The impact of relative and absolute income on subjective well-being in Brazil's Greater ABC Paulista Region

O Impacto da Renda relativa e renda absoluta no bem-estar subjetivo no Grande ABC Paulista

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Abstract

In this study, our main goal is to shed light on the connections between the subjective well-being (SWB) and income (both in their relative and absolute forms) of individuals living in Brazil's Greater ABC Paulista Region. In addition to concepts, the theoretical framework underlying the SWB context, as explained by income, encompasses studies that underscore the link between SWB and income inequality. We used two explanatory variables – absolute and relative income (the latter being absolute income divided into ten income groups) – and we employed four other variables to compose the SWB construct. We obtained the data for the sample from a socio-economic survey of the Greater ABC Paulista Region. We carried out the analysis via descriptive statistics and structural equation modeling (SEM) based on the partial least squares (PLS) technique. Our findings showed a weak relationship between SWB and both types of income, but the global quality indicators revealed that the model is of good quality.

Keywords: Happiness. Welfare. Relative income. Absolute income.

Resumo

Este estudo teve como objetivo principal relacionar o bem-estar subjetivo (BES) e a renda, tanto em sua configuração relativa, quanto absoluta, dos indivíduos domiciliados na Região do Grande ABC Paulista. O referencial teórico da contextualização de bem-estar subjetivo sendo explicado pela renda apresenta além dos conceitos, estudos que apontam relação entre BES e desigualdade de distribuição de renda. Foram utilizadas duas variáveis explicativas, Renda absoluta e Renda relativa (renda absoluta dividida em dez grupos de renda) e quatro variáveis para compor o construto de BES. Os dados da amostra utilizada foram extraídos da pesquisa Socioeconômica da Região do Grande ABC Paulista. A análise se deu por estatísticas descritivas e Modelagem de Equações Estruturais baseada em mínimos quadrados parciais (PLS). O resultado apresentou fraco relacionamento entre o BES e ambas as rendas, porém os indicadores de qualidade global evidenciam que há boa qualidade no modelo.

Palavras-chave: Felicidade. Bem-estar. Renda relativa. Renda absoluta.

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INTRODUCTION

Happiness is one of humanity's greatest pursuits. When we are children, external factors do not affect well-being very much. Yet when we grow up, several variables prevent us from attaining it. Studies on the determinants of happiness have proposed different hypotheses to explain its variation. There are two different facets of well-being: subjective and objective. The first is linked to one's lifestyle; individual, emotional, and satisfying experiences; and other micro- and macro-economic factors such as income, unemployment, and inflation (De Neve, Christakis, Fowler & Frey, 2012).

With subjective well-being (SWB) as the focus, and taking into account the preceding highlighted statements, we repeatedly ask: Can money buy happiness? Yasar (2018) divided respondents to this question into two groups: one that associated SWB with average and absolute income, and another in which the SWB to income ratio was measured through relative income (i.e., an individual's income compared to that of others). The outcomes for the second group resembled the findings of Richard Easterlin, one of the foremost scholars on this relationship. Easterlin discovered that an overall increase in absolute income, based on a certain level of happiness previously achieved, does not affect a population's overall well-being. From this conclusion, he developed the Easterlin paradox (Easterlin, 1974). Other experts (mainly Veenhoven) have discussed Easterlin's work regarding its veracity and applicability in diverse regions (Santos, 2015).

The field of psychology dictates that an individual's level of happiness always begins from a positive starting point and can rise or decline according to his/her life events. However, happiness always returns to its starting point, which is positive and different for each person (Diener et al., 2006; Feldman, 2015).

In the present study, we seek to prove the Easterlin Paradox, in addition to explaining the impact of relative and absolute income on SWB found in a biphasic conglomerate probability sample, with a margin of error of 3% and a significance level of 95%, totaling 1,043 cases already treated. We derived the data for the sample from socio-economic survey administered to respondents aged 18 and over in the seven municipalities that constitute Brazil's Greater ABC Paulista Region: (1) Santo André; (2) São Bernardo do Campo; (3) São Caetano do Sul; (4) Diadema; (5) Mauá; (6) Ribeirão Pires; and (7) Rio Grande da Serra. Approximately 2.7 million inhabitants live in the region based on data from the Brazilian Institute of Geography and Statistics (IBGE).

THEORETICAL REFERENCES

Defining welfare

According to Corbi and Menezes-Filho (2006), human well-being is composed of two dimensions: objective and subjective. Giannetti (2002) asserted that, "Human well-being is partly objective, but it is also subjective – it depends a lot on how people are feeling and evaluating their lives as the world around them changes." For Giannetti, some extreme situations reveal the "mutual dependence" between the two facets. Giannetti continued: "...for someone chronically depressed...living is insipid, and nothing recovers the [sense] of being who you are. Though surrounded by luxury and comfort, their lives border on the unbearable" (Giannetti, 2002, pp. 16, 29).

Frey and Stutzer (2012) identified three sets of factors that determine individual well-being:

(1) *Personality and demographic aspects*: These include marital (family) status, one's level of

education, gender, and age (Easterlin, 1974). According to Frey and Stutzer, psychologists have studied these characteristics for decades.

(2) *Micro- and macro-economic factors*: These encompass income, unemployment, and inflation (De Neve, Christakis, Fowler & Frey, 2012), which both economists and psychologists have examined.

(3) *Institutional features*: These comprise the economic and social conditions of a given nation (whether it is a democracy or a federalist state) that arise in regards to SWB.

Objective well-being

Objective well-being is associated with the economy, health, housing, and security, among other fields. Corbi and Menezes-Filho (2006) described it as measurable, refined, and portrayed by numerical indicators. Benchmarks of economic growth (e.g., gross domestic product [GDP] or per capita income) have traditionally been tied to measures of a population's quality of life or well-being. Yet as Prearo (2013) explained, these same indicators include economic activities that may have negative effects on a population's general well-being (e.g., treatments for serious illnesses).

Subjective well-being

SWB, in turn, emerges based on one's perception of his/her individual experiences, whether emotional, physical, or satisfying. Diener et al. (2009) maintained that well-being is notoriously composed of subjective factors, since, according to Diener et al., individuals have a sense of well-being when they believe their lives are going well. This feeling is independent of pleasure, material comfort, or other objective characteristics.

The variation in SWB is correlated with changes in individuals' life contexts (Stevenson & Wolfers, 2008); for example, marriage has a positive effect on happiness, but a negative impact on divorce. Nietzsche (2011) stated that the infallible means of achieving happiness (in terms of rudimentary psychology) are a virtue, but Nietzsche assumed that virtue excludes all passions. Indeed, passion and pleasure bring an individual happiness:

> …virtue...is the highest 'reasonableness' and because 'reasonableness' makes it impossible, the consistent mistake [people make involves] deceiving oneself with the means; while in reason, virtue is the way to happiness…the highest 'reasonableness' is a cold and clear state [that] is far from provoking that feeling of happiness [that] brings with it all sorts of drunkenness... (Nietzsche, 2011, p. 80).

Feldman (2015) cited the case of an individual who won the lottery, claiming that he would probably not become happier (i.e., his SWB would not increase). To explain this reasoning, Feldman stated that psychologists came to this conclusion based on studies that have shown that, although initially, winners' sense of happiness expands, after one year, their level of well-being returns to what it was before they received the prize. This may be why citizens of less economically developed countries generally say they are happy (Diener & Biswas-Diener, 2002).

Nietzsche (2011) asserted that pleasure is a feeling of power that brings an individual happiness. Nonetheless, he contended that, "If the world had an end…it should have been reached already." This is Nietzsche's central argument for justifying his eternal return theory, which can validate a return to one's initial level of happiness (Nietzche, 2011, p. 134).

The hedonic treadmill model explains that, temporarily, good and bad events affect happiness, but people quickly adapt to their new reality, returning to

neutrality (i.e., a neutral level of happiness). Hence, both individual and social efforts to increase happiness are doomed to fail. Diener et al. (2006) refuted neutrality by advocating that individuals always have a positive level of happiness. After achieving their aspirations, they gradually experience gains in their well-being (which was previously not neutral, but instead positive) by acquiring new desires or adapting to their new reality. Their sense of happiness returns to its initial positive level.

Feldman (2015) had results similar to those of Diener et al. (2006). He sought to explain that happiness does not always keep growing. He reckoned that although certain events can increase or decrease an individual's sense of well-being (e.g., a promotion or a job loss), in general, people end up returning to their usual level of happiness (which might not exactly resemble their initial level, but is still close to it).

Richard Easterlin tried to grasp the relationship between income and SWB (in terms of happiness), both within and between countries over time. According to Stevenson and Wolfers (2008), for both approaches, Easterlin found little meaningful evidence of the link between aggregate income and SWB.

Relative and absolute income

Yasar (2018) viewed relative income as that of an individual relative to a given group's average income. Rickardsson and Mellander (2017) stated that such a group consists of the people closest to the individual (i.e., relatives and neighbors). Easterlin (1995) stressed that relative income is simply a person's income compared to that of others. Absolute income, on the other hand, is a population's GDP (per capita) (Yasar, 2018). Easterlin (1974) perceived an individual's absolute income as a function of access to goods and services. Thus, in this study, we used total family income as an individual's absolute

income (i.e., the overall income to which he/she has access).

Long-term SWB is not made up of a population's absolute income, but rather an individual's income as it pertains to others. An overall increase in a population's income, with income distribution unchanged, will have little impact on SWB after reaching the "saturation point" (Sachs, 2018).

Culturally speaking, there is an idea that richer people are happier than poor people. Regarding this notion, Easterlin surmised that the rich see relative income as beneficial for deepening their SWB. Thus, a rise in happiness derived through greater income is short-term since income becomes constant. Thus, happiness also becomes constant (Sachs, 2012).

The Easterlin paradox

The Easterlin paradox is a key concept in measuring SWB, developed by Richard A. Easterlin, a professor at the University of Pennsylvania. He spoke of it in his 1974 article, *Does economic growth improve the human lot? Some empirical evidence.* Easterlin examined the relationship between happiness and income in several countries over time, and was the first modern economist to revise the idea of happiness (Graham, 2005; Frey & Stutzer, 2000).

In his comparisons, Easterlin concluded that among both rich and poor individuals of the same nationality, there is a greater difference in happiness than when comparing countries; that is, relative income has a greater impact on SWB than absolute income (Rickardsson & Mellander, 2017; Frank, 2012).

One of the reasons for the short-term positive relationship between happiness and income may be diminishing marginal utility, whereby "an extra dollar increases the satisfaction of a poor person by 10 times more than it increases the satisfaction of a person who is 10 times richer" (Sachs, 2012, p. 60). Easterlin's paradox is explained by the following: "…between

countries, at [a] given time, happiness and income are positively related, but with time, within a country, happiness does not increase like income" (Easterlin et al., 2010, p. 22,467).

Income distribution and SWB

According to Castro (2012, p. 1020), social policies are applied through state agencies to implement a "series of actions and programs of three basic types: (I) income guarantee; (II) [a] guarantee of the supply of social goods and services; and (III) regulation." Castro clarified that policies aimed at securing income are mainly focused on monetary transfers (e.g., pensions, retirement benefits, and other kinds of fiscal aid) that individuals can spend as they prefer.

The guarantee of social goods and services has been required since the Federal Constitution was formed 1988. Article 6 of Chapter II establishes that:

> Social rights [consist of] education, health, food, work, housing, transportation, leisure, security, social security, maternity and childhood protection, [and] assistance to the [needy]…" Meanwhile, Article 7 stipulates that, "These are rights of urban and rural workers, in addition to others, aimed at improving their social condition." Minimum wage is "fixed by law, nationally unified, capable of meeting…basic vital needs and those of [one's] family with housing, food, education, health, leisure, clothing, hygiene, transport, and social security, with periodic readjustments that preserve [one's] purchasing power…" and has a "wage floor proportional to the extent and complexity of the work…

As seen in Article 7, item IV (regarding minimum wage) was set nationally. The Brazilian decentralization process – which aims to strengthen the finances and politics of states and municipalities – was created based on the reasoning that it could increase "the

efficiency of resource use, the effectiveness of public policies, the transparency of decisions and the generation of conditions conducive to [government] accountability" (Oliveira et al., 2011, p. 13)

Kummel (2016) asserted that the state wage floor became constitutionally legal through Article 7. Thus, the wage floor is instituted by state law, specifically Complementary Law 103/2000, Article 1. This measure provided greater agreement between wages and each state's conditions and cost of living.

Tavor et al. (2018) found that, in terms of income and happiness inequality, SWB focuses on the comparison between localities. In their results, Tavor et al. realized that since the Gini is the main index used to measure inequality, the "relationship between the Gini index and happiness is not direct, and is positive and linear" (Tavor et al., 2018, p. 2,119). Reinforcing such inequality at a very high level can reduce happiness when people compare their relative incomes to those of high-income individuals. However, regions with little discrepancy in their income distribution may also have little influence on SWB. Furthermore, they pointed out that there is ambiguity in the results on the connection between income inequality and SWB.

Berg and Veenhoven (2010) maintained that ambiguity exists, but by looking more carefully, one can observe a positive relationship. Goff et al. (2016) verified that nations that care more about income distribution have a greater impact on the link to SWB. This is in line with the work of Berg and Veenhoven (2010), who claimed that from an ethical angle, income inequality works neutrally.

Berg and Veenhoven (2010) deduced that income inequality accompanies less contentment, but better humor. Thus, there can be a balance. Happiness returns to its original state; that is, income inequality is not detrimental to average happiness. However, by analyzing

the variables used to gauge SWB separately from the inequality variable in income distribution, a negative impact on SWB is revealed. They argued that, "This approach does not answer the question of to what degree income inequality is acceptable" (Berg & Veenhoven, 2010, p. 8). They also posited the following: "At first sight, income inequality seems to be related to happiness inequality, and this suggests that income inequality is not compatible with egalitarian utilitarianism. However, when the wealth of the nation is considered, this relationship disappears, which means that income inequality works neutrally from this ethical perspective." (Berg & Veenhoven, 2010, p. 8)

METHODOLOGY

Structural equation modeling

Kline (2015) affirmed that structural equation modeling (SEM) is comprised of a family of models. These include the examination of structural equations, structural covariance analysis, the structural covariance model, and the analysis of covariance structures.

Neves (2018, p. 7) contended that SEM provides a "very general and convenient structure for statistical analysis…including several multivariate analysis procedures" and that "Regression…is the most widely used multivariate analysis technique" (Neves, 2018, p. 9)

SEM is divided into two techniques. One is based on covariance (SEM-BC), while the other is grounded in partial least squares (SEM-PLS). The former involves a process of maximum likelihood (i.e. minimizing the differences between the matrices of expected and observed covariances), while the latter centers on maximizing "the explained variance of endogenous constructs" (Hair Jr. et al, 2014, p. 45).

PLS has more prominence today (Bido et al., 2010) for making it possible to

model latent variables with formative indicators; such variables explain the construct and reflective indicators, which are explained by the construct itself. The quality yardsticks of PLS differentiate the function of the model's causal direction, whether it is formative or reflective (Prearo, 2013).

Furthermore, SEM-BC is more suitable for testing theory since it can be tested with suitability benchmarks. PLS meets prediction objectives, but has a more exploratory character since there are no adjustment indicators of the PLS model's overall adequacy (Bido et al., 2010)

Some analyses that suggest the PLS model's quality are factorial loads, the explanation coefficient, and bootstrapping. Prearo (2013) highlighted the last two approaches for their general quality.

Factorial loads that demonstrate how the assertive feature is framed in the construct are acceptable above 0.6 (Zwicker et al., 2008). The explanation coefficient, R^2, reveals percentage of the total variation, whereby the dependent variable is explained by the explanatory variables; the closer R^2 is to 1 (i.e., 100%), the better the quality of the adjustment (Gujarati et al., 2011). Chin (1998, p. 323) presented the following cuts as substantial (0.67), moderate (0.33) and weak (0.19).

Bootstrapping, in contrast, is a process in which several sub-samples are created. From them, student t-tests are performed to check the significance of each structural coefficient, which are considered statistically significant parameters if they are above 1.96 (Prearo, 2013). The weighted least squares model requires fewer premises for its application (e.g., multivariate normality), which may explain its greater application by scholars. This is the method we applied in our analysis.

Data collection

We used descriptive statistics to outline "the characteristics of a given population or phenomenon, or the

establishment of relations between variables" (Gil, 2008, p. 42) of a cross section, in which the findings exhibit the reality of a certain moment in time (in this case, March 2017). We obtained the secondary data from a socio-economic survey of the Greater ABC Paulista Region, as mentioned earlier, carried out by Inpes (a research institute), which is part of the Municipal University of São Caetano do Sul (USCS). The survey has been carried out since 1983. We conducted field supervision and verified the gathered data by collaborating with Inpes.

For the socio-economic survey (2017), we used the following parameters to calculate the sample size:
a)   the projected margin of error for the resulting interval (3%);
b)   a confidence coefficient with a 95% interval;
c)   an admitted proportion for the main survey variable (to provide the maximum sample needed) (50%);
Thus, the planned sample size was equivalent to 1,070 cases, distributed over

the seven municipalities of the Greater ABC Region, mentioned previously. The cases are probabilistically distributed among gender, marital status, education, and stratum. Personal interviews lasted an average of 45 minutes, with the interviewee's criterion being that he/she was a resident of the municipality and was 18 or older.

Operationalizing the construct of happiness

As suggested by Diener et al. (2009) and Stevenson and Wolfers (2008), SWB is composed of numerous phenomena and is related to changes in individuals' life contexts. Thus, it is the best way to gauge an individual's SWB by asking him/her how he/she feels.
We thus propose it as a benchmark of SWB based on a scale developed by Lyubomirsky and Lepper (1999) and adapted, presented in Table 1.

Table 1 – Measurements of individual well-being (Lyubomirsky & Lepper, 1999)

Question	Concepts underlying the scale	Measurement scale
For each statement and/or question below, please circle the point on the scale that you feel is most appropriate to describe you.	In general, I consider myself...	Bipolar semantics 1 - Not a very happy person 10 - A very happy person
	Compared to most of my peers, I consider myself...	Bipolar semantics 1 - Not very happy 10 - Very happy
	Some people are very happy. They enjoy life, no matter what is happening; they make the most of everything. To what extent does this describe you?	1 - Not entirely 10 - Totally
	Some people are not very happy. Although they are not depressed, they never seem as happy as they could be. How does this characterization describe you?	

Source: Adapted from Lyubomirsky & Lepper (1999)

Operationalizing the determinants of happiness

In this study, we classify relative income based on the decile as a reference of the relative income scale elaborated by

Koay, Eng and Wong (2017). The scale ranges from 1 to 10, where 1 indicates the group with the lowest income and 10 the group with the highest income in the country. Like Koay, Eng and Wong, we only obtained absolute income data that we

transformed into a variable of income gaps. Thus, we were able to derive information on the people included in each of the intervals.

The relative income gaps (i.e., the deviations of the relative incomes of the households allocated in each of the deciles) is a variable used in the model to analyze the link between SWB and income. Based on the findings outlined in the theoretical framework, we used income to build the model.

a)   Absolute income (the independent variable): The sum of the incomes of all working individuals in the family, along with other sources (e.g., informal jobs, pensions, and retirement benefits; i.e., the total income to which an individual has access).

Preparing the database

In nticipation of applying statistical techniques, we carried out the treatment of the database, using the following steps:

- Selecting five variables that make up the socio-demographic profile of the sample's individuals. These include the city, age, level of education, gender, and economic status, according to the Brazil criterion (ABEP, 2016) that divides Brazilian citizens into economic classes, through the living conditions into which they fit. Four variables correspond to well-being: P900A_Felic, P900B_Felic, P900C_Felic, and P900D_Felic. Lyubomirsky and Lepper's (1999) scale, displayed in Table 1, represents these variables. One variable embodies the interviewees' family income: Renda_fam.

The bank initially presented a total of 1,134 cases. The next treatments carried out fit into the detection and processing of missing data. The occurrence of missing data in multivariate analysis results in a loss of information:

- The detection and exclusion of 91 cases with missing information, leaving 1,043 cases.
- Sharing the Fam_income variable in nine divisions, totaling ten income groups. This created the new Income_decile variable, which we used for relative income. Koay, Eng, and Wong (2017) also used it to relativize absolute income that, as in this sample, constituted the only data regarding collected income.

In terms of inverting the values of the P900D_Felic variable, we associated lower responses with a higher level of SWB. This assertion is expressed by the question, "Some people are **not** very happy [...] To what extent does this characterization describe you?").

After treatment, the database contained 13 variables with 1,043 cases. Kline (2015) recommended that when applying SEM, the sample should have at least 20 cases per variable. Thus, the sample size was sufficient to apply SEM.

RESULTS

Below we present the interviewees' socio-demographic profiles. We compared the numbers in the sample to data from the 2010 Population Census of the IBGE, regarding Brazil's Southeast and Greater ABC Paulista regions, specifically concerning the income variable.

The category of gender, portrayed in Table 1, demonstrates a balance between men and women, with a difference of 1.4 p.p. In contrast to the 2010 Census, IBGE demonstrates a precise reality, since we can see the same difference between the values that the sample provides, from 1.4 p.p. to more women in the region, representing 48.6% of males and 51.4% of females (IBGE, 2010)

Table 1 – Interviewees' gender

Interviewees' gender	
Male	48.6%
Female	51.4%

Source:Research data.

The age range of the respondents suggests an older population compared to the 2010 Census. The average age in the sample is 41 years old, eight years older compared to the average age of the Greater ABC Paulista Region, which is approximately 33 (IBGE, 2010). Most of the sample (41.6%) falls within the 30 to 49 age group. The youngest proportion, aged 18 to 29, make up 28.9%, and the elderly amount to 15.3% of the sample. Table 2 details the age profile data found in the sample.

Table 2 - Percentage ratios of age groups

Interviewees' age	
18 to 29	28.9%
30 to 49	41.6%
50 to 59	14.2%
60 or older	15.3%
Mean age	41
Median age	37
Age (standard deviation)	16
Coefficient of variation	39.0%

Source: Research data.

More than half of the sample (about 64%) completed at least high school, and 14.7% completed higher education. Only 1.2% are illiterate (they only know how to sign their name), a share close to that found in the Census (2010), which is approximately 1%. A characteristic part of the sample did not complete elementary school (20.3% of the sample for this study). Regarding the level of education, the highest incidence in the database was "high school completed," comprising 37.7% of the total sample, a higher number compared to the Census (2010), whose proportion is approximately 30.2%.

Table 3 - Education percentage ratios

Education	
Illiterate (only knows how to sign their name)	1.2%
Literate (able to read and write a simple note)	0.8%
Did not finish elementary school	20.3%
Completed elementary school	7.3%
Did not finish high school	6.3%
Completed high school	37.7%
Did not finish technical high school	1.2%
Completed technical high school	3.2%
Did not complete higher education	7.3%
Completed higher education	14.7%

Source: Research data.

Interviews with respondents with low family incomes were conducted in March 2017 (1st decile - up to R$1300.00) are residents from Rio Grande da Serra (18.6%) and Mauá (16.4%), followed by Diadema (13.95%) and São Bernardo do Campo (9.5%). The interviewees allocated to the last group, who have higher family incomes (above R$7,765.00), are mostly residents of São Caetano do Sul (15.9%) and Santo André (13.7%), followed again by Diadema (9.6%) and São Bernardo do Campo (9.5%). This demonstrates substantial income polarization in Diadema and São Bernardo do Campo. Interestingly, the average family income in the sample was

R$4,129.57, a lower average than the one for the Southeast Region – revealed by the Family Budget Search (POF) 2017-2018 (2019) survey – which was R$5,415.49. The median was R$3,320.87 and the standard deviation was R$3,354.68 (the coefficient of variation was 81.24%), suggesting a large variation in the distribution around the mean.

Table 4 - Family income

Fam_income variable		
Mean	R$	4,129.57
Median	R$	3,320.87
Standard deviation	R$	3,354.68
Coefficient of variation		81.2%
Deciles	10	R$ 1.300,00
	20	R$ 1.879,74
	30	R$ 2.232,50
	40	R$ 2,819.61
	50	R$ 3,320.87
	60	R$ 3,934.92
	70	R$ 4,697.26
	80	R$ 5,831.37
	90	R$ 7,762.24

Source: Research data.

The consumption classes, calculated on the basis of the Brazil consumer criterion (ABEP, 2016), shows 44.3% of the sample, categorized under classes A and B, against only 5.3% in classes D/E and 50.5% in class C. Table 5 depicts the distribution of the sample by municipality and social class, whereby in the Greater ABC Paulista Region, there is a greater concentration of classes B2 (29.9%) and C1 (31.2%). Also, São Caetano do Sul and Ribeirão Pires have the highest incidence of Class A2, followed by Rio Grande da Serra and Mauá for Class D.

Table 5 - Consumption classes

Social class (Brazil criterion)	Sample (out of the total)	Municipality						
		Santo André	São Bernardo do Campo	São Caetano do Sul	Diadema	Mauá	Ribeirão Pires	Rio Grande da Serra
A2	2.4%	2.9%	2.3%	4.7%	0.9%	-	3.2%	1.2%
B1	12.0%	17.0%	11.4%	16.5%	5.2%	6.9%	13.7%	4.7%
B2	29.9%	35.3%	29.5%	34.1%	32.2%	18.1%	28.4%	22.1%
C1	31.2%	23.7%	35.0%	23.5%	32.2%	38.8%	37.9%	38.4%
C2	19.3%	17.4%	17.7%	16.5%	23.5%	27.6%	13.7%	0.2%
D	5.2%	3.3%	4.1%	4.7%	6.1%	8.6%	3.2%	10.5%
E	0.1%	0.4%	-	-	-	-	-	-

Source: Research data.

We constructed the overall score for the SWB indicator – for which we used Lyubomirsky and Lepper's (1999) scale as evaluation criteria – by calculating the simple arithmetic mean of the data obtained in the fourth sentences. In general, the interviewees seemed to have a high level of SWB, independent of the city, with a mean higher than 7.5 and a median equal to and higher than 8.0.

We reversed the score of the fourth sentences to maintain higher scores regarding the concept of higher SWB. Since the last sentence has an opposite notion to

the other three sentences that make up the construct, this made it difficult for the interviewees to understand the sentence.

Hence, we can explain having the highest coefficient of variation among the other sentence, which is 29%.

Figure 1 - Initial measurement model
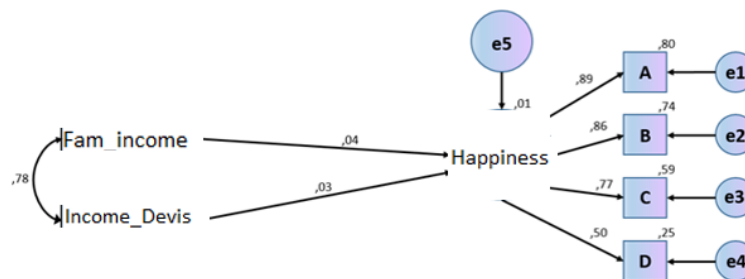
Source: The authors.

Of the indicators that composed the model, A, B, and C, respectively, assertions 1 ("In general, I consider myself..."), 2 ("Compared to most of my peers...") and 3 ("Some people are very happy...") depicted in Table 1 were statistically significant. Their loads ranged from 0.77 to 0.89, given the assumption suggested by Zwicker et al. (2008) of loads above 0.60. The lowest and non-significant one was the factorial load of indicator D (assertion 4: "Some people are not very happy..."), 0.50, reinforces the assumption that because the sentence was inverted – so that the lowest score was related to the highest SWB – such a

benchmark may have made it hard to understand the problem in the collection phase.

We sought to remove this sentence from the model, but the measurement of SWB worsened greatly. Thus, we maintained the fourth assertive since we realized its importance for the construct.

The coefficient of explanation R^2 of the general model accounted for 8% of the explanation, a low determination in the adjustment of the structural equation, according to Chin (1998, p. 323), which establishes the cut of 0.19, considered to be a weak explanation.

Table 6 - Income variable significance

T-test - (P-value)	
Happiness <---Fam_income	,744
Happiness <---Income_Decile	,816

Source: The authors.

After bootstrapping, to prove the veracity of the relationship, both significances of the T-test present values (>5%) led to the non-rejection of the null hypothesis, being non-significant statistics. The student t-test, in this case, tests the relationship between happiness and family and relative income, having the following as a null hypothesis: There are non-significant variables in the

relationship (the angular coefficient may have a value equal to 0).

Other analyses

Although the coefficient for determining the general model ($R^2 = 0.08$) had a low level of explanation, we chose to apply the statistical technique to each

income group created from the family income variable.

The results are logical and empirical, since several studies demonstrate that there is a return to SWB after it has reached a certain level, having been driven by objective or subjective factors, by people's adaptation to reality and/or a change in their aspirations (Diener & Biswas-Diener, 2002; Feldman, 2015; Nietzche, 2011).

Thus, we decided to test the existence of the relationship between absolute income and SWB, starting from the income groups segmented by deciles, according to the scale presented by Koay, Eng, and Wong (2017), thus forming ten clusters established by income.

Table 7 portrays the outcomes found from the connection between income group and happiness.

Table 7 - R² - Income groups

Coefficient of determination by group	
1	13%
2	3%
3	7%
4	18%
5	22%
6	3%
7	7%
8	3%
9	15%
10	7%

Source: The authors.

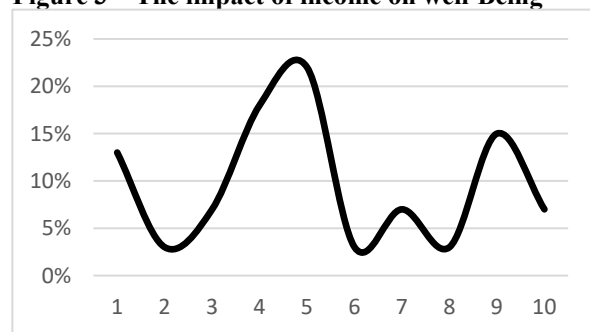**Figure 3 – The impact of income on well-Being**

Source: The authors.

As outlined in the table, the income groups that had the greatest explanation for the measurement of the SWB of the individuals in the sample were groups 5, 4, 9 and 1,

representing 22%, 18%, 15% and 13% of the determination in the model, respectively. All groups pointed to a positive – but unequal – association.

Table 8 - Mean happiness by income group

	Sentences				
	1	**2**	**3**	**4[1]**	**General Score**
Group	Mean				
1	7.6	8.0	7.7	7.5	7.7
2	8.0	8.2	7.6	8.1	8.0
3	8.3	8.4	8.1	7.8	8.1
4	7.9	8.2	7.8	7.6	7.9
5	8.2	8.3	7.9	7.8	8.1
6	7.8	8.0	8.0	7.8	7.9
7	8.0	8.1	7.8	7.7	7.9
8	8.2	8.4	8.0	8.2	8.2
9	8.4	8.4	7.9	8.5	8.3
10	8.3	8.5	8.0	8.1	8.2

Source: Research data.
[1] Inverted variable

As shown in Table 8, all income groups scored highly on SWB, demonstrating once again that in the Greater ABC Paulista Region, people are generally happy and, regardless of their income level, they have a

high mean happiness. Diener et al. (2006) affirmed that individuals always have a positive level of happiness. The general mean of the well-being of the individuals in this sample occurs for all income groups

with a mean higher than 7. However, none of these groups had values higher than 8.3; this one is only present in the ninth group.

As expected, the group with the lowest average was the first group, which also had the lowest income at 7.7, followed by groups 4, 6, and 7, all with a 7.9 mean of happiness. The groups that had the highest means were the last three – the eighth, ninth and tenth – with 8.2, 8.3, and 8.2, respectively. Easterlin (1974) assumed that richer people are happier.

The fifth group, which had an explanation coefficient of 22% (the highest among all ten groups) had a general mean of SWB of 0.10 above the total mean of the sample. Hence, the third group, and the three groups with the highest income, were the only ones that had higher means than the general sample.

The overall average score of the low-income group is lower than the others, but has high levels of happiness, not far from the overall mean, which was 8.03. Berg and Veenhoven (2010) stressed that income inequality is accompanied by less contentment, but more humor, which may explain the leveling among the SWB means of the groups.

FINAL CONSIDERATIONS

What would life be without a little emotion, uncertainty, love, faith, and finally, happiness? This study aligns with this perspective, bringing more certainty to the assumption that happiness is created through the search for fulfillment.

The results imply a statistically insignificant relationship between relative and absolute income and SWB. This connection is not very intense in the Greater ABC Paulista Region, comprising 8% of the explanation in the general model. Importantly, the cross-sectional sample (composed of 1,043 pieces of data) does not allow us to analyze the impact of income on happiness as time goes by, but only to obtain an overview of the momentary state of SWB.

After applying the statistical technique to each relative income group that was previously distributed, as examined by Koay, Eng, and Wong (2017), we applied the technique to each cluster. The highest intensity in this relationship occurred in the central group, about 20% of R². This shows that individuals in Class C have a higher relationship between income and well-being.

The findings indicate that several other important factors impact SWB and cannot be measured by income or income distribution alone. This is something that many scholars, cited in the theoretical framework, have already concluded.

Inequality does not have a minimum level through the parameters used to gauge SWB, since, as seen in our outcomes, the general means of SWB, when compared by income group, are not very far apart. However, the richest groups had the highest happiness mean, which is in line with the conclusions of Easterlin (1974) that people with higher incomes are happier than those with lower incomes. Given our study's limitations, there is no lack of suggestions for future research. Using a panel or time-series samples may lead to more efficient results and interpretations. Including moderating variables in the relationship between income and SWB should alter the low explanation found in this model. Moreover, other public policies that interfere with the SWB of the Greater ABC population should be deepened.

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