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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

ECONOMIC DETERMINANTS OF LIFE SATISFACTION FOR DEVELOPING COUNTRIES: CASE OF BRICS-T

GELİŞMEKTE OLAN ÜLKELERDE YAŞAM MEMNUNİYETİNİN EKONOMİK BELİRLEYİCİLERİ: BRICS-T ÖRNEĞİ

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Abstract

Governments want to provide a better life for their citizens all over the world. It is common thinking that people living in a country with a higher GDP, have a higher life satisfaction level. Richard Easterlin firstly challenged this idea, supporting that increases after a certain point in GDP are meaningless for people in developed countries. There are many studies that both support and criticize this idea, called "Easterlin Paradox". This study aims to examine Easterlin Paradox in developing countries and determine the economic determinants of life satisfaction. BRICS-T countries namely Brazil, Russia, India, China, South Africa and Turkey are selected as proxies for emerging economies. GDP per capita, inflation and unemployment are used as variables. Study results show that GDP has still an important role in life satisfaction in developing countries. However, it is not the only determinant to specify. Our empirical model shows that GDP and inflation have a positive effect on life satisfaction whereas unemployment has a negative effect. Since developing countries have different characteristics from developed countries, it can be said that Easterlin paradox is not so valid. According to study results, governments of developing countries should try to increase GDP while decreasing unemployment.

Keywords: Life Satisfaction, Public Economics, Economic Indicators, Panel Data Analysis.

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Öz

Hükümetler dünyanın her yerine vatandaşlarına daha iyi bir yaşam sunmak isterler. Yüksek GSYİH'ya sahip bir ülkede yaşayan insanların daha yüksek yaşam memnuniyetine sahip olduğu yaygın bir düşüncedir. İlk olarak Richard Easterlin bu fikre karşı çıkmış ve gelişmiş ülkelerde GSYİH'de yaşanan artışların bir noktadan sonra insanlar için anlamsız hale geldiğini savunmuştur. Easterlin Paradoksu olarak adlandırılan bu düşünceyi savunan ve eleştiren çok sayıda çalışma bulunmaktadır. Bu çalışma Easterlin Paradoksu'nu gelişmekte olan ülkelerde sınamayı ve yaşam memnuniyetinin ekonomik belirleyicilerini saptamayı amaçlamaktadır. Gelişmekte olan ülkeleri temsilen BRICS-T (Brezilya, Rusya, Hindistan, Çin, Güney Afrika, Türkiye) seçilmiştir. Değişkenler olarak kişi başı GSYİH, enflasyon ve işsizlik kullanılmıştır. Çalışmanın sonuçları gelişmekte olan ülkelerde GSYİH'nin halen yaşam memnuniyetinde önemli bir rolü olduğunu göstermektedir ancak tek belirleyici değildir. Ampirik modelimiz yaşam memnuniyetinde GSYİH ve enflasyonun pozitif etkisi bulunmaktayken, işsizliğin negatif etkisi olduğunu göstermektedir. Gelişmekte olan ülkelerin gelişmiş ülkelerden farklı özellikleri olması dolayısıyla Easterlin Paradoksu geçerli görünmemektedir. Çalışmanın sonuçlarına göre gelişmekte olan ülke hükümetleri GSYİH'yi artırırken, işsizliği düşürmeye çalışmalıdırlar.

Anahtar Kelimeler: Yaşam Memnuniyeti, Kamu Ekonomisi, Ekonomik Göstergeler, Panel Veri Analizi

1. Introduction

Governments across the world aim to provide full employment, price stability, economic growth, redistribution of income and stability of balance of payments for their citizens. On the other hand, Köstler and Ossewaarde (2021) support that governments' main aim is to protect their hegemonic position. As all organisms fight to survive instinctively, we can generalize this assumption to governments too. Since politicians want to keep their position, they work for keeping the population supporting them. Governments can provide this support by rising the welfare of population. When we think of these two ideas together, governments can raise the welfare by providing full employment, price stability, economic growth, redistribution of income and stability of balance of payments, however, in present global economic situation, making all of these aims real at the same time is extremely hard. So governments try to find the optimal condition which makes their citizens' life satisfaction maximum. For this reason, economic determinants of life satisfaction are studied more day by day by scientists.

Life satisfaction is a hot subject for scholars. In the literature, there are different approaches to life satisfaction including variables and country selection. We selected BRICS-T countries, namely Brazil, Russia, India, China, South Africa and Turkey for this study. BRICS is firstly used by Goldman Sachs Investment Bank report called "Building Better Global Economic BRICs" in 2001 as BRIC. This four country –Brazil, Russia, India, China– was shown as representatives of emerging economies all over the world although they have no trade association or integrated economic union at that time. After this term is used widely, Goldman Sachs published two more reports about BRIC: "Dreaming with BRICs: The Path to 2050" (Wilson and Purushothaman, 2003) and "Brics and Beyond" (Goldman Sachs, 2007) (de Araujo, de Araujo and Bruno, 2013, 20). These countries have important

common traits such as having large populations, having large consumer potential, supplying abundant natural resources, and being the major destination of foreign direct investments (Vijayakumar, Sridharan and Rao, 2010, 2). On the other hand, these countries are not sufficient in terms of foreign currency flow and economic stability, so they are exposed to the global fluctuations more than average which makes these economies vulnerable. These similar properties made these countries work together and they began to come together in 2009. After that, in 2010 South Africa is added to this block and took the final form of BRICS (Aşcı, 2019, 40). According to United Nations data for 2020, BRICS countries have 41 % of the world population, 25 % of GDP, 26 % of the world surface (UN, 2020). Turkey is similar with BRICS countries in terms of young and large population, rich natural sources and vulnerable economy, so we added Turkey to the study.

In this study, our aim is not only to investigate whether economic growth rises life satisfaction, but also in which conditions it is effective for developing economies. For this purpose, we use GDP per capita, inflation, unemployment as independent variables. We use data taken from World Bank for the period 2009-2018. In the first part of the study, we explain life satisfaction, relationship between life satisfaction and economic growth, by making the contact with Easterlin paradox. Then we mention about methodology and models in the second part of the study. In the next part we present the models and results and we discuss the results in the final part.

2. Literature Review

Aristotle emphasizes that happiness is the ultimate end and the purpose of human existence (Guan, Eam and Yuan, 2020, 367). That's why human beings work to be happier throughout their lives. While more money means happiness for someone, faith, togetherness or something like that can be the source of happiness for any other person. Psychologists have been studying on this question for ages. When we take this question to the population level, the question "what makes society happy" arises. In the literature, it can be seen that there is an increasing interest in adolescent life satisfaction among scholars in recent years (Guan, Eam and Yuan, 2020, 367).

Life satisfaction is perceived as especially important for governments and politicians. Governments and other institutions which are concerned with economic policies, can rise and fall, depending on the economic prosperity of society (Diener and Biswas-Diener, 2002, 122). Therefore, relation between economic situation and life satisfaction is the object of interest. This can be seen as the reason for the increase in life satisfaction studies.

The term life satisfaction can be seen as used for happiness, quality of life and subjective well-being in different studies (Stevenson and Wolfers, 2008, 4). Although each of these concepts has subtle differences in meaning, these terms are used interchangeably in the literature (Levin and Currie, 2014, 1049). There are some different definitions for the concept of life satisfaction. While Mikucka, Sarracino and Dubrow (2017) define life satisfaction as the people's ability to fulfill the basic needs, Diener et. al. (2010) describe as people's quality of life based on chosen criteria. According to

Muilenburg-Trevino, Pittman and Holmes (2012), life satisfaction is based on standards that people individually set for themselves. Also, Luechinger and Raschky (2009) argue that life satisfaction scores, which refer to people's present life evaluations, not only show the stability of respondents' inner states but also the current effect on people in the population.

Although life satisfaction has become a major topic for scientists, it is obvious that it is very difficult to measure. For this measurement, Cantril Ladder is one of the most popular methods used. The Cantril Ladder, which was proposed in 1965 firstly, also known as Cantril's Self-Anchoring Ladder of Life Satisfaction, measures life satisfaction by asking the participants to imagine their possible best life, including their hopes and future, and rate the actual situation (Levin and Currie, 2014, 1049). Deaton (2018) supports that Cantril Ladder is obviously useful to interpret the welfare and distribution with his study.

Studies on the relationship between life satisfaction and economic developments are mainly focused on income. In this dimension, GDP is the most used indicator for countries as a proxy of income. Also, GDP is used as the representative of economic growth. (Firebaugh and Goesling, 2004, 284; Mikucka, Sarracino and Dubrow, 2017, 451). From this perspective, Easterlin's studies can be seen as a milestone. Contrary to the thought of the more income the more happiness, Easterlin reaches different results. Easterlin (1974) argues that richer populations tend to be happier than poorer populations, however average happiness of a society does not change even if income per capita increases for most of the population. This is called Easterlin Paradox. Clark et. al. (2008) expound Easterlin paradox as average life satisfaction remains constant over time even dramatic rises in GDP per head occur after a certain point. Similarly, Guan, Eam and Yuan (2020) support that income and happiness relation is insignificant over time according to Easterlin Paradox.

Studies measuring the relationship between income and life satisfaction is concentrated around the Easterlin Paradox. While some studies support the paradox, others try to show evidence against Easterlin. Even among the supporters of the paradox, two different interpretations exist (Cohen Kaminitz, 2020, 3). The first group, which measures effect of GDP improvement on life satisfaction, argues that income has little impact on happiness (Diener and Seligman, 2004; Layard, 2005; Oswald, 1997; Stevenson and Wolfers, 2008). On this point Stevenson and Wolfers (2008) state that if economic growth or GDP increase is ineffective in social welfare, then it should not be the primary goal of government, and if so what should be the goal of government to make the population happy? On the other hand, the second group mentions that this results endorsing the paradox is the best result of how problematic is the happiness approach is (Fleurbaey and Blanchet, 2013, 173).

As well as supporting the paradox, there are many studies against the paradox. Veenhoven and Hagerty (2006), one of the most opposed, point out a positive correlation between economic growth and life satisfaction. Similarly, Clark et. al. (2008) argue that this correlation produces a significant positive coefficient. Guan, Eam and Yuan (2020) find a positive association between life satisfaction and GDP growth for the majority of countries with average happiness and Stevenson and Wolfers

(2008) find a linear relationship between life satisfaction and the log of GDP. Also, Ferrer-i-Carbonell (2005) finds that even if income does not have a big effect on life satisfaction, it is more significant than other variables.

Besides the relationship between GDP and life satisfaction, in which conditions the relationship affects positively or negatively, or what makes it more binding, are also studied topics by social scientists. These researches mainly come from the idea that if growth does not bring happiness, what policy conclusions should be followed (Layard, 1980, 737). When the literature is investigated, it is seen that these studies are mostly done in developed and richer countries. In one of these studies Lane (2000) indicates that while real income per capita almost doubles in US during the late 1900s, happiness shows no trend at all. Even though, the better living condition, the happier society, some studies show that this is all about meeting basic needs (Muilenburg-Trevino, Pittman and Holmes, 2012, 315). So the relationship between economic developments and life satisfaction in developing countries still remains an object of interest.

Durkheim (1933) emphasizes that rapid social changes have great influences on people's mental situation and generally bring them depression and anomic attitudes which end up with a dramatic decrease in overall life satisfaction (Brockmann et al., 2009, 4). From this perspective, economic growth can mean something different for developing countries. The life satisfaction literature has some opponent views against the idea of fast economic growth will lead to happier population (Appleton and Song, 2008, 2329).

Organization for Economic Co-operation and Development (OECD, 2008) reports that over the last 20 years in many countries which have economic growth and an expanding GDP, there is also increasing income inequality, declining social capital and decreasing life satisfaction (Mikucka, Sarracino and Dubrow, 2017). This becomes a new issue of concern for social scientists. Oishi, Kesebir and Diener (2011) argue that average life satisfaction is lower in more unequal societies. On the other hand, Iniguez-Montiel (2014) indicates that reducing income inequality increases life satisfaction by decreasing poverty within the society. Clark, D'Ambrosio and Ghislandi (2015) support that when economic growth is accompanied by increasing inequality, this situation makes a negative effect on average life satisfaction. Guan, Eam and Yuan (2020) prove that life satisfaction is affected by each of economic variables including GDP, GDP growth and inflation.

In this study, we try to explain the effect of economic growth and inequality on life satisfaction in developing countries. Also, we added inflation as a proxy for economic stability, since our studied countries have vulnerable economies which differentiate them from developed countries.

3. Methodology and Data

There are some limitations to studies on the relationship between economy and life satisfaction. Firstly, measuring these variables or finding a proper proxy for them is very difficult. As mentioned in the former

part of the study, Cantril Ladder is the mostly used method to measure life satisfaction. We use the data for life satisfaction level, taken from Our World in Data organization (https://ourworldindata.org/happiness-and-life-satisfaction), which is measured by Cantril Ladder method. For economic growth, GDP will be used as a proxy. For income inequality, in the literature Gini coefficient is the mostly used one. Gini coefficient is firstly introduced by Corrado Gini in 1912 and it is the most popular method to determine the distribution of income for a region or country (Yitzhaki and Schechtman, 2013, 12). However, since there are some differences between scholars on the measurement of Gini coefficient, different Gini coefficients for same country can be found on the sources. That's why, we looked for an alternative proxy for inequality and we find that unemployment is highly correlated with Gini coefficient values. Pearson correlation coefficient is found as 0,80 which signs a positively strong correlation. Accordingly, we use unemployment as an indicator of inequality. Finally, we use inflation variable as a proxy for stability of country's economy. We use the data taken from World Bank Databank for the variables GDP, inflation and unemployment for the period 2009-2018. As mentioned before, our interest area is BRICS-T countries. Since the data have both longitudinal and latitudinal dimensions, we use panel data regression analysis.

Panel data is the type of data which contains time series observations for a number of individuals (Hsiao, 2007, 9). Therefore, at least two dimensions have to exist in a typical panel data, which are namely time and object (individual). Since a panel data analysis can provide more accurate estimations over two dimensions, including capturing more complex relationships, studies applying panel data analysis are frequently encountered in literature (Dirzka and Acciaro, 2021, 2). The biggest advantage of panel data analysis which makes it attractive, is the ability to handle the problems of econometric studies, like heterogeneity, endogeneity and persistence of shocks in dynamic models which can be solved by neither time series analysis nor cross sectional analysis (Bitterhout and Simo-Kengne, 2020, 68).

There are three main assumptions in panel data analysis to investigate, which are cross-sectional dependence, heteroscedasticity – autocorrelation, and stationarity. These assumptions have to be examined before determining the panel models. To begin with, cross-sectional dependence should be investigated between independent variables. Since the choice of unit root tests is affected by whether cross-sectional dependence exists in data or not, these tests should be done first (Pesaran, 2015). There are various tests for cross-sectional dependence, Pesaran CD (2004) and Breusch Pagan CD_{LM} (1980) tests are mostly used tests among them. Pesaran CD test is suggested when the object dimension is bigger than the time dimension (n>T), and Breusch Pagan CD_{LM} test is suggested when the time dimension is bigger than the objects (T>n) (Sebri and Dachraoui, 2020). Since our data have more years than countries, we use Breusch Pagan CD_{LM} test for cross-sectional dependence. The null hypothesis of Breusch Pagan CD_{LM} test is non-cross-sectional dependence. After cross-sectional dependence, tests for heteroscedasticity are applied. For this process, Studentized Breusch Pagan LM_{SBP} test is used which has a null hypothesis of no heteroscedasticity. For autocorrelation Baltagi and Li (1995) developed an LM test a typical Breusch-Godfrey test, to investigate autocorrelation using residuals (İşcanoğlu Çekiç and Gültekin, 2019). Finally, to examine stationary of time series, unit root tests are applied. Unit root tests are separated into two groups as first generation unit root tests and second generation unit root tests. While using first generation unit root tests, cross-sectional dependence between

variables should not exist, cross sections are assumed dependent in second generation unit root tests (Bektaş, 2017). Levin, Lin and Chu (LLC, 2002), Im, Pesaran and Shin (IPS, 2003), Maddala and Wu (MW, 1999), Choi (2001) and Hadri (2000) are the examples of first generation unit root tests. Bai and Ng (2002, 2004) Moon and Perron (2004), Phillips and Sul (2003), Choi (2002), Pesaran (2007), O'Connell (1998), Chang (2002, 2004) are some types of second generation unit root tests.

Panel data models can be classified into 3 groups as pooled, fixed effect and random effect models. Pooled models are the models in which both constant and slope parameters do not change. In other words, all observations are homogenous in this model. In fixed effect, there is the assumption of unobserved properties of objects (countries) have an effect on the independent variable and model seeks to control this. On the other hand, object-specific effects are independent of the explanatory variable in random effect models (Bersalli, Menanteau and El-Methni, 2020). In the next step, there are some tests to choose the right model fitting the data.

To choose the fitting model whether pooled model or fixed effect model, F test is used which is developed by Moulton and Randolph (1989). If data do not vary according to the units, pooled model is the appropriate one to apply. On the other hand, if data vary according to units, fixed effect model is chosen. The null hypothesis of F test is, of no variance according to units, which means if null hypothesis is rejected, fixed effect model is chosen, and if the null hypothesis is not rejected, pooled model is chosen. The Lagrange multiplier test, suggested by Breusch Pagan (1980), is used for the selection between pooled model and random effect model. This test investigates whether the error term calculated for each unit is zero or not. The null hypothesis of Lagrange multiplier test signs no individual change within data. If null hypothesis is rejected random effect is the fitting model, if not rejected pooled model should be used. When one of these tests is applied and pooled model is not the model chosen, one more test should be done to select the model whether fixed effect model or random effect model. The test for this selection Hausman (1978) test investigates whether there is a relationship between error terms and independent variables. If there is no correlation between error term and variables random effect model is appropriate. In other words, in the case of not rejecting the null hypothesis, random effect model should be chosen. If the null hypothesis is rejected, fixed effect model should be applied.

4. Findings

We use panel regression analysis to model life satisfaction as a function of growth, stability and inequality in BRICS-T countries. We use GDP for growth, inflation for stability and unemployment for inequality. We use data taken from World Bank Databank for the period of 2009-2018. We set 4 different models for life satisfaction, these models are given in equations (1-4).

$$LS_{i,t} = \alpha_0 + \beta_1 GDP + e_{i,t} \quad (1)$$

$$LS_{i,t} = \alpha_0 + \beta_1 GDP + \beta_2 INF + \beta_3 UNE + e_{i,t} \quad (2)$$

$$LS_{i,t} = \alpha_0 + \beta_1 GDP + \beta_2 GDP^2 + e_{i,t} \quad (3)$$

$$LS_{i,t} = \alpha_0 + \beta_1 INF + \beta_2 INF^2 + e_{i,t} \quad (4)$$

Here LS means life satisfaction, GDP refers GDP per capita, INF refers inflation (yearly percent) and UNE refers unemployment (percent).

Descriptive statistics of variables used for countries is given in Table 1.

Table 1: Descriptive Statistics

Variable	Statistic	Brazil	Russia	India	China	S. Africa	Turkey	BRICS-T
Life Satisfaction	Mean	6,71	5,61	4,41	5,05	4,75	5,34	5,31
	St. Dev.	0,34	0,28	0,34	0,28	0,43	0,22	0,80
	Median	6,75	5,56	4,43	5,12	4,86	5,32	5,21
	Min-Max	6,19-7,14	5,16-6,04	3,82-4,99	4,45-5,33	3,66-5,22	4,89-5,61	3,82-7,14
GDP (thousand dollars per capita)	Mean	10,65	11,91	1,57	6,98	7,19	10,98	8,21
	St. Dev.	1,80	2,81	0,28	1,91	0,96	1,10	3,89
	Median	10,61	11,00	1,52	7,33	7,00	10,95	8,708
	Min-Max	8,60-13,25	8,56-15,98	1,10-2,00	3,83-9,91	5,76-8,81	9,10-12,62	1,10-15,98
Inflation (yearly %)	Mean	5,67	6,79	6,92	1,36	5,39	8,60	5,06
	St. Dev.	1,88	3,74	3,22	1,43	1,01	2,94	3,26
	Median	5,80	6,95	7,76	2,04	5,45	8,18	6,17
	Min-Max	3,45-9,03	2,88-15,53	3,33-11,99	0,01-5,55	4,06-7,26	6,25-16,33	0,01-16,33
Unemployment (%)	Mean	8,65	5,86	5,56	4,53	25,24	10,08	8,29
	St. Dev.	2,40	1,11	0,12	0,12	1,16	1,31	7,24
	Median	8,08	5,51	5,61	4,55	24,81	10,45	6,95
	Min-Max	6,66-12,82	4,85-8,3	5,33-5,67	4,3-4,7	23,52-27,04	8,15-12,55	4,30-27,04

The data about life satisfaction of BRICS-T shows us, that Brazil has the highest mean of life satisfaction values. Within these countries standard deviation of South Africa life satisfaction is higher than the others. Ranges of life satisfaction values are less than 2 for all countries which shows the variance of life satisfaction is not high. Life satisfaction values of countries over the observed period are shown in Figure 1 below.

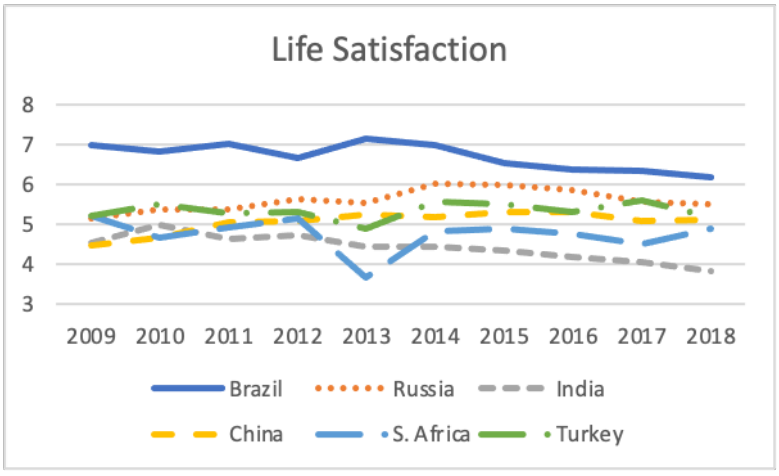

Fig. 1. Life satisfaction of BRICS-T countries

When we look at the GDP per capita data of countries it can be seen that India is separated negatively from other countries. Since BRICS-T countries are developing countries and GDP growth is the one of primary goals, range of GDP per capita is large for these countries. GDP per capita data (thousand dollars) values are given in the Figure 2.

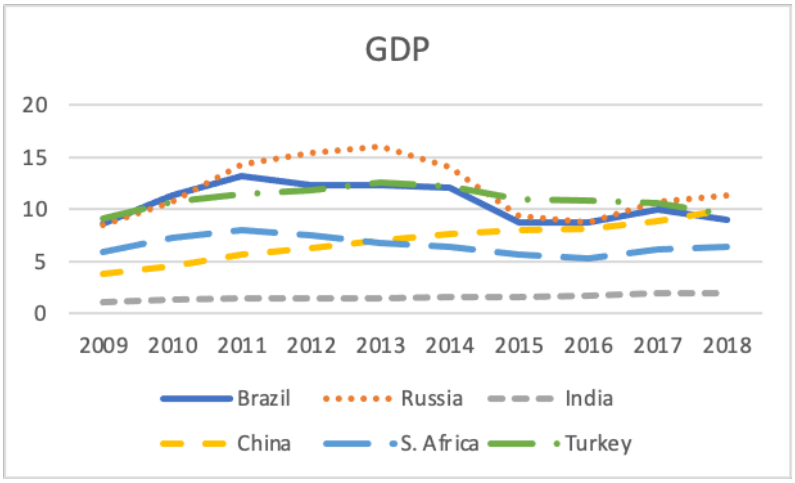

Fig. 2. GDP data of BRICS-T countries

Inflation is one of the common problems of observed countries excluding China. Since these countries have vulnerable economies and are sensitive to the global crisis, fluctuations in inflation are seen quite often. Because of this reason range for inflation data is large. Inflation values can be seen in Figure 3.

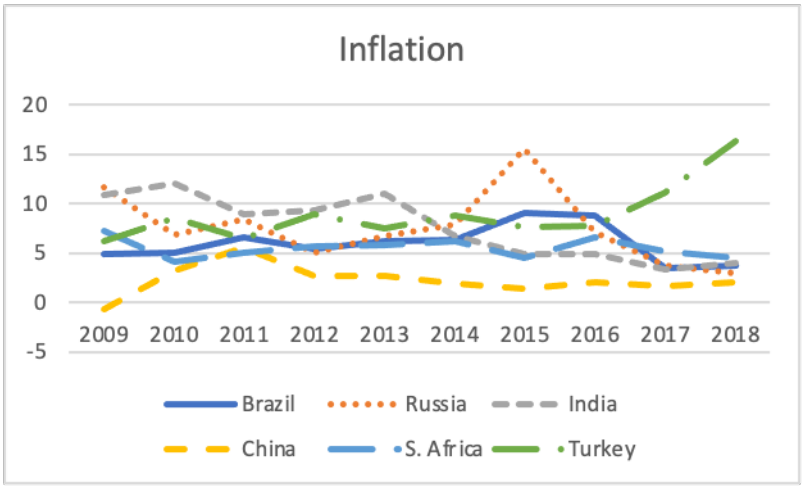

Fig. 3. Inflation data of BRICS-T countries

Finally, in terms of unemployment, South Africa and Turkey is the worst countries among BRICS-T countries. Although values are higher than other variables, deviation of unemployment is smaller. Unemployment data is given in Figure 4 below.

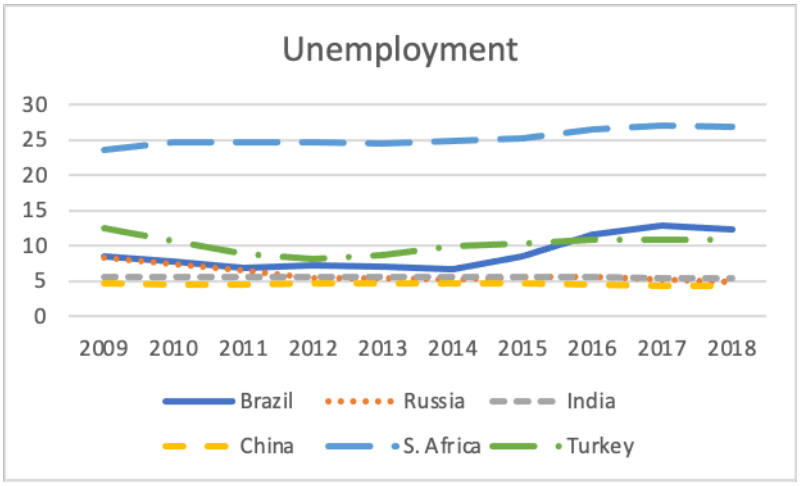

Fig 4. Unemployment data of BRICS-T countries

Data used in the study are summarized above. To begin the analysis, firstly cross-sectional dependence tests are done. Since t>n for our study, Breusch Pagan LM test is used.

Table 2. Breusch Pagan LM cross-sectional dependency test

	Model 1	Model 2	Model 3	Model 4
Statistic	-	21,088	18,407	28,381
p-value	-	0,1340	0,2419	0,0193

The null hypothesis of Breusch Pagan LM test is there is no cross-sectional dependency between variables. Since p values of test results are higher than 0,05 for Models 2 and 3, it is seen that there is a cross-sectional dependency in only Model 4. The test is not applied for model 1 because there is only one independent variable in the model.

For heteroscedasticity studentized Breusch Pagan test is applied. Results are given at Table 3.

Table 3. Studentized Breusch Pagan test results

	Model 1	Model 2	Model 3	Model 4
Statistic	4,6868	7,2587	3,5352	2,7644
df	1	3	2	2
p-value	0,0304	0,0641	0,1707	0,2510

The null hypothesis of studentized Breusch Pagan test is there is no heteroscedasticity in the data. When we look at the results, it is seen that models excluding Model 1 have no heteroscedasticity, on the other hand, there is a heteroscedasticity problem in Model 1.

To examine the data whether there is autocorrelation or not, Baltagi-Li test is used. Results of the test are as below.

Table 4. Baltagi-Li test results

	Model 1	Model 2	Model 3	Model 4
Stat	5,9207	1,9531	5,8304	6,0551
df	10	10	10	10
p-value	0,0150	0,1623	0,0158	0,0139

Since the null hypothesis is upon no autocorrelation, we can say that there is an autocorrelation problem in the models except for Model 2.

As mentioned above if there is no cross-sectional dependence for models, Im-Pesaran-Shin (IPS) unit root test and if there is cross-sectional dependency, CIPS is applied. Results of unit root tests are as below.

Table 5. IPS/CIPS Unit Root test results

	GDP	INF	UNE	GDP^2	INF^2
wtbar	-28,879	-24,495	-8,2244	-13,692	-59,820
p	0,0001	0,0001	0,0001	0,0001	0,0001

According to unit root test results, there is no unit root problem which means variables are stationary. Besides, applying unit root test or not for micro panel data including short time is a controversial subject.

After the assumptions are examined, the tests used for choosing the best fitting model are applied. As mentioned on the previous part, Lagrange multiplier test suggested by Breusch Pagan and Hausman test are used for this process. Results of these tests are given at Table 6 and Table 7.

Table 6. Lagrange Multiplier Test Results

	Model 1	Model 2	Model 3	Model 4
Statistics	10,794	10,968	11,258	13,880
p	0,0001	0,0001	0,0001	0,0001

Table 7. Hausman Test Results

	Model 1	Model 2	Model 3	Model 4
Chisq	2,699	2,0234	0,7224	0,0095
df	1	3	2	2
p	0,1004	0,5676	0,6968	0,9953

According to Lagrange Multiplier test the null hypothesis is rejected for all models. For the next test, Hausman test results show that the null hypothesis cannot be rejected for any models. When we evaluate the results of these two tests random effect model is the best fitting model for all four models. In accordance with these results, model estimations are done by random model estimator or robust estimators Newey-West and Driscoll-Kraay according to the assumption rejection conditions. Model estimations are given at Table 8.

Table 8. Model Estimations

	Model 1	**Model 2**	**Model 3**	**Model 4**
Constant	4,8544*** (0,3679)	5,1462*** (0,3189)	4,3838*** (0,2789)	4,8409*** (0,3606)
GDP	0,0556** (0,2630)	0,0485*** (0,0176)	0,1729*** (0,0605)	
Inflation		0,0434*** (0,0049)		0,1101*** (0,0399)
Unemployment		-0,0504*** (0,0167)		
GDP^2			-0,0060** (0,0030)	
Inflation^2				-0,0044* (0,0024)
Chisq	4,4785	82,8605	33,6641	54,4134
df	1	3	2	2
p	0,0343	0,0001	0,0001	0,0001
Note: *p<,10 ; **p<,05 ; ***p<0,01 ; standard errors in paranthesis				

All models are statistically significant since their p values are less than 0,05. Models are given at equations 5-8.

$$LS_{i,t} = 4{,}8544 + 0{,}0556\ GDP + e_{i,t} \quad (5)$$

$$LS_{i,t} = 5{,}1462 + 0{,}0485\ GDP + 0{,}0434\ INF - 0{,}0504\ UNE + e_{i,t} \quad (6)$$

$$LS_{i,t} = 4{,}3838 + 0{,}1729\ GDP - 0{,}0060\ GDP^2 + e_{i,t} \quad (7)$$

$$LS_{i,t} = 4{,}8409 + 0{,}1101\ INF - 0{,}044\ INF^2 + e_{i,t} \quad (8)$$

GDP per capita which is the most controversial variable among determinants of life satisfaction studies, has a significant effect in the models. Besides, their coefficients are positive which tell us economic growth or income of the country have a positive effect on the increase of life satisfaction level. Inflation which exists in Model 2 has a statistically significant positive effect on life satisfaction level in BRICS-T countries. Unemployment which is the last variable is seen that has a statistically significant and negative effect on life satisfaction in Model 2.

These models show that GDP is still an important determinant of life satisfaction in developing countries. To determine that whether GDP has a turning point, we applied Model 3 which includes a

quadratic form of GDP. When we calculate the maximum point by taking derivatives, we found that 14,408 USD is the GDP per capita level which makes life satisfaction value maximum. This shows us increasing GDP per capita after this point can become senseless for population. However, when we look at the observed values of BRICS-T countries, mean of BRICS-T countries is 8,210 USD. So the turning point level does not seem reachable in the near future.

Although GDP can be modelized solitarily, life satisfaction level can be explained better with all variables together. It can be interpreted that growth, inflation and unemployment are statistically significant to determine the level of life satisfaction in developing countries. According to Model 2, while GDP and inflation has a positive effect, unemployment affects life satisfaction negatively. In this model, inflation is not a danger for life satisfaction.

The fact that studies on life satisfaction concentrate more on developed countries causes inflation to take place less in these studies. According to World Bank data average of G7 countries inflation is % 1,72, while BRICS-T average is % 5,06. In other words, even if inflation can be ignored for developed countries, it is total opposite for developing countries.

In Model 4, we tried to determine the turning point for inflation. According to our calculations, inflation has a positive effect if it is less than % 12,51, then it becomes a threat for life satisfaction of population. This situation shows that inflation is beneficial as long as it supports economic growth but it should be kept under control within certain limits.

5. Conclusion

Economics of happiness is a hot topic among scholars especially in last decades and still increasing with many studies in both empirical and theoretical ways in the literature. Main aim of this study which focuses on life satisfaction is to examine the widely cited and discussed "Easterlin Paradox" for developing economies. For this aim, we tried to model the life satisfaction with economic growth, economic stability and income inequality. We used GDP per capita, inflation and unemployment and applied our models for BRICS-T (Brasil, Russia, India, China, South Africa and Turkey) countries for the period of 2009-2018.

Easterlin Paradox argues that increases in GDP in developed countries lead to no noticeable increase in life satisfaction of population. However, when we look at the developing countries, we can see that GDP still has an important effect on life satisfaction. There is a positive effect of economic growth to increase life satisfaction for our sample. Diener and Biswas-Diener (2002) explain this situation as increasing income helps if population is poor. Parallel with our results, increasing GDP per capita can be a good factor if the countries' GDP is lower according to the world standards or if this situation leads important improvements at low living standards.

We searched for a turning point for GDP increases as Easterlin claimed. According to our results, GDP per capita turning point for BRICS-T countries is 14,408 USD which is not near the observed

values. When we evaluate these 2 models together, economic growth should be a main goal for developing countries. Also, if any country reaches this GDP per capita level, World Bank classify this country as developed country instead of developing country (Tezanos-Vazquez, Sumner, 2013, 1730).

On the next phase, we tried to explain on which conditions increasing GDP would be more effective. Brockmann et. al. (2009) argue that in successful transition economies many people have significant absolute income gains but their relative income gets worse which lowers life satisfaction on the contrary of growth. They explain this situation by top-heavy biased income inequality and say that people become "frustrated achievers". To examine this idea, we used GDP per capita together with inflation and unemployment to model life satisfaction. According to our results, to increase life satisfaction GDP development should be combined with decreasing unemployment. In other words, if economic growth is accompanied by decreasing income inequality, developing countries have more to gain in terms of life satisfaction.

Since countries we studied, have vulnerable and sensitive economies, we added inflation to the model as a proxy of economic stability. Contrary to the expectations, results show that inflation does not have a negative effect on life satisfaction.

Easterlin and Plagnol (2008) emphasize that inflation makes people unhappy in their study which is done in Germany. Similarly, Di Tella et. al. (2001) supports that inflation and unemployment are negative factors in life satisfaction in their study applied in 12 Europe countries and US. On the contrary of developed countries, inflation is not a negative determinant for life satisfaction in developing countries. Since BRICS-T countries are the countries which have the problem of inflation volatility, inflation does not seem as dangerous as developed countries. However, this idea is valid if inflation is less than 12,51 %. Results show that when inflation comes with the economic growth, it can be ignored by population, because inflation accompanies growth in medium and long term (Behera, Mishra, 2016, 16).

When we evaluate our variables together in the model 2, unemployment can be seen as the most important indicator which supports the studies of Blanchflower et. al. (2014), and Di Tella et. al. (2001).

According to results of the study, for the governments of developing countries, increasing GDP per capita and decreasing unemployment while keeping the inflation under control should be the main aim. Although this study has limitations like measuring variables and generalizing the results for different cultures are difficult, we evaluate results by focusing on the trends and changes. We used BRICS-T countries for developing countries, these results should be compared with other developing countries and vulnerable economies for further studies with different aspects of indicators of economy.

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