



Spring 4-18-2022

Assessing Happiness: An Evaluation of the Latin American Paradox in the United States

Daniel J. Maisch
dmaisch@iwu.edu

Follow this and additional works at: https://digitalcommons.iwu.edu/econ_honproj



Part of the [Business Commons](#), [Economics Commons](#), and the [Latin American Languages and Societies Commons](#)

Recommended Citation

Maisch, Daniel J., "Assessing Happiness: An Evaluation of the Latin American Paradox in the United States" (2022). *Honors Projects*. 144.

https://digitalcommons.iwu.edu/econ_honproj/144

This Article is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Assessing Happiness: An Evaluation of the Latin American Paradox in the United States

Daniel J. Maisch

Illinois Wesleyan University

Honors Research Project

Professor Seeborg and Professor Nadeau

April 18, 2022

Abstract: This research project investigates an array of pecuniary and non-pecuniary factors and their effect on happiness trends within the United States' Latino population. Happiness Economics is a new field of economic study coined in the 1970s by Richard Easterlin. This new field of study laid the foundation for further research and, ultimately, led to the discovery of the Latin American Paradox. The Latin American Paradox identifies high levels of happiness amongst Latinos within Latin America and the United States, with low levels of economic prosperity. This study uses Mental Health data from IPUMS Health Survey to investigate the different factors that play a role in the persistence of the Latin American paradox within the United States. Findings suggest that Latinos in the United States are less sensitive to economic factors (compared to Non-Latinos) and it is socio-cultural variables that act as a significant determinant of happiness within the United States' Latino population.

A. Introduction

In 2021, the World Happiness Foundation published its tenth annual report analyzing the state of happiness on a global scale (Helliwell et al., 2021). This report ranked the United States the nineteenth happiest nation in the world. Conversely, in 2021, the United States ranked number one in military supplies, billionaires, obesity, and debt (Snyder, 2021). The United States is ridden with material wealth, yet its citizens are experiencing social-emotional deficiencies. This anomaly is one of many that suggest money does not *directly* buy happiness.

Richard Easterlin, a Happiness Economist, was the first to empirically discredit the notion that material wealth results in an increase in life satisfaction or happiness. During the 1970s, Easterlin observed a steady growth in the U.S economy without a subsequent rise in happiness levels (Easterlin, 1974, 1995). This anomaly was coined the Easterlin Paradox, which claims relative social position is a determinant of Happiness, not income (Clark et al., 2008). This prevailing economic theory has pioneered a new field of study known as Happiness Economics, which analyzes the relationship between economics and life satisfaction. Global efforts geared towards the exploration of Happiness Economics directed attention toward Latin American countries and their sustained level of happiness, in spite of a low standard of living and national income.

The anomaly observed in Latin American countries is known as the Latin American Paradox. Similar to the Easterlin Paradox, the Latin American Paradox discredits the notion that money directly buys happiness, as proclaimed by neoclassical economists. In addition to the Easterlin Paradox, the Latin American Paradox claims cultural aspects, such as interpersonal relations, family, and religiosity are significant determinants of happiness within this region (Rojas et al., 2018). Additionally, researchers have observed disproportionate levels of happiness

amongst Latinos in the United States, in comparison to natives (Lopez et al. 2020). This discovery calls into question the many economic and cultural aspects that play a role in determining happiness for Latinos residing in the United States. Subsequently, these findings also question the integrity of U.S economic and immigration policies in ensuring high levels of happiness for all residents.

Pew Research reported the Latino population within the United States is projected to double by 2050 (Passel et al., 2020). Given the profound influence the Latino American population has within the United States, my research seeks to identify the various determinants of happiness to accurately and justly ensure a prosperous living experience. This study is unique because it views mental health, specifically depression, as a dimension of happiness and will act as a proxy within the empirical design of this project. That said, the guiding research questions within this study are as follows:

- a. Are Latinos in the U.S more depressed than Non-Latinos?
- b. To what extent does Relative Social Position act as a determinant of depression for Latinos in the U.S? How does this compare to Non-Latinos?
- c. To what extent do pecuniary and non-pecuniary factors impact depression rates within the Latino population in the U.S? How does this compare to Non-Latinos?

B. Literature Review and Background

a. Background

This research study takes an interdisciplinary approach to understanding and evaluating happiness amongst all Latinos in the United States regardless of immigration and citizenship status. To fully comprehend the intricacies of this study, it is important to understand the state of immigration in the United States, the relationship between economic and non-economic factors and happiness, and the state of happiness within the Latino population. The intersection and

understanding of these four important factors will provide a foundation for the analysis and interpretation of happiness within the Latino American community.

Given the difficult nature of ‘happiness’ as a quantifiable data point, this study uses a mental health index to proxy happiness. The data point is a self-reported measure of depression, not a clinical diagnosis. This research respects the severity of clinical depression and the differences between being unhappy and being depressed. That said, since this research will measure happiness using a mental health index, this section of the paper will investigate the effect of economic and non-economic factors on predicting happiness and depression, though throughout the empirical analysis portion of the paper the dependent variable will be depression, not happiness.

- i. The State of Immigration in the United States

Since its birth, the United States has acted as a beacon of opportunity and hope for foreign citizens. As the self-proclaimed land of the free, the United States has provided opportunities for many individuals to obtain the life they desire. Immigrants and foreign nationals residing within the United States are frequently faced with adversities surrounding their ethno-racial backgrounds. Prior to delving into these inequities and their effect on individual happiness, it is important to understand United States immigration trends.

In 2021 the United States immigrant population reached a record high of 46.2 million people. On average, one million individuals migrate to the United States each year. Of those, fifty percent originate from Mexico or other Latin American countries. Between immigration trends and generational growth, the United States is now home to 62 million Hispanic/Latino-identifying individuals (Passel et al., 2020). This accounts for twenty percent of the United States’ total population. As previously mentioned, over the next thirty years, the Latino

American immigration population is expected to double. This upward trending immigration trajectory has many implications given the role Latinos play in the United State's labor market and economy.

ii. Labor Market Presence

Latinos populate over a quarter of the labor force in New Mexico, California, Texas, Arizona, Florida, and Nevada. On the national scale, about eighteen percent of the labor force identifies as Latino. Of this eighteen percent, twenty-seven percent work within the construction industry, twenty-three percent work within the agriculture and forestry industry, and twenty-two percent work in the hospitality industry. Other industries that house a large Latino population include mining, oil/natural gas extraction, and transportation (Bureau of Labor Statistics, 2021). It is clear that the growing Latino population in the United States will lead to further growth of the U.S labor force. Beyond this fact, Latinos account for a large portion of the job market that is considered essential. It is without debate that the growing influence Latinos have over the United States does not end with culture, but extends to their civic responsibility and economic efforts.

iii. Why Happiness Economics is Important

Economists view productivity as the hourly output of a nation's economy. Traditional theory believes that productivity can be manipulated by investing in physical capital, new technology, and human capital (the skills an individual possesses). Recently, economists at the University of Oxford have found an alternative means of improving worker productivity: happiness. An experiment was conducted at a British telecom firm to identify the effect an individual's happiness level had on the number of calls made, and more importantly, how many calls resulted in a sale. Quantitatively speaking, workers who are happy tend to be thirteen percent more productive, with a higher rate of sales (Bellet et al., 2019). The remainder of this

section will investigate alternative economic determinants of happiness within the Latino population.

b. Happiness and...

i. Pecuniary Factors

In 2019, the national unemployment rate was 3.7 percent. Specifically, Latinos were experiencing an unemployment rate of 4.3 percent, which was significantly higher than the 3.5 percent for Non-Latinos. Educational attainment, occupation, and geography were the most significant, measurable factors that were responsible for the labor market disparity (Bureau of Labor Statistics, 2020). This observed unemployment trend is important given the relationship between unemployment and general life satisfaction. Research has shown that unemployment leads to severe levels of unhappiness, making employment status an important factor to consider in evaluating happiness within a population that experiences disproportionately high levels of unemployment (Bockerman et al., 2006).

Debt, recession, and economic crises are three circumstances where Latinos experience unequal effects. These three circumstances are also grounds for high levels of unhappiness. Economist John Gathergood claims that high amounts of personal debt are directly associated with high levels of mental health disorders, suicidal ideations, and alcohol/substance abuse. Implications of this relationship include a 23 percent causality rate between those in debt and successful suicide attempts (Gathergood, 2013). Poverty status is another mechanism used to measure economic well-being. A study done in 1993 by Jane D. McLeod at the University of Minnesota found that persistent poverty status as a child results in high levels of mental health disorders in the future (McLeod, 1993). Furthermore, a case study conducted using data from Iceland's economic crisis during the early 2000s explored the implications of money loss on happiness, as opposed to traditional studies looking at money gained and their diminishing return

on happiness. As could be expected, it was individuals who experienced high levels of financial difficulties during an economic crisis that were the most unhappy (Gudmundsdottir, 2013).

ii. Educational Attainment

There are many intersections between educational attainment and financial stability. Subsequently, it is only natural to suspect that education increases one's overall life satisfaction and happiness. A study done using data from the early 2000s proved that both men and women with higher levels of education have lower levels of depression. The researchers from this study divided their sample population into male and female respondents and found that women responded greater to higher educational attainment with respect to their mental health (Ross et al., 2006). The Resource Substitution Theory is responsible for explaining this anomaly. The theory argues that since women are socioeconomically disadvantaged, their well-being is more dependent on changes in educational attainment.

Given that the Resource Substitution Theory has been tested within the scope of gender, it is logical to assume that Latinos will respond similarly to changes in educational attainment, given they are also socioeconomically disadvantaged compared to the majority population. As will be discussed later in this paper, the Latino sample in my study experiences lower educational attainment and lower salary compensation compared to Non-Latinos. If the Resource Substitution Theory holds for Latinos, then it is likely that the Latino sample population's level of depression will respond greater to educational status, than Non-Latinos.

iii. Cultural and Demographic Factors

Given the role that family size and structure play within Latino culture, it is important to understand the role that family plays in determining mental health outcomes. A study conducted in 2014 identified a statistically significant relationship between family size and family order and

their impact on depression (Sudha, 2014). The findings prove that not only do larger family sizes lend themselves to higher rates of depression for the children but the order in which the children are born subjects them to varying levels of depression, as well. That said, additional studies have found that familial support has mitigated high levels of depression for individuals experiencing stress (Baoshan, 2011). These two findings will allow for further application and discussion throughout the remainder of the research project.

c. The State of Happiness Among Latino Americans

As previously mentioned, Happiness trends within the Latino community are an anomaly. The Latin American Paradox describes higher rates of happiness within Latin American countries than would be expected given income levels (Alegria et al., 2018). Since this trend persists in Latin American countries, this study seeks to measure the integrity of this anomaly amongst Latino citizens residing in the United States and to compare Latino levels of happiness to non-Latino happiness.

i. Happiness Disparities between Latinos and Non-Latinos

A cross-sectional study conducted in 2014, using data from the Health and Retirement Survey has identified a disparity in happiness rates among older immigrants within the United States. In particular, the study found that Latino Americans reported the highest rate of happiness in comparison to natives and other immigrant groups. Supplementary studies have been conducted using different datasets that confirm that Latino Americans are happier than other groups (Calvo et al., 2019). Not only does this study strengthen the integrity of the Happiness Paradox, but introduced a new factor that acts as a determinant of happiness: social capital. These findings clearly illustrate the Happiness Paradox that exists between ethno-racial groups, particularly, Latinos.

ii. Determinants of Happiness Amongst Latino Americans

Given the prevailing disparity between Latino Americans and non-Latino Americans, there must be factors that cause these differences. The Happiness Paradox references the impact that socio-cultural variables play in determining happiness trends amongst and between Latino and non-Latino Americans. My study seeks to measure and test this prevailing theory, as well as incorporate new variables to determine the various impacts that socio-cultural and economic variables have on determining happiness.

iii. Nativity and Discrimination Status

A study using data from Collaborative Psychiatric Epidemiology Surveys found Nativity and discrimination acted as robust determinants of happiness amongst Latino Americans. This study used mental health variables as a proxy to measure happiness and found that exposure to discrimination had a significant impact in predicting depression outcomes (Budhwani et al., 2015). That said, certain immigrant groups were less likely to experience depression when compared to native citizens. These groups included Afro-Caribbean, Asian, and Latino. These findings clearly allude to the happiness advantage that immigrants possess over native-born citizens.

A Harvard Business Review study evaluates the state of satisfaction of Latino Americans in the workforce, and the findings are jarring. To start, seventy-six percent of Latinos feel they can not be their true selves at work, leading them to repress various parts of their identity to conform to the traditional “white, male” standard. This ultimately leads to dissatisfaction in the workplace and the work. Fortunately, findings also suggest that forty-two percent of Latino workers will have higher satisfaction levels if there is a senior executive that shares the same identity and advocates on their behalf. However, this finding is only relevant to the five percent

of American corporations that have a senior-level Latino executive (Hewlett et al., 2016). These findings demonstrate the toxicity that is present within the United State's labor market and the negative effects it has on worker productivity.

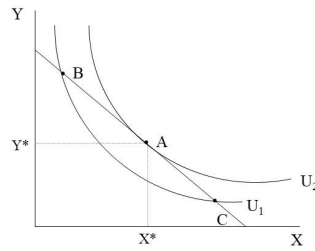
iv. Social Capital and Family Structure

Social capital is defined as a network of relationships amongst people within a society that allows the people and the society to function efficiently. When looking at the comparison between Latino Americans and native-born individuals and their happiness, social capital plays a significant role in minimizing the immigrant-native happiness gap (Jiang et al., 2021). Moreover, another study found that family structure plays an important role in determining happiness for Latino Americans. More specifically, multigenerational family homes, common within Latino culture, tend to yield higher levels of life satisfaction and lower levels of depression (Calvo et al., 2017). These findings allude to a strong relationship between socio-cultural factors and high happiness levels.

C. Theory and Hypothesis

In order to understand the complex dynamics of happiness economics, it is necessary to have a foundational understanding of microeconomics, particularly, the Microeconomic Theory of Utility. This prevailing economic theory relies on utility or indifference curves to demonstrate a direct relationship between income and utility. In the scope of neoclassical economics, utility refers to the satisfaction or "happiness" individuals gain from purchasing goods and services. The curves were named "Indifference curves" because a consumer is indifferent to any combination of goods or services on a specific curve because all points on a given indifference curve produce the same level of utility (Black, 2008). The image presented below represents the theory that was just described.

Image One: Microeconomic Theory of Utility Maximization



An implication of this theory is that an individual will experience a higher level of happiness if they consume more goods or services. However, the ability to consume more goods and services is directly related to an individual's income, which is indicated by the straight-line. That said, one's happiness is constricted by one's income. The maximization of happiness is found at the tangency between the budget constraint line and the utility curve (Point A). In other words, one maximizes their happiness by finding the right combination of goods and services (at market price) given their income restrictions. The maximization of utility can be seen by point A on the graph above. With respect to points B and C, an individual is able to purchase that ratio of products Y and X, however, that combination will yield lower utility. According to this theory, an increase in income will shift the straight lined budget constraint to the northeast, generating a new tangency that creates greater consumption and higher utility (happiness).

This theory has several shortcomings. The Theory of Utility assumes preferences are fixed, which they are not. The theory also assumes that income and consumption are the sole determinants of happiness which, according to the literature on Happiness Economics, is not the case (Hancock, 2013). Though this economic theory is highly regarded within neoclassical economics, it remains an inefficient way of accurately portraying happiness within our society.

Since the early 2000s, there have been drastic developments in Happiness Economics and the implications it has on our society. At its root, Happiness Economics takes a more expansive approach to determining happiness, an approach that builds upon the narrow framework presented in the Theory of Utility. This expansive approach not only takes into account consumption patterns but combines them with measures of subjective well-being to understand the *whole* individual and their path to happiness. The progression of Happiness Economics is due to the efforts of Richard Easterlin, who developed the first theory of Happiness Economics known as the Easterlin Paradox (Easterlin, 1995). This paradox describes a set-point model, wherein after basic needs are met, an individual receives a diminishing rate of return on happiness for every per capita increase in income. More simply put, after basic needs are met, money ceases to act as a significant determinant of happiness, rather it is a relative social position, or your earnings compared to those around you, that acts as the true determinant of happiness (Graham, 2008).

There have been alternative theories that also discredit the microeconomic theory of utility. At its core, the theory of utility asserts that consumption and income are driving forces in determining happiness. Donald T. Campbell, created a theory that elaborates on the inaccuracies of the Theory of Utility. Campbell's theory is known as the "Hedonic Treadmill" and asserts that individuals experience temporary increases in happiness with the purchase of new goods and services, which later lose their value (Campbell, 1986). This diminishing return on investment results in more purchasing and greater disappointment. This addendum to Happiness Economics not only discredits the theory of utility but supports alternative measures and theories of happiness, like the Easterlin Paradox and what we will soon see as the Latin America Paradox.

Recently, there has been an investigation into a theory that goes by many names: Latin America Paradox, Spanish Paradox, Hispanic Paradox. Epidemiologists have found that Latino individuals tend to have higher life satisfaction, health outcomes, and happiness rates than would be unexpected given their income levels. Scientists have long researched this paradox and have concluded a variety of factors contribute to these unexpected trends, including lifestyle choices (diet), relationships, religiosity, and family structure (Rojas et al., 2018). Furthermore, scientists have observed that this paradox persists even after these individuals leave their native communities and migrate to new areas. This research project will investigate this prevailing paradox amongst Latinos in the United States by utilizing the extensive National Health Interview Survey (NHIS) and multiple regression techniques. As mentioned previously, this study will use depression as a proxy for happiness in order to extend traditional literature by using a more clinical definition of happiness. By adopting this method, the findings from this investigation will add to the existing literature on the Latin American Paradox by exploring the probability of depression amongst Latino and non-Latino residents in the United States. On the basis of Happiness Economic theory and recent findings in the empirical literature, I hypothesize that:

- A. Latinos in the United States will be less depressed than Non-Latinos.
- B. Relative social position will be a significant determinant of depression amongst Latinos in the United States. However, the effect of relative social position on depression will be smaller for Latinos than Non-Latinos.
- C. Non-pecuniary factors will play a strong role in determining depression amongst Latinos in the United States, while pecuniary factors will play a lesser role when compared to Non-Latinos.

D. Data and Empirical Models

This research project uses data from the National Health Interview Survey (NHIS) that is accessed through the Integrated Public Use Microdata Series (IPUMS) depository at the University of Minnesota. IPUMS provides integrated census and survey data. Within the empirical design of this project, our survey respondents are restricted to individuals ages 18 through 65 who completed the survey in 2018. IPUMS Health Survey is responsible for providing information and data concerning mental health conditions and the large array of alternative independent variables that are observed within this study (Blewett et al., 2019). The list of the dependent and independent variables used in this research project are defined in Table 1, along with their expected signs. Further analysis of individual variables and their expected relationship to depression can be observed in **Table 1** in the next section. When looking at the table please note a positive sign correlates with an increase in depression and subsequently a decrease in happiness, while a negative sign correlates with a decrease in depression and subsequently an increase in happiness.

To start, the dependent variable “Has_Depression” is derived from a self-reported depression index, in which individuals self-report whether or not they are experiencing depression, and if so, the level of intensity. This variable was programmed as a dichotomous variable: either the respondent “Has_Depression” or does not. The next section of variables listed in Table 1 are the independent pecuniary/education variables. The “Residual” is an empirically derived social position variable that is explained further in the next section. That said, a positive “Residual” denotes an individual is making more money than they should, while a negative denotes they are making less. Unemployment and poverty status are two dichotomous variables, both of which are expected to increase the likelihood of having depression.

Table 1: Variable Descriptions and Expected Signs		
Dependent:	Description	Expected
Has_Depression	Response to survey question asking individuals what level of depression they had with an indicator of no depression, as well.	N/A
Independent Pecuniary	Description	Expected
Residual	Empirically derived measure of relative social position (See section D for more detail).	-
Unemployed	1= Unemployed, 0= Employed	+
Below_Poverty	1= Below poverty level, 0= Above poverty level	+
Independent Non-Pecuniary	Description	Expected
HS_Grad	1 = Graduated HS, 0 = Did not graduate HS	-
College_Grad	1 = Graduated College, 0 = Did not graduate College	-
Citizen	1 = Citizen, 0 = Not Citizen	-
Spanish_Lang.	1 = Spanish, 0 = English	+
>Fifteen YRS	1 = More than fifteen Yrs., 0 = Less than fifteen Yrs.	-
Family_Size	Linear variable denoting the number of individuals in the family	-
Married	1= Married, 0=Not married	-
Good_Health	1= Good health, 0= Poor health	-
Male	1= Male, 0= Female	-
Age	Age of respondents in years	+
Black	1= Black, 0= Not black	+
Gay	1= Gay, 0= Not gay	+

The educational attainment dummy variables include “HS_Grad,” that indicate individuals with a high school diploma, but no four-year bachelor’s degree, and “College_Grad,” that indicate individuals with a bachelor’s degree and higher. Finally, the last category of

variables are the non-pecuniary variables. Marital status, health status, gender, race, and sexuality are dichotomous variables, while family size and age are continuous variables. All of these variables are self-reported which limits the potential for systematic biases. The remainder of this section explains how this array of variables are incorporated into the empirical design.

The empirical design and makeup of this research project follow two models: Model A, the Interaction Model, and Model B, the Complete Model. Together these two linear regression models will investigate the relationship between a series of socio-economic variables and their effect on happiness, as well as determine the extent to which Latino Americans conform to the principles outlined by the Easterlin Paradox. Empirical Model A can be found below:

<p>Model A: Interaction Model</p> $Depression_i = \beta_0 + \beta_1(Residual_i) + \beta_2(Residual * Latino_i) + \Theta_k(Pecuniary_{ik}) + \sigma_j(Non_Pecuniary_{ij})$

where $Depression_i$ is a dichotomous dummy variable that denotes whether an individual i has depression or not. The *Residual* is an empirically derived variable to measure the difference between individual i 's actual earnings and predicted earnings, as described below. $Pecuniary_{ik}$ is a vector of k pecuniary variables for individual i defined in Table 1. $Non_Pecuniary_{ij}$ is a vector of j non-pecuniary variables for individual i defined in Table 1.

To start, Model A is run for the whole sample. In order to understand the purpose of Model A, it is important to remember the research question at hand and its complementary theory. The purpose of this research is to investigate the Latin American Paradox, an anomaly wherein higher happiness rates persist amongst Latin Americans in spite of their relatively low income. Moreover, research shows that there are problems in the Easterlin Paradox that do not explain the persisting levels of happiness observed amongst the Latin American population.

Model A seeks to quantify the effect of the Easterlin Paradox on Latinos in the United States and then compare that number to natives.

To start, the empirically derived social position variable, *Residual*, is estimated by using a standard earnings function to predict how much an individual should be making. A standard earnings function is a single equation that explains wage and income as a function of human capital characteristics. Human capital characteristics are individual assets like education, training, intelligence, skills, and health that make workers more competitive. The earnings function is estimated using family income as the dependent variable. That said, the next step in the process is to subtract actual family income from the estimated family income. The difference between these two values is the variable *Residual*. This variable reflects whether or not an individual is making more or less money than they should be given their human capital characteristics. This estimation sequence can be found below:

<p style="text-align: center;">Residual Estimation Equation</p> $Fam. Income = \beta_0 + \beta_1(Educ.) + \beta_2(Marital) + \beta_3(Health) + \beta_4(Employ.) + D.V$ $Residual = Actual Earnings - Estimated Earnings$

In order to compare the differential effect of *Residual* on Latinos and Non-Latinos, Model A contains the interaction variable, $Residual * Latino_i$, which multiplies *Residual* times *Latino*. Within linear regression models, interaction terms are independent variables that have different effects on the dependent variable or outcome depending on the value of another independent variable. The coefficient to this variable indicates the difference in responsiveness between Latinos and Non-Latinos Happiness to a one-unit change in the variable *Residual*.

Model B is similar to Model A, except it is run separately for Latinos and Non-Latinos. Model B is expressed as:

Model B

$$Depression_i = \beta_0 + \beta_1(Residual) + \Theta_k(Pecuniary_{ik}) + \sigma_j(Non_Pecuniary_{ij})$$

Model B seeks to answer the third research question, which investigates the effect of socio-cultural factors on mental depression. Model B differs from Model A, the Interaction Model, because Model B runs separate regressions for Latinos and Non-Latinos in order to compare the differing effects of the independent variables. To start, Model B can be broken down into three parts: the empirically derived relative social position variable (*Residual*), pecuniary variables, and non-pecuniary variables (as seen in Table 1). The next component of Model B is the additional economic variables (*Pecuniary*). These variables include employment and poverty status. The variable for employment status is dichotomous and represents whether an individual is employed or unemployed. The variable for poverty status is a dichotomous variable that represents whether an individual is above or below the poverty level. The coefficients to the pecuniary variables will test the Easterlin Paradox within our data set.

The following components of Model B include sociocultural variables that will test my hypotheses. These variables include education, marital status, health, and employment status. Additionally, there is also a family structure variable. The addition of these variables will help support the gap in depression that is unaccounted for by social position and other economic variables. Definitions of these variables are found in Table 1. Finally, it is important to note that Model A will be run twice. Once accounting for Latinos identifying individuals, and again accounting for Non-Latinos identifying individuals. The computed coefficients will then be compared to analyze the differences in the determinants of depression.

E. Results

The results from descriptive statistics, Model A regression, and Model B regression will

be explored in this section. The results are as follows:

a. Descriptive Statistics

Within the context of this research project, descriptive statistics will include a breakdown of our survey respondents into two categories: Latino and Non-Latino. This will allow for easy comparison across the two sample populations. The tables of descriptive statistics are shown below:

Table 2: Descriptive Statistics for Depressed and Non-Depressed Latinos and Non-Latinos		
Variable	Latinos	Non-Latinos
Depressed	12.54%	19.37%
Sample Size	7,578	36,631

Table 2 represents the distribution of the dependent variable, Depression, across the Latino and Non-Latino sample population. Table 2 seeks to answer the first research question: Are Latinos more depressed than Non-Latinos? From the breakdown observed within our sample population, it is evident that Latinos experience lower rates of depression, around 12.54%, compared to Non-Latinos, 19.37%. The regression analysis presented later will determine whether this gap in happiness will remain when we control for a set of pecuniary and non-pecuniary determinants of happiness.

Table 2.2 identifies the distribution of pecuniary variables within the Latino and Non-Latino populations. In general, Latinos have lower income and higher rates of poverty, when compared to Non-Latinos. The fact that Latinos have lower levels of economic performance and lower rates of depression than non Latinos provides preliminary support for the Latin American paradox discussed earlier

Table 2.2: Descriptive Statistics for Pecuniary Variables Latinos and Non-Latinos		
Variable	Latinos	Non-Latinos
Depressed	12.54%	19.37%
Median Family Income	\$51,912	\$80,000
Personal Earnings	\$19,000	\$30,000
Residual- Relative Social Position	-\$11,638	\$2,408
In Poverty	14.26%	8.59%
Unemployed	3.76%	3.48%
Sample Size	7,578	36,631

Finally, a jarring observation is seen within the distribution of the *Residual*. To refresh, the *Residual* identifies how much more/less an individual is making than they should be given their human capital characteristics. Table 2.2 shows that Latinos are making \$11,638 less than they should be, given their education and other demographic variables. Since the residual accounts for a series of human capital and demographic characteristics, this disparity is either a result of omitted variables or labor market discrimination. Though this observation does not directly answer the research questions at hand, it is demonstrative of a great inequity in the labor market.

Table 2.3: Descriptive Statistics for Educational Attainment		
Variable	Latinos	Non-Latinos
Depressed	12.54%	19.37%
Never Graduated HS	26.54%	7.29%
HS Grad	54.18%	55.18%
College Grad	16.53%	36.63%
Sample Size	7,578	36,631

Table 2.3 looks at the breakdown of educational attainment within the Latino and Non-Latino sample population. It is evident from the proportions represented above that Latino individuals have lower rates of educational attainment than their Non-Latino counterparts.

Table 2.4: Descriptive Statistics for Pecuniary Variables		
Variable	Latinos	Non-Latinos
Depressed	12.54%	19.37%
Spanish Language	31.14%	0.10%
Citizen	69.7%	95.29%
Immigrant	52.34%	12.41%
% of Immigrants in U.S more than Fifteen Years	36.16%	7.69%
% of Immigrants in U.S less than Fifteen Years	14.24%	4.57%
Sample Size	7,578	36,631

Table 2.4 shows the distribution and breakdown of assimilation variables within the sample population. Simple observations that can be observed within this table are the differing proportion of citizenship and immigration status between Latinos and Non-Latinos. Beyond that, we see a large portion of the surveyed Latinos have lived in the United States for more than fifteen years and speak a considerable amount of Spanish. These variables are associated with the risk of discrimination, which according to our literature results in lower happiness.

Table 2.5 presents descriptive statistics for the non-pecuniary variables. These variables include Health Status, Gender, and Sexual Orientation. Some noticeable variations in these distributions are observed in Family Size, Marital Status, Age, and Race. To start, Latinos have a considerably larger family size, and subsequently, more children than compared to Non-Latinos.

Table 2.5: Descriptive Statistics for Non-Pecuniary Variables		
Variable	Latinos	Non-Latinos
Depressed	12.54%	19.37%
Good Health	88.51%	89.74%
Family Size	3.77	2.97
Number of Children	1.14	0.81
Married	50.84%	55.45%
Age	38.7	43.02
Male	48.52%	48.50%
Black	5.08%	13.84%
Gay	0.89%	0.90%
Sample Size	7,578	36,631

Latinos within this survey sample also tended to be younger and not of African American descent. Finally, about half of the Latino population is married, which is a valuable finding given the strong association between marital status and happiness discussed within the relevant literature. Now that the sample population has been established and discussed, the results from Model A and B are presented below.

b. Model A Results

To serve as a reminder, Model A, or the Interaction Model, sought to answer the second investigation research question: To what extent does relative social position, as measured by the variable *Residual*, act as a predictor for depression? It also addresses whether the change in the probability of depression from a given change in the variable *Residual* is less for Latinos than Non-Latinos? To answer this question, Model A uses an interaction term to quantify the varying effect of relative social position on solely Latinos, to then compare to natives.

Table 3: Interaction Model Regression Results (Dependent Variable indicates Depression)		
Pecuniary Variables	Coefficient	Standard Error
Residual (\$10,000)	-0.005293***	(< 2e-16)
Residual*Latinos (\$10,000)	0.003403***	(0.000270)
In Poverty	0.073***	(0.009)
Unemployment	0.035***	(0.012)
Educational Attainment		
HS Graduate	0.019***	(0.007)
College Graduate	0.050***	(0.008)
Assimilation Variables		
Spanish Language	-0.034	(0.049)
Citizen	-0.015*	(0.008)
>Fifteen Years	0.047***	(0.007)
Cultural and Demographic Variables		
Family Size	-0.038***	(0.001)
Married	-0.072***	(0.005)
Good Health	-0.111***	(0.008)
Male	-0.051***	(0.004)
Black	-0.051***	(0.005)
Age	0.001	(0.0002)
Gay	0.353***	(0.026)
	Sample Size: 44,209	R-Squared: 0.091
<p>***indicates P-Value at $p < .001$ level; **Indicates significance at $p < .01$ level; *indicates significance at $p < .1$ level. Notes: Data collected from IPUMS Health Survey (2018). Percentages are rounded to the nearest thousandths.</p>		

The variable *Residual* is measured in \$10,000 units. The regression results for Model A are presented in Table 3.

Within linear regression modeling, interaction occurs when an independent variable has a different effect on the outcome, or dependent variable, contingent on the value of another independent variable. A common misperception is that the coefficient to the interaction term, or in this case β_2 , is the valuation of the effect of the residual on depression rates for Latinos. Rather, β_2 is the difference in the effect of the residual on depression between Latinos and Non-Latinos. The effect of the residual on depression rates for Latinos is $\beta_1 + \beta_2$ from the Model A equation presented earlier and the effect of the residual on depression rates for Non-Latinos is the coefficient β_1 . Table 2 shows that for every \$10,000 more a Latino individual makes there is a 0.28% point decrease in the overall depression rate. For Non-Latinos, for every \$10,000 more they make, there is a 0.52% point decrease in the depression rate. Again, Latinos are proven to be less sensitive to the change in economic factors, and in the case of the residual, they seem to be half as sensitive to changes in the residual variable as Non-Latinos. This anomaly is consistent with both the Easterlin and the Latin American Paradox.

Within linear regression modeling, the incorporation of multiple variables allows researchers to estimate the effects of a large number of independent variables on the dependent variable in a single model. By including appropriate variables, there is less chance of having *omitted variable biases* in the estimated coefficients. Model A controls for a series of variables to identify their independent effects on predicting depression, and more importantly, identifying the independent, unbiased effects of the Residual and interaction term on depression. The coefficient estimates for the control variables in Model A are in Table 3. Many of the variables (Poverty, unemployment, marital, and health status) had coefficient estimates that remained consistent with the hypothesis and literature. However, variables like educational attainment and race produced coefficient estimates that were surprising. For example, high school/college graduates and

African American identifying individuals are more likely to have depression than high school dropouts and individuals of other racial backgrounds.

c. Model B Results

The following three tables portray the coefficient estimates determined in Model B. Again, to refresh, Model B acted very similar to Model A, however, instead of looking at the entire sample, the Linear Regression Model was run twice: once for the Latino sample and once for the Non-Latino sample. Model B seeks to test the third research hypothesis that asserts that socio-cultural factors play a strong role in determining depression amongst Latinos in the United States, while economic factors play a lesser role when compared to natives. Model B includes many non-pecuniary variables that are linked to depression and happiness. Finally, before delving into analysis, please note that a negative sign to a non-pecuniary variable denotes a lower probability of having depression, which in the scope of the project denotes higher happiness levels. The opposite can be said for a positive coefficient. The results for Model B are presented in Table 4 and discussed below:

Table 4 contains the coefficient estimates for Model B. This includes pecuniary and non-pecuniary variables. To start, the results for the Latino sample contained coefficient estimates that were insignificant: unemployment and high school graduates. In the context of statistics, an insignificant result denotes no statistical relationship between the independent and dependent variables. Before analyzing the individual coefficients, a general observation can be made by simply looking at the coefficient values. When comparing the Latino sample population to the Non-Latino sample population, smaller coefficients can be observed within the Latino sample population.

Table 4: Baseline Model Regression Results (Dependent Variable indicates Depression)

	Latino		Non-Latino	
Pecuniary Var.	Coefficient	S.E	Coefficient	S.E
Residual (\$10,000)	-0.002909***	(0.000)	-0.005108***	(0.000)
In Poverty	0.057***	(0.013)	0.085***	(0.009)
Unemployed	0.004	(0.021)	0.048***	(0.012)
Education Var.				
HS Graduate	0.011	(0.009)	0.025***	(0.007)
College Graduate	0.041***	(0.013)	0.052***	(0.008)
Assimilation Var.				
Spanish Language	-0.035***	(0.008)	-0.105**	(0.049)
Citizen	-0.002	(0.009)	0.039***	(0.008)
>Fifteen Years	0.007	(0.009)	-0.024***	(0.007)
Socio-Cultural/ Demographic				
Family Size	-0.024***	(0.002)	-0.039***	(0.001)
Married	-0.057***	(0.009)	-0.088***	(0.005)
Good Health	-0.099***	(0.014)	-0.113***	(0.008)
Male	-0.048***	(0.007)	-0.052***	(0.004)
Black	0.018	(0.018)	-0.063***	(0.006)
Age	0.0002	(0.0004)	0.0004***	(0.0002)
Gay	0.358***	(0.061)	0.732***	(0.076)
	Sample Size: 7,578	R-Squared: 0.073	Sample Size: 36,631	R-Squared: 0.091
<p>***indicates P-Value at $p < .001$ level; **Indicates significance at $p < .01$ level; *indicates significance at $p < .1$ level. Notes: Data collected from IPUMS Health Survey (2018). Percentages are rounded to the nearest thousandths.</p>				

This trend can be perceived as a general lack of sensitivity of Latino depression rates to changes

in both pecuniary and non-pecuniary variables. This means that for Latino individuals, factors such as social position, poverty, employment status, and educational attainment play a lesser role in determining depression relative to Non-Latinos.

To continue, looking at the relative social position coefficient estimate, or the coefficient to *Residual*, another observation to be made is the sign of the coefficients. For both the Latino and Non-Latino populations the coefficient estimate for *Residual* is significant and negative. This means that the more an individual makes compared to their estimated earnings, the less likely they are to be depressed. This finding is consistent with the Easterlin Paradox which claims relative social position acts as a significant predictor of happiness, not income. To continue, as predicted, both unemployment and being in poverty correlate with a significant likelihood of having depression. Respectively, poor Latinos are 5.7 percentage points more likely to be depressed than Latinos that are not poor, while poor Non-Latinos are 8.5 percentage points more likely to be poor than Non-Latinos. This result is consistent with the Latin American paradox and suggests that Latinos are more resilient to economic disappointments like unemployment and poverty than non-Latinos.

Another category of variables to note from Table 4 are the educational attainment variables, specifically college graduates. The coefficient estimates for individuals who graduated from college were similar in magnitude when looking at the two sample populations. However, both coefficients are unexpectedly positive, which is indicative of college graduates having a higher probability of experiencing depression, compared to an individual who never graduated high school. In order to test this unexpected anomaly, a linear regression was run with just the education variables included as independent variables, and it was found that their coefficients remained positive. A potential explanation for this discovery could be that individuals with

higher education levels developed an intellectual framework that allows them to communicate and identify their depressive feelings. That said, this relationship also suggests that higher levels of stress come with attaining higher degrees and the work that comes along afterward.

The next category of variables in Table 4 are the assimilation variables. These variables are geared towards individuals who have migrated to the United States. Unfortunately, the coefficient estimates within this table are not as enlightening unto the impact of an immigrant's migratory and assimilation experience as one would hope. That said, the data point for *Spanish Language* denotes the survey was conducted in Spanish. Based on the coefficient estimates, it is evident that individuals whose preferred language is Spanish are less likely to have depression compared to individuals whose preferred language is English, regardless of ethnicity.

Finally, Table 4 also investigates the effect of socio-cultural and demographic factors on predicting depression. As previously discussed in the literature section, *Family size* plays an important, positive role in determining and sustaining happiness levels. This finding was corroborated in Table 4. For both Latinos and Non-Latinos, the larger the family size, the less likely an individual is to develop depression. The same can be said for individuals with good health and who identify as male. Conversely, a very large and significant predictor of depression, both for Latino and Non-Latino individuals, is sexual orientation. Individuals who identify as a member of the LGBTQ+ community are likely to have higher rates of depression than individuals who do not.

F. Conclusion and Policy Implications

Now that the results from Model A and B have been analyzed and explained, this section will discuss the significance of these findings in the scope of the research questions, hypothesis, and theory. To start, the findings of this research suggest that the Latin American paradox

persists within the United States. By simply looking at the descriptive statistics, it is apparent that even though Latinos in the United States make (on average) \$30,000 less in family income, experience unemployment rates roughly two times that of Non-Latinos, and are unjustly compensated roughly \$11,000 less than expected, they still experience depression rates about seven percentage points lower than Non-Latinos. Latinos are three times less likely to graduate high school and for those that do, they are about two times less likely to graduate from college. The paradoxes, however, do not end there.

The Easterlin Paradox is another theory that is discussed within the paper. This theory claims that rather than income, as described by the Theory of Utility, it is relative social position, or your earnings compared to those around you, that is the true determinant of happiness. Model A and B work to both quantify and test this theory. The results proved that the Easterlin Paradox remains consistent across ethnicity, however, the effect of relative social position, as measured by *Residual*, on depression rates for Latinos is roughly half as intense as it is for Non-Latinos. This finding, coupled with the observations in the previous paragraph suggests that Latino depression rates are less sensitive to economic factors than for Non-Latinos.

Unfortunately, the investigation into the intricate components of the Latin American Paradox had particular shortcomings due to limitations in the database. These shortcomings include no quantifiable measure of religiosity, social capital, and community belonging. That said, by comparing the varying magnitudes of the coefficient estimates between ethnic groups, it is clear that Non-Latino depression is more sensitive to the variables presented in the regression equation. Future research should explore how variables like religiosity, social capital, and community belonging influence Latino and non-Latino depression rates.

Moreover, aside from educational attainment, a majority of the variables within Model A

and B predicted depression in the hypothesized way, and the results are consistent with research on the economics of happiness. This suggests that depression acts as a significant and robust proxy for happiness. However, further investigation is needed to understand the unique nature of education and its role in determining depression. Beyond that, the findings in this research suggest a general resilience within Latino culture that yields lower rates of depression.

There are many policy implications that can be deduced from the results presented in Model A and B. To start, regardless of ethno-racial background, the United States should strengthen its welfare benefits and policy to support those who are living in poverty. Given the strong relationship between health status and mental health status, strengthening access to medical insurance, as well as improving these services would work to improve mental health outcomes for all United States residents. Finally, generally, there should be improvements made in mental health services provided to members of the LGBTQ+ community. For both Latinos and Non-Latinos, there is a strong correlation between identifying as gay and having depression.

This research project produced important results with significant implications within the United States. Though there were certain shortcomings with respect to the availability of data and unexpected outcomes (education), the results that were found create a strong foundation for assessing mental health/happiness outcomes within the United States. Further research on this topic would include an investigation into the relationship between education on mental health. Moreover, to truly obtain a holistic understanding of mental health determinants within the Latino population, I believe it will require a combination of quantitative and qualitative research.

The findings of this study contribute greatly to our understanding both the Latin American, the Easterlin Paradox, and Happiness Economics. First, we see that the Latinos have a lower probability of being depressed than Non-Latinos. This affirms the idea of the Latin

American Paradox and its persistence in the United States. Moreover, the comparison of the coefficients between the two sample populations provides a more comprehensive foundation for the differences between Latinos and Non-Latinos and the differing effects of pecuniary and non-pecuniary factors on their mental health. Second, the discovery in Model A, or the Interaction Model, supports my hypothesis that relative social position (Easterlin Paradox) is not the main determinant of happiness within the Latino community. This suggests other socio-economic factors affect Latino's mental health. Finally, my paper strongly suggests that depression acts as a significant proxy for happiness. These findings provide an alternative method of measuring happiness using mental health measures.

References

- Banth, S., & Sharma, A. (2014). *A Study of Birth Order and Family Size Differences on Depression*. *Indian journal of health and wellbeing* 5.7: 114–. Print.
- Bellet, C., De Neve, J. E., & Ward, G. (2019, October 17). *Does Employee Happiness Have an Impact on Productivity?* SSRN. Retrieved April 11, 2022, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3470734
- Black R.D.C. (2008) *Utility*. In: Palgrave Macmillan (eds) *The New Palgrave Dictionary of Economics*. Palgrave Macmillan, London. https://doi.org/10.1057/978-1-349-95121-5_1320-2
- Blewett, L., Rivera, J., King, M., & Williams, K. *IPUMS Health Surveys: National Health Interview Survey*, Version 6.4 [dataset]. Minneapolis, MN: IPUMS, 2019. <https://doi.org/10.18128/D070.V6.4>
- Böckerman, P., & Ilmakunnas, P. (2006). *Elusive Effects of Unemployment on Happiness*. *Social Indicators Research*, 79(1), 159–169. <https://doi.org/10.1007/s11205-005-4609-5>
- Budhwani, H., Herald, K. R., & Chavez-Yenter, D. (2015). *Depression in Racial and Ethnic Minorities: the Impact of Nativity and Discrimination*. *Journal of racial and ethnic health disparities*, 2(1), 34–42. <https://doi.org/10.1007/s40615-014-0045-z>
- Bureau of Labor Statistics, U.S. Department of Labor (2021). *Hispanics or Latinos made up over one-fourth of the labor force in six states in 2020*. *The Economics Daily*. <https://www.bls.gov/opub/ted/2021/hispanics-or-latinos-made-up-over-one-fourth-of-the-labor-force-in-six-states-in-2020.htm>.
- Campbell, D. T. (1986). *Rationality and Utility from the Standpoint of Evolutionary Biology*. *The Journal of Business*, 59(4), S355–S364. <http://www.jstor.org/stable/2352766>
- Calvo, R., Carr, D. C., & Matz-Costa, C. (2019). *Expanding the Happiness Paradox:*

- Ethnoracial Disparities in Life Satisfaction Among Older Immigrants in the United States*. *Journal of aging and health*, 31(2), 231–255.
<https://doi.org/10.1177/0898264317726608>
- Clark, A. E., Frijters, P., & Shields, M. A. (2008). *Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles*. *Journal of Economic Literature*, 46(1), 95–144. <http://www.jstor.org/stable/27646948>
- Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all?. *Journal of Economic Behavior & Organization*, 27(1), 35-47.
- Gudmundsdottir, D.G. (2013). *The Impact of Economic Crisis on Happiness*. *Social Indicators Research*, 110(3), 1083–1101. <https://doi.org/10.1007/s11205-011-9973-8>
- Helliwell, J., Layard, R., & Sachs, J. (2021). *World Happiness Report 2021*, New York: Sustainable Development Solutions Network.
- Hewlett, S. A., Allwood, N., & Sherbin, L. S. (2016). *U.S. latinos feel they can't be themselves at work*. *Harvard Business Review*. Retrieved April 11, 2022, from <https://hbr.org/2016/10/u-s-latinos-feel-they-cant-be-themselves-at-work>
- Hancock, E. (2013). *Assessing Happiness: How Economic Factors Measure Up*. Illinois Wesleyan University Honors Project. https://digitalcommons.iwu.edu/econ_honproj/123/
- Jiang, N., & Renema, J. (2021). *Immigrant-Native Disparities in Happiness among Middle-Aged and Older Adults in Western European Countries: The Moderating Role of Social Capital*. *Journal of aging and health*, 33(5-6), 427–441.
<https://doi.org/10.1177/089826432199028>
- Lopez, M. H., Gonzalez-Barrera, A., & Krogstad, J. M. (2020). *Latinos are more likely to believe in the American dream, but most say it is hard to achieve*. Pew Research Center. Retrieved April 11, 2022, from <https://www.pewresearch.org/fact-tank/2018/09/11/latinos-are-more-likely-to-believe-in-the-american-dream-but-most-say-it-is->

hard-to-achieve/

McLeod, J. D., & Shanahan, M. J. (1993). *Poverty, Parenting, and Children's Mental Health.*

American Sociological Review, 58(3), 351–366. <https://doi.org/10.2307/2095905>

NeMoyer, A., Falgàs Bagué, I., Wang, Y., & Alvarez, K. (2018). *Social Determinants of Mental*

Health: Where We Are and Where We Need to Go. *Current Psychiatry Reports*, 20(11),

1–13. <https://doi.org/10.1007/s11920-018-0969-9>

Passel, J. S., & Cohn, D. V. (2020). *U.S. population projections: 2005-2050.* *Pew Research*

Center's Hispanic Trends Project. Retrieved April 11, 2022, from

<https://www.pewresearch.org/hispanic/2008/02/11/us-population-projections-2005-2050/>

Rojas, M., Wills, E., Hansberg, O., Millán, R., & Abdallah, S. (2018). *Understanding high*

happiness in Latin America - happiness and well. *Happiness and Well-Being: Integrating*

Research Across Disciplines. Retrieved April 11, 2022, from

<https://www.happinessandwellbeing.org/rojas>

Ross, J., & Mirowsky, J. (2006). *Sex differences in the effect of education on depression:*

Resource multiplication or resource substitution? *Social Science & Medicine* (1982),

63(5), 1400–1413. <https://doi.org/10.1016/j.socscimed.2006.03.013>

Snyder, M. (2021). *Number one? 20 Shameful Categories in which America leads the World.*

Business Insider. Retrieved April 11, 2022, from [https://www.businessinsider.com/20](https://www.businessinsider.com/20-shameful-categories-america-leads-world-2011-7)

[-shameful-categories-america-leads-world-2011-7](https://www.businessinsider.com/20-shameful-categories-america-leads-world-2011-7)

Zhang, B. & Li, J. (2011) *Gender and Marital Status Differences in Depressive Symptoms*

Among Elderly Adults: The Roles of Family Support and Friend Support, *Aging &*

Mental Health, 15:7, 844-854, DOI: 10.1080/13607863.2011.569481