Region Wise Relationship Between Population Density, Urbanization, And Growth Between Countries And Economic Systems Of The World

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Abstract
Countries across the world have different histories, cultural and social ethos and of course, different economic systems. Some countries are prosperous while many others are not.
People in developed countries have a much better standard of living compared to those countries which are developing or are yet to reach even that stage. However, some countries have witnessed tremendous growth and development over the last few decades. The time period considered for this study is from 1960 to 2020 – for sixty years. The purpose of this study is to first understand whether certain parameters like density of population, degree of urbanization etc. has any correlation with the prosperity of the countries as measured by GDP per capita. Then representative countries from different regions of the world were chosen, totally numbering around fifty. These countries were then, as a region, studied further with the help of regression analysis and ANOVA. The data for the entire work was obtained from World Bank and similar other sources. Analysis showed that there is indeed a correlation between population density, level of urbanization etc. with the dependent variable, GDP per capita growth percentages. The status of the individual countries was studied, and it was also found that there is no significant difference in terms of GDP per capita growth percentages between the countries in the same region. There are, however, differences between countries in the same region in terms of GDP per capita and other parameters.

I. Introduction

The social, political, and economic systems of countries around the world have been studied for quite sometime now. This is primarily because it is believed that these systems are what determines the well being of a country and its citizens. In his book "World Development and Economic Systems: Theory and Applications", published in April 2023, the author says that comparative study of economic systems (CSES) is a central activity which has many benefits – the chief among them is an understanding of the systems which are producing better results. Hence this gives an idea about the way forward for economic systems around the world with the objective of maximising of growth, development, and welfare for all the people of this world. Economic systems take shape in a particular geographical location and then spread out to the other parts of the world. So far, we had different systems like communism, socialism, and capitalism. However, this is not what we will be discussing in this article. This is because different economic systems are correlated with development taking place in this world or parts of these world. There are so many factors linked to this relationship that it is beyond the scope of this paper. However, it will be kept at the back of our minds and form a sort of background to this study. The economic systems will be looked at from the perspective of traditional system, the centrally planned system, and the decentralized market system. In the present dominant system in the major economies of the world as also in the rest of the world, the markets are competitive and interlinked and are led by innovation and entrepreneurs. However, Schumpeter argued that this system is not delivering the expected level of redistribution of wealth and decision-making powers. This is because profit-maximising is the goal of the market system through their corporatisation and monopolies. According to him, this can be done much better through the socialist system.

The market system is continuously evolving and so has the controlling institutions. This, however, has not been able to stop the alienation of common people and the danger of reducing the powers of institutions which are supposed to protect the poorer sections of the society. Dehumanization and commodification of labour along with the bane of conspicuous consumption is a grave danger for the humankind. Some economists are of the view that the market system also fosters freedom and democracy. This market economy or capitalism is practiced in various forms across the world. Capitalism as is in USA is quite different from that of Europe. Again, Europe itself has different shades of capitalism within it and the differences between countries in Europe in terms of form of capitalism practiced is quite high. Similar is the situation in Asia and in other continents of the world. There have been various forms of classifications of economic systems or particularly capitalism. One such classification has been done by Amable (2003). According to him countries like USA and UK has a

market-based model, Scandinavia is a social-democratic model whereas countries like Germany, France, Netherlands, and Belgium has a typical continental European model.

Greece, Italy, Spain, and Portugal have a Mediterranean model whereas Japan and Koreahave the Asian model.

The author of the above-mentioned book has suggested three major dominant economic systems. They are: household intensive system, firm intensive system, and state intensive system. The household intensive system is based on social sharing, profit maximisation for the firm intensive system, and the state system is based on state control or rent seeking.

Convergence of the social mechanisms in a country ensures that one of these systems becomes the most dominant system in the country. A look into the approximate worldwide numbers of people operating under each of these systems will give a better idea of the distribution and strength of each of these subsystems. Approximately 60% of the labour force in developing countries work in the unorganized sector – primarily in household-based settings. Out of the remaining 40%, about 20% work in public sector (state setting) and another 20% work in private sector (firm setting). The scenario in the developed countries is just the opposite of that in developing countries. Approximately, 70% of the workforce in developed countries work in private sector (firm setting) with another 25% in the public sector (state setting). Only about 5% of the workforce in the developed countries work in household-based setting. All the systems arose from the origin which was family or household dominated. Naturally, the developing countries are close to that – the origin. It is also seen that the importance of family is more pronounced in the firm intensive systems than in the state intensive system. It is also seen that USA, Western Europe, and Japan have the highest scores in terms of firm intensive systems – especially private enterprises. There seems to be a resurgence in favour of state intensive systems in the Russian and similar other adjoining countries. According to Index of Economic Freedom, USA has the highest score in the firm intensive system, and Japan is closer to USA than EU. This also means that the ability of firms to compete is higher than that of EU and Japan. An interesting phenomenon linked to this is the share of the revenue of the state in the GDP of the country. While in case of USA and Japan it is only 16% and 11% respectively, in case of EU-average it is as high as 37%. This economic structure is what differentiates countries and determinestheir stage of development.

Solomon Cohen, the author of the book, is of the opinion that household-intensive systems are not as efficient in value transformation when compared with state-intensive or firm- intensive systems. As a result of this, the growth of countries in household-intensive systems are far less than the countries with state-intensive systems and firm-intensive systems. This is primarily because the product range as well as the resources available to household- intensive systems are much less than that of state-intensive systems and firm-intensive systems. The author also predicts that economic growth and economic welfare will be higher in case of firm-intensive systems when compared with state-intensive systems. The following table (TABLE 1) gives the growth patterns of the two systems which can be compared at a glance:

Table 1

This difference is best explained by the concepts of extensive and intensive growth. Extensive growth is the result of more factors of production like addition of labour and capital etc. Intensive growth is the result of higher productivity, efficiency etc through addition of technology and more efficient use of other factors of production. So, although the growth rates were similar initially, firm-intensive systems continued on the growth path while the state-intensive systems growth trajectory tapered off.

II.   Literature Survey

In a study of two emerging economies (Brazil and South Africa), the author (Baulant, Camille 2017) observes that the emerging economies have been growing very fast over the last three decades. One of the characteristics of the growth is that od state capitalism. As a resultof this, the gap between the rich and the poor have increased only as there has been a concentration of wealth in the hands of a few rich individuals. The author also notes that there is a gap in the world rankings of these countries between economic growth and wellbeing. Brazil and South Africa has taken a different route to growth and has placed human development in the centre of economic development. The high economic growth of the emerging economies has not necessarily translated into an increase in wellbeing of the citizens of these countries. The author uses GDP per capita for measuring economic growth and other indices for measuring wellbeing (like life satisfaction etc.). It was found that wellbeing in Brazil was among the highest among emerging countries and was even higher than many developed countries. Wellbeing is more important for Brazilians when compared to economic growth. In case of South Africa, scores or ranks for wellbeing was among the lowest among emerging countries although it is quite high in the economic parameters.

Some experiments were carried out in both these countries where human networks combined with local institutions went a long way to solve life's problems for the inhabitants of those places. This experiment on universal income produced very encouraging results. In both these countries, feelings of the inhabitants are

squarely dependent on the strength of the institutions and the values that are fostered by the respective society.

Mijiyawa, Abdul' Ganiou (2008) studied certain countries and found that the economic growth of countries is not even – some are more sustainable than the others. He explored the reasons for some countries displaying more sustainable economic growth or SEG. It has been proved that if a country wants to reduce poverty in a permanent fashion, it has to have a consistently sustainable economic growth. SEG requires good institutions and SEG leads to higher per capita GDP, especially when the growth rates are high. Analysis showed that developed countries have enjoyed sustainable economic growth more than the developing countries. The presence of good institutions is very necessary in a country for SEG. This is because good institutions increase total factor productivity or TFP which results in the economy becoming more competitive. A country enjoys SEG only when there is a presence of good institutions and the presence of good business opportunities. Herzog, Chimes (2001) underscores the importance of mutual cooperation among developing countries in his article wherein he takes the example of Israel. He believes that instead of always looking at others for their help, developing countries should think of working together and contributing to the welfare of other developing countries. He gives many examples of how Israel was working with African countries and helping them primarily with technical expertise. However, international politics – mainly, the opposition from Arab countries, put a stop to these efforts. Later on, these African countries realized the importance of what Israel was doing for them. So, growth will also come from mutual cooperation as also from self-help. There seems to be no point in waiting for developed countries to come forward on their own and solve the problems of the developing countries.

Khan, Abdullah M. (2017) did an interesting study on the factors influencing GDP per capita of countries. Although there has been a lot of studies on factors influencing GDP per capita, the author studies the importance of legacy systems and institutions influencing GDP per capita. That meant that the author segregated the countries on their colonial legacies – primarily, countries who were colonized by the English, French, and Spanish. The author studied the countries from the perspective of colonization and its effects on the people of these countries. It was found by the author that countries colonized by the English has higher GDP per capita when compared to countries colonized by the French and the Spanish. One interesting fact stated by the author is that there are 192 countries now who are members of the UN. Out of these 192 countries, 125 of them were under colonial occupation primarily by England, France, Spain, and Dutch (Portuguese occupation had tapered off earlier). Also, in 1930s, 84.6% of the land mass of this world were under colonial occupation. The author quotes Acemoglu et al (2001) who had reported that seventy-five percent of the differences in GDP per capita between countries who were freed from colonial rule earlier were accounted for by the economic and political institutions. In their study of various countries, they also found that institutions play a major role in the economic growth of countries. The author also quoted Barro (1991) who reported that economic growth is strongly influenced by human capital and that richer countries growth were slower than the poorer countries. The findings were also in line with extant literature – some of the factors influencing GDP growth rate are R&D share of GDP, trade openness, ethnic diversity, tertiary enrolment, and foreign investment inflow as percent of GDP. The author noted that English is a language which does not have inflection in marking future events or actions while French and Spanish has inflection in marking future events or actions. According to the author, this difference makes an impact on economic decisions which in turn influences the GDP growth.

Pradhan, Mohammad Abdul Hannan and Quazi, Rahim (2022) studied the relationship between public social security expenditures and poverty, income inequality, and GDP growth in Bangladesh. The authors noted that there has been a considerable increase in public security programmes in Bangladesh in recent times. The obvious objective is not only to reduce poverty but also to make this segment of the population contribute to the economic development of the country. The dependent variables considered are growth rate of GDP, Gini coefficient, and rate of poverty. The explanatory variables are public social security expenses, GDP per capita, active working-age population aged 15- 64, elderly population aged above 65, gross capital formation, share of population aged 25-64 with tertiary (post- secondary) education, inflation, and export earnings as a share of GDP. The analysis showed that public social security expenditures did not have any effect on income inequality or poverty in the short run. In the long term also, public social security programmes failed to have any significant effect on income inequality. However, there is a general belief that social security expenditures aimed at low-income segment of the population actually help in reducing income inequality. The authors think that there is a threshold value of social security expenditures that will make an impact on the targeted segment of the population.

Many governments, according to the authors, spend less amount on social security and hence the impact is only marginal. So, the authors suggest that Bangladesh should overhaul their entire programme and then invest substantially in social security such that it makes an impact on reduction of income inequality. On the positive side, it was found that public social expenditures had significant effect on gross capital formation. Additionally, capital formation, public social security expenditures, elderly population, and earnings from exports had a significantly positive impact on growth in GDP in the long run. This is an important finding as

growth in GDP generates more resources for the government. So, it comes full circle as these additional resources generated will help the government to run programmes for particular segments – programmes where a greater number of people may be included, and the amount disbursed may also be increased for each individual. This then becomes self- sustaining and may help in reducing income inequality significantly.

The same authors contend that a lot of studies has been undertaken on this topic and it was found in almost all of them that there is a negative relationship between public social security expenditures and poverty and income inequality. Cammeraat (2020) studied 22 countries from European Union with panel data (1990-2015). His objective was to study whether social security expenditures in these countries had any effect on poverty, income inequality, and GDP growth. Results of the analysis showed that the relationship between the total social expenditures made by the government and poverty and income inequality were negative.

However, the expenditures had no relationship with GDP growth. In this case, income inequality was measured by Gini coefficient.

III. Objective & Methodology

As discussed earlier, some of the most important things that the whole of humanity is bothered about are growth and wellbeing. The objective here is to understand growth a little better. The first thing that needs to be checked is whether there are some characteristics or factors which affect growth. One has to keep in mind that our research is at the country level-spread out across the world. This means that while growth is a dependent variable, the independent variables considered in this article are population, population growth percentage, density of population, urban population percentage and the growth percentage of urban population percentage. Growth (dependent variable) is measured by GDP, GDP per capita and their growth percentages. GDP and GDP per capita represents growth and is also a parameter for measuring the standard of living of the citizens of the country. So, the first objective of course is to ascertain whether the independent variables influence the growth of a country and if so, how. The second objective is to find out whether the countries in the same geographical and hence, socio-cultural space display the same characteristics and what are the similarities and dissimilarities between them.

The empirical research for this article has been done on the basis of data provided by The World Bank. World Bank has divided the world into a number of geographical segments and has provided data about each and every country in the geographical segments. The time frame for the data used in this article is from 1960 to 2020. For the purpose of brevity and clarity of the article, some representative countries were chosen from each and every geographical segment made by the world bank. The representative countries chosen from each of these segments are normally a mix of different economic systems and may also differ in their socio-cultural-political characteristics. The level of prosperity may also differ among them although they are from the same geographical segment. The total number of countries chosen were around 50. Following are the segments and the list of countries chosen from each of these segments:
1) South Asia: India, Bangladesh, Pakistan, Nepal, Sri Lanka
2) Southeast Asia: Malayasia, Vietnam, Philippines, Indonesia
3) East Asia: Japan, China, South Korea
4) Middle East Asia: Iran, Jordan, Saudia Arabia
5) Pacific: Australia, New Zealand
6) Africa: Egypt, Zimbabwe, South Africa, Nigeria, Tanzania
7) North America: USA, Canada, Mexico
8) South America: Brazil, Argentina, Peru, Chile, Cuba, Uruguay
9) West Europe: UK, Portugal, France, Germany, Switzerland, Italy
10) North Europe: Netherlands, Norway, Russia
11) East Europe: Austria, Greece, Hungary, Czech Republic, Moldova, Romania, Turkey. The statistical tools used are correlation, regression analysis, and ANOVA.

Analysis

The data was first analysed with the objective of ascertaining whether there is any correlation between the independent variables. The independent variables are population, population density, urban population, the area of the country, and GDP per capita. The following table (Table 2) provides the summary of the correlation analysis:

Table 2

So, we can see from the above table that the density of population in a country and its urban population is correlated. This is expected because density of population is much higher in urban areas compared to rural areas. Also, area of a country and its population is correlated. This is also expected as population is expected to be higher when the geographical area of a country is larger. The main finding here is that there is a significant

correlation between urban population and GDP per capita of a country. So, urbanisation is a reality in today's world and the countries where more number or percentage of people live in urban areas are more likely to have higher GDP per capita. GDP per capita has been accepted as a measure of standard of living of people in a country, and so it can be safely deduced that rapid urbanisation is a sure way of improving the standard of living of the residents of the country. A recent example of that is China where industrialization and urbanisation went hand in hand resulting in a rapid rise of GDP per capita. Countries with very high GDP per capita like North America as well as Western and Northern Europe have an urban population of more than 80% of their total population. On the other hand, countries in South Asia, which has a low GDP per capita, has an urbanization rate of around 35% only. So, industrialisation brings in rapid urbanization which also affects the GDP per capita of a country. World over, agriculture is not able to raise the standard of living so much and hence people are moving away from agriculture to industry and service industries which results in migration from rural to urban areas. One is not sure if there is any alternative model of economic growth available – so for the time being, this is the model that most countries are following.

Now, we would definitely like to know whether the GDP per capita growth in percentage terms is influenced by any of these parameters. So, regression analysis is done with GDP per capita growth percentage as the dependent variable and all the other parameters mentioned above, except density of population, as independent variables. Backward method was used in the regression analysis. The results of the analysis clearly showed that the GDP per capita growth percentage is significantly influenced by population growth percentage (-.065, .004), urban population growth percentage (.071, .001), and GDP per capita (-.092,.000). Though ANOVA is highly significant (.000), R-square is only .014 and Adjusted R- square is .013. When the same regression is carried out using the enter method, the results are virtually the same. Then regression was carried out wherein density of population was added as an independent variable. Again, backward method was used first. The results of the analysis clearly showed that GDP per capita growth percentage is significantly influenced by population density per square kilometre (.266, .050), urban population as percentage of total population (-.455, .004), and GDP per capita (.384, .010). ANOVA is highly significant (.001). R is .565, R-square is .320, and adjusted R-square is .274.

Regression analysis using the enter method yielded the same results. So, it is seen that among the variables considered, other than the existing GDP per capita, urbanisation and population density play an important role in the growth of GDP per capita. Urbanisation of a country is caused by many factors – one of them being industrialization, and so it can be safely concluded that industrialization leads to a high and rapid growth in GDP per capita. This is of course established as a historical fact – which can be easily seen from the past experiences of the developed countries and the now developing countries. Population density is also important – more in the sense of the composition of the population in terms of factors like age, gender, education etc. If a country has more of younger population, the chances that they will be able to contribute more to the economy is higher. The nature of jobs that they perform is dependent on their educational background. Of course, investments and industrialization have to happen simultaneously if the youth of the country have to participate in the process of economic development. It is also proven that urbanization means higher standard of living for the residents of the country.

From the regression analysis, it is seen that GDP per capita growth percentage depends on the current GDP per capita. That also indirectly means that it is very difficult to create a discontinuity in the growth path of the GDP per capita of a country. In an earlier paper, Choudhury, Rahul Gupta (2023) has shown that the real growth story of the world for the last sixty years has been that of East Asia + Pacific. They have gone from GDP per capita of $150 in 1960 to $12000 in 2020. In the same time period, they brought down the population growth percentage from 2.5% to 0.43%. Their year-on-year growth in urbanization has maintained a steady pace of 1.5% to 2.3% over the last sixty years. As a result of this steady growth, the percentage of urban population of the world residing in the urban areas of the region rose from 23% to 33%. What is being suggested is that the growth has to come from a steady growth rate in industrialization and urbanization and reducing the population growth rate to a manageable level. Otherwise, the relative ranking of the countries/regions in terms of economic growth will remain the same. That is not a very big problem for the developed countries but may become a big hurdle to overcome for the developing countries. Now, since the base GDP per capita significantly influences the growth percentage of GDP per capita, a regression analysis was done to ascertain the variables which significantly influences GDP per capita. It was found from the analysis (backward method) that the dependent variable GDP per capita is significantly influenced by urban population percentage (.627, .000) and of course the GDP per capita growth percentage (.361, .006). ANOVA is highly significant (.000) and R is .602, R-square is .363, and Adjusted R-square is .335. Regression analysis in the enter method also yielded the same results. So, in effect, the analysis clearly says that even GDP per capita is dependent on the urbanization of the country/region. From the above analysis, it is clear that standard of living of a country or its economic growth is very strongly related to the degree of urbanization of the country/region.

The above analysis was done on the total 50 countries across the world put together. Then the world is

disaggregated into different regions mostly on the basis of geographical proximity. So, the continent of Asia is divided into East Asia, Asia Pacific, Southeast Asia, South Asia, and Middle East. Representative countries were chosen from each of these regions and Regression analysis and ANOVA was carried out on that data to arrive at certain conclusions. Similar exercises were carried out for Africa, North America, South America, and Europe. The list of countries chosen from each region is given in the methodology section. Overall, 3 countries were chosen from East Asia, 2 from Asia Pacific, 4 from Southeast Asia, 5 from South Asia, 3 from Middle East, 5 from Africa, 3 from North America, 6 from South America, and a total of 17 countries from Europe. For each of the regions, regression analysis was carried out first. In the regression analysis, like in the previous cases, GDP per capita growth percentage is taken as the dependent variable. The independent variables are population, population growth percentage, urban population in percentage terms, urban population growth percentage, area of the country, the density of the population, and GDP per capita. In ANOVA, all the variables including the dependent variable has been taken into account. Post-hoc analysis was also carried out in ANOVA – for each country/region. The following table (Table 3) presents the summary of the results of regression analysis with GDP per capita growth percentage as dependent variable:

Table 3
Now, we take a closer look at each of these regions. This will be facilitated by combining the results of ANOVA, along with post-hoc, which was carried out on each of the regions separately.

East Asia: Comprises of Japan, China, and South Korea. The regression analysis clearly shows that the GDP per capita growth percentage is correlated with urban population percentage of total population and growth percentage of urban population (even though significance is slightly above 5%). The correlation with GDP per capita is highly significant but negative. This is because these countries (especially Japan and South Korea) already enjoy a very high GDP per capita and that it is more difficult to grow when the base is already very high. The adjusted R-square value is only .129 while ANOVA is highly significant at .000. The following table (TABLE 4) gives the GDP per capita and urban population percentage of the countries in 1960 and 2020:

Table 4
In 1960, Japan had a GDP per capita of $475 which went up to $40,000 in 2020. The urban population percentage was at 63 in 1960 – which went up to 92% in 2020, which is remarkable and one of the highest in the world. South Korea had a GDP per capita of $158 and an urban population of 28% in 1960. The corresponding figures went up to $32,000 and 81% respectively in 2020 – which is again a remarkable achievement. China had a GDP per capita of $89 and its urban population was just 16% in 1960. The corresponding figures for China in 2020 was $10,500 and 61%.

This is no mean achievement given the size and population of China. That is why, the growth story of East Asia is the most remarkable growth story of the last century and that is why it stands out among all the other regions of the world. The results of ANOVA show that there is no difference between the GDP per capita growth percentages of the three countries. In terms of population, population density, and urban population percentage – all the three countries are different from each other.

The GDP per capita of the three countries are also different from each other. However, population growth percentages and growth percentages of urban population of China and South Korea are significantly similar. This is because Japan has been a developed country for quite some time now whereas the real growth of China and South Korea has happened more in the latter half of the previous century.

Asia Pacific (Australasia): Comprises of Australia and New Zealand. Regression analysis show that GDP per capita growth percentage is significantly correlated with population, population density, urban population percentage, and GDP per capita (with significance above 5% and below 10%). Adjusted R-square is just .029 with ANOVA at .120 and Durbin Watson at 1.346. So, obviously, the overall regression equation is not very strong, but population and population density negatively affect the GDP per capita growth percentage. The following table (TABLE 5) gives the GDP per capita and urban population percentage of the countries in 1960 and 2020:

Table 5
So, Australia has progressed faster in terms of their economy, even though the rate of urbanization is higher in case of New Zealand. However, ANOVA shows that the GDP per capita percentage growth of the two countries is significantly similar. All the other factors are dissimilar between the two countries.

South Asia: Comprises of India, Bangladesh, Pakistan, Nepal, and Sri Lanka. Regression analysis shows that the GDP per capita growth percentage is significantly and negatively correlated with population growth

percentage. None of the other variables seem to have an effect on the dependent variable which is GDP per capita growth percentage. Adjusted R-square is just .011 with an ANOVA of .040 and Durbin Watson at 1.843. The following table (TABLE 6) gives the GDP per capita and urban population percentage of the countries in 1960 and 2020:

Table 6

There is no significant difference between the GDPs per capita growth percentages of these countries – meaning, all the countries have very similar GDP per capita growth percentage over the last sixty or so odd years. Among all the regions of the world, Indian sub-continent remains almost at the bottom of the scale as far as GDP per capita and level of urban population percentage is concerned. This is almost the same situation as was in 1960, even though there has been a solid and consistent growth of the Indian economy over the last few decades. So, even though Indian economy has grown tremendously, the growth in population also has been very high. The population growth percentage has slowed down over the years and for the first time in the history of Independent India, population growth rate has fallen below 1.0 in 2020. Bangladesh has caught up fast after their independence in 1971 and their growth rates are close to India. Pakistan and Nepal are the real laggards even in this group while Sri Lanka has done better on GDP per capita even though their urban population seems to have been stagnant at around 18% throughout the last sixty years. ANOVA shows up some similarities and some dissimilarities between the countries – in all aspects considered in this paper. However, the most important seems to be the finding that there is no significant difference in GDP per capita growth percentages between the countries in this group.

Southeast Asia: Comprises of Malayasia, Vietnam, Philippines, and Indonesia. As seen in Table 3, regression analysis show that GDP per capita growth percentage is negatively correlated with population, population growth percentage, and urban population in percentage terms. It is also positively correlated with the area of the country. The R-square value is only .021, ANOVA is .079, and Durbin Watson stands at 1.619. The following table (TABLE 7) gives the GDP per capita and urban population percentage of the countries in 1960 and 2020:

Table 7

The GDP per capita of Malayasia is significantly different from that of the other three countries considered in Southeast Asia. This is really a remarkable growth by any standards and Malayasia is well on its way to become a developed country. ANOVA shows that there is no difference between the GDP per capita growth percentages of the countries in the region. However, GDP per capita of Malayasia is different from all the other three countries. There is no significant difference in population and population density between Vietnam and Indonesia. However, urban population percentage of all the countries are dissimilar to each other.

Middle East Asia: Comprises of Iran, Jordan, and Saudi Arabia. As seen in Table 3, regression analysis show that GDP per capita growth percentage is negatively correlated with population and population growth percentage. However, GDP per capita growth percentage is positively and significantly correlated with urban population growth percentage. Adjusted R-square is .130, ANOVA is .000 and Durbin Watson stands at 1.559. The following table (TABLE 8) gives the GDP per capita and urban population percentage of the countries in 1960 and 2020:

Table 8

ANOVA shows that there is no significant difference in GDP per capita growth percentages between the three countries. However, GDP per capita of Saudi Arabia is significantly different from Iran and Jordan. The GDP per capita of Iran and Jordan are not significantly different. Population and population density of all three countries are significantly different. There is also no significant difference between urban population percentage of Jordan and Saudi Arabia. There is also no significant difference in urban population growth percentage between Iran and Jordan, and Iran and Saudi Arabia. So, there is high percentage of population living in urban areas in all the three countries of this region – but, in terms of GDP per capita, Saudi Arabia is way ahead of both Iran and Jordan.

Africa: Comprises of Egypt, Zimbabwe, South Africa, Nigeria, and Tanzania. As seen in Table 3, regression analysis show that GDP per capita growth percentage is positively influenced by the area of the country and negatively influenced by urban population percentage. The adjusted R-square value is only .007, ANOVA is .152 and Durbin Watson stands at 1.691. Table 4 shows GDP per capita and urban population percentage of these countries for 1960 and 2020. The following table (TABLE 9) gives the GDP per capita and urban population percentage of the countries in 1960 and 2020:

Table 9

From the above table (4), it is clear that Egypt and South Africa has had good growth in the last sixty years – except level of urbanization in Egypt. Nigeria's growth has been moderate while Zimbabwe and Tanzania have fallen far behind. ANOVA shows that there is no significant difference in the GDP per capita growth percentages of all the five countries. However, there are significant differences between all the countries in terms of population, urban population percentage, and urban population growth percentages. In terms of GDP per capita, there is no significant difference between Zimbabwe and the three other countries of Egypt, Nigeria, and Tanzania.

Difference between Nigeria and Tanzania is also not significant. So, South Africa is clearly ahead of the other countries in this region and is acknowledged as a developing country which has the potential to get into the league of developedcountries in the near future.

North America: Comprises of USA, Canada, and Mexico. As seen in Table 3, regression analysis show that GDP per capita growth percentage is positively correlated with population and negatively correlated with area, population density, urban population growth percentage, and GDP per capita. The adjusted R-square value is only .059, ANOVA is .008 and Durbin Watson stands at 1.501. The following table (TABLE 10) shows GDP per capita and urban population percentage of these countries for 1960 and 2020:

Table 10

USA has one of the highest GDP per capita in the world in spite of being such a large country. Both, USA and Canada were already developed countries in 1960 and they kept on growing all through the last sixty years. Mexico has remained a developing country although it has a very high rate of urbanization or urban population percentage. ANOVA shows there is no significant difference in GDP per capita growth percentages between the three countries. Also, there is no significant difference between USA and Canada in terms of GDP per capita and urban population percentage. Mexico, however, is completely different from these two countries. There are significant differences between all the three countries in terms of population, population growth percentage, and population density.

South America: Comprises of Brazil, Argentina, Peru, Chile, Cuba, and Uruguay. As seen in Table 3, regression analysis show that GDP per capita growth percentage is not correlated with any of the independent variables. That shows the diversity of this composition of countries in South America. The following table (TABLE 11) shows GDP per capita and urban population percentage of these countries for 1960 and 2020:

Table 11

South America is characterised by high urbanization and a high-middle GDP per capita. Argentina had touched a GDP per capita of $13000 around 2012-13 and then went into a downward spiral in recent years. Otherwise also, most of these countries are developing very fast and will, in all probability, achieve a GDP per capita of developed countries in a few decades from now. ANOVA shows that there is no significant difference in GDP per capita growth percentages between these countries. In terms of GDP per capita, there is no significant difference between Brazil and Chile, and Brazil and Cuba. Also, there is no significant difference between Argentina and Chile, and Argentina and Uruguay. There is also no significant difference between Peru and Cuba, and between Chile and Uruguay in terms of GDP per capita. There are similar differences and similarities between different countries on allthe parameters considered as independent variables.

West Europe: Comprises of UK, Spain, Portugal, France, Germany, Switzerland, Italy. Regression analysis show that the dependent variable, GDP per capita growth percentage, is correlated with population density (-3.460, .001) and urban population growth percentage (2.231, .030). The following table (TABLE 12) shows GDP percapita and urban population percentage of these countries for 1960 and 2020:

Table 12

From the above table, it is quite clear that Western Europe is quite developed and enjoys a high or very high standard of living (as represented by GDP per capita). The level of urbanization across the countries in Western Europe is also quite high.

ANOVA shows that there is no significant difference in GDP per capita growth percentage between these countries in Western Europe. One thing, however, has to be kept in mind that these countries were already quite developed in 1960 also. In terms of population, there is no significant difference between UK and France.

However, population density between all these countries is different from each other. There is no significant difference between UK, Germany, and Switzerland in terms of urban population growth percentages. Also, in terms of GDP per capita, there is no significant difference between UK, France, Germany, and Italy.

North Europe: Comprises of Netherlands, Norway, and Russian Federation. The following table (TABLE 13) shows GDP per capita and urban population percentageof these countries for 1960 and 2020:

Table 13

As can be seen from the table, North Europe, with the exception of Russia, is very developed and prosperous. Both, Netherlands and Norway are at the top of the rankings of high to very high GDP per capita - and hence enjoys a very high standard of living. Level of urbanization in all these countries is also very high. There is no significant difference between the three countries in terms of GDP per capita growth percentages. Russia right now is a developing country and the GDP per capita of Russia is way below Netherlands and the Scandinavian countries. In terms of GDP per capita and population, all the three countries are different from each other. There is no significant difference between Netherlands and Norway in population growth percentages, and between Norway and Russia in terms of population density. Also, there is no significant difference between the three countries in terms of urban population percentage and urban population growth percentages.

East Europe: Comprises of Austria, Greece, Hungary, Czeck Republic, Moldova, Romania, and Turkey. The following table (TABLE 14) shows GDP per capita and urban population percentage of these countries for 1960 and 2020:

Table 14

From the above table, it is clear that with the exception of Austria, countries in East Europe are not as prosperous as its counterparts in West or North Europe. Moldova and Turkey are developing countries whereas Greece, Hungary, and Romania are on the verge of crossing over to the developed country status. Austria and Czeck Republic, especially Austria, are already developed countries. However, there is no significant difference in GDP per capita growth percentages between these countries. Greece, Hungary, and Czeck Republic do not have any significant difference in population. In terms of population growth percentages, Austria, Greece, and Moldova do not have any significant difference between them. Similar is the case with Hungary, Romania, and Czeck Republic. There are significant differences between these countries in terms of population density. Also, there is no significant difference between Greece, Hungary, and Czeck Republic and also between Moldova and Romania in terms of urban population and urban population growth percentages.

There is no significant difference in GDP per capita between Turkey, Moldova, and Romania and also between Greece, Hungary, and Czeck Republic. Austria, of course, is far ahead of the other countries in the group.

IV.   Conclusion

It is seen from this study that GDP per capita is influenced by urban population percentage and the population density of the country. The growth models which has succeeded in the last sixty years is that of rapid industrialization and urbanization. However, countries in the same geographical bloc seems to be having the same kind of growth rates in GDP per capita. So, there are many other factors like history, culture, social progress, political systems, and the overall economics of particular regions that determine the growth and development of these areas. East Asia has developed the most in the last sixty years.

Though Japan was already a developed country in 1960 – although devastated by WW2 – sustained the momentum for many decades to come. South Korea is a remarkable story and China is equally impressive. The developing countries are trying to catch up but are constrained in many ways and hence regions like South Asia and most parts of Africa will take some more time before they can make it to the league of the developed countries. It is also true that simultaneously many other systems are coming up in the world stage. One example is that of Brazil which has given priority to human development and not so much on GDP per capita alone. Having said that, it is also true that it has been proved that industrialization and rapid urbanization is a sure shot way of growth – not only for the country or the region as a whole, but also the people. However, the word of caution is that urban areas in these regions need to be developed in line with the learnings from the urbanization process of developed countries. Otherwise, too high population density may create chaos and disorder which is detrimental to proper growth and development of the countries. There are many countries especially some in South America where the urbanization percentage is very high, but GDP per capita is not so high. So, urbanization is not a causal factor for high GDP per capita growth rates – they are just correlated. In all probability, industrialization is the causal factor for urbanization which in turn helps in better standard of living for the citizens of the country.

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