Association Between Happiness and Individual Perspecti

1 Introduction

The increase in income inequality has led to a growing worldwide concern about the societal

this study employs self

surveying to reveal the individual level of well-being. Over the past forty years, many economic studies were conducted to establish determinant factors for happiness, including economic forces (Juster and Stafford, 1985, as cited in Lyubomirsky & Lepper, 1999), activity levels (Cummings and Henry, 1961; Lemon et al., 1972; see also Csikszentmihalyi, 1975, 1990; as cited in Lyubomirsky & Lepper, 1999), adaptation levels (Brickman and Campbell, 1971; see also Michalos, 1985; Parducci, 1984; as cited in Lyubomirsky & Lepper, 1999), goals (Emmons, 1986; Omodei & Wearing, 1990; as cited in Lyubomirsky & Lepper, 1999), life events (Headey & Wearing, 1989; as cited in Lyubomirsky & Lepper, 1999), and dispositional factors (Costa and McCrae, 1980, 1984; as cited in Lyubomirsky & Lepper, 1999). Each of these studies has been regarded as a pivotal determinant of happiness (Lyubomirsky & Lepper, 1999).

As it relates to economic research regarding happiness, the association between happiness and wealth has become a longstanding and highly controversial topic. During the 1970s, the Easterlin Paradox suggested that although those with higher incomes exemplified higher levels of self-reported happiness than those with lower incomes within the same nation, happiness did not increase when national income increased (Easterlin, 1974). Essentially, the Easterlin Paradox showed that although income is a significant indicator of an individual level of happiness, it is irrelevant to the aggregate level of happiness.

The self-contradictory finding in the Easterlin Paradox spurred many studies to reassess the challenge and propose alternative explanations. Many empirical studies were postulated by more recent economists, revisiting the positive correlation between individual income and happiness. A majority of these studies have found Easterlin's conclusion questionable. Layard's study, which implies a positive association between absolute income and happiness, is upheld for lower-income respondents (Layard, 2005, as cited in Stevenson & Wolfers, 2008). Stevenson and Wolfers attributed the failure of identifying a robust GDP-happiness link in Easterlin's work as he failed to "isolate statistically significant relationships between average levels of happiness and economic growth through time." With analysis of both recent and early data, they discovered a remarkably robust and significant positive relationship between subjective happiness and absolute income across countries, within countries, and over various periods of time (Stevenson & Wolfers, 2008). In 2012, a publication by Booth returned to the criticisms of the Easterlin Paradox with new statistical findings by using a data set of 126 countries. The new results confirmed a robust positive relationship between happiness and income, which was relatively constant and maintained between countries, within countries, and over various periods of time. This relationship also holds both at higher levels of income and at lower levels of income (Booth, 2012).

Although the core of the Easterlin Paradox has been numerously rejected by many studies that proved the relationship between trends in happiness and income, there are still areas of uncertainty. Easterlin emphasized that when people judge their happiness, they tend to make comparisons with a

Gini coefficient (Wang et al.. 2015). Although extensive research has been conducted regarding the relationship between income inequality and happiness, no determinant or universal conclusion has been agreed upon.

One reasonable interpretation for the absence of a conclusive result is that the Gini coefficient is not a perfect indicator of the individuals' sensitivity to the income difference. Graham & Felton (2006) concluded that the analysis of individual thoughts and revealed preferences are impractical for understanding macroeconomic variables, such as the Gini coefficient. Another deficiency is that the aggregate data is highly vulnerable to the ecological fallacy. The ecological fallacy pertains to the aggregate data being used to create inferences regarding individual characteristics. The false inferences about individual behavior are drawn due to the variability of individual means that are not properly captured by the variability encompassing the aggregate means (Pollet et al., 2015). During the process of aggregating and averaging units within various groups, individual information is frequently lost and leads to a decreased likelihood of meaningful conclusions. Due to this revelation, it is nearly impossible to adequately capture the nuances of personal perceptions of income inequality by solely using the regional-aggregated variable.

The studies of many other scholars further support this argument, providing evidence that individuals within the same geographical areas differ in their levels of awareness and tolerance of inequality. Alesina, DiTella, and MacCulloch (2004) highlighted that countries significantly differ in their underlying tolerance of the degree of income inequality, even during similar stages of development. In a study that delved into the level of inequality and effects of perceptions of income inequality within the context of various states in the United States, Xu and Garand (2010) concluded that individuals with lower incomes were more likely to feel a sense of income inequality within their perceptions compared to those with higher incomes. These findings suggest that even individuals from the same region may have different perceptions.

To examine the awareness people have of income inequality, several studies have been conducted that focus on the changes in the actual income gap and individual perspectives. McCall (2005) discovered that while the actual level of income inequality consistently grew between 1987 and 2000, fewer Americans were aware of the rising inequality (McCall 2005). Xu and Garand, using data from the Harris Poll, also emphasized that although the actual income gap between rich and poor households increased significantly since the 1970s, the aggregate percentage of perceptions regarding the inequality gap remained relatively stable and even decreased after 1995 (Bartels, 2008, as cited in Xu & Garand 2010). The inconsistency between actual income inequality and the awareness of income inequality in the late 1990s suggests that the effects of individuals' perspectives toward inequality may have been inaccurately captured by the Gini coefficient (Bartels, 2008, as cited in Xu & Garand 2010).

To adequately capture the association between income inequality and happiness, more in-depth research needs to be done. Analyzing the association between happiness and inequality in the United

3 Method and Data

3.1 Participants

The dataset used in this paper was collected in the seventh wave of the World Value Survey (WVS-7) that took place worldwide from 2017 to 2021. The seventh wave of the WVS collected data in various ways, including face-to-face interviews, postal surveys, self-administered online surveys, and interviews through phone calls (Haerpfer et al., 2022). The WVS-7 questionnaire is elaborated with the inclusion of topics such as cultural values, education, income inequality, social tolerance and trust, demographic characteristics, and self-assessment happiness (Haerpfer et al., 2022). The dataset consists of 84,638 respondents from 57 countries and territories (Haerpfer et al., 2022).

3.2 Variables

3.2.1 Happiness

The dependent variable of this study, self-reported happiness, is measured on a four-point scale ranging from 1 (not at all happy) to 4 (very happy). The WVS-7 questionnaire focuses on investigating individuals' subjective happiness. Specifically, the question asks the following: "*Taking all things together, would you say you are: 1) Very happy, 2) Quite happy, 3) Not very happy, 4) Not at all happy*" (Haerpfer et al., 2022). Based on the way the question was asked, the dependent variable, subjective happiness, can be viewed as a categorical variable with each category representing a different level of happiness. The label of the four-point scale for the measure of happiness has been reversed in the original data analysis, meaning that *1)* represents *Very happy* in the questionnaire but represents *Not at all happy* in the actual dataset.

According to the table 1, which shows a summary of the distribution of happiness from the WVS-7 responses, most people answered being happy (*Very happy* or *Quite happy*) rather than being not happy (*Not very happy* or *Not at all happy*): more than half of the respondents reported being *Quite happy* and about one-third of respondents answered *Very happy*. One thing to notice

happiness, all of these variables are used as control variables. The descriptive statistics of these control variables are shown in Appendix 1.

These control variables have been proved to be closely related to our dependent variable, happiness. Controlling for the age of the individual will eliminate the impact of age on happiness.

Education

Table 4 shows the distribution of the education level of the respondents. Among all the respondents, the majority of them (74.19%) have not received a college-level or higher-level education. 18.34% of the respondents have received a college degree or equivalent. Only very few individuals have received a master's degree or doctoral degree.

Table 5. Frequency Distribution of Employment Status

Employment status	Frequency	Percent	Cum. Percent
Full-time (30 hours a week or more)	30,053	35.88	35.88
Part-time (less than 30 hours a week)	7,060	8.43	44.31
Self-employed	12,659	15.12	59.43
Retired/pensioned	9,650	11.52	70.95

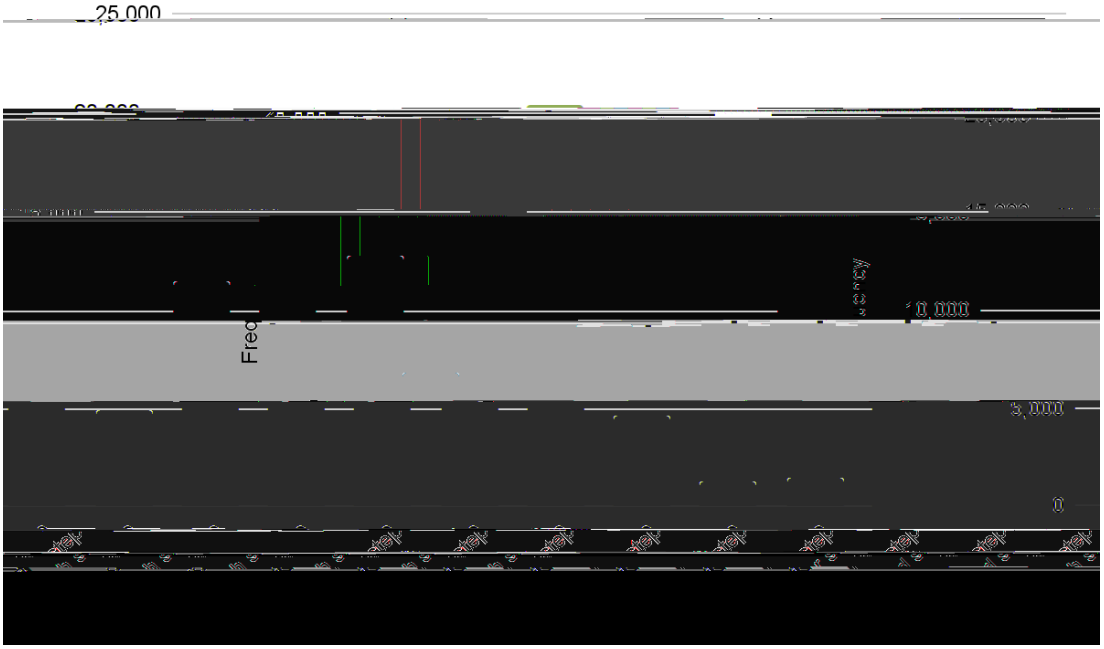
lower middle class and upper middle class). The number of individuals who place their social class on the two extreme sides of the distribution is relatively small: only less than 1.61% of the respondents report their social class as upper class, and 11.97% of the respondents consider themselves to be in the lower class.

Table 6. Frequency Distribution of Subjective Social Class

Table 7. Frequency Distribution of Scale of Income

Scale of Incomes	Frequency	Percent	Cum. Percent
Lower step	6,823	8.24	8.24
Second step	4,986	6.02	14.27
Third step	9,367	11.32	25.58
Fourth step	11,521	13.92	39.50
Fifth step	20,328	24.56	64.06
Sixth step	12,802	15.47	79.53
Seventh step	9,587	11.58	91.11
Eighth step	4,666	5.64	96.74
Ninth step	1,259	1.52	98.27
Tenth step	1,436	1.73	100.00
Total	82,776	100.00	100.00

Figure 1. Frequency Distribution of Scale of Income



4 Model

4.1 Baseline Model

As all the input variables have been introduced, the next part is going to introduce the models used in this paper. Since the dependent variable, happiness, is an ordinal categorical variable that takes four values, ordered logistic regression should be the first choice. Therefore, this model controls variables as specified above, fixed-country effects, and other unobserved variables, and demonstrates the individuals' happiness as a function of their perspectives of income inequality. The model is represented as follows:

Where:

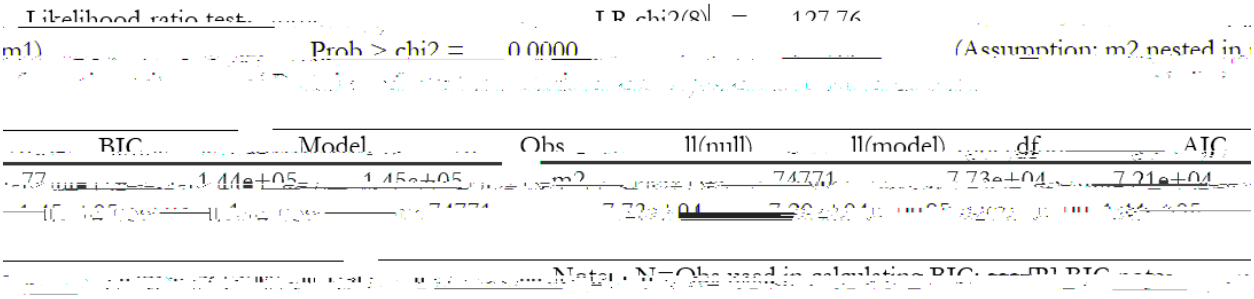
- represents the individual perspective on income inequality
- represents all the control variables, including gender, age, marital status, education level, employment status, subjective social class, and scale of income
- is an individual-level error term under the assumption of logistic distribution
- are the fixed effects for the countries

Tm0ects for the countries

Where:

- represents the individual perspective on income inequality
- represents all the control variables, including gender, age, marital status, education level, employment status, subjective social class, and scale of income
- represents whether the individual is in the high-income group
- represents the interaction term of individual perspectives toward income inequality and
-

Table 8. Result of the Likelihood-Ratio Test



4.4 Test for Multicollinearity

One last step before moving onto the empirical model is to test for multicollinearity. When a perfect or near-perfect linear relationship exists in the predictors, the estimates for a regression model will be inaccurate since they cannot be uniquely computed. The method used for the testing is the variance inflation factor (VIF) and, as a general guideline, variables with VIF values greater than 10 may require further investigation. Appendix 2 shows all the VIF values and none of them exceeds 10. We could conclude that there is not any multicollinearity among the variables in our data.

5 Empirical Results

5.1 Result of Baseline model

The partial results from the ordered logistic regression are shown in Tables 9 to 12. The p-value of the models (0.0000) indicates that our model as a whole is statistically significant. Country effects are fixed but not reported in the table below. The full result of the ordered logistic regression is appended in Appendix 3.

Table 9 reports the effect of individual perspective toward income inequality on self-reported happiness, given all the other variables are controlled. The reference group is those who strongly advocate for more equal income distribution, and all the coefficients, which are reported in the table, reflect the difference in happiness levels compared to the reference group. The coefficient of a group represents that for a change from the reference group to that group, the dependent variable is expected to change by the corresponding amount in the ordered log-odds scale given that the other variables are held constant. For

represents the expected change in the ordered log-odds of the dependent variable given a change from reference group to that group. For instance, the ordered log-

significant association between subjective happiness and individual perspective of income inequality. Specifically, an approximate U-shaped relationship is found between the individual perspectives of income inequality and happiness. This U-shaped relationship presents a trend that when people's perspectives on income inequality are more extreme, either extremely supporting income equality or inequality, they usually have higher levels of happiness than those with moderate perspectives.

A significant finding of this study is that those who firmly believe that there should be larger income inequality as incentives for individual effort are usually happier. This finding is consistent with

though some controls h

accept large income inequality if they regard the income gains of rich individuals as a signal of their own better future. In a high social mobility setting, individuals are more likely to have a fair chance of success. A possible policy implication is that improving social mobility might be an alternative solution to increase people's happiness, offsetting the national-level negative effect of income inequality.

There are still some unexplained results in the research. When it comes to the lower tail of the U-shaped relationship, more profound research is required to elucidate this uncertainty. As more studies are conducted, we will better understand the association between happiness and income inequality and improve social well-being using new findings.

Appendix 1. Descriptive Statistics of Control Variables.

Variables	Description	N	Mean

Appendix 3. Result of Baseline Model

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig

Cyprus	-.575	.096	-5.97	0	-.763	-.386	***
Ecuador	.967	.092	10.55	0	.787	1.147	***
Ethiopia	-.425	.094	-4.52	0	-.61	-.241	***
Germany	-.407	.083	-4.88	0	-.571	-.244	***
Greece	-1.15	.09	-12.77	0	-1.326	-.973	***
Guatemala	.341	.092	3.70	0	.16	.522	***
Hong Kong SAR	-1.071	.078	-13.66	0	-1.224	-.917	***
Indonesia	.352	.076	4.62	0	.203	.501	***
Iran	-1.32	.086	-15.27	0	-1.49	-1.151	***
Iraq	-1.279	.092	-13.96	0	-1.459	-1.1	***
Japan	-.124	.089	-1.39	.163	-.298	.05	
Kazakhstan	-.35	.09	-3.87	0	-.527	-.172	***
Jordan	-.56	.089	-6.33	0	-.734	-.387	***
Kenya	.398	.091	4.39	0	.221	.576	***
South Korea	-1.066	.084	-12.63	0	-1.231	-.9	***
Kyrgyzstan	1.065	.093	11.47	0	.883	1.247	***
Lebanon	-.839	.087					

Appendix 4. Result of Alternative Model with Interaction Term

	Coef.	St.Err.	t-value

China	-.328	.073	-

Appendix 5. Result of Alternative Model without Interaction Term

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
	0	.	.	.	.	.	
2	-.094	.042	-2.25	.024	-.176	-.012	**
3	-.117	.038	-3.08	.002	-.192	-.042	***
4	-.144	.038	-3.79	0	-.218	-.069	***
5	-.084	.031	-2.75	.006	-.144	-.024	***
6	-.141	.033	-4.24	0	-.206	-.076	***
7	-.127	.032	-4.03	0	-.189	-.066	***
8	-.048	.031	-1.59	.112	-.108	.011	
9	.09	.036	2.50	.012	.019	.16	**
Larger income diff~s	.128	.028	4.53	0	.073	.184	***
	0	.	.	.	.	.	
Female	.088	.016	5.54	0			

Taiwan ROC	-.332	.083	-3.99	0	-.496	-.169	***
Colombia	.861	.083	10.42	0	.699	1.023	***
Cyprus	-.572						

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