Are the Dimensions of the Human Development Index (HDI) Important in Explaining Subjective Well-being (SWB)?

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Abstract

This paper explores the relationship between human development and subjective well-being (SWB), specifically analyzing the correlations between the Cantril Ladder measure of life satisfaction and the dimensions of the Human Development Index (HDI): income, health, and education. I estimate the relative importance of three dimensions and some socio-demographic controls such as age, gender, and employment status in explaining individuals' life satisfaction using an ordered logit model based on the 2014 Canadian Community Health Survey (CCHS). Consistent with previous research, I find that income and health have positive effects on people's life satisfaction, whereas education has a negative impact but small in magnitude. I also find that health is the most important determinant of life satisfaction, and income only has a small impact relative to health. All selected socio-demographic characteristics are significant predictors of life satisfaction, and age effects on life satisfaction are U-shaped over the life cycle. By comparing the estimation results between men and women and also between whites and nonwhites, I illustrate that the relative importance of predictors of life satisfaction varies according to gender and race.

Keywords: life satisfaction, income, health, education, correlation, relative importance

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1. Introduction

In recent years, there has been an increasing interest in measuring human well-being. Well-being measures develop benchmarks for measuring the success of our societies (OECD, 2017). Moreover, these measures allow policymakers to determine which policies have a positive well-being impact on the people that they represent (OECD, 2017). Gross Domestic Product (GDP) per capita is a purely objective measure that is commonly used in economic studies. Mallett and Keen (2012) define GDP is "the market value of all final goods and services produced within a country in a given period" (p. 1) and GDP per capita is "a measure of a country's output per person" (p. 1). Nevertheless, GDP per capita is arguably a poor proxy measure of human well-being because it ignores important dimensions like health, education, inequality and so on (van den Bergh & Botzen, 2018).

In this paper, I analyze individuals' subjective well-being, measured with life satisfaction, and life domains such as income, health, and education. I also take into account some socio-demographic characteristics like age, gender, and employment status. I aim to understand which dimensions lead to greater happiness to serve the purpose of designing policy for improving individuals' subjective well-being.

I conduct a cross-sectional study founded on the 2014 Canadian Community Health Survey (CCHS). The motivation for this paper is twofold. Firstly, I estimate the correlations between life satisfaction and income, health, and education. I let the data determine the relative importance of each dimension in a person's subjective wellbeing rather than assign weights to them a priori and exogenously. Secondly, I focus on whether the roles of income, health, and education disappear when I include other socio-demographic characteristics. I emphasize the correlations of these socio-demographic characteristics with life satisfaction. In particular, I focus on whether the

relative importance of three dimensions and the relationships between predictors and life satisfaction vary across gender and race.

According to Sen's capability approach, considering people's capabilities is important to evaluate their well-being (Wells, n.d.). Then "a person's capability represents the effective freedom of an individual to choose between different functioning combinations" (Wells, n.d., Functionings and Capability section, para. 2).[1] Moreover, the capability approach inspired the creation and evolution of the United Nations Development Programme (UNDP) Human Development Index (HDI) which is "a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living" (UNDP, 2019, para. 2).

The HDI is currently specified by the UNDP as "the geometric mean of normalized indices for each of the three dimensions" (UNDP, 2019, para. 2). Although it is probably "the most influential measure of multidimensional well-being", it has long been controversial because of numerous limitations, for example, the identical and equal weighting scheme and ignorance of inequality (Yang, 2018, p. 457). Moreover, the HDI only contains objective measures of three dimensions but ignores subjective well-being (SWB), such as life satisfaction and happiness. Instead of calculating the HDI for Canada based on average achievement in three dimensions, I analyze how life satisfaction relates to income, health, and education based on individual data.

In contrast to the HDI which is, an index based on objective measures, subjective well-being (SWB) is "a person's cognitive and affective evaluations of his or her life" and plays an important role in measuring human well-being (Diener, Lucas & Oishi, 2005, p. 63). Subjective

Footnote 1: "Functionings are states of 'being and doing' such as being well-nourished, having shelter" (Wells, n.d., Functionings and Capability section, para. 2).

well-being approaches such as “life evaluation”, “eudaimonia” and “affect” emphasize individuals’ preferences rather than judging the importance of each aspect exogenously (OECD, 2013a, p. 10). SWB measures allow policymakers to identify human wants and needs and people with low levels of happiness, which are conceivable potential priorities for policy interventions (Anand, 2016). They also allow policymakers to identify specific domains of life satisfaction, leading to improved design and quality of social services such as health care services if we understand services providers’ well-being (Anand, 2016.).

However, there are also some problems with SWB measures, for example, the uncertainty caused by question-wording and questionnaires’ formats, the effects of people’s understandings of questions, and different adaptability of life circumstances (OECD, 2013a). Therefore, an emerging consensus in the field of human development is that subjective well-being measures cannot replace other indicators and measures, but it has a good impact on improving and supplementing current measures (OECD, 2013a).

Cheung and Lucas (2015) propose that “a main goal of research on life satisfaction is to examine the factors that predict it and the processes that underlie it” (p. 1). Thus, the main goal of my work is to analyze how objective life circumstances explain the variation in life satisfaction among individuals using an ordered logit model. I use specific methodologies to derive the attainment in the health dimension instead of simply using the self-reported health. Besides, I have comprehensive data on socio-demographic characteristics from various aspects. However, I cannot establish causality with my data set. All I can say is the correlations between life satisfaction and the three dimensions of the HDI and socio-demographic characteristics.

I find that there are statistically significant relationships between three key dimensions (income, health, and education) and life satisfaction. People with a higher level of income are more

likely to have a higher level of life satisfaction. People who have better physical and mental health are more likely to be satisfied with their lives. Health is by far the most important determinant of life satisfaction. Surprisingly, the direct effects of education on life satisfaction are negative but small in magnitude. Additionally, all selected socio-demographic controls have positive or negative contributions to life satisfaction. There are gender and racial differences in the relative importance of each human development variable.

The rest of this paper is divided into four sections. In Section 2, I explain the importance and benefits of subjective well-being in human development. Then I introduce the relevant literature about relationships between life satisfaction and income, health, and education. In Section 3, I explain the life satisfaction regression model and illustrate it with Canadian data in Section 4. In Section 5, I offer conclusions.

2. Literature Review

Many studies have also supported the validity and reliability of subjective well-being (SWB) measures. I start with the concept and measurements of SWB. I then examine studies that illustrate the importance and contributions of SWB, focusing on the research that analyzes the variation in community-level life satisfaction in Canada. Next, I examine studies that provide evidence of how income, health and education related to life satisfaction. Numerous studies pay attention to the effects of three key dimensions on life satisfaction based on different databases and testing methods.

2.1 Subjective Well-being

The Organization for Economic Co-operation and Development (OECD) (2013a) defines SWB as "*Good mental states, including all of the various evaluations, positive and negative, that*

people make of their lives and the affective reactions of people to their experiences" (p. 10). SWB is usually measured by survey questions, for example, "All things considered, how satisfied are you with your life as a whole these days?" (Krueger & Schkade, 2008, p. 1835). The reliability of subjective well-being measures varies with related questions and time (Krueger & Schkade, 2008).

Anand (2016) states that subjective well-being measures that are derived from individuals' self-perception play an increasing role in measuring human well-being. OECD (2011b) argues "the UK Office for National Statistics found that 79% of 6,870 respondents supported 'life satisfaction' as a measure of 'national well-being and how life in the UK is changing over time' " (as cited in OECD, 2013a, p. 183). In contrast, OECD (2011b) states " 'economic measures such as GDP' endorsed by just 30% of respondents" (as cited in OECD, 2013a, p. 183). There are still some public protests and uprisings in countries in which economic growth or the HDI scores are high; therefore, subjective well-being is an essential part of human well-being, and its absence is detrimental to the understanding of human behaviour (OECD, 2013a).

Previous studies have shed light on the importance of life satisfaction. Helliwell, Shiplett, and Barrington-Leigh (2019) analyze community-level life satisfaction across 1200 neighborhoods and communities in Canada to capture Canadians' quality of life and happiness. They determine the communities with the highest or lowest life satisfaction scores. Also, they find that the key determinants of residents' life satisfaction levels are the "sense of community belonging", "population density", "inequality of well-being" (p. 2) and so on while "income" and "education" are less important (p. 2). Also, they examine the difference in life satisfaction between urban and rural communities. The average life satisfaction score of rural populations is "0.17 points" higher than urban populations' average life satisfaction score on a 0 to 10 scale (Helliwell et al., 2019, p. 13). In my study, I find that people living in more urbanized health regions have

higher level of life satisfaction than people living in the least urbanized health regions. I also find that residents in health regions with moderate levels of urbanization are happiest.

2.2 The Effects of the HDI Dimensions on Life Satisfaction

As mentioned before, the HDI is specified as the geometric mean of income, education and health (UNDP, 2019, para. 2). Many researchers examine one or more dimensions of the HDI in explaining life satisfaction with different measures of each dimension. Much evidence suggests that there are links between life satisfaction and three dimensions of the HDI.

Cheung and Lucas (2015) state that most existing literature shows a statistically significant but small correlation between income and subjective well-being, which contrasts with the instinct that income should have moderate to high effects on life satisfaction. Deaton (2008) also concludes that "many studies comparing people within countries have found only a small effect of income on life satisfaction relative to other life circumstances" (p. 54). Furthermore, there is no statistically significant associations between income and life satisfaction for people who are old and have low level of education (Yang, 2018).

Researchers have found that life satisfaction is highly linked with health-related factors, for instance, chronic diseases, pain, and anxiety (Strine, Chapman, Balluz, Moriarty & Mokdad, 2008). There is a shared view that poor health lowers life satisfaction. Besides, health is the most important determinant of life satisfaction in all places, and it has greater importance in European countries (Margolis & Myrskylä, 2013). Yang (2018) concludes that health is the most important factor in explaining life satisfaction based on the British Household Panel Survey (BHPS) sample. Although health is less important for people in old age, health is the strongest predictor of life satisfaction for all groups of people in Yang's study.

For the education dimension, the effect of education on life satisfaction derived from previous studies is varied and the results differ between studies: some studies show that education has a positive and statistically significant impact on self-reported life satisfaction through different databases and time periods; however, others illustrate an insignificant effect or even a negative effect (Blanchflower & Oswald, 2004; Powdthavee, Lekfuangfu &Wooden, 2015; Shields, Wheatley-Price, & Wooden, 2009). Most scholars only focus on the direct effects of education as an explanatory variable and ignore the situations that education affects life satisfaction indirectly by other factors (Powdthavee, 2015). I also only focus on direct effects of education and do not consider the indirect effects on life satisfaction through income, health, and aspirations.

3. Methodology

3.1 Data

I analyze human well-being in Canada using the annual component of the Canadian Community Health Survey (CCHS) for 2014. "The CCHS is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population" (Statistics Canada, 2014a, Description section, para. 2). The CCHS data is collected from "the population 12 years of age and over living in the ten provinces and territories" (Statistics Canada, 2014a, Data sources and methodology section, para. 1) and this survey covers 110 health regions (Statistics Canada, 2014a, Sampling section, para. 1). Individuals between 12 and 14 years old are excluded from my analysis because they are not allowed to work. The sample has 63,522 respondents. After removing respondents with missing data in "NOT STATED", "DON'T KNOW", and "REFUSAL" categories for each variable, there are 53,818 observations in the resulting dataset. Of these respondents 41.1% were men (N = 23,754) and 55.9% were

women (N = 30,064). Whites composed 85.9% of the sample (N = 46,245), and visible minorities composed 14.1% of the sample (N = 7573). I concentrate on variables for questions asked related to people's income, health attributes, education, and other socio-demographic controls. Descriptive statistics for these data including in my analysis are given in Table 2.

3.2 Life Satisfaction Regression Model

To estimate the relationship between life satisfaction and the dimensions of the HDI, I use the life satisfaction regression model initiated by Schokkaert (2007) and implemented and developed by Yang (2018). Schokkaert's (2007) findings suggest that there is a robust statistical relationship between life satisfaction and the three HDI dimensions.

Following Schokkaert's (2007) approach I specify a regression equation between SWB and determinants as follows:

$$S_i^* = \beta_0 + \beta_1 ln(y_i^{income}) + \beta_2 y_i^{health} + \beta_3 y_i^{education} + \gamma G_i + u_i \qquad (1)$$

The ordinal response of life satisfaction of individual i, S_i, is represented as an underlying continuous latent variable S_i^*. The individuals' responses of life satisfaction are based on the question "Using a scale of 0 to 10, where 0 means 'Very dissatisfied' and 10 means 'Very satisfied', how do you feel about your life as a whole right now?" (Statistics Canada, 2014b, p. 19). This question is similar to the Cantril Ladder question (Cantril, 1965). The responses to the life satisfaction question are ordinal, which means response values in each category indicate the relative orders of levels of life satisfaction but there is no standardized value for the distance between them (Williams, 2016). Thus, the ordered logit model is used. S_i has 11 categories and $S_i = q$ for $q = 0, 1, \ldots, 10$. S_i^* has a set of 10 thresholds α_q such that $S_i = q$ if $\alpha_{q-1} < S_i^* < \alpha_q$.

For example, $S_i = 0$ if $S_i^* < \alpha_0$ and $S_i = 10$ if $S_i^* > \alpha_9$. Grilli and Rampichini (2014) state, the ordered logit model is "based on the cumulative probabilities of the response variable: in particular, the logit of each cumulative probability is assumed to be a linear function of the covariates with regression coefficients constant across response categories" (p. 4510). This model estimates the probability that S_i^* falls between thresholds and also predicts the probability that S_i takes a given outcome (0, 1, …, 10).

The ordered logit model does not have an intercept, so $\beta_0 = 0$. y_i^k represents attainments in the chosen dimensions that matter for human well-being: income, health, and education. G_i contains socio-demographic controls such as age, marital status, and employment status. $(\beta_1, \beta_2, \beta_3)$ is a vector that captures the direct effects of key dimensions. γ is a vector shows the direct effects of socio-demographic characteristics on life satisfaction. The error term, u_i, follows a standard logistic distribution. Following the literature, I employ the logarithmic transformation for income to linearize the regression because of the diminishing marginal utility of income. Health dimension enters the model linearly because it is a categorical variable and the values of the Health Utilities Index assign each individual to particular health status. The education dimension is treated as a dummy variable, so it must enter the model linearly.

Furthermore, I conduct the analysis using normalized variables. I normalize attainment values in income and health dimensions to the [0,1] interval based on the min-max goalpost approach. y_i^k denotes the attainment in dimension k for individual i. The min-max goalpost approach defines $y_i^k = \left(y_{ik}^{\sim} - y_{min}^k\right) / \left(y_{max}^k - y_{min}^k\right)$, where $y_{ik}^{\sim}$ represents the raw attainment value of the individual i in dimension k, y_{max}^k is the upper bound value, and y_{min}^k is the lower bound value (UNDP, 2013; Yang, 2018, p. 458). Measures and normalization parameters of each dimension are discussed below.

3.3 Description of the HDI Dimensions

3.3.1 Income.

For the income dimension, the total household income is coded as five categories in a range from $0 to more than $80,000. The midpoint of each category is assigned to represent the dollar amount of individuals' income, and the amount of the last category is $90,000. To consider economies of scale relevant to family size, equivalized household income is used to measure the attainment in the income dimension, which equals total household income divided by the square root of household size. Household size reflects the number of persons in the household. This equivalization scale is universally used and "has more recently been adopted by the OECD" (OECD, 2013b, as cited in Yang, 2018, p. 464). As shown in Table 2, the mean of equivalized income is $41,048. The y_{max}^{k} of the income dimension is $90,000 and the y_{min}^{k} is $0.

3.3.2 Health.

For the health dimension, self-reported health could cause potential endogeneity problems because of the interactions of self-perceived health and overall life satisfaction (Hou, 2014). Therefore, self-perceived health probably accounts for the substantial effects of other variables (Hou, 2014). On the other hand, self-perceived health reflects more than basic health status such that people who have more optimistic and active attitudes to their lives would overestimate their actual situations of health (Helliwell and Huang, 2010). Thus, I use the McMaster 'Health Utilities Index Mark III' (HUI3) as the attainment in the health dimension. Horsman et al. (2003) state that the HUI is "a family of generic health profiles and preference-based systems for the purposes of measuring health status and producing utility scores" (p. 1). The HUI3, which includes eight attributes: vision, hearing, speech, ambulation, dexterity,

cognition, emotion, and pain, "has more breadth and depth" than other measures (Santana et al., 2010, p. 3). There are five to six levels in every attribute and there is a detailed description of each level so that the HUI3 could capture the severity of diseases and burdens (Santana et al., 2010). As shown in Table 1, each health state level is assigned a health utility value based on the time trade-off method. Under the time-trade-off method, individuals are asked:

> Imagine that you are told that you have 10 years left to live. In connection with this you are also told that you can choose to live these 10 years in your current health state or that you can choose to give up some life years to live for a shorter period in full health. Indicate with a cross on the line the number of years in full health that you think is of equal value to 10 years in your current health state (Burström, Johannesson, & Diderichsen, 2006, p. 361).

The responses of individuals show "how many years in the current health state they would be willing to 'trade-off', in order to regain full health" ("Time-Trade-Off", 2020), then determine the utility weights for each attribute. Next, a fitted utility function is used to aggregate weighted utility scores for each attribute based on the multi-attribute utility theory (Kopec, Schultz, Goel & Williams, 2001). The fitted utility function for HUI3 is ("Health Utilities Index", 2019):

$$U = 1.371(Vision * Hearing * Speech * Ambulation * Dexterity * Emotion * Cognition * Pain) - 0.371 \qquad (2)$$

A large number of clinical trials and many public surveys in Canada have regarded the HUI as the health measure since the last century (Horsman, 2003). The validity and reliability of the HUI3 have been also proved by the general population (Horsman, 2003). The HUI3 score of perfect health is 1.00 and the score of death is 0.00. When every attribute is at the highest level of

severity, the score of the HUI3 is -0.359 in my sample and the health status is considered to be worse than death. I rescale individuals' health utility scores to the [0,1] interval, where y_{max}^{k} for the health dimension is 1 and y_{min}^{k} is -0.359. The HUI3 values are individual data, unlike the HDI, which uses the average life expectancy of the population. The health utility scores have interval scale properties and are comparable. Thus, individual health status is interpersonally comparable.

3.3.3 Education

Individuals' highest level of education is used to measure the attainment in the education dimension. This variable contains four categories: "Less than Secondary School Graduate" coded as 1, "Secondary School Graduate" coded as 2, "Some Post-Secondary Education" coded as 3, and "Post-secondary Certificate" coded as 4. The indirect effects of education level on life satisfaction like the good impact on income and the threats to expectations are usually demonstrated afterward over the life cycle (Yang, 2018). Hence, I treat education as a dummy variable. It indicates whether people have some post-secondary education or above like certificates and degrees. People are grouped into a higher education level or a lower education level. When the dummy variable equals 0, people do not have post-secondary education; whereas when the dummy equals 1, they have some post-secondary education. People who have some post-secondary education or above account for approximately 60% of the total population.

3.3.4 Socio-demographic Characteristics

The socio-demographic characteristics include employment status, marital status, race, family circumstances, gender, and birth country. Firstly, I control whether individuals are unemployed because previous studies have demonstrated that unemployment is detrimental to individuals' happiness (Chen & Hou, 2018). I include a dummy variable where employees and

self-employed people are scored one, then people who are not in these two categories are unemployed and scored zero.

Next, I control for whether individuals are separated, widowed, or divorced. If people are in these categories, the dummy variable equals 1. Researchers have indicated that married people are more likely to have a higher level of life satisfaction than those who are separated, widowed, and divorced (Grover & Helliwell, 2017).

Racial disparities also pose threats to people's life satisfaction and visible minorities are less satisfied with their lives than whites (Verkuyten, 2008). Hence, I include a control variable for the race which takes the value of 1 when people are white and takes the value of 0 when people are visible minorities.

Moreover, Tang, Galbraith, and Truong (2019) maintain that one-person households increase sharply starting from the early last century and are the majority in Canada. Tang et al. (2019) also state that persons living alone have lower life satisfaction than persons living with others. I create a dummy variable that persons living with family members are coded as one; otherwise, persons living alone are coded as zero.

I also consider whether people are born in Canada as a control variable to compare life satisfaction between the Canadian-born population and immigrants. In general, Senik (2011) argues that non-immigrants are more satisfied with their lives than immigrants in 12 European countries, especially Denmark (as cited in OECD, 2013a).

A large number of studies have addressed gender-related differences in life satisfaction and find females report higher levels of life satisfaction than males (Al-Attiyah & Nasser, 2016). The dummy variable takes the value of one for males and zero for females.

In addition, I include 15 age cohorts from 15 years old to more than 80 years old to analyze the life cycle pattern of life satisfaction. I treat the age group with 15-17 years old respondents as the reference group. All age dummy variables are statistically significant except for the 55-59-year-old group.

Regional factors are also important. I found that provinces dummy variables across Canada are not significant. Hence, I create four urban dummy variables based on the degree of urbanization in health regions. I obtain information about urban and rural populations in health regions from the 2011 Census of Population. Urban 1 is coded as 1 when individuals live in health regions that less than 25% of the total populations live in urban areas in those health regions otherwise it is coded as 0. Likewise, Urban 2 represents whether people live in health regions that 25% to 50% of the total populations live in urban areas or not. Urban 3 reflects whether people live in health regions that urban populations are between 50% and 75%, and Urban 4 reflects whether individuals live in health regions that urban populations account for 75%-100% of the total populations. I classify all health regions into these four groups and take Urban 1 as the reference group because Urban 1 is the lowest category. An indicator reflecting the regional population living in urban areas is a more accurate measure of the degree of urbanization in regions population size (Lenzi & Perucca, 2016).

4. Results

At first, I analyze the main results of the life satisfaction regression model based on the full sample. Particularly, I generate two specifications to capture gender and race differences in the effects of the HDI dimensions and socio-demographic controls on life satisfaction. I examine the ordered logit model for two subsamples (men and women). Then I test the model for whites and

nonwhites separately. Previous literature has demonstrated the importance of gender and racial disparities in the predictors of life satisfaction (Joshanloo, 2018; Blanchflower & Oswald, 2004).

4.1 Basic Results Based on the Full Sample

Table 3 shows the estimation results of Equation (1). For the ordered logit model, the sign and statistical significance of the coefficients agree with the linear regression, but the magnitude does not have a simple interpretation. In my analysis, the signs of all determinants of life satisfaction are the same based on the OLS regression model or ordered logit model. However, one main distinction is that education is insignificant at a significance level of 10% based on the linear regression model. Disregarding the ordinality and assuming equal distances between categories of the explained variable cause some drawbacks, for instance, the risk of estimating some superfluous variables and obtaining more insignificant results (Williams, 2019). Meanwhile, Lu (1999) also concludes that using the ordered logit model increases the reliability of the results than using the regression model. So, I focus on the ordered logit estimations and calculate the marginal effect at means when the life satisfaction level is “Very Dissatisfied” and “Very Satisfied” to compare the relative importance of each variable. Marginal effects at means show the average of predicted changes in the probability that respondents are very dissatisfied or very satisfied with their lives caused by a one-unit change in each variable. I analyze the effects of three HDI dimensions first and then focus on the results of socio-demographic controls below.

β_1 is positive and statistically significant, which illustrates people with a higher level of income are more likely to have a higher life satisfaction score. Moreover, a one-unit increase in log equivalized income is associated with an approximately 3.80% increase in the probability that individuals are in the “Very Satisfied” category, so the total effect of income, from the lowest category to the highest category, is about 11.75% where the log income is in the range [-3.093, 0].

A one-unit increase in log income also decreases the probability that individuals are in the "Very Dissatisfied" category by 0.07%.

β_2 demonstrates that people with better health status are more likely to have a higher level of life satisfaction. A one-unit increase in health status is associated with an increase in the probability that respondents rate their life satisfaction at a ten by approximately 70.26% and a decrease in the probability that respondents rate their life satisfaction at a zero by 1.22%. These findings are consistent with the existing literature.

There is a surprising finding that the direct effects of education level on life satisfaction are negative but small in magnitude. Having some post-secondary education or above decreases the probability that individuals rate their life satisfaction at a ten by 0.86% and raises the probability that individuals rate their life satisfaction at a zero by 0.02%. Veenhoven (1996) also argues that education has a small impact and even a little negative impact on life satisfaction in developed countries. In this study, I do not consider discouraged workers whose attitudes may reflect dissatisfaction having to pursue additional education. A discouraged worker is defined as "a person of legal employment age who has not actively sought employment in the prior 4 weeks" (Liu, 2016, p. 772). My analysis does not capture the causal effects of education on other variables, for instance, positive effects and income, health, job satisfaction, and so on (Powdthavee et al., 2015). These limitations may cause the negative direct effects of education on life satisfaction. Powdthavee et al. (2015) find that the direct effect of education on life satisfaction is negative and statistically significant, but the aggregate indirect effects of education through other variables are positive and significant in Australia.

By comparing the marginal effects of each variable, I find that health plays the most important role in explaining the variation in life satisfaction. Income has a small impact on life

satisfaction relative to health. I obtain similar results to Yang's (2018) findings. The wealthiest countries usually provide a warranty of the lowest level of income and necessities for people, so income matters most for life satisfaction when a large portion of the populations in the countries live in extreme poverty (Margolis & Myrskylä, 2013). In developed countries like Canada and the United States, income only has a small impact on life satisfaction.

Table 3 also shows the effect of socio-demographic variables. Being separated, widowed, and divorced reduces individuals' life satisfaction. If people are separated, the probability that they are in the "Very Satisfied" category decreases by 2.24% and the probability in the "Very Dissatisfied" category increases by 0.04%. Unemployment has a negative and statistically significant effect on life satisfaction, which declines the probability that respondents' life satisfaction scores are ten by 0.84% and increases the probability that their scores are zero by 0.02%.

The positive coefficient of the race variable indicates that whites are more likely to be satisfied with their life than visible minorities. The probability that whites rate their life satisfaction at ten is 0.85% higher than visible minorities. Meanwhile, the probability that whites are in the "Very Dissatisfied" category is 0.02% lower than nonwhites.

Family circumstance is another critical factor because there is a strong and positive relationship between household and life satisfaction. People living with family members are much happier than those people living alone. Table 3 shows living with family members increases the probability that respondents are very satisfied with their lives by 6.01% and diminishes the probability that respondents are very dissatisfied with their lives by 0.12%.

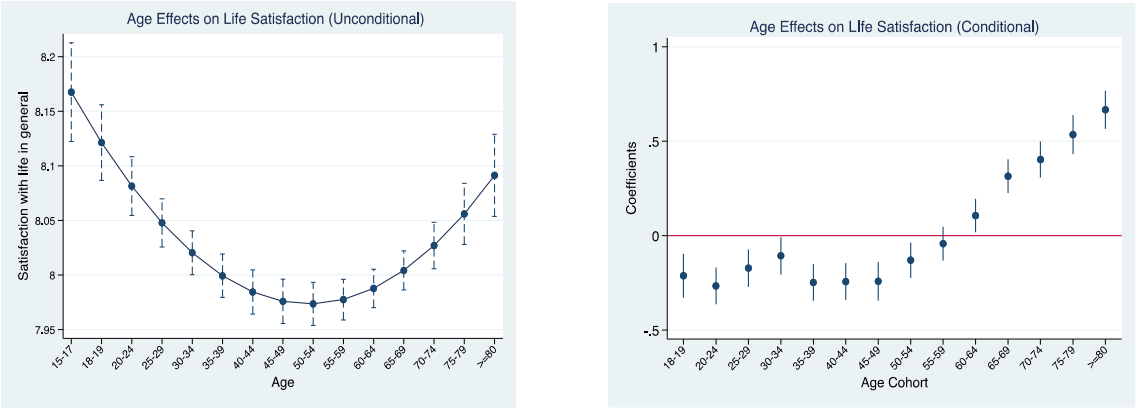
Being born in Canada is positively and statistically significantly related to life satisfaction, so people who are born in Canada are more likely to have a higher level of life satisfaction than

people who are born in other countries. If people are born in Canada, the probability that they are very satisfied is 0.91% higher than immigrants and the probability that they are very dissatisfied is 0.02% lower than immigrants.

Besides, males are more likely to report a lower level of life satisfaction than females. The probability that males are very satisfied with their life is 3.10% lower than that of females, and then the probability that males are very dissatisfied is 0.06% higher than that of females.

Next, the coefficients of Urban 2 and Urban 3 are positive and statistically significant; then, the marginal effects of Urban 4 are also statistically significant. I can conclude that individuals living in health regions with higher degrees of urbanization (25%-50%, 50%-75%, and 75%-100%) are happier than individuals living in the least urbanized health regions (less than 25%). However, the marginal effect at the mean of Urban 3 in the "Very Satisfied" category (3.03%) is less than that of Urban 2 (3.81%), which illustrates people living in health regions with a 25% to 50% degree of urbanization are happier than people living in health regions with a 50% to 75% degree of urbanization. Similarly, marginal effects of Urban 2 and Urban 4 show people who live in health regions with a 25% to 50% degree of urbanization are happier than people who live in health regions with a 75% to 100% degree of urbanization. Thus, I could conclude that people living in mid-urbanized health regions are more likely to have a higher level of life satisfaction. These findings are consistent with many results in the literature. For example, Lenzi and Perrucca (2016) conclude that residents in European regions with moderate levels of urbanization are happier than others and people in these regions benefit from both greater economic growth and higher levels of well-being. Furthermore, Bernini and Tampieri (2017) investigate urbanization is associated with other determinants of life satisfaction. For instance, urbanization process contributes to residents' life satisfaction by providing more job opportunities and social facilities; however, these benefits

are weakened by negative externalities like pollution and other environmental issues (Bernini and Tampieri, 2017). In the present analysis, I do not investigate the causal effects of urbanization on other determinants of life satisfaction. Lenzi and Perrucca (2020) maintain that previous literature indicates urbanization is positively related to life satisfaction "at least until a certain threshold of agglomeration" (p. 24). They also conclude that urbanization will not reduce people's life satisfaction and living in rural areas does not lead to higher levels of life satisfaction (Lenzi & Perrucca, 2020).



(a) (b)

Figure 1. Age Effects on Life satisfaction based on the unconditional model (a) and conditional model (b)

Figure 1. shows another important finding in my study that the age effects on life satisfaction are U-shaped, which is consistent with the recent literature. The plot (a) is based on the unconditional OLS life satisfaction regression model:

$$S_i = \beta_0 + \beta_1 age + \beta_2 age^2 \quad (3)$$

Table 4 contains estimates of this model. This model only captures the parametric effects of age and age squared, which shows life satisfaction is U-shaped in age relative to the happiest cohort which is 15-17 years old while the minimum occurs around 50 years old. This pattern was

confirmed by many countries. For instance, Blanchflower and Oswald (2008) have demonstrated happiness is U-shaped over the life course in more than 60 countries such as the USA and China. Laaksonen (2018) states happiness is the lowest between 40 and 50 years old. The middle-age slump is usually caused by the numerous responsibilities to take care of both children and parents, financial challenges, and work pressures (Lachman, Teshale, & Agrigoroaei, 2015). The plot (b) illustrates the ordered logit estimates of age cohorts in equation (1). I find that the shape of these coefficients is also roughly U-shaped. At first, the coefficient of age cohort is negative and then starts to rise until it becomes positive. That is roughly consistent with the situation of the plot on the left that life satisfaction decreases and bottoms out at about 50 years old. Afterwards, there is an obvious increase in life satisfaction in old age

The pseudo R-squared of the life satisfaction regression model is small (0.0532), but if the explained variable is based on subjective responses, the values are also small of models examined in other research (Burchardt, 2005). In addition, the pseudo R-squared cannot be interpreted in the same way as an OLS R-squared which is the proportion of variance explained. It provides the goodness of fit ranging from 0 to 1 while the values of pseudo R-squared between 0.2 and 0.4 represent “excellent fit” (McFadden, 1977, p. 35). There is evidence of the importance of genetic influence on subjective well-being and life satisfaction. Weiss, Bates, and Luciano (2008) state that SWB measures are predicted by five domain personality traits: “neuroticism”, “extraversion” “conscientiousness”, “openness” and “agreeableness” (p. 206). The objective domains may only explain a small amount of variation in life satisfaction because of the strong associations between life satisfaction and personality traits (Weiss, et al., 2008).

4.2 Gender-specific Results

As mentioned before, there is a large gap between the attitudes of life satisfaction for men and women, so I conduct a more detailed analysis of gender effects. I ran the life satisfaction regression based on the sample of men and women respectively. Table 5 shows the ordered logit estimates of variables under the equation (1), and I also calculate the marginal effects of each variable in the "Very Satisfied" category in Table 6. The results show that income and health are statistically significant determinants of life satisfaction for both males and females. Males give a relatively larger weight to income. Although a one-unit increase in log income increases the probability of rating a ten as life satisfaction score by 3.80% for men and 3.82% for women, in Table 7, the marginal effects of income for males are larger than that of females in most of the other levels. Thus, I could conclude that income is a more important predictor of SWB for men than women. Lalive and Stutzer (2004) maintain that income plays a more important role in males' well-being because men usually are primary earners in social norms. Furthermore, males give a smaller weight to health than females. In Russia, health is also a less important predictor for males' life satisfaction (Decancq, Fleurbaey, and Schokkaert, 2015): a one-unit increase of health increases the probability of rating life satisfaction at a ten by about 64.86% for men and 74.08% for women. Education is a statistically significant predictor of life satisfaction only for females. If women have some post-secondary education or above, they are less likely to be very satisfied with their lives by 1.50%.

Unemployment has strong and negative effects on men but no significant effects on women. Women are less affected by unemployment because they comply with different social norms and work is less important for them (van der Meer, 2014). If women are married, they acquire SWB from their spouses' job and their social status is mainly determined by their men's work position

(van der Meer, 2014). In addition, age effects are more remarkable for men, and the effects for men become positive in the 60-64 age cohort while the effects for women become positive and statistically significant in the 50-54 age cohort.

4.3 Race-specific Results

Furthermore, I ran the regression based on whites and nonwhites separately to discuss racial differences. The other columns of Table 5 and Table 6 demonstrate the ordered logit estimations and the marginal effects in the "Very Satisfied" category on life satisfaction for whites or nonwhites. I discover that income, health, and education are all significant determinants of life satisfaction for both whites and visible minorities. Income is more important for whites because a one-unit increase in log income leads to a 3.97% rise in the probability that whites are very satisfied with their lives and a 2.91% rise of the same outcome for nonwhites. Moreover, if white people have perfect health, the probability that their responses to life satisfaction is a ten are 72.16% higher than having the worst health status. For visible minorities, the gap is 60.61%. Decancq et al. (2015) also find expenditures or real income is a less important determinant for minorities' life satisfaction; however, they state that health is a stronger predictor of minorities' life satisfaction in Russia. Education is a stronger negative predictor of life satisfaction for minorities where having some post-secondary experiences or above makes the probability of rating life satisfaction at a ten decrease by 1.61%. The decrease caused by education for whites is only 0.70%. Some literature illustrates that race inequalities in life satisfaction are more serious at higher levels of education, for example, having higher levels of education has a larger positive impact on life satisfaction for whites than blacks (Mitchell & Ailshire, 2015).

Besides, for the socio-demographic controls, unemployment is more detrimental to minorities' SWB than that of whites. If whites are unemployed, there is a 0.77% decrease in the

probability that their responses to life satisfaction are ten. If visible minorities are unemployed, the probability of being in the "Very Satisfied" category drops by 1.4%. Household plays a more important role in explaining the variation in life satisfaction on whites than minorities. For whites, living with family members increases the probability that they are very satisfied with their lives by 6.33% while the increase is only 4.30% for non-white people. I found that whites are more likely to have higher levels of life satisfaction than minorities in all age groups, and then the differences between probabilities are more obvious among older adults than younger adults. In Table 6, the differences in the marginal effects of age cohorts between whites and nonwhites are greater in the 65-69 age group and above. Clemente and Sauer (1976) also conclude that race plays a more important role in explaining life satisfaction for older individuals than younger individuals.

5. Conclusions

In this paper, I have investigated the correlations between subjective well-being, measured with life satisfaction, and the dimensions of the HDI. I have analyzed the impacts of each dimension on life satisfaction using a life satisfaction regression approach. Income and health both are beneficial for individuals' life satisfaction whereas the direct effect of education on life satisfaction is small and negative. Health plays the most important role in explaining individuals' life satisfaction and income only accounts for a small portion of the variation in life satisfaction relative to health. All chosen socio-demographic characteristics are significant in explaining life satisfaction, especially age, family circumstances, and gender. I discover the age effects on life satisfaction are U-shaped using two methods, relative to the happiest cohort which is 15-17 years old. I also illustrate that unemployment poses threats to people's life satisfaction. Separated or widowed or divorced individuals have negative attitudes to their life satisfaction. Whites and Canadian-born populations are more satisfied with their life. Also, people who are supported by

their families have a higher level of life satisfaction than people who are living alone. Women are happier than men in all age groups. The urbanization process has a limited positive impact on subjective well-being and residents live in the health regions with immediate levels of urbanization (25%-50%) are happiest.

Moreover, I consider two specifications to evaluate gender and race differences. By focusing on female and male sample respectively, the HDI dimensions (income, health, and education) are all statistically significant determinants of subjective well-being for women. For men, income and health remain statistically significant but education has no significant impacts. Income is more significant for men and health is more important for women. Regarding differences according to race, the three dimensions of the HDI are all significant predictors of life satisfaction for both whites and nonwhites. Whites have a relative larger weight on income and health, and a smaller weight on education. The effects of socio-demographic controls also vary according to gender and ethnicity.

As to future research, my results suggest that health is the most important determinant of individuals' life satisfaction, so it is quite important to examine the happiness efficacy of health care policies. Policymakers probably need to provide more social welfare strategies according to specific health problems.

As discussed above, there are some limitations to the current study. I only focus on how the three dimensions and socio-demographic characteristics correlate with life satisfaction, and I do not consider the causal effects. For the education dimension, I do not capture its causal effects on other factors such as positive contributions to income and negative impacts on expectations. For dummy variables of urbanization, I ignore the possible causal effects of urbanization, for example, urbanization is detrimental to the environment but provides more job opportunities. If

the panel data becomes available in Canada, it would be worthwhile for future researchers to examine the causal effects of these variables.

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Appendix

Table 1. Health Utilities Index III: Multi-Attribute Coefficients for Each Attribute Level

Health State Level	Vision	Hearing	Speech	Ambulation	Dexterity	Emotion	Cognition	Pain
1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.98	0.95	0.94	0.93	0.95	0.95	0.92	0.96
3	0.89	0.89	0.89	0.86	0.88	0.85	0.95	0.90
4	0.84	0.80	0.81	0.73	0.76	0.64	0.83	0.77
5	0.75	0.74	0.68	0.65	0.65	0.46	0.60	0.55
6	0.61	0.61		0.58	0.56		0.42	

Note. Reprinted from *Wikipedia: Health Utilities Index III: Multi-Attribute Coefficients for Each Attribute Level*. Retrieved from https://en.wikipedia.org/wiki/Health_Utilities_Index. The original source is reprinted from *Health Utilities Inc. Leaders in Health-Related Quality of Life Research*. Retrieved from http://www.healthutilities.com 2016-03-20.

Table 2. Descriptive Statistics

	Full Sample	Male	Female	White	Nonwhite
Cantril Ladder Score	8.02	7.99	8.05	8.05	7.86
Equivalized Income (mean)	41,048	43,246	39,311	41,881	35,960
Health (mean)	0.850	0.859	0.843	0.850	0.849
Education (in %) (Post-secondary)	60.0	59.9	60.1	60.1	59.8
Widowed and Separated, and Divorced (in %)	21.0	14.1	26.5	22.3	13.1
Unemployed (in %)	46.2	41.5	50.0	46.9	42.3
Race (in %) (White)	85.9	85.5	86.3		
Household (in %) (Living with Family)	71.4	75.3	68.4	70.0	80.0
Born in Canada (in %)	84.9	84.7	85.1	90.1	53.2
Male (in %)	44.1			43.9	45.6

Table 2. Descriptive Statistics(continued)

	Full Sample	Male	Female	White	Nonwhite
18 – 19 Years Old (in %)	2.6	3.2	2.2	2.3	4.6
20 – 24 Years Old (in %)	5.6	6.2	5.0	4.9	9.6
25 – 29 Years Old (in %)	5.9	5.8	5.9	5.3	9.3
30 – 34 Years Old (in %)	5.8	5.5	6.0	5.2	9.1
35 – 39 Years Old (in %)	6.4	6.5	6.4	6.0	9.4
40 – 44 Years Old (in %)	6.1	6.5	5.9	5.7	8.8
45 – 49 Years Old (in %)	5.0	5.4	4.8	4.8	6.4
50 – 54 Years Old (in %)	7.9	7.7	8.0	8.0	7.0
55 – 59 Years Old (in %)	10.3	10.4	10.3	10.8	7.1
60 – 64 Years Old (in %)	10.6	10.5	10.7	11.3	6.7
65 – 69 Years Old (in %)	10.2	10.0	10.4	10.9	6.0
70 – 74 Years Old (in %)	7.5	7.3	7.7	8.2	3.7
75 – 79 Years Old (in %)	5.3	4.8	5.7	5.8	2.4
80 Years Old or More (in %)	6.5	5.2	7.5	7.2	2.1
Urban2 (25%-50%) (in %)	13.4	13.3	13.5	14.6	6.4
Urban3 (50%-75%) (in %)	38.7	38.8	38.6	40.1	29.9
Urban4 (75%-100%) (in %)	44.9	45.0	44.9	42.1	62.2
Observations	53,818	23,754	30,064	46,245	7,573

*Note***.** This table shows descriptive statistics of each variable based on the 2014 CCHS.

Table 3. Results of Life Satisfaction Regression Model

Cantril Ladder Score (Dependent Variable)	**Coefficient**	**Average Marginal Effects** (Very Dissatisfied)	**Average Marginal Effects** (Very Satisfied)
Equivalized Income	0.2651***	-0.00066***	0.03795***
	(0.015)	(0.000)	(0.002)
Health	4.9109***	-0.01215***	0.70256***
	(0.059)	(0.001)	(0.009)
Education (Post-secondary)	-0.0599***	0.00015***	-0.00860***
	(0.017)	(0.000)	(0.003)
Widowed and Separated, and Divorced	-0.1615***	0.00042***	-0.02241***
	(0.027)	(0.000)	(0.004)
Unemployed	-0.0588***	0.00015***	-0.00840***
	(0.021)	(0.000)	(0.003)
Race (White)	0.0606**	-0.00015**	0.00854**
	(0.025)	(0.000)	(0.003)
Household (Living with Family)	0.4470***	-0.00123***	0.06012***
	(0.023)	(0.000)	(0.003)
Born in Canada	0.0641***	-0.00016**	0.00905***
	(0.024)	(0.000)	(0.003)
Male	-0.2186***	0.00055***	-0.03103***
	(0.016)	(0.000)	(0.002)
18 – 19 Years Old	-0.2120***	0.00058***	-0.02838***
	(0.059)	(0.000)	(0.007)
20 – 24 Years Old	-0.2660***	0.00074***	-0.03519***
	(0.050)	(0.000)	(0.006)
25 – 29 Years Old	-0.1717**	0.00046***	-0.02337***
	(0.050)	(0.000)	(0.007)
30 – 34 Years Old	-0.1065**	0.00028**	-0.01477**
	(0.050)	(0.000)	(0.007)
35 – 39 Years Old	-0.2475***	0.00068***	-0.03298***
	(0.050)	(0.000)	(0.006)

Table 3. Results of Life Satisfaction Regression Model(continued)

Cantril Ladder Score (Dependent Variable)	**Coefficient**	**Average Marginal Effects** (Very Dissatisfied)	**Average Marginal Effects** (Very Satisfied)
40 – 44 Years Old	-0.2433***	0.00067***	-0.03244***
	(0.050)	(0.000)	(0.006)
45 – 49 Years Old	-0.2415***	0.00067 ***	-0.03216***
	(0.052)	(0.000)	(0.006)
50 – 54 Years Old	-0.1299**	0.00034**	-0.01793***
	(0.048)	(0.000)	(0.006)
55 – 59 Years Old	-0.0425	0.00011	-0.00602
	(0.046)	(0.000)	(0.006)
60 – 64 Years Old	0.1063**	-0.00025**	0.01564**
	(0.045)	(0.000)	(0.007)
65 – 69 Years Old	0.3147***	-0.00069***	0.04879***
	(0.046)	(0.000)	(0.008)
70 – 74 Years Old	0.4029***	-0.00085***	0.06423***
	(0.048)	(0.000)	(0.009)
75 – 79 Years Old	0.5349***	-0.00106***	0.08873***
	(0.053)	(0.000)	(0.010)
80 Years Old or More	0.6667***	-0.00126***	0.11383***
	(0.052)	(0.000)	(0.010)
Urban2 (25%-50%)	0.2508***	-0.00057***	0.03808***
	(0.049)	(0.000)	(0.009)
Urban3 (50%-75%)	0.2084***	-0.00050***	0.03029***
	(0.046)	(0.000)	(0.008)
Urban4 (75%-100%)	0.0606	-0.00015**	0.00868**
	(0.046)	(0.000)	(0.008)
Pseudo R^2	0.0532		
Observations	53,818		

*Note. *** p < 0.01, ** p < 0.05, * p < 0.10 (standard errors in parentheses)*
This table shows the ordered logit estimates of life satisfaction regression model and the marginal effects at means of each variable when Cantril Ladder Score = 0 and 10.

Table 4. OLS Regression Model for Age Effects on Life Satisfaction

	Age	Age Squared	Constant
Cantril Ladder Score	-0.06188***	0.0031***	8.2788
(Dependent Variable)	(0.009)	(0.000)	(0.037)

*Note: *** p < 0.01, ** p < 0.05, * p < 0.10*
(standard errors in parentheses)

Table 5. Ordered Logit Estimates by Gender and Race

Cantril Ladder Score (Dependent Variable)	**Male**	**Female**	**White**	**Nonwhite**
Equivalized Income	0.2863*** (0.023)	0.2535*** (0.019)	0.2754*** (0.016)	0.2102*** (0.034)
Health	4.8800*** (0.093)	4.9180*** (0.077)	5.008*** (0.064)	4.3829*** (0.155)
Education (Post-secondary)	0.0027 (0.026)	-0.0988*** (0.024)	-0.0484** (0.019)	-0.1158** (0.049)
Widowed and Separated, and Divorced	-0.2123*** (0.043)	-0.1632*** (0.034)	-0.1600*** (0.029)	-0.1372** (0.076)
Unemployed	-0.1391*** (0.032)	-0.0029 (0.027)	-0.0536** (0.023)	-0.1016** (0.050)
Race (White)	0.0525 (0.037)	0.0657* (0.034)		
Household (Living with Family)	0.4901*** (0.034)	0.4138*** (0.031)	0.4666*** (0.025)	0.3324*** (0.061)
Born in Canada	0.0942*** (0.036)	0.0436 (0.033)	0.0383 (0.029)	0.0221 (0.049)
Male			-0.2277*** (0.017)	-0.1688*** (0.042)
18 – 19 Years Old	-0.3290*** (0.082)	-0.1072 (0.086)	-0.1860*** (0.069)	-0.2686** (0.118)
20 – 24 Years Old	-0.4519*** (0.070)	-0.0919 (0.071)	-0.2402*** (0.057)	-0.3305*** (0.101)
25 – 29 Years Old	-0.4054*** (0.074)	0.0466 (0.070)	-0.1420** (0.057)	-0.2454** (0.106)
30 – 34 Years Old	-0.3281*** (0.075)	0.1063 (0.070)	-0.0578 (0.058)	-0.2548** (0.107)

Table 5. Ordered Logit Estimates by Gender and Race (continued)

Cantril Ladder Score (Dependent Variable)	**Male**	**Female**	**White**	**Nonwhite**
35 – 39 Years Old	-0.3754***	-0.1124	-0.2243***	-0.3072***
	(0.072)	(0.069)	(0.056)	(0.107)
40 – 44 Years Old	-0.4785***	-0.0242	-0.2254***	-0.2802**
	(0.072)	(0.070)	(0.057)	(0.108)
45 – 49 Years Old	-0.5890***	0.0771	-0.2190***	-0.3100***
	(0.075)	(0.073)	(0.059)	(0.117)
50 – 54 Years Old	-0.4815***	0.1841***	-0.0865	-0.2960***
	(0.070)	(0.066)	(0.053)	(0.113)
55 – 59 Years Old	-0.3022***	0.1996***	-0.0028	-0.2076*
	(0.066)	(0.064)	(0.051)	(0.113)
60 – 64 Years Old	-0.1512**	0.3398***	0.1483***	-0.0789
	(0.065)	(0.063)	(0.050)	(0.114)
65 – 69 Years Old	0.0943	0.5225***	0.3577***	0.1155
	(0.065)	(0.064)	(0.051)	(0.118)
70 – 74 Years Old	0.1333***	0.6479***	0.4428***	0.2456*
	(0.070)	(0.068)	(0.053)	(0.138)
75 – 79 Years Old	0.3400***	0.7274***	0.5827***	0.2765*
	(0.078)	(0.073)	(0.058)	(0.163)
80 Years Old or More	0.3732***	0.9088***	0.7200***	0.3805**
	(0.078)	(0.071)	(0.057)	(0.167)
Urban2 (25%-50%)	0.2967***	0.2172***	0.2456***	0.3690**
	(0.075)	(0.065)	(0.051)	(0.184)
Urban3 (50%-75%)	0.1994***	0.2160***	0.1982***	0.2925*
	(0.071)	(0.061)	(0.048)	(0.169)
Urban4 (75%-100%)	0.0446	0.0726	0.0777	-0.0329
	(0.070)	(0.061)	(0.048)	(0.167)
Pseudo R^2	0.0532	0.0541	0.0550	0.0419
Observations	23,754	30,064	46,245	7,573

*Note: *** p < 0.01, ** p < 0.05, * p < 0.10*
(standard errors in parentheses)

Table 6. Marginal Effects at the Means of Variables by Gender and Race (Very Satisfied)

Cantril Ladder Score (Dependent Variable)	**Male**	**Female**	**White**	**Nonwhite**
Equivalized Income	0.03806***	0.03819***	0.03968***	0.02907***
	(0.003)	(0.003)	(0.002)	(0.005)
Health	0.64858***	0.74084***	0.72159***	0.60612***
	(0.013)	(0.012)	(0.010)	(0.023)
Education (Post-secondary)	0.00036	-0.01497***	-0.00700**	-0.01614 **
	(0.003)	(0.004)	(0.003)	(0.007)
Widowed and Separated, and Divorced	-0.02679***	-.02400***	-0.02235***	-0.01834*
	(0.004)	(0.005)	(0.004)	(0.010)
Unemployed	-0.01834***	-0.00043	-0.00770**	-0.01400**
	(0.004)	(0.004)	(0.003)	(0.007)
Race (White)	0.00688	0.009786**		
	(0.004)	(0.005)		
Household (Living with Family)	0.05989***	0.05943***	0.06329***	0.04300***
	(0.004)	(0.004)	(0.003)	(0.007)
Born in Canada	0.01224***	0.00650	0.00511	0.00305
	(0.005)	(0.005)	(0.004)	(0.007)
Male			-0.03252***	-0.02323***
			(0.002)	(0.057)
18 – 19 Years Old	-0.03928***	-0.01563	-0.02527***	-0.03419**
	(0.009)	(0.012)	(0.009)	(0.014)
20 – 24 Years Old	-0.05233***	-0.01348	-0.03221 ***	-0.04175***
	(0.007)	(0.010)	(0.007)	(0.012)
25 – 29 Years Old	-0.04756***	0.00712	-0.01962**	-0.03172***
	(0.008)	(0.011)	(0.008)	(0.013)
30 – 34 Years Old	-0.03940***	0.01650	-0.00819	-0.03284**
	(0.008)	(0.011)	(0.008)	(0.013)
35 – 39 Years Old	-0.04454***	-0.01641*	-0.03027***	-0.03904***
	(0.008)	(0.010)	(0.007)	(0.012)
40 – 44 Years Old	-0.05501***	-0.00363	-0.03039***	-0.03583***
	(0.007)	(0.010)	(0.007)	(0.013)
45 – 49 Years Old	-0.06514***	0.01188	-0.02955***	-0.03911***
	(0.007)	(0.011)	(0.007)	(0.013)

Table 6. Marginal Effects at the Means of Variables by Gender and Race (Very Satisfied) (continued)

Cantril Ladder Score (Dependent Variable)	**Male**	**Female**	**White**	**Nonwhite**
50 – 54 Years Old	-0.05555***	0.02909***	-0.01216*	-0.03755***
	(0.007)	(0.011)	(0.007)	(0.013)
55 – 59 Years Old	-0.03698***	0.03158***	-0.00041	-0.02704**
	(0.007)	(0.011)	(0.007)	(0.014)
60 – 64 Years Old	-0.01929**	0.05553***	0.02164***	-0.01066
	(0.008)	(0.011)	(0.008)	(0.015)
65 – 69 Years Old	0.01286	0.08905***	0.05629***	0.01652
	(0.009)	(0.012)	(0.009)	(0.017)
70 – 74 Years Old	0.01841***	0.11449***	0.07162***	0.03659*
	(0.010)	(0.014)	(0.010)	(0.022)
75 – 79 Years Old	0.05006***	0.13175***	0.09826***	0.04166
	(0.013)	(0.015)	(0.011)	(0.027)
80 Years Old or More	0.05543***	0.16972***	0.12481***	0.05919**
	(0.013)	(0.016)	(0.011)	(0.029)
Urban2 (25%-50%)	0.04244***	0.03437***	0.03741***	0.05665*
	(0.012)	(0.011)	(0.008)	(0.031)
Urban3 (50%-75%)	0.02692***	0.033045***	0.02893***	0.04208*
	(0.010)	(0.009)	(0.007)	(0.035)
Urban4 (75%-100%)	0.00594	0.01096	0.01123**	-0.00456
	(0.009)	(0.009)	(0.007)	(0.034)
Observations	23,754	30,064	46,245	7,573

*Note. *** p < 0.01, ** p < 0.05, * p < 0.10 (standard errors in parentheses)*
This table shows the marginal effects at the means of each variable based on men, women, whites, and nonwhites subsamples when the Cantril Ladder score is 10.

Table 7. Marginal Effects at the Means of Income by Gender in All Categories

Cantril Ladder Score (Dependent Variable)	**Male**	**Female**
0	-0.00060***	-0.00070***
	(0.000)	(0.000)
1	-0.00035***	-0.00028***
	(0.000)	(0.000)
2	-0.00075***	-0.00060***
	(0.000)	(0.000)
3	-0.00118***	-0.00116***
	(0.000)	(0.000)
4	-0.00243***	-0.00202***
	(0.000)	(0.000)
5	-0.01167***	-0.01020***
	(0.001)	(0.001)
6	-0.01170***	-0.01013***
	(0.001)	(0.001)
7	-0.02989***	-0.02503***
	(0.002)	(0.002)
8	-0.00577***	-0.00902***
	(0.000)	(0.001)
9	0.02628***	-0.02095***
	(0.002)	(0.012)
10	0.03806***	0.03819***
	(0.003)	(0.003)
Observations	23,754	30,064

*Note: *** p < 0.01, ** p < 0.05, * p < 0.10 (standard errors in parentheses)*
This table shows the marginal effects at the means of income based on men and women subsamples when the Cantril Ladder score is 0, 1, …, 10.