



**Impact of Cash Transfer Program on Subjective Wellbeing:  
Evidence from Indonesia**

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## List of Acronyms

UCT	Unconditional Cash Transfer
CCT	Conditional Cash Transfer
ISS	Institute of Social Studies
NGO	Non-Government Organisations
BLT	Bantuan Langsung Tunai (Direct Cash Assistance)
PKH	Program Keluarga Harapan (Family Hope Program)
IDR	The Indonesian Rupiah
USD	United States Dollar
PCA	Principal Component Analysis
MLR	Multinomial Logistic Recovery
PSM	Propensity Score Matching
MPC	Marginal Propensity to Consume
RASKIN	Beras Miskin (Rice for Poor Families)
JAMKESMAS	Jaminan Kesehatan Masyarakat (Community Health Insurance)
BOS	Bantuan Operasional Sekolah (School Operational Assistance)
PNPM Mandiri	Program Nasional Pemberdayaan Masyarakat Mandiri (National Community Independent Empowerment Program)
KUR	Kredit Usaha Rakyat (People's Business Credit Program)
IFLS	Indonesian Family Life Survey
SWB	Subjective Wellbeing
OLS	Ordinary Least Square

## **Abstract**

Cash transfer programs have become the main poverty-alleviating policy in several developing countries. This paper analyzes the perceived impact of Direct Cash Assistance (BLT) as an Unconditional Cash Transfer (UCT) program in Indonesia by examining beneficiary households' subjective wellbeing. Two rounds of Indonesian Family Life Survey (IFLS) panel data from 2007 (IFLS-4) and 2015 (IFLS-5) are used, from which this paper take the subjective wellbeing indicators. Three main categories of subjective wellbeing components are developed using Principle Component Analysis (PCA): family satisfaction, future perception, and children. OLS and fixed effect are used to determine the impact of UCT program on subjective wellbeing. The Indonesian UCT program is negatively correlated or has no impact on improving recipients' subjective wellbeing compared to that of non-recipients. Out of the three subjective wellbeing components, family satisfaction appears to have received significant and positive impact from the UCT program. UCT may also help beneficiaries maintain stable consumption level during short-term economic shocks, but future perception and children's wellbeing are not found to be affected.

## **Relevance to Development Studies**

This research aims to complement the literature on the impact of UCT by including other aspects of living conditions in order to comprehensively understand different forms of social problems. Theoretically, interventions in social protection such as cash transfers will reduce various risks and simultaneously improve psychological wellbeing. However, studies involving non-material aspects that are based on recipients' perception of UCT assistance are still rare. Policymakers can use the results from this study to evaluate the effectiveness of the UCT program in improving life quality in beneficiary households.

## **Keywords**

Cash Transfer, UCT, Subjective Wellbeing, Life Satisfaction , Happiness

# Chapter 1 Introduction

## 1.1 Background

Social protection interventions have been proven to improve the material welfare to protect people from risks through cash transfers or regular insurance. Especially for developing countries, cash transfer programs have become key in the governments' social and poverty reduction policies. Around 130 developing countries run at the minimum one cash transfer program that requires no contribution, also known as unconditional cash transfer (UCT), with growth in program adoption being especially high in Africa. Such program includes transfers targeting poverty and old-age social pension. Moreover, at least one conditional cash transfer program (CCT) is found in 63 states, a sharp increase compared with 1997 (two countries) and 2008 (27 countries) (Honorati et al. 2015). Expansion of cash transfer programs coincides with increasing number of evaluation that produces a set of evidence on the impact of various programs at individual and household level.

We can broadly identify two types of cash transfer programs: conditional and unconditional cash transfer programs. As a strategic policy, CCT programs have successfully reduced poverty in a range of developing countries through welfare programs that require recipients to fulfil certain conditions in order to receive cash transfers regularly. A range of health, nutrition and educational activities make up the conditions for receiving CCT. Meanwhile, UCT programs provide money to qualified individuals and households without stipulating how they should spend the cash transfer or tasks they need to do to obtain the money. Funded by government and non-government organizations (NGO), UCT has served the poor and vulnerable people in some developing countries (Junior et al. 2016).

Several studies conducted to determine the impact of cash transfer programs, both the conditional and unconditional variants, have shown positive results using social indicators such as education, health, household consumption, poverty, and inequality as proxy (Saavedra 2016, Attah et al. 2016). As argued by Martínez and Maia (2018), while objective measures are useful to determine various aspects of living conditions, subjective indicators are used to measure a person's perception of his/her living conditions. Subjective wellbeing indicators provide information that is very useful when planning, developing and evaluating public policies related to poverty alleviation and inequality. However, research on the impact of cash transfer programs on subjective wellbeing has so far been scarce.

UCT is shown to have a positive impact on a range of variables, including "household expenditure; child health, growth, and nutrition; adolescent marriage and pregnancy rate; and educational attainment" (Junior et al. 2016). Nevertheless, with measurement of development programs being concentrated on material outcomes, it is less certain if UCT also improves recipients' subjective wellbeing. At the same time, income and other monetary measures used by economists cannot fully account for fundamental aspects of human life such as life satisfaction, which may be used to measure quality of life improvements. This is in line with the concerns of Stiglitz, Sen, and Fitoussi:



Faced with the limitations of the dominant paradigm and drawing on established trends for a more human-centred approach, researchers, policy-makers and governments have increasingly acknowledged that development and social progress cannot be narrowed down to economic performance and related indicators, but people's experiences and subjective assessments of what matters in their lives also need to be considered. (2009, as cited in Saavedra 2016)

There is now an agreement on the importance of measuring quality of life as actual experience through people's perceptions such as subjective wellbeing (Saavedra 2016). To get a clearer picture of the programs' impact on wellbeing, more recent studies have increasingly focused on the impact of UCT program on subjective experience. Samuel and Stavropoulou (2016) by using quantitative empirical evidence find that cash transfer programs throughout the Middle East and Sub Saharan Africa have demonstrated positive psychosocial effect. Moreover, Attah et al. (2016) find that psychosocial wellbeing improvements may have a positive impact that extends to decision making, among other life areas.

Empirical evidence on the correlation between cash transfer and subjective wellbeing is not conclusive and limited. Rojas (2008) in his study finds the dissonance between subjective and objective wellbeing where increase in household earnings in Mexico's Opportunities program has not led to a higher sense of wellbeing. On the other hand, the NGO GiveDirectly's program in Kenya offering a big one-time deposit transfer has resulted in a rise in subjective wellbeing measures as well as the size of objective consumption (Haushofer and Shaprio 2016).

Indonesia introduced a number of cash transfer programs in the past decade. After the East Asian economic crisis in the East Asian, Government of Indonesia has implemented an emergency social assistance program for the poor which was later simplified into a social safety net program in 1999. Furthermore, a UCT program (Direct Cash Assistance, or BLT) and a CCT program (Family Hope Program, or PKH) were introduced respectively in 2005 and 2007. The government has planned to integrate the cash transfer program within the national social protection system.

When the world oil prices rose in 2005, the Indonesian government reacted promptly by introducing UCT (BLT) as an alternative policy tool to offset the rising fuel price. The cash amount received per month by each targeted household was IDR 100,000 (approximately USD 10) and the program covered 15.5 million households. Unconditional Cash Transfer scheme was discontinued after almost a year, however, the domestic rice price rose in January 2008. The Indonesians government had then no choice but to reintroduce UCT, which ran again between June and December 2008 and cost more than IDR 13 trillion and included 19 million households. Although UCTs have been used as a policy tool to quickly respond to social emergency, they are not viable over a long time because of government's financial burden.

Consequently, the government began to replace UCT with CCT in 2006 through a project known as the Family Hope Program (PKH). Indonesia relied on technical support from international organizations during the preparation phase of the program, such as the USD 2.6 million it received as technical assistance from ADB for 18 months and this fund was used for the pilot program. Additionally, World Bank supported the required technical support for implementing CCT and helped establish the targeting system.

Studies on the impact of (conditional and unconditional) cash transfer programs in Indonesia have mostly used objective indicators such as expenditure, labour supply, education, health, and nutrition. For reasons argued above, this study instead evaluates the impact of cash transfer programs in Indonesia in terms of subjective wellbeing. Due to limited data on Conditional Cash Transfer Program (CCT) in the dataset, this research chooses to focus on Unconditional Cash Transfer (UCT) programs.

## **1.2 Research Question**

This research will evaluate the effects of Unconditional Cash Transfer (UCT) program in Indonesia on households' subjective wellbeing.

This study addresses the following questions in order to achieve the main objective:

1. What is the impact of UCT (BLT) program on the subjective wellbeing of its recipients compared to that of non-recipients?
2. Which components of subjective wellbeing receive the most impact from BLT program?

## Chapter 2 Literature Review and Theoretical Framework

### 2.1.1 Subjective Wellbeing

Subjective wellbeing is a broad notion and consists of multiple dimensions. Following Diener et al. (2009), subjective wellbeing is produced through an individual's emotional or cognitive evaluation of their life. A high subjective wellbeing may therefore include recurrent thoughts of positive influence and high life satisfaction.

Personal psychological wellbeing has been strongly associated with economic and social behaviors. Decision makers with a positive life view are expected to see better options for individual and household matters such as preventive care and human capital investment as happiness improves cognitive flexibility and encourage careful evaluation of their future. For poor families, positive outlook on life might be the determining factor between escaping or staying in poverty (Kilburn 2016).

Diener et al. (1995) argue that the condition of subjective wellbeing is influenced by several factors, including "personal traits and environmental conditions". Meanwhile, researchers also emphasize the influence of material conditions, i.e., that more financial resources open up more consumer possibilities, which in turn make an individual happier and hence better quality of life. However, there is no common agreement on the validity of this rule in advanced countries, Handa et al. (2014) argue that "positive correlation between economic conditions and quality of life appears more robust in developing countries".

The concept of subjective wellbeing follows Maslow's (1943) "hierarchy of needs," where the poor people's quality of life is closely linked to satisfying basic needs. Therefore, if the human element is rigidly connected with nature and nurture, policies can influence subjective wellbeing by changing the external circumstances (Handa et al. 2014).

Kuznets (1930 as cited in Wills 2009) argues that subjective life satisfaction measuring wealth or economic performance is the most significant indicator for a community's quality of life in national, local, or urban settings, where not only measures of the performance of contextual variables should be included, but also perception toward public welfare. Objective wealth indicators such as income or other monetary outputs have failed to measure how people actually perceive their quality of life. Empirical studies have shown that in industrial countries, wellbeing seems to increase as national income increases, but only to a certain degree. At the top level, an increase in wellbeing is so marginal that it becomes almost undetectable (Eckersley 2000). Once subsistence level is met, a rise in income appears to not be matched by improved life satisfaction, especially in advanced countries (Helliwell 2005).

Jamal (2018) provides empirical evidence concerning the correlates of subjective wellbeing in Pakistan. Instead of using a single metric to reflect subjective wellbeing level, a composite Principal Component Analysis (PCA) index of four dimensions (general life satisfaction, economic satisfaction, happiness, and subjective health) is compiled using World Value Survey 2012. In his study, he discovered that the most important factors affecting subjective wellbeing with a big negative marginal effect are law and order and a sense of insecurity in the neighborhood. In addition to this, vulnerability to poverty and safety are present as statistically significant factors in a reverse relationship with subjective wellbeing. His findings, however, show that religiosity is an important and significant factor in the explanation of subjective wellbeing variations. Nevertheless, its marginally positive effect is significantly less than the negative effect.

A recent study by Serban-Oprescu et al. (2019) employs statistical and econometric methods (PCA, correlation analysis, and Multinomial Logistic Recovery (MLR)) on survey results from

students of the University of Economic Research of Bucharest. Based on the findings they claim that Romanian students, when evaluating perception of life satisfaction and happiness, tend to differentiate between the two ideas. Questioning effects are found to be insignificant, whereas negative sentiments (such as pessimism) affect happiness but not life satisfaction. They also assert that subjective wellbeing is a major predictor of satisfaction with current activities, level of optimism or pessimism, and health and environmental safety.

## **2.2 Cash Transfer and Subjective Wellbeing**

The importance of subjective wellbeing in determining perceived quality of life means that it is a powerful tool in assessing the impact of social policies on poverty and wellbeing. Rawlings and Rubio (2003) emphasize cash transfer programs among other policies, whose objective is to enhance human capital through provision of cash to poor families. Moreover, when individuals or households receive direct cash payment on a predictable basis, how they utilize the money determines household expenditure and saving (Bastagli et al. 2016). In addition, it can have long-term effects on a household's human capital and accumulation of assets, thus reducing poverty and improving wellbeing.

Discussing the impact of cash transfer on psychological wellbeing, Samuel and Stavropoulou (2016) find that cash transfer increases financial safety, therefore lowering stress and anxiety. Even when cash transfers are not enough to meet all needs, they help recipients deal with daily difficulties and cover food, educational, and medical costs. Regularity and predictability associated with cash transfers also give a feeling of economic safety and reduce stress and anxiety. At the same time, dependency decreases which leads to enhanced life control (financial confidence). Cash transfers are considered better in reducing dependence on other people compared to other types of assistance and in enabling beneficiaries to maintain control over their lives. Some beneficiaries even reported a feeling of empowerment.

In addition, Pega et al. (2017) discuss how cash transfer is linked to poverty alleviation with an effect that extends to health outcomes. The main causal pathways of the impact of cash transfers is through income. This reduces the risk of income poverty and in itself potentially enhance health outcomes in recipient households. Incomes from cash transfers financed by public funds could influence individual health.

On the other hand, improving subjective wellbeing may be attempted through poverty-targeting social protection which directly affects income (Kilburn et al. 2016). However, there is limited evidence to promote this relationship because social protection programs managed by governments in developing countries unusually analyze data on subjective wellbeing. Moreover, Kahneman and Deaton (2010) discover that life satisfaction and emotional wellbeing increase with income. However, the correlation is significant for satisfaction of life, when emotional wellbeing is strictly linked to individual relationships and health.

However, Rojas (2009) argues that subjective wellbeing covers many dimensions or domains of our lives, where income is only one determinant of wellbeing. The idea of the domain of life is related to the view that the person's wellbeing rely on satisfaction in many areas of life, which in turn relies on many factors other than income, such as "age, level of education, health, types of hobbies and pastimes, type of job, place of residence, nature and strength of interpersonal relations with partner, children, parents, colleagues and neighbors, and so on." In this view, income and wellbeing do not show a strong relationship.

Using PSM and pooled data, Dabalén et al. (2008) investigate Albanian poverty reduction program. Their results show that recipient households perceived higher degree of life and financial dissatisfaction, especially among urban households (Dabalén et al. 2008). On the other hand, Novotny and Kubelkova (2015) examine the impact of cash transfers on social protection of employees in India through a quasi-experimental plan. Their results show that the program is associated with greater overall satisfaction with life and lower perception of poverty, but also a reduced level of happiness.

Combining a longitudinal, randomized cluster design and panel data of 3365 poor households, Kilburn et al. (2016) turn to Malawi to see the impact on subjective wellbeing of a Unconditional Cash Transfer (UCT) program. The research shows that an increase in household income from cash transfers can have a substantial effect on subjective wellbeing of beneficiaries. Households use cash to improve the livelihoods of their families and ensure the fulfillment of basic needs, including food, clothing, and shelter. By reducing these daily pressures, cash transfers make beneficiaries happier in the short run and give them hope for a better future.

Moreover, Haushofer and Shapiro (2016) investigate the response of poor households in rural Kenya to significant, temporary changes in their income. Utilizing a randomized controlled trial, the NGO GiveDirectly randomly allocated at least USD 404 of UCT to households. Haushofer and Shapiro (2016) find that the beneficiaries experienced a substantial improvement in psychological wellbeing and some types of transfers resulted in decreased level of stress. These findings demonstrate that UCT has significant effects on consumption and psychological wellbeing.

More recently, Natali et al. (2018) examine the impact on happiness of unconditional cash (UCT) transferred to poor women. Employed a “cluster-randomized controlled trial” across 90 communities in Zambian rural area, an impact of 7.5-10 percentage points was found on the happiness of women after 36 and 48 months. In addition, the women beneficiaries reported greater sense overall satisfaction with their children’s welfare, including satisfaction about child’s health and a positive perspective on child’s future.

### **2.3 Cash Transfer, Income Poverty, and Wellbeing**

The dominance of the conception of poverty based on income, in addition to the use of “income-based” indicators when evaluating a program’s success, has led to poverty reduction policies such as cash transfer programs focusing on focusing on efforts to pull out people from poverty by raising the beneficiary's purchasing power. The implicit assumption that an increased beneficiaries’ income automatically translates to greater wellbeing has been questioned by Rojas (2009). Furthermore, there are many arguments with which we can doubt the close relations of income and wellbeing.

Firstly, not all valuable items could be purchased. The income enable the purchase of “economic goods” but it has small effect on an individual's access to “non-economic goods” . In an empirical research based on Mexico survey, Rojas (2008) maintains that "satisfaction with family, partner and children" is very important satisfaction of life. Due to its essential, “relation goods” cannot be bought and the market for them generally can not be found.

Secondly, income might not be utilised efficiently . An raising in income may generate to small or no impact in wellbeing if the individual does not have the ability to efficiently use the income. In line with this, Rojas (2008b) finds that most individuals do not efficiently use their

“purchasing power” then they enjoy a lower economic satisfaction than their income would otherwise allow.

Thirdly, fundamental psychological basic needs may exist which do not need income to satisfy. “The psychological needs” approach suggests that fundamental psychological needs such as competence, autonomy, and relatedness are about as essential as human basic needs. People who are unable to meet their psychological basic needs will have low wellbeing. An individual's income contributes little and sometimes even harms psychological needs (Ryan and Sapp 2007).

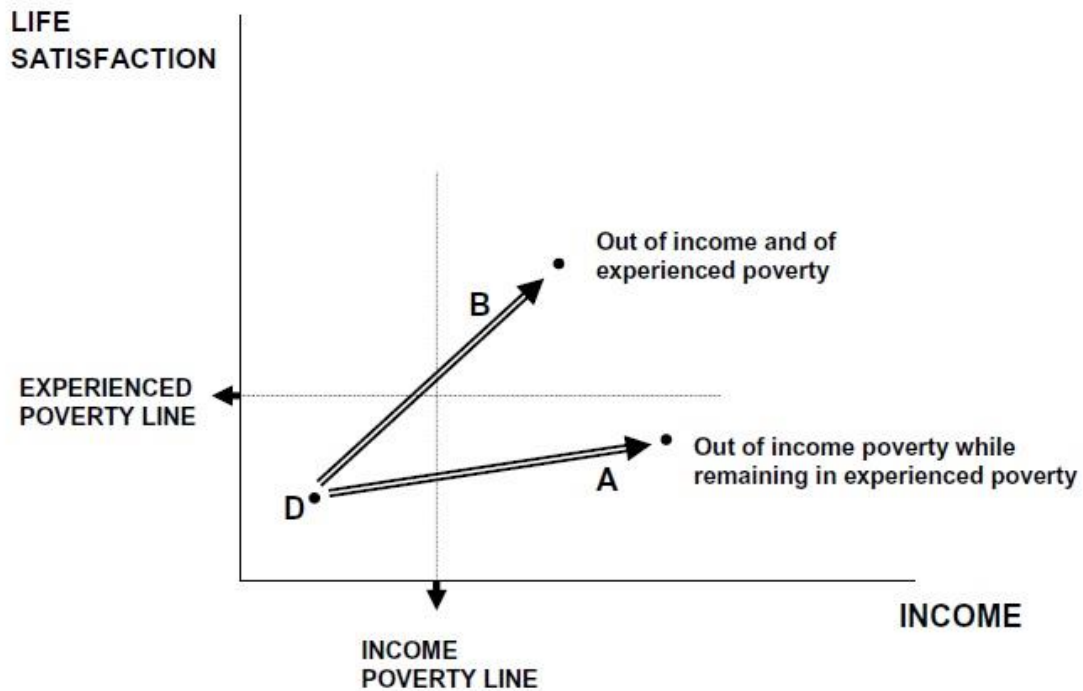
Fourthly, income is not the only determinant of wellbeing. The literature on the “domains of life” agrees that a individual’s wellbeing depends on one’s satisfaction concerning accomplishments in various areas of life (Rojas 2007). Satisfaction in these “domains of life” rely on many factors outside a individual's income, for instance “age, education level, health, types of hobbies and entertainment, occupation, place of residence, the nature and strength of interpersonal relationships with spouses, children, parents, colleagues and neighbors, and so on.” Income and wellbeing are thus not expected to have a close relationship.

Rojas (2009) has also emphasized wellbeing as a “broader and richer” notion than income poverty. In other words, a person might be able to get away from income poverty while remaining deprived of wellbeing since an increase in income does not guarantee improved satisfaction in different “domains of life.” Policies such as cash transfer program might be available to reduce income poverty but only a small or even negative effect on wellbeing is produced because their impact on satisfaction in other areas is either non-existent or even harmful.

It is therefore easy to think of—on a conceptual level at least—situations where people receive significant income rise while remaining in deprivation of wellbeing. The income may create strong economic satisfaction but leave out other significant areas of life. Conversely, even when their income is small, people can be satisfied with their lives as long as they feel satisfied with their health, self, job, family, and economy. This clearly demonstrates the weak correlation between income and “economic satisfaction”.

Rojas (2009) shows possibility to leap over the “income poverty line” with little small on “life satisfaction” as indicated by Pattern A on Figure 1. Pattern B conversely illustrates the path crossing not only the “poverty line” as income, but also “poverty line” as subjective experience.

Figure 1 Patterns of income poverty and wellbeing



Source: Rojas (2009)

Pattern A can be understood as a path moving an individual from D to A. The person is no longer poor in terms of income—the average earnings have increased well above the USD 2 line—but only slightly increased in life satisfaction. Life satisfaction does not significantly improve due to higher income does not mean that most domain of his life are more satisfied.

On the other hand, on Pattern B one moves from D to B. Not only is a person out of income poverty, he or she also enjoys better wellbeing at point B; their lives are more satisfying overall. We can see that better satisfaction of life is reached as satisfaction in all “domains of life” improves significantly. One would want to escape income poverty by moving from D to B instead of A. It illustrates how an increase in income can have a greater effect on wellbeing if supported by policies that improve satisfaction in every “domains of life” instead of limiting its effects on economic and job domains.

Pattern B is clearly better than Pattern A as income is not the goal but a means of wellbeing. What should a individual and society do to follow Pattern B instead of Pattern A ? The “domain of life” approach argues that it is essential to have an improved satisfaction in most “domains of life”—particularly those essential domains such as family, health, self, and job—in combination with an increase in income.

## Chapter 3 The Indonesian Context

### 2.1 Unconditional Cash Transfer (UCT) Program in Indonesia

The Indonesian government has attempted to reduce poverty and promote public welfare by providing Direct Cash Assistance (*Bantuan Langsung Tunai* (BLT)) in the shape of UCT. Its implementation is governed through Presidential Instruction 12/2005 on the implementation of Direct Cash Assistance to poor households and Presidential Instruction 3/2008 on the implementation of Direct Cash Assistance for targeted households. The program is expected to be the answer to Indonesia's poverty as a result of all past and existing changes at the national and global scales. BLT compensates for previous policies which reduce or revoke a portion of fuel subsidy and effectively increase the selling price of fuel. In this regard, the program may be considered a derivative of the policy to increase fuel prices.

The Indonesian government has run the Direct Assistance Program several times. Under Yudhoyono (2004-2014), BLT was rolled out three times in 2005, 2008, and 2009. Its objective was to help the poor fulfil their basic needs in the wake of the fuel subsidy cuts. According to the Ministry of Social Affairs of Indonesia (2008), the program aims to do the following: "1. Prevent a decrease in the level of welfare of the poor due to economic difficulties. 2. Increase shared social responsibility." BLT recipients were identified from 19 million target households according to Indonesia's official statistics, which include households categorized as very poor, poor, and near poor from all over Indonesia. Detailed classification of recipient households is as follows:

1. Very-poor group has an individual food consumption of up to 1.900 kilo calories per day or equal to IDR 120,000 in terms of an average person's expenditure per month (or IDR 480,000 per household per month).
2. Poor group has an individual food consumption of up to 2.100 kilo calories per day or equal to IDR 150,000 in terms of an average person's expenditure per month (or IDR 600,000 per household per month).
3. Near-poor group has an individual food consumption of up to 2.300 kilo calories per day or equal to IDR 175,000 in terms of an average person's expenditure per month (or IDR 700,000 per household per month).

Each household received IDR 100,000 (around USD 10) per month which was distributed every three months. According to Bazzi et al. (2012), BLT increases the growth in beneficiaries' per capita expenditure. "Marginal propensity to consume" (MPC) of BLT income was estimated at 0.10. The low MPC is nevertheless meaningful where "[a]n increase in household transfers per capita by 10 USD per quarter implies roughly a 5 percent increase in monthly household expenditures per capita" (Bazzi et al. 2012). Recipients can collect the cash at every post office in Indonesia.

Recipient households were identified after stages of matching and researching around 16 million households. Households were entitled to receive cash assistance if they met at least nine out of 14 conditions explained in the following table:



Table 1. Requirements for receiving direct cash assistance (BLT)

No.	Variables	Criteria
1	Floor area	Less than eight m <sup>2</sup> per person
2	Type of flooring	Land/bamboo/cheap wood/ poor quality cement
3	Type of walls	Bamboo/thatch/low quality wood/wall without plaster
4	Defecation facilities	No or shared facilities
5	Main lighting sources	No electricity
6	Fuel for cooking	Firewood/charcoal/kerosene
7	Number of meat/milk/chicken consumption per week	Never or once a week
8	Drinking water source	Well/unprotected spring/river/rainwater
9	Number of new clothes purchase for each household member per year	No or one set in a year
10	Number of dinners for each household member per day	One to two meals a day

Source: Selviana et al. (2016)

Due to the fuel subsidy cuts, BLT was designated as a social protection policy to help the poor fulfill basic needs, prevent declining welfare due to the economic shocks, and improve shared social responsibility.

The State Minister for Development Planning and the Head of the National Development Planning Agency were optimistic that BLT and other social transfer programs would reduce poverty to 14 percent in 2008. In 2007, Indonesia was struggling with its 16.6 percent poverty rate. The Medium-Term Development Plan had its target set on reducing poverty to 8.2 percent in 2009. The optimism was supported by the fact that the government provided other assistance programs in addition to BLT which were packaged in three clusters: BLT, Rice for Poor Families (Raskin), Community Health Insurance (Jamkesmas), School Operational Assistance (BOS), and Family Hope Program (PKH) (first cluster); National Community-Independent Empowerment Program (PNPM-Mandiri) (second cluster); and the People's Business Credit Program (KUR) (third cluster).

Evaluation of the 2005 BLT program conducted by the Coordinating Ministry for People's Welfare (2006) reveals that the program intended to alleviate poor households' spending only reached 54.96 percent of its intended recipients. Even so, the BLT program can still be felt by the poor alleviating its burden of 45.1 percent. BLT's impact on people's welfare is seen especially in how its beneficiaries have used the cash for basic needs. At an average proportion of use of 45 percent, a significant portion of the cash was used for consumption. Beneficiaries prioritized the availability of basic commodities, especially rice, to meet needs in a longer run. Aside from consumption, Rosfadhila et al. (2011) find that the cash transfer is also used for medical treatment, transportation cost, school fees and business capital, especially to increase domestic livestock, increase business capital for making cakes, buying agricultural equipment, fertilizers, seeds and others .

## Chapter 4 Data and Methodology

### 4.1 Data

This research utilizes data from the Indonesia Family Life Surveying (IFLS), a survey conducted by RAND Corporation in cooperation with research centers in Indonesian universities. The initial sample of IFLS represents 83% of Indonesian population living in 13 provinces. IFLS is a longitudinal survey of Indonesian households and the most comprehensive survey ever conducted in Indonesia covering various aspects of households' and individuals' life. It is a panel study of households, individuals, and public facilities that has been carried out as five integrated waves of survey since 1993. Data from the fourth (IFLS-4) and fifth (IFLS-5) waves of survey are used for this study. Conducted in 2007, IFLS-4 includes interviews with 13,500 households and 43,000 individuals. IFLS-5 was carried out at the end of 2014 and saw an increase in the number of respondents interviewed with 15,900 households and 50,000 individuals.

Data on beneficiaries of the UCT program and subjective wellbeing are taken from IFLS Book 1 and Book 3A where information on whether the household heads received BLT cash assistance as well as components of subjective wellbeing can be found. The main independent variable is participation of respondents in BLT program which is a dummy variable taking the value of 1 for recipient (treatment) or 0 for non-recipient (control). Sample respondents for both treatment and control groups are taken from poor people with a total household panel of 11,340 respondents consisting of 3,101 UCT recipients and 8,239 non-recipients.

#### 4.1.1 Dependent Variables

The dependent variables are made up of all subjective wellbeing indicators taken from several questions with multiple-choice scale as the answers from the subjective wellbeing section in IFLS Book 3A. Based on the subjective wellbeing questions, three main categories of subjective wellbeing components are made: family satisfaction, future perception, and children. Table 2 details each component:

Table 2. Subjective Wellbeing Components

<b><u>Family Satisfaction</u></b>	
Poverty Level	[On a scale from 1 (poorest) to 6 (richest)]
Family Life	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Living Standard	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Food Consumption	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Healthcare	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Happiness	[Categories: “1 = very happy, 2 = happy, 3 = unhappy, 4 = very unhappy” ]

<b><u>Future Perception</u></b>	
Perception of Future Poverty Level	[On a scale from 1 (poorest) to 6 (richest)]
Perception of Possibility of Maintaining Same Living Standard	[Categories: “1 = very likely, 2 = likely, 3 = unlikely, 4 = very unlikely” ]
<b><u>Children</u></b>	
Children’s Standard of Living	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Children’s Food Consumption	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Children’s Healthcare	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]
Children’s Education	[Categories: “1 = less than adequate, 2 = adequate, 3 = more than adequate” ]

Three indices are used for dependent variables, i.e. family satisfaction, future perception, and children. Family satisfaction is built on several questions with multiple-point scale to answer each question. The first question about poverty level comes with six possible responses ranging from poorest (1) to richest (6). Questions on household’s family life, living standard, food consumption, and healthcare come with three-point responses from “less than adequate” to “more than adequate.” The last question on happiness level is measured on a scale from 1 (very happy) to 4 (very unhappy).

Future perception is built on two questions about what the household head perceives of, first, poverty level in five years with answer choices ranging from 1 (poorest) to 6 (richest), and second, whether standard of living remains the same after five years considering current price changes with answer range from 1 (very likely) to 4 (very unlikely). A third component, perception about children, is built on questions about children’s standard of living, food consumption, healthcare, and education answer range from 1 (less than adequate) to 3 (more than adequate).

Principal Component Analysis (PCA)—a technique for constructing new variables from linear combinations of the original variables—is used to create an index for all three dependent variables. The maximum number of new variables will be the same as the number of old variables, and these new variables do not correlate with each other. Following Jamal (2018 : 4): “The technique of PCA is mainly used to resolve issues of substitutability among the components and assignment of weights to constituents of the composite indices. Thus, application of statistical weights for constructing composite indices is a better option as these remove the subjectivity and personal biases” .

Three component indices and indicators for the dependent variables are as follows:

Table 3. Subjective Wellbeing Variables

Subjective Wellbeing Components	Indicators	IFLS Codes
Family Satisfaction (fam_sat)	Poverty Level (lvl_pov)	sw01
	Family Life (fam_life)	sw03b
	Living Standard (std_liv)	sw04
	Food Consumption (food_cons)	sw05
	Healthcare (healthcare)	sw06
	Happiness (lvl_happy)	sw12i
Future Perception (fut_pers)	Perception of future poverty level (ftr_pov)	sw02
	Perception of possibility of maintaining same living standard (ftr_std)	sw3ai
Children (child)	Standard of Living (child_std)	sw08
	Food Consumption (child_food)	sw09
	Healthcare (child_health)	sw10
	Education (child_edu)	sw11

PCA is applied on each of the subjective wellbeing component: family satisfaction, future perception, and children. The results are presented below.

#### 4.1.1.1 PCA of subjective wellbeing – family satisfaction

Some relevant factors are formed when applying the PCA method, which are represented by Comp1 to Comp6. The eigenvalues, variability, and cumulative variability are displayed in the following table:

Table 4. Eigenvalue, Variability, and Cumulative Variability of Family Satisfaction Indicators

Component	Eigenvalue	Variability (%)	Cumulative (%)
Comp1	2.96811	49.47	49.47
Comp2	0.906498	15.11	64.58
Comp3	0.821079	13.68	78.26
Comp4	0.598868	9.98	88.24
Comp5	0.430385	7.17	95.42
Comp6	0.275064	4.58	100

Source: STATA results and author's own calculation

Based on the above outputs, the analyzed variables can be grouped into one factor, i.e. the one with eigenvalue greater than one. Eigenvalues of less than one cannot be used in calculating the number of factors formed, so the factoring process stops at the first factor. Factor 1 has an eigenvalue of 2.96811 and explains 49.47% of the total communalities.

Family satisfaction component of subjective wellbeing is measured by six indicators: poverty level (sw01), living standard (sw04), food consumption (sw05), healthcare (sw06), happiness (sw12i), and family life (sw03b). PCA results for these variables are as follows:

Table 5. Family Satisfaction Indicators to Principal Component by PCA

Variables	Component 1
sw01	0.2635
sw04	0.4963
sw05	0.4649
sw06	0.4105
sw12i	0.2548
sw03b	0.4844

Source: STATA results

Based on above results, following equation for family satisfaction index is established:

$$\text{fam\_sat} = 0.2635 \text{ sw01} + 0.4963 \text{ sw04} + 0.4649 \text{ sw05} + 0.4105 \text{ sw06} + 0.2548 \text{ sw12i} + 0.4844 \text{ sw03b}$$

#### 4.1.1.2 PCA of subjective wellbeing – future perception

Table 6 below shows the eigenvalues, variability, and cumulative variability of the PCA for future perception index:

Table 6. Eigenvalue, Variability, and Cumulative Variability of Future Perception Indicators

Component	Eigenvalue	Variability (%)	Cumulative (%)
Comp1	1.08705	54.35	54.35
Comp2	0.912953	45.65	100

Source: STATA results and author's own calculation

Again, only one factor is formed here. Factor 1 has an eigenvalue of 1.08705 and explains 54.35% of the total communalities.

The future perception component of subjective wellbeing is measured by perception of future poverty level (sw02) and perception of possibility of maintaining the same living standard (sw03ai). PCA results of these variables are as follows:

Table 7. Future Perception Indicators to Principal Component by PCA

Variables	Component 1
sw02	0.7071
sw03ai	0.7071

Source: STATA results

Based on above results, following equation for future perception index is established:

$$\text{fut\_pers} = 0.7071 \text{ sw02} + 0.7071 \text{ sw03ai}$$

#### 4.1.1.3 PCA of subjective wellbeing – children

Eigenvalues, variability, and cumulative variability of the PCA on perception about children are provided below :

Table 8. Eigenvalue, Variability, and Cumulative Variability of Children Indicators

Component	Eigenvalue	Variability (%)	Cumulative (%)
Comp1	2.70091	67.52	67.52
Comp2	0.66322	16.58	84.1
Comp3	0.342795	8.57	92.67
Comp4	0.293073	7.33	100

Source: STATA results and author's own calculation

Only one factor is formed (Factor 1) with an eigenvalue of 2.70091 which accounts for 67.52% of the total communalities.

This subjective wellbeing component is measured by four indicators: children's living standard (sw08), children's food consumption (sw09), children's healthcare (sw10), and children's education (sw11). PCA results for these variables are as follows:

Table 9. Children Indicators to Principal Component by PCA

Variables	Component 1
sw08	0.5220
sw09	0.5350
sw10	0.5251
sw11	0.4068

Source: STATA results

Based on above results, following equation is established for the children index:  
 $children = 0.5220 sw08 + 0.5350 sw09 + 0.5251 sw10 + 0.4068 sw011$

The resulting factor scores may be used to replace scores from the original variables. PCA results for each component are then regressed or analyzed for their effect on the independent variables using linear regression analysis. Table 10 shows a descriptive statistics of all variables used in the dependent variables.

Table 10. Descriptive Statistics of Dependent Variables

Variables	Obs.	Mean	Std. Dev.	Min	Max
<b>Family Satisfaction</b>	11,340	4.936047	1.061289	2.3263	12.651
Poverty Level	11,340	0.7268429	0.2693902	0.2343	2.32
Family Life	11,340	0.8751104	0.2742417	0.4733	3.872
Living Standard	11,340	0.9143323	0.2919899	0.4912	3.948
Food Consumption	11,340	0.9032237	0.2554165	0.4537	3.8016
Healthcare	11,340	0.7824186	0.2726405	0.3816	3.6472
Happiness	11,340	0.7341192	0.2338786	0.1834	1.2592
<b>Future Perception</b>					
Future Perception	11,340	3.567675	1.075056	1.4142	11.3136
Perception of Future Poverty Level	11,340	1.796059	0.7569117	0.7071	5.6568
Perception of Possibility of Maintaining Same Living Standard	11,340	1.771616	0.700385	0.7071	6.3639
<b>Children</b>					
Children	6,909	3.890276	1.036365	1.9817	15.9224
Children's Standard of Living	6,909	1.002541	0.3127855	0.5209	4.1672

Children's Food Consumption	6,909	1.067516	0.3052064	0.5362	4.328
Children's Healthcare	6,909	1.026939	0.3107179	0.5201	4.2464
Children's Education	6,909	0.7932806	0.3407197	0.3786	3.3048

#### 4.1.2 Independent Variables

Several explanatory variables used in this paper are based on the literature on subjective wellbeing. Dolan et al. (2008), for instance, mention personal and social characteristics such as gender, education, marital status, and health status as factors that influence subjective wellbeing. Meanwhile, Kilburn et al. (2016) use household size, age, and age squared as control variables while home ownership is suggested by Martinez and Maia (2018). Following tables detail the descriptive statistics of all the independent variables organized by IFLS round.

Table 11. Descriptive Statistics of Dummy Variables by IFLS Round

Variable	Obs.	IFLS 4 Mean	IFLS 5 Mean	Min.	Max.	Desc.
UCT	5,670	0.30194	0.2449735	0	1	1 : recipient 0 : non-recipient
urban	5,670	0.4285714	0.5068783	0	1	1 : urban 0 : rural
home ownership	5,670	0.7751323	0.8029982	0	1	1 : self-owned 0 : otherwise
marital status	5,670	0.8497354	0.8451499	0	1	1 : married 0 : otherwise
gender	5,670	0.1506173	0.1567901	0	1	1 : female 0 : male
health status	5,670	0.8622575	0.7647266	0	1	1 : good 0 : bad

Table 12. Descriptive Statistics of Independent Variables (IFLS 4)

Variable	Obs	Mean	Std. Dev.	Min	Max
educational level	5,670	1.406702	0.70108	0	3
hhsiz	5,670	4.013139	1.69256	1	14
age	5,670	45.45291	13.64735	15	96
age2	5,670	2238.415	1301.728	225	9216

Table 13. Descriptive Statistics of Independent Variables (IFLS 5)

Variable	Obs	Mean	Std. Dev.	Min	Max
educational level	5,670	1.449559	0.6961165	0	3
hhsiz	5,670	4.055026	1.678879	1	15
age	5,670	47.45132	12.27674	17	93
age2	5,670	2402.32	1248.591	289	8649

#### 4.1.2.1 UCT

This is a binomial variable about whether the household head is a recipient of the UCT program. Value 1 is given for recipients (treatment group) and 0 for non-recipients (control group). Two panels are used with a total of 11,340 respondents or 5,670 respondents per round. For IFLS-4, 30% or 1,712 respondents are UCT recipients while 3,958 are non-recipients. For IFLS-5, 24% or 1,389 are recipients while 4,281 are non-recipients. Each household was observed once in each round.

#### 4.1.2.2 Urban

This is a binomial variable denoting location of the household. A value of 1 is given for urban household and 0 for rural household. Households in urban area make up 43% or 2,438 of respondents in IFLS-4 while the remaining 3,232 respondents live in rural areas. For IFLS-5, urban households make up 51% (2,892 respondents) while 2,778 respondents are from rural areas.

#### 4.1.2.3 Home ownership

This is a binomial variable denoting respondent's home ownership status with a value of 1 for self-owned house and 0 for otherwise. For IFLS-4, home-owners make up 78% or 4,422 respondents; for IFLS-5, home-owners make up 80% or 4,526 respondents.

#### 4.1.2.4 Marital Status

This is a binomial variable denoting respondent's marital status with a value of 1 if married and 0 if otherwise. In both survey rounds, married respondents make up almost 85% of the data or 4,811 respondents.

#### 4.1.2.5 Gender

This binomial variable has the value of 1 assigned for female household head and 0 for male household head. In both survey rounds, female household heads make up 15% or 850 respondents while male household heads are more prevalent with 4,820 respondents.

#### 4.1.2.6 Health status

This binomial variable indicates respondent's health condition and is assigned 1 for good health or 0 for bad health. For IFLS-4 wave, respondents with good health make up 86% or 4,876 of the data while 794 respondents are in poor health. For IFLS-5 wave, 76% or 4,309 of the respondents are in good health while 1,361 respondents are in poor health.

#### 4.1.2.7 Educational level

This categorical variable indicates a household head's highest level of education. A score of 0 is assigned if the person never attended school, 1 if attending elementary school, 2 if attending senior high school, or 3 if attending higher education. Number and percentage of respondents for each educational level by round are as follows:



Table 14. Educational Level of Household Heads (IFLS 4)

<b>Educational Level</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
Never attended school	497	8,77	8,77
Elementary school	2,853	50,32	59,08
Senior high school	2,080	36,68	95,77
Higher education	240	4,23	100
Total	5,670		

Table 15. Educational Level of Household Heads (IFLS 5)

<b>Educational Level</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
Never attended school	364	6,42	8,77
Elementary school	2,701	47,64	54,06
Senior high school	2,297	40,51	94,57
Higher education	308	5,43	100
Total	5,670		

#### **4.1.2.8 Household Size**

This numerical variable indicates number of members in a household with a minimum of one person and a maximum of 14 people in IFLS-4 and 15 people in IFLS-5. On average, a household consists of four people.

#### **4.1.2.9 Age**

This numerical variable indicates respondent's age and ranges in IFLS-4 between 15 to 96 years with average age of 45 years. In IFLS-5, respondent's age ranges between 17 to 93 years with an average of 47 years.

#### **4.1.2.10 Age squared**

This numerical variable has the value of respondent's age squared.

## 4.2 Methodology

The empirical model that I use to investigate subjective wellbeing is widely found in the literature. Kilburn et al. (2016 : 14) suggest that “self-reported measures of subjective wellbeing (SWB) are modelled empirically as an additive function of economic, social, and environmental factors where the error term captures individual differences in reporting”. Kilburn et al. (2016) wrote that Malawi Social Cash Transfer Team used the same model when researching the impact of UCT in Malawi using subjective wellbeing approach.

Basic equation for this model is as follows:

$$SWB_{it} = \alpha + \beta_1 UCT_{it} + \beta_x Cov_{it} + \mu_{it}$$

where:

SWB	: components of subjective wellbeing
UCT	: dummy variable stating whether the household head received UCT (1 or 0)
Cov	: covariates
$\mu$	: error term
$i$	: households
$t$	: year

Two empirical methods are employed to determine the impact of BLT program on subjective wellbeing. First, OLS linear regression models are used on the two waves of IFLS cross-section data (IFLS4-2007 and IFLS5-2015).

$$(1) \quad SWB_i = \alpha + \beta_1 UCT_i + \beta_x Cov_i + \mu_i$$

Second, fixed effect model is used following Kilburn et al. (2016 : 14) : ”Fixed effects model is used to control individual reporting differences and unobserved characteristics such as personality that might bias the treatment effects. These show up in the unobserved error term and are assumed fixed over time. Individual fixed effects will also wipe out any stable control variables such as gender and treatment status” .

A concern related to Equation (1) above is the presence of unobserved, time-invariant variables that might affect subjective wellbeing and cash transfer implementation by causing bias. An example is the eligibility criterion that is not random and may affect the outcome: only poor households received the cash. Furthermore, since village heads distributed the cash directly to the poor households, there was also the possibility of misallocation due to unobserved factors such as errors in the reporting of household conditions. Other possible sources of bias also include unobserved and time-invariant location characteristics such as geographical factors, cultural differences across villages and cities, and differences in household preferences that affect subjective wellbeing. Lack of information about these factors means that these variables should be included in the error term.

This study therefore chose to perform the fixed effects method to control the unobserved characteristics and overcome the bias problem. Using fixed effects method at the household level and following Wooldridge (2003), Equation (1) becomes as follows:

$$(2) \quad SWB_{it} = \alpha + \beta_1 UCT_{it} + \beta_x Cov_{it} + a_i + \mu_{it}$$

Model equation for each subjective wellbeing component in this study is as follows:

$$\begin{aligned}
fam\_sat_{it} = & \alpha + \beta_1 UCt_{it} + \beta_2 urban_{it} + \beta_3 home\_ownership_{it} + \beta_4 educational\_level_{it} \\
& + \beta_5 hhsz_{it} + \beta_6 age_{it} + \beta_7 age_{it}^2 + \beta_8 marital\_status_{it} + \beta_9 gender_{it} \\
& + \beta_{10} health\_status_{it} + a_i + \mu_{it}
\end{aligned}$$

$$\begin{aligned}
fut\_pers_{it} = & \alpha + \beta_1 UCt_{it} + \beta_2 urban_{it} + \beta_3 home\_ownership_{it} + \beta_4 educational\_level_{it} \\
& + \beta_5 hhsz_{it} + \beta_6 age_{it} + \beta_7 age_{it}^2 + \beta_8 marital\_status_{it} + \beta_9 gender_{it} \\
& + \beta_{10} health\_status_{it} + a_i + \mu_{it}
\end{aligned}$$

$$\begin{aligned}
child_{it} = & \alpha + \beta_1 UCt_{it} + \beta_2 urban_{it} + \beta_3 home\_ownership_{it} + \beta_4 educational\_level_{it} \\
& + \beta_5 hhsz_{it} + \beta_6 age_{it} + \beta_7 age_{it}^2 + \beta_8 marital\_status_{it} + \beta_9 gender_{it} \\
& + \beta_{10} health\_status_{it} + a_i + \mu_{it}
\end{aligned}$$

where:

<i>fam_sat</i>	: family satisfaction component of subjective wellbeing
<i>fut_pers</i>	: future perception component of subjective wellbeing
<i>child</i>	: children's wellbeing component of subjective wellbeing
<i>urban</i>	: respondent's location (urban/rural)
<i>home_ownership</i>	: respondent's home ownership status
<i>educational_level</i>	: household head's education level
<i>hhsz</i>	: number of household members (size of household)
<i>age</i>	: respondent's age
<i>age<sup>2</sup></i>	: respondent's age squared
<i>marital_status</i>	: respondent's marital status
<i>gender</i>	: respondent's gender
<i>health_status</i>	: respondent's health status
<i>a<sub>i</sub></i>	: fixed effect at household level
$\mu$	: error term

#### 4.2.1 Attrition Analysis and Changes in Household Status

In this section I discuss the attrition analysis performed by reducing the number of observations due to the merging of IFLS4 and IFLS5, followed by a discussion of how much household status changes as treatment and control between different rounds of the survey. Following table presents the details of changes in attrition analysis:

Table 16. Attrition Analysis

Survey Data Set	Preliminary Panel Data Set			Duplicates/Not Matched			Final Panel Data Set		
	Treatment	Control	Total	Treatment	Control	Total	Treatment	Control	Total
IFLS-4 (2007)	2,599	7,859	10,458	887	3,901	4,788	1,712	3,958	5,670
IFLS-5 (2014)	1,600	6,327	7,927	211	2,046	2,257	1,389	4,281	5,670
<b>Total</b>			<b>18,385</b>			<b>7,045</b>			<b>11,340</b>

Source: STATA results and author's own calculation

Total preliminary data set in IFLS-4 consists of 10,458 respondents comprising 2,599 in treatment group and 7,859 in control group. However, when the IFLS-4 data set was merged or appended to the IFLS-5 data set, number of observations decreased by 4,788 respondents consisting of 887 treatments and 3,901 controls. Due to missing household identity (hhid) between the two survey waves, several treatment or control households in IFLS-4 were not found in IFLS-5, therefore creating duplicated or unmatched hhid data. Total IFLS-4 data count after the merge is 5,670 respondents consisting of 1,712 in treatment group and 3,958 in control group.

Original number of observations for IFLS-5 is 7,927 respondents consisting of 1,600 recipients (treatment) and 6,327 non-recipients (control). This number fell to of 2,257 respondents consisting of 211 in treatment and 2,046 in control group after merging with IFLS-4 as a result of new household data in IFLS-5. The duplicated data were dropped from the data set. Final data set for IFLS-5 after merging with IFLS-4 consists of 5,670 respondents with 1,389 as treatment and 4,281 as control.

Table 4.2.1a shows that the final data sets for IFLS-4 and IFLS-5 have the same total number of 5,670 respondents. However, treatment and control groups in each IFLS wave have different number of data due to changes in household status that occurred between the two surveys. Details of the different status changes are shown below:

Table 17. Household Change Status

Change_UCT	Frequency	Percent	Cumulative
change from recipient to non-recipient (-1)	770	13.58	13.58
no change in household status (0)	4,453	78.54	92.12
change from non-recipient to recipient (1)	447	7.88	100
<b>Total</b>	<b>5,670</b>	<b>100</b>	

Source: STATA results and author's own calculation

Table 4.2.1b shows that 13.58 percent or 770 respondents changed status from a UCT beneficiaries (treatment) in 2007 (IFLS-4) to non-recipient (control) in 2014 (IFLS-5). Meanwhile, 7.88 percent or 447 respondents changed their status from non-recipient in 2007 (IFLS4) to recipient in 2014 (IFLS-5). Most households (78.54 percent or 4,453 households) did not get their status changed between the two surveys.

## Chapter 5 Results and Analysis

Using OLS robust standard error and fixed effect regressions, I discuss in this section the impact of the three determinants of subjective welfare, i.e., family satisfaction, future perception, and children's wellbeing. In Table 18, OLS regression shows that all subjective wellbeing components generally have significant determinants although family satisfaction comes fewer significant determinants than future perception and children's wellbeing. In comparison, fixed effect regression shows fewer significant variables when measuring subjective welfare outcomes. OLS and fixed effect regression results are shown in the following table:

Table 18. OLS and Fixed Effect Regression Result

Variables	Family Satisfaction		Future Perception		Children	
	OLS	Fixed Effect	OLS	Fixed Effect	OLS	Fixed Effect
	(1)	(2)	(3)	(4)	(5)	(6)
UCT	-	-	-	-	-	-
	0.3149*** (0.0223)	0.0627* (0.0361)	0.2488*** (0.0232)	-0.0601 (0.0408)	0.1930*** (0.0276)	0.0339 (0.0529)
Urban	0.1107*** (0.0204)	-0.0183 (0.0509)	0.0371* (0.0214)	-0.0110 (0.0576)	0.1151*** (0.0256)	-0.0848 (0.0752)
home_ownership	0.2280*** (0.0257)	0.1006** (0.0407)	0.0717*** (0.0264)	-0.0128 (0.0460)	0.2267*** (0.0297)	0.2089*** (0.0533)
1. Elementary school	0.1455*** (0.0416)	0.0818 (0.0702)	0.1356*** (0.0489)	0.1373* (0.0795)	0.1614** (0.0672)	0.1910 (0.1592)
2. Senior high school	0.3969*** (0.0443)	0.0604 (0.0870)	0.2526*** (0.0515)	0.1138 (0.0984)	0.3732*** (0.0687)	0.0490 (0.1760)
3. Higher education	0.7956*** (0.0619)	0.2794** (0.1300)	0.5136*** (0.0651)	0.1546 (0.1471)	0.6774*** (0.0842)	-0.0119 (0.2324)
Hhsize	-0.0050 (0.0063)	-0.0047 (0.0106)	0.0214*** (0.0064)	-0.0213* (0.0120)	0.0503*** (0.0092)	-0.0477** (0.0194)
Age	-0.0058 (0.0046)	0.0024 (0.0084)	0.0094* (0.0052)	-0.0129 (0.0095)	-0.0218** (0.0092)	0.0030 (0.0195)
age2	0.0001 (0.0000)	-0.0001 (0.0001)	0.0000 (0.0001)	0.0001 (0.0001)	0.0002 (0.0001)	-0.0003 (0.0002)
marital_status	0.1798*** (0.0397)	0.0333 (0.0585)	0.0099 (0.0422)	-0.0415 (0.0662)	0.2521*** (0.0753)	0.0055 (0.1288)
Gender	0.1404*** (0.0401)	0.0911 (0.0595)	0.0741* (0.0404)	0.0852 (0.0673)	0.1194** (0.0550)	0.0389 (0.0957)
health_status	0.3913*** (0.0259)	0.2410*** (0.0333)	0.1838*** (0.0271)	0.0837** (0.0377)	0.3874*** (0.0346)	0.2618*** (0.0525)
year_base		0.3824*** (0.0208)		0.1834*** (0.0235)		0.1340*** (0.0461)
Constant	4.1533*** (0.1131)	4.4301*** (0.2300)	2.8572*** (0.1275)	3.7411*** (0.2602)	3.6946*** (0.2111)	4.0174*** (0.4880)

Observations	11,340	11,340	11,340	11,340	6,909	6,909
R-squared	0.0870	0.0850	0.0353	0.0181	0.0846	0.0294
Number of hhid		5,670		5,670		4,178

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

OLS estimation results in Table 18 show that the impact of UCT received by households is negative on all subjective wellbeing components and statistically significant at one percent. This is contrary to the general assumption that cash transfers will improve subjective wellbeing. We can also see on Columns 1, 3 and 5 that the UCT program has reduced the subjective wellbeing scores of program beneficiaries for family satisfaction, future perception, and children’s wellbeing by respectively -31.5, -24.9, and -19.3 percentage points compared to non-recipient households. These results might be biased by omitted variables because of the inclusion of time-invariant unobservables in the OLS approach.

On the other hand, fixed effect estimation shows insignificant to no impact on beneficiaries’ future perception and children’s wellbeing. However, the impact is positive at 0.062 and statistically significant at ten percent for family satisfaction. It means that on average an increase of one percent in direct cash assistance received increases family satisfaction score by 6.2 percentage points for beneficiaries compared to non-beneficiaries. The value 0.062 is relatively small compared to the family satisfaction index which has an average value of 4.936047. Moreover, Based on the results of the fixed effect regression per subjective wellbeing indicator in Appendix 2 also showed a UCT positive impact at 0.0208 on family life, at 0.0165 on food consumption, and at 0.0097 on levels of happiness with statistically significant at 5%, 10 % and 5% respectively. Therefore, direct cash assistance still benefits the poor during temporary economic shocks but does not affect future perception or children’s wellbeing perception. Fixed effect results show a different significance than OLS regression because it is also used to control the observed differences in fixed overtime variables and might change the regressor variable. This shows that subjective wellbeing is more influenced by factors that are not observed (unobserved heterogeneity).

Above results also show that the increased income produced by UCT program does not have much impact on subjective wellbeing. Rojas (2016) found similar results that increasing income for the poor does not automatically increase subjective wellbeing, which contradicts several authors who found that the increase in income caused by cash transfer programs has a positive effect on subjective wellbeing aspects such as life satisfaction, happiness, and future perceptions. An increase in income also causes little or no increase in welfare because due to other non-economic factors involved in the complexity of the human welfare domain. There is a hierarchy of needs in the literature on basic needs—people who are unable to meet their basic needs will experience a low level of welfare. To achieve a high level of welfare, a minimum income threshold is necessary to improve the poor’s level of life needs.

In the Indonesian context, Rosfadhila et al. (2011) evaluated the implementation of a BLT program and found several problems. First, BLT recipients stated that the cash has helped ease the economic burden of the household. However, with only IDR 100,000 (around USD 10) received in a month, it is not enough to meet all needs due to increasing prices. Second, programs that distribute funds create opportunities for corruption, such as in cuts made in collusion between community leaders and target households. Cutting the funds was also intended to avoid jealousy and conflict in the communities, and help finance various community activities.

Research by Listyaningsih and Kiswanto (2009) also found misallocation of BLT funds. In its first run in 2005, households which did not meet the criteria were mistakenly included as recipients, although the beneficiary list had been fixed by 2008. These issues have apparently contributed in BLT's little impact on subjective wellbeing.

Determinants other than cash transfers have correlations and signs that fit our expectations. In addition, more than half of the determinants are significant. This is consistent with the findings of Dolan et al. (2008), Kilburn et al. (2016), and Rojas (2016) that subjective wellbeing is influenced by personal and social (non-economic) factors such as health status, marital status, gender, education, and household size.

Home ownership generally demonstrates positive correlation with all subjective wellbeing components. Using OLS, home ownership appears to have a significant magnitude correlation at one percent with all dependent variables of subjective wellbeing. Meanwhile, fixed effect regression shows that home ownership variables have a statistically significant, positive effect on family satisfaction and children's wellbeing at five percent and one percent; but no significant impact on future perception. With OLS, self-owned house appears to increase family satisfaction score by 23 percentage points, future perception score by seven percentage points, and children's wellbeing score by 23 percentage points more than otherwise. Meanwhile, fixed effect demonstrates that self-owned house increases family satisfaction score by ten percentage points and children's wellbeing score by 21 percentage points more than otherwise. In sum, households with house ownership seem to enjoy higher subjective wellbeing compared to households that do not own their house.

Education is positively and significantly correlated with family satisfaction, future perception, and children's wellbeing as the OLS results show that possession of higher level of education improves subjective wellbeing outcomes. Jamal (2018) found similar result where level of education achieved is positively and significantly correlated with subjective wellbeing. However, fixed effects regression shows that significant correlations are found only between higher education and family satisfaction (at five percent), and between elementary school education and future perception (at ten percent). Meanwhile, no significant impact is found for children's wellbeing.

Table 18 also shows similar OLS and fixed effect regression results for household size (hhsiz), i.e., a significant, negative correlation with future perception and children's wellbeing, but not significant with family satisfaction. OLS regression shows significance at one percent in both subjective wellbeing outcomes, but fixed effect results show significance at ten percent for future perception and five percent for children's wellbeing. In both OLS and fixed effect, an increase of one family member reduces future perception score by two percentage points and children's wellbeing score by five percentage points. This finding agrees with Kilburn et al. (2016: 21) who found "a significant, negative correlation between household composition variables and subjective wellbeing, indicating that the more members a family has, the smaller the subjective welfare".

Overall, both results of OLS and fixed effect regressions for age and age squared show no significant impact on subjective wellbeing outcomes. On closer look, OLS regression shows that the age variables have positive correlation with significance at ten percent on future perception and negative correlation with significance at five percent on children's wellbeing. Some studies, such as that by Jamal (2018), conclude that younger-age groups tend to be happier than middle-aged respondents, but this study finds no empirical evidence for quadratic age relationships.

Marital status returns a positive and significant OLS regression result at one percent for family satisfaction and children's wellbeing but no impact on future perception. Married respondents enjoy a family satisfaction score of 18 percentage points and children's wellbeing score of 25 percentage points higher than respondents who are not married. This echoes Myers (2000) who maintains that "married people are generally happier than those who are unmarried, whether they are separated, divorced or single." Meanwhile, fixed effects regression shows that marital status variables do not affect any subjective wellbeing outcome.

OLS regression results for gender shows that this variable correlates positively and significantly with all subjective wellbeing outputs each at one percent, ten percent, and five percent for family satisfaction, future perception, and children's wellbeing, respectively. Female household heads show a family satisfaction score of 14 percentage points, future perception score of seven percentage points, and children's wellbeing score of 12 percentage points higher than male household heads. However, fixed effect regression shows insignificant results for all subjective wellbeing components. In their research, Dolan et al. (2008) found similar results where "gender differentials on life satisfaction vary from country to country, but the differentials tend to be rather insignificant in most Asian and Western countries".

Overall, the only determinant that has a significant, positive, strong correlation in all subjective wellbeing outcomes when analyzed with both OLS and fixed effect model is health status. With OLS, respondents with good health status enjoy a family satisfaction score of 39 percentage points, future perception score of 18 percentage points, and children's wellbeing score of 39 percentage points more than those with poor health. Under fixed effect, good health status grants respondents a family satisfaction score of 24 percentage points, future perception score of eight percentage points, and children's wellbeing score of 26 percentage points more than if they have poor health.

It shows that a person's health condition highly influences his or her subjective wellbeing. This finding is in line with the conclusion from Dolan et al.:

Studies consistently show a strong relationship between subjective wellbeing (SWB) and both physical and psychological health. Psychological health appears to be more highly correlated with SWB than physical health but this is not surprising given the close correspondence between psychological health and SWB. Some of the association may be caused by the impact that well-being has on health but the effect sizes of the health variables are substantial suggesting that even accounting for the impact of SWB on health, health is still impacting on SWB. (Dolan et al. 2008)



## Chapter 6 Conclusion

Unconditional Cash Transfer (UCT) has become one of the means by which government assistance programs can help the poor meet their daily needs. In Indonesian context, impact evaluation studies have been conducted on a range of UCT programs using economic or material indicators. Nevertheless, there is widespread agreement on the importance of such concepts as subjective wellbeing which measure quality of life as actual experience through people's perception. In order to sketch a complete picture of the current social problems, I seek in this study to contribute to the literature on the impact in terms of non-material aspects from the viewpoint of beneficiary households.

In general, Indonesia's UCT program is negatively correlated or has no impact on improving subjective wellbeing of recipient households relative to that of non-beneficiaries. Among the three subjective wellbeing components—family satisfaction, future perception, and children's wellbeing—the UCT program appears to have the most significant and positive impact on family satisfaction. From recipient's perspective, UCT may help beneficiaries maintain stable consumption level during short-term economic shocks and not affected their perception of the future and child's wellbeing perception.

These results disagree with the expectation and theory which assume that cash transfers will increase subjective wellbeing. Several factors might explain this assumption, such as the amount of cash transferred that determines improvements in consumption and psychological wellbeing (Haushofer and Shafiro 2016). Moreover, respondents' perception might be affected by the time length between survey and implementation of the program (Natali et al 2018).

Futhermore, Indonesia's UCT program has had several problems in its implementation which possibly affect the subjective wellbeing indicators. The government should therefore continue to improve the effectiveness of program implementation, especially regarding transferred amount (existing amount is unable to meet poor people's needs), household targeting (to prevent misallocation), and coordination of all relevant agencies (to eliminate opportunities for corruption and social conflicts).

Experiential measures such as life satisfaction represent important dimension of one's wellbeing that cannot be captured by objective measures. Policymakers should consider both the objective and subjective measures in improving quality of life as together they reflect wellbeing more accurately. Moreover, low subjective wellbeing is not merely caused by the poor's low income but also other relevant factors related to satisfaction in various "domains of life." This study should therefore inspire public policy to not only focus on increasing the poor's income but to also place them in life-satisfying situations (Rojas 2016).

The literature has shown that subjective wellbeing is a broad, rich concept. Certainly, I have not addressed all subjective wellbeing elements of cash transfers in Indonesia due to limited data, research techniques, and time. The survey in 13 Indonesian provinces utilized limited amount of data and therefore future research can improve on this by using data that provide better representation of Indonesian society. Subsequent studies also need to determine the samples more accurately, especially by considering the similar characteristics between treatment and control groups. Similar studies might also benefit from better accuracy if the time gap between survey and implementation of cash transfer is considered, where a shorter gap would facilitate measurement of real-time impact. In the meantime, findings presented in this study can contribute to and be considered in follow-up studies on this topic.

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## Appendices

Appendix 1. Output OLS Regression per Subjective Wellbeing Indicators

VARIABLES	(1) fam_life	(2) fam_life	(3) std_liv	(4) food_cons	(5) healthcare	(6) lvl_happy
UCT	-0.0504*** (0.0059)	-0.0504*** (0.0059)	-0.0609*** (0.0061)	-0.0493*** (0.0055)	-0.0316*** (0.0057)	-0.0368*** (0.0049)
urban	0.0173*** (0.0054)	0.0173*** (0.0054)	0.0210*** (0.0057)	0.0155*** (0.0050)	0.0112** (0.0054)	0.0318*** (0.0046)
home_ownership	0.0500*** (0.0067)	0.0500*** (0.0067)	0.0503*** (0.0072)	0.0334*** (0.0064)	0.0367*** (0.0068)	0.0082 (0.0057)
1.educational_level	0.0044 (0.0113)	0.0044 (0.0113)	0.0177 (0.0115)	0.0242** (0.0102)	0.0101 (0.0108)	0.0405*** (0.0087)
2.educational_level	0.0391*** (0.0120)	0.0391*** (0.0120)	0.0545*** (0.0122)	0.0638*** (0.0108)	0.0421*** (0.0116)	0.0844*** (0.0094)
3.educational_level	0.1108*** (0.0171)	0.1108*** (0.0171)	0.1412*** (0.0177)	0.1424*** (0.0147)	0.1080*** (0.0156)	0.1122*** (0.0133)
hhsiz	-0.0015 (0.0017)	-0.0015 (0.0017)	-0.0009 (0.0018)	0.0002 (0.0015)	-0.0028* (0.0016)	-0.0008 (0.0014)
age	-0.0071*** (0.0012)	-0.0071*** (0.0012)	-0.0068*** (0.0012)	-0.0055*** (0.0011)	-0.0076*** (0.0012)	0.0122*** (0.0010)
age2	0.0001*** (0.0000)	0.0001*** (0.0000)	0.0001*** (0.0000)	0.0001*** (0.0000)	0.0001*** (0.0000)	-0.0001*** (0.0000)
marital_status	0.0322*** (0.0106)	0.0322*** (0.0106)	0.0331*** (0.0109)	0.0247** (0.0097)	0.0223** (0.0100)	0.0404*** (0.0086)
gender	0.0203* (0.0109)	0.0203* (0.0109)	0.0227** (0.0112)	0.0196** (0.0096)	0.0309*** (0.0097)	0.0121 (0.0084)
health_status	0.0888*** (0.0067)	0.0888*** (0.0067)	0.0819*** (0.0072)	0.0682*** (0.0065)	0.1455*** (0.0067)	-0.0147*** (0.0057)
Constant	0.9014*** (0.0292)	0.9014*** (0.0292)	0.9116*** (0.0306)	0.8962*** (0.0282)	0.7983*** (0.0294)	0.3238*** (0.0233)
Observations	11,340	11,340	11,340	11,340	11,340	11,340
R-squared	0.0485	0.0485	0.0453	0.0469	0.0720	0.0489

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

VARIABLES	(7) ftr_pov	(8) ftr_std	(9) child_std	(10) child_food	(11) child_health	(12) child_edu
UCT	-0.1637*** (0.0164)	-0.0850*** (0.0151)	-0.0553*** (0.0084)	-0.0550*** (0.0083)	-0.0482*** (0.0084)	-0.0344*** (0.0098)
urban	0.0407*** (0.0150)	-0.0036 (0.0143)	0.0222*** (0.0077)	0.0373*** (0.0077)	0.0306*** (0.0077)	0.0250*** (0.0089)
home_ownership	0.0142 (0.0183)	0.0575*** (0.0184)	0.0669*** (0.0089)	0.0643*** (0.0089)	0.0596*** (0.0089)	0.0359*** (0.0110)
1.educational_level	0.0939*** (0.0355)	0.0417 (0.0292)	0.0253 (0.0204)	0.0489** (0.0197)	0.0411** (0.0199)	0.0461** (0.0188)
2.educational_level	0.1827*** (0.0369)	0.0700** (0.0314)	0.0706*** (0.0209)	0.1048*** (0.0202)	0.1035*** (0.0203)	0.0942*** (0.0196)

3.educational_level	0.3421*** (0.0464)	0.1715*** (0.0399)	0.1517*** (0.0253)	0.1855*** (0.0242)	0.1818*** (0.0249)	0.1584*** (0.0244)
hhsiz	-0.0070 (0.0046)	-0.0144*** (0.0044)	-0.0132*** (0.0028)	-0.0146*** (0.0027)	-0.0101*** (0.0028)	-0.0123*** (0.0030)
age	0.0087** (0.0035)	0.0007 (0.0034)	-0.0052* (0.0028)	0.0010 (0.0026)	-0.0027 (0.0025)	-0.0148*** (0.0037)
age2	-0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	0.0001*** (0.0000)
marital_status	-0.0259 (0.0305)	0.0358 (0.0253)	0.0570** (0.0258)	0.0779*** (0.0204)	0.0633** (0.0257)	0.0539*** (0.0190)
gender	0.0334 (0.0300)	0.0406* (0.0232)	0.0131 (0.0174)	0.0492*** (0.0154)	0.0406** (0.0172)	0.0166 (0.0165)
health_status	0.0786*** (0.0192)	0.1052*** (0.0178)	0.1155*** (0.0111)	0.1010*** (0.0105)	0.1079*** (0.0113)	0.0630*** (0.0117)
Constant	1.2765*** (0.0874)	1.5807*** (0.0822)	0.9637*** (0.0640)	0.8421*** (0.0595)	0.8883*** (0.0610)	1.0004*** (0.0844)
Observations	11,340	11,340	6,909	6,909	6,909	6,909
R-squared	0.0349	0.0112	0.0644	0.0671	0.0648	0.0415

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Appendix 2. Output Fixed Effect Regression per Subjective Wellbeing Indicators

VARIABLES	(1) lvl_pov	(2) fam_life	(3) std_liv	(4) food_cons	(5) healthcare	(6) lvl_happy
UCT	-0.0025 (0.0095)	0.0208** (0.0100)	0.0064 (0.0108)	0.0165* (0.0095)	0.0119 (0.0100)	0.0097** (0.0049)
urban	0.0135 (0.0133)	0.0025 (0.0141)	-0.0119 (0.0153)	-0.0203 (0.0134)	-0.0058 (0.0141)	0.0038 (0.0068)
home_ownership	0.0369*** (0.0107)	0.0141 (0.0113)	0.0172 (0.0122)	0.0154 (0.0107)	0.0180 (0.0112)	-0.0010 (0.0055)
1.educational_level	0.0066 (0.0184)	0.0223 (0.0195)	0.0145 (0.0211)	0.0171 (0.0185)	0.0159 (0.0194)	0.0055 (0.0094)
2.educational_level	-0.0028 (0.0228)	0.0094 (0.0242)	-0.0026 (0.0261)	0.0234 (0.0229)	0.0299 (0.0241)	0.0031 (0.0117)
3.educational_level	0.0295 (0.0341)	0.0482 (0.0361)	0.0389 (0.0390)	0.0723** (0.0342)	0.0768** (0.0359)	0.0138 (0.0175)
hhsiz	0.0038 (0.0028)	0.0003 (0.0030)	-0.0010 (0.0032)	-0.0038 (0.0028)	-0.0062** (0.0029)	0.0023 (0.0014)
age	0.0003 (0.0022)	0.0008 (0.0023)	-0.0010 (0.0025)	0.0000 (0.0022)	-0.0006 (0.0023)	0.0028** (0.0011)
age2	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000*** (0.0000)
marital_status	-0.0084 (0.0153)	0.0028 (0.0162)	-0.0020 (0.0175)	-0.0045 (0.0154)	-0.0003 (0.0162)	0.0456*** (0.0079)
gender	0.0329** (0.0156)	0.0264 (0.0165)	0.0157 (0.0178)	-0.0030 (0.0157)	0.0144 (0.0164)	0.0047 (0.0080)
health_status	0.0129 (0.0087)	0.0484*** (0.0092)	0.0377*** (0.0100)	0.0330*** (0.0088)	0.0843*** (0.0092)	0.0247*** (0.0045)
year_base	0.1811*** (0.0055)	-0.0330*** (0.0058)	-0.0050 (0.0062)	-0.0213*** (0.0055)	-0.1321*** (0.0058)	0.3927*** (0.0028)
Constant	0.5898*** (0.0603)	0.8143*** (0.0639)	0.9204*** (0.0689)	0.8940*** (0.0605)	0.8121*** (0.0636)	0.3996*** (0.0309)
Observations	11,340	11,340	11,340	11,340	11,340	11,340
R-squared	0.2366	0.0223	0.0065	0.0134	0.1664	0.8466
Number of hhid	5,670	5,670	5,670	5,670	5,670	5,670

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

VARIABLES	(7) ftr_pov	(8) ftr_stnd	(9) child_std	(10) child_food	(11) child_health	(12) child_edu
UCT	-0.0110 (0.0290)	-0.0491* (0.0273)	0.0073 (0.0165)	0.0130 (0.0159)	0.0113 (0.0167)	0.0023 (0.0193)
urban	-0.0105 (0.0409)	-0.0005 (0.0385)	-0.0342 (0.0234)	0.0049 (0.0226)	-0.0064 (0.0237)	-0.0491* (0.0274)
home_ownership	-0.0174 (0.0327)	0.0046 (0.0308)	0.0516*** (0.0166)	0.0605*** (0.0160)	0.0549*** (0.0168)	0.0419** (0.0194)
1.educational_level	0.0756 (0.0564)	0.0618 (0.0532)	0.0305 (0.0496)	0.0758 (0.0478)	0.0604 (0.0501)	0.0243 (0.0579)

2.educational_level	0.0426 (0.0699)	0.0711 (0.0658)	-0.0088 (0.0548)	0.0512 (0.0528)	0.0227 (0.0554)	-0.0162 (0.0641)
3.educational_level	0.0964 (0.1044)	0.0582 (0.0983)	-0.0447 (0.0724)	0.0569 (0.0698)	0.0301 (0.0732)	-0.0542 (0.0846)
hhsiz	-0.0047 (0.0086)	-0.0166** (0.0081)	-0.0056 (0.0061)	-0.0161*** (0.0058)	-0.0074 (0.0061)	-0.0186*** (0.0071)
age	-0.0080 (0.0068)	-0.0049 (0.0064)	0.0085 (0.0061)	0.0082 (0.0058)	0.0064 (0.0061)	-0.0201*** (0.0071)
age2	0.0001 (0.0001)	0.0000 (0.0001)	-0.0002*** (0.0001)	-0.0002** (0.0001)	-0.0001** (0.0001)	0.0002** (0.0001)
marital_status	-0.1004** (0.0470)	0.0589 (0.0443)	-0.0028 (0.0401)	0.0433 (0.0387)	-0.0293 (0.0406)	-0.0057 (0.0469)
gender	0.0275 (0.0478)	0.0577 (0.0450)	0.0123 (0.0298)	0.0219 (0.0287)	0.0245 (0.0302)	-0.0198 (0.0348)
health_status	0.0030 (0.0268)	0.0807*** (0.0252)	0.0674*** (0.0164)	0.0604*** (0.0158)	0.0672*** (0.0165)	0.0668*** (0.0191)
year_base	-0.0158 (0.0167)	0.1991*** (0.0157)	-0.0060 (0.0144)	0.0308** (0.0138)	0.0225 (0.0145)	0.0867*** (0.0168)
Constant	2.0247*** (0.1848)	1.7163*** (0.1740)	0.9163*** (0.1519)	0.8663*** (0.1465)	0.9292*** (0.1537)	1.3056*** (0.1776)
Observations	11,340	11,340	6,909	6,909	6,909	6,909
R-squared	0.0037	0.0419	0.0393	0.0226	0.0214	0.0191
Number of hhid	5,670	5,670	4,178	4,178	4,178	4,178

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



