# The impact of the Kenya CT – OVC on parents' wellbeing and their children

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## Abstract

In recent years, there is growing economic literature on subjective wellbeing. Many scholars investigate the different factors that explain the level and/or variation of life satisfaction as well as depressive symptoms and hope. The majority of the analyses refer to adults in developed countries, while a few of them concentrate their attention on young people in developing countries. Using experimental data from the Government of Kenya's largest social protection program - the Kenya Cash Transfer for Orphans and Vulnerable Children (CT-OVC) - this paper investigates if a positive shock on family income affects subjective wellbeing of adolescent. For this purpose, we apply a two – stage least squares approach. In the first stage, we measure the impact of the Kenya CT - OVC on parents' quality of life and future expectations. In the second stage, we measure the specific contribution of family environments on adolescents' subjective wellbeing. Our analysis shows that the program affects parents' subjective wellbeing which in turn produce positive effects on psychological wellbeing and hope of adolescents. One of the possible explanation is that psychological feelings or emotional statuses are contagious and so people that share the same environment tend to influence each other. Thus, targeting resources to the poorest households contributes to ameliorate their living standard as well as to improve their subjective wellbeing. Considering that poverty is not only a material condition but also a mental status, this policy could be important in order to help people – and especially the youngest - for thinking different and escaping from poverty.

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# 1. Introduction

In recent years, there is growing economic literature on subjective wellbeing. Many scholars investigate the different factors that explain the level and/or variation of life satisfaction as well as depressive symptoms and hope. The majority of the analyses refer to adults in developed countries, while a few of them concentrate their attention on young people in developing countries.

Some scholars argue that genetic and heritable aspects could contribute to shape individual psychology. Nonetheless, analyses on twins point out that genes explain less than half of the subjective wellbeing level while the same share decreases approximately to one-fifth when comparing family members (Casas et al 2012). Thus, other factors appear more important in determining subjective wellbeing such as material conditions (e.g. Deaton, 2008; Stevenson and Wolfers 2008; Haushofer and Fehr, 2014). Indeed, it is widely accepted that the lack of the necessary economic resources for basic needs and related pressures coming from external circumstances decrease opportunities, constrain choices and severely affect subjective wellbeing. Moreover, some studies demonstrate that income shocks have consequences that go over material conditions. For example, Friedman and Thomas (2008) show that the 1997 Crisis generated negative results in the psychological wellbeing for the Indonesian population. Chemin et al (2013) report that the level of stress of poor Kenyan farmers increases (measured by salivary cortisol samples) when they are affected by the negative weather shocks.

These results promote important considerations in terms of policy implications. Indeed, the evidence coming from the recent literature demonstrates that cash transfer programs could be an important tool, not only for alleviating poverty but also for promoting psychological wellbeing among participants. Macours et al (2008) – for example - find that Nicaragua's *Atención a Crisis* program has a positive effect on mental health of beneficiary households. Ozer et al (2011) report a positive impact of Mexico's Oportunidades program on mothers' subjective wellbeing (measured by the CESD depression scale). Handa et al (2013) show that Zambia's cash transfer program increases the quality of life and future expectations of beneficiaries. Handa et al (2014) report similar results investigating the impact of the Kenya Cash Transfer for Orphans and Vulnerable Children (CT-OVC). Lastly, Haushofery and Shapiro (2014) find a positive impact on happiness, life satisfaction and stress symptoms alleviation for beneficiary families of an unconditional cash transfer program in rural Kenya.

Since the majority of these programs are targeted at children or young people, it would be interesting to understand which are the specific consequences on their mental health wellbeing and future expectations. Some of the literature argues that children and parents' subjective wellbeing are correlated[1]. Beyond genetic connections, some studies demonstrate that psychological feelings or emotional statuses are contagious and so people that share the same environment tend to influence each other[2]. In particular, life events directly affect family members modifying their relationships

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[1]     Clair (2012) finds that children living close to parents with high life satisfaction are more satisfied than children growing up with parents less satisfied. Fernand et al (2008) find that children who are more stressed according the salivary cortisol test are those living with mothers that present high depressive symptoms. Although less works focus on hope, some of them find a positive correlation between parents and children (Hoy, 2011).

[2]     Using microdata from rural China, Knight and Gunatilaka (2009) argue that happiness is "infectious" since the individual's level of subjective wellbeing is partially affected by the level of subjective wellbeing of the reference group. Similar results are found by Fowler and Christakis (2008).

but they also influence psychological wellbeing of people living under same roof via mirror reactions of the neuron system[3].

Thus, the aim of this paper is to investigate if a positive shock on family income affects subjective wellbeing of youths. Using experimental data collected in a large field survey as part of the impact evaluation of the Kenya's Cash Transfer for Orphans and Vulnerable Children (CT-OVC), the idea is that cash transfer improves subjective wellbeing of family members (proxied by quality of life and future expectations) which in turn lead to positive effects on psychological wellbeing and hope of youths. For this purpose, we use a two – stage least squares methodology. In the first stage, the random assignment at baseline of households to treatment and control group helps to identify the impact of the program on family background. In the second stage, we measure the specific contribution of family environments on young people's outcomes.

The contribution of this work is two-fold. Firstly, this is one of the few papers that try to measure the impact of a cash transfer program on psychological wellbeing of youths. Among them, Baird et al (2011) show that Malawi's cash transfer program increases the mental health wellbeing of adolescent girls. Nonetheless, the positive impact disappeared after two years when the program ended. Fernald and Gunnar (2009) report that Mexico's Oportunidades Program generates a positive impact on family health wellbeing reducing the cortisol in children living with depressed mothers but not for the others. Secondly - in our knowledge - this is the first paper that tries to investigate whether it is possible to generate more hope among young people enhancing family material conditions.

The paper is structured in the following way:  Section 2 describes the program; Section 3 discusses about the data; Section 4 introduces the different indicators used in our analysis; Section 5 report the results while Section 6 concludes.


## 2. The Kenya Cash Transfer Programme for Orphans and Vulnerable Children (CT-OVC)

As other Sub-Saharan African countries, Kenya was affected by the fast spread of HIV/AIDS epidemic problem during the last two decades. As a result, an increasing number of children has been growing up without parents. In particular, it was estimated that in the mid-2000s about 50 per cent of the orphanhood was due to parental death in HIV/AIDS pandemic (NACC, 2010). Moreover, the majority of orphan children lived in households without means for sustaining their physical and cognitive development process.

In response to this situation – in 2004 - the Kenya's government in collaboration with UNICEF introduced the Cash Transfer Programme for Orphans and Vulnerable Children (CT-OVC). The aim of the program is to alleviate poverty as well as to assure better nutrition, health and education for vulnerable children. To do this, a cash transfer is provided to the poorest households with OVC children – i.e. orphans, chronically ill, living in a child-headed household or living with a caregiver who is chronically ill (Table 1). The monetary amount is provided every two months and it is unconditional. At the end of 2012, it was of KSh 4,000 that represented close to 15 per cent of the household consumption expenditures.

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[3]     Some studies show that marital break-up (Amato, 1994; Vanderwater and Lansford, 1998; Shapiro and Lambert 1999) or job loss (Powdthavee and Vignoles, 2008; Kind and Haisken – De New, 2012) reduce life satisfaction, self-esteem or increase stress, depression symptoms for parents affecting their relationship with children and also generating spillover effects on children's mental health wellbeing.

Table 1. Beneficiary characteristics

| A household is eligible if: | at least one OVC lives in the households |
| | it is considered poor according to the Programme's poverty criteria |
| | the OVCs are not benefiting from other programmes |
| A child is defined as an OVC if he falls under one of these categories: | orphan (single – with one parent dead, or double – with both parents dead) |
| | chronically ill |
| | living in a child-headed household |
| | living with a caregiver who is chronically ill |

Source: Ward et al (2010: 3). Notes: Child is considered an individual younger than 18 years old.

Since its good performance - after the two-years pilot phase - the program was rapidly scaled-up. In particular, the number of districts covered by the program grew from three in 2005 to 74 in 2012 (Figure 1). Over the same period, the number of beneficiary households rose from 500 to 150,000 while the number of beneficiary children increased up to 300,000 (Figure 1). Although these changes, the cost is still close to one per of GDP. Nowadays, the Kenya Cash Transfer Programme for Orphans and Vulnerable Children (CT-OVC) has a central role in the National Safety Net Programme representing the flagship of Vision 2030.

Figure 1: The Scale-up of Kenya's CT-OVC Programme (2005-2012)
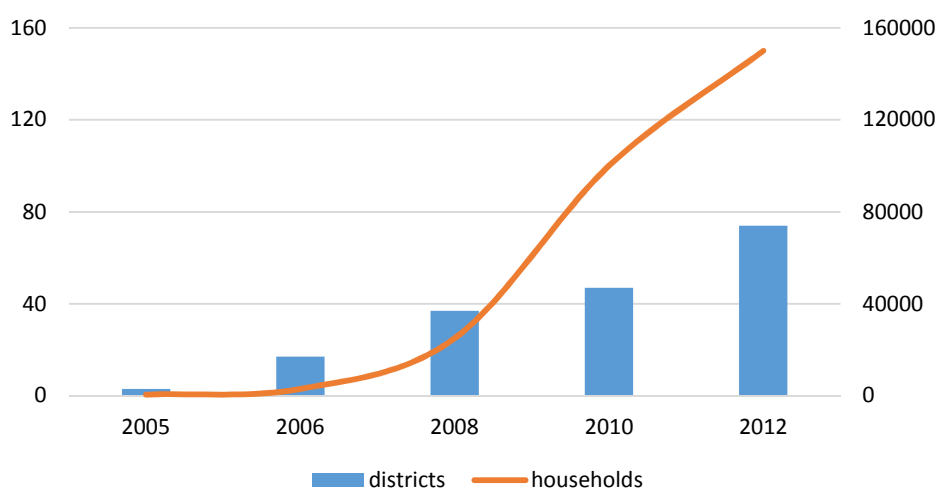


Source: author's elaboration on data extracted from Kirera (2012)

## 3. Data

Taking advantage from the expansion of the program in 2007, it was implemented a rigorous experimental design in order to carry out an impact evaluation analysis. The original aim was to test the effectiveness of the program in achieving selected economic and social outcomes. Moreover, the cost of the program and the possibility to modify its design were evaluated. For this purpose, quantitative data at the household and community level were collected in 2007, in 2009 (24 months later) and again in 2011 (48 months later). Questions were administered to the main respondent - typically the household head – in different languages such as Luo, Swahili or Somali.

According to the experimental design, households were assigned to the treated or control group randomly. As reported by Handa et al (2014): "Targeting of households was carried out in all Locations according to standard program operation guidelines, and from the eligibility lists a sample of households was drawn at a rate of 2:1 treatment and control respectively. Sample size was based on power calculations for the key impact indicators of school enrollment and household consumption expenditures".

Nonetheless, turmoil related to the 2007 national elections provoked some attrition problems. Especially in the locations of Kisumu and Nairobi, many people died and others had to leave their houses. As a result, attrition was around 15 per cent between 2007 and 2009 but only 5 per cent between the first and the second follow-up study. Yet, Table 2 reports that means of demographic and monetary variables for the treated and control groups across the three waves remained stable.

Table 2: Household characteristics by wave and intervention status in the CT-OVC Evaluation Sample

| Sample: | 2007 | | 2009 | | 2011 | |
|---|---|---|---|---|---|---|
| | T | C | T | C | T | C |
| Demographics | | | | | | |
| Household size | 5.48 | 5.79 | 5.54 | 5.81 | 5.53 | 5.82 |
| Residents 0-5 years | 0.66 | **0.86** | 0.68 | 0.85 | 0.67 | **0.86** |
| Residents 6-11 years | 1.21 | **1.33** | 1.23 | 1.32 | 1.23 | 1.31 |
| Residents 12-17 years | 1.40 | 1.38 | 1.40 | 1.39 | 1.40 | 1.40 |
| Residents 18-45 years | 1.12 | **1.45** | 1.13 | **1.46** | 1.13 | **1.46** |
| Residents 46-64 years | 0.59 | **0.36** | 0.60 | **0.37** | 0.60 | **0.38** |
| Residents 65+ years | 0.51 | 0.42 | 0.50 | 0.41 | 0.51 | 0.41 |
| Female head | 0.65 | **0.57** | 0.65 | **0.59** | 0.65 | **0.59** |
| Age of head in years | 62.34 | **56.06** | 62.21 | **56.20** | 62.55 | **56.55** |
| Head not completed primary | 0.53 | **0.38** | 0.53 | **0.38** | 0.53 | **0.38** |
| Poverty | | | | | | |
| Per adult equiv. monthly exp. (Ks) | 1533.30 | 1501.25 | 1541.77 | 1459.94 | 1550.14 | 1441.99 |
| Walls of mud/dung/grass/sticks | 0.75 | 0.84 | 0.75 | 0.86 | 0.74 | 0.87 |
| Roof of mud/dung/grass/sticks | 0.23 | 0.22 | 0.23 | 0.23 | 0.22 | 0.22 |
| Floor of mud/dung | 0.66 | 0.74 | 0.65 | 0.77 | 0.66 | 0.79 |
| No toilet | 0.55 | 0.56 | 0.55 | 0.56 | 0.54 | 0.56 |
| Unprotected water source | 0.62 | 0.68 | 0.61 | 0.70 | 0.61 | 0.70 |
| Region | | | | | | |
| Garissa | 0.10 | 0.06 | 0.11 | 0.06 | 0.09 | 0.05 |
| Homa Bay | 0.12 | 0.13 | 0.12 | 0.13 | 0.12 | 0.14 |
| Kisumu | 0.18 | 0.23 | 0.18 | 0.22 | 0.18 | 0.22 |
| Kwale | 0.08 | 0.09 | 0.08 | 0.10 | 0.08 | 0.11 |
| Migori | 0.23 | 0.23 | 0.22 | 0.25 | 0.22 | 0.26 |
| Nairobi | 0.13 | 0.10 | 0.13 | 0.07 | 0.13 | 0.06 |
| Suba | 0.15 | 0.16 | 0.16 | 0.16 | 0.17 | 0.17 |
| N | 1540 | 754 | 1325 | 583 | 1266 | 545 |

Statistically significant (at 10%) differences of t-test between Treatment (T) and Control (C) within each wave shown in bold. Thirty-three new households at follow-up not included in table.

Moreover, Handa et al (2014) estimate the probability of attrition between 2007 and 2009. They report that: "the fact that the two most important determinants of attrition stem from residence in Kisumu and Nairobi, which were disproportionately affected by the election violence relative to other study sites, and the minimal differences in the determinants of attrition across arms, we believe that selective attrition is not a concern in the subsequent analysis" (Handa et al, 2014: 9).

Thus, these results provide the necessary assurance on the data quality and give us the possibility of using information coming from different waves. In particular, we use data from baseline and second follow-up survey containing information on youths' subjective wellbeing. Table 3 reports descriptive characteristics of people that were actually administrated the subjective wellbeing module in 2011. Excluding "chronically ill" variable, mean differences are not statistically significant in characteristics.

Table 3: Mean characteristics of youths and adults respondents

|  |  | T | C | p-value difference in means |
|---|---|---|---|---|
| youths | Age | 18.54 | 18.69 | 0.28 |
|  | Female | 41.69 | 41.40 | 0.90 |
|  |  |  |  |  |
|  | Age in years | 55.67 | 55.65 | 0.99 |
| adults | Female | 77.57 | 77.05 | 0.79 |
|  | Partner in household | 38.83 | 37.29 | 0.49 |
|  | Can read | 31.39 | 32.33 | 0.66 |
|  | Chronically ill (baseline) | 21.14 | 17.47 | 0.05 |
|  | Bend | 48.37 | 46.33 | 0.37 |
|  | N | 1534 | 678 |  |

Note: Control group mean weighted using the Inverse Probability Weight.

Moreover, our regressions are weighted using the inverse probability weights (IPW). As can be seen in Figure 2, the application of the IPW helps to align the distribution of probability scores across the treated and control group[4]. Consequently, this methodology contributes to generate more robust estimates.

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[4] In the appendix is reported the regression referred to the Inverse probability weights (IPW).

Figure 2. Distribution of probability scores
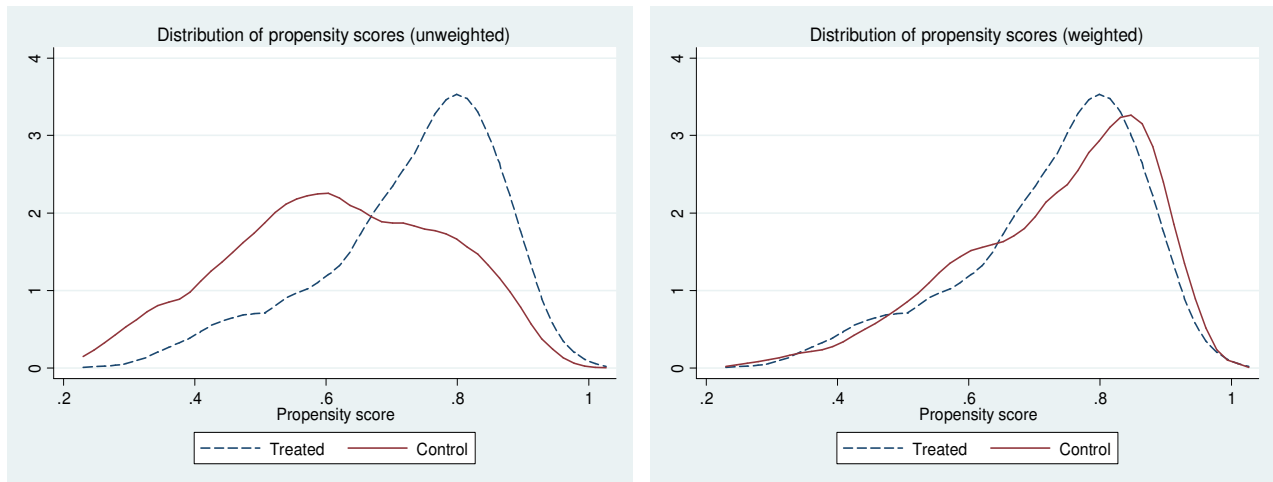


# 4. Measures

## 4.1. Children's subjective wellbeing

To measure youths' subjective wellbeing, we use two different indicators. The first one is the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) that was developed in order to compute the severity of depressive symptoms in a selected population. The original indicator is composed by 20 items assessing individual's subjective wellbeing on different psychological and sociological dimensions such as positive affect, interpersonal difficulties etc. In our analysis, we use a short form of CES-D. In particular, participants were asked only 10 questions on selected feelings. Considering as reference period the previous week, responses could range from 1 (less than one day) to 4 (most or all of the time - i.e. between 5 and 7 days). The questions were:

1. did you sleep well?
2. were you happy?
3. did you have trouble concentrating?
4. do you feel hopeful about the future?
5. did you feel that everything you did was an effort?
6. did you feel lonely?
7. did you feel depressed?
8. did you feel that you could not "get going"?
9. were you bothered by things that don't usually bother you?
10. did you feel fearful?

However, we recode the first three responses described above to obtain opposite values. Therefore, the CES-D scale is computed by adding the score for each of the single items. As a result, we obtain an index scale ranging from 10 (low depression) to 40 (high depression).

The second indicator is the Children's Hope Scale. It was originally developed in order to assess children's hopefulness (Snyder et al., 1997). In particular, the Children's Hope Scale is based on six items to reflect the combination of the different components of hope such as agency and pathways. In our specific setting, respondents were invited to express feelings about their current and future living conditions. In particular, we asked respondents if they strongly agree (5 _ all the time) or disagree (1 _ none of the time) with the following questions:

1. do you think you are doing pretty well?
2. can you think of many ways to get the things in life that are most important to you?
3. are you doing just as well as other people of your age?
4. when you have a problem, can you come up with lots of ways to solve it?
5. do you think the things you have done in the past will help you in the future?
6. even when others want to quit, do you believe you can find ways to solve the problem?

Responses for each of the single indicators are summed obtaining in this way a scale (hope) that ranges from 6 (low hope) to 30 (high hope). Moreover, we consider two additional indicators to measure the hope level among young people. The first one (hope_d) is a dummy variable that takes value one for those that report "hope" level above the average and zero in the remaining cases. The second indicator (H) is given by a principal component analysis.

## 4.2. Parents' subjective wellbeing

As reported above, we also measure parents' subjective wellbeing. We consider two different composite indexes such as quality of life and the future expectations. The first indicator is based on the domains of 'Positive Feeling' and 'Overall Life and Health' of the WHO Quality of Life Scale (WHO 1998). In particular, people were asked if they strongly agree (5) or disagree (1) with the following statements:

- I enjoy life.
- I experience positive feelings in my life.
- I feel positive about my future.
- I am satisfied with my health.
- I am satisfied with my life

The quality of Life scale score is computed as the sum of scores for each of the single indicators. It ranges between 5 and 25 with higher values meaning higher quality of life

The second indicator refers to subjective future well-being. It is computed by asking respondents how they feel about their life in the next future according to the following questions:

- Do you think your life will be better, the same or worse in one year from now?
- Do you think your life will be better, the same or worse in three year from now?
- Do you think your life will be better, the same or worse in five year from now?

As in Handa et al (2014), variables are recoded into binary indicators where 1 indicates that respondent thinks that his/her life will be better. The future expectations scale is obtained by summing up the scores for each of the single items. The new index ranges between 0 and 3 with higher values meaning higher future subjective wellbeing.

# 5. Results

**5.1 Performance on children's subjective wellbeing indicators**

Figure 3 shows that the majority of scores on the CESD composite scale are below the middle value. In particular, participants report that they sleep well (1.4) and do not have trouble concentrating (2.1). Indeed, the majority of young people are not feel depressed (1.7), bothered (1.8), lonely (1.8) or fearful about life (1.6). In contrast, they are happy (1.6), think their life is "get going" (1.8) and feel hopeful about their future (1.6). The only exception concerns the question: "did you feel that everything you did was an effort?". Indeed, its score is above the middle value meaning that the majority of young people feel everything as an effort.

Overall, there is good internal consistency among these variables since the Cronbach alpha score is 0.78. Moreover, all two-way covariances are statistically significant with some exceptions. Indeed, the linear dependence between "everything as an effort" and three other indicators ("sleep bad", "unhappy" and "feel fearful") is not statistically significant. This contributes on suggesting that most probably the question "did you feel that everything you did was an effort?" was not completely understood by participants.

Figure 3. CES-D indicators
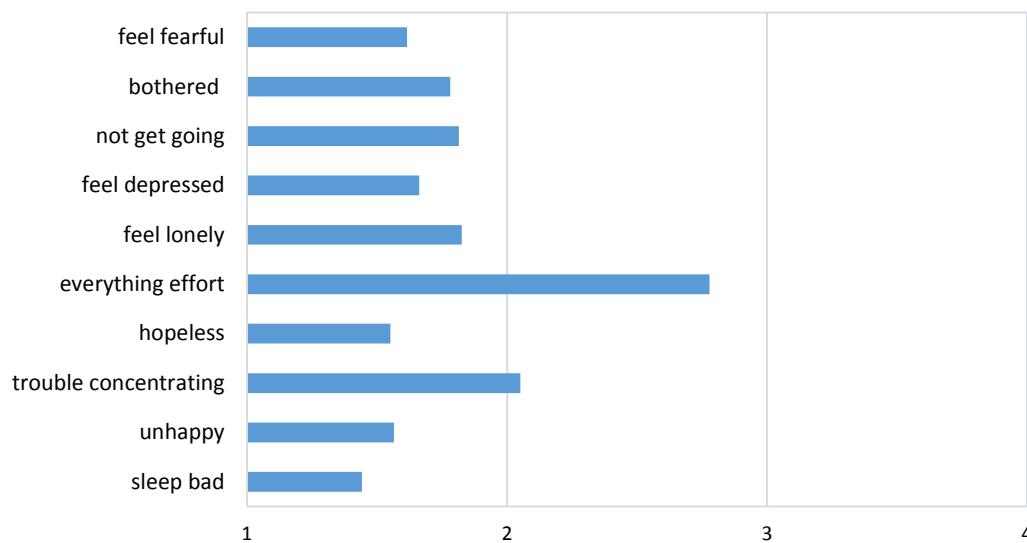


Notes: Reference period is previous 7 days. Variables take value of 1 if it happened rarely or 4 if it happened most or all of the time. Control group mean weighted using the Inverse Probability Weight.

Considering the Children's Hope Scale items, Figure 4 points out that young people are hopeful. In particular, they report middle/high values for all indicators. The highest value is referred to the proportion of young people thinking that their past actions will help them in the future (3.8). On the other hand, the lowest value is referred to the percentage of them believing that they are doing better than their peers (3.3). The remaining values range between 3.5 and 3.7. The Cronbach alpha score for the five hope related items is 0.67. In contrast to the CESD indicators, all two-way covariances are statistically significant at 1 per cent.

Figure 4. Children's Hope Scale (1=strongly disagree; 5=strongly agree)
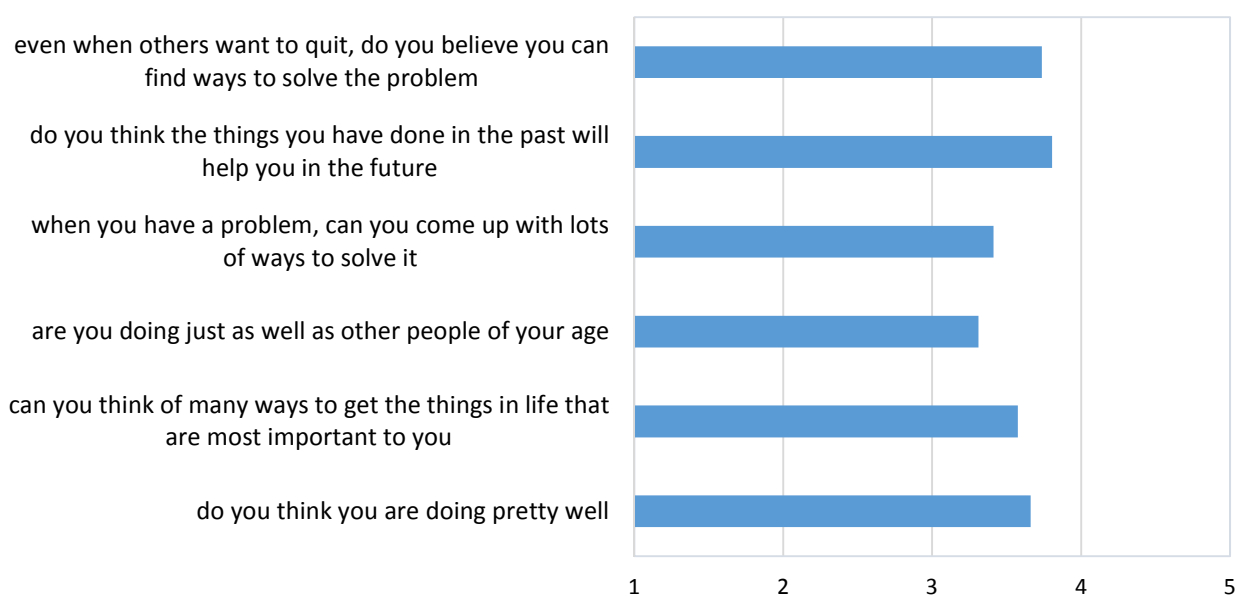


NOTE: Control group mean weighted using the Inverse Probability Weight.

Table 4 reports the mean differences by study arm in CESD items. In the majority of the cases, mean differences are small and not statistically significant. The only exceptions are referred to happiness, friendship and depression. In particular, young people in the treated perform better than those in the control group in all indicators considered. Also, the mean difference between groups for the "hopeless" indicator is statistically significant but only at ten per cent. As a whole, young people in the treated group report lower values than those in the control one. The only exception is referred to the indicator "everything as an effort". Lastly, the CESD composite indicator is lower for young people in the treated than for those in the control group and the difference is statistically significant at 5 per cent.

Table 4: Mean Differences by Study Arm in CESD Items

|  | T | C | p-value difference in means |
|---|---|---|---|
| sleep bad | 1.43 | 1.45 | 0.480 |
| unhappy | 1.51 | 1.62 | 0.005 |
| trouble concentrating | 2.02 | 2.08 | 0.297 |
| hopeless | 1.51 | 1.58 | 0.110 |
| everything effort | 2.80 | 2.76 | 0.564 |
| feel lonely | 1.78 | 1.87 | 0.053 |
| feel depressed | 1.59 | 1.74 | 0.001 |
| not get going | 1.78 | 1.84 | 0.226 |
| bothered | 1.77 | 1.79 | 0.582 |
| feel fearful | 1.61 | 1.62 | 0.721 |
| CESD | 17.79 | 18.36 | 0.030 |

Notes: Reference period is previous 7 days. Variables take value of 1 if it happened rarely or 4 if it happened most or all of the time. Control group mean weighted using the Inverse Probability Weight.

Table 5 reports the mean differences by study arm in Children's Hope Scale items. In the majority of cases, differences between the treated and the control group are not statistically significant. The only exceptions refer to indicators such as "doing well" and "doing as well as their peers". Also in this case, the treated group reports higher values than the control one excluding only one indicator such as "many ways to solve a problem". Finally, young people in household participants are on average more hopeful than those in the control group. However, the difference is not statistically significant.

Table 5: Mean Differences by Study Arm in Children's Hope Scale Items

|  | T | C | p-value difference in means |
|---|---|---|---|
| do you think you are doing pretty well | 3.72 | 3.61 | 0.028 |
| can you think of many ways to get the things in life that are most important to you | 3.58 | 3.58 | 0.978 |
| are you doing just as well as other people of your age | 3.39 | 3.23 | 0.003 |
| when you have a problem, can you come up with lots of ways to solve it | 3.37 | 3.45 | 0.109 |
| do you think the things you have done in the past will help you in the future | 3.84 | 3.77 | 0.145 |
| even when others want to quit, do you believe you can find ways to solve the problem | 3.74 | 3.73 | 0.881 |
| HOPE | 21.64 | 21.37 | 0.124 |
| H | 0.01 | -0.06 | 0.140 |
| hope_dummy | 0.55 | 0.49 | 0.010 |

Notes: Variables take value of 5 if respondent strongly agrees or agrees with statement. Control group mean weighted using the Inverse Probability Weight.

## 5.2 Performance on parents' subjective wellbeing indicators

As can be seen by Figure 5, quality of life indicators are above the middle value. In particular, people report "positive feeling" (3.4) and are optimist about their future (3.4). Also, the majority of them argue that they enjoy life (3.3) and are satisfied with their life (3.2) and health (3.2). Moreover, there is good internal consistency among these indicators and the Cronbach's Alpha value is above 0.85.

Figure 5. Quality of life indicators (1=strongly disagree; 5=strongly agree)
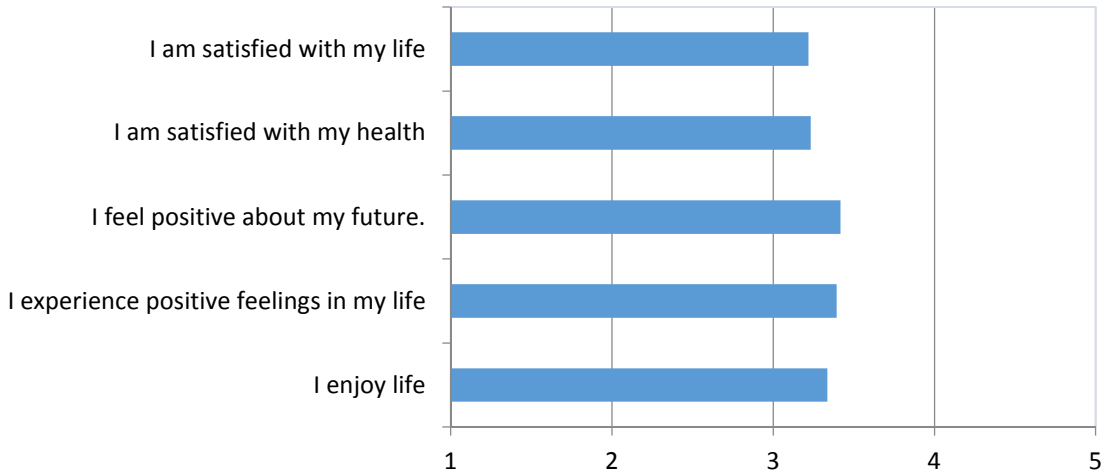


With regard to future subjective wellbeing indicators, Figure 6 shows that more than 40 per cent of people say that their life will be better in three or five years, while 38 per cent of them argue that their life will be better in one year. A more detailed analysis shows two interesting results. On one hand, about 30 per cent of people are pessimistic about their future reporting that their life will not get better in the short (one and three years) as well as in the medium time (better in five years). On the other hand, a similar proportion is always optimistic about their future believing that their life will improve in one, three as well as in five years. Handa et al (2014) highlight that 1 per cent report inconsistent response while the Cronbach's alpha for these indicators is higher than 0.90.

Figure 6. Percentage of people that think their life will be better in 1, 3 and 5 years
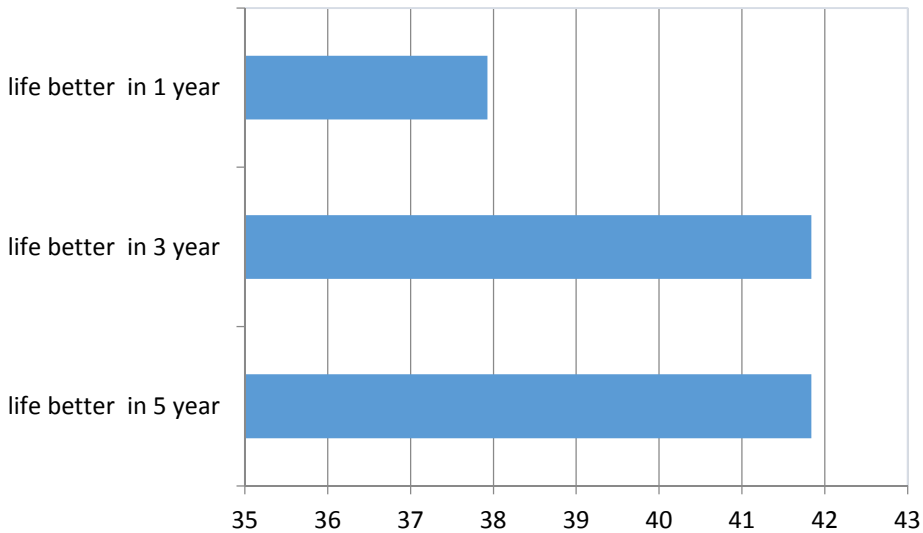


Table 6 shows mean differences between treated and control group across the different indicators concerning quality of life and future subjective wellbeing. First of all, it is possible to observe that the treated group performs better than the control one. With respect to quality of life items, the

highest differences are related to "life satisfaction" and "enjoy life"; while - concerning to future subjective wellbeing items - the largest differences are referred to "life better in one year". Moreover, the mean differences between the two groups are statistically significant. The only exception is on the health satisfaction index. In particular, the mean difference is 0.04 and it is not statistically significant.

Table 6: Mean Differences by Study Arm in Quality of Life Items and Future Subjective Wellbeing

|  | T | C | p-value difference in means |
|---|---|---|---|
| Enjoy life | 3.46 | 3.24 | 0.000 |
| Positive feelings | 3.50 | 3.32 | 0.002 |
| Future feelings | 3.53 | 3.33 | 0.000 |
| Health satisfaction | 3.30 | 3.26 | 0.495 |
| Life satisfaction | 3.32 | 3.10 | 0.000 |
| QUALITY OF LIFE | 17.11 | 16.26 | 0.000 |
| life better in 1 year | 43.06 | 37.21 | 0.009 |
| life better in 3 year | 46.04 | 39.91 | 0.007 |
| life better in 5 year | 46.04 | 40.43 | 0.014 |
| FUTURE SUBJCTIVE WELLBEING | 1.34 | 1.18 | 0.008 |

Note: Control group mean weighted using the Inverse Probability Weight.

## 5.3 How parents' subjective wellbeing affect children's subjective wellbeing

As reported above, the aim of this work is to assess the impact of parents' subjective wellbeing on young people's subjective wellbeing.

Ordinary Least Squares (OLS) estimates of quality of life and future expectations effects on CESD composite scale are shown in Table 7. First of all, it is possible to observe that young people living in households with very high quality of life or future expectations are less depressed. Indeed, Table 6 shows that the quality of life coefficient as well as the future expectations one are negative and statistically significant. Note that the relationship between the CESD scale and age shows an inverted U-shape: indeed, the age coefficient and its square are respectively positive and negative and both statistically significant. This means that adolescents tend to show more depression symptoms.

Furthermore, Table 7 reports the regression results concerning the impact of parents' subjective wellbeing on young people's hope. Our analysis depicts that household environment has a strong effect on subjective wellbeing of household members including the youngest. In particular, the coefficients of quality of life and that of future expectations are positive and statistically significant across the different Children's Hope indicators. Lastly, having friends is a strong determinant of youths' subjective wellbeing.

All in all, we can argue that there is a positive relationship between parents' and children's subjective wellbeing. According to a genetic explanation, people with high subjective wellbeing tend to have children less depressed and more optimistic about their future.

Table 7: Determinants of CES-D and of Children's Hope Scale with Inverse Probability Weights

|  | cesd | hope | hope_d | H | cesd | hope | hope_d | H |
|---|---|---|---|---|---|---|---|---|
| qol | **-0.0839** | **0.102** | **0.00972** | **0.0259** |  |  |  |  |
|  | (-2.41) | (-4.16) | (-3.02) | (-4.16) |  |  |  |  |
| fsw2 |  |  |  |  | **-0.338** | **0.266** | **0.0208** | **0.0678** |
|  |  |  |  |  | (-2.84) | (-3.42) | (-2.08) | (-3.43) |
| femaley | -0.596 | -0.268 | -0.0307 | -0.0618 | -0.622 | -0.229 | -0.0268 | -0.0519 |
|  | (-1.83) | (-1.22) | (-1.02) | (-1.10) | (-1.92) | (-1.06) | (-0.91) | (-0.94) |
| agey | **1.645** | -0.614 | -0.0728 | -0.157 | **1.678** | -0.657 | -0.077 | -0.168 |
|  | -2.34 | (-1.14) | (-1.18) | (-1.14) | (-2.37) | (-1.22) | (-1.24) | (-1.22) |
| agey2 | **-0.0354** | 0.0131 | 0.00144 | 0.00339 | **-0.0362** | 0.0142 | 0.00155 | 0.00366 |
|  | (-1.96) | (-0.95) | (-0.92) | (-0.96) | (-2.00) | (-1.03) | (-0.98) | (-1.04) |
| sl2_2 | -0.049 | **0.0642** | **0.00589** | **0.0161** | -0.051 | **0.0674** | **0.00622** | **0.0169** |
|  | (-1.49) | (-3.03) | (-1.99) | (-2.99) | (-1.54) | (-3.11) | (-2.07) | (-3.07) |
| Obs | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 |
| R-squared | 0.041 | 0.043 | 0.028 | 0.042 | 0.043 | 0.035 | 0.022 | 0.034 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model but not reported are indicators for household size, quality of roof, walls, toilet facility, type of cooking fuel used, and baseline per capita household consumption expenditure. Coefficients in bold are statistically significant at 5 percent.

## 5.4 Endogeneity and impact of the program on parents' wellbeing and children happiness and hope

Yet – as reported in the literature – other factors contribute on explaining the different level of young people's subjective wellbeing. The genetic explanation is not enough to elucidate on the individual psychology. Many empirical works depict that other factors matter such as material conditions. Concerning the Kenya CT - OVC, Handa et al (2014) demonstrate that the program generates a positive impact on quality of life and future expectations of beneficiaries. Considering that children live into households, it is possible to suppose that they are indirectly affected by the program. Indeed, cash transfers increase the parents' subjective wellbeing which in turn (most probably) affect children's subjective wellbeing. Moreover, the possible presence of endogeneity affects the validity of the previous OLS estimations. Indeed, family environment influences children's subjective wellbeing which in turn affects parents' quality of life and future expectations.

Thus, our analysis is developed in two stages using instrumental variables in order to overcome the endogeneity problem and to estimate the (indirect) impact of the program on children's subjective wellbeing. In the first stage, we regress the treatment status variable on parents' subjective wellbeing indicators. The predict values from this first stage are included in the second stage regression in order to replace endogenous covariates.

Table 8 reports the first stage of our analysis. In both cases, the treatment status coefficient is positive and statistically significant at one per cent. Beneficiaries of the program score on average 0.81 points higher on the overall quality of life scale and 0.22 points higher on the future expectations indicator. Thus - in line with the recent empirical evidence (see Handa et al, 2013; Haushofery and Shapiro, 2014; Macours et al, 2008; Ozer et al, 2011) - our analysis confirms that cash transfer programs could be an important tool, not only for alleviating poverty but also for promoting psychological wellbeing among participants. Further interest results are related to the impact of health. People able to read and able to bend/squat report higher subjective wellbeing. Moreover, quality of life is lower for those with chronic ill while it is higher for people having a partner.

Table 8. First-stage regression: Determinants of Parents' Subjective Wellbeing indicators with Inverse Probability Weights

|  | Qol | fsw2 |
| --- | --- | --- |
| T | **0.805** | **0.218** |
|  | (2.89) | (3.06) |
| Female | 0.575 | 0.006 |
|  | (1.82) | (0.06) |
| Partner | **1.204** | -0.078 |
|  | (3.79) | (-0.92) |
| Read | **1.531** | **0.250** |
|  | (4.29) | (2.99) |
| BL_chronic | **-1.554** | -0.065 |
|  | (-3.57) | (-0.65) |
| Bend | **0.713** | **0.232** |
|  | (2.51) | (3.08) |
| Uncentered R2 | 2197 | 2197 |
| R-squared | 0.929 | 0.499 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model as instruments but not reported are indicators at youth level for age, age square, gender and the number of friends. Coefficients in bold are statistically significant at 5 percent.

Lastly, the second stage estimates of parents' subjective wellbeing effects on CESD composite scale and on the children's hope scale are shown in Table 9. A number of test confirms the validity of our results. First of all, the Hausman Test suggests to use instrumental variables rather than the OLS estimator. Secondly, we check about the presence of endogeneity concerning our variables that proxy the family environment performing the C test. According to this test, regressors are considered exogenous under the null hypothesis (Baum, Schaffer and Stillman, 2007). As can be seen in Table 9, the null is rejected in all cases excluding one concerning the relationship between the "quality of life" and the "hope_dummy" indicator. Thus, we can treat the quality of life and the future subjective wellbeing as endogenous variables. Finally, we perform the overidentification test using the J statistic of Hansen (1982). Under the null hypothesis, instruments are not good because

they are correlated with the disturbance process (Baum, Schaffer and Stillman, 2007). Table 9 shows that the null hypothesis is not rejected across the different tests meaning that in all the cases instruments could be considered valid.

Beyond this, Table 9 shows that the quality of life coefficient is negative and statistically significant across the different model specifications. This means that young people living in households with very high quality of life are less depressed and more hopeful. Also future expectations generate positive effects on youths' subjective wellbeing. As can be seen in Table 9, the coefficient of future subjective wellbeing is negative and statistically significant at 1 per cent across the different model specifications. Finally, it is interesting to observe that having more friends generates a positive impact on hope.

Therefore, it is possible to sustain that the program increases wellbeing among participants. As reported in the literature, one of the possible explanation is that psychological feelings or emotional statuses are contagious and so people that share the same environment tend to influence each other.

**Table 9: Determinants of CES-D and of Children's Hope Scale with Instrument variables and Inverse Probability Weights**

|  | cesd | hope | hope_d | H | cesd | hope | hope_d | H |
|---|---|---|---|---|---|---|---|---|
| Qol | **-0.379** | **0.288** | 0.023 | **0.073** |  |  |  |  |
|  | (-2.73) | (-3.11) | (-1.84) | (-3.09) |  |  |  |  |
| fsw2 |  |  |  |  | -2.233 | 1.465 | 0.179 | 0.363 |
|  |  |  |  |  | (-2.77) | (2.97) | (2.57) | (2.92) |
| Femaley | -0.401 | -0.348 | -0.034 | -0.081 | -0.490 | -0.273 | -0.030 | -0.062 |
|  | (-1.12) | (-1.41) | (-1.06) | (-1.30) | (-1.40) | (-1.16) | (-0.91) | (-1.05) |
| Agey | 1.421 | -0.470 | -0.064 | -0.120 | 1.514 | -0.549 | -0.069 | -0.140 |
|  | (1.93) | (-0.87) | (-1.04) | (-0.87) | (1.88) | (-1.00) | (-1.03) | (-1.00) |
| agey2 | -0.029 | 0.009 | 0.001 | 0.002 | -0.031 | 0.011 | 0.001 | 0.003 |
|  | (-1.54) | (0.67) | (0.78) | (0.69) | (-1.51) | (0.78) | (0.75) | (0.80) |
| sl2_2 | -0.034 | **0.059** | 0.006 | **0.015** | -0.041 | **0.065** | 0.006 | **0.016** |
|  | (-1.03) | (2.76) | (1.92) | (2.73) | (-1.18) | (2.67) | (1.72) | (2.66) |
| Observations | 2197 | 2197 | 2197 | 2197 | 2197 | 2197 | 2197 | 2197 |
| Uncentered R2 | 0.911 | 0.968 | 0.528 | -0.013 | 0.899 | 0.965 | 0.448 | -0.125 |
| Hansen J stastic | 0.551 | 0.315 | 0.183 | 0.303 | 0.513 | 0.129 | 0.456 | 0.115 |
| Endogeneity t. | 0.013 | 0.014 | 0.183 | 0.015 | 0.012 | 0.022 | 0.017 | 0.028 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model but not reported are indicators for household size, quality of roof, walls, toilet facility, type of cooking fuel used, and baseline per capita household consumption expenditure. Coefficients in bold are statistically significant at 5 percent.

## 6. Conclusion

This paper analyses the impact of the Kenya's Cash Transfer for Orphans and Vulnerable Children (CT-OVC) on youths' subjective wellbeing. First of all, it confirms that individual psychology is not only affected by genetic and heritable aspects. Thus, other factors contribute in determining subjective wellbeing.

Among these, material conditions play a crucial role. In particular, our work confirms that a positive income shock influences the quality of life and future expectations of parents. One of the possible reason is that when living conditions improve, people have more opportunities and choices that in turn reduce the pressure coming from external circumstances and improve health wellbeing. Our work goes over and demonstrates that the whole household benefitted from these changes. Indeed, higher quality of life and higher future expectations of parents alleviate depression symptoms and increase hope among the youngest members of the households. One of the possible explanation is that psychological feelings or emotional statuses are contagious and so people that share the same environment tend to influence each other. Indeed, our analysis demonstrates that the program affects the family environment and parents' subjective wellbeing which in turn produce positive effects on psychological wellbeing and hope of youths.

This result has important policy implications. Targeting resources to the poorest households contributes to ameliorate their living standard as well as to improve their subjective wellbeing. Considering that poverty is not only a material condition but also a mental status, this policy could be important in order to help people – and especially the youngest - for thinking different and escaping from poverty. Indeed, happiness and hope are important to increase self-confidence and self-esteem, which in turn could promote efforts and sustain behaviors toward different living conditions.

All in all, the provision of effective cash transfers targeted to the poorest households with children could represent a 'win-win' for alleviating poverty in the short term but also for breaking the vicious cycle of persistent poverty in the long term.

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**Appendix**

**Table 6: Determinants of CES-D composite scale with Inverse Probability Weights**

|  | sl1_1 | sl1_2 | sl1_3 | sl1_4 | sl1_5 | sl1_6 | sl1_7 | sl1_8 | sl1_9 | sl1_10 |
|---|---|---|---|---|---|---|---|---|---|---|
| qol | **-0.0148** | **-0.0133** | **-0.0266** | -0.0101 | **-0.0193** | -0.00833 | 0.00266 | 0.000418 | 0.00845 | -0.00295 |
|  | (-3.01) | (-2.56) | (-3.29) | (-1.75) | (-2.91) | (-1.30) | (0.44) | (0.07) | (1.52) | (-0.53) |
| femaley | -0.0421 | -0.0664 | -0.0990 | 0.0485 | -0.109 | -0.0422 | -0.0632 | **-0.121** | -0.0657 | -0.0378 |
|  | (-0.93) | (-1.44) | (-1.41) | (0.97) | (-1.64) | (-0.68) | (-1.05) | (-2.08) | (-1.20) | (-0.72) |
| agey | **0.236** | 0.129 | 0.210 | **0.384** | 0.125 | 0.227 | 0.153 | 0.188 | 0.00773 | -0.0142 |
|  | (2.48) | (1.30) | (1.55) | (3.40) | (0.81) | (1.70) | (1.14) | (1.41) | (0.06) | (-0.11) |
| agey2 | **-0.00537** | -0.00256 | -0.00502 | **-0.00879** | -0.00248 | -0.00493 | -0.00325 | -0.00425 | 0.000463 | 0.000714 |
|  | (-2.18) | (-1.01) | (-1.44) | (-3.02) | (-0.64) | (-1.44) | (-0.97) | (-1.24) | (0.15) | (0.22) |
| sl2_2 | 0.00584 | -0.00254 | -0.00212 | -0.00384 | -0.00298 | **-0.0179** | **-0.0134** | -0.00071 | -0.00560 | -0.00592 |
|  | (1.00) | (-0.44) | (-0.32) | (-0.71) | (-0.43) | (-3.25) | (-2.64) | (-0.12) | (-0.89) | (-1.15) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 2,212 | 2,212 | 2,211 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 |
| R-squared | 0.031 | 0.023 | 0.024 | 0.047 | 0.018 | 0.027 | 0.017 | 0.023 | 0.013 | 0.006 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model but not reported are indicators for household size, quality of roof, walls, toilet facility,  type of cooking fuel used, and baseline per capita household consumption expenditure. Coefficients in bold are statistically significant at 5 percent.

**Table 7: Determinants of CES-D composite scale with Inverse Probability Weights**

| VARIABLES | sl1_1 | sl1_2 | sl1_3 | sl1_4 | sl1_5 | sl1_6 | sl1_7 | sl1_8 | sl1_9 | sl1_10 |
|---|---|---|---|---|---|---|---|---|---|---|
| fsw2 | -0.0308 | -0.0299 | -0.0455 | -0.0175 | **-0.0605** | -0.0183 | **-0.0570** | -0.0200 | -0.0235 | -0.0346 |
| | (-1.79) | (-1.79) | (-1.90) | (-0.96) | (-2.57) | (-0.84) | (-2.70) | (-0.97) | (-1.23) | (-1.85) |
| femaley | -0.0482 | -0.0717 | -0.110 | 0.0442 | -0.116 | -0.0455 | -0.0591 | **-0.120** | -0.0603 | -0.0376 |
| | (-1.07) | (-1.58) | (-1.56) | (0.89) | (-1.72) | (-0.74) | (-0.98) | (-2.05) | (-1.09) | (-0.71) |
| agey | **0.242** | 0.135 | 0.222 | **0.389** | 0.133 | 0.231 | 0.150 | 0.188 | 0.00314 | -0.0136 |
| | (2.53) | (1.35) | (1.62) | (3.42) | (0.85) | (1.72) | (1.13) | (1.40) | (0.03) | (-0.11) |
| agey2 | **-0.00553** | -0.00271 | -0.00533 | **-0.00891** | -0.00268 | -0.00502 | -0.00316 | -0.00422 | 0.000600 | 0.000709 |
| | (-2.23) | (-1.06) | (-1.51) | (-3.04) | (-0.68) | (-1.46) | (-0.94) | (-1.23) | (0.19) | (0.22) |
| sl2_2 | 0.00534 | -0.00298 | -0.00308 | -0.00420 | -0.00353 | **-0.0182** | **-0.0130** | -0.00059 | -0.00509 | -0.00587 |
| | (0.92) | (-0.52) | (-0.44) | (-0.77) | (-0.51) | (-3.30) | (-2.60) | (-0.10) | (-0.82) | (-1.16) |
| | | | | | | | | | | |
| Observations | 2,212 | 2,212 | 2,211 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 |
| R-squared | 0.025 | 0.019 | 0.014 | 0.044 | 0.016 | 0.026 | 0.023 | 0.024 | 0.012 | 0.009 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model but not reported are indicators for household size, quality of roof, walls, toilet facility, type of cooking fuel used, and baseline per capita household consumption expenditure. Coefficients in bold are statistically significant at 5 percent.

**Table 9: Determinants of Children's Hope Scale Items with Inverse Probability Weights**

| VARIABLES | sl1_11 | sl1_12 | sl1_13 | sl1_14 | sl1_15 | sl1_16 |
|---|---|---|---|---|---|---|
| qol | **0.0236** | **0.0138** | 0.00524 | **0.0137** | **0.0148** | **0.0304** |
| | (3.16) | (2.21) | (0.73) | (2.03) | (1.96) | (5.42) |
| femaley | 0.0909 | -0.0362 | 0.00806 | 0.0237 | **-0.169** | **-0.186** |
| | (1.41) | (-0.63) | (0.12) | (0.39) | (-2.61) | (-3.40) |
| agey | **-0.315** | -0.0341 | -0.121 | -0.0210 | -0.191 | 0.0675 |
| | (-2.26) | (-0.24) | (-0.80) | (-0.15) | (-1.36) | (0.54) |
| agey2 | **0.00663** | 0.00135 | 0.00164 | 0.00129 | 0.00374 | -0.00153 |
| | (1.85) | (0.37) | (0.43) | (0.36) | (1.04) | (-0.48) |
| sl2_2 | 0.000222 | **0.0131** | 0.00488 | **0.0119** | **0.0154** | **0.0187** |
| | (0.04) | (2.14) | (0.67) | (1.99) | (2.81) | (3.55) |
| | | | | | | |
| Observations | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 |
| R-squared | 0.048 | 0.019 | 0.025 | 0.024 | 0.043 | 0.05 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model but not reported are indicators for household size, quality of roof, walls, toilet facility, type of cooking fuel used, and baseline per capita household consumption expenditure. Coefficients in bold are statistically significant at 5 percent.

**Table 10: Determinants of Children's Hope Scale Items with Inverse Probability Weights**

| VARIABLES | sl1_11 | sl1_12 | sl1_13 | sl1_14 | sl1_15 | sl1_16 |
|---|---|---|---|---|---|---|
| fsw2 | **0.0672** | 0.0273 | **0.0530** | 0.0361 | 0.0168 | **0.0657** |
| | (3.06) | (1.38) | (2.31) | (1.68) | (0.72) | (3.33) |
| femaley | 0.0996 | -0.0305 | 0.00813 | 0.0289 | **-0.162** | **-0.173** |
| | (1.58) | (-0.53) | (0.13) | (0.49) | (-2.53) | (-3.13) |
| agey | **-0.325** | -0.0401 | -0.122 | -0.0268 | -0.198 | 0.0544 |
| | (-2.29) | (-0.28) | (-0.82) | (-0.19) | (-1.41) | (0.43) |
| agey2 | 0.00687 | 0.00151 | 0.00166 | 0.00144 | 0.00392 | -0.00118 |
| | (1.89) | (0.42) | (0.43) | (0.40) | (1.09) | (-0.37) |
| sl2_2 | 0.000927 | **0.0136** | 0.00484 | **0.0123** | **0.0160** | **0.0197** |
| | (0.15) | (2.23) | (0.66) | (2.02) | (2.90) | (3.72) |
| | | | | | | |
| Observations | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 | 2,212 |
| R-squared | 0.045 | 0.015 | 0.029 | 0.022 | 0.039 | 0.036 |

Notes: Linear probability OLS regressions with robust standard errors and inverse probability weights. Also included in model but not reported are indicators for household size, quality of roof, walls, toilet facility,  type of cooking fuel used, and baseline per capita household consumption expenditure. Coefficients in bold are statistically significant at 5 percent.