is done to avoid multicollinearity and to capture the potential curvilinear relationship between leverage and life satisfaction. In the analyses these variables are named mLeverage and mLeverage^2.

Table 5-9 Leverage descriptive information

Leverage Ratio	Number of Participants	Percentage
0.00	117	15.60%
0.01 - 0.	374	49.70%
0.18 - 1.90	261	34.70%
Total	**752**	**100%**
Min. - Max.	0.00 - 1.00	
Mean	0.13	
Median	0.06	
Standard deviation	0.17	

Delayed payments

Delayed payments are a dichotomous variable consisting of people with delayed payments and people with delayed payments.

Table 5-10 Delayed payments descriptive information

Delayed payments	Number of Participants	Percentage
No delayed payments	497	66.10%
Delayed payments	255	33.90%
Total	**752**	**100%**

Business profit

Business profit would better fit a cubic model, but is left as is in the model because potential alternations are problematic due to multicollinearity and a negative value. The variable is kept in the analyses to check for a potential relationship with life satisfaction. Tests showed that the result of the regression analysis does not change significantly when the variable is left out of the analysis.

Table 5-11 Business profit descriptive information

Business profit (USD)	Number of Participants	Percentage
(160) - 537	183	24.3%
540 - 690	195	25.9%
699 - 940	186	24.7%
945 - 4 300	188	25.0%
Total	**752**	**100%**
Min. - Max	(160) - 4 300	
Mean	818	
Median	690	
Standard deviation	504	

Control variables

A fair amount of descriptive information about the control variables gender, age, married, education, family members, and equity are provided in the data and methodology section (Table 4-1). However, some of the control variables are constructed differently, and additional descriptive statistics are provided below.

Gender

Gender is a dummy variable called Male, consisting of (1) males and (0) females. Males and females constitute 41% and 59% of the sample respectively (Table 4-1).

Age

Age is a variable measured as the participants' age in years. The mean age is 42 years (Table 4-1). However, to capture a potential curvilinear relationship between age and life satisfaction, age^2 is added in the analyses. This is done in previous research about life satisfaction by C. J. Howell et al. (2006). The variables are mean-centered to avoid multicollinearity. In the analysis the two variables are named mAge and $mAge^2$.

Marital status

Marital status is represented by a dummy variable called Married, consisting of (1) married and (0) unmarried (Table 5-12). The unmarried participants are single, divorced, widow/ed, or living in a domestic partnership (Table 4-1). 33.5% of the participants are married.

Table 5-12 Married descriptive information

Married	Number of Participants	Approx. %
Married	252	33.50%
Not married	500	66.50%
Total	**752**	**100%**

Education

Education is a dummy variable where (1) consists of participants with secondary school, technical school and university, and (0) participants with primary school or without any education at all (Table 5-13).

Table 5-13 Education descriptive information

Education	Number of Participants	Approx. %
Lower than secondary education	271	36%
Secondary education or higher	481	64%
Total	**752**	**100%**

Family members

The variable measures the number of additional family members excluding the participant her-/himself. The mean amount of additional family members or family burden is 1.82 (Table 4-1).

Equity

Equity is a variable measuring the participants' value of equity (Table 5-14). However, to increase normality the equity variable is log-transformed. Thus the name of the equity in the analyses is logEquity.

Table 5-14 Descriptive information about equity

Value of equity (USD)	Number of Participants	Percentage
68 - 6 855	188	25%
6 891 - 11 532	188	25%
11 535 - 17 698	188	25%
17 700 - 129 594	188	25%
Total	**752**	**100%**
Min. - Max.	68 - 129 594	
Mean	14 019	
Median	11 534	
Standard deviation	12 199	

5.4 Results – Correlation analyses

When measuring the Pearson's correlations, there are only three variables with statistically significant relationships with life satisfaction: $mAge^2$, Education, and mLeverage. However since previous research often mention these variables as significant correlational or zero-correlational, they are left in the regression analysis to check if they account for any variance of life satisfaction or if they affect each other in any way. In addition the non-parametric correlations Spearman's rho and Kendall's tau is included (Table 5-16). Both the magnitude of the correlations and the significance levels are very similar for Pearson's correlation and the non-parametric correlations. The one exception is the business profit variable, which was identified as having a curvilinear relationship with life satisfaction and best fitting to a cubic model. Business profit has a statistically significant relationship with life satisfaction when measured with the non-parametric correlation. This can be viewed as a confirmation of the curve estimation's indication of the variable's non-linearity. It can be discussed if the variable should be included in the regression analysis, but for now it is left in the model to check any effects it has on life satisfaction combined with the other control variables. For completeness sake an analysis without business profit was conducted without any specific differences in the results, and the results are included in Appendix D.

Table 15-15 Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12
Life satisfaction (1)	-											
Male (2)	-0.006	-										
mAge (3)	0.049	0.002	-									
mAge² (4)	**0.078***	**-0.083***	**0.117****	-								
Married (5)	-0.019	**0.148****	**0.072***	-0.052	-							
Education (6)	**-0.080***	0.062	**-0.129****	0.031	**-0.095****	-						
Family members (7)	0.023	**0.137****	**-0.296****	**-0.347****	**0.250****	-0.046	-					
logEquity (8)	0.012	**0.080***	**0.288****	-0.039	0.061	-0.011	0.037	-				
mLeverage (9)	**0.098****	-0.038	0.003	-0.071	-0.026	-0.030	0.014	**-0.121****	-			
mLeverage² (10)	0.021	0.001	0.011	**-0.083***	0.001	0.003	0.033	**-0.138****	**0.811****	-		
Delayed Payments (11)	-0.049	0.009	**-0.086***	0.070	**-0.086***	**0.075***	**-0.097****	**-0.133****	-0.013	-0.014	-	
Business profit (12)	0.052	**0.113***	0.057	**-0.126****	**0.126****	-0.015	**0.143****	**0.421****	**0.286****	**0.126****	-0.051	-

* $p \leq 0.05$
** $p \leq 0.01$
N = 752

Table 5-16 Life satisfaction's correlation differences

	Pearson's r	Spearman's rho	Kendall's tau-b
Male	-0.006	0.002	0.002
mAge	0.049	0.058	0.043
mAge²	**0.078****	**.107****	**.079****
Married	-0.019	-0.027	-0.024
Level of Education	**-.080***	**-.092***	**-.081***
Household members	0.023	0.006	0.005
logEquity	0.012	0.003	0.003
mLeverage	**.098****	**.129****	**.094****
mLeverage²	0.021	0.047	0.034
Delayed payments	-0.049	-0.025	-0.022
Business profit	0.052	**.083***	**.059***

* $p \leq 0.05$
** $p \leq 0.01$
N = 752

5.5 Results – Multiple linear regression analysis

Due to mean-centering and the addition of two squared variables, the final regression model looks like this:

$$\text{Life Satisfaction}_i = b_o + b_1\text{Male}_i + b_2\text{mAge}_i + b_3\text{mAge}^2{}_i + b_4\text{Married}_i + b_5\text{Education}_i + b_6\text{FamilyMembers}_i + b_7\text{logEquity}_i + b_8\text{mLeverage}_i + b_9\text{mLeverage}^2{}_i + b_{10}\text{DelayedPayments}_i + b_{11}\text{BusinessProfit}_i + e_i \quad (5)$$

The first block consisting of the control variables has a R^2 of only 0.019 (Table 5-17). The control variables used are as previously mentioned often either statistically significant correlates or non-correlates in happiness research. When the predictor variables leverage and repayment problems are added in the 2nd block, the model's explanatory power increases, with a R^2 change of 0.021. The R^2 change is relatively small with an increase of 2.1%, increasing the overall explanatory power of the model to 4%. In other words, other things explain 96% of the variance in life satisfaction. Having a model explaining merely 4% of the variance in life satisfaction can be viewed as relatively low. Even though the inclusions of the predicting variables do not result in a large R^2, it should be given attention that it increases the explanatory power of the model. But the main goal is to check the predictor variables' influence on life satisfaction and not to make the best possible model for life satisfaction. This could be done better with a more explorative approach e.g. by the use of a step-wise regression used by e.g. Vinson & Ericson (2012). If looking at the adjusted R^2 there is a relatively large gap between the R^2 and the adjusted R^2. The reason for the adjusted R^2 being relatively much lower than the R^2 is because of insignificance of several of the control variables. If these are removed the gap is reduced. Regression results without insignificant variables are included in Appendix D.

Table 5-17 Model Summary

Model Summary						
Model	**R**	**R^2**	**Adj. R^2**	**Std. Err. Est.**	**R^2 Change**	**Sig. F Change**
Block 1	0.139	0.019	0.010	0.571	0.019	0.042
Block 2 added	0.201	0.040	0.026	0.566	0.021	0.003

The model is a statistically significant measure for life satisfaction (Table 5-18). The p-value is 0.001 i.e. below 0.05 and indicates that the model is statistically significant. This means that the model is better in predicting life satisfaction than a random model would do by chance.

Table 5-18 ANOVA tables

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Block 1	Regression	4.773	7	0.682	2.095	**0.042**
	Residual	242.194	744	0.326		
	Total	246.968	751			
Block 2 added	Regression	9.969	11	0.906	2.830	**0.001**
	Residual	236.999	740	0.320		
	Total	246.968	751			

N=752

When evaluating the variables ability to predict life satisfaction, the only variables in the 1st block that are statistically significant contributors in measuring life satisfaction are education and $mAge^2$, though their effects are very small (Table 5-19). By the unstandardized and standardized coefficient betas show that level of education have a negative relationship with life satisfaction. When looking at the variables when the 2nd block is added, education loses its statistical significance on the 5% level, and the variables $mAge^2$, mLeverage, and $mLeverage^2$ show significance within the 5% and 1% levels. Even though the variables are statistically significant, their beta values are very small. The variable mLeverage indicates a positive influence on life satisfaction, while mLeverage2 indicates negative influence on life satisfaction. This indicates that leverage influences life satisfaction in a concave manner, and after reaching a certain level, increasing leverage influences life satisfaction negatively.

Table 5-19 Coefficients

Model		Unstd. Coefficients		Std. Coefficients	T	Sig.
		B	Std. Error	Beta		
Block 1	**(Constant)**	**3.939**	**0.256**		**15.401**	**0**
	Male	0.004	0.043	0.003	0.087	0.93
	mAge	0.003	0.002	0.055	1.354	0.176
	mAge^2	**0**	**0**	**0.099**	**2.563**	**0.011**
	Married	-0.056	0.047	-0.046	-1.196	0.232
	Level of education	**-0.092**	**0.044**	**-0.077**	**-2.085**	**0.037**
	Family members	0.032	0.017	0.081	1.91	0.057
	logEquity	-0.001	0.027	-0.001	-0.035	0.972
Block 2	**(Constant)**	**3.985**	**0.278**		**14.327**	**0**
	Male	0.014	0.043	0.012	0.317	0.751
	mAge	0.003	0.002	0.053	1.29	0.198
	mAge^2	**0**	**0**	**0.106**	**2.736**	**0.006**
	Married	-0.052	0.047	-0.043	-1.128	0.26
	Level of education	-0.08	0.044	-0.067	-1.831	0.068
	Family members	0.031	0.017	0.078	1.843	0.066
	logEquity	-0.003	0.031	-0.004	-0.1	0.92
	mLeverage	**0.776**	**0.226**	**0.229**	**3.429**	**0.001**
	mLeverage^2	**-1.123**	**0.441**	**-0.161**	**-2.549**	**0.011**
	Delayed payments	-0.051	0.045	-0.042	-1.151	0.25
	Business profit	9.34E-06	0	0.008	0.184	0.854

N = 752

5.6 Additional analyses

In the regression analysis, the only dichotomous variable that did not pass the Levene's test for homoscedasticity was delayed payments (see Appendix C). The variable did not show any statistical significant relationship with life satisfaction in the multiple regression analysis nor any of the three correlation analyses. To examine this further a t-test and a Mann-Withney U test was conducted. The Mann-Withney U test is conducted in addition to the t-test to check for any differences in the results. This is done because the delayed payments variable does not pass the homoscedasticity test which is one of the assumptions for the t-test, and that it is a matter of judgment if the t-test should be done or a non-parametric Mann-Withney U test (Hinton et al., 2014). Participants without delayed payments have a mean life satisfaction score slightly above the participants with delayed payments. But the t-test does not indicate any significant difference between the two groups. Neither does the Mann-Withney U test which indicates no significant differences in life satisfaction distribution among the independent samples. Results of the t-test and the Mann-Withney U test are included in Appendix D.

For the sake of transparency several multiple linear regression analyses are conducted: One multiple linear regression analysis without modifying any variables; an analysis without Business profit; and an analysis without any insignificant control variables were conducted. In addition, two ordered probit analyses were conducted; one with the original variables, and another with the modified variables. The results did not indicate any conspicuous differences regarding the exploratory variables. The results of the additional analyses are included in Appendix D.

5.6.1 Looking further into the relationship between leverage and life satisfaction

As previously mentioned, the curve estimation tool in SPSS compares different lines to find the best fitting model. The relationship between leverage and life satisfaction was identified to best fit a quadratic curve. When doing a scatterplot graph of the relationship (Fig. 5-1), and automatically fit the best quadratic line, SPSS identifies the following equation: $y = 3.87 + 1.11x - 1.2x^2$. When rearranging the equation to a more traditional function form it will look as follows: $f(x) = -1.2x^2 + 1.11x + 3.87$, where $a = -1.2$, $b = 1.11$, and $c = 3.87$.

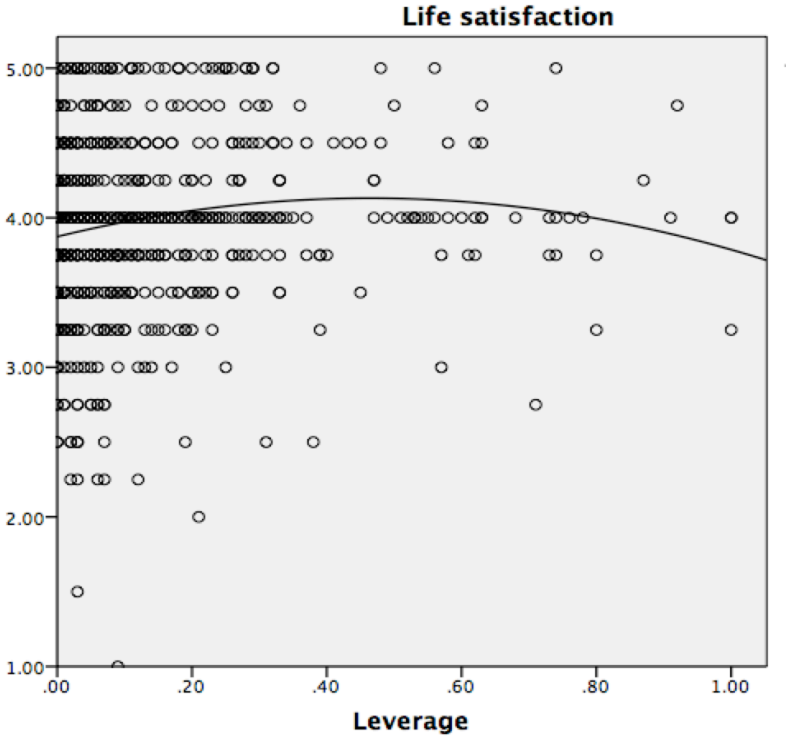

Figure 5-1 Quadratic curve estimated by SPSS

To find the vertex i.e. the point where increasing leverage negatively affects life satisfaction, we have to do some calculations.

1. Finding the vertex x-value. To do this the following equation needs to be solved:

$$x = -\frac{b}{2a}$$

$$x = -\frac{1.11}{2(-1.2)} = 0.4625$$

2. Finding the vertex y-value. To do this the x-value is inserted into the function:

$$f(x) = -1.2x^2 + 1.11x + 3.87$$

$$f(0.4625) = -1.2(0.4625)2 + 1.11(0.4625) + 3.87 = 4.1266875$$

These calculations show that the vertex is point (0.4625, 4.1266875). This means that by fitting the relationship between leverage and life satisfaction into a quadratic model, leverage ratios above 0.4625 negatively influence life satisfaction, while leverage ratios from 0 up to 0.4625 positively influence life satisfaction. However, it must be mentioned that the curve estimation tool identifies the isolated relationship between leverage and life satisfaction in this sample to only have a $r^2 = 0.02$, i.e. that leverage excluded any controls accounts for only 2% of the explanation of the variance in life satisfaction.

5.7 Testing the hypotheses

Hypothesis 1: Micro firm leverage is positively associated with life satisfaction

Due to the identification of a slightly curvilinear relationship between leverage and life satisfaction, an additional variable with the leverage squared was added. To avoid multicollinearity both leverage variables where mean-centered. Due to the curvilinear relationship and the modifications made, the results were slightly more difficult to interpret than normal. Based on the results of the multiple linear regression analysis it is found that leverage has a positive influence on life satisfaction, but the squared leverage variable identifies a negative influence on life satisfaction. The results capture a concave relationship

between leverage and life satisfaction, which indicates that leverage influences life satisfaction positively, but as leverage passes a certain point it has a negative influence on life satisfaction. This should be taken into consideration when interpreting the effect leverage has on life satisfaction. Through scatterplots between the isolated relationship between leverage and life satisfaction this point is identified at a leverage ratio of approximately 0.46 and a life satisfaction score of 4.13. To make a conclusion and test the hypothesis the results of the multiple regression analysis show that both mLeverage and $mLeverage^2$ are statistically significant. Looking at the standardized beta values shows that mLeverage has a larger influence on life satisfaction than $mLeverage^2$, indicating that leverage has a positive net influence on life satisfaction. The correlational analyses serve as an additional contributor to this conclusion where all of the three analyses indicated a positive relationship between leverage and life satisfaction. Thus the null-hypothesis can be rejected.

Conclusion: Micro firm leverage is positively associated with life satisfaction. However, too much leverage is negatively associated with life satisfaction, thus indicating the existence of a curvilinear relationship. However, the effects are small.

Hypothesis 2: Having delayed payments is negatively associated with life satisfaction
Based on the results of the multiple linear regression analysis, having delayed payments or not does not influence life satisfaction. This is supported by the t-test, the Mann-Withney U test, and correlation analyses. Even though participants without delayed payment have a life satisfaction mean score slightly above participants with delayed payments, the difference is not statistically significant. Thus the null-hypothesis is not rejected.

Conclusion: Having delayed payments is not negatively associated with life satisfaction.

Hypothesis 3: Business profit is positively associated with life satisfaction
Business profit was used as an income variable, and income has shown to be positively correlated with life satisfaction and happiness in previous research. In the Pearson's correlation analysis and in the multiple linear regression analysis, there was no statistically significant relationship between business profit and life satisfaction. One possible explanation is that there is a curvilinear relationship between business profit and life satisfaction. As previously mentioned, curve estimation indicated a cubic model as the best fit to explain business profit and life satisfaction. Another issue is the normality, and that the normality

could not be increased by log-transformation because of negative- and zero-values. Therefore it is not surprising that the non-parametric correlation analyses both show a statistically significant positive relationship between business profit and life satisfaction, though the correlation is very low. Even though it appears to be a significant, but very weak relationship between business profit and life satisfaction measured by non-parametric correlations, the multiple linear regression model found no significant influence of business profit on life satisfaction, thus the null-hypothesis is not rejected.

Conclusion: Business profit is not positively associated with life satisfaction. However, non-parametric correlations show small but significant correlations.

6. Discussion, conclusion, limitations, and suggestions for further research

6.1 Discussion

Theory states that personality most possibly accounts for a major part of happiness. Considering the low explanatory power of the multiple linear regression analysis had on life satisfaction, it is reasonable to assume that what makes a person satisfied with his/her life is a highly individual matter. Thus the thought of altering policies and rules with the main purpose of making people happier is not very realistic.

Several statistical analyses including the multiple linear regression analysis found a positive net relationship between leverage and life satisfaction, thus the null hypothesis was rejected and the alternative hypothesis was confirmed. But to get the most realistic picture about leverage and life satisfaction, the curvilinear relationship needs to be taken into account. An interesting point is that leverage does not only increase life satisfaction, but also has a negative relationship with life satisfaction when reaching a certain point. The conclusion behind the rejection of the null hypothesis was that the net effect of leverage on life satisfaction was positive. In the results section a point where identified where increasing leverage stopped having an positive influence on life satisfaction and began having a negative influence. The point for this sample was identified as a leverage ratio of approximately 0.46 and a life satisfaction score of approximately 4.13.

Even though people without delayed payments had a slightly higher life satisfaction score on average, having delayed payments showed no statistically significant relationship with life satisfaction. The variable was tested through multiple linear regression analysis, correlation analyses, t-test, and Mann-Whitney U test, thus the conclusion of delayed payments having no effect on life satisfaction is quite robust. It was fairly surprising that having problems paying loan installments on time did not have a negative effect on life satisfaction.

The business profit variable was the most complex and difficult to interpret when considering its effect on life satisfaction. Even though business profit is correlated with life satisfaction when using non-parametric correlation analyses, the multiple linear regression analysis could not find any effect when controlling for other common life satisfaction correlates. The question is if the result of the multiple linear regression analysis is misleading because of its curvilinear relationship with life satisfaction. One point to consider is that the curvature is estimated to be very small. The results from the multiple linear regression analysis do not differ when compared to an ordered probit analysis. As previously mentioned, the results do not differ if removing the negative value and transforming the variable. A cubic model is also considered inferior as it has multicollinearity issues, even after mean-centering the variables. Even though the parametric analyses did not indicate a significant relationship between business profit and life satisfaction, there is a significantly positive relationship between business profit and life satisfaction when using non-parametric correlation analyses, but the correlation is very weak. A reason why business profit did not have stronger correlation with life satisfaction could be because the participants are not poor enough, as previous research have found that wealth contributes to subjective well-being if a person is not able to meet his or her basic needs (Diener et al., 1999).

An initial idea was that MFIs and policymakers could use these findings to adjust their loan policies so that their microfinance clients would increase their chances of attaining a better life. Knowing that low or moderate leverage are positively related with life satisfaction and high levels are negatively related to life satisfaction, philanthropic MFIs, rating agencies, and policymakers could use this information. It could be argued that due to the relatively small effects, the issue can be considered negligible. But on the other hand, being able to increase someone's life satisfaction a little is better than not changing it at all, and MFIs could take measures to keep their clients' leverage ratios below a level of approximately 0.46.

6.2 Conclusions

The aim of this paper was to close a research gap by examining the under-researched relationship between potential financial determinants and life satisfaction. Theory and findings show that domains and financial determinants have a very small effect on a person's satisfaction with life. This study found that leverage has a concave relationship with life satisfaction for micro entrepreneurs in Ecuador. Several statistical analysis were conducted with the main analysis being a hierarchical multiple linear regression analysis. The results showed that low to moderate leverage slightly increases life satisfaction, while high leverage slightly decreases life satisfaction, but the effects are very small. Having delayed payments does not affect a person's life satisfaction. If business profit affects life satisfaction or not, is difficult to answer and the results differ depending on the type of analysis. The results indicate that some financial domains have small but significant effects on life satisfaction. Even by including many control variables previously found to be correlating with life satisfaction or subjective well-being, the total explanatory power of the model is small (r^2 = 0.04) indicating that that personal finances and domains does not contribute much in explaining life satisfaction.

6.3 Limitations

First of all it is difficult to identify the causation aspect of the relationship between the variables and life satisfaction. It is not known with certainty if low and moderate leverage levels increase life satisfaction, or if people with higher life satisfaction tend to undertake low and moderate leverage levels. Even though the conclusions made through hypothesis testing can be viewed as fairly robust, some of the conclusions have certain limitations due to assumption violations. The most solid result is believed to be the slightly surprising finding that delayed payments does not have any relationship with life satisfaction. But there are some limitations concerning the findings about leverage and business profit. Leverage was not normally distributed with the majority having low or moderate leverage ratios. On the other hand, leverage showed similar results for both parametric and non-parametric correlation analyses, as well as for the multiple regression analysis and an ordered probit analysis. The conclusion of business profit not being related to life satisfaction remains the most uncertain conclusion. As previously explained, the relationship between business profit and life satisfaction is identified as slightly curved, fitting a cubic model better than a linear model. A significant and weak relationship was found between business profit and life

satisfaction when using Spearman's rho and Kendall's tau b, while no significant relationship was found using Pearson's r, multiple linear regression or ordered probit regression. To further validate the results a robust analysis could have been conducted. However, robust analyses mostly capture misleading results created by outliers. In the regression diagnostics, outliers were removed without having any major effect on the results of the multiple linear regression analyses.

Other limitations are concerning the sample's ability to generalize results to the whole informal economy of Ecuador. The participants are only residing in 6 of Ecuador's 24 provinces. All the participants are clients of Banco D-MIRO, thus a question arises if the result would differ significantly if testing for participants of other MFIs charging fair interest rates, or if testing clients of MFIs without fair interest rates. Another issue is that the participants may be biased and answered more positively than they actually felt, because of the fact that the interviewer informs the participants that they are calling from Banco D-MIRO. The average life satisfaction score is 3.96 out of 5, i.e. a score of 7.92 if shallowly converted to a 10-point scale. In comparison, the most satisfied people among the OECD countries come from Switzerland, Denmark and Iceland and have a life satisfaction score of 7.5 out of 10. The average among the OECD countries was 6.6. If the simple conclusion was drawn that life satisfaction measures were equal, the micro entrepreneurs in Ecuador are more satisfied with their lives than people in the most satisfied OECD countries. Even though this is an interesting observation, the measures are composed differently, as explained in Section 4.

6.4 Suggestions for further research

It would be interesting to look further into the concave relationship between leverage and life satisfaction. Future research could investigate this relationship in another setting, perhaps in another country or with clients from different MFIs. It would also be interesting to see how the relationship between leverage and life satisfaction is when comparing MFIs charging a fair interest rate with MFIs charging unfair interest rates. Other research could examine the relationship in more detail through a more qualitative approach, or they could look into the relationship between leverage and happiness to examine any differences between happiness and the cognitive measure of life satisfaction. It would also be interesting to check how delayed payments, and business profit relate to both happiness and the life satisfaction component in other settings, cultures and countries. Research should also be made to reach a

consensus about how to best possibly measure life satisfaction. Findings in this paper show that the 5-item Satisfaction With Life Scale (SWLS) by Diener, Emmons, et al. (1985) does not hold an appropriate level of reliability, but a 4- and 3-item indicate much better reliability. Criticism of the scale has been made by van Beuningen (2012), and as an example the OECD Better Life Index uses a 10-point, 1-item question to assess life satisfaction.

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APPENDICES

Appendix A-1

The Satisfaction With Life Scale part of the Spanish version of the questionnaire:

Encuesta para los clientes

version 1.0

Buenos días, Sr/Sra (NOMBRE DEL CLIENTE),

Soy (NOMBRE ENTREVISTADOR) y le estoy llamando de Banco D-MIRO. Estamos realizando un estudio de nuestros clientes. Su colaboración es muy importante para nosotros y nos ayudará a mejorar el servicio a nuestros clientes en el futuro. Me gustaría hacerle algunas preguntas, ¿contamos con su colaboración?

T. Satisfacción de la vida

Indique su grado de acuerdo con las siguientes afirmaciones sobre la Satisfacción de la vida 1 (muy en desacuerdo) a 5 (totalmente de acuerdo).

	1	2	3	4	5
T1.- En muchos aspectos mi vida está cerca de mi ideal	☐	☐	☐	☐	☐
T2.- Las condiciones de mi vida son excelentes	☐	☐	☐	☐	☐
T3.- Estoy satisfecho con mi vida	☐	☐	☐	☐	☐
T4.- Hasta ahora he conseguido las cosas importantes que quiero en la vida	☐	☐	☐	☐	☐
T5.- Si pudiera vivir mi vida de nuevo, no cambiaría casi nada	☐	☐	☐	☐	☐

Appendix A-2

The Satisfaction With Life Scale part of the English version of the questionnaire:

Questionnaire to customers who are clients at D-MIRO

version 1.0

Introduction of the survey:

Hello, I am (INTERVIEWER NAME) calling from the Banco D-MIRO. This is not a call to offer any product or service. We are conducting a study of clients. We are collaborating with the University of Agder in Norway in this project, and all information is kept confidential and will only be used for scientific purposes. The call is important to us and will help us improve and serve our customers better in the future. I have some questions, and I hope that you are willing to assist us.

T. Satisfaction in life

Indicate your level of agreement with the following statements about the Life Satisfaction 1 (strongly disagree) to 5 (strongly agree).

	1	2	3	4	5
T1.- In many ways my life is close to my ideal	☐	☐	☐	☐	☐
T2.- The conditions of my life are excellent	☐	☐	☐	☐	☐
T3.- I am satisfied with my life	☐	☐	☐	☐	☐
T4.- So far I have gotten the important things I want in life	☐	☐	☐	☐	☐
T5.- If I could live my life over, I would change almost nothing	☐	☐	☐	☐	☐

Appendix B

Item-total correlation output from SPSS

		SWLS item 1	SWLS item 2	SWLS item 3	SWLS item 4	SWLS item 5
SWLS item 1	Pearson Correlation	1	.397**	.269**	.345**	-0.042
	Sig. (2-tailed)		0	0	0	0.245
	N	752	752	752	752	752
SWLS item 2	Pearson Correlation	.397**	1	.501**	.501**	-0.038
	Sig. (2-tailed)	0		0	0	0.292
	N	752	752	752	752	752
SWLS item 3	Pearson Correlation	.269**	.501**	1	.557**	0.041
	Sig. (2-tailed)	0	0		0	0.261
	N	752	752	752	752	752
SWLS item 4	Pearson Correlation	.345**	.501**	.557**	1	-0.048
	Sig. (2-tailed)	0	0	0		0.191
	N	752	752	752	752	752
SWLS item 5	Pearson Correlation	-0.042	-0.038	0.041	-0.048	1
	Sig. (2-tailed)	0.245	0.292	0.261	0.191	
	N	752	752	752	752	752

** Correlation is significant at the 0.01 level (2-tailed).

Reliability analysis 1: with all five SWLS-items.

5 item reliability statistics output from SPSS

Cronbach's Alpha	N of Items

.513	5

5 item-total statistics output from SPSS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SWLS item 1	14.76	5.086	.317	.186	.441
SWLS item 2	14.78	4.563	.465	.368	.351
SWLS item 3	14.44	4.724	.498	.381	.349
SWLS item 4	14.54	4.648	.461	.395	.358
SWLS item 5	15.84	5.262	-.031	.011	.749

4 item reliability statistics output from SPSS

Cronbach's Alpha	N of Items
.749	4

4 item-total statistics output from SPSS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SWLS item 1	12.02	3.499	.411	.186	.763
SWLS item 2	12.03	2.982	.604	.368	.656
SWLS item 3	11.69	3.297	.567	.376	.680
SWLS item 4	11.79	3.051	.604	.392	.656

3 item reliability statistics output from SPSS

Cronbach's Alpha	N of Items
.763	3

3 item-total statistics output from SPSS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SWLS item 2	8.20	1.700	.567	.322	.714
SWLS item 3	7.87	1.826	.610	.376	.667
SWLS item 4	7.96	1.694	.608	.376	.665

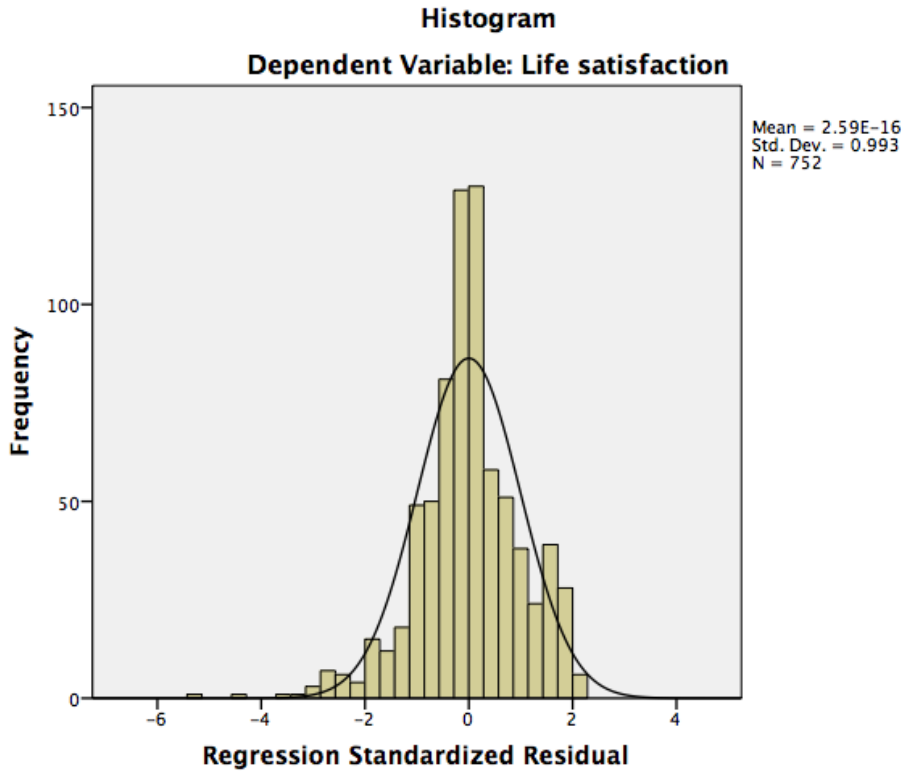
PCA rotated component matrix output from SPSS

	Component	
	1	2
SWLS item 1	.619	
SWLS item 2	.803	
SWLS item 3	.786	
SWLS item 4	.810	
SWLS item 5		.986

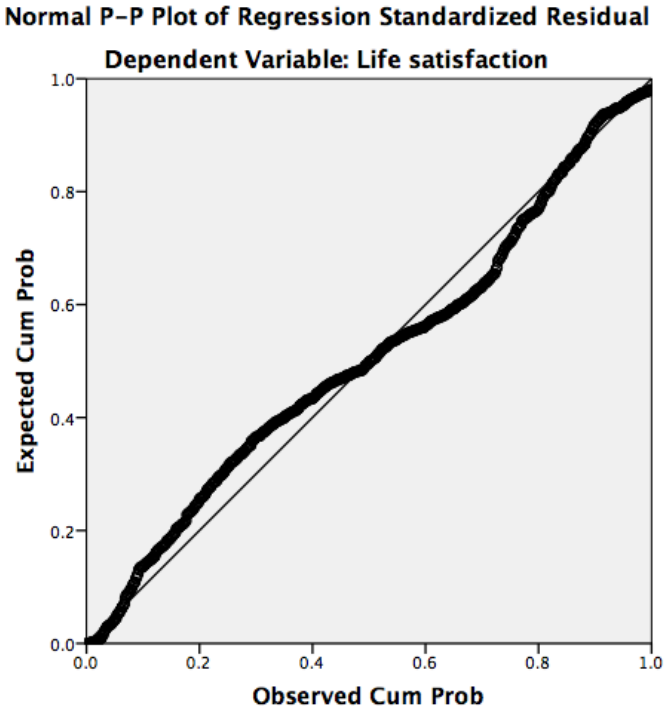
Extraction method: Principal Component Analysis.
Rotation method: Varimax with Kaiser normalization.

Appendix C – Assumption diagnostics and descriptive information

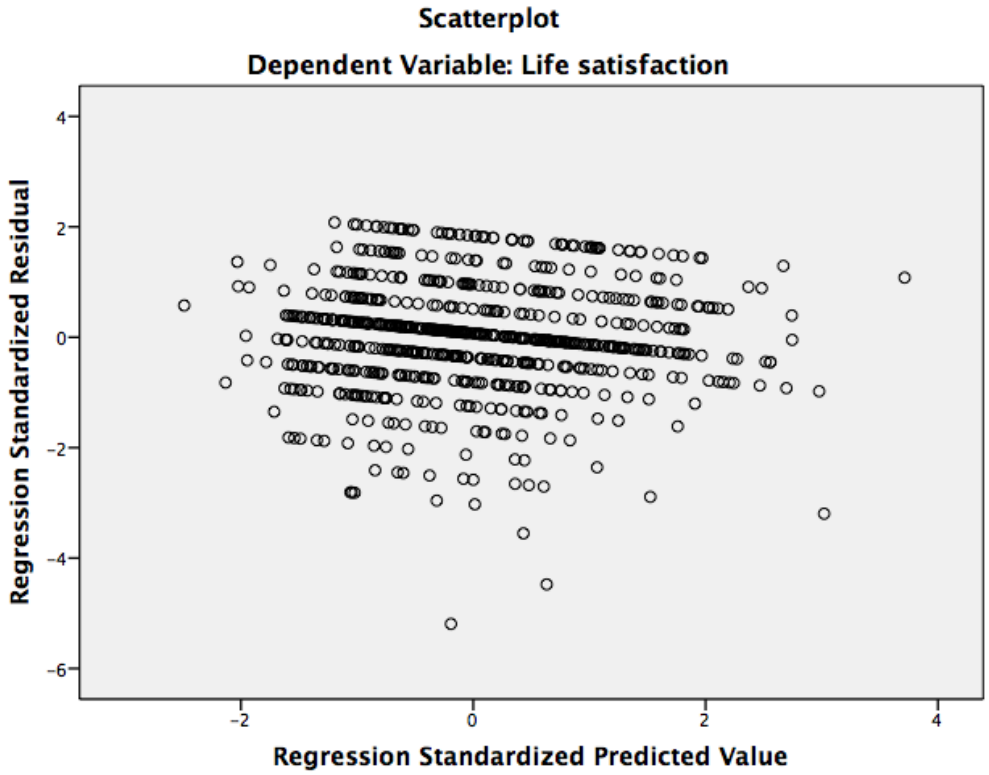
Regression standardized residual histogram from SPSS



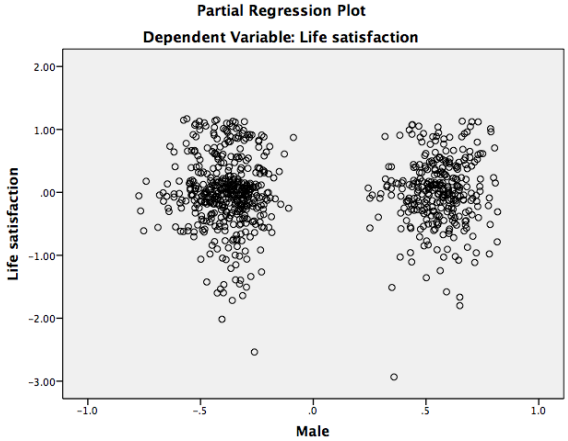
Normal P-P Plot of the Regression Standardized Residual from SPSS

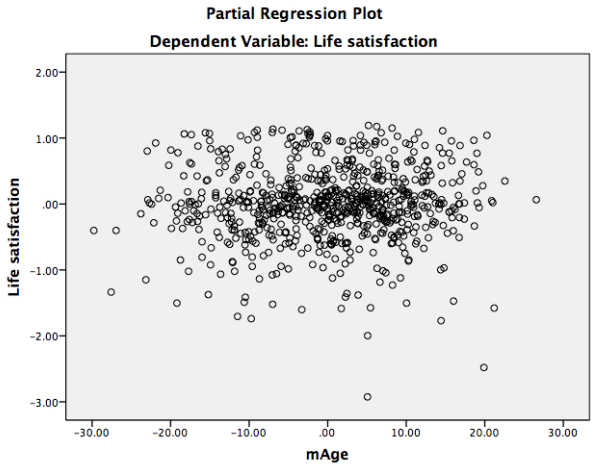


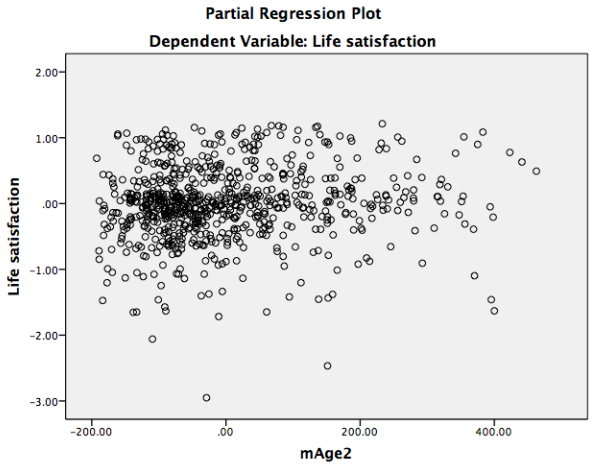
The multivariate scatterplot from SPSS

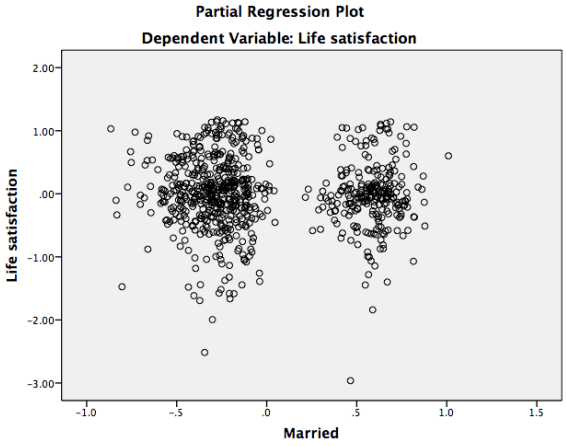


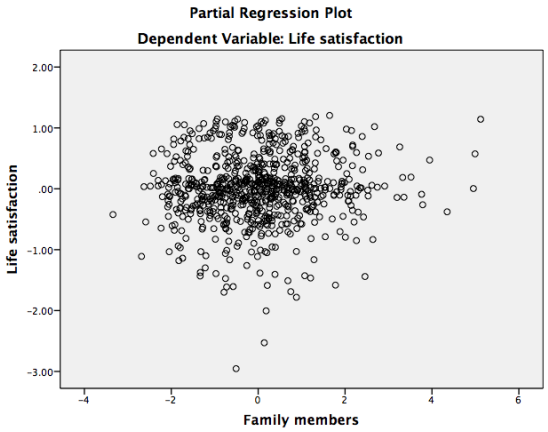
Partial regression plots from SPSS

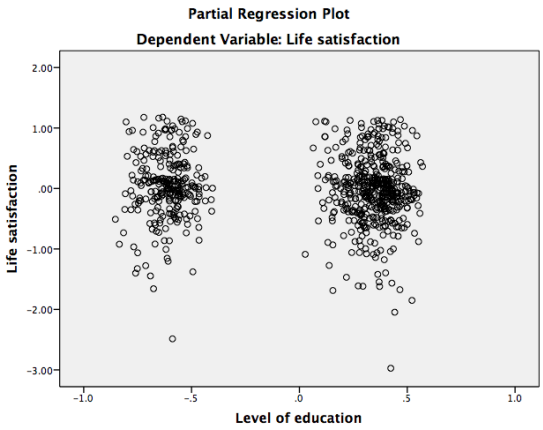


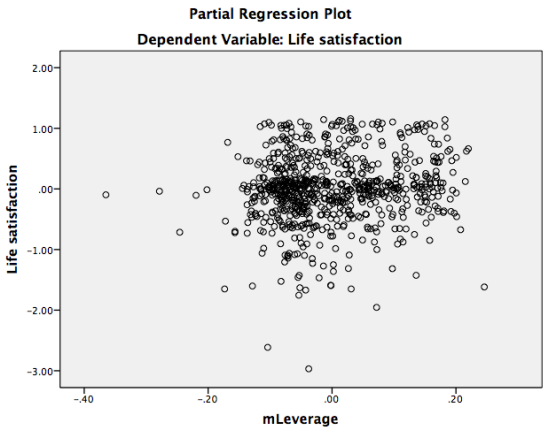


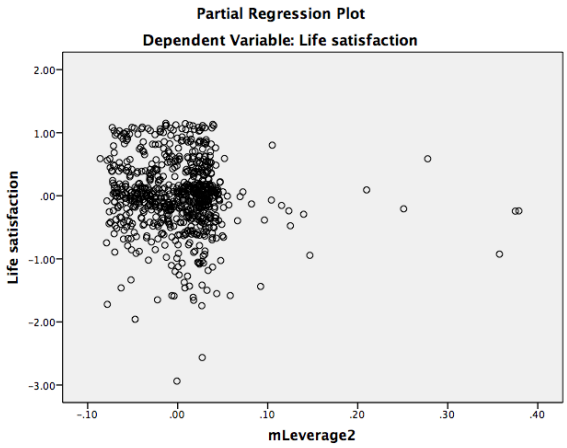

Partial Regression Plot
Dependent Variable: Life satisfaction
Life satisfaction
mAge2

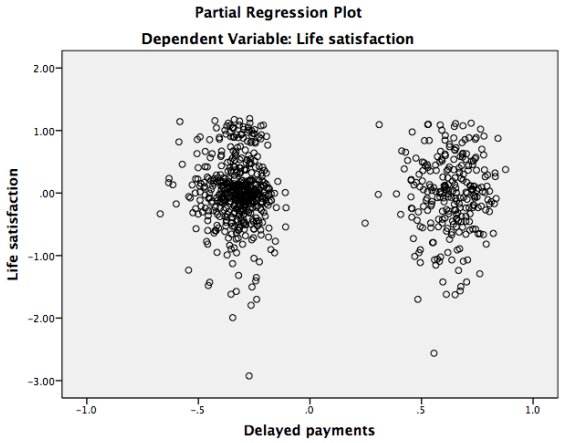

Partial Regression Plot
Dependent Variable: Life satisfaction
Life satisfaction
Married

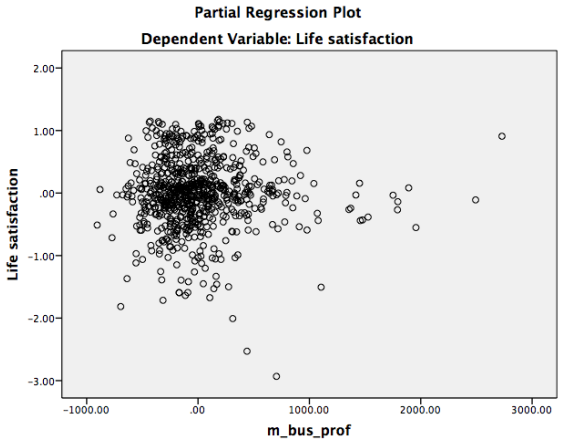

Partial Regression Plot
Dependent Variable: Life satisfaction
Life satisfaction
Family members


Partial Regression Plot
Dependent Variable: Life satisfaction
Life satisfaction
Level of education


Partial Regression Plot
Dependent Variable: Life satisfaction
Life satisfaction
mLeverage


Partial Regression Plot
Dependent Variable: Life satisfaction
Life satisfaction
mLeverage2

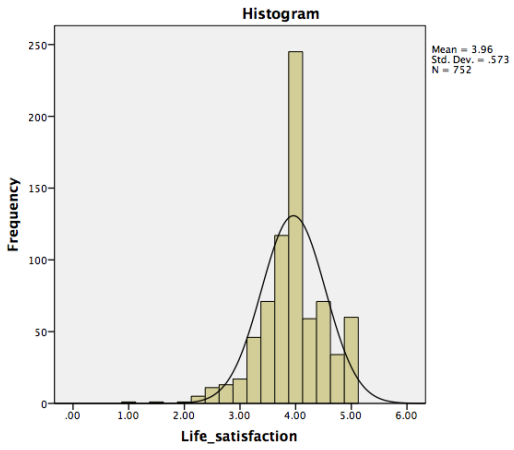


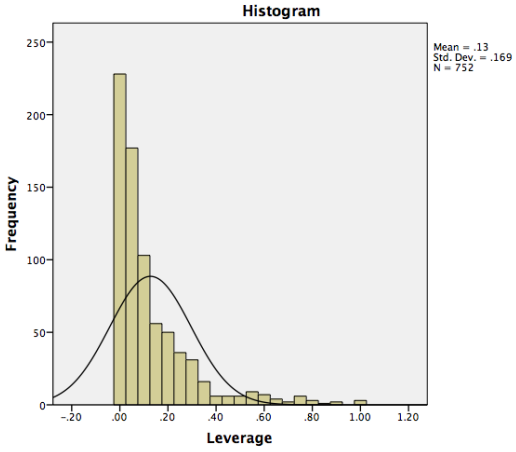


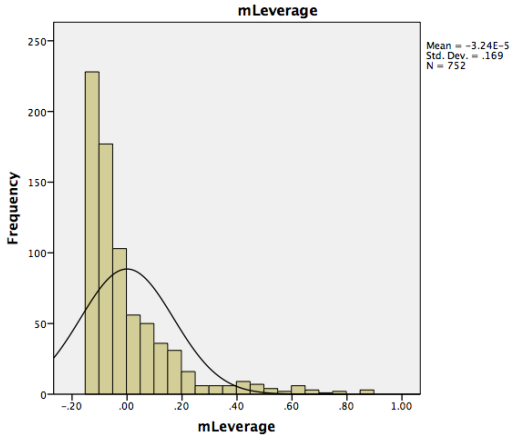
Life satisfaction frequencies output from SPSS

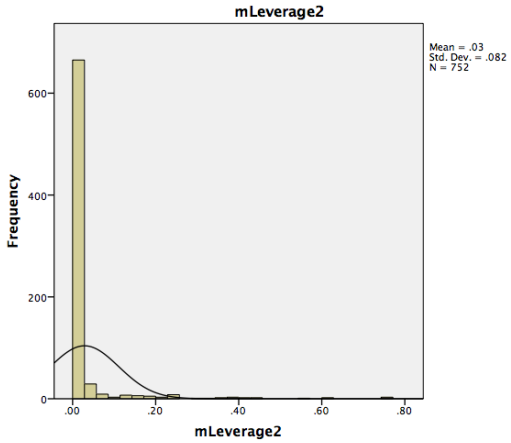
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	.1	.1	.1
	1.50	1	.1	.1	.3
	2.00	1	.1	.1	.4
	2.25	5	.7	.7	1.1
	2.50	11	1.5	1.5	2.5
	2.75	13	1.7	1.7	4.3
	3.00	17	2.3	2.3	6.5
	3.25	46	6.1	6.1	12.6
	3.50	71	9.4	9.4	22.1
	3.75	117	15.6	15.6	37.6
	4.00	245	32.6	32.6	70.2
	4.25	59	7.8	7.8	78.1
	4.50	71	9.4	9.4	87.5
	4.75	34	4.5	4.5	92.0
	5.00	60	8.0	8.0	100.0
	Total	752	100.0	100.0	

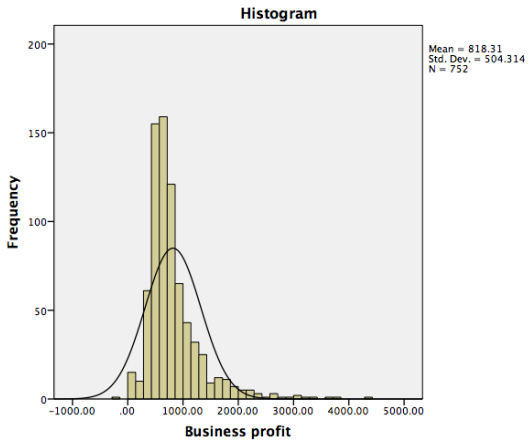
Histograms of the continuous variables from SPSS


Histogram
Mean = 3.96
Std. Dev. = .573
N = 752
Frequency
Life_satisfaction

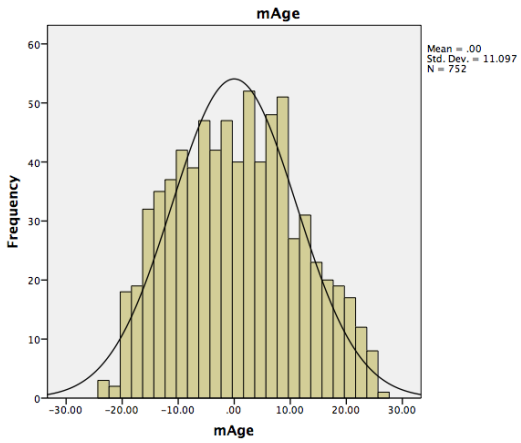

Histogram
Mean = .13
Std. Dev. = .169
N = 752
Frequency
Leverage

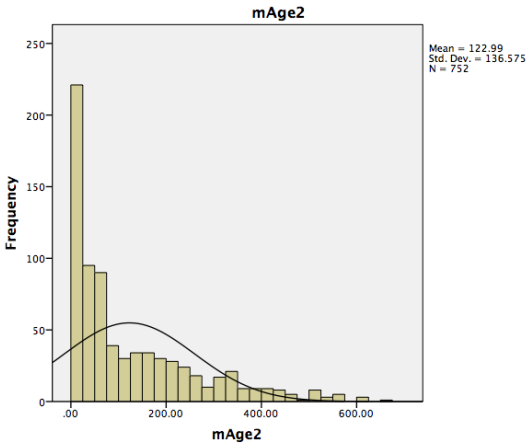

mLeverage
Mean = -3.24E-5
Std. Dev. = .169
N = 752
Frequency
mLeverage

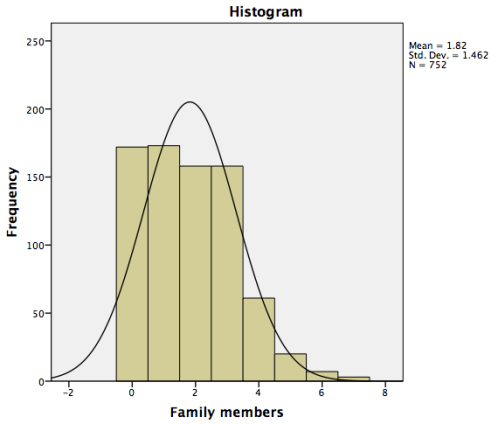

mLeverage2
Mean = .03
Std. Dev. = .082
N = 752
Frequency
mLeverage2

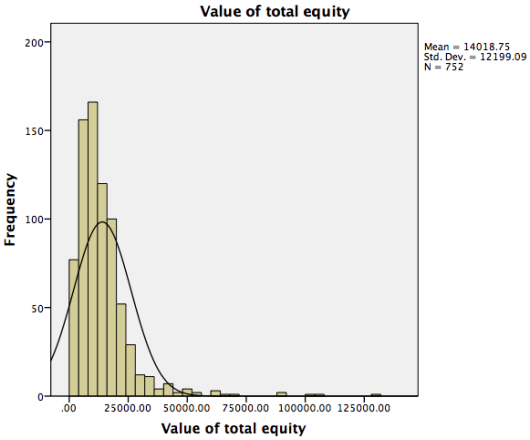

Histogram
Mean = 818.31
Std. Dev. = 504.314
N = 752
Frequency
Business profit

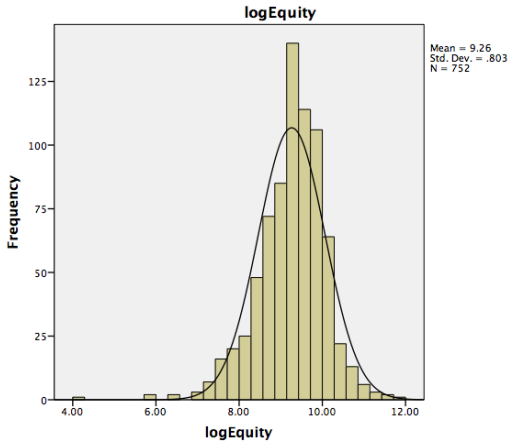

Age
Mean = 42.34
Std. Dev. = 11.097
N = 752
Frequency
Age


mAge
Mean = .00
Std. Dev. = 11.097
N = 752
Frequency
mAge


mAge2
Mean = 122.99
Std. Dev. = 136.575
N = 752
Frequency
mAge2


Histogram
Mean = 1.82
Std. Dev. = 1.462
N = 752
Frequency
Family members


Value of total equity
Mean = 14018.75
Std. Dev. = 12199.09
N = 752
Frequency
Value of total equity

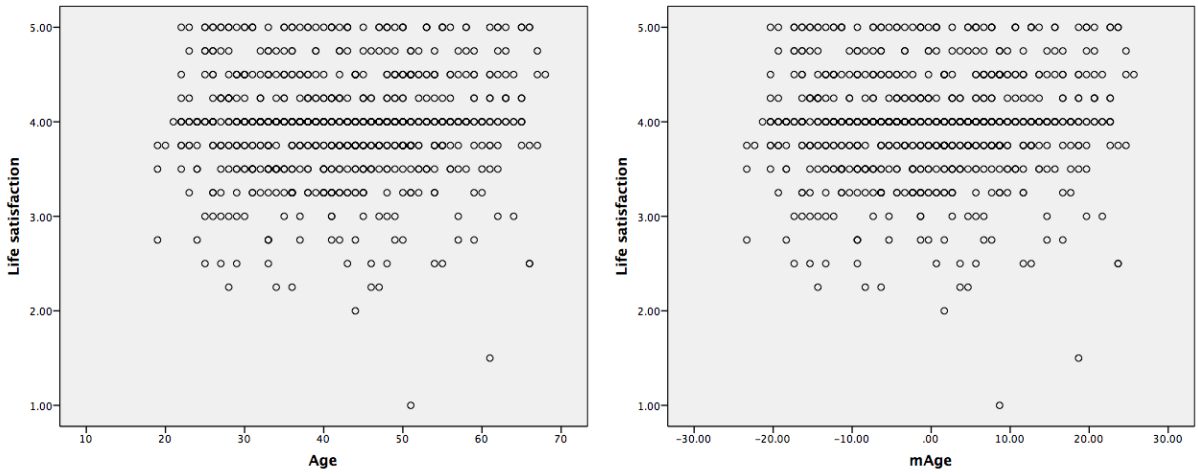

logEquity
Mean = 9.26
Std. Dev. = .803
N = 752
Frequency
logEquity

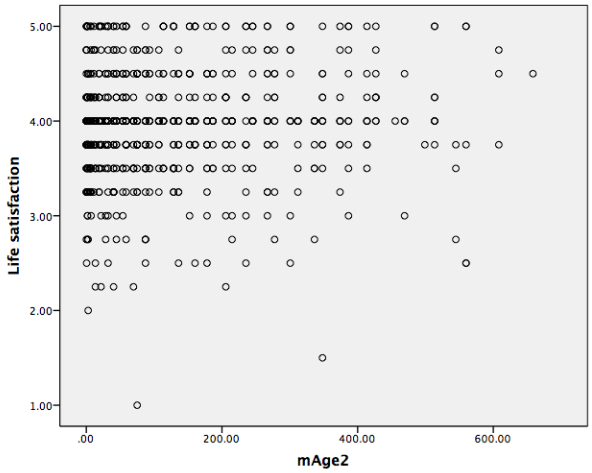
Normality tests of the continuous variables output from SPSS

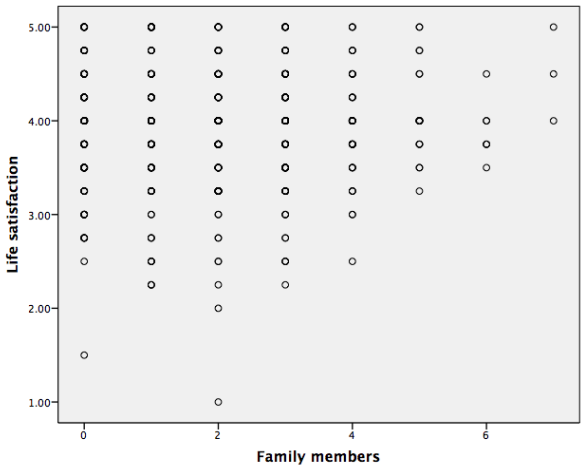
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Life satisfaction	.175	752	.000	.940	752	.000
Age	.051	752	.000	.984	752	.000
mAge	.051	752	.000	.984	752	.000
mAge2	.184	752	.000	.825	752	.000
Family members	.172	752	.000	.912	752	.000
Value of total equity	.144	752	.000	.707	752	.000
logEquity	.075	752	.000	.962	752	.000
Leverage	.226	752	.000	.724	752	.000
mLeverage	.226	752	.000	.724	752	.000
mLeverage2	.409	752	.000	.319	752	.000

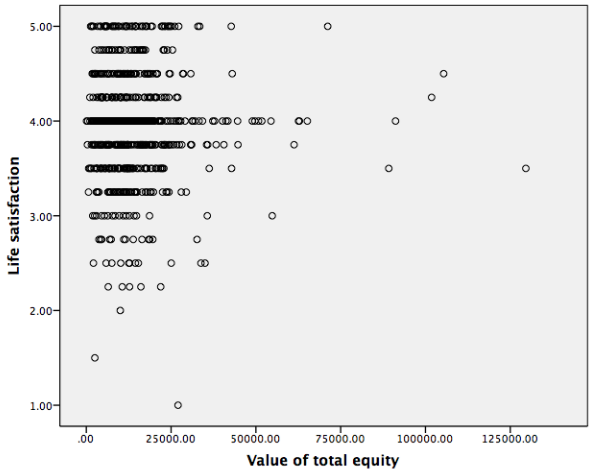
a. Lilliefors Significance Correction

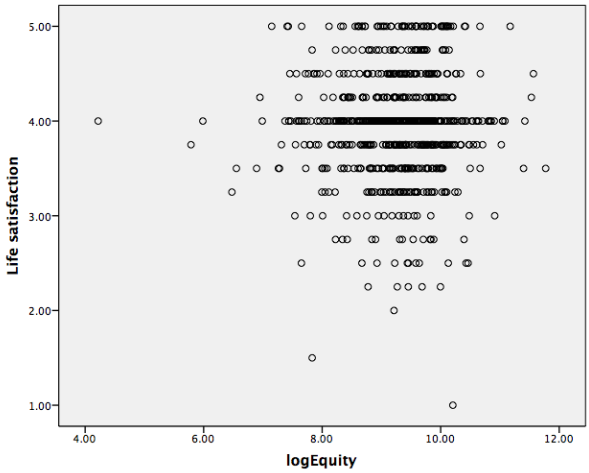
Simple scatterplots – Life satisfaction and the continuous variables from SPSS

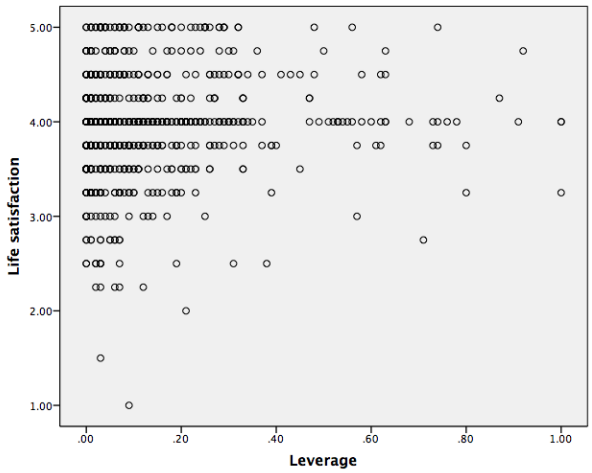


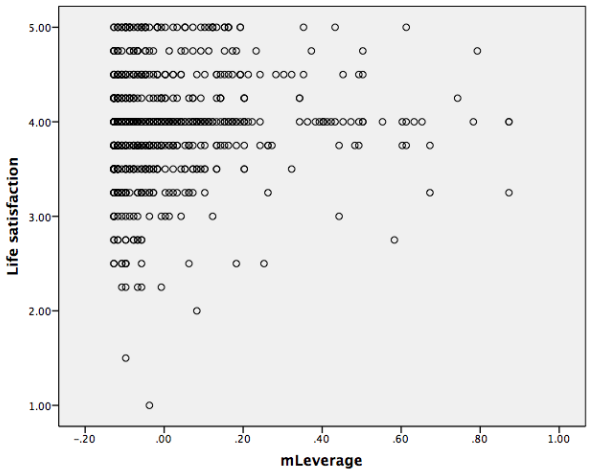

Life satisfaction
5.00
4.00
3.00
2.00
1.00
.00
200.00
400.00
600.00
mAge2

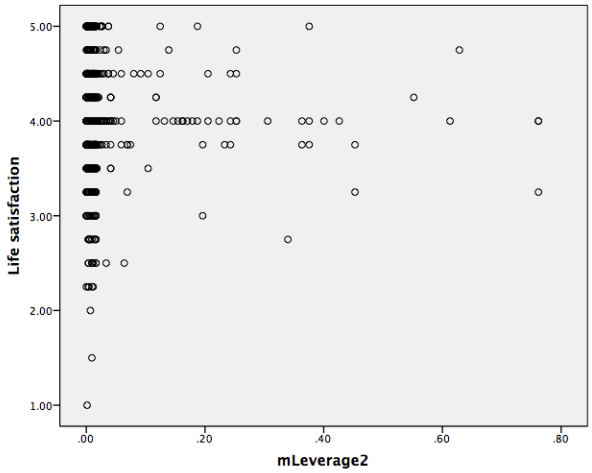

Life satisfaction
5.00
4.00
3.00
2.00
1.00
0
2
4
6
Family members


Life satisfaction
5.00
4.00
3.00
2.00
1.00
.00
25000.00
50000.00
75000.00
100000.00
125000.00
Value of total equity


Life satisfaction
5.00
4.00
3.00
2.00
1.00
4.00
6.00
8.00
10.00
12.00
logEquity


Life satisfaction
5.00
4.00
3.00
2.00
1.00
.00
.20
.40
.60
.80
1.00
Leverage


Life satisfaction
5.00
4.00
3.00
2.00
1.00
-.20
.00
.20
.40
.60
.80
1.00
mLeverage



Gender – Levene's test of equality of variances output from SPSS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Life satisfaction	Equal variances assumed	.421	.516	.151	750	.880	.00642	.04255	-.07712	.08996
	Equal variances not assumed			.152	676.388	.879	.00642	.04225	-.07655	.08939

Married – Levene's test of equality of variances output from SPSS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Life satisfaction	Equal variances assumed	3.428	.064	.520	750	.603	.02306	.04432	-.06395	.11008
	Equal variances not assumed			.536	545.882	.592	.02306	.04301	-.06143	.10756

Education – Levene's test of equality of variances output from SPSS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Life satisfaction	Equal variances assumed	.354	.552	2.208	750	.028	.09594	.04344	.01066	.18123
	Equal variances not assumed			2.214	563.983	.027	.09594	.04334	.01082	.18107

Delayed payments – Levene's test of equality of variance output from SPSS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Life satisfaction	Equal variances assumed	12.782	.000	1.344	750	.180	.05932	.04415	-.02736	.14599
	Equal variances not assumed			1.287	456.867	.199	.05932	.04607	-.03122	.14986

Appendix D – Results and additional outputs

Multiple linear regression output with mean-centered and squared variables from SPSS

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin–Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.139[a]	.019	.010	.57055	.019	2.095	7	744	.042	
2	.201[b]	.040	.026	.56592	.021	4.056	4	740	.003	2.041

a. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members

b. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members, mLeverage, Delayed payments, Business profit, mLeverage2

c. Dependent Variable: Life satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.773	7	.682	2.095	.042[b]
	Residual	242.194	744	.326		
	Total	246.968	751			
2	Regression	9.969	11	.906	2.830	.001[c]
	Residual	236.999	740	.320		
	Total	246.968	751			

a. Dependent Variable: Life satisfaction

b. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members

c. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members, mLeverage, Delayed payments, Business profit, mLeverage2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.936	.256		15.401	.000	3.435	4.438					
	Male	.004	.043	.003	.087	.930	-.081	.089	-.006	.003	.003	.954	1.048
	mAge	.003	.002	.055	1.354	.176	-.001	.007	.049	.050	.049	.788	1.269
	mAge2	.000	.000	.099	2.563	.011	.000	.001	.078	.094	.093	.875	1.143
	Married	-.056	.047	-.046	-1.196	.232	-.147	.036	-.019	-.044	-.043	.896	1.116
	Family members	.032	.017	.081	1.910	.057	-.001	.064	.023	.070	.069	.733	1.365
	Level of education	-.092	.044	-.077	-2.085	.037	-.179	-.005	-.080	-.076	-.076	.963	1.039
	logEquity	-.001	.027	-.001	-.035	.972	-.055	.053	.012	-.001	-.001	.895	1.117
2	(Constant)	3.985	.278		14.327	.000	3.439	4.531					
	Male	.014	.043	.012	.317	.751	-.071	.099	-.006	.012	.011	.943	1.060
	mAge	.003	.002	.053	1.290	.198	-.001	.007	.049	.047	.046	.777	1.286
	mAge2	.000	.000	.106	2.736	.006	.000	.001	.078	.100	.099	.864	1.157
	Married	-.052	.047	-.043	-1.128	.260	-.144	.039	-.019	-.041	-.041	.883	1.133
	Family members	.031	.017	.078	1.843	.066	-.002	.063	.023	.068	.066	.724	1.382
	Level of education	-.080	.044	-.067	-1.831	.068	-.167	.006	-.080	-.067	-.066	.957	1.045
	logEquity	-.003	.031	-.004	-.100	.920	-.064	.058	.012	-.004	-.004	.678	1.475
	mLeverage	.776	.226	.229	3.429	.001	.332	1.221	.098	.125	.123	.290	3.447
	mLeverage2	-1.123	.441	-.161	-2.549	.011	-1.988	-.258	.021	-.093	-.092	.324	3.091
	Delayed payments	-.051	.045	-.042	-1.151	.250	-.139	.036	-.049	-.042	-.041	.958	1.044
	Business profit	9.342E-6	.000	.008	.184	.854	.000	.000	.052	.007	.007	.650	1.538

a. Dependent Variable: Life satisfaction

Multiple linear regression output without *Business profit* from SPSS

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin–Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.139[a]	.019	.010	.57055	.019	2.095	7	744	.042	
2	.201[b]	.040	.027	.56555	.021	5.404	3	741	.001	2.040

a. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members

b. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members, mLeverage, Delayed payments, mLeverage2

c. Dependent Variable: Life satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.773	7	.682	2.095	.042[b]
	Residual	242.194	744	.326		
	Total	246.968	751			
2	Regression	9.958	10	.996	3.113	.001[c]
	Residual	237.009	741	.320		
	Total	246.968	751			

a. Dependent Variable: Life satisfaction

b. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members

c. Predictors: (Constant), logEquity, Level of education, mAge2, Married, Male, mAge, Family members, mLeverage, Delayed payments, mLeverage2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.936	.256		15.401	.000	3.435	4.438					
	Male	.004	.043	.003	.087	.930	-.081	.089	-.006	.003	.003	.954	1.048
	mAge	.003	.002	.055	1.354	.176	-.001	.007	.049	.050	.049	.788	1.269
	mAge2	.000	.000	.099	2.563	.011	.000	.001	.078	.094	.093	.875	1.143
	Married	-.056	.047	-.046	-1.196	.232	-.147	.036	-.019	-.044	-.043	.896	1.116
	Level of education	-.092	.044	-.077	-2.085	.037	-.179	-.005	-.080	-.076	-.076	.963	1.039
	Family members	.032	.017	.081	1.910	.057	-.001	.064	.023	.070	.069	.733	1.365
	logEquity	-.001	.027	-.001	-.035	.972	-.055	.053	.012	-.001	-.001	.895	1.117
2	(Constant)	3.967	.261		15.187	.000	3.454	4.480					
	Male	.014	.043	.012	.335	.738	-.070	.099	-.006	.012	.012	.950	1.052
	mAge	.003	.002	.052	1.282	.200	-.001	.007	.049	.047	.046	.780	1.283
	mAge2	.000	.000	.106	2.732	.006	.000	.001	.078	.100	.098	.868	1.153
	Married	-.052	.046	-.042	-1.115	.265	-.142	.039	-.019	-.041	-.040	.893	1.120
	Level of education	-.080	.044	-.067	-1.830	.068	-.167	.006	-.080	-.067	-.066	.957	1.045
	Family members	.031	.017	.079	1.861	.063	-.002	.063	.023	.068	.067	.727	1.375
	logEquity	.000	.028	-.001	-.017	.987	-.055	.054	.012	-.001	-.001	.864	1.158
	mLeverage	.792	.209	.234	3.784	.000	.381	1.203	.098	.138	.136	.339	2.952
	mLeverage2	-1.139	.432	-.164	-2.638	.009	-1.986	-.291	.021	-.096	-.095	.336	2.973
	Delayed payments	-.051	.044	-.042	-1.146	.252	-.138	.036	-.049	-.042	-.041	.958	1.043

a. Dependent Variable: Life satisfaction

Multiple linear regression output with original variables from SPSS

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.103[a]	.011	.003	.57268	.011	1.341	6	745	.236	
2	.147[b]	.022	.010	.57064	.011	2.776	3	742	.040	2.026

a. Predictors: (Constant), Value of total equity, Level of education, Family members, Male, Married, Age

b. Predictors: (Constant), Value of total equity, Level of education, Family members, Male, Married, Age, Leverage, Delayed payments, Business profit

c. Dependent Variable: Life satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.639	6	.440	1.341	.236[b]
	Residual	244.328	745	.328		
	Total	246.968	751			
2	Regression	5.351	9	.595	1.826	.060[c]
	Residual	241.616	742	.326		
	Total	246.968	751			

a. Dependent Variable: Life satisfaction

b. Predictors: (Constant), Value of total equity, Level of education, Family members, Male, Married, Age

c. Predictors: (Constant), Value of total equity, Level of education, Family members, Male, Married, Age, Leverage, Delayed payments, Business profit

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.879	.107		36.303	.000	3.669	4.088					
	Male	-.001	.043	-.001	-.019	.985	-.086	.085	-.006	-.001	-.001	.954	1.048
	Age	.003	.002	.058	1.446	.149	-.001	.007	.049	.053	.053	.828	1.208
	Married	-.050	.047	-.041	-1.075	.283	-.142	.041	-.019	-.039	-.039	.896	1.116
	Family members	.018	.016	.047	1.166	.244	-.013	.049	.023	.043	.043	.819	1.222
	Level of education	-.089	.044	-.075	-2.011	.045	-.176	-.002	-.080	-.073	-.073	.964	1.038
	Value of total equity	-2.889E-7	.000	-.006	-.163	.870	.000	.000	.005	-.006	-.006	.936	1.068
2	(Constant)	3.850	.112		34.240	.000	3.630	4.071					
	Male	.002	.043	.002	.053	.958	-.083	.088	-.006	.002	.002	.948	1.055
	Age	.003	.002	.054	1.345	.179	-.001	.007	.049	.049	.049	.820	1.220
	Married	-.052	.047	-.043	-1.104	.270	-.143	.040	-.019	-.040	-.040	.889	1.125
	Family members	.014	.016	.037	.900	.368	-.017	.046	.023	.033	.033	.801	1.249
	Level of education	-.084	.044	-.070	-1.891	.059	-.170	.003	-.080	-.069	-.069	.961	1.041
	Value of total equity	-1.197E-6	.000	-.025	-.550	.582	.000	.000	.005	-.020	-.020	.615	1.625
	Leverage	.280	.133	.083	2.101	.036	.018	.541	.098	.077	.076	.852	1.174
	Delayed payments	-.047	.045	-.039	-1.052	.293	-.135	.041	-.049	-.039	-.038	.963	1.038
	Business profit	4.057E-5	.000	.036	.747	.455	.000	.000	.052	.027	.027	.578	1.731

a. Dependent Variable: Life satisfaction

Multiple linear regression output with original variables without insignificant control variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.134[a]	.018	.013	.56982	.018	3.402	4	747	.009	2.031

a. Predictors: (Constant), Business profit, Level of education, Delayed payments, Leverage

b. Dependent Variable: Life satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.419	4	1.105	3.402	.009[b]
	Residual	242.549	747	.325		
	Total	246.968	751			

a. Dependent Variable: Life satisfaction

b. Predictors: (Constant), Business profit, Level of education, Delayed payments, Leverage

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.975	.051		77.584	.000	3.874	4.075					
	Level of education	-.089	.043	-.074	-2.042	.042	-.174	-.003	-.080	-.074	-.074	.993	1.007
	Leverage	.301	.128	.089	2.349	.019	.049	.553	.098	.086	.085	.917	1.090
	Delayed payments	-.050	.044	-.041	-1.127	.260	-.136	.037	-.049	-.041	-.041	.992	1.008
	Business profit	2.601E-5	.000	.023	.604	.546	.000	.000	.052	.022	.022	.916	1.092

a. Dependent Variable: Life satisfaction

Ordered probit with mean-centered and squared variables outputs from SPSS

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	3143.665			
Final	3109.223	34.442	11	.000

Link function: Probit.

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	11738.188	10503	.000
Deviance	3109.223	10503	1.000

Link function: Probit.

Pseudo R-Square

Cox and Snell	.045
Nagelkerke	.045
McFadden	.011

Link function: Probit.

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	3109.223			
General	2977.978[b]	131.245[c]	143	.750

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Probit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Parameter Estimates

		Statistics						
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Life_satisfaction = 1.00]	-2.811	.579	23.612	1	.000	-3.945	-1.677
	[Life_satisfaction = 1.50]	-2.598	.547	22.570	1	.000	-3.669	-1.526
	[Life_satisfaction = 2.00]	-2.468	.535	21.310	1	.000	-3.516	-1.420
	[Life_satisfaction = 2.25]	-2.121	.516	16.863	1	.000	-3.133	-1.109
	[Life_satisfaction = 2.50]	-1.775	.509	12.182	1	.000	-2.772	-.778
	[Life_satisfaction = 2.75]	-1.543	.506	9.306	1	.002	-2.535	-.552
	[Life_satisfaction = 3.00]	-1.334	.504	6.990	1	.008	-2.322	-.345
	[Life_satisfaction = 3.25]	-.958	.503	3.633	1	.057	-1.944	.027
	[Life_satisfaction = 3.50]	-.572	.502	1.299	1	.254	-1.556	.412
	[Life_satisfaction = 3.75]	-.104	.502	.043	1	.836	-1.087	.880
	[Life_satisfaction = 4.00]	.762	.502	2.301	1	.129	-.222	1.746
	[Life_satisfaction = 4.25]	1.012	.503	4.055	1	.044	.027	1.997
	[Life_satisfaction = 4.50]	1.398	.504	7.710	1	.005	.411	2.385
	[Life_satisfaction = 4.75]	1.660	.505	10.823	1	.001	.671	2.650
Location	m_age	.006	.004	2.228	1	.136	-.002	.013
	m_age2	.001	.000	9.444	1	.002	.000	.001
	Family members	.055	.030	3.328	1	.068	-.004	.113
	logEquity	-.013	.056	.053	1	.817	-.123	.097
	Mleverage	1.417	.411	11.908	1	.001	.612	2.221
	Mleverage2	-2.059	.796	6.690	1	.010	-3.619	-.499
	Business Profit	3.681E-5	9.175E-5	.161	1	.688	.000	.000
	Gender = 0	-.029	.078	.143	1	.705	-.182	.123
	Gender = 1	0[a]	.	.	0	.	.	.
	Married = 0	.098	.084	1.356	1	.244	-.067	.262
	Married = 1	0[a]	.	.	0	.	.	.
	Education = 0	.164	.079	4.284	1	.038	.009	.320
	Education = 1	0[a]	.	.	0	.	.	.
	Delayed payments = 0	.076	.080	.907	1	.341	-.081	.234
	Delayed payments = 1	0[a]	.	.	0	.	.	.

Link function: Probit.

a. This parameter is set to zero because it is redundant.

Ordered probit with original variables

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	3143.665			
Final	3125.696	17.969	9	.036

Link function: Probit.

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	11204.083	10505	.000
Deviance	3125.696	10505	1.000

Link function: Probit.

Pseudo R-Square

Cox and Snell	.024
Nagelkerke	.024
McFadden	.006

Link function: Probit.

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	3125.696			
General	3006.434[b]	119.262[c]	117	.424

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Probit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Life_satisfaction = 1.00]	-2.473	.361	46.832	1	.000	-3.182	-1.765
	[Life_satisfaction = 1.50]	-2.259	.305	54.877	1	.000	-2.857	-1.661
	[Life_satisfaction = 2.00]	-2.128	.282	57.141	1	.000	-2.680	-1.577
	[Life_satisfaction = 2.25]	-1.782	.244	53.142	1	.000	-2.262	-1.303
	[Life_satisfaction = 2.50]	-1.435	.227	39.828	1	.000	-1.881	-.989
	[Life_satisfaction = 2.75]	-1.201	.221	29.428	1	.000	-1.635	-.767
	[Life_satisfaction = 3.00]	-.990	.218	20.617	1	.000	-1.417	-.563
	[Life_satisfaction = 3.25]	-.616	.215	8.225	1	.004	-1.037	-.195
	[Life_satisfaction = 3.50]	-.234	.214	1.205	1	.272	-.653	.184
	[Life_satisfaction = 3.75]	.230	.213	1.159	1	.282	-.188	.648
	[Life_satisfaction = 4.00]	1.085	.215	25.392	1	.000	.663	1.507
	[Life_satisfaction = 4.25]	1.331	.216	37.810	1	.000	.907	1.755
	[Life_satisfaction = 4.50]	1.711	.219	60.998	1	.000	1.281	2.140
	[Life_satisfaction = 4.75]	1.969	.222	78.791	1	.000	1.534	2.403

Location	Age	.006	.004	2.379	1	.123	-.002	.013
	Family members	.022	.028	.589	1	.443	-.034	.078
	Equity	-2.715E-6	3.891E-6	.487	1	.485	-1.034E-5	4.911E-6
	Leverage	.498	.240	4.324	1	.038	.029	.967
	Business profit	9.396E-5	9.738E-5	.931	1	.335	-9.690E-5	.000
	Gender = 0	-.007	.078	.009	1	.923	-.160	.145
	Gender = 1	0[a]	.	.	0	.	.	.
	Married = 0	.093	.084	1.238	1	.266	-.071	.257
	Married = 1	0[a]	.	.	0	.	.	.
	Education = 0	.168	.079	4.480	1	.034	.012	.323
	Education = 1	0[a]	.	.	0	.	.	.
	Delayed payments = 0	.068	.080	.716	1	.398	-.089	.225
	Delayed payments = 1	0[a]	.	.	0	.	.	.

Link function: Probit.

a. This parameter is set to zero because it is redundant.

T-test of *delayed payments*

Group Statistics

	Delayed payments	N	Mean	Std. Deviation	Std. Error Mean
Life satisfaction	0	497	3.9809	.54568	.02448
	1	255	3.9216	.62331	.03903

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Life satisfaction	Equal variances assumed	12.782	.000	1.344	750	.180	.05932	.04415	-.02736	.14599
	Equal variances not assumed			1.287	456.867	.199	.05932	.04607	-.03122	.14986

Mann-Withney U test for *Delayed payments*

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Life satisfaction is the same across categories of Delayed payments.	Independent-Samples Mann-Whitney U Test	.485	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.