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Globalization and Well Being – A Comparative Study of East European And CIS Countries

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Globalization and Well Being – A comparative Study of East European And CIS Countries

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ABSTRACT

This paper develops an index of wellbeing by using Osberg and Sharpe (2002) model as benchmark and also by following our previous study(2018) after taking into account of the limitations of the previous studies for the two sets of countries belonging to Eastern Europe and CIS for the period ranging from 1990-2017. It also makes a comparative analysis of the degree of overall wellbeing of the people across the two sets of countries over the period. Our composite wellbeing index consists of three mutually exclusive dimension indexes of wellbeing viz.(i) present wellbeing index;(ii) future wellbeing index and (iii) social security index. We also account for the dynamics of the cross-states variations in wellbeing by using dynamic panel regression with GMM technique so as to explain the trajectories of variations of wellbeing.

We find that all these two sets of countries (excepting very few in CIS group) have experienced increasing trend in average per capita GDP in varying degrees coupled with mild cyclical fluctuation in the same. Surprisingly, growth pattern of PCGDP over time reveals sharp cyclical fluctuation throughout the period. Almost all the countries in the two groups excepting Ukraine have experienced increase in three kinds of wellbeing as well as the overall wellbeing in varying degrees. Interestingly, the levels as well as increase in wellbeing over time in EE group of countries are relatively higher as compared to that of CIS. Moreover, Poland and Hungary of EE group have achieved higher degree of wellbeing of their people. However, all the countries in the two groups are found to have experienced cyclical pattern of increasing trend in composite wellbeing and PCGDP in varying degrees, albeit we do not find any uniform trend relation between wellbeing index and PCGDPI. The results of our dynamic panel regression confirm that the globalization and PCGDP are the significant explanatory factors in explaining the dynamics of cross-country variation in the wellbeing of people.

Key Words : Globalisation, Wellbeing, Dynamic Panel with GMM, CIS, Eastern Europe.

I. INTRODUCTION

It is not to be denied that almost all the countries in the Globe have been experiencing a rapid transformation in their social, economic and political conditions as an outcome of their integration with the global economy due to the accelerating process of Globalization especially since 1990. Obviously, the socio-economic scenario and the scenario of polity of the post transition economies have revealed tremendous quantitative as well as qualitative changes than what it was before the starting out of the process of liberalization of trade, investment and finance. The volatility of the global macroeconomic

fundamentals has not only been reflected on the macro fundamentals of the integrated economies but it has also affected the socio-economic conditions of the people of the globalized economies. The quantitative magnitudes of the basic economic and social parameters of these economies like the level and growth rate of per-capita real GDP (PCRGDP), educational attainment, health parameter like life expectancy, parameters pertaining to the financial development and social security of people, stock of wealth or capital, R&D have experienced substantial changes since the process of globalization has had its inception. Further, globalization has not only led to the cross-country transfer of technologies, the stimulation of innovation process across countries thereby raising their productivities, but it has led to the free cross-country movement of goods and services especially the conspicuous consumption goods, consumption pattern and so many social and cultural norms too. Obviously, these changes have brought about changes in the levels of well being the people living in the globalized countries. The countries belonging to Eastern Europe (EECs) and also the Commonwealth Independent States (CIS) are of no exception to this process of transition after their participation in the process of globalization. In our paper we will examine the nature of the transformation experienced by the EECs and CIS countries in terms of the changes in the levels of well being of the people by developing a composite well being indexes separately for each country for the period from 1990 to 2017. The existing dataset which are available from various sources and published by UNDP, World Bank, PENN World Table 9.0 etc clearly reveal that the EECs and the CIS countries have experienced upward movement of real GDP, Per Capita GDP (PCGDP), growth rate of real PCGDP (GPCGDP), human development, volume of total trade, per-capita real consumptions, the net capital formation (NCF) including both physical and financial as well as intangible capital. All these seem to have brought about an improvement in the levels of living vis-à-vis the level of well-being of the people of these countries. Obviously, the people of those economies have been experiencing a transition towards the better off position than they were before. So the question obviously crops up: How much they are better off at present and also during the process of the globalization of those economies. Since the transformation in the quality of life of the people as well as their well-being is basically a multidimensional concept containing different aspects of changes viz; economic, social, political, environmental, health (life

expectancy), education, personal activities like social mobility, freedom, altruism, governance, inter-personal relationship etc., it is really difficult to capture the changes in quality of life and well-being of people in terms of a single parameter like PCGDP or in terms of a single dimensional index. Moreover, national income accounting measure of each economy may not also be a good guide to the popular perception of trend in economic well-being albeit SNA 2008 has brought about radical change in the accounting process. Therefore, one has to search for a good index of economic well-being of people for the CIS and EECs which are still scarce. This paper is actually a modest attempt in this direction.

In fact, there is vast literature regarding the limitations of the use of per-capita real GDP as an index of well being of the people. Further the money metric measure of economic performance and living standard creates a lot of problems pertaining to the use of prices of goods and services and the related weights. Although the SNA 2008 have revised the national accounting system through the rectification of accounting methods, there is still a lot of limitations in using the GDP and Per-capita GDP as measure of well-being of people (Stiglitz, Sen, Fitoussi 2009). Apart from this there has indeed been cross-current of studies on the measure of well-being of the people of a country (Osberg, Sharpe et al., 2016; Jones and Klenow, 2016; Wu & Rao et al. 2016, Beaumont and Thomas, 2012; Cribb, Robert and David, 2012; Fleurbaey, M., 2009; Fleurbaey and Gaulier, 2009 , 2007; Krueger and Schkabe , 2007; Matthews, E.,2006; Kahneman and Krueger, 2006; Layard, 2005; Osberg and Sharpe, 2002, 1998; Easterlin, 2001; Diner, Suh, Lucas and Smith, 1999; Osberg, 1985, Ghosal,2018 etc). Some of the studies use subjective measures of well being while some others use objective based measures. Moreover, there are some studies which have developed composite index of well being. Interestingly, there is as such no specific study on the measurement of well-being for the CIS and EECs. Therefore, using the pioneering studies of Osberg and Sharpe (1998,2002,) (Osberg, Sharpe et al., 2016, Ghosal,2018) as benchmark we have developed composite indexes of economic well being (CWBI) for EECs and CIS countries for the period from 1990 to 2017 .

It is true that any study based on the time series trend of the individual parameter, across the two sets of countries may give us a fragmented insight about the changes in the

qualities of life of the people as well being of the people across these two sets of countries. Moreover it may so happen that a country experiencing a very high rate of growth may reveal poor levels of quality of living of its people due to the persistence of increasing inequality and lack of adequate social security measures adopted by its Government. So we have to have a composite index of well being for examining the trend in the well being of the people as well as the effect of globalization on the well being of people of these countries. Further the development of a composite well being index may be treated as a suitable method of quantifying the impact of globalization on the qualities of life of the people of the countries considered in our study. Before evaluating the impact of globalization one also has to develop a suitable index for measuring globalization in quantitative form across the countries. It is worth mentioning that KOF Swiss Economic Institute of Zurich has developed a composite index of globalization consisting of economic, social and political dimensional indexes of globalisation for 203 countries since 1970. In our study we use this index of globalization. In this study we develop the composite wellbeing index (CWBI) such that it consist of three separate as well as mutually exclusive sub-indexes namely (i) the present wellbeing index (PWBI) of the people, (ii)future wellbeing index (FWBI) or sustainable wellbeing index and (iii) the social security index (SSI). Assuming a multiplicative relationship between these components or dimensional indexes we develop a composite index of well being after assigning equal weights to each component. Having computed these longitudinal composite well being indices we examine the correlation between the series of CWBI and the series of composite index of globalization (CIG) for these two sets of countries by applying dynamic panel regression with GMM technique. This paper is structured as follows. Section II presents a brief review of literature in this area; Section III presents the data and methodology of construction of index; Section IV highlights the overall macro-economic scenarios of these two sets of countries in terms of some basic macro fundamentals; Section V presents discussion on dimensional indexes and their behavior across the two sets of countries; Section VI present a comprehensive and comparative analysis of the CWBI between the two sets of countries, Section VII presents the analysis of the results of dynamic panel regression; and finally Section VIII gives the concluding remarks.

II. Review of Literature:

The literature towards the measurement of the qualities of life as well as the trend in well being of the people is really vast. We have, in fact, tried to make a brief review of the same. It is indeed undeniable that people living in every society want to live or enjoy a good life with entitlement to all kinds of social, economic, political and financial amenities as per their capabilities provided they are given the adequate opportunities. The father of economics Adam Smith as well as the welfare economists since Ronald Coase, Pareto and presently Amartya Sen(1987,1982); (Stiglitz, Sen, Fitoussi 2009) Martha Nasbaum(2011), Osberg and Sharpe (1998,2002,2003,2016), Easterlin(2001), Michel Porter, Anthony Atkinson(2015), Hagerty et. al. (2001) have emphasized and registered their views on the increase in the quality of life as well as on the sustainability of the wellbeing of the people across the globe. It has long been recognized that the real per-capita GDP cannot be a good index of economic wellbeing and this has been strongly echoed particularly since when Nordhus and Tobin (1972) developed an alternative measure of economic welfare by correcting GDP for its most evident limitations and also after the publication of the Stiglitz, Sen and Fittousi report of the commission of the measurement of Economic performance and social progress in 2009. Interestingly, Osberg and Sharpe (1998, 2002) has addressed this issue and developed a composite well being index for select OECD countries by considering not only the economic issues but also the non-economic issues which are indispensable for the overall well being of the people. Since then a majority of the Governments of the countries across the World have brought about a major change in the systems of national Accounting (SNA) so as to capture and include of the missing elements in the GDP which are required for the present and the sustainability of the well being of the people across the countries. The UNDP as well as UNESCO has also promulgated the millennium development goals for reduction of poverty, inequality and also the sustainable development goals including 17goals which came into effect in January 2016 and chalked out strategic plan for combating problem of poverty, democratic governance and peace building, climate change and disaster risk and economic inequality.

In fact, it is undeniable that GDP contains only the production of goods and services which are transacted in the market without taking into account or valuing the non-market transaction of good and service (health, education defensive expenses etc) done by both private, households and Government sectors contributing to the economic well-being of people; the underground legal and social value of leisure, health status, education, social securities, social and economic cost of environmental degradation. Further, GDP is flow and it does not pay heed to the stock of wealth of the household as well as the society, the expected income from which largely influences the human behavior pertaining to consumption, saving, inter-generational transfer of productive base for sustainability of well being of the future generation of the household vis-à-vis the society. In fact, the use of per-capita real GDP which is basically an average figure does not focus on how it is distributed and whether all sections/classes of people have equal access to it. It is also obvious that measure of GDP does not take into account the issue of sustainability of well being of the people. The money metric measure of economic performance and living standard creates a lot of problems regarding the use of prices of goods and services and the related weights.

There has indeed been a wide range of studies done by Governments of different countries, NGOs and individual researchers etc. on the measurement of social indicator, quality of life as well as trend in well being of people. The major development in this field during the last 5 decades and until now can be identified into four phases: i) development of professional organization that nurture its conceptual and empirical development ; ii) the wide spread political, popular and theoretical appeal of the quality of life concept; iii) A new era of construction of composite well being Index or summary social indicator and (iv) a recognition of the key role of the quality of the life concept in connecting social indicators to the study of subjective well being. The social indicators literature develops a large number of variables as social conditions of the people without congregating them into a single composite index so that it becomes difficult to have a complete insight on the trend in well being of the people (Land, 2000). Moreover, social indicators literature has put less emphasis on the economic aspects of well being. Actually, the social indicators movement was started since 1960 and a series of studies and reports have been published since then

(Bauer, 1966). The U.S. Federal effort in developing social indicators' by Ferriss(1979); "Systems of social indicators and social reporting: the state of art" by Berger Schmitt and Jankowitsch (1999); "Quality of life indexes for national policy: review and agenda for research by Hagerty, Cummins , Ferriss, Land ,Michalos, Sharpe, Sirgy and Vogel (2001); "Social indicators and quality- of- life research; background, achievements and current trend" by Noll (2002) and "The quality-of-life(QOL) research movement: Past, present and future by Sirgy, Michalos, Ferriss, Easterlin and Patrick (2005).

The major questions of these studies centered round where we stand and where are going with respect to our values, goals and to evaluate specie programme and determine their impact. The other important as well as comprehensive studies on the measurement of the trend in social indicators are done by Andrews et. al. (1989), Michalos (2011, 2014a, 2014b) Hegarty (2001). However, the research on social indicators has neither focused on the question: why are they standing at the present level? and what are the trajectories behind the changes in the social indicators across the countries? Nor is there any attempt to the quantification of the role of explanatory factors behind such changes.

Moreover, since the quality of life and preference pattern of the people differ across the countries in the globe ,the literature on the quality of life or social indicators emphasized the necessity of the incorporation of objective condition of life and the subjective experience of life quality, the structural relationship between the inter-dependant factors pertaining to this, the dynamic process of transformation of quality of life rather than its static state and finally the projection of the policy aspects for the study of the well being of the people. It is worth mentioning that the second OECD World forum on "Statistics, Knowledge and Policy" has produced declaration in Istanbul in 2007 and there was a consensus between the representatives of European Commission, OECD, organization of Islamic conference, the UN, UNDP and the World bank for undertaking the measurement of societal progress of every country going beyond the conventional economic measure so as to evaluate the social well being. Parallely, Genuine Progress Indicator (GPI) has come into vogue in 1995 and it was developed by the think tank consisting of three Californian researchers as a metric

to replace or supplement the shortcomings of GDP towards the measurement of economic well being of the people of the nations across the World (Cobb, Halstead and Rowe, 1995) . GPI has two parts: i) the development of indicators and measures of progress and (ii) assessment of economic values of non-market, social and environmental assets generally not valued in conventional economic statistics. Actually, the GPI incorporates 26 social, economic and environmental variables. However, the GPI includes many of the variables in the index of economic well being but it gives much greater weight to environmental variables because of the particular methodology used to estimate the losses associated with this variable namely crime, pollution, sickness, natural resource depletion. Indeed these losses become so large that they give the GPI trend a strong downward bias (Hagerty et. al., 2001; Osberg and Sharpe. ,2002). Alongside, a composite index known as HDI with three equally weighted components viz. health, education and income are being developed for the countries in the globe since 1990 which is followed by a methodological change since 2010 (UNDP-2012) which also ignores the problem of sustainability, social security, environmental risk etc and also excludes the other parameters of wellbeing. In fact, both the GPI and HDI are more in the spirit of the measures of economic welfare developed by Nordhaus and Tobin (1972) albeit these two measures also suffer from the limitations stated above. Actually, to answer the question “where do we want to go?” we need to generate effective policy implications out of the measures of dynamics of economic well being. It is true that there is wide cross-country and cross-time heterogeneity because of the differences in the preference pattern of people, geographical location, and environmental conditions. Therefore one has to develop a suitable measure of wellbeing from which a fruitful policy implication may emerge. Almost all the measures developed so far lack this property.

Another holistic approach towards the measurement of wellbeing of the people was the happiness index which was initially developed in Bhutan and then the first world happiness index using data from Gallop World Poll has been started publishing since 2012. The parameters of measuring happiness are PCGDP, social support, healthy life expectancy, and freedom to make life choice, generosity and trust as well as corruption which are almost contained in the measures of wellbeing like GPI, HDI in

varying degrees. It also suffers from the limitations in respect of dynamic policy implications as well as non-consideration of the impact of globalization, digitization as well as the technological change. Apart from the macro level studies there are a lot of efforts to develop quality of life as well as wellbeing index from primary data (Sengupta et. al., 2012; Hagerty et. al. 2001; Land, 2015; Atkinson, 2015; Glatzer, 2015; Anderson, 2015; Glatzer et. al. , 2015). Land et. al,2012; Osberg et al 2002:. On the whole, there has actually been a cross-current of studies, country specific, region specific as well as cross country towards the measurement of wellbeing of the people through development of either composite wellbeing index or indexes of indicators (Osberg, Sharpe et. al., 2016; Jones and Klenow, 2010; Fleurbaey, M.et.al(2013); Osberg and Sharpe, 2002,1998; Easterlin,2001; Osberg,1985) etc. Unfortunately it is undeniable that if an inappropriate measure of economic well being is used, both policy and analysis are likely to suffer.

Gaps in Literature

The major limitations of the studies discussed above, can be succinctly outlined as follows: First, most of the studies used flow of per capita real income instead of considering the flow of real per-capita consumption expenditure which is more realistic measure of trend in well being as well as quality of life. Second none of the studies excepting that of Osberg and Sharpe, 1998,2002, Ghosal ,2018 have taken into consideration of the future well being and social security as well as governance aspects. Second, while estimating stock of capital per capita the depreciation of capital which may takes place over time and across countries in varying degrees has not been deducted. Interestingly, Osberg and Sharpe(2002), Ghosal 2018 have taken into account of the per capita environmental cost in current consumption and also the depreciation of the stock of capital in the in the accumulation of capital for bequest or future well being. Third, the cross –country variations of wellbeing indexes across countries and time as well as its dynamic aspects are not explained or accounted for in almost all the excepting the study of Ghosal,2018. Fourth, inadequacy of real PCGDP as measure of wellbeing across countries and its dynamic aspects have not been estimated through dynamic panel

regression set up. Fifth, none of the studies have tried to identify the explanatory factors behind the cross-country and cross-time variations in wellbeing indexes and so the policy variables could not be identified properly for the improvement of the wellbeing of people across the countries considered in the studies. Sixth, the simultaneous use of the intensity of poverty (incidence and depth) and the inequality of the distribution of income (in terms of Gini) obviously raises the question of the use of single variable Income twice as both the poverty and inequality are computed on the basis of income/ per-capita income. So the consideration of income distribution aspect in constructing the economic well being index (Osberg and Sharpe, 2002) seems to vitiate the result through the double consideration of income/per-capita income. Finally, it is well known that both the neo-classical and modern endogenous growth theories have emphasized the discounting of households preferences between present and future consumption such that in all the theoretical growth models, the discounting factor has been kept constant over time which is unrealistic. So for developing the composite wellbeing index the assignment of equal weight to all sub-indexes are not acceptable. Actually, the people belonging to globalised, computerized, digitalized as well as to the modern technological age obviously prefer more to higher quality of life through the consumption of sophisticated and conspicuous goods rather than living larger bequest for future generation. So, what is realistic is that one is to assign relatively higher weight to present consumption than future. Therefore by taking into account of all these limitations of the studies referred to above and using Osberg and Sharpe.(1998,2002) study as benchmark and also our previous study (Ghosal,2018) we have developed a composite well being index which consists of three mutually exclusive dimension indices of well being namely (i) present wellbeing indices (PWBI), (ii) future wellbeing indices (FWBI) and (iii) Social security indices (SSI) for the two sets of countries (CIS and EE) such that the details of construction process are given in the next section.

III. Methodology of construction of wellbeing index and Data Base

We develop the composite well-being index for the CIS and EE countries for the period 1990 - 2017 as follows. We have chosen this period on the basis of the assumption that globalization across the countries has taken place in its full fledged form since 1990 and also on the basis of assumption that globalization, digitalization, computerization seems

to have produced substantial impact on the social, economic and political life of the people as well as on the preference pattern of the people across the two sets of countries. While choosing the countries in the two groups we have mainly kept in mind the issue of availability of data. It is true that the longitudinal data set required for the construction of CWBIs' and its components are often not available in full form. Therefore, we have got to make lot of approximations which will be discussed later. Once again there is some controversy regarding the composition of countries in Eastern Europe. In such case we have considered the Eastern Europe as is defined by the **United Nations Statistic Division**. Accordingly Eastern Europe contains the set of countries: Belarus, Bulgaria, Czech Republic, Hungary, Poland, Romania, Russian Federation, Slovakia, Moldova. On the other hand it is well known that the emergence of commonwealth of independent states as a regional inter-governmental organization of ten post Soviet Republic in Eurasia has occurred following the dissolution of Soviet Union since the end of 1991. CIS countries includes Russia, Ukraine, Belarus, Moldova, Armenia, Azarbaijan, Kazakshstan, Turkemenistan , Tajikistan and Kyrgyzstan, Georgia, Uzbekistan. Since Russia, Belarus and Moldova are also incorporated in the eastern Europe group by UNSD we have considered these three states in Eastern Europe and deleted these three countries from the CIS set.

In developing the composite indexes and its components we have incorporated various social, economic, environmental, human development, financial development as well as indicators for sustainable development which are not at a time considered by all other studies through the consideration of their dynamic effect on the wellbeing indexes. We have distinguished between different components of wellbeing index for the policy generation purposes so that it becomes possible to capture the magnitude of changes i.e. ups and downs of individual indexes across the countries and to prescribe the required policies for improvement of overall wellbeing as well as quality of life of the people. We have given equal weight to each components as for the construction of CWBI we have used geometric mean instead of arithmetic mean. We construct CWBI indexes and its component for the two sets of countries using 1990 as base year (i.e. 1990= 100). Infact , the debates about the values, facts and the economic policies are intermingled such that it becomes difficult for the common people to separate them so that the political leaders

and Governments always try to escape themselves from the reality. Therefore, our study tries to unveil that the democratic discourse is likely to be more productive if the issues of values, fact and analysis can be separated as much as possible. In our study, we have assumed that the overall wellbeing of a representative individual in a society depends on his present wellbeing (flow of real per-capita consumption), future wellbeing (the accumulation of savings, other productive asset etc.) and social security the individual enjoys. Here, we assume that (i)societal, economic wellbeing can be represented as the wellbeing of the representative agent or individual such that agent has risk averse utility function in which both personal consumption and bequest to future generation i.e. intergenerational transfer of productive resource are valued and (ii) the individual has complete information about the present market ,technology as well as the vector of consumer goods and luxury goods, accessibility to the financial institutions and markets . The three components or dimensions of the composite wellbeing index are constructed as follows: First, in our study the present utility or wellbeing index (PWBI) is constructed by considering the following components:

(i)Flow of per-capita real consumption expenditure on goods and services (PCC); real per-capita government expenditure (PCGE) less the per-capita military expenditure (PCME) :

$(PWBI)_{it} = [PCC+(PCGS-PCME)] LEI$. We have adjusted our PWBI with the life expectancy index(LEI) with base year 1990by following Osberg and Sharpe methodology (Osberg et el 2002).

We have computed the aggregate government savings and the private savings through the use of national income accounting method and then expressed them in per-capita term by dividing the same by the total numbers of population of the respective countries. All these components are expressed at constant 2010 US\$ PPP. Since the value of more years of healthy life may be looked very different, the closer one is actually is to death, the change in life expectancy and morbidity which are occurring over time are assumed to effect the wellbeing of all now alive. So, to obtain an average impact of these on the wellbeing of the people now alive, we adjust per-capita consumption flows in each year upward by the percentage increase in average life expectancy relative to the base year

1990=100. So, we have multiplied the sum by Life expectancy index (Osberg and Sharpe 2002).

On the other hand Future Wellbeing index (FWBI) or Sustainability of wellbeing index consists of the following components: (i) real per-capita gross domestic savings(PCGDS); per-capita stock of capital net of depreciation (PCSKN) such that the depreciation rates varies both across the two sets of countries and over time and per-capita government debt in real term (both domestic and foreign) (PCGD) and per-capita human resource (PCHR) which is measured in terms of the expenditure on education (primary, secondary and tertiary) in per-capita term; Net contribution of natural resources per capita (NCNRPC)

We have constructed FWBI or sustainability index as :

$$(FWBI)_{it} = (PCS + PCGS + PCSKN + PCHR + NCNRPC) - PCGD.$$

We have computed the total government savings through the use of national income accounting technique and then by dividing the same by population of respective countries we arrive at the PCGS. NCNRPC is computed by considering the total contribution of natural resources to GDP(as Rental value) and then by dividing these figures by the population of the respective countries and further by deducting the per capita environmental cost from it. This is assumed to be the proxy of the net stock of natural resources per capita. Since all these components are assumed to represent the productive base of the economy for future, it is likely that this will continue to produce inter-generational transfer of wellbeing for future generation for the sustainability of well being..

Finally, our social security index (SSI) of wellbeing consisting of the following components:

(i) The per capita social contribution of the Govt of the countries(PCSC) which seems to include unemployment compensation also. (ii) per-capita domestic credit (PCDC) provided by the domestic financial institutions of the countries concerned such that the same is assumed to provide financial security to the people in respect of debt/ mortgaged financing; per-capita military expenses (PCME). We have added all these components giving equal weight to each so that we write:

$$(SSI)_{it} = PCDC + PCME + PCSC$$

It is worth mentioning that all these components are expressed at constant 2010 US\$ PPP. Therefore, our composite wellbeing index becomes $(CWBI)_{it}$ and $(CWBI)_{jt}$ for i th and j th set of countries respectively such that ($i = 1,2,3,4,5,\dots,9$ for CIS and $j=1,2,\dots,8$ for EE) and t periods ($t= 1990,1991,\dots,2017$) is computed as

$$(CWBI)_{it} = ((PWBI)_{it} \cdot (FWBI)_{it} \cdot (SSI)_{it})^{1/3}$$

Since, the geometric mean normalizes the differently ranged values and further since it helps reducing extreme sample fluctuations (in our case the changes in the values of index both across sample countries and time) we use geometric mean to arrive at the composite well being index.

Further to find out the proximate explanatory factors behind the cross-country and cross-time variations of CWBI of the two sets of countries (CIS and EE) and also to examine the dynamic co-relationship between the CWBI and globalization as well as PCGDP we have used the Dynamic Panel Data (DPD) with Generalised Method of Moment (GMM).The econometric specification of the model used is presented in the next subsection. below.

We have fitted the following log linear dynamic panel regression equation:

$$\ln(CWBI)_{it} = \alpha + \delta(CWBI)_{it-1} + \beta \ln(Globalisation)_{it} + \gamma \ln(PCGDP)_{it} + \varepsilon_{it} + \eta_i$$

Where η_i denotes unobserved time invariant heterogeneity and ε_{it} is the idiosyncratic error component.

Moreover to see the dynamic or nature of trend of CWBI and PCGDP we have fitted line diagrams for individual countries of the CIS and EE group.

Econometric Specification and the Data Base

Since the LSDV estimator is constituent for the static model irrespective of whether the effects are fixed or random, to estimate the cross-country variations in the composite well being over time and also the present well being, the future well being as well as the social security (PWBI,FWBI,SSI), we have used the dynamic panel regression with GMM estimators by following Arellano- Bond method. The simplest model introduced by Arellano and Bond (1991) which we used can be expressed as

$$Y_{it} - Y_{it-1} = (\alpha-1) Y_{it-1} + \beta X_{it} + u_i + \varepsilon_{it} \quad (1)$$

Where, $i = 1,2,3,\dots,n$ (countries)

$t = 1,2,\dots,T$ (time) i.e. from 1990 to 2017; .

Here, Y_{it} represents the dependent variable; X_{it} represents the vector of explanatory variables (other than lag dependent variables) i.e. X_{it} is a $(K-1) \times 1$ vector of exogenous regressors; u_i stands for unobserved country specific effect i.e. the fixed effect and ε_{it} is the conventional error term such that $\varepsilon_{it} \sim N(0, \sigma^2)$ i.e. the random disturbance term.

We rewrite the eq(1) as

$$Y_{it} = \alpha Y_{it-1} + \beta X_{it} + u_i + \varepsilon_{it} \quad (2)$$

Now to eliminate the country specific effect (u_i) we take the first difference of equation (2) such that we have the dynamic panel model with GMM estimator as

$$\Delta Y_{it} = \alpha \Delta Y_{it-1} + \beta \Delta X_{it} + \Delta \varepsilon_{it} \quad (3)$$

Now the fixed effect (i.e. country specific effect) is eliminated. By construction ΔY_{it-1} is correlated with $\Delta \varepsilon_{it}$. Now the use of instrument is required to deal with (1) the likely endogeneity of explanatory variables and (2) the problem that the new error term in eq-3 is correlated with the lagged dependent variable (by construction). Under the assumption that there is no serial correlation in ε_{it} and the explanatory variable X are weakly exogenous, the GMM dynamic panel estimator uses the following moment conditions

$$E[Y_{it-s} (\varepsilon_{it} - \varepsilon_{it-1})] = 0 \quad \text{for } s \geq 2; t = 3, 4, \dots, T \dots \dots \dots (4)$$

$$E[X_{it-s} (\varepsilon_{it} - \varepsilon_{it-1})] = 0 \quad \text{for } s \geq 2; t = 3, 4, \dots, T \dots \dots \dots (5)$$

Now it follows that if the regressors are strictly exogenous, ε_{it} can not affect X_{is} for any s or t . Again if regressors are pre-determined, ε_{it} may affect X_{is} for $s > t$. Strict exogeneity rules out any feedback from the idiosyncratic shock at time t to a regressor at time $s > t$.

It is worth noting that the consistency of GMM estimators depends on the validity of the instrument which produces their impact on the dependent variable through the regressors. To deal with this issue we need the specification test. In our study we use the Sargan test of over identifying restrictions which actually tests the overall validity of the instruments by analyzing the sample analog of the moment conditions used in the estimation process.

Data Base and Its Limitations

Our study is exclusively based on secondary data which are taken from World Development Indicators Data Base, PENN World Table 9.0 version, data base of UNDP. The data on the variables like GDP, per-capita GDP(at constant 2010 US\$ PPP), life

expectancy (LE) in years, domestic credit provided by the financial sector (DCF), capital stock and assets and its rate of depreciation, savings in percentage of are taken from the above sources. However, the values of per-capita military expenses (PCME), per-capita households and government savings, values of depreciation of stock of capital, flow of per-capita consumption , per-capita human capital or resource in terms of per-capita education expenditure, per-capita social contribution , per-capita stock of capital and per-capita environmental cost are computed from the aggregate data available from the above reports and in some cases through the use of national income accounting method. It is worth mentioning that we have computed total environmental cost to the societies across the sample countries by multiplying the per-capita CO₂ emission by US\$ 20 per-ton cost of CO₂ emission over time (Fankhauser, 1995; Osberg and Sharpe, 2002). On the other hand, it is well known that the KOF Swiss Economic Institute of Zurich has developed a composite index of globalization which consists of economic, social and political dimensional indexes of globalisation for 203 countries since 1970. In our study we use this index of globalization. However, we have computed the globalization index of the two sets of countries separately by taking the weighted average (arithmetic mean) of the percentage shares of value of exports and imports and the percentage share of FDI in GDP of the respective countries with higher weight (80%) to trade and lower weight (20%).to FDI . Interestingly, while estimating the role of globalization in the cross country variations in the CWBI through the use of dynamic panel method we have used both of this two series of measures of globalizations separately as the former is a comprehensive measure containing economic, social, political aspects while the latter series (ours) is rather a pure economic measure of globalization. This is done only to verify the differences in the results.

It is worth mentioning in this context that since the data on domestic credit provided by the domestic financial sector for the two countries of CIS are not available the social security index for these two countries contains the variables social contribution of the government and military expenditure for which the which the data are available. Further, since the GDP of Moldova for the beginning are not available we have used backward interpolation technique to arrive at the result.. On the other hand, since we do not have social security expenditure by the government for the two countries of CIS group we

have used expenditure on health by the government as proxy of social security expenditure albeit it is insufficient representation of the same. Moreover, the minor data gaps for very short periods have been bridged up by using average and interpolation method. It is undeniable that the data gap and approximation of the same by the use of average, interpolation method, and extrapolation method might have produced some impact on the result.

IV. Comparative Analysis of Macro Fundamentals of CIS and East European

Before analyzing the well being indexes and its components, we make a brief analytical review of the basic macro fundamentals of the two sets of countries considered in our study which will give some insights about the performances of the economies . The average figures (means), the maximum and minimum values of some macro parameters and also the cross country variations of the fundamentals measured in terms of SDs are given in Table -1 below. It worth mentioning that the money metric measure of the fundamentals is expressed at const 2010 US\$PPP. It is evident that the average real GDP of the CIS countries over the period is much lower than that of the EE countries. While the average per-capita GDP over the period under consideration is 2690.742 US \$ ppp for CIS countries, the same for EE is about three times larger i.e 8152.45 US\$ ppp. Surprisingly the average value of Gini coefficients measuring inequality in the income distribution across the two sets of countries, as is evident from table-1., reveal a larger figure (35.33) for CIS group relative to that of EE group (33.19) .. From these macro parameters it is rather plausible to say that the people of the CIS countries have experienced a relatively lower levels of well being as compared to the those belonging to the Eastern European (EE) countries over time, albeit these are not the only parameters determining the well being in our study. Interestingly if we look at the average figures of the human development index (HDI) of the two sets of countries then it is clear that the EE countries have experienced higher degree of human development (Mean-HDI=0.74055) as compared to the CIS countries , the average value of HDI being 0.6738 over the period of our study. So it partially supports our view stated above.

To have an insight about the economic conditions of these countries if we look at the table-1 then it is evident that the average government debt as percentage of GDP is also much higher in CIS countries (47.94%) than that in the east European countries (53.23%

of GDP). Moreover, the degree of variability of the same is also much higher across EE countries over the period ($SD=39.80$) than the same in CIS countries (28.36%). It seems to be due to the incorporation of Russia in EE. Further, it is plausible to say that EE countries have remained highly indebted over the period of our study. However, if we look at the picture of gross domestic savings as percentage of GDP for the two sets of countries then it follows from the table-1 that the average figure is relatively higher (in EE countries 20.97%) than that in CIS countries (17.14%), albeit the degree of variability of gross domestic savings as percentage of GDP in EE countries (11.70%) is relatively lower over the period of our study as compared to that in CIS (21.00%). Now, if we consider the average government expenditure as % of GDP then it is found that in EE it is much higher (26.73%) as compared to that in CIS (14.85%). Interestingly, the cross-time and cross-country variability of the same in both CIS and EE are found to be relatively low which surely indicates a consistent pattern. However, the average FDI inflow as percentage of GDP over the period of our study is found to be lower in EE (4.41%) in relation to CIS (6.18%). Now since domestic savings in CIS is lower, the external borrowing seems to have played a crucial role in financing the government expenditure

Table-1: Summary Statistics of Macro fundamentals

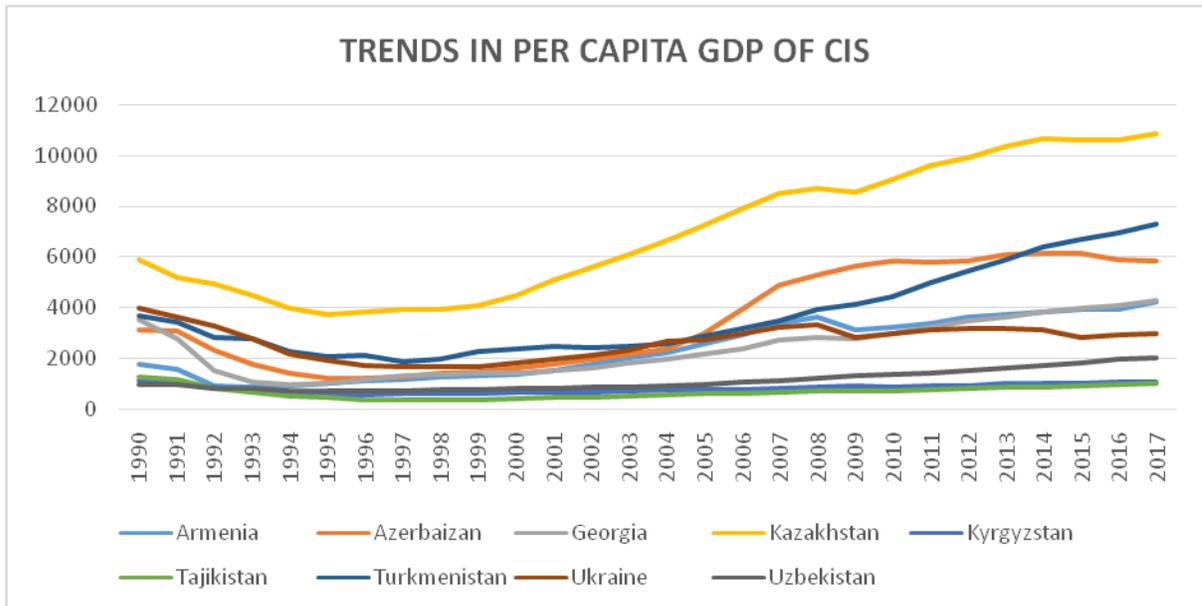
CIS						EE				
Variables	Obs	mean	Std. dev	min	max	Obs	mean	Std. dev	min	max
GDP (2010 US\$ppp)	252	3.84e+10	4.94e+10	2.15e+09	2.06e+11	218	2.80e+11	4.17e+11	4.14e+09	1.69e+12
PCGDP(2010 US\$ppp)	252	2690.742	2259.724	365.4377	10857.38	224	8152.345	5078.661	946.3742	22779.29
GPCGDP	243	1.845515	9.918246	-45.32511	33.03049	216	2.476785	4.920089	-14.56844	12.21262
GINI	197	35.33341	9.89106	5.291667	61.3	196	33.19051	6.479167	20.5	52.1
HDI	206	.673801	.0625126	.534	.8	196	.7405459	.0653057	.591	.865
PCME(2010 US\$ppp)	251	45.69149	59.52044	2.2	343.0847	224	142.97	113.79	3.83	617.61
PCGEXP(2010 US\$ppp)	251	325.1926	261.3043	34.28	1235.102	224	1498.757	1088.499	141.9	4370.748
PCCONS(2010 US\$ppp)	252	1839.477	2072.215	232.83	8499.104	224	4293.846	2567.3	37.46	10282.08
PCNR(2010 US\$ppp)	252	351.0299	638.5992	-309.859	2504.081	224	218.95	419.90	-7.40	2124
FDI (% of GDP)	224	6.18243	7.061979	-1.391844	55.0759	211	4.406004	7.028084	15.98922	54.86819
ME(2010 US\$ppp)	252	6.21e+08	1.07e+09	17600000	508000000	224	3746.679	3856.244	139000000	887000000
GOVEXP (% of gdp)	235	14.85	4.72	5.86	30.12	211	26.73	8.22	13.43	41.06
GDEBT (% of gdp)	230	47.94	28.36	13.84	140.2	128	56.23	39.80	5.187	165.15
DCF(as% ofgdp)	143	23.59488	15.6356	5.548243	65.90444	186	46.24	21.88	12.92	133.11
Gross dom savings (% of gdp)	230	17.14	21.00	48.71	83.72	211	20.97	11.70	16.81	48.68
NCF	252	7.78e+09	1.06e+10	120000000	5440000000	224	5.65e+10	8.56e+10	5280000000	3.94e+11

Source : Author's Computation

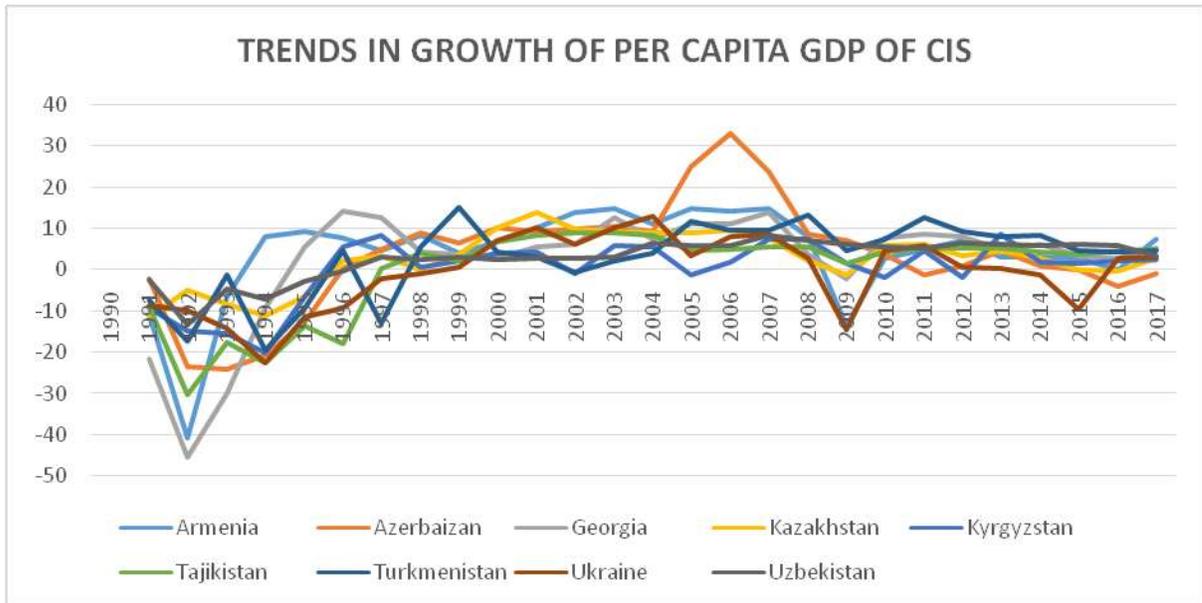
Now, let us look at the trend in the per-capita GDP of the two sets of countries (CIS and EE) over time (see graph-1 and 3) below. It is clear from the line diagram of graph-1 representing the trend in PCGDP of CIS that almost all the countries excepting Uzbekistan, Tajikistan have experienced mild fluctuating behavior up to the beginning of

the new millennium followed by steady increasing trend in Kazakhstan and mild gradual increasing trend in others. On the other hand, if we look at the graph-3 which represents the trend in PCGDP in EE countries then it is easily discernable that almost all the countries excepting Moldova have experienced smooth increasing trend with a very short lived falling trend between 2007 and 2010 which seems to be due to the sub-prime crisis of USA in 2007. Now if we look at the trend behavior of the growth of PCGDP of the two sets of countries over the period of our study (see the line diagram 2 and 4) then we find tremendous fluctuating behavior ranging from high negative values to moderate positive values across both of the two sets of countries.

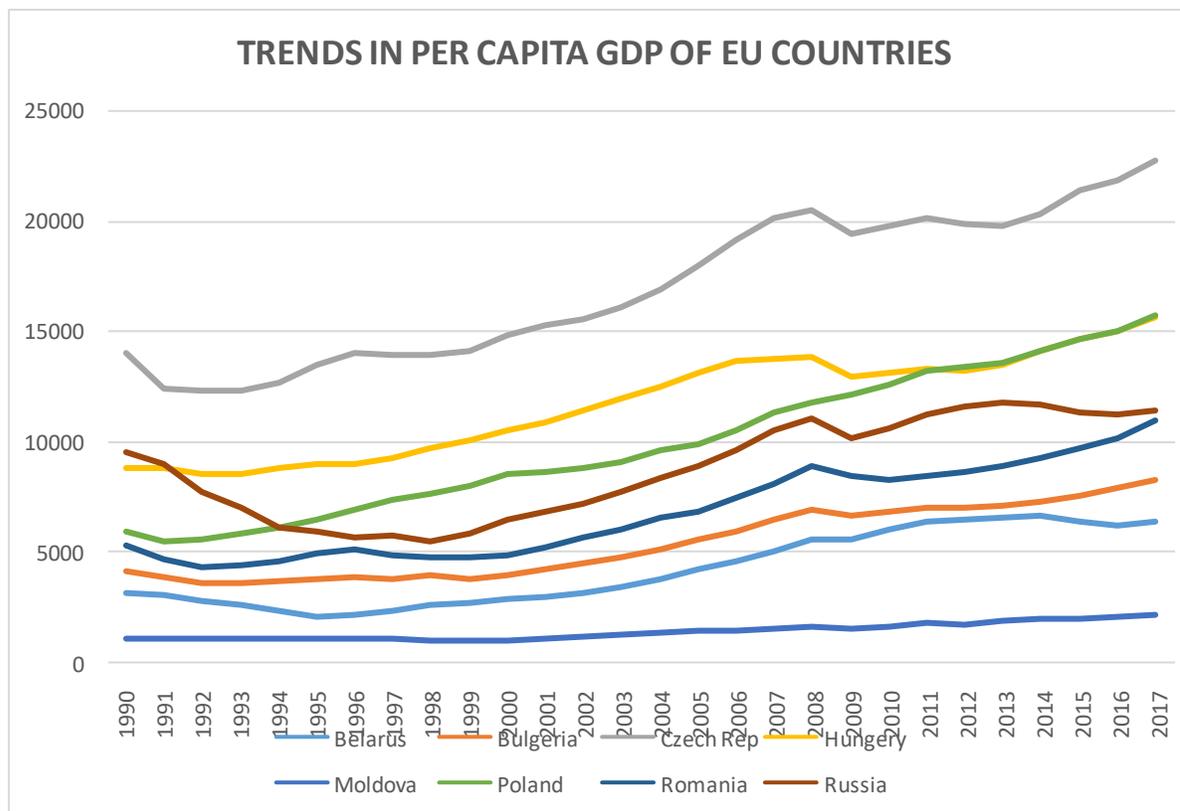
Line Diagram-1



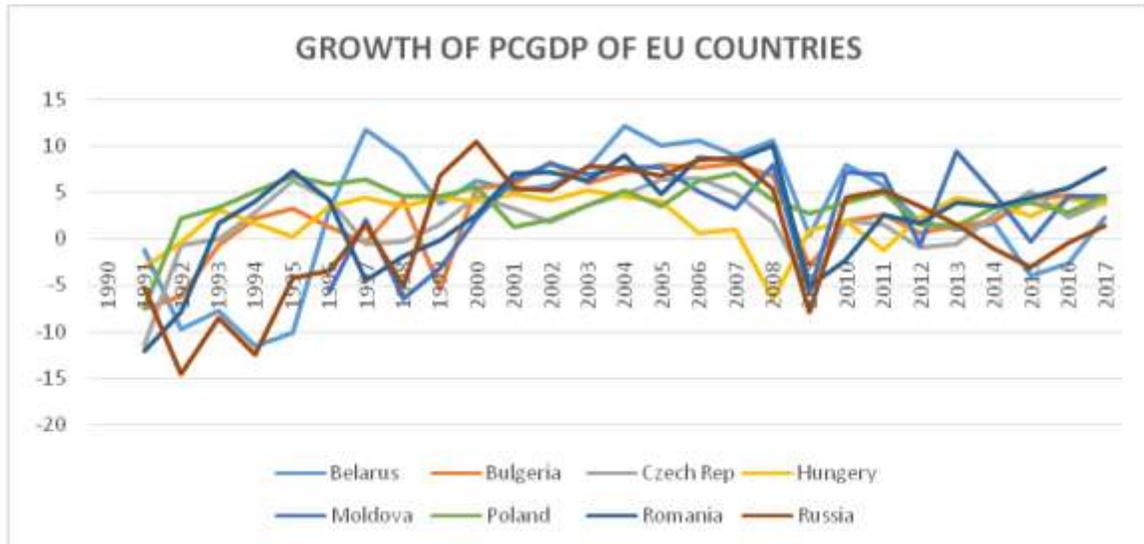
Line Diagram-3



Line Diagram-2



Line Diagram-4



V. ANALYSIS OF DIFFERENT COMPONENTS OF WELL-BEING INDEX

Now, we analyze the trend in the behavior of the different components of composite wellbeing indexes across the two sets of countries belonging to CIS and EE groups. The table presenting the wellbeing indexes of the CIS countries is given in appendix table-I and the same for EE countries in appendix table-2. We have already mentioned in section III that CWBI contains three components of wellbeing indexes namely PWBI, FWBI and SSI such that the CWBI has been constructed by taking GM of these three components. Now, within PWBI we have considered: (i) the flow of per-capita real consumption expenditure, (ii) per-capita real government expenses net of per-capita military expenses . The sum of these components is adjusted with the changes in the value of life expectancy index with 1990 as base year. PWBI across the sample countries which is formed by taking base year 1990=100. All components of dimension indexes as well as the CWBI are expressed by taking base year 1990=100. Further, for the shake of simplicity we have presented the indexes at five years interval for the period of our study (see appendix table I and 2).

On the other hand, future wellbeing index (FWBI) consists of the sum of per-capita real savings, per-capita stock of capital net of depreciation (PC net cap), per-capita expenses on education (PC exp on edu), per-capita government savings, per-capita net contribution of natural resources (PCNR) less the per-capita government debt such that PCNR is

measured in terms of the total rental income from the natural resources less the environmental cost in per-capita term. Again, as far as the social security indexes (SSI) across the countries are concerned it is composed of per-capita domestic credit provided by the financial institutions, per-capita social contribution of the government and per-capita military expenses (PCME). All the components are simply added without giving any weight to each. Now if we look at the appendix table-I for the CIS countries then it follows that the present wellbeing index of the country Armenia reveals a continuous increasing trend over the period reaching a highest figure of 338.66, thereby indicating a 238.66% increase in the present wellbeing of her people. However, most of the other countries in CIS excepting Ukraine have experienced increasing PWB since 2005 in some cases and in some other cases it has occurred since 2010. Now as far as FWB of CIS countries is concerned we find that excepting the countries like Turkmenistan, Azerbaijan, Kazakhstan and Tazikistan all other countries have experienced the mild increase in future wellbeing of the people in varying degrees and also in varying periods especially since 2010. But the four countries mentioned above have experienced substantial increase in future wellbeing of their people. However, the Armenia and Georgia and Ukraine reveal very poor performance in this respect. Interestingly, the countries like Azerbaijan, Uzbekistan, Ukraine reveal very miserable performance in respect of social security of her people. Obviously, the behavior of the three components or dimension indexes of well being has been reflected in the CWBI of all the countries such that the country Ukraine reveals a very miserable performance in overall wellbeing of the people over the period. Conversely, the other countries have experienced increase in overall wellbeing of people in varying degrees with varying starting period of increase since 2000.

On the other hand, if we look at the countries belonging to EE we find that almost all the countries have experienced increase in all the components of wellbeing in varying degrees such that the rising trend in wellbeing has started at varying points of time across the countries. However, there is exception in case of Russia which reveals a miserable performance in respect of future wellbeing of the people albeit it has experienced 143% increase in overall wellbeing of the people over the period. The highest increase in overall wellbeing has been found to take place in Poland (670.36%) followed by Hungary

(249.54%). Obviously we find that there are wide variations in the different aspects of wellbeing as well as the overall wellbeing both across the countries belonging to both CIS and EE groups. We will highlight the central tendency and dispersions of the three components of wellbeing as well as the CWBI of the two sets of countries in the next section.

VI. COMPARATIVE ANALYSIS OF ECONOMIC WELL-BEING OVER TIME

The table-2 presents the summary statistics of different components of wellbeing as well as the overall wellbeing indexes of the two sets of countries. It follows from the table that while the countries belonging to the Eastern European Union have experienced larger average (mean) increase in all components of wellbeing as well as CWB, the CIS countries has experienced relatively smaller increase in respect of the same over the period 1990-2017. The same picture is reflected in the median values of the indexes albeit median values of all the indexes excepting FWBI remain below 100 in CIS group.

Table-2: Summary Statistics of Wellbeing

	EU Countries				CIS			
	PWBILEA	FWBI	SSI	CWBIGMLEA	PWBILEA	FWBI	SSI	CWBIGMLEA
Mean	137.7615	500.1799	191.6362	197.586	104.6656	232.7861	132.4988	117.1702059
Median	123.8361	149.3606	110.852	143.0469	90.98045	101.3994	78.00366	83.50884594
SD	51.63455	710.0658	219.7956	166.4281	60.08556	319.6089	220.8867	94.01664251
Max	291.0779	2660.457	1200.264	900.7434	346.0743	1487.344	1623.536	432.7052336
Min	48.04421	15.32158	23.30854	53.59295	27.11859	1.914988	52.40104	7.866195129

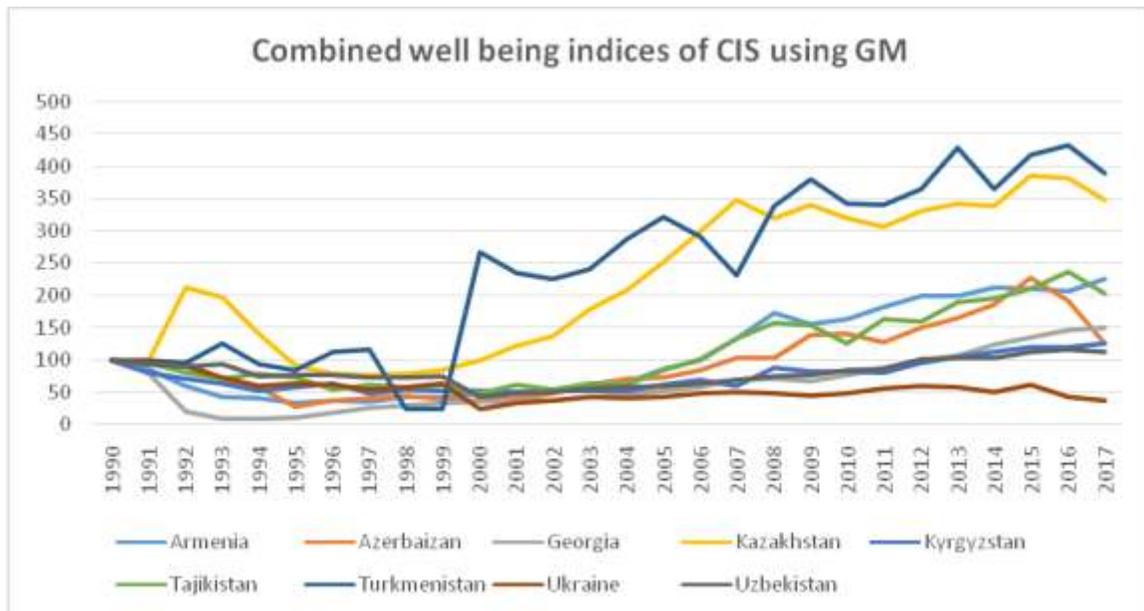
Source: Author's Computation

Interestingly, while the countries belonging to EE have on the average experienced 37.76%, 414.51% and 95.49% and finally 102.28% increase in PWBI, FWBI, SSI and CWBI respectively, the people of CIS countries have experienced 4.67%, 132.79%, 32.50% and only 17.70% average increase in the three components of wellbeing and CWBI. If we look at the ranges of the value of indexes from minimum to maximum of all the indexes then we find that the values of the range are very high. Therefore, it is quite likely the dispersions the three components of the wellbeing indexes including the CWBI across the two sets of countries is very high indicating high degree of variability in the level and the trend in wellbeing which needs further enquiry.

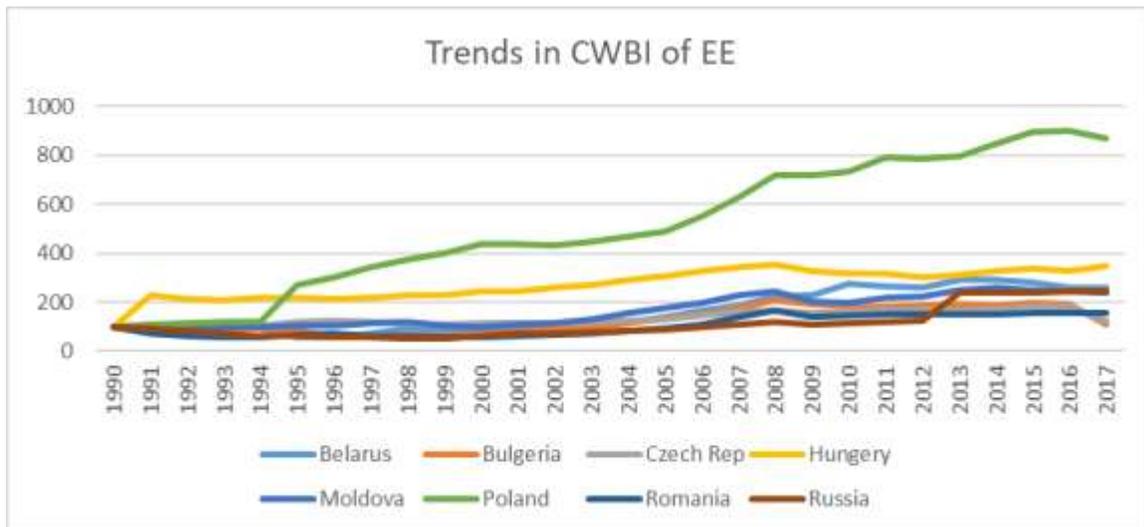
The long run trend in the behavior of the CWBI of the two sets of countries are given in the Line charts below. Line diagram -5 displays the long run behavior of CWBI of CIS countries. It follows from diagram-5 that almost all the CIS countries have experienced cyclical fluctuations in the overall wellbeing of the people over the period such that from 1991 to 1999 the countries have experienced the falling mild fluctuating pattern in the wellbeing with steady falling trend experienced by Azerbaijan. It is also palpable that the two countries Turkmenistan and Kazakastan have experienced steady increasing trend with high degree fluctuation in the wellbeing of their people since 1999. Interestingly, it is found in the diagram that the other seven countries barring the above two have experienced almost equal and stagnant levels of wellbeing upto 2005 and thereafter the country like Uzbekistan, Tazikistan, Armenia, Georgia have shown mild increase in trend in the overall wellbeing in varying degrees of their people coupled with a accompaniment of varying degrees of fluctuations. Astonishingly, the country Ukraine reveals very poor performance regarding the overall wellbeing of their people.

Now if we look at the line diagram-6 for the long run trend in overall wellbeing of EE countries then we find that the overall wellbeing of the people of Poland and Hungary reveal higher level of wellbeing of their people throughout with Poland experiencing much higher levels of overall wellbeing as compared to all other countries. Interestingly, a steady increasing trend in the levels of overall wellbeing of the people of Poland with mild fluctuation is found to persist. The countries excepting Poland and to some extent the Hungary have experienced a very negligible increasing trend in the overall wellbeing of their people since 2004. It seems to be the result of worldwide recession so that the countries excepting the former two in EE have failed to realize the benefit of market economy even after globalization. So, it would be interesting to look at the long run behavioral trend relation between the PCGDI and the CWBI

Line Diagram-5: Trend in CWBI of CIS countries during 1990-2017



Line Diagram-6: Trend in CWBI of EE countries during 1990-2017



The long run trend relation between the composite well being indexes and the per-capita real GDP indexes (both with the base year 1990=100) for different countries belonging to CIS and EE groups can be clearly seen from the line diagram given in Appendix-3. The graphs in appendix 3A represent the same trend behavior for the CIS countries. We do not find any uniform pattern of relation between CWBI and PCGDPI

across these countries. However, it is evident from these line charts that all the countries have experienced cyclical pattern of increasing trend in CWBI and PCGDPI in varying degrees over the period of our study. Interestingly, in some of the countries like Armenia, Azarbaijan, Grgorgia and Ukraine the trend in CWBI remains below the PCGDPI such that CWBI follows the trend path of PCGDPI in these countries during the long phase of our total period often with some converging tendency followed by divergence. On the other hand, in some CIS countries viz. Kazakastan, Tazikistan, Turkenemistan we find a different scenario such that the level of overall wellbeing index remain above the PCGDPI with fluctuating trend throughout the period such that the levels of overall wellbeing of the people becomes higher than their per-capita real income. Interestingly, the scenario of Kyrgyzstan and Ukraine are drastically different . The country Kyrgyzstan have shown an increasing long run trend over the period such that sometimes the trend line of CWBI remains below PCGDPI line followed by the later line remaining above the CWBI line and again by turn the overall wellbeing line remain above the PCGDPI line over the period since 2011. A further interesting phenomenon is that in Ukraine the composite wellbeing of the people remains above their PCGDPI upto 1999 which is followed by steady fall of the same such that it remains below the PCGDPI trend line,albeit both experience increasing trend with cyclical behavior.

Let us turn to the countries belonging to EE for which the scenario of the trend lines of CWBI and PCGDPI are presented in appendix 3B. Here also we find the varying pictures such that for the countries like Hungary, Moldova, Czech Republic and to some extent Poland the level of overall well being of the people remains above their PCGDPI in varying degrees almost throughout the period of our study. Obviously, other factor like globalization seems to have contributed to such behavior. Conversely, for the country like Russia we find the CWBI creeps along the PCGDPI with a falling trend upto 1999 followed by increasing trend upto 2012 and thereafter a sudden jump of CWBI in between 2012 and 2013 which is again followed by sagging trend. Interestingly, in Romania the composite wellbeing of their people is found to remain much below their PCGDP all through the period. However, for the other two countries namely Bulgaria and Belarus we find a varying picture on the behavioural trend in CWBI and PCGDPI sometimes with the former remaining with above the later and sometimes the reverse

happens over the period of our study. On the whole, the trend in CWBI and PCGDPI across the two sets of countries (CIS and EE) insists to explore the proximate explanatory factors lying responsible for the behavior of the overall wellbeing of people. To this end we have used dynamic panel technique with GMM method of regression the outcome of which is given in the next section.

VII. ANALYSIS OF ECONOMETRIC RESULTS

We have already mentioned in methodology section that we estimate the co-relationship between CWBI as dependent variable and globalization as well as PCGDP as independent variables in terms of dynamic panel technique with GMM method for both of the two sets of countries in view of explaining the cross-country variations in CWBI. It is also mentioned that we assume a log-linear relationship between these variables. However, it is worth mentioning that we have used two measures of globalizations such that we have taken the KOF globalization index which is a comprehensive measure containing economic, political and social aspects and also our own pure economic measure of globalization, the methodology of construction of which is already discussed in section III. Interestingly we have found a contrast in the results of the two methods. We have followed the Arellano and Bond method of dynamic panel regression and use the software STATA 14.0. Let us first analyse the result of the dynamic panel regression of CIS countries given in table-3 below where we use KOF measure of globalization. It follows from the table that the value of Wald χ^2 is highly statistically significant indicating the correct specification of the model and the robustness of this is established by its corresponding p-value given in the table. Further, we find that the lag CWBI as an explanatory factor is also highly statistically significant, the robustness of which is established by its corresponding p-value. Interestingly, the explanatory factors globalization and PCGDP are also found to be highly significant in producing their impact on the cross-country and cross-time variations of composite wellbeing across the countries with their expected signs i.e. positive signs. So it is plausible to say that the lagged dependent variable (instrumental) along with two others explanatory factors globalization and PCGDP have played a economically and statistically significant role in explaining the dynamics of heterogeneity of the people across the sample countries of CIS group during the period from 1990-2017. It also follows from the results that one

percent point increase in globalization and PCGDP across the countries and over time brings about 0.21% in the former case and 0.53% in the latter case increase in the variations of the overall wellbeing of the people across the countries. The value of Sargan test indicating the over identifying the instruments and its corresponding p-value also indicate that there is overall validity of the instrument in analyzing the sample analog of the moment conditions used in the estimation process. On the whole the major conclusions which emerge from this result is that globalization as well as the PCGDP of the people across the countries have produced an economically and statistically significant impact on the dynamics of cross country variations in the achievement of wellbeing of the people across the sample countries of CIS groups.

Table-3:

Dynamic Panel Regression Results with GMM method of CIS

Dependent Variable : CWBI

```

.....
Wald chi2(3)    = 1373.1
Prob > chi2     = 0.0000
One-step results
-----
      Incwbilea |   Coef.   P>|z|
      Incwbilea |
      L1. |   .524362   0.000
Inglobalisation |   .2099638  0.011
      lnpcgdp |   .5283051  0.000
      _cons |  -2.665191  0.000
-----
Sargan test of  overidentifying restrictions
      chi2(197) = 236.6395
      Prob > chi2 = 0.0281
.....

```

However, if we use our pure economic measure of globalization then also we find almost the same results (as is given in Appendix Table-4A below) excepting the change in the explanatory power of the PCGDP and globalization index(gi) both of which having positive signs and also being statistically significant. Interestingly, the Sargan test of over identifying restrictions has become highly significant.

On the other hand Table-4 below presents the regression results of the EE countries.

Table-4:

Dynamic Panel Regression Results with GMM method of EE

Dependent Variable : CWBI

.....
Wald chi2(3) = 5450.1
prob > chi2 = 0.0000
Dependent Variable: CWBI

	Coef.	P> z
cwbigmlea		
cwbigmlea		
L1.	.9054465	0.000
lnglobalis~n	25.25034	0.090
lnpcgdp	17.88108	0.065
_cons	-237.0684	0.000

Sargan test of overidentifying restrictions
chi2(179) = 197.7249
Prob > chi2 = 0.1606

.....
Here also we use KOF globalization indexes as one of the explanatory factors.

It is seen from the table that the value of Wald χ^2 is highly statistically significant indicating the correct specification of the model and the robustness of this is established by its corresponding p-value given in the table. Further, we find that the lag CWBI as an explanatory factor is also highly statistically significant with positive sign, the robustness of which is also established by its corresponding p-value. Interestingly, the explanatory factors globalization and PCGDP are also found to be significant, albeit in lower degree, in producing their impact on the cross-country and cross-time variations of composite wellbeing across the countries with their expected signs i.e. positive signs. So it is plausible to say that the lagged dependent variable (instrumental) along with two others explanatory factors globalization and PCGDP have played a economically significant role in explaining the dynamics of heterogeneity of the wellbeing of the people across the sample countries of EE group during the period from 1990-2017. It also follows from the results that one percent point increase in variations in globalization and PCGDP across the countries and over time brings about 25% and 17% variations in the overall wellbeing

of the people across the countries. The value of Sargan test of the over identifying restriction of the instruments and its corresponding p-value also indicate that there is overall validity of the instrument in analyzing the sample analog of the moment conditions used in the estimation process. On the whole the major conclusions which emerge from this result is that globalization as well as the PCGDP of the people across the countries have produced an economically significant impact on the dynamics of cross country variations in the achievement of wellbeing of the people across the sample countries of EE groups also.

However, if we use the series of pure economic measure of globalization developed by us then also we find almost the same results (as is given in Appendix Table-4B below) excepting the change in the explanatory power of the PCGDP and g_i both of which having positive signs and also being statistically significant. Interestingly, the Sargan test of over identifying restrictions has become significant.

VIII. CONCLUDING OBSERVATIONS

It is true that there has been a lot of cross current of studies pertaining to the measurement of the progress of qualities of life of people as well as the well being of people across the countries in the globe and the process of globalization has also brought about increasing interest on the part of the economists, other social scientists and other researchers to measure the same. Of course most of the studies suffer from a lot of limitations as we have states earlier. Therefore by taking into account of all these limitations of the studies referred to above and using Osberg and Sharpe.(1998,2002) study as benchmark and also our previous study (Ghosal,2018) we have developed a composite well being index which consists of three mutually exclusive dimension indices of well being namely (i) present wellbeing indices (PWBI), (ii) future wellbeing indices (FWBI) and (iii) Social security indices (SSI) for the two sets of countries (CIS and EE). We have not only confined ourselves to the estimation of well being but we have also tried to account for the dynamics of the cross country variations of the well being of the across the two sets of countries. The major findings which emerge out of our study can be outlined as follows. First the average per capita real GDP of the CIS countries over

the period is much lower than that of the EE countries which is accompanied by relatively lower inequality in EE countries as compared to CIS.

Second, the EE countries have experienced higher degree of human development (Mean-HDI=0.74055) as compared to the CIS countries , the average value of HDI being 0.6738 .Third the average government debt as percentage of GDP is also much higher in CIS countries (47.94%) than that in the east European countries (53.23% of GDP) with high degree of variability in EE as compared to CIS. Further the average FDI inflow as percentage of GDP over the period of our study is found to be lower in EE in relation to CIS .Fourth,the trend in PCGDP of CIS is concerned so far, it is found that almost all the countries excepting Uzbekistan, Tajikistan have experienced mild fluctuating behavior up to the beginning of the new millennium followed by steady increasing trend in Kazakhstan and mild gradual increasing trend in others. On the other hand, if we see the trend in PCGDP in EE countries then it is found that almost all the countries excepting Moldova have experienced smooth increasing trend with a very short lived falling trend between 2007 and 2010 which seems to be due to the sub-prime crisis of USA in 2007. However the trend behavior of the growth of PCGDP of the two sets of countries over the period of our study reveal tremendous fluctuating character ranging from high negative values to moderate positive values across both of the two sets of countries.

Fifth ,as far as the different components of well being indexes of CIS countries are concerned, we find that the present wellbeing index of the country in Armenia reveals a continuous increasing trend over the period with highest level of achievement of the same.Most of the other countries excepting Ukraine have experienced increasing PWB since 2005 in some cases and in some other cases it has occurred since 2010.In case of FWB we find that excepting the countries like Turkmenistan, Azerbaijan Kazakhstan and Tazikistan, the all other countries have experienced the mild increase in future wellbeing of the people in varying degrees and also in varying periods especially since 2010.Ukraine reveal very miserable performance in respect of social security of her people as well as in overall wellbeing of the people over the period. Conversely, the other countries have experienced increase in overall wellbeing of people in varying degrees since 2000.On the other hand, if we look at the countries belonging to EE we find that almost all the countries have experienced increase in all the components of wellbeing

in varying degrees such that the rising trend in wellbeing has started at varying points of time across the countries.

Sixth while the countries belonging to the Eastern European group have experienced larger average (mean) increase in all components of wellbeing as well as CWB, the CIS countries has experienced relatively smaller increase in respect of the same over the period 1990-2017. Almost all the CIS countries have experienced cyclical fluctuations in the overall wellbeing of the people over the period in varying degrees. It is also palpable that the two countries Turkmenistan and Kazakhstan have experienced steady increasing trend with high degree fluctuation in the wellbeing since 1999. Interestingly, it is found that the other seven countries in CIS have experienced almost equal and stagnant levels of wellbeing upto 2005 and thereafter the country like Uzbekistan, Tazikistan, Armenia, Georgia have shown mild increasing trend in the overall wellbeing in varying degrees.

However the long run trend in overall wellbeing of EE countries reveal that the overall wellbeing of the people of Poland and Hungary is higher as compared to that in all other countries. The countries excepting Poland and to some extent the Hungary have experienced a very negligible increasing trend in the overall wellbeing of their people since 2004.

Seventh, it is evident from the line charts that all the countries have experienced cyclical pattern of increasing trend in CWBI and PCGDPI in varying degrees over the period of our study.

Eighth, the results of our dynamic panel regression clearly reveal that globalization as well as the PCGDP of the people across the countries has produced an economically and statistically significant impact on the dynamics of cross country variations in the achievement of wellbeing of the people across the sample countries of CIS and EE groups in varying degrees.

Ninth, we find that in CIS, one percent increase in variations in globalization and PCGDP across the countries and over time brings about 0.21% and 0.53% increase in the variations of the overall wellbeing of the people across the countries. On the other hand for EE countries we find that one percent point increase in globalization and PCGDP across the countries and over time bring about 25% and 17% increase in the overall wellbeing of the people across the countries. . Therefore we conclude that for the increase

in well being of the people across the countries over the period the factors globalization coupled with PCGDP have played a positive role.

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Appendix Table-1 : CIS Countries

Country	Year	PWBI(LE ADJ)	FWBI	SSI	CWBIGMLEA
Armenia	1990	100	100	100	100
	1995	108.28	20.40955	15.206985	32.27068827
	2000	136.8438	31.19749	24.911793	47.37870795
	2005	196.8992	94.83022	33.502489	85.5242449
	2010	268.0172	118.1159	135.63968	162.5371275
	2015	331.9941	97.7066	284.44562	209.7415601
	2017	338.6609	88.82713	381.65137	225.5931223
Azerbaijan	1990	100	100	100	100
	1995	53.59982	54.49948	7.2610503	27.68120821
	2000	64.60839	108.766	7.8126707	38.00672748
	2005	72.53751	352.9983	15.089328	72.83415213
	2010	146.4392	314.8466	61.655166	141.6582578
	2015	216.6195	485.9745	112.84852	228.1754653
	2017	197.5313	398.7035	25.584227	126.3046705
Georgia	1990	100	100	100	100
	1995	43.2382	4.164853	4.821181	9.539821025
	2000	50.53805	42.81055	19.986692	35.09969945
	2005	69.49516	72.18228	27.484082	51.66012588
	2010	108.6973	67.63434	61.734568	76.84899301
	2015	132.8051	134.3162	139.26888	135.4354815
	2017	130.5695	151.885	171.8834	150.4977939
Kazakhstan	1990	100	100	100	100
	1995	87.44993	507.4609	17.564815	92.0312241
	2000	93.29348	447.8949	23.413949	99.27365924
	2005	121.8726	1166.288	111.28545	251.0248649
	2010	158.1928	1286.039	161.06939	320.0009694
	2015	220.7034	1368.739	189.29879	385.2646668
	2017	213.506	1359.679	144.9524	347.8222252
Kyrgyzstan	1990	100	100	100	100
	1995	45.12031	44.05219	96.688047	57.70819008
	2000	52.29442	45.92071	59.110484	52.16463462
	2005	70.75344	46.90541	71.865349	62.014991
	2010	84.85247	98.27587	68.929763	83.14562125
	2015	104.0161	133.2647	124.63918	119.9932239
	2017	107.4746	135.4086	138.89242	126.4377982
Tajikistan	1990	100	100	100	100

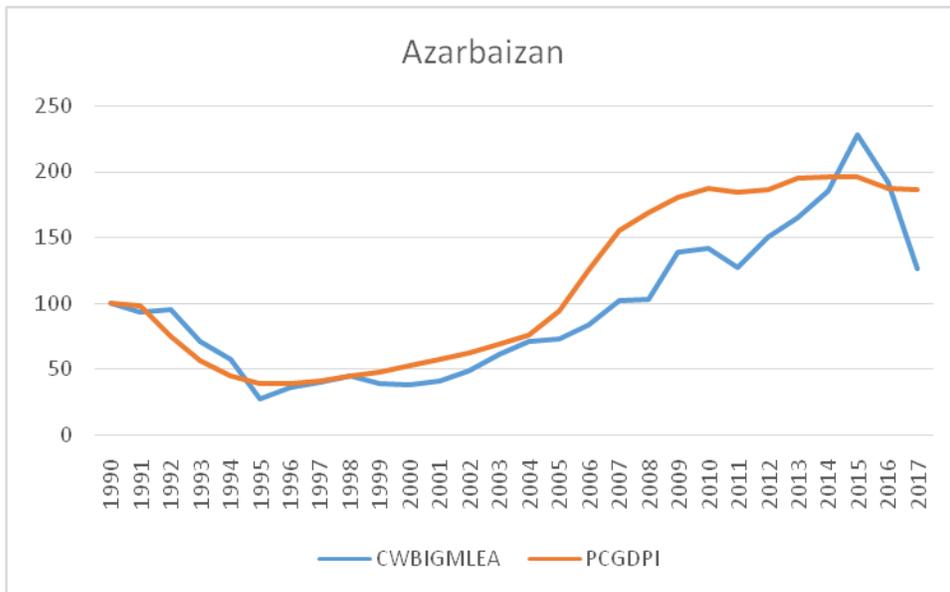
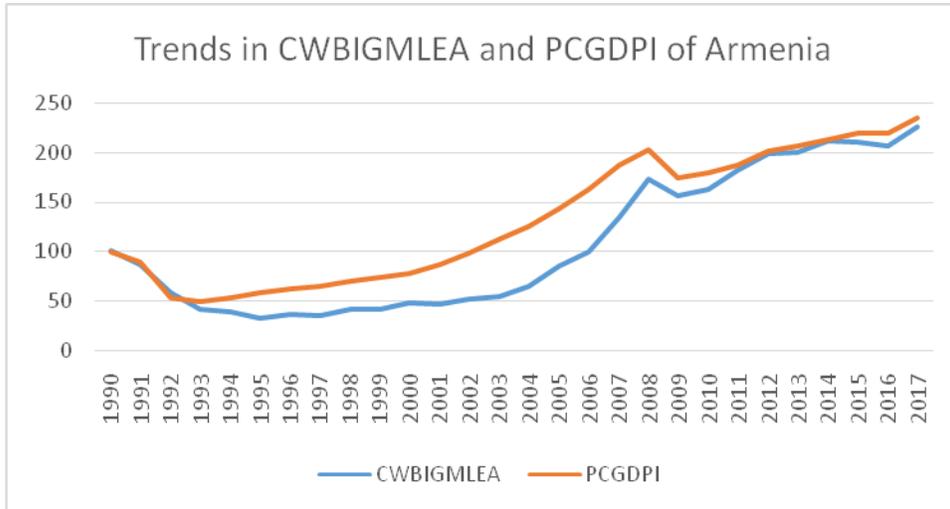
	1995	32.48785	121.2125	98.882233	73.02342307
	2000	37.35262	33.61184	89.611274	48.27533636
	2005	67.34947	82.52046	103.36322	83.12926682
	2010	91.74362	228.8736	94.698613	125.74916
	2015	110.8239	329.694	252.45612	209.7217038
	2017	112.303	342.4605	215.98546	202.5234777
Turkmenistan	1990	100	100	100	100
	1995	64.47124	179.8681	54.354061	85.74012346
	2000	150.0867	296.7277	426.68595	266.8514212
	2005	156.4125	243.3374	873.94824	321.6044062
	2010	74.28743	831.3889	648.97714	342.2286142
	2015	75.95883	658.8649	1458.2217	417.8939396
	2017	85.95609	648.593	1063.0219	389.8794719
Ukraine	1990	100	100	100	100
	1995	46.21279	40.21638	147.2772	64.92822717
	2000	43.29996	39.72657	8.4318425	24.38729807
	2005	67.58348	48.97364	25.306828	43.75357416
	2010	82.23729	41.08466	34.889519	49.0321778
	2015	81.034	130.0481	23.422796	62.72923291
	2017	27.11859	58.69214	32.012631	37.07286428
Uzbekistan	1990	100	100	100	100
	1995	70.17355	68.86202	96.809567	77.62897117
	2000	69.44932	65.84434	18.042018	43.53352567
	2005	85.74598	111.9654	22.902273	60.35668789
	2010	128.2053	133.7163	35.422446	84.68172109
	2015	184.4069	142.9473	53.604663	112.2152609
	2017	190.0587	142.303	52.539736	112.4250879

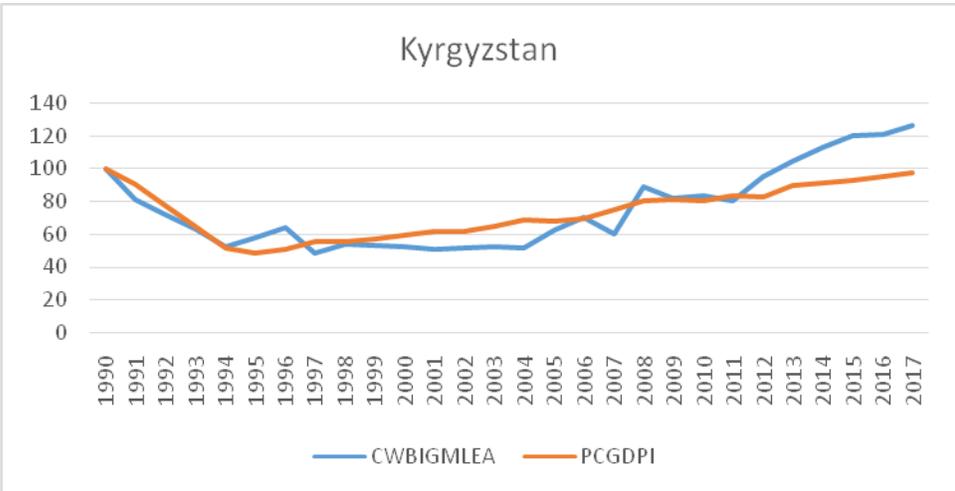
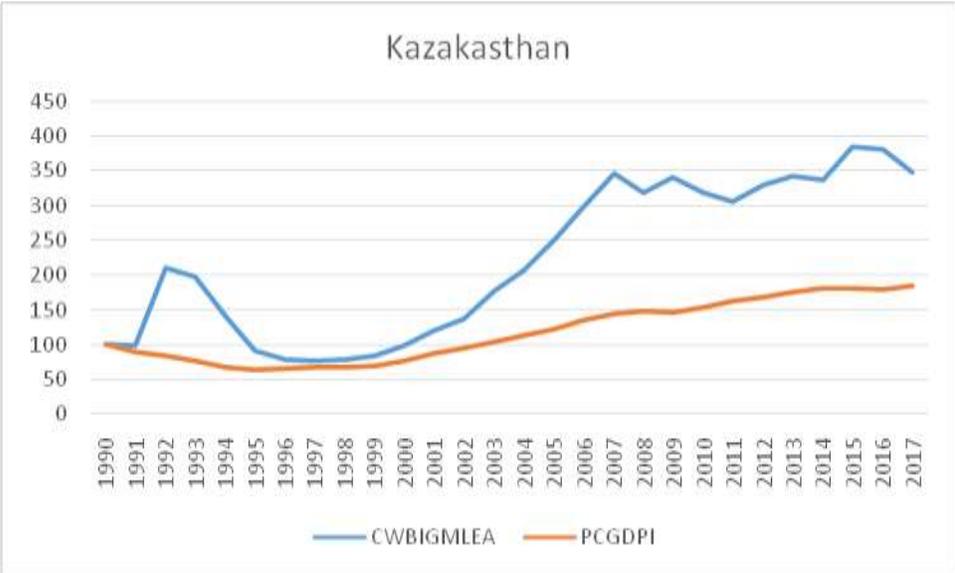
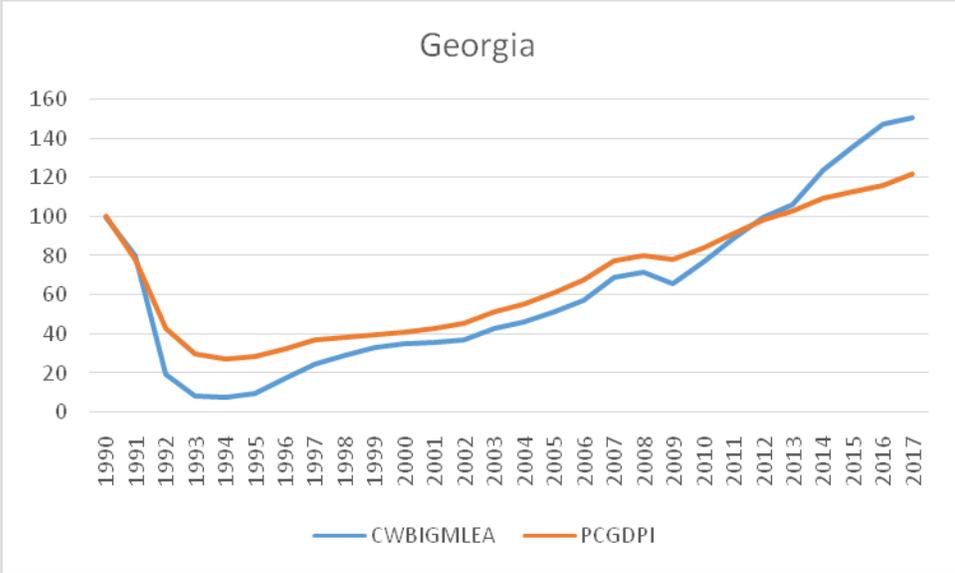
Appendix Table -2: European Countries

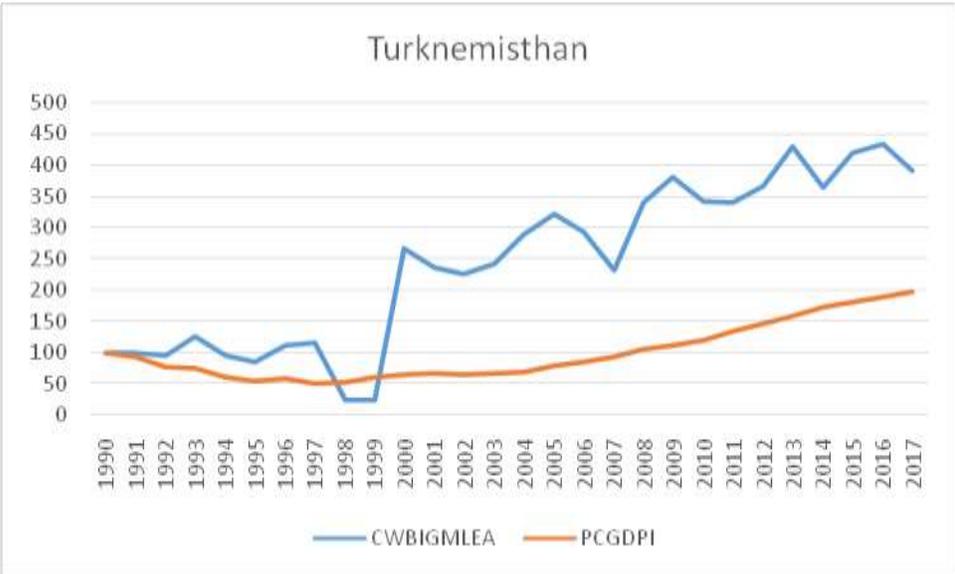
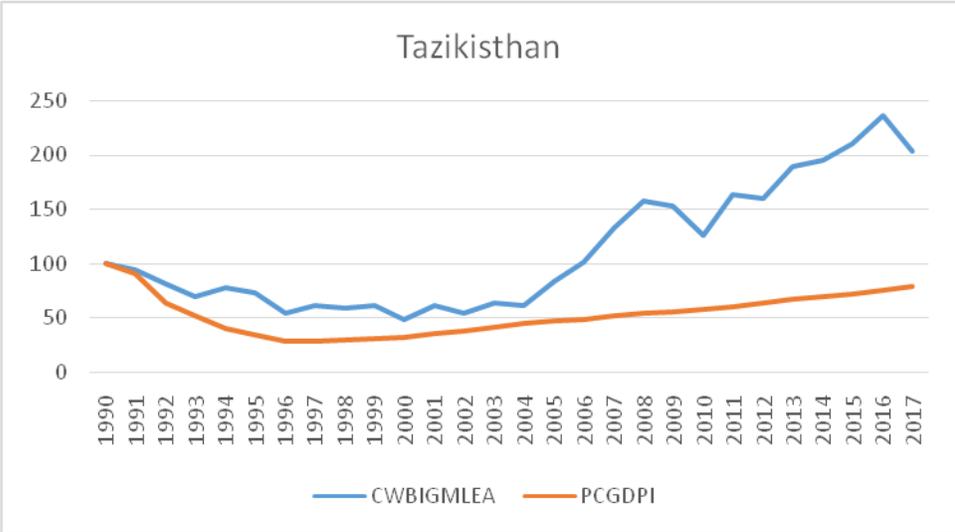
	Year	PWBI(LE ADJ)	FWBI TOT	FWBI	SSI TOT	SSI	CWBIGMLEA
Belarus	1990	100	66327.74	100	1042.032	100	100
	1995	65.60014685	48738.4	73.48117	448.4766	43.03868	59.1988494
	2000	93.27921124	69099.27	104.1785	729.6463	70.02152	87.95588046
	2005	135.634752	108363	163.3751	1230.062	118.0446	137.7846875
	2010	213.52633	222428.2	335.3471	2993.158	287.2426	273.9880415
	2015	240.2908401	177679.8	267.8815	3655.581	350.8129	282.6518514
	2017	244.0244385	162237	244.599	3135.013	300.8559	261.8678465
Bulgeria	1990	100	87018.77	100	2835.654	100	100
	1995	92.24074072	59290.91	68.13578	2571.205	90.67415	82.90750169
	2000	93.02676122	61664.74	70.86372	1460.212	51.49473	69.75867525
	2005	135.0139583	137018.1	157.4582	3445.545	121.5079	137.2090724
	2010	174.5787263	142242.3	163.4616	5969.979	210.5327	181.7923223
	2015	199.0215379	150968.9	173.4901	6227.094	219.5999	196.4576576
	2017	48.04420923	145527.7	167.2372	4595.84	162.0734	109.2014843
Czech Rep	1990	100	337328	100	8001.326	100	100
	1995	100.6992935	438007.8	129.8462	10020.03	125.2296	117.8657529
	2000	114.195057	442563.6	131.1968	8007.281	100.0744	114.4540612
	2005	139.3868869	497915	147.6056	8989.68	112.3524	132.2215668
	2010	157.2015939	522116.7	154.7801	13840.79	172.9813	161.4570572
	2015	176.3545074	555317.1	164.6223	16187.52	202.3105	180.4254869
	2017	69.10714638	553414.3	164.0582	14337.62	179.1905	126.6519827
Hungary	1990	100	16132.34	100	9442.556	100	100
	1995	105.8926128	183691.3	1138.653	7938.73	84.07395	216.4243723
	2000	129.3875275	255235.5	1582.136	6641.892	70.33998	243.2836052
	2005	162.9422849	297886.2	1846.516	9138.994	96.78517	307.6558807
	2010	168.1733652	250567.1	1553.198	11535.06	122.1604	317.1792274
	2015	195.6251925	310655.6	1925.67	9685.076	102.5684	338.070065
	2017	192.4892932	330053.9	2045.915	10239.2	108.4367	349.5346427
Moldova	1990	100	16126.81	100	316.336	100	100
	1995	99.75800298	16689.93	103.4918	322.9103	102.0783	101.7643607
	2000	110.5118118	13818.15	85.6843	305.4144	96.54748	97.05478673
	2005	149.6702732	32429.54	201.0909	572.3865	180.9426	175.9366116
	2010	164.0920261	35181.01	218.1523	697.485	220.4887	199.1030162
	2015	213.5026875	46249.1	286.7839	824.7184	260.7096	251.7899557
	2017	216.2294822	46773.16	290.0336	703.1621	222.2833	240.6707642
Poland	1990	100	10432.29	100	1233.962	100	100
	1995	115.2783425	108369.9	1038.793	2048.637	166.0211	270.9026698

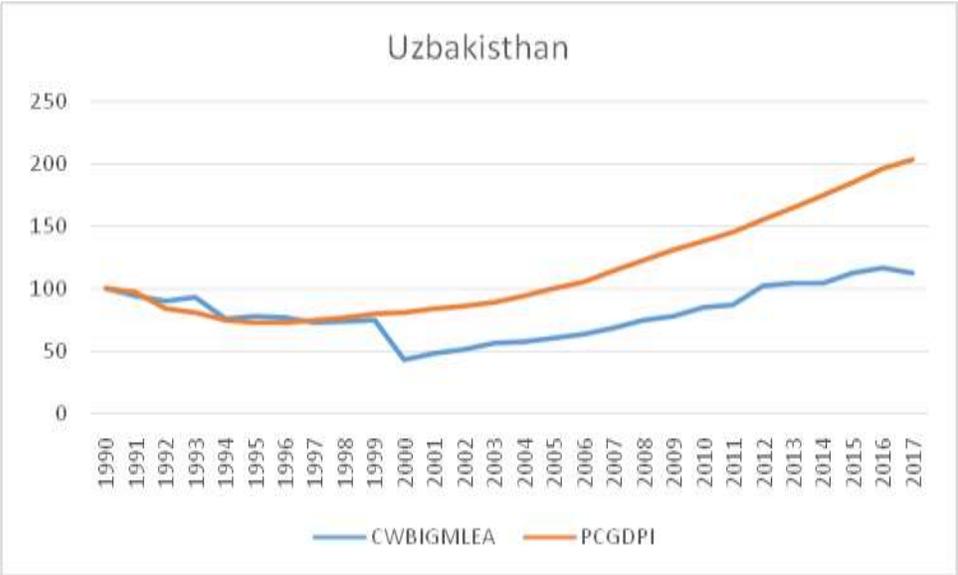
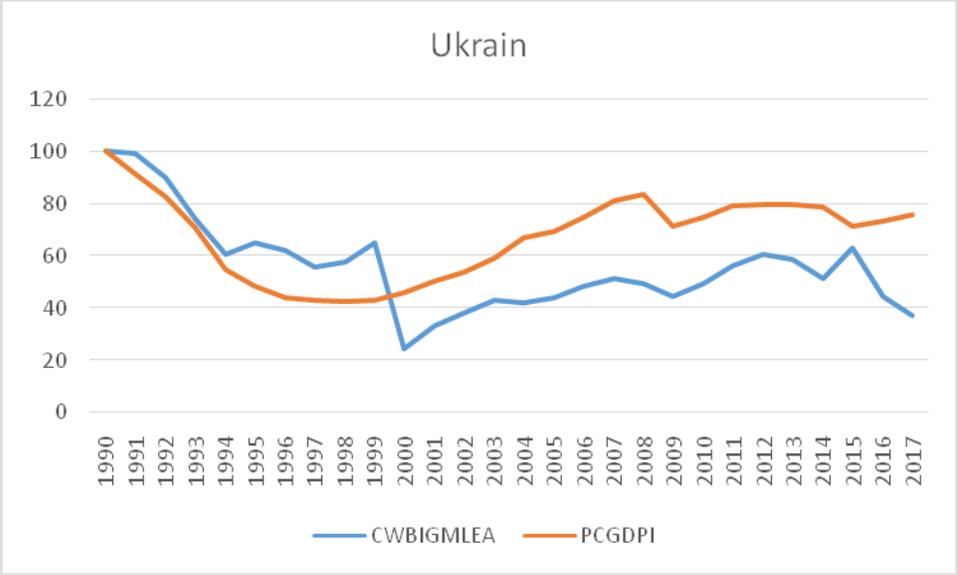
	2000	155.8893665	192700.9	1847.158	3533.341	286.3412	435.2460211
	2005	184.2719219	177801.2	1704.335	4592.901	372.2077	488.9523365
	2010	235.0482693	241544.2	2315.352	9006.518	729.8863	735.0943865
	2015	280.3261401	277546.6	2660.457	11947.95	968.2589	897.1611527
	2017	276.8667132	258750.2	2480.283	11847.38	960.1089	870.3570727
Romania	1990	100	104276.1	100	4796.423	100	100
	1995	94.36441105	101337.6	97.18202	1454.976	30.33461	65.27960889
	2000	91.49363721	90598.79	86.8836	1117.976	23.30854	57.00958694
	2005	129.6923536	153534.4	147.2384	1952.698	40.71155	91.94985782
	2010	163.3360724	204620.4	196.2295	4476.601	93.33207	144.0873294
	2015	200.0980384	229014.3	219.6231	4209.256	87.75822	156.8205148
	2017	197.0069944	234744	225.1179	4164.249	86.81989	156.7365427
Russia	1990	100	254120.4	100	644.706	100	100
	1995	58.5762525	113853.9	44.80311	601.6262	93.31792	62.5650219
	2000	69.75817493	106244.5	41.80874	572.4978	88.79982	63.74186263
	2005	93.63309516	157244.3	61.87788	777.0614	120.5296	88.71957821
	2010	113.8859314	228334	89.85269	986.9129	153.0795	116.1375775
	2015	127.1478586	232569.3	91.51932	7723.852	1198.042	240.675201
	2017	127.5006643	251620	99.01604	7377.765	1144.361	243.5531154

APPENDIX-3A: Line Diagram showing the long-run trend in CWBI and PCGDPI of CIS countries.

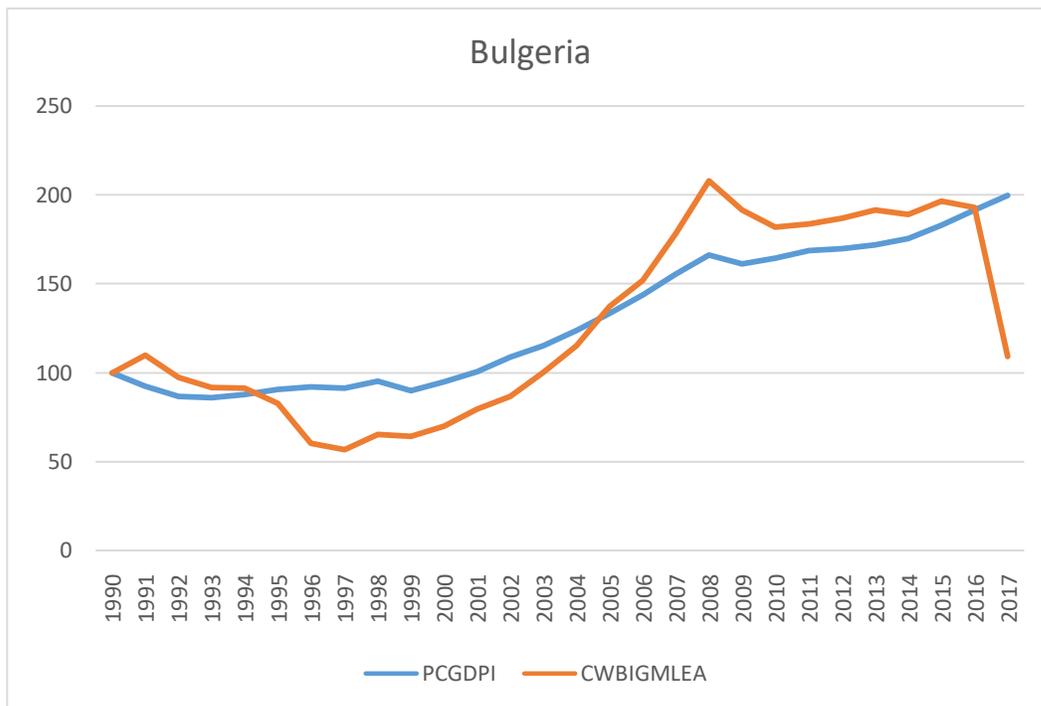
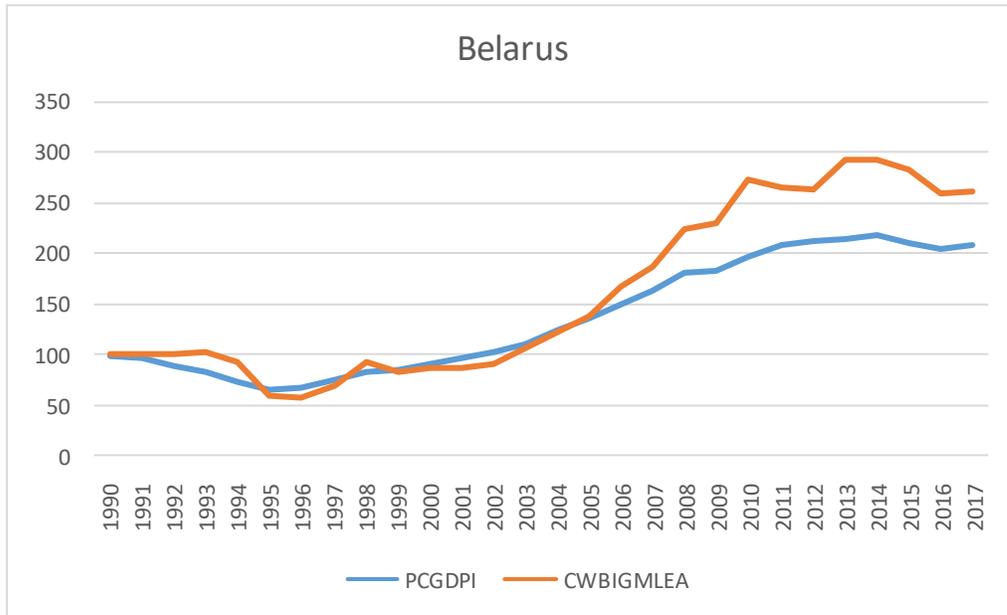


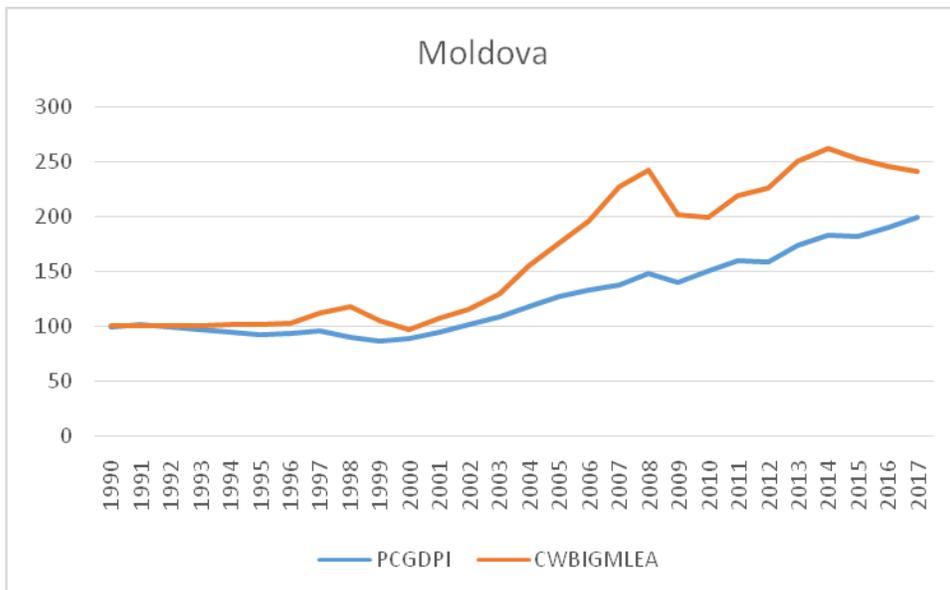
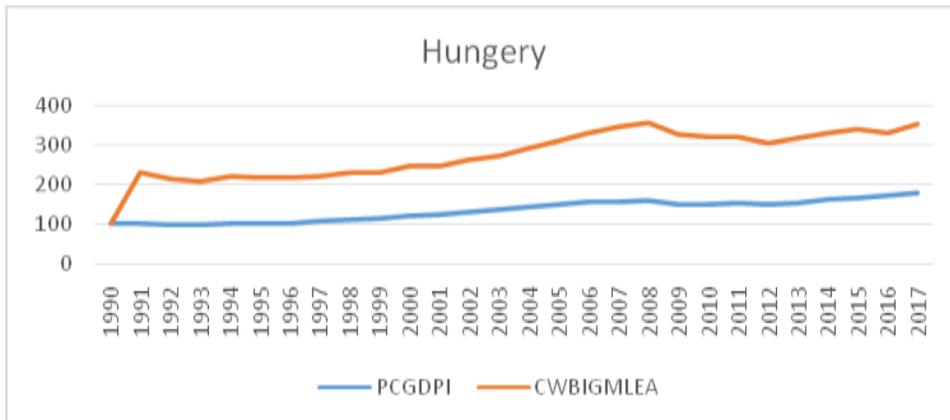
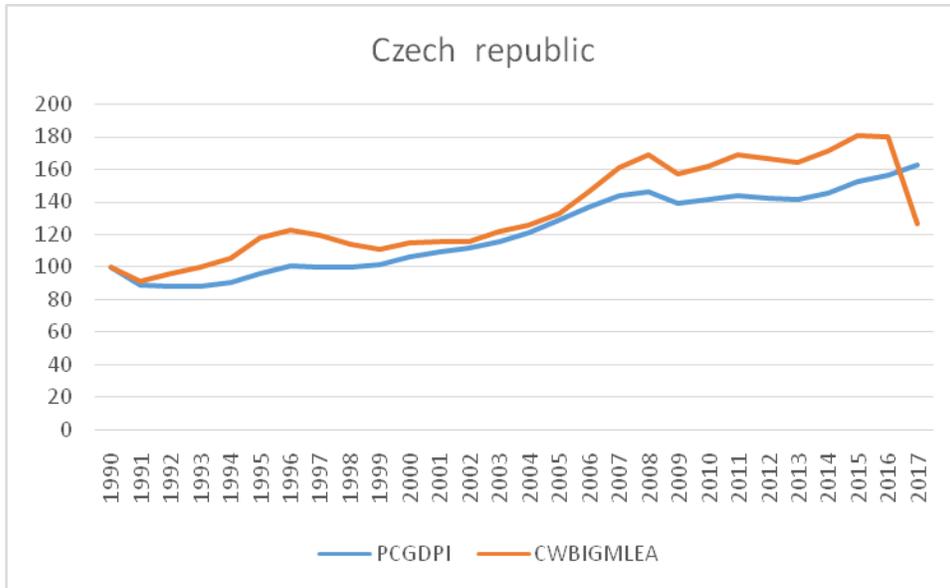


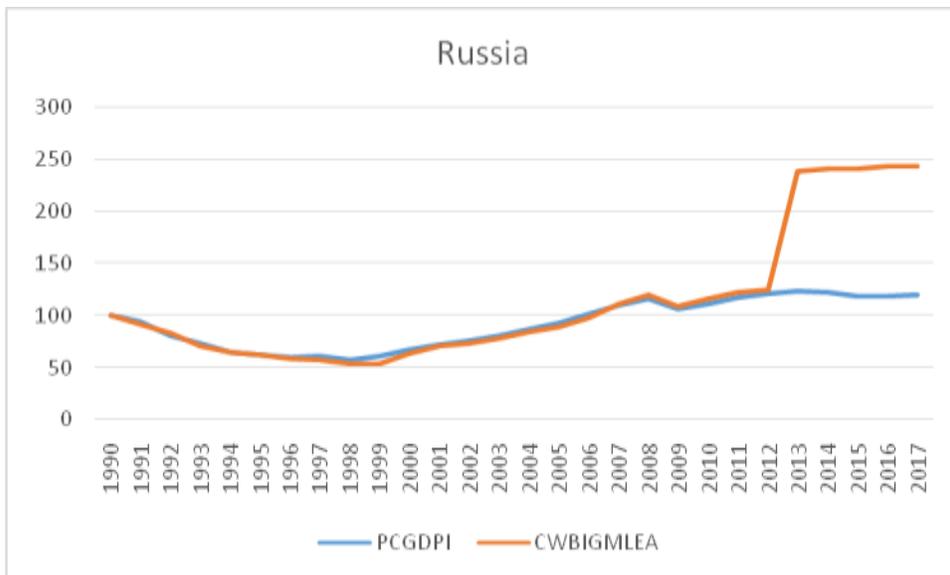
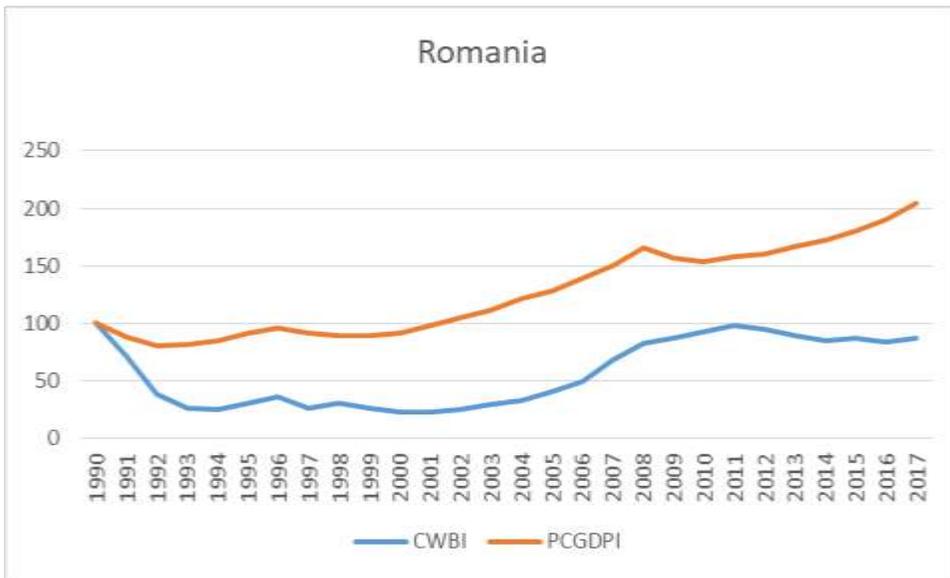
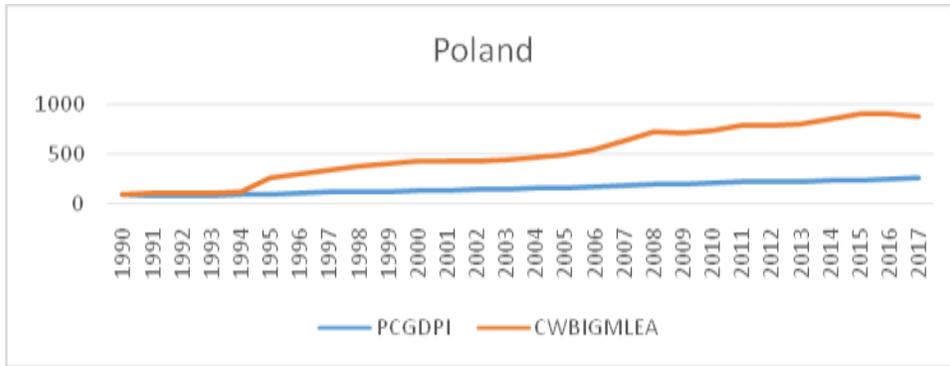




APPENDIX-3B: Line Diagram showing the long-run trend in CWBI and PCGDPI of EE countries.







Appendix -4A:

Dynamic Panel Regression Results of CIS

with GMM method; Dependent Variable : CWBI

Wald chi2(3) = 1410.93

Prob > chi2 = 0.0000

One-step results

+-----

incwbilea	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
incwbilea					
L1.	.5178493	.0433978	11.93	0.000	.4327911 .6029074
lnpcgdp	.6260708	.0578764	10.82	0.000	.5126352 .7395064
lngi	.0333654	.0157612	2.12	0.034	.0024739 .0642568
_cons	-.7191977	.1756873	-4.09	0.000	-1.063539 -.3748568

Sargan test of overidentifying restrictions

chi2(197) = 249.4781

Prob > chi2 = 0.0067

Appendix-4B :

Dynamic Panel Regression Results of EE with GMM method;

Dependent Variable : CWBI

Wald chi2(3) = 5599.74

Prob > chi2 = 0.0000

One-step results

+-----

cwbigmlea	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
cwbigmlea					
L1.	.9010854	.0226019	39.87	0.000	.8567865 .9453843
lnpcgdp	23.14464	7.455725	3.10	0.002	8.531682 37.75759
lngi	14.16343	7.429901	1.91	0.057	-.3989026 28.72577
_cons	-237.772	60.47573	-3.93	0.000	-356.3023 -119.2417

Sargan test of overidentifying restrictions

H0: overidentifying restrictions are valid

chi2(179) = 205.4486

Prob > chi2 = 0.0805