Abstract

Countries worldwide strive for economic growth that leads to higher wealth. This increase in country wealth increases individual income which increases their disposable income which allows them to purchase new goods, services and experiences which in turn leads to higher life satisfaction. There have been several studies that analyze the relationship between income and life satisfaction for all citizens within a country. These empirical studies are consistent in the fact that they find that increases in both absolute and relative income lead to increases in subjective well being. This paper differs in the fact that it focuses on one specific country (Peru), and measures how these relationships differ between the Mulatos and Peruans, Peru’s two dominant ethnic groups. This study also analyzes the effects on non monetary factors of life such as health, education and familial factors.
1 Introduction

The main focus of my thesis is to measure the relationship between income and happiness. There is a vast amount of empirical literature that uses survey data to study the correlation between income and subjective well-being. Most notably, Easterlin (1974) investigates if economic growth is associated with greater levels of happiness. His research results in a paradox that raises the importance of relative income. Therefore, other economists challenge his work and add additional analysis by measuring the importance of relative income. Relative and absolute incomes are extremely different and therefore need to be segregated upon analysis. Relative income refers to an individual’s income compared to the median income. There is a major difference between earning $60,000 a year in absolute terms and earning $60,000 a year when the median is $30,000. The majority of individuals often compare their lifestyles to those who surround them, therefore using relative income is a more robust indicator.

The purpose of my study will be to measure the relationship between absolute income, relative income and happiness when comparing individuals from the same ethnic group within a specific country. Previous studies have measured the relationship between relative income and happiness for all people within a country. However I plan to differentiate my study by observing this relationship between people within the same ethnic group in a specific country. For example, I want to compare two white individuals in the United States and keep that relationship separate from comparing two Asians in the United States. Due to the restricted availability of data, I will analyze these relationships for individuals of the Peruan
and Mulato ethnic groups in Peru. It is imperative to understand the relationship between income and happiness because if there is no clear positive correlation, the government may want to consider policies that are less focused on economic expansion. If individuals value non-monetary aspects of life more than their incomes and living standards, we may want to shift our focus and be more dedicated to social policy. The goal of this paper is to analyze this important relationship at its deepest point, understand how members of society compare themselves to people that are closest to them. I believe that the correlation I find when comparing individuals from the same ethnic groups will be similar to the relationship between relative income and happiness for people in a country collectively. Previous research suggests that there is a positive correlation between both relative and absolute income and happiness. In some studies however, non-monetary factors such as relationship status, health and education, have shown to cause larger increases in happiness than wealth. I will explore an abundance of these relationships in my paper.

2 Literature Review

Measuring the relationship between income and happiness is beneficial because it allows us to better understand the individual utility function. Most studies investigate this relationship by comparing all individuals within a country. I plan to differentiate my study from others by concentrating specifically on measuring relative income and its affect on life satisfaction for people in the same
ethnic groups within the same country. It is important to understand the effects of relative income because it can cause people to respond in contradiction to the normal individual utility function. Let's assume there are two members of a society. Person A has an increase in income of $20,000 dollars and person B receives an increase of $10,000. Although person B's income increased, it may not coincide with an increase in utility due to the theory of income relativity.

Easterlin (1974) is a seminal paper that set the foundation for research concerning the relationship between income and happiness. The main motivation of this paper is to determine if economic expansion is positively correlated with subjective well-being. The results of this paper suggest that there is a positive correlation between individual income and individual happiness. However, there is no clear positive relationship between increases in individual happiness and country aggregate happiness. He illustrates that in the 1960's and 1970's although there was an increase in income per capita, the aggregate level of happiness for the country either stayed stagnant or decreased. The fact that increases in levels of income were linked with higher individual happiness, but aggregate levels of happiness for a country were not increasing suggests a paradox. Diener and Seligman (2004) site Frey and Stutzer (2002) and Hilliwell (2003) who agree with this school of thought as well. Their findings indicate that above a certain level of income per capita, there are either no increase or little increase in overall subjective well-being. Does this insinuate that individuals care more about their incomes relative to their peers? This would explain the results found in Easterlin (1974) and rationalize why individuals were acting in contrast to the expected utility function.
If the results from Easterlin (1974) hold true, there is a basis for an argument that economic policy should have less focus on material gain. Due to the controversial nature of this argument, Easterlin (1974) has been challenged. Stevenson and Wolfers (2008), reassess the Easterlin Paradox, by using the most recent data possible on numerous countries. The main focus of this study was to measure the relationship between GDP per capita and its affect on happiness. Empirical evidence from Stevenson and Wolfers (2008) suggests that there is a positive correlation between income and happiness, and that wealthy countries aggregate happiness does not stop increasing. The results of these studies motivated me to dive deeper, and analyze the effects of income and happiness on an individual level.

Most previous studies have assumed that an individual’s relative income is expressed in relation to all people living in the individual’s country. In order to set a foundation of studying my research topic, I reviewed various economic papers that focus on this relationship.

Increases in both absolute and relative incomes do lead to increases in happiness. These results have been proven at a significant level across several countries including the United States, China, Japan, and Korea (Oshio, Nozaki, and Kobayashi 2010). The primary topic of Oshio, Nozaki, and Kobayashi (2010) is to assess relative incomes effect on perceived happiness. These authors measured relative income by comparing an individual's absolute income to the average absolute income of individuals within each respective country. Similar to previous studies, the authors needed to quantify happiness, and did so by using the general
social surveys for each respective country (GSS, KGSS, JGSS, CGSS). This survey asked respondents questions that quantified happiness on a numerical scale ranging from least happy to most happy. The surveys also include various questions regarding personal life factors pertaining to topics including health and family.

Ball and Chernova (2008) investigate the relationship between income and happiness, specifically, “the importance of absolute income and relative income in determining happiness” (Ball, Chernova 497). This study concluded results similar to Oshio, Nozaki, and Kobayashi (2010), in that relative and absolute income are positively correlated with happiness. However, evidence is seen from Ball and Chernova (2008) that non-monetary factors of life, such as better health and marriage, increase ones happiness by a significantly larger percentage. For example, “for a median individual who is single, getting married or finding a domestic partner would increase happiness as much as an increase in her absolute income of 767%.

Happiness is negatively correlated with several life factors as well. For example, getting divorced or being single as well as increases in the amount of children one has decrease individual’s happiness. Happiness scores and detailed information on income were found in the World Value Survey and the World Data Bank respectively.

There are additional studies regarding non-monetary impacts on happiness. Adverse changes in health as well as getting divorced have shown to decrease self-reported life satisfaction. Easterlin (2003) demonstrates that larger decreases in health are associated with larger decrease in happiness. This study also indicates that a person who has been divorced record lower happiness levels than individuals
who have remained single

Ball and Chernova (2008) and Oshio, Nozaki, and Kobayashi (2010) have a specific focus on relative income. They define relative income as comparing an individual’s income to all people within the same country. I will differentiate my study by assuming that individuals compare their incomes to the incomes of members of their own ethnic group in their country. My study will be set on the foundation that people do not compare themselves to individuals outside of their socioeconomic circle. Therefore relative income will be defined as, comparing an individual’s income to the median income of individuals from the same ethnic group within that person’s specific country.

3 Data

I gathered the majority of my original data from the World Value Survey. The WVS is divided into six, five-year waves dating back to 1981. This cross sectional data set contains data for 60 countries including the United States, Peru, South Africa and Japan, with a total of 430 variables and a total sample size of 90,350 individuals. At first, my study incorporated the most recent data from Wave 6 (2010-2014) however; the wave did not have sufficient income data in order to fulfill my research questions. Fortunately, Wave 5 (2005-2009) included all necessary data, which is closely related to present day relevant information.

My study focuses on countries that have two or more dominant ethnic groups. Therefore, I had to drop all observations from countries that had only one
major ethnic group. I then dropped my country list to countries that contained at least two ethnic groups that made up at least 9% of its population. At this point, my country list totaled 14, including the United States, Australia, China, Mexico and more. After deciding on this select group of countries, I needed to start generating my income variables, which I will describe in detail later in this section. Of these 14 countries, only Peru obtained sufficient income information required for the study.

There are several variables from this survey that will be incorporated into my study. The variable names and codes I will incorporate from the WVS into the study are as follow. Country Code (V2) with a country code for each country. Happiness (V10) scaled on a range of 1-4 with one being the least happy and 4 being the happiest. Satisfaction with your life (V22) scaled from 1-10 with 1 being the least satisfied and 10 being the most. State of health (V11) in which each value correspond to an individuals self health rating. For example, two is equal to good and four is equal to poor. Similarly, marital status (V55) describes the relationship status for each respondent. The WVS originally contained a sex variable (V235), which gave values to being male or female. I used this information to generate a dummy variable, female, for which one is equal to female and zero is equal to male. Another variable that will be used in my study is age (V237), which records respondent’s age in years. Education (V238) refers to the amount of education the respondent has had quantified by level of education on a range of 1-9. Children (V56) with scores ranging from 1-9 based on how many children the respondent has.

There are a few variables from the WVS that are vital to my study, the first
being Income (V253). Income is scaled into groups of 1-10 and asks respondents to indicate what income group of income they are in for their specific country. Group one represents the lowest tier of income and ten represents the highest. Wages, salaries, pensions and all other incomes are included in this variable. In the WVS, each group number corresponds to an actual dollar range in a given country. For example, income level five in Peru equates to a Peruvian dollar (Sol) range of 1,000 to 1,500. With this information for each income group, I was able to derive a flat number for each group by averaging the value of the ranges and applying them to their specific levels. For example, group five equates to 1,250. It is vital for me to convert the Sol into international dollars in order to make the dollar amounts relatable to all countries. By using the World Data Bank within the World Development Indicators (WDI), I was able to convert Peru’s currency into the international dollar. As noted from the WDI, one Peruvian dollar (Sol) is equal to 1.49 International dollars. These values generated the absolute value of the incomes for the individuals in my data set whose variable is called intdollar in my dataset. Now that I had specific income values for the individuals in Peru, I was able to begin creating my relative income variables.

There are two relative income variables that are vital to my study, the first being relown, defined as, the relative income of an individual compared to members of their own ethnic group. For example, for the Mulato ethnic group of Peru, relown for Mulatos is equal to the absolute income of an individual Mulato divided by the median income for Mulatos. The second type of relative income in my study is called relother. Relother is defined as the relative income of a member of one ethnic group
compared to the income of the other ethnic group. For example, for the Peruan ethnic group of Peru, relother is equal to relative income for an individual Peruan compared to the median income of the Mulato ethnic group. In order to analyze the income variables, I had to take the natural log of all three due to the skewed nature of their distributions.

Another essential variable from the WVS that is vital to my study. Ethnic Group (V256) refers to the ethnicity of the respondent. Each ethnicity is given a specific value. For example, in the country Peru, the ethnic group Mulato is equal to 350. Peru’s final ethnic group count contained two groups, Mulato and Peruan. Mulatos account for 68.76% of the population while Peruans account for 31.24% of the population. I have listed some descriptive statistics, separated by country, for portions of my data set below.

4 Methodology

I will be using a multivariate OLS regression with individual life satisfaction as my dependent variable with a range of values from 1-10. As noted in the data section, one represents to the lowest level of happiness and 10 is valued as the happiest. Some key independent variables that are included in my regression are absolute income (lninc), relative income compared to individuals of the same ethnic group (lnrelown) and relative income compared to individuals of the other ethnic group (lnrelother). I took the natural log of all three income variables to ensure that these metrics are more normally distributed. The beta for my income variables
reflects the effect of a one-percent increase in income, and illustrates that impact on life satisfaction score. I would expect the coefficients of lninc, lnrelown, and lnrelother to be positive suggesting that an increase in one's income, both relative and absolute leads to an increase in subjective well-being. Another vital part to my regression is the three interaction terms I created. The three income variables are interacted with my ethnicity dummy variable (mulato) because the relationship between life satisfaction and income may be different based on the observations ethnicity. In order to avoid collinearity I am not able to include all three income variables and all three-interaction terms. When all six variables are included in my regression, multiple variables are omitted due to the collinearity. Therefore, I am forced to only include two income variables, and one interaction term. As a result, I will be analyze three different regressions, which include the combinations of all income variables and all interaction terms. Since the income variables are interacted with the Mulato ethnic group, the coefficient to the income variable without the interaction will be interpreted for the Peruan individual. The coefficient for the Mulato ethnic group will be equal to the coefficient of the non-interacted variable plus the coefficient of the interaction term.

My model contains several other independent variables, which include multiple demographic controls. For example, it includes age and age squared for which the coefficient is expected to be positive; therefore, as you get older, life satisfaction should tend to increase. My data set contains a variable for martial status that assigned each status a specific numerical value. I compressed these statuses into three different groups, single, partner or split. The model therefore
contains dummy variables for two of these three groups (partner and split) in order to avoid multicollinearity. The coefficients of these variables indicate the difference between itself and the variable single, which is omitted from the regression. I would expect the coefficient of the dummy variable partner to be highly positive and the coefficient of split to be slightly negative.

I used a similar method for creating the dummy variables for my health and education variables. Health had been categorized into four different groups. Therefore I have dummy variables for three of them, very good health, good health, and fair health. The coefficients of these variables illustrate the difference between themselves and the poor health group. I would expect the coefficients for the health variables to become greater as the health level rises. For example, very good health should have a greater coefficient than fair health. Education originally had nine different groups. I condensed this information into three different subgroups, least educated, medium educated and most educated. Therefore, my model contains dummy variables for two of the three groups (least educated and medium educated). The coefficients of these dummy variables relate to the difference between themselves and the highly educated group, therefore, I would expect the for each education group to be negative. Lastly, I include a dummy variable for children. With reference to previous studies, I would expect the coefficient for children to be negative.

Regression equations are listed below.
Regression 1: Interacting absolute income

\[ Satis = \beta_0 + \beta_1(\text{ln inc}) + \beta_2(\text{int_abs}) + \beta_3(\text{ln relown}) + \beta_4(\text{female}) + \beta_5(\text{age}) + \beta_6(\text{agesqrd}) + \beta_7(\text{partner}) + \beta_8(\text{split}) + \beta_9(\text{health_vg}) + \beta_{10}(\text{health_g}) + \beta_{11}(\text{health_f}) + \beta_{12}(\text{least_edu_group}) + \beta_{13}(\text{medium_education_group}) + \beta_{14}(\text{child_dummy}) + \varepsilon \]

Regression 2: Interacting relative own income

\[ Satis = \beta_0 + \beta_1(\text{ln inc}) + \beta_2(\text{ln relown}) + \beta_3(\text{int_relown}) + \beta_4(\text{female}) + \beta_5(\text{age}) + \beta_6(\text{agesqrd}) + \beta_7(\text{partner}) + \beta_8(\text{split}) + \beta_9(\text{health_vg}) + \beta_{10}(\text{health_g}) + \beta_{11}(\text{health_f}) + \beta_{12}(\text{least_edu_group}) + \beta_{13}(\text{medium_education_group}) + \beta_{14}(\text{child dummy}) + \varepsilon \]

Regression 3: Interacting relative other income

\[ Satis = \beta_0 + \beta_1(\text{ln inc}) + \beta_2(\text{ln relother}) + \beta_3(\text{int_relother}) + \beta_4(\text{female}) + \beta_5(\text{age}) + \beta_6(\text{agesqrd}) + \beta_7(\text{partner}) + \beta_8(\text{split}) + \beta_9(\text{health_vg}) + \beta_{10}(\text{health_g}) + \beta_{11}(\text{health_f}) + \beta_{12}(\text{least_edu_group}) + \beta_{13}(\text{medium_education_group}) + \beta_{14}(\text{child dummy}) + \varepsilon \]

5 Results

By using data from the WVS and WDI, I was able to run three different regressions listed above. Regression 1 concentrations on the relationship between absolute income, relative income, and life satisfaction, while interacting absolute income and ethnic group. Results from this regression can be found in Table 1.

Income Results:

As seen in Table 1, a one percent change in absolute income increases individual life satisfaction by about .0217 units for members of the Peruvian ethnic group (Significant at the 95% level). More specifically, for a Peruvian with median income, a one-dollar increase in absolute income increases life satisfaction by .0157.
A similar relationship can be seen for members of the Mulato ethnic group, however the increase is slightly smaller (Table 1.1). For a mulato with median income, a 1 dollar increase in absolute income increases life satisfaction by .006. This smaller increase in life satisfaction may be due to the fact on average, Mulatos have higher average absolute incomes than Peruans and therefore would need a larger increase in income in order to have an increase in life satisfaction that equates to that of Peruans. Since these relationships are both significant and extremely similar, we must conclude that both Peruans and Mulatos put the same value on absolute income. Due to the fact that I cannot interact relative own income and ethnicity, I have to assume that both Peruans and Mulatos have the same preference about relative income. Regression 1 suggests weak evidence that both Mulatos and Peruans feel negatively about relative income compared to members of their own ethnic group. This signifies that they feel worse about having more income relative to others. I will dig deeper into this relationship when analyzing the Regression 2.

**Demographic Controls:**

According to Table 1, the relationship between life satisfaction and age has a U shaped curve. Members who are society who are youthful tend to be happier than middle-aged individuals, and elderly individuals are happier than those who are middle aged, however, these results are not statistically significant. When considering marital status, having a partner leads to much higher life satisfaction levels when compared to being single or divorced however, this is not statistically significant. In addition, having children leads to lower happiness scores but is not statistically significant in this model.
Health factors play a large role in determining individual overall well-being. Each dummy variable's coefficient in the regression is compared to the omitted health category “Poor”. Similar to the results found in Easterlin (2003), being in very good health, good health and even fair health lead to higher life satisfactions when compared to poor health. Being in fair health, good health, and very good health, increase individual life satisfaction by 1.9, 2.1 and 2.9 respectively (Life satisfaction is on a scale of 1-10). When converting gains in health status to actual dollar amounts we see the extremely high value Peruvian individuals assign to health. For example, for a Mulato with median income, going from poor health to very good health would be equivalent to an increase in their absolute income of 1515 dollars. For a Peruvian with median income, going from poor health to very good health would be equivalent to an increase in their absolute income of 524 dollars. The model suggests very strong evidence of this relationship that is highly significant at the 99% interval. Interestingly, there is no clear relationship between relative own income and health for the top three health categories (Figure 4). However, when focusing in on the poor health group, it is evident that having higher wealth leads to greater happiness levels.

Regression 1 indicates no clear relationship between education levels and life satisfaction. The model suggests no evidence that higher education leads to greater life satisfaction. Although there is evidence from Regression 1 that suggests being educated leads to greater life satisfaction, there is not a significant difference between low and medium educated individuals in relation to their life satisfaction.
levels. Therefore, we must conclude that Peruvians do not put high importance on education.

Regression 2 has a focus on the relationship between absolute income, relative income compared to members of the same ethnicity, and life satisfaction, while interacting relative own income and ethnic group. Results from this regression can be found in Table 2.

*Income Results:*

Results from this regression suggest that Peruan individuals are not necessary concerned with relative income compared to their ethnic peers. A one-percent change in relative income compared to members of the same ethnicity decreases individual life satisfaction by about .001 units for individuals who are Peruan (Table 2), however, this result is not statistically significant. This may suggest that Perusans are not sympathetic with other Perusans, and that they would not feel negatively about having more income then the others. When testing the same relationship for Mulatos, results suggest that the negative coefficient of the interaction term is statistically significant (Table 2.1). Therefore there is evidence that Mulatos feel negatively when having more income relative to individuals within their group. Evidence suggests that for a Mulato with the median income, a one-dollar increase in relative income compared to another Mulato decreases life satisfaction by .00096. Although a small decrease, this strong evidence (Significant at the 95% level), may suggest that Mulatos feel sympathy towards members of their ethnic group. When analyzing Regression 2, I assume that Perusans and Mulatos have the same preference about absolute income because I cannot interact
absolute income with ethnicity. Consistently with Regression 1, evidence suggests that both Peruans and Mulatos value absolute income very highly.

*Demographic Controls:*

The demographic controls are consistent with the findings in Table 1.

Regression 3 focuses on the relationship between absolute incomes, relative income compared to members of the opposing ethnic group, and life satisfaction, while interacting relative other income and ethnic group. Results from this regression can be found in Table 2.

*Income Results:*

As seen in Table 3, for members of the Peruan ethnicity, a one-percent change in relative income compared to members of the Mulato ethnic group increases individual life satisfaction by about .0033 units. More specifically, a Peruan with median income, an increase in one dollar relative to a member of the Mulato ethnicity increases life satisfaction by .000964. This statistically significant relationship signals that Peruans are competitive for higher incomes when comparing themselves with other ethnicities. Mulatos however, do not feel competitive with members of other ethnic groups. After running a hypothesis test for the value of the Mulato coefficient, we see that the result is statistically insignificant (Table 3.1). These results suggest that Mulatos do not care about comparing themselves to Peruans, and would rather see an increase in income for all members of society. When analyzing the relationship between absolute income and life satisfaction, I am unable to differ each ethnic groups relationship due to the
inability to use an interaction term. Regression 3 weakly suggests a positive correlation between absolute income and life satisfaction however results are insignificant.

The tables for Regressions can be seen below.

6 Conclusions

The main focus of this study is to measure the relationship between income and happiness, specifically comparing individuals from the same ethnic group, within a specific country. Results from this study are consistent with previous research however no relationships have been solidified as fact. Evidence from this study suggests that the life satisfaction is positively affected by increases in absolute income for all members of Peruvian society. However, Peruvians seem to put greater value on absolute income than Mulatos do. This may be because Peruvians have a lower distribution of average income and therefore are more affected by increases in wealth. Data from this study indicates that the average absolute incomes for Mulatos are 90% higher than the average income for Peruvians (Figure 5). Therefore, a marginal dollar for Peruvians is likely to have a higher affect on life satisfaction than a marginal dollar for Mulatos.

Interestingly, the findings indicate that Peruvians do not necessarily care about incomes relative to their own ethnicity. Contrarily, Mulatos actually feel sympathetic towards other Mulatos, and do not have greater life satisfaction when their incomes are higher than their society members. This may indicate that the Peruvian society
is not necessarily competitive in terms of their living standard within their ethnic
circles. Rather, it is consistent with the findings of absolute income, and conveys the
message that increases in income will increase the happiness of all individuals
regardless of the size in comparison to one another.

This study also provides evidence that Peruvians care more about relative
income when comparing themselves to the opposing ethnic group. From the results
we can see that members of the Peruan ethnicity are highly affected in increase in
their income compared to that of the Mulatos. This result suggests that Peruans tend
to be competitive towards their ethnic counterpart, and they seem to be yearning to
close the income gap between the two ethnic groups.

These findings are consistent with the current social aspects in relation to
racial income inequality. We have seen throughout the world that there are
tremendous income gaps between races and that minorities are focused on closing
that gap. For example, the United States has had a sustained and sizeable income
gap between black and white citizens. “In 2014, median black household income
was about $43,300, while white household income was about $71,300. The median
black household income in 2011 was 59% of median white household income” (Pew
Research Center, 2016). The magnitude of this income inequality causes these
ethnic groups to act differently towards increasing income. For example, in the
United States, it is often seen that the minority group tends to gain larger
satisfaction when their wealth increase relative to White members of society.
Leonhardt, (2010) states that from 1975 to 2010, the black white income per capita
gap has decreased from 41% to 35%, however, the happiness gap between the two
races has become much more narrow. This closure in the happiness gap is due to
the fact that blacks have been increasing their incomes relative to whites, as well as
the waning racism. This type of relationship is something that is consistent with the
findings in this study. Peruans being the minority ethnic group tend to act more
competitive with the Mulatos while Mulatos would rather see increases in income
for all individuals. Peruans, the minority group, gain higher increase in life
satisfaction when their income increases relative to Mulatos, while Mulatos life
satisfaction is not dependent on their incomes relative to Peruans.

In conclusion, the results from this paper are consistent with previous
research. It is evident that both absolute income and relative income are positively
correlated with life satisfaction. In addition, it is also seen that some non monetary
factors of life such as health status, have much greater impacts on life satisfaction
than income. The importance of non-monetary variables has differed from study to
study. As a result, this study and past research cannot necessarily influence the
goals of government policy. However it helps indicate that individuals should strive
to achieve in the aspects of life that are most important to them.
Reference List

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Data Sources


Referred Figures and Tables are shown below

Figure 1: Represents the percent frequency distribution of ethnic groups for Peru.

Figure 2: Represents the percent frequency distribution of life satisfaction for all individuals in Peru.
Figure 3: Represents the percent frequency distribution of absolute income ($ International) for all individuals.

Figure 4: Illustrates the relationship between relative own income and life satisfaction when controlling for Health categories.
Figure 5: Compares the distribution of the mean absolute incomes for each ethnic group.
Table 1: Results for Regression 1

| Variable      | Coef.  | Std. Err. | t     | P>|t|  | 95% Conf. Interval |
|---------------|--------|-----------|-------|------|-------------------|
| lninc         | 2.1726 | 1.039345  | 2.09  | 0.037| 1.332848 – 4.211936 |
| int_abs       | -.2325 | .1562569  | -1.49 | 0.137| -.5391146 – .0740766|
| lnrelown      | -1.5969| .9191025  | -1.74 | 0.083| -3.400377 – .2064111|
| female        | -.2238 | .1286562  | -1.74 | 0.082| -.476279 – .0286001|
| age           | -.0140 | .0265037  | -0.53 | 0.595| -.0660823 – .0379248|
| agesqrd       | .0002 | .000291   | 0.99  | 0.322| -.0002826 – .0008594|
| partner       | .2897 | .2135278  | 1.36  | 0.175| -.1292591 – .7086774|
| split         | -.0049 | .3659055  | -0.01 | 0.989| -.7228376 – .7130669|
| health_vg     | 2.9045 | .42862    | 6.78  | 0.000| 2.063592 – 3.745604|
| health_g      | 2.1097 | .3669195  | 5.75  | 0.000| 1.389839 – 2.829723|
| health_f      | 1.6186 | .355823   | 4.55  | 0.000| .9203915 – 2.31673 |
| least_edu_group | .4094  | .2166241  | 1.89  | 0.059| -.0155865 – .8345007|
| medium_educated ~ p | .3997 | .161357 | 2.48  | 0.013| .0831635 – .7164029|
| child_dummy   | -.1052 | .2350802  | -0.45 | 0.654| -.5665032 – .3560104|
| _cons         | -6.1467| .515655   | -1.19 | 0.234| -16.2645 – 3.971092|

n = 1,114  adj. R² = 0.0915

Table 1.1: Testing Mulato Coefficient for absolute income

(1) \( \lninc + \text{int}\_abs = 0 \)

\[
F(1, 1099) = 4.80 \\
\text{Prob} > F = 0.0286
\]
Table 2: Results for Regression 2

| satis         | Coef. | Std. Err. | t     | P>|t|  | [95% Conf. Interval] |
|---------------|-------|-----------|-------|------|----------------------|
| lninc         | .6699054 | .1645278 | 4.07  | 0.000 | .3470814 - .9927294  |
| lnrelown      | -.0942779 | .1886547 | -0.50 | 0.617 | -.464442 - .2758862  |
| int_relown    | -.2325192 | .1562569 | -1.49 | 0.137 | - .5391148 - .0740763 |
| female        | -.2238395 | .1286562 | -1.74 | 0.082 | -.476279 - .0286001  |
| age           | -.0140788 | .0265037 | -0.53 | 0.595 | -.0660823 - .0379248  |
| agesqrd       | .0002884 | .000291 | 0.99  | 0.322 | -.0002826 - .0008594  |
| partner       | .2897092 | .2135278 | 1.36  | 0.175 | -.1292591 - .7086774  |
| split         | -.0048853 | .3659055 | -0.01 | 0.989 | -.7228376 - .7130669  |
| healthvg      | 2.904598 | .42862  | 6.78  | 0.000 | 2.063592 - 3.745604   |
| healthg       | 2.109781 | .3669195 | 5.75  | 0.000 | 1.389839 - 2.829723   |
| healthf       | 1.618561 | .355823 | 4.55  | 0.000 | .9203915 - 2.31673    |
| leastedu_group| .4094571 | .2166241 | 1.89  | 0.059 | -.0155865 - .8345008  |
| mediumeducated| .3997332 | .1613657 | 2.48  | 0.013 | .0831635 - .7164029   |
| child_dummy   | -.1052464 | .2350802 | -0.45 | 0.654 | -.5665932 - .3560104  |
| _cons         | 1.253975 | 1.075061 | 1.17  | 0.244 | -.8554302 - 3.36338   |

n = 1,114   adj. $R^2 = 0.0915$

Table 2.1: Testing Mulato Coefficient for relative own income

\[( 1) \text{ lnrelown } + \text{ int\_relown } = 0 \]

\[
F( 1, 1099) = 3.90 \\
\text{Prob > F} = 0.0487
\]
Table 3: Results from Regression 3

|       | Coef.  | Std. Err. | t     | P>|t|  | [95% Conf. Interval] |
|-------|--------|-----------|-------|------|---------------------|
| lninc | 0.2488302 | 0.2017815 | 1.23  | 0.218 | -0.1470904 - 0.6447508 |
| lnrelot | 0.3267972 | 0.165577  | 1.97  | 0.049 | 0.0019146 - 0.6516799  |
| int_relot | -0.2325192 | 0.1562569 | -1.49 | 0.137 | -0.5391148 - 0.0740764  |
| female | -0.2238395 | 0.1286562 | -1.74 | 0.082 | -0.4762799 - 0.0286001  |
| age | -0.0140788 | 0.0265037 | -0.53 | 0.595 | -0.0660823 - 0.0379248   |
| agesqrd | 0.0002884 | 0.000291 | 0.99  | 0.322 | 0.0002826 - 0.0008594   |
| partner | 0.2897092 | 0.2135278 | 1.36  | 0.175 | -0.1292591 - 0.7086774  |
| split | -0.0048853 | 0.3659055 | -0.01 | 0.989 | -0.7228376 - 0.7130669  |
| health_vg | 2.904598 | 0.42862  | 6.78  | 0.000 | 2.063592 - 3.745604    |
| health_g | 2.109781 | 0.3669195 | 5.75  | 0.000 | 1.389839 - 2.829723    |
| health_f | 1.618561 | 0.355823 | 4.55  | 0.000 | 0.9203914 - 2.31673    |
| least_edu_group | 0.4094572 | 0.2166241 | 1.89 | 0.059 | -0.0155865 - 0.8345008 |
| medium_educated | 0.3997832 | 0.1613657 | 2.48 | 0.013 | 0.0831635 - 0.7164029  |
| child_dummy | -0.1052464 | 0.2350802 | -0.45 | 0.654 | -0.5665031 - 0.3560104  |
| _cons | 3.622354 | 1.248492 | 2.90  | 0.004 | 1.172657 - 6.07205      |

n = 1,114    adj. R² = 0.0915

Table 3.1: Testing Mulato Coefficient for relative own income

( 1 ) lnrelot + int_relot = 0

\[
F(1, 1099) = 0.25 \\
Prob > F = 0.6174
\]