Asian Journal of Economics, Business and Accounting

15(1): 35-49, 2020; Article no.AJEBA.56245
ISSN: 2456-639X

Nexus of Economic Growth on Happiness and Inequality: Reexamine the Paradox

Debraj Roka[1*]

[1]*Institute of Geographic Sciences and Natural Resources Research, CAS, Beijing, China.*

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/AJEBA/2020/v15i130206
Editor(s):
(1) Dr. Gerasimos T. Soldatos, American University of Athens, Athens, Greece
Reviewers:
(1) Batrancea Larissa, Babes-Bolyai University, Romania.
(2) Yun-Yeong Kim, Dankook University, South Korea.
Complete Peer review History: http://www.sdiarticle4.com/review-history/56245

Original Research Article

Received 13 February 2020
Accepted 20 April 2020
Published 24 April 2020

ABSTRACT

Economic Growth is the essence of capitalism and it has the paradoxical relation on happiness and an inverse relationship with inequality. Capitalism is fueling the inequality in terms of access, opportunities, production, and distribution. The paper entitled "Nexus of Economic Growth on Happiness and Inequality" is reexamined the paradox which estimated the effect of economic growth and income on happiness and inequality by analyzing 1080 observations from 2008 to 2016 period covered 120 countries. The main explained variable of this paper is happiness and major interested explanatory variables are GDP per capita, GDP growth and inequality. The paper applied fixed and random effect and Linear Dynamic Panel Data (LDPD)/generalized method of moment estimation method as its estimation strategy. This paper investigated the positive association between GDP growth and income with happiness and found that the increase of economic growth and income lead to increase inequality which has a negative association with happiness.

Keywords: Economic growth; happiness; inequality.

**Corresponding author: E-mail: kalyan_roka@yahoo.com;*
[#]The Author is PhD in Political Economy and he is known as Kalyan Roka.

1. INTRODUCTION

Happiness is the main destination, understanding and acceptance of every citizen and country. It is the basic foundation, principle and compulsory situation for prosperity, sound development, and transformation of the society. Unhappy and unhealthily people can't create happiness and prosperous society. Therefore, happiness study has become an attractive and popular topic for various sociopolitical, economic and other scientists to chase their research works. Happiness is one multidisciplinary area of study which is, directly and indirectly, related to the human aspirations and expectations [1].

In the recent decade, the study of happiness has emerged as new research phenomena in the field of economics. The renounced economists are engaging to study happiness by correlating between economic processes and individual wellbeing. Their research works mainly centralized to link economic factors like income, wealth, unemployment and social security, as well as social and institutional factors on happiness. Now happiness study has become popular in wellbeing and behavioural economics which is popularly known as happiness economics in recent times [2].

Several authors [3,4,5,6] described that GDP growth rate and GDP per capita couldn't contribute the long run to increase happiness among the life of the people and the nations. Despotis [7] mentioned that GDP, itself is not considered as a good indicator to measure the economic and development situation of the country. According to the [8] GDP only included and analyzed the market-related components like consumption, government expenditure, investment, and net exports and [9] argued that it is not considered the wellbeing factors like environmental measures, pollution and air quality, quality of life such as health care and life expectancy, education factors, crime issues, domestic works like works of housewife etc. Bakker and Creedy [10] noticed that GDP doesn't cover the issues of happiness in the life of individuals and the nations. It is only contributed to the increase in inequality by increasing economic growth and income.

Muller [11] mentioned that the inequality which is the product of capitalism is increased in every area in the present world. Wood [12] described that profit is the main essence of capitalism, which is created from surplus-value and it is the main reason to create the gap between rich and poor, which is the main guiding principle of capitalism to accumulate capital. According to Wood [13] rising capitalism, in other words, combat inequality is not favor of happiness or wellbeing of people. Many capitalist economists believed that the increased GDP and income influenced to increase the wellbeing of people. But they didn't consider about the increasing inequalities in society and nations.

Frank [14] discussed that increase of growth and income is fueling to increase the demand and aspiration of the people in the one hand and in the other hand; it increases the inequality and can't consider the problem of environmental degradation issues. Due to these reasons, the immediate happiness among the people can't be sustained in the long run and ultimately, it converted in the unhappiness. Many research studies have already done in favor and opposite of the paradox. There is not still an anonymous opinion about the GDP and income effects on happiness. Therefore this study is designed to estimate the GDP growth and income relation with happiness and furthermore it is estimated the growth and income effect on inequalities to link with happiness in the long run.

2. THEORETICAL AND EMPIRICAL LITERATURE REVIEW

Several studies have concluded that materialism is associated with subjective well-being. Goerke and Pannenberg [15] investigated the relationship between luxury consumption, materialism, and subjective well-being and found that consumers are more motivated to consume luxury goods, which leads to a positive association to increase life satisfaction. There are several studies about the relation between consumption and utility perspective on subjective well-being or happiness. The utilitarian perspective to study subjective well-being was the major theme of study before the 1970s. But the scenario of happiness study is changed after the Easterlin paradox in 1974. Then the happiness study has started to study form economic growth, GDP per capita or income perspectives. This study focused on the effect of economic growth and income on happiness. Therefore, the literature review of this study is also focused in the area of economic growth, income and happiness.

2.1 Happiness from Economic Growth and Income Perspectives

Happiness studies in the field of economics are new areas of research. Antolini and Simonetti [16] mentioned that many researchers are starting the studies between the relationship between happiness and GDP and stated that after reaching a certain level of income, happiness is decreased. Although there are several studies have done and discussed the growth and income paradox and puzzles on happiness after the Easterlin's publication entitled on Does Economic Growth Improve the Human Lot, Some Empirical Evidence in 1974. Easterlin [17] mainly focused on the association between income and happiness and found that economic growth has a positive association with happiness if other things being equal. But contrast the increasing the level of income contributes to raising the ambitions and aspirations among the people which ultimately has a negative effect of happiness. In this article, Easterlin argued that people who have higher income were more likely to report being happy within the country and the people in rich countries are happier than the people of poor countries. This paper tried to indicate the paradox about the growth and income with happiness in the long run. According to him, there won't be a positive association between growth and income with happiness in the long run if they have positive relationships in a short run due to the increase of ambitions and aspirations among the people. This paper covered the nineteen countries from Asia, Africa, and Latin America and covered from 1946 to 1970.

After this, several works related growth and income paradox with happiness appear in the field of happiness economics. The works were tried to reexamine the paradoxical relation between economic growth and income with happiness. Ferrer-i-Carbonell [18] examined the relationship between income and individual wellbeing and found that the income of the reference group is important than the income for individual happiness and the individuals with larger amount of income are happier than the lower amount of income references groups. The study was based on the German Socioeconomic Panel (GSOEP) waves conducted among the 16000 respondents in yearly observation from 1992 to 1997 in Germany. Hayo [19] analyzed the pooled data obtained from 7 Eastern European shifting communist Countries, Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovenia, and Slovakia and found that the average level of life satisfaction of these countries is lower than Western societies. The study further examined that positive income effect, the negative effect of unemployment, positive educational effect, and positive marriage effect) on happiness. The study further investigated that the respondents from rural areas reported a higher level of life satisfaction than the respondents from urban areas.

Similarly, [20] found that the wealth of Americans' increased over the last few decades but their happiness didn't increase. The study centralized on this issue and found that rely upon paradox on GDP per capita. The study used the household income, male income, and average wages as explanatory variables that eliminated the paradox. The paper analyzed the 48000 respondents from 1972 to 2004 in the United States. Mentzakis and Moro [21] noted that higher-income increases SWB but form a certain point of time, the level of happiness is decreased. The paper observed 50658 respondents in the age 16 and above in the UK, covered the period from1996 to 2003 and finding of this paper is supported to the Easterlin Paradox. Easterlin [22] surveyed in 1994 among 2627 respondents in the US and found that there is one universal nature among the people that they always think they were less happy in the past and will be happier in the future, but when their income is increased then their aspirations also increased together with income. It is caused that their experienced happiness is automatically different than their projected happiness due to the causes of material aspirations. Easterlin [23] revisited the previous Easterlin's findings and argued that if the level of income in the country is increased, but the happiness is not increased more than 10 years. This article criticized the opposite findings of the paradox and proved again paradox is remaining. The study is based on the survey was conducted among the 240000 respondents from 37 nations and the observations were from 1971 to 2005.

Diener [24] tried to dig out the reasons why and how happiness is associated with higher income including the basic needs, psychological needs and mentioned that income was a moderately strong predictor of life evaluation but a much weaker predictor of positive and negative feelings. They further highlighted that feeling is associated to fulfill the psychological needs. Diener et al. [25] conducted a survey among the

806526 respondents among the 135 nations covering the period from 2005-2011and examined the association between rising incomes in nations with increasing subjective well-being (SWB) and found that changes in household income are changed the life evaluations, positive feelings, and negative feelings. The paper further mentioned that the effect of gross domestic product (GDP) is positively associated with life evaluations but weak significant. Hagerty and Veenhoven [26] found that increasing national income *lead to increase* national level of happiness, but the short-term effect on happiness is larger than the long-term effect. Dluhosch et al. [27] accepted that the disputed nexus between income and happiness and found that subjective well-being significantly depends on income per capita , in low-income countries and unemployment-related distribution is more important as a determinant in high -income countries.

Clark et al. [28] analyzed the survey data named Germany Socioeconomic Survey conducted among the 368000 respondents from time series 1992-2012 in Germany and examined the relationship between poverty and subjective well-being and found three empirical relationships. First, life satisfaction falls if the increase in poverty. Second, those who have been poor in the past reported that they have lower life satisfaction today. Third, in conclusion, poverty influenced to reduce the well-being among the people. Easterlin [29] rechecked again paradox regained or lost and confirmed that in the long-term trends in happiness and real GDP per capita are not a significant positive association. He concluded that a higher long-term GDP growth rate is not statistically significant with the increase of happiness. The analysis was based on the World Value Survey conducted in 209 nations among the 400000 respondents from 1981 to 2010.

From the above literature, it could be concluded that after Easterlin, serious of studies have appeared in the field of happiness economics. These above pieces of the literature have indicated that there is a series debates and discussions about income and happiness relation, some of them are supportive of paradox and puzzles and some are opposite. Therefore it is still confusion and created the controversies what will be the policies implication from income-happiness paradox? The literature of paradox and puzzles demands more studies in the area of happiness economics.

2.2 Economic Growth and Inequality

The effect of economic growth on inequality has been studied since a century. Mawar et al. [30] discussed about some empirical evidence about the relation between economic growth and inequality and found that economic growth has a positive, negative and no relationship on inequality. According to the paper Kuznets (1955, 1963), Knowles (2001), Chen (2003), Alesina and Perotti (1996) and Su (2001) suggested that the growth has a negative impact on inequality. The Sala-i-Martin (2002), Forbes (2000) and Li and Zhou (1998) suggested that a positive relationship between growth and inequality and Deininger and Squire (1996), Chen and Ravallion (1997), Easterly (1999) and Dollar and Kraay (2002) suggested no relationship between growth and inequality. According to the [31] the higher level of happiness is not necessarily to be a higher level of wealthy people. The paper found that the negative association between GDP_{ppp} per capita and inequalities. Based on these empirical reviews, it is not still common understanding about the relationship between growth and inequality for policy implication.

2.3 Inequality and Happiness

Ngamaba et al. [32] noted that the previous studies about the relationship between inequality and happiness have reported positive, null and negative association. But, most of the studies between inequality and happiness have been suggesting that inequality and happiness has negative relationship. Wang et al. [33] found that the lower level of income inequality is positively associated the higher level of happiness. The paper is clearly mentioned the empirical literatures about inequality and happiness. According to the paper [34] found that income inequality is different and different level of income has different level of happiness. The paper noted that if the income inequality is higher, which ultimately leads the lower level of happiness. Hagerty [35] found that if income inequality is decreased then the national level of happiness is increased. Several authors [36-38] and [39] estimated negative relationship between inequality and happiness. But in contrast, some of the studies have found the positive association between inequality and happiness. Several authors [40] and [41] found the positive association between inequality and happiness. Helliwell [42] found that there is no relationship between inequality and happiness. The literature clearly indicated that there is not any common

finding about the relationship between inequality and happiness.

3. LITERATURE GAP, RESEARCH QUESTIONS AND CONTRIBUTIONS

After review the literature, it can be concluded that after 1970s, the many studies about the relationship between GDP growth, income, wealth and happiness have been conducted. The Richard Easterlin, has first created the income-happiness paradox in the field of happiness economics. He found that growth and income can't a positive association in the long run due to the increase of expectations and inequality among the people. After this study, there were huge literature in favor and opposite of the paradox. There is not an anonymous opinion among the researchers.

Based on the above literate review, I found that some studies are positive, some are negative and some are no association between growth and inequality and inequality and happiness. Therefore this study is also designed to estimate the relationship between economic growth, income with happiness and inequality to reexamine the relationship.

It contributed to measure the relationship between GDP growth and inequality and inequality and happiness, which tried to create one common opinion on the previous studies.

4. DATA AND EMPIRICAL FOUNDATION FOR RESEARCH HYPOTHESIS

Happiness is the main predicted variables (Y) and the economic growth, income and inequality are the main predictors in this paper. The paper used panel datafrom2008 to 2016 covered 120 countries and the data were derived and managed from World Bank dataset. In addition to this, some other variables country level income status, connectivity (sea and land), and continents are used in this study as binary (δ) variables.

Several articles published to support and critiques on the Easterlin's paradox. The paradox is revisited from sociological, psychological and economic aspects and investigated the negative and positive association between income and happiness. Veenhoven and Vergunst [43] studied the Easterlin paradox from the sociological perspectives and economic growth does not buy happiness for the average citizens and the paper mentioned that the paradox still holds. Oishi andDiener [44] has revisited the paradox from the Psychological perspectives and the paper found that the rising income is significantly associated with the subjective well-being and the findings of this paper is opposite of the paradox.

Sacks et al. [45] studied the paradox from the economic perspectives and investigated that the rising income is positively and statistically significant with subjective well-being. After a long series of the discussion, Easterlin himself published a paper entitled Paradox lost? He found that real GDP per capita is not positively associated with happiness in long run, his conclusion was that paradox is still regained [46]. These empirical foundation in the academic and research field of happiness study created the question about paradox is still persist or not. Based on above empirical foundation, the study designed the following hypothesis 1.

4.1 Hypothesis 1

The GDP growth and income has still paradoxical relation with happiness.

The above literature already told us that most of the researchers strongly argued that the increase of economic growth and income is supported to reduce the unequal distribution of wealth and income. But, the previous works of literatures indicated that some of the findings are positive and some of them are negative. Based on the literature, this study designed the following hypothesis 2.

4.2 Hypothesis 2

GDP growth and Income has positive relation with Inequality and negative association with inequality and happiness.

5. MODEL SPECIFICATION

Happiness is the explained variable of this paperand GDP growth, GDP per capita, and Gini index are main interested explanatory variables. Therefore to fulfill the above research questions and hypothesis, this paper designed the following econometric strategies to estimate the effect GDP per capita on happiness.

$$\mathcal{Y}\imath t = \beta oit + \beta 1 gdpgrowthit + \beta 2 gdpcapitait + \beta 3 giniit + \delta seait + \delta landit + \delta hiincomeit + \delta uminocmeit + \delta lomiincoemit + +\delta loincoemit + \delta safricait + \delta asiait + \delta europeit + \delta ausoceit + \delta namericait + \delta samericait + \mathcal{E}it \quad (1)$$

Where

$\mathcal{Y}\imath t = Happinessoftheith CountryinYeart$
$\beta oit = YIntercept$
$\beta 1 gdpgrowthit = GDPGrwothRateofIthCountryintimet$
$\beta 2 gdpcapitait = GDPpercapitaofithcontryintimet$
$\beta 3 giniit = HouseholdBasedGiniIndexoftheIth Countryintimet$
$\mathcal{E}it = Errors, Distrubances$

Based on the above econometric model, this study generated the following equations to estimate the relationship between explained and explanatory variables by using the dummy.

$$\mathcal{Y}\imath t = \beta oit + \beta 1 gdpgrowthit + \beta 2 gdpcapitait + \beta 3 giniit + \mathcal{E}it \quad (2)$$

$$\mathcal{Y}\imath t = \beta oit + \beta 1 gdpgrowthit + \beta 2 gdpcapitait + \beta 3 giniit + +\delta seait + \delta landit + \mathcal{E}it \quad (3)$$

$$\mathcal{Y}\imath t = \beta oit + \beta 1 gdpgrowthit + \beta 2 gdpcapitait + \beta 3 giniit + +\delta hiincomeit + \delta uminocmeit + \delta lomiincoemit + +\delta loincoemit + \mathcal{E}it \quad (4)$$

$$\mathcal{Y}\imath t = \beta oit + \beta 1 gdpgrowthit + \beta 2 gdpcapitait + \beta 3 giniit + +\delta safricait + \delta asiait + \delta europeit + \delta ausoceit + \delta namericait + \delta samericait + \mathcal{E}it \quad (5)$$

6. ESTIMATION STRATEGY

Before selection of the proper estimation strategy, the study tested the multicollinearity, heteroscedasticity and Hausman test. The test found the sever collinarity and no found heteroscadasticity problem. The Hausman test has given the option to choose between fixed and random effect estimation method and the estimated (p= 0.00) indicated to choose the fixed effect. Thepaper checked the endogeneity problem and found the omitted and missing variables, after this it is concluded that the modelviolets the OLS estimation method and select the fixed effect estimation method, 2SLS (FD) and GMM estimation techniques.

7. FINDINGS AND DISCUSSION

7.1 Easterlin Paradox and Debate on Its Paradoxical Relation

The following Table 1 presents that the relationship between GDP per capita and GDP growth rate and wealth and income inequality (Gini index) on happiness. Several studies have done the association between income and happiness. Some of them are supported to the Easterlin paradox and some research findings are opposite of the paradox. Beja [47] found the contradiction between the short-run evidence of the positive income-happiness relationship and in the long run zero income-happiness relationships. The finding of this paper is against the scenario of paradox.

As indicated by the p-values of the Wald test Chi2 (154.90) and (p = 0.00) in model 1 have indicated significance value of the parameters and F test 7.01 (0.0001) has given the result of best fit of data. Similarly, the Hausman test Chi2 (42.16) and (p= 0.00) has indicated to choose the fixed effect estimation method. The Wald test Chi2 (154.90) and (p= 0.00) in random estimation method and Chi2 (6987.27) and (P=0.00) in LDPD estimation method indicated the significance of the parameters and the Sargen statistics Chi2 (73.94) and (p = 0.220) has indicated that the significance of the model.

The study found that there is a positive relationship between GDP per capita and happiness. All estimation methods, FE, RE, and LDPD found the positive association between GDP per capita and happiness. The estimation method of model 1, the Linear Dynamic Panel Data estimation method (LDPD) estimated the happiness coefficient is (3.96e-05***) which is a strong positive association at 0.01 % significance level. Similarly, Random Effects estimated the very strong positive association at the same level but in the Fixed Effects estimation method only found a positive association between GDP per capita at 0.05 % insignificant level. The detail is presented in the following Table in model 1.

Using the binary variables (sea and land linked countries) in model 2 estimated the positive association between GDP per capita by Sea linked countries and found the coefficient (0.513***), which is very strong positive association at 0.01% significance under the LDPD estimation method. Following the LDPD estimation method, the Random Effects also

estimated the coefficient (0.443***) in the same way. The result in model 2 indicated that the explanatory variable GDP per capita has very strong positive association with happiness in sea linked countries. Based on the findings it can be concluded that the people in sea linked countries have become happier than land linked countries.

The result of this study indicated both positive and negative association between GDP growth rate and happiness. In model 2, GDP growth and happiness has a positive relationship in fixed effect estimation method, the coefficient is (0.00652*) and it is only significant at 0.1% significant level and RE estimation method found that the positive association but statistically insignificant. The result indicated that the negative association between two variables under the estimation method of LDPD which is also insignificant.

The model 2 estimated the negative association between two variables and the coefficients presented in the tables are significant at 0.01% level under all estimation. In model 3, using the sea linked and land linked dummy variables also found the same trends, the coefficient presented in the following tables, all are a negative association and significant at 0.01 percent level of significance. The details are presented in the following Table 1.

7.2 Growths and Income Effect on Happiness by Country Income and Continents

The paragraph deals the estimation between GDP growth and income effect on happiness by using the binary variables country income status (higher, upper middle, lower middle, and low-income countries) in model-3. The study estimated the positive association between GDP per capita and happiness. But the binary variable, which is used in this model, indicated that the people in higher income countries are happier than the lower income-based countries which indicated by both LDPD and RE estimation method. The estimating coefficient in model 3 indicated that the people in the lower income counties are happier than the people in upper-middle-income countries and lower-middle-income countries.

In model 4, the dummy variables, the continent (Africa, Asia, Australia and Oceania, Europe, North America, and South America) are used as the explanatory variables along with the GDP per capita, growth and Gini and found that the African people are less happy than the people of other continents. The estimating results in LDPD indicated that the people in Australia and Oceania have become happier than other continents. The RE estimation method indicated that the people in South American people are happier than the people of other continents, then people of Australia and Oceania become happier. The random effects estimation method indicated that European people are less happy than the people of other continents except for Asia and Africa. The Asian people are less happy than other continents except for Africa. But the result in the LDPD estimation method is different which found that the European people are happier than the people of other continents expect Austria and Oceania. The findings of this study are fully supported to the Easterlin paradox. The details are presented the following Table 2.

7.3 Relationship between GDP Growth and Happiness by Continents

The following chart is helpful to analyze the relationship between GDP growth and happiness. The growth can't contribute to increasing the level of happiness among the people. This study proves that the mean GDP growth of Africa is more than other continents but the level of happiness is less in that region. The GDP growth rate is near about one percent in Australia but the level is happiness is high. This rule is implemented in the European continents too. Therefore, we concluded that the GDP growth couldn't alone contribute to increasing the level of happiness. The following presented Fig. (1) has also proved this statement.

7.4 GDP Growth and Inequality

The paper estimated the GDP growth and unequal distribution of wealth and income and found the slope of the fitted regression line indicated the moderate positive linear relationship between GDP growth and inequality. The findings proved that increasing of economic growth contributed to increasing income and inequality at the same time.

7.5 GDP per Capita and Happiness

This study estimated the relationship between GDP per capita and happiness by the scatter plot. In the following scatter plot presented GDP

Table 1. Effects of GDP per capita, growth, and inequality on happiness by sea and land linked countries

Variables	Model 1 (Happiness)			Model 2 (Happiness)		
	FE	RE	LDPD	FE	RE	LDPD
GDP Per Capita	6.33e-06	2.92e-05***	3.96e-05***	6.33e-06	2.77e-05***	3.71e-05***
	(4.40e-06)	(2.56e-06)	(5.52e-07)	(4.40e-06)	(2.62e-06)	(7.43e-07)
GDP Growth Rate	0.00652*	0.00330	-9.46e-06	0.00652*	0.00384	0.000149
	(0.00363)	(0.00364)	(0.00297)	(0.00363)	(0.00364)	(0.00294)
Gini Index	-0.823***	-0.940***	-1.976***	-0.823***	-0.924***	-1.762***
	(0.213)	(0.208)	(0.282)	(0.213)	(0.208)	(0.282)
Land Linked				-	-	-
Sea Linked					0.443***	0.513***
					(0.169)	(0.102)
Constant	5.778***	5.485***	5.783***	5.778***	5.135***	5.306***
	(0.114)	(0.118)	(0.125)	(0.114)	(0.178)	(0.156)
Observations	1,079	1,079	1,079	1,079	1,079	1,079
R-Squared	0.022			0.022		

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*
(Note: The Author creates the Table)

Table 2. Effects of GDP growth, per capita and inequality on happiness by continents and income status

Variables	Model 3			Model 4		
	FE	RE	LDPD	FE	RE	LDPD
GDP Per	6.32e-06	1.90e-05***	2.43e-05***	6.33e-06	2.84e-05***	3.11e-05***
Capita	(4.40e-06)	(3.13e-06)	(1.61e-06)	(4.40e-06	(2.37e-06)	(1.11e-06)
GDP Growth	0.00651*	0.00561	0.00952***	0.00652*	0.00456	-0.000900
	(0.00363)	(0.00363)	(0.00297)	(0.00363	(0.00363)	(0.00306)
Gini Index	-0.823***	-0.767***	0.543*	-0.823***	-0.849***	-1.006***
	(0.214)	(0.206)	(0.325)	(0.213)	(0.207)	(0.370)
High Income						
Upper M.	-0.0641	-1.508***	-1.040***			
Income	(0.386)	(0.201)	(0.138)			
Lower M.		-0.862***	-1.413***			
Income		(0.180)	(0.125)			
Lower Income		-0.446***	-0.0844			
		(0.164)	(0.0794)			
Africa		-	-			
Asia					0.638***	-0.751***
					(0.140)	(0.160)
Aus and					1.591***	3.514***
Oceania					(0.393)	(0.255)
Europe					0.823***	0.636***
					(0.149)	(0.114)
N. America					1.371***	
					(0.188)	
S. America					1.685***	0.00319
					(0.193)	(0.163)
Constant	5.787***	6.097***	5.404***	5.778***	4.717***	4.442***
	(0.126)	(0.168)	(0.135)	(0.114)	(0.148)	(0.206)
Observations	1,079	1,079	1,079	1,079	1079	1079
R-Squared	0.022			0.022		

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

per capita in horizontal line (X-axis) and Happiness in vertical line (Y-axis). The GDP per capita is 3rd interested explanatory variables to estimate happiness of this study.

In the following scatter-plot, the fitted regression line show positive slope between GDP per capita and happiness. Therefore, this study concluded that there is positive association between GDP per capita and happiness. The association between GDP per capita and happiness is presented in the following Fig. 2.

7.6 GDP Growth and Inequality

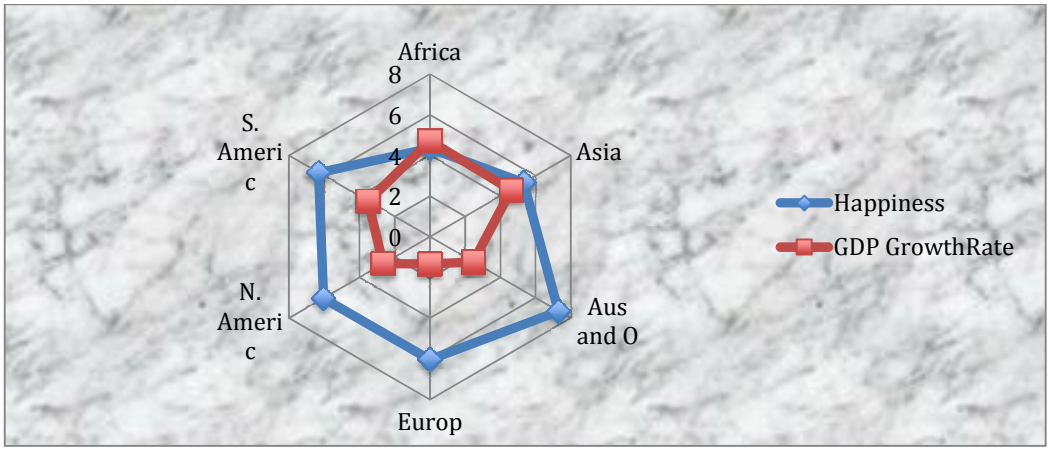
This study estimated the GDP growth and unequal distribution of wealth and income and found the slope of the fitted regression line indicated the moderate positive linear relationship between GDP growth and inequality. The findings proved that increasing of economic growth contributed to increasing income and inequality at the same time.

7.7 Inequality and Happiness

Oishi et al. [44] published a research report using General Survey data from 1972 to 2008 and they found that Americans were average happier in the years of less income inequality than the years with more national income inequality. They further found that the inverse association between income inequality and happiness. They mentioned in their paper the negative association income inequality and happiness among lower-income respondents but not higher income respondents.

The Gini index, which is used as an explanatory variable, indicated the unequal distribution of wealth and income in the household level. The

study estimated the relation between income inequality and happiness and the slope of the fitted regression line indicated the negative association between the Gini index and happiness. The detail relation is presented in the following chart.



Continent	Happiness (Mean)	GDP Growth Rate (Mean)
Africa	4.3573901	4.7213548
Asia	5.338875	4.6072235
Aus and O	7.3073842	2.4638562
Europe	6.029213	1.3339638
N. America	6.034592	2.6456466
S. America	6.3128824	3.5037929

Fig. 1. Relation between GDP growth and happiness over continents
(Note: The Author creates the Chart)

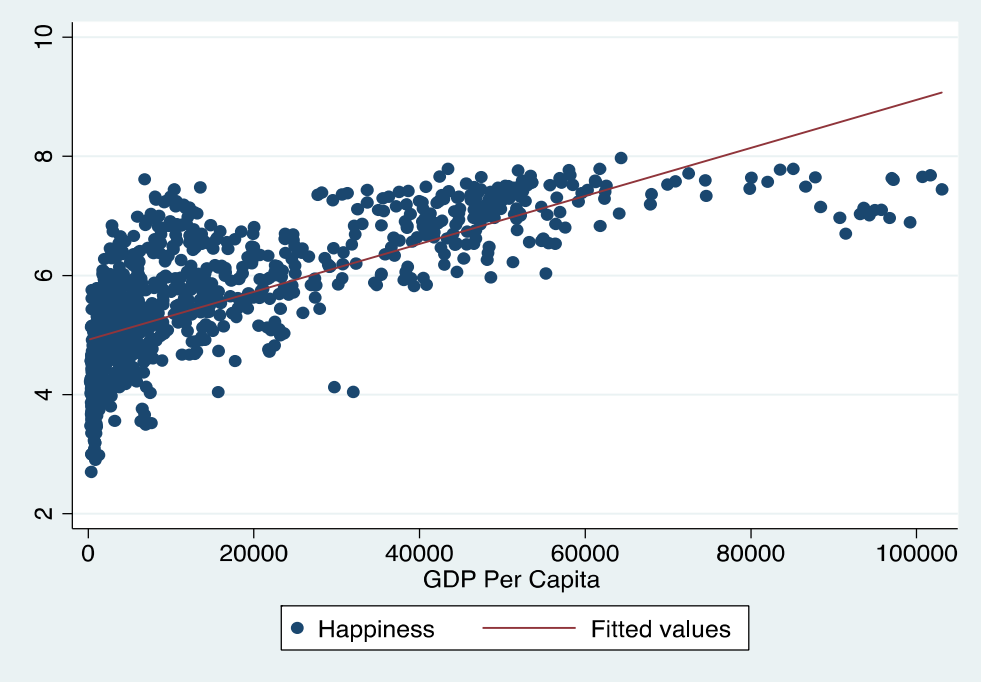


Fig. 2. The effects of GDP per capita on happiness
(Note: Author creates the Chart)

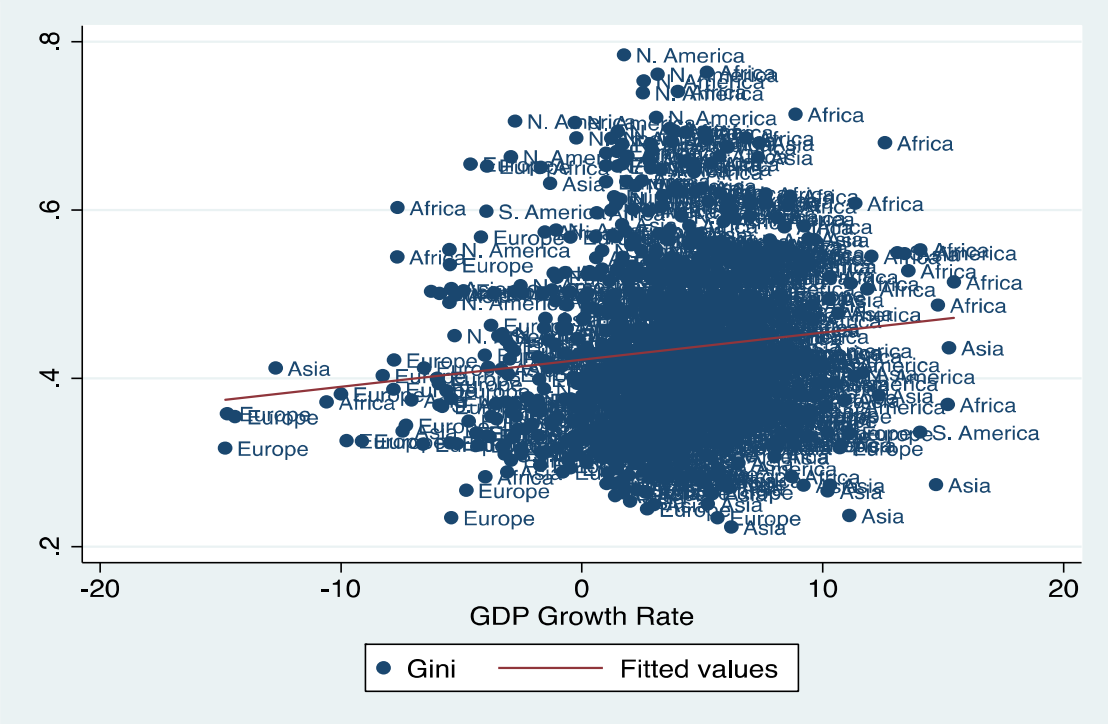


Fig. 3. Relations between GDP growth and inequality
(Note: The Author creates the Chart)

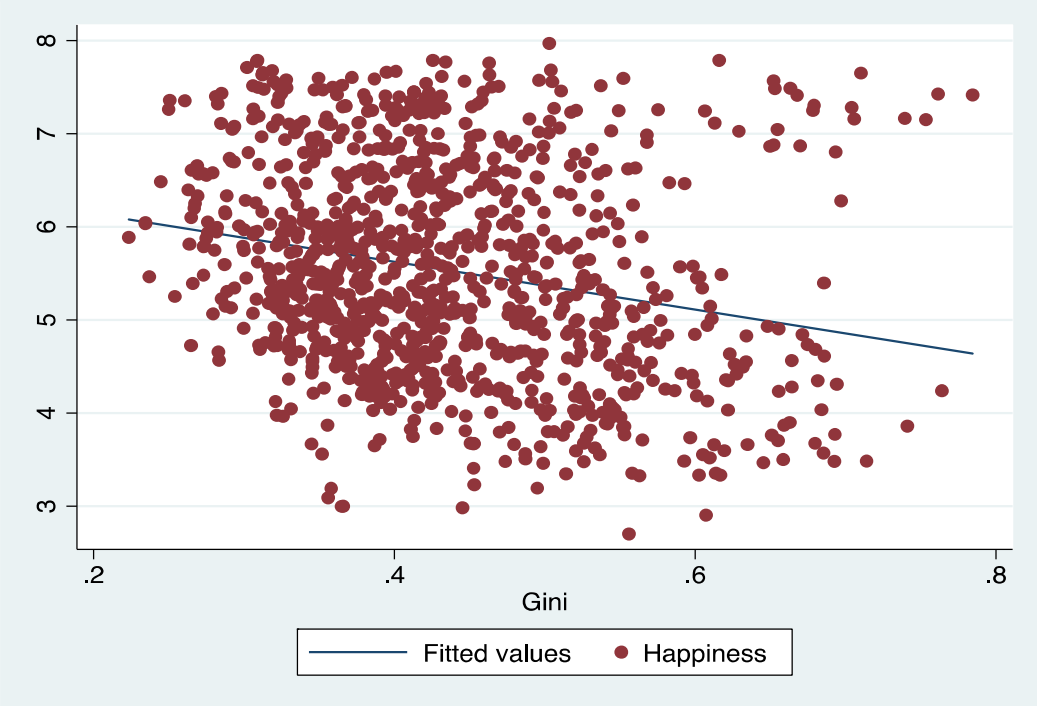


Fig. 4. Relations between income inequality and happiness
(Note: The Author creates the Chart)

8. CONCLUSION AND POLICY IMPLICATIONS

The happiness study is discussed increasingly not only in academic arenas but also the policy debate about it is increased among the policy makers and planners. Happiness is considered one of the major goals of individuals and nations. Every government of any country wants to increase their economic growth and per capita for the socio-economic development of the country and gain the popularity from the people. Along with this, every government wants to increase the level of happiness among the people. But, these two things can't go together in the long run. The study indicated that the economic growth contributed to increase the level of happiness along with inequalities. The income factors contributed to increase the aspirations among the people. It is the one reason to create the unhappiness among the people. Therefore, this paper strongly recommends that every government to adopt the happiness measures in their programs and policies rather than the income measures. The GDP factors can't consider the green GDP which is the opposite of the individuals and the national level of happiness. The GDP along can't contribute to increasing the level of happiness among the people and average happiness life of the nations, therefore, it is need to adjust the ecological and environmental degradations aspects in policies and programs. The government should be developed to minimizing inequality strategies with increasing strategies of economic growth and per capita. If they don't consider to minimizing inequalities among the people, it creates the huge gap between poor and rich, it may cause of conflicts among the people which creates the unhappiness among the people.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Alatartseva E, Barysheva G. Well-Being: Subjective and objective aspects. Procedia-Social and Behavioral Sciences. 2015;166:36-42.
2. Lane T. How does happiness relate to economic behaviour? A review of the literature. Journal of Behavioral and Experimental Economics. 2017;68:62-78.
3. Cobb C, Halstead T, Rowe J. If the GDP is up, why is America down? ATLANTIC-BOSTON-. 1995;276:59-79.
4. Stiglitz JE, Sen A, Fitoussi J-P. Mismeasuring our lives: Why GDP doesn't add up. The New Press; 2010.
5. Oswald AJ. Happiness and economic performance. The Economic Journal. 1997;107(445):1815-1831.
6. Stevenson B, Wolfers J.Economic growth and subjective well-being: Reassessing the Easterlin paradox. National Bureau of Economic Research; 2008.
7. Despotis D. Measuring human development via data envelopment analysis: The case of Asia and the Pacific. Omega. 2005;33(5):385-390.
8. Van den Bergh JC. The GDP paradox. Journal of Economic Psychology. 2009; 30(2):117-135.
9. Costanza R, et al. Beyond GDP: The need for new measures of progress. The Pardee Papers; 2009.
10. Bakker A, Creedy J. Macroeconomic variables and income inequality in New Zealand: An exploration using conditional mixture distributions. New Zealand Economic Papers. 1999;33(2): 59-79.
11. Muller JZ. Capitalism and inequality: What the right and the left get wrong. Foreign Aff. 2013;92:30.
12. Wood EM. The origin of capitalism: A Longer View. Verso; 2002.
13. Lepenies P. Happiness and Inequality: Insights into a Difficult Relationship–and Possible Political Implications; 2012.
14. Frank R. Falling behind: How rising inequality harms the middle class. Univ of California Press. 2013;4.
15. Goerke L, Pannenberg M. Direct evidence for income comparisons and subjective well-being across reference groups. Economics Letters. 2015;137:95-101.
16. Antolini F, Simonetti B. The Easterlin Paradox in Italy, or the Paradox in Measuring? Define Happiness Before Investigating It. Social Indicators Research. 2019;146(1):263-285.
17. Easterlin RA. Does economic growth improve the human lot? Some empirical evidence, in Nations and households in economic growth. Elsevier. 1974;89-125.
18. Ferrer-i-Carbonell A. Income and well-being: An empirical analysis of the

comparison income effect. Journal of Public Economics. 2005;89(5):997-1019.
19. Hayo B. Happiness in transition: An empirical study on Eastern Europe. Economic Systems. 2007;31(2):204-221.
20. Fischer CS. What wealth-happiness paradox? A short note on the American case. Journal of Happiness Studies. 2008; 9(2):219-226.
21. Mentzakis E, Moro M. The poor, the rich and the happy: Exploring the link between income and subjective well-being. The Journal of Socio-Economics. 2009;38(1): 147-158.
22. Easterlin RA. Income and happiness: Towards a unified theory. The Economic Journal. 2001;111(473):465-484.
23. Easterlin RA. et al. The happiness–income paradox revisited. Proceedings of the National Academy of Sciences. 2010; 107(52):22463.
24. Diener E, et al. Wealth and happiness across the world: Material prosperity predicts life evaluation, whereas psychosocial prosperity predicts positive feeling. Journal of Personality and Social Psychology. 2010;99(1):52-61.
25. Diener E, Tay L, Oishi S. Rising income and the subjective well-being of nations. Journal of Personality and Social Psychology. 2013;104(2):267.
26. Hagerty MR, Veenhoven R. Wealth and happiness revisited – Growing National Income Does Go with Greater Happiness. Social Indicators Research. 2003;64(1):1-27.
27. Dluhosch B, Horgos D, Zimmermann KW. Social choice and social unemployment-income cleavages: New insights from happiness research. Journal of Happiness Studies. 2014;15(6):1513-1537.
28. Clark AE, D'Ambrosio C, Ghislandi S. Poverty profiles and well-being: Panel evidence from Germany, in Measurement of poverty, deprivation, and economic mobility. Emerald Group Publishing Limited. 2015;1-22.
29. Easterlin RA. Paradox Lost? Review of Behavioral Economics. 2017;4(4):311-339.
30. Mawar MY, Mahyideen JM, Saidon R. Economic growth and income inequality. in Proceeding of the 2nd International Conference on Management and Muamalah, 16th; 2015.
31. Tavor T, et al. The effects of income levels and income inequalities on happiness. Journal of Happiness Studies. 2018;19(7): 2115-2137.
32. Ngamaba KH, Panagioti M, Armitage CJ. Income inequality and subjective well-being: A systematic review and meta-analysis. Quality of Life Research. 2018; 27(3):577-596.
33. Wang P, Pan J, Luo Z. The impact of income inequality on individual happiness: Evidence from China. Social Indicators Research. 2015;121(2):413-435.
34. Morawetz D, et al. Income distribution and self-rated happiness: Some empirical evidence. The Economic Journal. 1977; 87(347):511-522.
35. Hagerty MR. Social comparisons of income in one's community: Evidence from national surveys of income and happiness. Journal of Personality and Social Psychology. 2000;78(4):764.
36. Graham C, Felton A. Inequality and happiness: Insights from Latin America. The Journal of Economic Inequality. 2006; 4(1):107-122.
37. Harper JW, Elledge SJ. The DNA damage response: ten years after. Molecular cell. 2007;28(5): 739-745.
38. Verme P. Life satisfaction and income inequality. The World Bank; 2011.
39. Ferrer□i-Carbonell A, Ramos X. Inequality and happiness. Journal of Economic Surveys. 2014;28(5):1016-1027.
40. Tomes N. Income distribution, happiness and satisfaction: A direct test of the interdependent preferences model. Journal of Economic Psychology. 1986;7(4):425-446.
41. Clark A. Inequality-aversion and income mobility: A direct test. Citeseer; 2003.
42. Helliwell JF. How's life? Combining individual and national variables to explain subjective well-being. Economic modelling. 2003;20(2):331-360.
43. Veenhoven RR, Vergunst F. The Easterlin illusion: Economic growth does go with greater happiness. International Journal of Happiness and Development. 2014;1(4): 311-343.
44. Oishi S, Kesebir S, Diener E. Income inequality and happiness. Psychological Science. 2011; 22(9):1095-1100.
45. Sacks DW, Stevenson B, Wolfers J. The new stylized facts about income and

subjective well-being. Emotion. 2012; 12(6): 1181.
46. Easterlin RA. Paradox lost? USC-INET Research Paper. 2016(16-02).
47. Beja EL. Income growth and happiness: Reassessment of the Easterlin Paradox. International Review of Economics. 2014;61(4):329-346.

ANNEXES

Table 3. Distribution of the Countries over Continent

Continent	Country
Africa	Algeria, Benin, Botswana, Burkina Faso, Cameroon, Chad, Egypt, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Tunisia, Uganda, Zambia, Zimbabwe
Asia	Armenia, Azerbaijan, Bahrain, Bangladesh, Cambodia, China, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Saudi Arabia, Singapore, Sri Lanka, Tajikistan, Thailand, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam, Yemen
Europe	Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Croatia, Cyprus, Czech, Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia. Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom
Australia and Oceania	Australia, New Zealand
North America	Canada, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, United States
South America	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Paraguay, Peru, Uruguay, Venezuela

Table 4. Distribution of the Countries over Connectivity

Land Linked	Botswana, Burkina Faso, Chad, Malawi, Mali, Niger, Uganda, Armenia, Azerbaijan, Kazakhstan, Mongolia, Nepal, Tajikistan, Turkmenistan, Uzbekistan, Macedonia, Moldova, Bolivia, Paraguay, Zambia, Zimbabwe
Sea Linked	Algeria, Benin, Cameroon, Egypt, Ghana, Kenya, Liberia, Madagascar, Mauritania, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Tunisia, Bahrain, Bangladesh, Cambodia, China India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kuwait, Kyrgyzstan, Lebanon, Malaysia, Pakistan, Philippines, Saudi Arabia, Singapore, Sri Lanka, Thailand, United Arab Emirates, Vietnam, Yemen, Australia, New Zealand, Albania, Austria, Belarus, Belgium, Bosnia, and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, Canada, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, United States, Argentina, Brazil, Chile, Colombia, Costa Rica, Peru, Uruguay, Venezuela

Table 5. Distribution of the countries over income status

Income Status	Countries
High-Income Status	Australia, Austria, Bahrain, Belgium, Canada, Chile, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Kuwait, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Saudi Arabia, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Arab Emirates, United Kingdom, United States, Uruguay
Upper Middle Income Countries	Albania, Algeria, Argentina, Azerbaijan, Belarus, Bosnia and Herzegovina, Botswana, Brazil, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Georgia, Iran, Iraq, Jordan, Kazakhstan, Lebanon, Macedonia, Malaysia, Mexico, Montenegro, Panama, Paraguay, Peru, Romania, Russia, Serbia, Thailand, Turkey, Turkmenistan, Venezuela
Lower Middle Income Countries	Armenia, Bangladesh, Bolivia, Cambodia, Cameroon, Egypt, El Salvador, Ghana, Guatemala, Honduras, India, Indonesia, Kenya, Kyrgyzstan, Mauritania, Moldova, Mongolia, Nicaragua, Nigeria Pakistan, Philippines, Sri Lanka, Tajikistan, Tunisia, Ukraine, Uzbekistan, Vietnam, Yemen, Zambia
Lower Income Countries	Benin, Burkina Faso, Chad, Haiti, Liberia, Madagascar, Malawi, Mali, Nepal, Niger, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Uganda, Zimbabwe

Threshold	GNI Per Capita (current US&)
Low Income	< 1,005
Lower Middle Income Countries	1,006-3,955
Upper Middle Income Countries	3,955-12,235
High Income Countries	>12,235

Source: Country Classifications by income level: 2017 – 2018, World Bank

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle4.com/review-history/56245