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Economic Freedom, Globalization and Quality of Life in Asia: Comparison based on Income Level

Asma Awan[1], Fozia Mansab[2], Furrukh Bashir[3]

[1] Assistant Professor, School of Economics, University of the Punjab, Lahore, Pakistan. Email: asma.eco@pu.edu.pk
[2] MPhil Scholar, School of Economics, University of the Punjab, Lahore, Pakistan. Email: foziamansab92@gmail.com
[3] Assistant Professor, School of Economics, Bahauddin Zakariya University, Multan, Pakistan. Email: furrukh@bzu.edu.pk

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ABSTRACT

This study empirically estimates the impact of economic freedom and Globalization on quality of life in Asia disaggregated by income level. Balanced panel data have been used in this study that covers the time period of 2000-2021. The IPS panel unit root test is applied for the stationarity of the variables that shows mixed order of integration so panel ARDL technique is utilized. With respect to Lower Middle Income Countries, we found that economic freedom, globalization and official development assistance have positive impact on quality of life, while development expenditure and remittances showed negative results on quality of life in the long run. With respect to Upper Middle Income Countries, economic freedom, remittances and official development assistance showed negative results while globalization and development expenditures showed positive impacts on quality of life in the long run. With respect to High Income Countries, economic freedom, globalization and development expenditures showed positive impacts while remittances had inverse effect on quality of life in longer period of time. Therefore, it is suggested to improve the situation of Economic freedom in Lower Middle and High Income countries while there is need to improve the situation of institutional quality in Upper Middle Income Countries.

Corresponding Author's Email: furrukh@bzu.edu.pk

1. Introduction

Quality of Life (QOL) is a multidimensional concept of socio economic development which includes health, life expectancy and income(Andráško, 2013). It is believed that more quality of life means nation is living in wealthy condition but (Diener & Suh, 1997) compared two countries Israel and Tunisia (which was in half of income than Israel) both have same QOL in 1995. So, it is clear that simply more income does not mean high level of QOL as happiness and well-being are different from each other. Adam smith was the first philosopher in the world who talked about the idea of Economic Freedom (EF) in (1776). He had followed by the economist Murray Rothbard and many other intellectual including Ludwig von Mise, Friedrich A Hayek, Milton Friedman and John Stuart Mill. More preference is given to centralized economy as compare to free market economy by the difference group of researchers because of promotion of economic freedom in the country.

Several studies have been conducted on economic freedom and quality of life including (Anwar & Quaratulain, 2017; Barro, 1996; De Haan & Siermann, 1998). They found positive significant results of economic freedom on quality of life as national institutions promote trade openness; implement the legal rights of the property, personal choices and volitional exchange(Gwartney, 2009). EF is the fundamental need for the social and economic benefits,

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as all the citizens have right to have their own property, their safety, to run business independently and legal status. As EF leads to higher economic growth, higher income level, appreciation trust in government, reduction in poverty and an increase in number of hospital as it will increase the quality of life (Fike, 2018). Those countries which have higher EF they spend stress less life, they do not live in loneliness pace, they live in excitement, and feelings pride. As, EF and well-being have positive association to each other (Belasen & Hafer, 2013; Bennett & Nikolaev, 2017) conducted a research in US and reported the direct relationship between EF and well-being. Institutions are aligning with EF as it enhances the opportunities for the people to utilize their talent and capabilities in a productive way(Baumol, 1990).

Efficient labour and increasing rate in production pushes the government to invest on physical and human capital this lead to increase in job opportunities, satisfaction, economic growth and higher standard of living(Hall, Sobel, & Crowley, 2010). An increase in market places effectiveness not only helps to increase in prosperity it also increases the health, life expectancy(Stroup, 2007). The objectives of the study are to analyze the impact of economic freedom (EF) and Globalization on Quality of Life (QOL) in Asia (disaggregated by income level) and to compare the Asian economies by disaggregating them by income levels.

This research is highly significant as it provides fresh empirical evidence on subject matter in Asia disaggregated by income level. It provides evidence with respect to balanced panel of LMIC (Lower Middle Income Countries), UMIC (Upper Middle Income Countries) and HIC (High Income Countries) using broad measurements of constructs and appropriate econometric methodology during 2000-2021 which can provide appropriate policy insights for improvement in quality of life of Asian economies.

After introduction, section two is of the literature review which contains the related studies about the relationship of EF and QOL, section three is of conceptual framework of the study which explains the relationship between the variables used in the study, section four contains data, model specification and methodology, section five explains the results of the estimated data which are obtained by applying the suitable methodology and section six concludes the research with appropriate policy suggestion and also limitation of the study.

2. QOL and EF in the context of Asia

Geographically Asia is very important as it covers the sixty percent of the total population of the world. Asia is the economic engine to grow the world economies as it is the world economic powerhouse(Singh, 2010). Asia is also important for the development goals like Korea was the least developed country in the region but after world war two (1950-1953) by hosting the world Olympics game in 2002, it became more social around the world and shift from low income countries to high income countries category. It is the economy whose growth rates are rapid from the last two decades in removing poverty(Singh, 2010).

In 1990 South Asian countries became more socially, politically and economically active as economic freedom started to take place and shows the positive association with growth rates(Murshed & Khanaum, 2012). Asia shows the rapid growth in its region by reducing poverty, inequalities and promoting free marketing, trade openness from the last two decades. The inflow of foreign direct investment and globalization has been increased in this region.

Asia has been disaggregated into four balanced panel by the World Bank (2021) on the basis of income level. These are Low Income Countries (LIC)[1] whose annual per income is less than $1046, Lower Middle Income Countries (LMIC)[2] whose annual per capita income is greater than $1046 but less than $4096, Upper Middle Income Countries (UMIC)[3], these countries per capita annually income is greater than $4096 but less than $12695, High Income

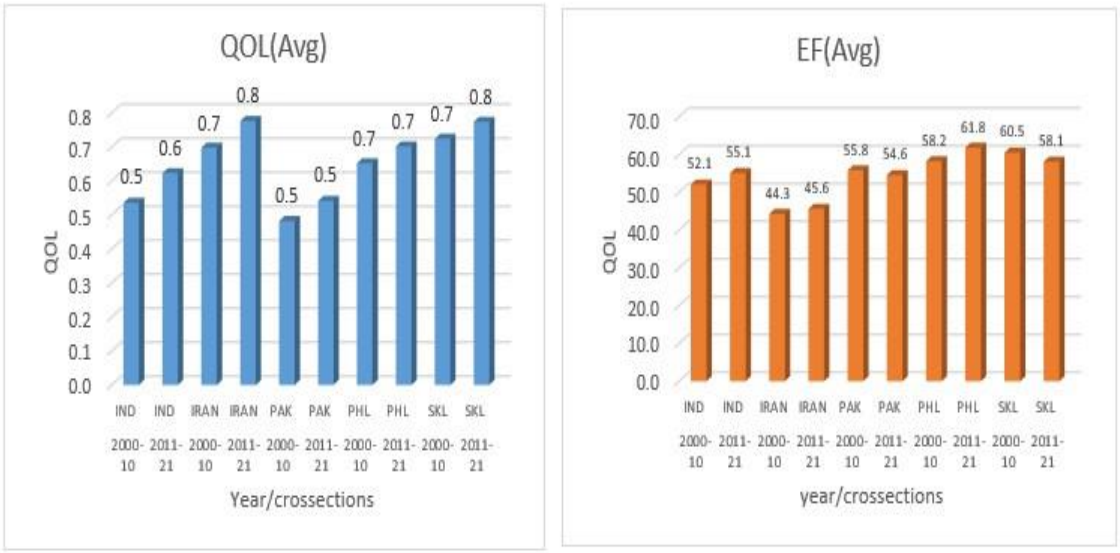
[1]LIC includes Afghanistan, Syrian Arab Republic and Yemen.
[2]LMIC includes thirteen countries but in this research under the analysis only five countries are taken these are India, Iran, Philippines, Pakistan and Sri Lanka. Due to non-availability of data other countries are not taken.
[3] Analysis have been done only on five cross sectional units these are China, Georgia, Kazakhstan, Malaysia and Turkey remaining six counties data has not in reach so these are not the part of our estimated analysis.

Countries (HIC)[4] per capita income is greater than $2000 annually. To capture the trend of QOL and EF in Asia we did disaggregated analysis in LMIC, UMIC and HIC. We did not analyze the trend of QOL and EF in LIC due to non-availability of data.

2.1 Comparative Analysis of LMIC in Terms of EF and QOL- Decade Wise

Now we are going to analyze the decade wise QOL and EF, on average, in LMIC from 2000 to 2021. In figure1, LMIC decade wise averages of QOL and EF have been taken. The figure shows that in LMIC Philippines has the highest EF in 2011-21 which is 61.8 then Sri Lanka with EF of 60.5 in the first decade India's EF has increased with the increase in QOL on average, while Iran's QOL is also increased from 0.7 to 0.8 by increasing the EF from 44.3 to 45.6 units means in ten years it's EF has increased by 1.3 units. In 2000-10 Pakistan has 55.8 units of EF which has decreased in the next decade by 1.2 units on average while QOL was constant. Philippines has increased its EF by 4.6 units on average while QOL was remained same. Sri Lanka has been experienced of declining in EF by 2.4 units.

Figure 1: LMIC decade wise trends in QOL and EF



Source: Author's self-constructed using data QOL (UNDP& WDI) and EF (Heritage Foundation)

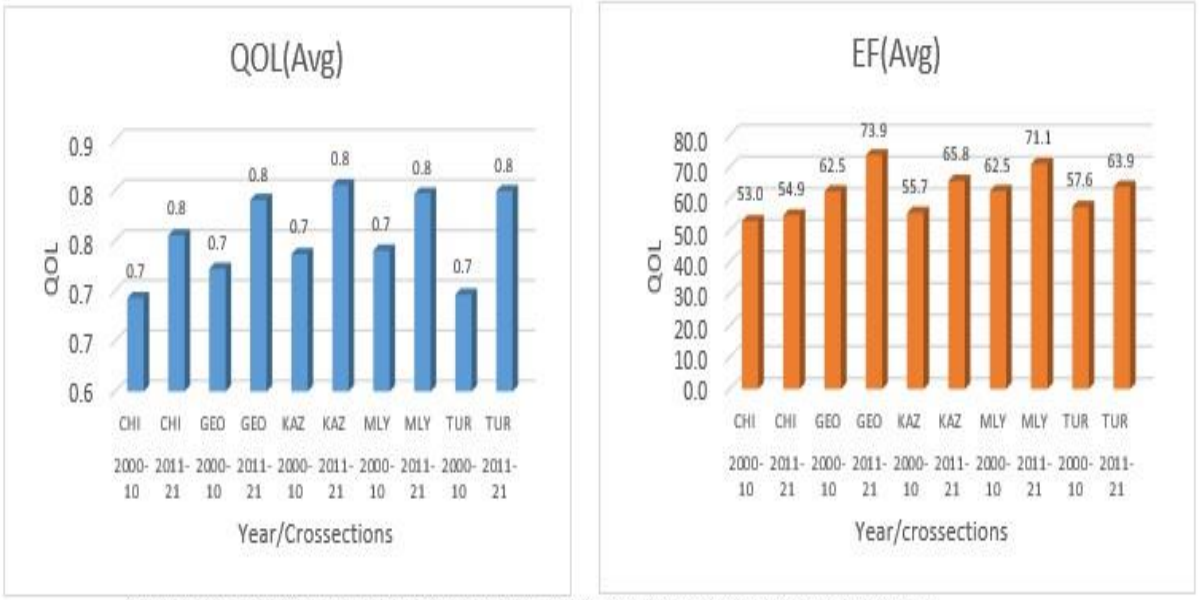
2.2 Comparative Analysis of UMIC in Terms of EF and QOL- Decade Wise

Now we are going to graphically show comparative analysis of upper middle income countries in terms of EF and QOL (on average) during 2000-2021.

Figure 2 shows decade wise trend of QOL and EF in UMIC. Georgia is a prominent country having EF 73.9 with 0.8 QOL and China has the lowest EF in UMIC panel having QOL 0.7 in first decade and it improved EF by 1.9 units while QOL was improved by 0.1 point in China. Kazakhstan improved its EF by 1.07 units in ten years while QOL increased in ten years by 0.1 point. Malaysia got 8.6 units of increment in EF score in ten years which is the highly score covered by Malaysia and its QOL also increased by 0.1 point. Then Turkey got 6.3 units of EF in ten years and QOL enhance from 0.7 to 0.8 in 2011-2021.

[4]HIC are eleven in total but we do analysis on only five countries due to non-availability of other countries data these countries are Cyprus, Israel, Japan, Korea and Kuwait.

Figure 2: UMIC decade wise trends in QOL and EF



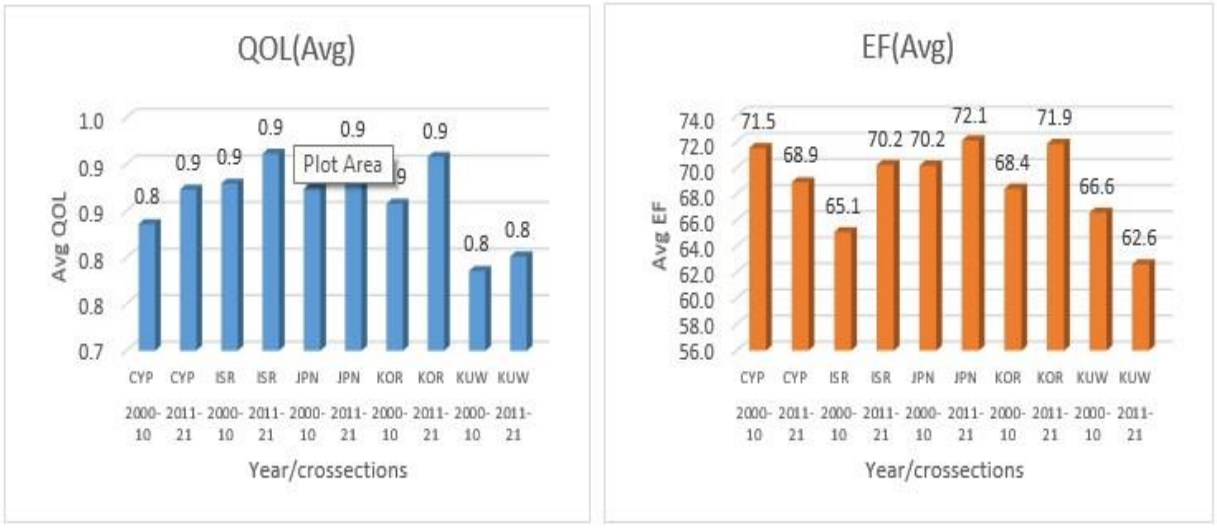
Source: Author self-constructed using data QOL (WDI, UNDP) and EF (Heritage Foundation)

2.3 Comparative Analysis of HIC in Terms of EF and QOL- Decade Wise

The figure 3 presents comparative analysis in HIC Panel to check which country is more in EF and in QOL during the sample period of 2000-2021.Figure 3 shows decade wise trend of economic freedom and QOL. Here Japan has the highest EF in 2011-2021 while having QOL 0.9 in 2000-10. Cyprus has 71.5 score of EF on average having QOL 0.8 in the next decade, its EF goes down by 2.6 units on average but it improves in terms of QOL from 0.8 to 0.9. Israel having constant QOL but it improves its EF position by 5.1 units from 65.1 to 70.2 score units. Korea improves its EF score position in ten years by 3.5 units from 68.4 units to 71.9 units while QOL remains constant in ten years.

Kuwait loses its EF score in ten years by 4.0 units on average while having the QOL 0.8 constant in ten years on average. From the decade wise analysis, we infer that Japan is the highlighted country which has highest QOL from all the three panels under discussion and Georgia is the freest country and also has the highest EF in the reference period.

Figure 3: HIC decade wise trends in QOL and EF



Source: Author self-constructed using data QOL (UNDP& WDI) and EF (Heritage Foundation)

3. Literature Review

Freedom is divided into three parts such as political freedom, civil liberties and economic freedom. Economic freedom is assumed to be very essential for the growth and quality of life. The work of Wu and Davis (2004) investigated linkage of economic freedom and political freedom with growth and used data from 1975 to 1992. They found that economic freedom is a significant indicator for growth by using the log linear model and also do descriptive analysis of economic freedom, political freedom and growth rate. He analyzed that those countries which are high in EF they have high growth rates. Sen (1999)stated that per capita income is not the best indicator of QOL as we can promote QOL by promoting education, per capita income, choices, opportunities and freedom. Roberts and Olson (2013) surveyed the world and prepared a report on economic freedom promotes better health care education and environment quality.

Jackson (2017) conducted a survey in the United States in order to analyze that how much people happy with the given opportunities in their lives. He used the data of economic freedom of EFNA index[5] from 1981 to 2010 and obtained response from the citizens about happiness. He found that EF is the significant and positive indicator of happiness in US state. Esposto and Zaleski (1999) used Gwartney (2009) study to analyze the relationship between EF and QOL in Eastern Europe. EF (1975-1990), literacy rate (1985), life expectancy (1987) was employed for empirical analysis. In the result of OLS technique six out of eight regression EF shows insignificant results with literacy rate but with life expectancy EF shows positive and significant results in Eastern Europe.

Heckelman (2000) investigated the causal relationship between EF and economic growth. He applied the Granger causality test on the annual freedom index of heritage foundation[6]. He applied the OLS technique of bivariate regressions for the 147 cross-section countries and used the data from 1994 to 1997. He used multiple variables such that banking, wage & price controls, property rights, trade policy, taxation, government intervention, monetary policy, capital flows & foreign direct investment, regulation and black markets. Overall results showed that not all the sub-indexes of EF led to increase EG but Growth led to increase government intervention[7] in the economy, whereas trade policy and taxation put the negative impact on EG. His results showed that wage to price ratio control, property rights and regulations, and capital flows considered Granger-cause growth[8]. Banking and Black market became less robust but causing growth. Taxation and trade did not influence EG. Results demonstrated that not all the variables beneficial for EG that is why he suggested that policy maker should follow the disaggregated index results not all the EFI scores result.

Bengoa and Sanchez-Robles (2003) investigated the interactions between the EF, foreign direct investment (FDI) and EG. They used the panel data from 1970 to 1999 of eighteen Latin American countries. FDI employed as the dependent variable while EF employed as the independent variable and other eight variables employed as control variables such that inflation, literacy rate, gross capital formation, Debt to GDP ratio etc. They employed the technique of Hausman 1978 of fixed effect test. They applied both fixed and random effect test on the FDI and EF. They saw an interesting thing that if they run the regression with random effect EF became significant, while with fixed effect it became insignificant and Hausman suggested them to apply fixed effect on the model.

Pesta, McDaniel, and Bertsch (2010)analyzed the relationship between the EF and wellbeing (WB). For this purpose, they used the US state level data which was newly published in 2010. They used the data of EF from 1995 to 2005 and income, unemployment rate,

[5]Economic Freedom of North America Index measured Economic Freedom into two ways like involvement of local and state level government other is federal level government involvement. Then further divided it into three more sub-indices which were discriminatory of taxes, size of the Government, and the market freedom.

[6] Fraser institute developed the economic freedom data based on five years then in 1996 heritage foundation developed it again based on annually.

[7] These results against the theory of economist Keynes that government intervention should not be there in the economy, as it decreased the growth level in the economy.

[8]Freedom led to these variables towards prosperity when more than two lag applied. When applied two lag structure then growth caused of freedom.

population density and Government as the control variable. They developed two models first model for the impact of EF on the WB and second one for the impacts of change in EF on the WB. They concluded that change in EF put the positive impacts on WB. Government expenditure and taxes Endeavour positive effect on wellbeing. Singh (2010)investigated the systematic links between the FDI, EF and EG in eighty-five countries of the world. For this they employed panel data from 1975 to 2004, and applied GMM technique. They used real GDP as dependent variable while FDI, EFI[9] and some of effective terms of FDI. The results showed that FDI did not influence EG directly if EF absent. They suggested that EFis an important driver to run the EG as positive correlation existed between them.

Tiwari (2011)investigated the effect of EF, foreign aid and foreign direct investment on economic growth. He used (1998-2007) time series data of selected twenty-eight Asian countries for the cross section analysis. He used multiple variables in his research such that growth rate, population rate, literacy rate, fertility, freedom from corruption, gross capital formation, life expectancy, foreign direct investment, business freedom, fiscal freedom, financial freedom, and trade freedom. Overall results he found that an increase in financial freedom, capital stock and fiscal freedom led to increase in economic growth whereas EF, foreign direct investment and foreign aid put the negative impact on EG. Life expectancy showed positive impact on economic growth. Also, he observed that foreign aid influenced economic growth negatively due to the not control in corruption. Foreign aid increased in the Asian countries the economic growth became decreased. According to dynamic estimators he realized that freedom from corruption and foreign direct investment significantly and negatively related to economic growth.

Anwar and Quaratulain (2017)investigated the effect of EF on economic growth in South Asian countries. They applied panel data econometric technique over the period of 1954 to 2014. Government expenditure, population rate, trade openness, business freedom, monetary freedom, and freedom from corruption were employed as core variables of the research. They estimated that business freedom, freedom from corruption, and monetary freedom led to increase economic growth. Trade freedom, government spending, population rate, influenced economic growth positively, but trade freedom influenced only in the short run but not in the long run.

Sheikh, Javaid, and Mushtaq (2018) investigated whether EF promoted economic growth in Pakistan and India. For this objective they took data from 1995 to 2015 and applied ARDL[10]. For the analysis they formed two models one for Pakistan other for India. In their research they used Gross national income as dependent variables in both models while labour force, Gross capital formation, secondary enrolment and economic freedom index used as independent variables. The results showed that EF positively and significantly correlated with economic growth in both Pakistan and India. They suggested that both countries should improve their rule of law, education system and work opportunities in order to enhance economic growth.

Mushtaq and Ali Khan (2018)investigated the effect of EF on sustainable development. For this purpose, they developed an index of thirty-nine variables for fifty-eight countries. They classified these variables into three portions, economic, society and environment dimensions. Before their studies researchers did not introduce the interaction terms of environment with development. For this purpose, they employed data from 2000 to 2015 and applied Panel OLS, fixed effect method and GMM. Their results showed that EF, bureaucratic, law and accountability put positive impacts on sustainable development.

Brkić, Gradojević, and Ignjatijević (2020)used economic growth as dependent variable while EF was independent variable while gross domestic product, gross capital formation, foreign direct investment, trade, government spending, inflation and secondary education were employed as the control variables of the research. They used the data of forty-three European countries from 1995 to 2014. The Least Square Dummy variable model was utilized for the estimation of the results. Their results showed significant and positive correlation between EF

[9]EFI = Economic Freedom Index
[10]Autoregressive Distributed lag applied because variables were integrated of mixed orders.

and economic growth. When they tested the impact of change in EF on economic growth, they did not found any significant results.

Makwana (2021)investigated the impact of business freedom index, investment freedom, and EF on the Indian economy to attract foreign direct investment. For this, he employed the data from 2000 to 2020 and applied multiple regression models. The results showed that business freedom index and economic freedom index put positive and significant impacts on foreign direct investment. He suggested that policymakers should encourage the foreign direct investment in an Indian economy by making effective policies which are beneficial for the people.

From the previous literature, we found that limited empirical evidences are available in Asia regarding economic freedom and quality of life relationship by disaggregating them with respect to the level of income. Mostly studies have used single proxy to capture QOL i.e. per capita GDP whereas, fewer attempt have been made to use a composite index i.e. Human Development Index (HDI). Studies showed positive linkage of EF with QOL but it is sensitive to model, sign, methodology and regression results. To bridge this gap, we conducted this research to analyze what factors are important for stimulating quality of life in Asia? This research will be an addition to existing empirical literature on subject matter.

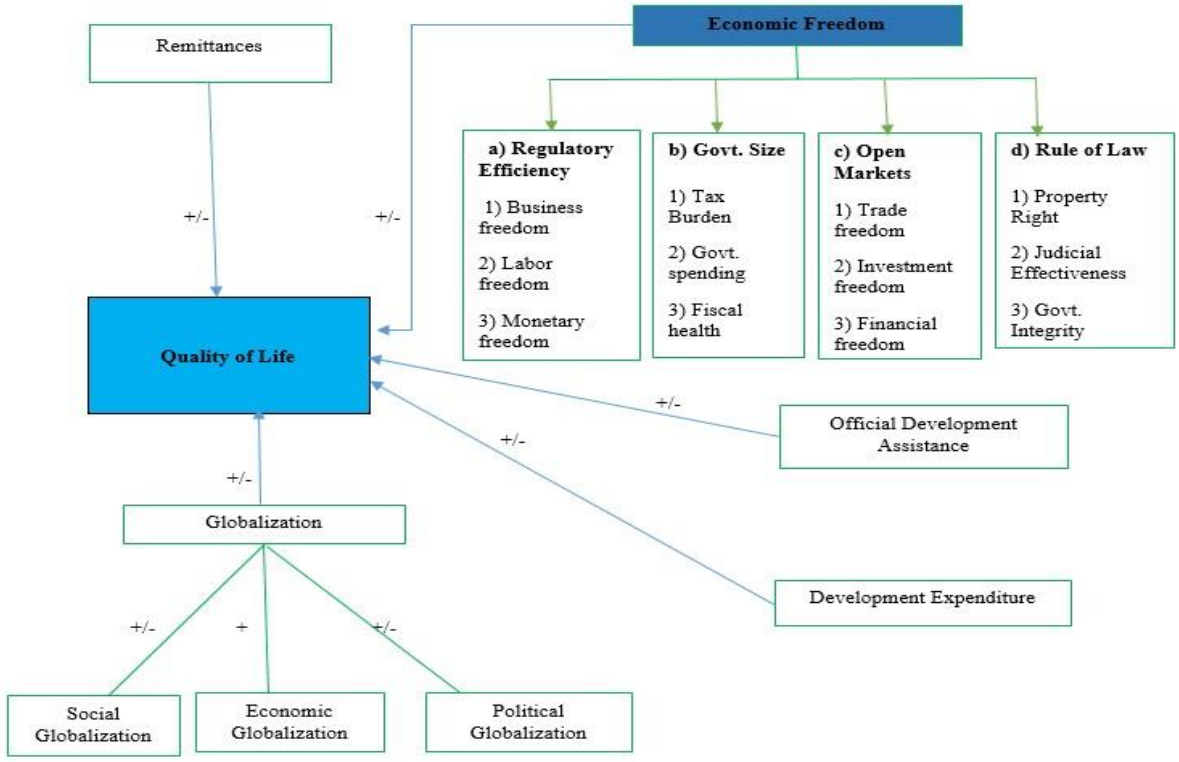
4. Conceptual Framework

The QOL is influenced by EF positively and also negatively. Economic freedom enhances the living standard and increasesthe happiness among the people. WhenEF increases the happiness at the national level also increases(Gropper, Lawson, & Thorne Jr, 2011). EF allows the markets to do their chores freely without any hurdle or restriction from anybody. It runs the economy towards the free market. According to Milton Friedman's theory of the Liberal Market which states that markets should be free, private ownership and limited interference of government should be there. People have the freedom to choose their own choices for their lives which makes them happy and capable of working.

Sen (1999)talked about freedom and capability in his "Capability Theory Approach (1980)" which states that an individual must have freedom and also have capabilities to perform a good job and work for wellbeing. When EF is taking place, restrictions are limited and everyone has the approach to justice, then individuals can have a better lifestyle as compared to a country which has a low EF. Adam Smith's "Wealth of Nations" argued that a free market should take place where everybody could trade freely. Everyone has the right to produce and consume goods and services that they want and everyone has the ownership of his/her wealth. An individual's life would be happier in a free environment than with inflexible government restrictions, this will lead to a higher living standard and their quality of life would be better. The conceptual framework of this study is provided in figure 4.

Figure 4 shows the conceptual framework of the study which portrays that QOL and EF have positive and negative relation to each other, remittances influenced QOL by positive and negative way, official development assistance also affect QOL both ways, globalization and development expenditure both have the dual property of affecting the QOL in different regions of Asia.

Figure 4: Conceptual Framework of QOL & EF



Source: Author's Self Construction

5. Data, Model Specification and Methodology

In this section, we are going to describe the variables and their data which has been utilized in this research. Also, the model specification and the methodology is discussed in this section.

5.1 Data and Description of Variables

In the current study we use the balanced panel data of fifteen Asian countries. These cross sectional units are further divided into four panels using the classification of theWorld Bank (2021-22). These classifications are low income countries[11], lower middle income countries, upper middle income countries and high income countriesand these classification are done by the Atlas method 2021[12]. All the balanced panel data has been used from (2000 to 2021). The core dependent variable of the current study is quality of life, proxied by Human Development Index (HDI). HDI score is 0 to 1 has been used, where 0 shows low QOL and 1 shows highest QOL.

Economic freedom is the main core independent variable; its score is 0 to 100 where 0 shows lowest EF and 100 shows highest EF. The KOF Index of globalization from World Development Indicators (WDI) database is also taken, it's score is 0 to 100 where 0 means lowest globalization and 100 means highest globalization. The official development assistance measured in current US dollar, remittances (current US dollar) and development expenditures (percentage of GDP) are used as explanatory variables. Table 1 presents the detailed description of the variables.

[11]Due to non-availability of data pertaining to low income countries no analysis has been done on LMC panel. Countries including in this panel are Afghanistan, Syrian Arab Republic and Yemen
[12]See the world development report of world classification 2021.

Table 1: Description of the Variables

	Variables	Symbol	Proxy	Units	Expected sign	Sources
Dependent Variable	**Quality of Life**	QOL	HDI[13]	Score 0 to 1	...	UNDP/ WDI
Independent Variable	**Economic Freedom**	EF	Economic Freedom Index[14]	Score 0 to 100	+/-	The Heritage Foundation
Control Variables	**Development Expenditure**	DEXP	Development Expenditure	% of GDP	+/-	WDI
	Globalization	GLOB	KOF Globalization Index 2021	Score 0 to 100	+/-	WDI
	Remittances	LREM	Personal Remittances (in log)	%	+/-	WDI
	Official Development Assistance	LODA	Foreign Aid Current US dollar (in log)	%	+/-	WDI

Source: Author's Self Construction

5.2 Model Specification

Keeping in the objectives of the study, separate models for LMIC, UMIC and HIC have been specific as given below. Different variables are selected for the model specifications in the current study.

LMIC model

$$QOL_{it} = \underset{}{\beta_0} + \underset{(+/-)}{\beta_1 EF_{1it}} + \underset{(+/-)}{\beta_2 DEXP_{2it}} + \underset{(+/-)}{\beta_3 GLOB_{3it}} + \underset{(+/-)}{\beta_4 LREM_{4it}} + \underset{(+/-)}{\beta_5 LODA_{5it}} + \varepsilon_{it}$$

UMIC model

$$QOL_{it} = \underset{}{\beta_0} + \underset{(+/-)}{\beta_1 EF_{1it}} + \underset{(+/-)}{\beta_2 GLOB_{2it}} + \underset{(+/-)}{\beta_3 LODA_{3it}} + \underset{(+/-)}{\beta_4 LREM_{4it}} + \underset{(+/-)}{\beta_5 DEXP_{5it}} + \varepsilon_{it}$$

HIC model

$$QOL_{it} = \underset{}{\beta_0} + \underset{(+/-)}{\beta_1 EF_{1it}} + \underset{(+/-)}{\beta_2 GLOB_{2it}} + \underset{(+/-)}{\beta_3 DEXP_{3it}} + \underset{(+/-)}{\beta_4 LREM_{4it}} + \varepsilon_{it}$$

Where,

QoL_{it} = Quality of Life in ith cross sections & $time\ periods$
EF_{it} = Economic Freedom in ith cross sections & $time\ periods$
$DEXP_{it}$ = Development expenditures in ith cross sections & $time\ periods$
$GLOB_{it}$ = Globalisation index of ith cross sections & $time\ periods$
$LODA_{it}$ = Official Development Assistance in ith cross sections & $time\ periods$
$LREM_{it}$ = Remittances in ith cross sections & $time\ periods$
ε_{it} = Error term of the overall model & $Ideonsyntric\ error\ term$
$it = i$ shows cross section as $i = 1,2 \ldots \mathrm{N}$ whereas "t" shows time period from $1,2, \ldots \mathrm{T}$

The expected signs are reported beneath the regressions of the coefficients in parenthesis.

5.3 Methodology

In this section we are going to specify the suitable methodology that can supports our conceptual framework. Pre requisite test has been applied on the balanced panel data.

[13]This composite index measures averages of three dimensions of human life these are long and healthy life, GDP per capita and education.

[14] Trade freedom, financial freedom, investment freedom, business freedom, monetary freedom, government effectiveness, tax burden, fiscal freedom, property right freedom, labour freedom, freedom of corruption and judicial effectiveness are the twelve indices included in economic freedom index.

5.3.1 Panel Unit Root Test

We use the Im, Pesaran and Shin (2000) panel unit root test on the variables of all three models of the current study. The null hypothesis of the IPS (2000) is there is a unit root, against the Alternative there is no unit root in the variables. If the probability value of the null hypothesis is less than 0.05 then we reject the null hypothesis and accept the alternative hypothesis. This test has been applied on all the variables for testing their order of integration.

$$H_0 = Serieshasaunitrootifp > 0.05$$
$$H_A = Serieshasnotaunitrootifp < 0.05$$

At 5% level of significant we will reject or accept the H_0 andH_A.

5.3.2 Panel Autoregressive Distributed Lag (ARDL) Model

A general model for the relationship of the quality of life and economic freedom has been shown in this part of methodology. The model is given below

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_0} + \sum_{\boldsymbol{j=1}}^{\boldsymbol{p}} \boldsymbol{\beta_{1,ij}}\, \boldsymbol{Y_{i,t-j}} + \sum_{\boldsymbol{j=0}}^{\boldsymbol{q1}} \boldsymbol{\beta_{2,ij}}\, \boldsymbol{X_{i,t-j}} + \sum_{\boldsymbol{j=0}}^{\boldsymbol{q2}} \boldsymbol{\beta_{3,ij}}\, \boldsymbol{C_{i,t-j}} + \boldsymbol{\varepsilon_{it}}$$

Where, Y is dependent variable which is same for all three models and X is the independent variable which is also same for all three models while C shows the control variables which can differ with respect to the cross section characteristics. i=1, 2, 3….N and t=1, 2, 3…T β_0 …β_4 are the coefficients of the regressors. J= 1…. P are the lags of the dependent variable while j=0…. q lags of independent variables and AIC lag length criteria has been used for the lag selection of the variables of the models while ε_{it} is the error term of the model. Which are white noise ~ having constant mean and constant variance. Now to find the short run of the model we take the differences of the variables.

$$\Delta\boldsymbol{y_{it}} = \boldsymbol{\beta_0} + \sum_{\boldsymbol{j=1}}^{\boldsymbol{p}} \boldsymbol{\beta_{1,ij}}\, \Delta\boldsymbol{Y_{i,t-j}} + \sum_{\boldsymbol{j=0}}^{\boldsymbol{q1}} \boldsymbol{\beta_{2,ij}}\, \Delta\boldsymbol{X_{i,t-j}} + \sum_{\boldsymbol{j=0}}^{\boldsymbol{q2}} \boldsymbol{\beta_{3,ij}}\, \Delta\boldsymbol{C_{i,t-j}} + \boldsymbol{\gamma_1 X_{1it}} + \boldsymbol{\gamma_2 C_{2it}} + \boldsymbol{\varepsilon_{it}}$$

Δshows the 1st difference $\beta_1 \ldots \beta_3$ are the coefficients of the short as the difference are there while $\gamma_1 \ldots \gamma_3$ are the coefficients of long run. We have found the long run and the short run of the model where betas show the short run coefficients of the model while the γ shows the long run coefficients of the model. When long run is estimated then we can calculate the ECM term of the model (also called speed of adjustment) that tell us at which speed the series is converging every year towards its long run.

$$\Delta\boldsymbol{Y_{it}} = \boldsymbol{\beta_0} + \sum_{\boldsymbol{j=1}}^{\boldsymbol{p}} \boldsymbol{\beta_{1,ij}}\, \Delta\boldsymbol{Y_{i,t-j}} + \sum_{\boldsymbol{j=0}}^{\boldsymbol{q1}} \boldsymbol{\beta_{2,ij}}\, \Delta\boldsymbol{X_{i,t-j}} + \sum_{\boldsymbol{j=0}}^{\boldsymbol{q2}} \boldsymbol{\beta_{3,ij}}\, \Delta\boldsymbol{C_{i,t-j}} + +\boldsymbol{\theta_i ECM_{i,t-1}} + \boldsymbol{\varepsilon_{it}}$$

Here θ is the ECM term which is also called speed of adjustment of the model. It calculates that degree of speed which tells us that in how many years the model is fully converges to its equilibrium in the long run.

6. Results and Discussions

In this section we are going to present estimated results and discussions pertaining to panel unit root test, descriptive analysis, panel ARDL (short run and long run results) and cross sectional short run coefficients test.

6.1 Descriptive Analysis

Summary Statistics i.e. Mean, Minimum value, Maximum value, Standard Deviation of some variables used in the study is given in table 2.

Table 2: Summary Statistics of the Variables

Variables	Mean	Minimum	Maximum	Standard deviation	Observations
LMIC (India, Iran, Pakistan, Philippines, Sri Lanka)					
QOL_{it}	0.64	0.44	0.78	0.1	97
EF_{it}	54.2	35.9	66	6.68	97
$GLOB_{it}$	56	39	67	6.03	97
$DEXP_{it}$	0.36	0.063	0.85	0.25	97
$LREM_{it}$	3.86	2.72	4.9	0.61	97
$LODA_{it}$	8.79	7.8	9.57	0.50	97
UMIC (China, Georgia, Kazakhstan, Malaysia, Turkey)					
QOL_{it}	0.75	0.66	0.82	0.04	110
EF_{it}	62.1	49.7	77.2	7.4	110
$GLOB_{it}$	65.7	47	81	8.75	110
$DEXP_{it}$	0.87	0.07	2.14	0.66	110
$LREM_{it}$	9.09	7.62	10.5	0.63	110
$LODA_{it}$	1.03	0.99	1.28	0.06	110
HIC (Cyprus, Israel, Japan, Korea, Kuwait)					
QOL_{it}	0.86	0.77	0.91	0.04	110
EF_{it}	68.76	60.8	74.3	3.49	110
$GLOB_{it}$	73.52	62	83	5.4	110
$DEXP_{it}$	2.28	0.06	4.9	1.74	110
$LREM_{it}$	9.52	7.6	10.2	0.54	110

Table 2 shows that descriptive analysis shows that HIC has a higher mean than LMIC and UMIC mean values. The highest mean value shows that HIC has the highest QOL and EF during the reference period. All the standard deviation values of all the three panels are less than their mean values which shows that our data has no skewness and significant variation has been seen in minimum and maximum values in all the three panels during the sample period.

6.2 Panel Unit Root Test Results

Table 3 shows the unit root test results in LMIC, UMIC and HIC. The results of Im, Pesaran and Shin (IPS) test show that series are of I(0) & I(1), which proposed us to apply panel ARDL on the balanced panel data of the LMICs, UMICs and on the HICs.

Table 3: Panel Unit Root Test Results

Variables	IPS (t-stat)		Order of integration
	c	c ,t	
LMIC			
QOL_{it}	0.00*	0.00*	I(1)
EF_{it}	0.01*	0.22	I(0)
$GLOB_{it}$	0.005*	0.72	I(0)
$DEXP_{it}$	0.00*	0.00*	I(1)
$LREM_{it}$	0.004*	0.62	I(0)
$LODA_{it}$	0.000*	0.000*	I(1)
UMIC			
QOL_{it}	0.00*	0.01*	I(1)
EF_{it}	0.90	0.02*	I(0)
$GLOB_{it}$	0.001*	0.405	I(0)
$DEXP_{it}$	0.003*	0.04*	I(1)
$LREM_{it}$	0.01*	0.38	I(0)
$LODA_{it}$	0.00*	0.004*	I(0)
HIC			
QOL_{it}	0.00*	0.00*	I(1)
EF_{it}	0.71	0.02*	I(0)
$GLOB_{it}$	0.00*	0.00*	I(1)
$DEXP_{it}$	0.00*	0.00*	I(1)
$LREM_{it}$	0.00*	0.02*	I(1)

Source: Author's calculations

6.3 Panel ARDL Long Run Results

Variables are of mixed order so we apply panel ARDL on LMIC panel, UMIC panel and HIC panel to estimate the long run relationships of the variables.

Table 4: Panel ARDL Long Run Results

Variables	LMIC (1,1,1,1,1,1,1)			UMIC (2,1,1,1,1,1)			HIC (4,2,2,2,2,2)		
	Coefficients	S.E	p-value	Coefficients	S.E	p-value	Coefficient	S.E	p-value
EF_{it}	0.007	0.002	0.001*	-0.003	0.008	0.008*	0.001	0.000	0.000*
$GLOB_{it}$	0.005	0.001	0.007*	0.008	0.001	0.000*	0.002	0.000	0.000*
$DEXP_{it}$	-0.26	0.02	0.000*	0.001	0.01	0.963	0.029	0.006	0.0002*
$LREM_{it}$	-0.006	0.03	0.85	-0.02	0.013	0.92	-0.031	0.003	0.000*
$LODA_{it}$	0.031	0.011	0.000*	-0.02	0.24	0.925			

Source: Author's Self calculations, Note: *- shows significance of the variable, S.E – standard error and P-value shows exact level of significance.

Table 4 shows the long run panel ARDL results of the three models of LMIC, UMIC and HIC. In case of LMIC one unit increased in EF, on average has increased QOL by 0.007 units in the long run, ceteris paribus. Regulatory efficiency, property rights and legalized security are the highly dimensions of EF to predict the positive association of EF with well-being. Developing countries enjoyed more happiness in the high EF era when regulatory burden decreased(Gehring, 2013). Estimation results are aligning with the study of(Berggren, 2003; Carlsson & Lundström, 2002) they found positive and significant results. Globalization allows the sector of manufacture to produce goods at a cheap cost and also creates global competitiveness which moves prices downward and people have multiple choices of goods and services at a lower cost. Lower cost is beneficial in both developing and developed countries as they have to spend less money on buying goods and services(Sirgy & Lee, 2003).

Development expenditures are negatively related to the quality of life in LMIC, because in the LMICs mostly expenditures are spending in non-development projects. Having the poor political system is the main reason of the adverse effect of development expenditures, because policy makers are failed in making the effective policies in the region (Memon, Wagner, Pedersen, Beevi, & Hansen, 2014). One percent has increased in DEXP then QOL has decreased by 0.26 percentage point in the long run during the reference period, ceteris paribus. Remittances are negatively and insignificantly related to the quality of life in the region of LMIC as by increasing the remittances, the transfer of knowledge moves from domestic country (Levitt, 1998) to abroad human capital is shifting.

Official development assistance is a significant cause of good quality of life. Donor countries provide aids for aiming to enhance the QOL of low income countries and make the trade openness effective policies to run the bilateral trade (Alesina & Dollar, 2000). ODA plays an effective role in the development of the country when political stability and effective policies are ensured (Nwude, Ugwoke, Uruakpa, Ugwuegbe, & Nwonye, 2020). In the case of UMIC, one unit has increased in EF then QOL has increased by 0.003 units on average given during the reference period, ceteris paribus. EF has increased monopolies in the economy, profits are maximum but in few hands income inequalities have increased and rich have become richer persons of the society, and the gap between poor and rich has increased, Bang, Mitra, and Wunnava (2015)has also found negative and significant results of EF on economic growth. EF has an adverse effect on economic growth in health, legal and education sectors, in these sectors when EF has increased the corruption cases has also increased and black money cases too, and the economic growth of these sectors declined (Gohmann, Hobbs, & McCrickard, 2008).

Globalization is turned out to increase the quality of life. Certain level of economic development is helpful for attaining the global benefits (Sapkota, 2011). Development Expenditure is positive but statistically insignificant. Same results are found by (Memon et al., 2014). Remittances are negative and statistically insignificant. Official Development Assistance is negative but statistically insignificant in UMIC. Murshed and Khanaum (2012) also found the

same negative results. They wrote that Donors prefer to allocate aid in those countries which have low QOL to improve their living standard than other countries (where high rate of QOL existed) and also on those countries which have the low population as per person can get more proportion from that aid. When aid gives to those countries which are high in QOL and high population, they found that ODA shows statistically insignificant results on QOL. Negative results of foreign aid on economic growth has been obtained by (Tiwari, 2011). He stated that negative results are due to not control in corruption and lack of monitoring.

In case of HIC model EF is positively and significantly related to the QOL. As one unit increased in EF then QOL has increased by 0.001 unit in the long run, ceteris paribus. Globalization puts positive and significant impacts on QOL. Development expenditure has increased by one percent, then 0.029 percentage point has increased in QOL on average in the long run during the reference period remaining other variables constant. Incentives of the recipient countries goes down and a significant reduction in labour supply and labour participation in the economy is the reason for the reduction of the economic growth of the recipient country (Perez-Saiz, Dridi, Gursoy, & Bari, 2019).

6.4 Panel ARDL Short Run Results

Table 5 shows the short run results of LMIC, UMIC and HIC. In the short run results ECM term is most important that tells us the convergence of the short run model towards the long run. In this its negative sign shows the convergence, and this convergence is also significant. In the short run of LMIC the D(EF) is positively related to the quality of life having a high significance. In UMIC only EF, difference of globalization and lag of remittances are positively and significantly related with the QOL in the short run. In HIC the ECM term and constant is significant. Lag of globalization and difference of remittances are positively highly significantly related with the QOL in the short run.

Table 5: Panel ARDL Short Run Results

Variables	Coefficients	S.E	P-value
	LMIC		
$ECM_{it}(-1)$	-0.079*	0.036	0.03
$D(EF_{it})$	-0.001*	0.001	0.001
$D(GLOB_{it})$	0.0001	0.0001	0.124
$D(DEXP_{it})$	0.012	0.015	0.407
$D(LREM_{it})$	-0.004	0.018	0.82
$D(LODA_{it})$	0.001	0.002	0.729
Constant	-0.005	0.006	0.517
	UMIC		
$ECM_{it}(-1)$	-0.076*	0.035	0.035
$D(EF_{it})$	-0.001*	0.000	0.000
$D(GLOB_{it})$	0.001*	0.000	0.001
$D(DEXP_{it})$	0.017	0.012	0.170
$D(LREM_{it})$	-0.004	0.018	0.821
$D(LODA_{it})$	0.001	0.002	0.788
Constant	-0.004	0.006	0.505
	HIC		
$ECM_{it}(-1)$	-0.482*	0.255	0.06
$D(QOL_{it}(-1))$	0.087	0.157	0.57
$D(QOL_{it}(-2))$	0.202	0.271	0.46
$D(QOL_{it}(-3))$	-0.02	0.197	0.88
$D(EF_{it})$	-0.001	0.001	0.72
$D(EF_{it}(-1))$	-0.001	0.000	0.70
$D(GLOB_{it})$	-0.001	0.001	0.15
$D(GLOB_{it}(-1))$	-0.001*	0.000	0.00
$D(DEXP_{it})$	-0.02*	0.009	0.09
$D(DEXP_{it}(-1))$	-0.01	0.009	0.27
$D(LREM_{it})$	0.03*	0.013	0.01
$D(LREM_{it}(-1))$	0.01*	0.007	0.06
Constant	0.39*	0.202	0.06

Source: Author's Self calculations, Note: P-value shows exact level of significance and *- shows significance of the variable

Table 6 shows the cross-sections short run coefficients of fifteen Asian countries that shows the convergence of individual cross-sections. In LMIC India is the fastest economy who will reach its equilibrium.

Table 6: Cross Sectional Short Run Coefficient Results

Country	LMIC	UMIC	HIC
India	-0.21		
Iran	-0.09		
Pakistan	-0.01		
Philippines	-0.01		
Sri Lanka	-0.06		
China		-0.26	
Georgia		-0.05	
Kazakhstan		-0.07	
Malaysia		-0.14	
Turkey		0.038	
Cyprus			-1.16
Israel			-0.04
Japan			-0.09
Korea			-0.07
Kuwait			-1.04

Source: Author's calculations

As its ECM is -0.21 which describes that it converges to its equilibrium 21% in a year and it needs four year and ten months for the full convergence into the long run. The coefficients of Iran is -0.09, -0.06 is for Sri Lanka then there are values of coefficients for Pakistan and Philippines i.e. -0.01. Iran needs ten years and two months for the full convergence into equilibrium, while Sri Lanka needs approximately seventeen years for the convergence, then Pakistan and Philippines both need a century (a hundred years') time period for achieving the full convergence and sustainable development in the region of Asia.

In UMIC china is the fastest country having the convergence of 26% in a year and it needs approximately three years and three months for the long run achievements across the region. Georgia has 5% convergence to its equilibrium and it needs approximately twenty years for the full convergence then Malaysia converges to its equilibrium 14% in a year and it needs approximately seven years and two months for long run. Kazakhstan converges to its equilibrium 7% in a year and it needs fourteen years and four months and the least country Turkey having -0.03 speed of adjustment and converges to its equilibrium 3% in a year. Turkey needs twenty-six years for the long run convergence.

In HIC panel Cyprus and Kuwait are two highlighted cross sections which have highest speed of adjustment as Cyprus is developed and advanced economy with a 5.6% growth rate it get 85.5% of GDP from the service sector as it converges to its equilibrium in a year while Kuwait is also developed economy as it is a free economy, giving the free education to its people that is why its literacy rate is high 71%. It converges to its equilibrium in one year because of its hard working labour force. After them Japan has the highest rate of adjustment at 9% in a year. It needs eleven years and one month approximately for convergence. Korea converges to its equilibrium 7% in a year and it needs fourteen years and four months for the full convergence towards the equilibrium in the long run. Israel needs twenty-five years for the full convergence as it converges to its equilibrium 4% in a year.

7. Conclusion, Policy Recommendations

This study aims at analyzing the effect of Economic Freedom and Globalization on Quality of life of Asia by segregating into various groups' w.r.t. income levels. For that purpose, balanced panel data (2000-2021) of fifteen Asian countries disaggregated by income level has been utilized for the estimation of long run and short run relationships between economic freedom, globalization and quality of life. It is observed in decade wise analysis that economic freedom was high in Georgia among the panel of Upper middle income countries

(but it is the second highest country in quality of life) and for India it is low. Descriptive Analysis expresses that quality of life is better in HIC having higher economic freedom index and Globalization index as compared to UMIC and LMIC. has been done to comprehend the distribution of variation. Then panel unit root test suggested us to apply panel ARDL on all the three models.

In case of Lower Middle Income Countries, Quality of Life is improved by Economic Freedom, Globalization and Official Development Assistance while it is negatively affected by development expenditure (significant) and remittances (insignificant). In Upper Middle Income Countries, Quality of Life has been positively linked with globalization and development expenditures while it is inversely affected by economic freedom, remittances and official development assistance. Regarding High Income Countries, it is observed that economic freedom, globalization and development expenditures are improving while remittances is reducing quality of life. Then we do the cross-sectional short run coefficient test analysis, which helps us to do a comparative analysis of how much time a country would take to converge from its short run to long run equilibrium. On the basis of empirical results following are the suggestions.

- With respect to LMIC, it is suggested that economic freedom should be promoted as it is the stimulus factor to determine the quality of life. Globalization should also be promoted for making good international relationships and official development assistance should be promoted and also be allocated to the deserving sector to get fruitful results for improvements in quality of life.
- With respect to UMIC, globalization should be promoted as it gives better opportunities to the citizens to show their talent in front of the world, it raises the employment level and also it elaborates the people with good ideas. Development expenditures should also be promoted in UMIC as it relates positively to the quality of life.
- With respect to HIC, economic freedom should be promoted. Globalization should also be promoted. For this policy makers should make effective policies regarding social globalization, political globalization and economic globalization, in order to develop good international relationships between the people of different countries. It is encouraged to the government sector to increase the development expenditure as it makes the infrastructure of the country, makes people of the country educated and technical.

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