

The Link between Urbanization and Economic Growth

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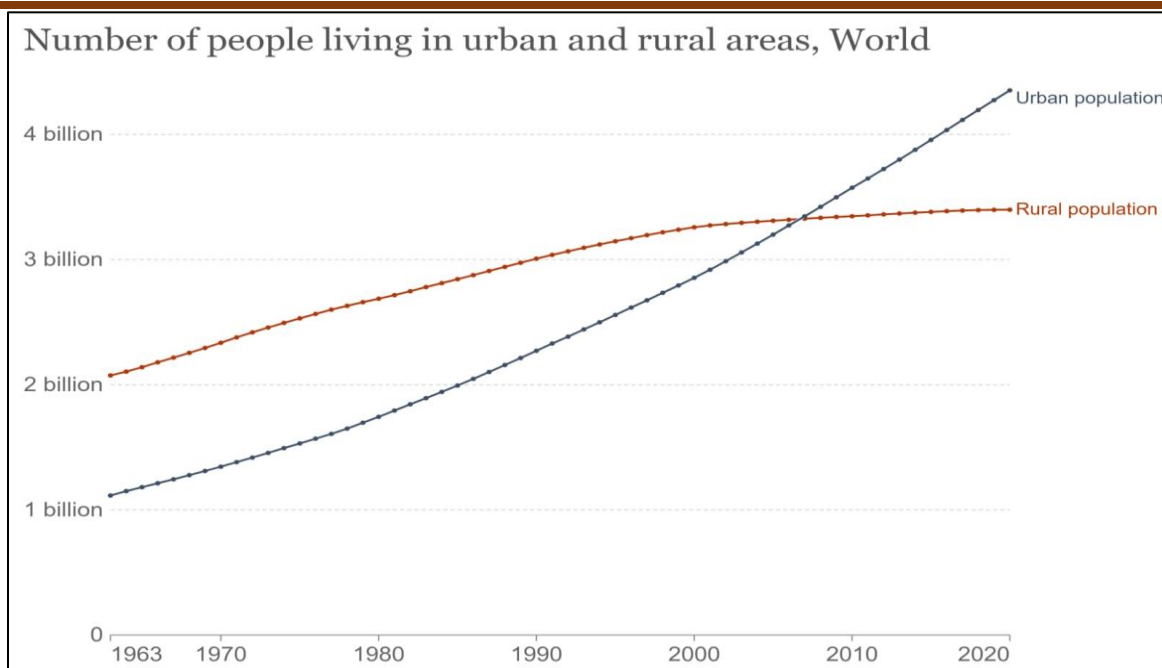
Abstract:

Urbanization has been increasing day by day with the aim of benefitting the economy through urban agglomeration. Therefore, this study focuses on the link between urbanization and economic development in the world. Urbanization and economic development are studied in this paper with respect to agglomeration theory and CO₂ emission. All the continents are studied with respect to these two approaches to develop a better understanding of the topic. This paper has explored the link between urbanization and economic development in each continent of the world with the help of the best examples of that region. The results of the study are (1) during the initial phase of urbanization it greatly promotes economic growth, (2) in its later phases there is impact but not as much accelerated as in the initial phase, (3) in every scenario CO₂ emission is the result of urbanization because of the increased consumption of energy of fossil fuels polluting the environment, (4) urban agglomeration will only benefit if it is planned and financed properly otherwise, the result will be only urban slums and shanty, and (5) in the later phases of urbanization leaders' are focused towards the harmful effects of CO₂ emissions and minimizing them through achieving sustainability. These findings show the complex relationship between urbanization and economic growth that is affected by many other factors.

Keywords: Urbanization, economic development, urban agglomeration, CO₂ emission

Introduction

Most people around the globe have lived in small villages throughout most of the history of mankind. This has changed drastically over the ages, especially over decades. As a huge migration of people from rural to urban locations has occurred, over the last several hundred years, the world's population has increased dramatically, and our economies have gotten more industrialized. As a result, a large number of individuals have relocated to cities. This is referred to as urbanization. The term "urbanization" is frequently used to refer to nations that are presently industrializing and urbanizing. However, urbanization has occurred in all industrialized nations at a certain point of time in history (Urbanization, 2022).

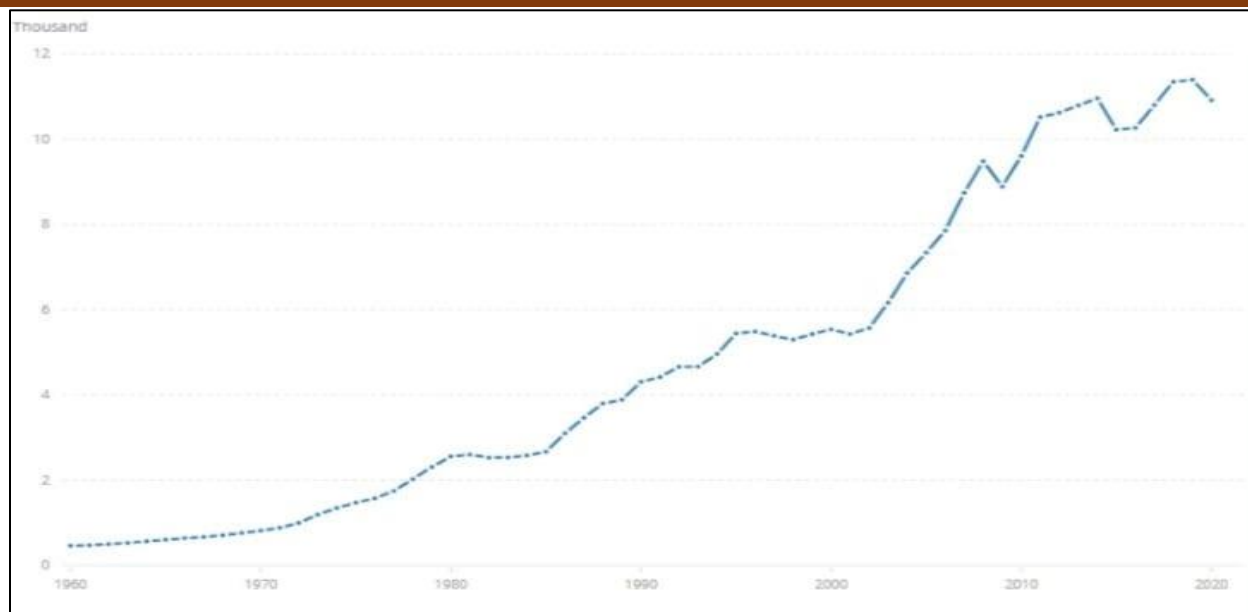


Source: World Urbanization Prospects (2018)

Figure 1: A comparison of urban & rural populations

As can be seen from the graph above, metropolitan areas now house about 4.3 billion people. Approximately more than half of the world's population (55%) now lives in cities. In 1960, there were twice as many people living in rural areas (2 billion) as there were in urban areas 1 billion. In 2007, the population of urban and rural areas was practically the same at 3.33 billion. According to the United Nations, this historic moment happened in 2007, when the population of urban areas surpassed that of rural areas. In 2016, the world's urban population grew to 4 billion people, while the world's rural population grew very slightly to 3.4 billion (World urbanization prospects, 2018). Today, in the age of globalization, the globe is changing quickly in terms of urbanization, with the rapid change faster than ever before in the last three decades. The focus of the urbanization process has transferred from developed to developing countries (Nguyen & Nguyen, 2018).

In simple terms, economic growth can be defined as "a rise in a country's or region's economy, particularly in the value of the goods and services produced by the country or region" (Economic growth, 2022). But in broader terms, rising incomes and concomitant increases in consumption savings, and investing are frequently connected with a country's economic growth. The most common metric used by economists to assess economic growth is (GDP). Associated statistics are generated from the GDP calculation, such as gross national product (GNP) or gross national income (GNI) is used to measure economic growth. GDP is estimated using annual data on revenues, expenditures, and investments for each sector of the economy from a country's national accounts (Ashraf, 2020).



Source: GDP per capita (2022c)

Figure 2: GDP per capita of the world since 1960

In comparison to survey income, GDP per capita is a more comprehensive estimate of real income that includes government spending. By dividing GDP by the population, GDP per capita is determined. When you look at the most recent data, you can see that the most surge in GDP occurred at the start of the 21st century, and between 2010 and 2020, the graph is not constant, hence, it is showing the disparity across various regions of the globe. Statistics show that as of 2020, the GDP per capita of the world was USD 10,916.1 (World Bank, 2022c).

The link between urbanization and economic growth is strong in different countries. Urbanization has an impact on economic growth through a variety of means. To begin with, cities play an important role in the economic and social systems of both developed and developing countries by providing residents with opportunities to obtain educational, job, and health services (Ashraf, 2020). Furthermore, urbanization entails the aggregation of people and businesses, which lowers production costs. Urbanization enables economies to gain external scale advantages and lower transaction costs. Then in a city spillover of people with different skills and knowledge occurs that creating an opportunity to do a good business in urban areas where the demand density is high. And a good business plays an important role in increasing the GDP of a country (Nguyen & Nguyen, 2018).

Over the last few decades, the world has witnessed a surge in urbanization. Many factors are related to this surge of urbanization but still, the literature on this topic is not enough convincing. For example, industrialization is sometimes considered the driver of urbanization and sometimes a cause. Therefore, this study aims to analyze the link between urbanization and the economic growth of the world. This link has been studied under some relevant theories and also in context to the impact of these two factors on the environment.

The Agglomeration Economics Theory

The division of labor and **economies of scale** are two notions that support our understanding of the benefits of economic centralization. The former illustrates how specialization boosts production and thus growth. At the city level, specialization means that there are advantages to concentrating on a function, or a combination of functions, for which locations inherit or develop a specific advantage. Economies of scale are of 2 types. Internal economies of scale refer to the reduced unit costs or efficiency that emerge from larger-scale production within the company. External economies of scale (also known as agglomeration economies) are the advantages that businesses gain from being nearby to other businesses to lower transaction costs as well as to benefit from network effects like shared information (Giersch, 2012).

These benefits can be broken down into three categories: matching, sharing, and learning. First of all, cities are better than towns at matching firms' particular labor, material inputs, and location requirements because marketplaces are larger and more options are accessible. Agglomerations make it easier for businesses to 'mix and match' their assets. Second, because of the magnitude of activity, cities provide enterprises with access to a wider variety of related services and infrastructure. For electronic connectivity and marketing, cities generally have higher-capacity telecommunications systems. Professional skills, financial expertise, and specialized research are all available in the cities to assist businesses in keeping up with technological developments. Third, businesses benefit from cities' greater information flow, which encourages more innovativeness, resulting in more useful technology and systems. Because these 'dynamic' benefits are cumulative, they grow in importance over time, unlike the one-time or 'static' advantages of decreased manufacturing and transaction costs (McCann, 2019).

Public infrastructure benefits from economies of scale as well. Large cities are more efficient at providing hospitals, sewage treatment facilities, and universities than dispersed populations with low densities and long distances. Consequently, urban infrastructure initiatives yield more benefits to society than rural infrastructure investments, and the reason is improving the lifestyle and health of people gives them longevity and as a result, they raise households' productive capacity along with this an effective labor supply, both the factors contribute significantly to increased economic growth (Luo et al., 2021).

The emergence of agglomeration economies doesn't always necessarily imply that urbanization will result in increased economic output. Increasing congestion, overcrowding, overburdened infrastructure, impact on ecosystems (such as natural streams and pollution levels), greater living costs, and rising labor and land costs in cities can all counteract the advantages of concentration. System failures, traffic, power outages, and unreliable water supplies raise corporate expenses, limit productivity, and discourage private sector investment. The equilibrium between agglomeration economies and diseconomies plays a crucial role in determining whether the cities' economies will progress or decline or remains stationary (Frick & Rodríguez-Pose, 2018).

Agglomeration Theory and the Link between Urbanization and Growth

The benefits of agglomeration differ by industry, which has consequences for the link between both urbanization and growth. Concentration is beneficial to industries and organizations. This explains why urbanization and the proportion of a country's GDP of industrial goods and services are so closely linked. It does not follow that more urbanization will result in increased economic growth. Instead, it implies a kind of balance or mutually reliant connection, in which urbanization aids in the sustainability of growth. However, if it surpasses economic restructuring and makes it impossible to absorb the surplus urban labor population, it could be counterproductive (Quigley, 2008). By upgrading the interconnecting infrastructure, urbanization can also lessen the economic gap between agricultural producers and their marketplaces. Not all types of urbanization will have the same effects on rural production and income. Much will be determined by the number of cities expanding, and also whether they are geographically centralized or distributed throughout multiple regions. And it will also depend upon what kind of activities do they engage in, and what kind of infrastructure do they invest in? (Tripathi & Mahey, 2016).

Because of their intricacy and exogenous variables, agglomeration's effects are difficult to separate and assess. Increased congestion offsets the advantages of economic concentration, which are somewhat consumed by increased land and labor costs. As a result, aggregate economic indices such as output, employment, and average incomes may not reflect the consequences. These parameters are influenced by a variety of other factors, including the city's business structure and professional mix. Productivity is a crucial agglomeration result that should be examined from the standpoint of economic growth. This is the most important element driving economic development and productivity. It describes the market worth of local products, as well as their production efficiency (Ye et al., 2018).

Under the present national "Belt and Road" policy, China's metropolitan agglomerations will become international economic centers. The country is increasingly transforming its metropolitan agglomerations into global economic hubs. This was obvious in the government's announcement of "the Silk Road Economic Belt

and the Twenty-First-Century Maritime Silk Road," also known as the "Belt and Road" strategy. China has proposed creating a hierarchical urban agglomeration system that includes five national-level major urban agglomerations, nine regional-level medium-sized urban agglomerations, and six sub-regional-level small-sized urban agglomerations (Fang & Yu, 2016). All these engagements of the Chinese government to actively study urban agglomeration and the establishment and development of urban agglomerations are because of its strong economic development driving capability. These agglomeration strategies adopted by China (the 2nd largest economy in the world) give us the message that urban agglomeration is one of the best strategies to boost the economy and it is also the most likely future spatial layout for cities and urban development to be sustainable (Fang & Yu, 2017).

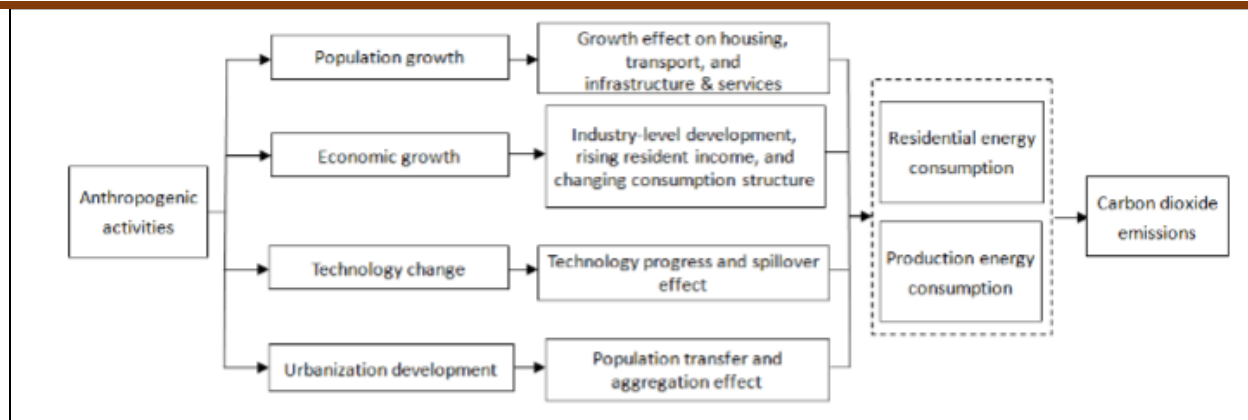
The beneficial effects of urbanization on growth in the economy are not always visible. According to both economic theory and quantitative study, urbanization and economic progress have an inverted U-shaped relationship. Urbanization boosts economic growth in the early phases of development; nevertheless, there is an inverse relationship between urbanization and economic growth in the later stages. Rapid urbanization may have a negative economic impact by putting an additional burden on infrastructure. As a result, it appears that the effects of urbanization on economic growth are complex and dependent on a variety of factors such as economic development, urbanization stage, and the form of the primary economic activity (Castells-Quintana, 2017).

It is stated that urbanization has recently encountered numerous problems in terms of encouraging economic growth. In the last few decades, researchers in developing nations documented what they termed urbanization without growth. It is especially counter to their idea that urbanization occurs in tandem with economic expansion. The development experience of emerging countries over the last few decades is unusual. The investigations revealed that, in comparison to earlier experience, something essential has evolved in the relationship between urban growths in the late last few decades (Farrell, 2017).

Urbanization and Economic Growth in Context to the Environment

Urban regions are playing a significant role in emissions of CO₂ and energy consumption in developing countries, thanks to the rapid pace of urbanization. The influence of urbanization on fossil fuel energy usage has unmistakably disrupted and increased carbon levels in the air, resulting in global warming (Adebayo et al., 2021). The state of the environment has now deteriorated to such alarming levels that fears of global warming and climate change have arisen. Therefore, economists are very much interested in understanding the impact of economic growth on the environment (Obradović & Lojanica, 2017).

Urbanization is a dynamic process in which rural regions' socioeconomic capabilities (agrarian economic base) are shifted to urban regions (the industrial economic base). However, the tremendous growth of urbanization over the previous few decades has created a rise in energy demand while also raising serious environmental problems. The reason urban areas are energy-intensive is that they promote economic development through industrialization and transportation and both require fossil fuels to run that ultimately impact our environment (Niu & Lekse, 2018). Furthermore, increased infrastructure and buildings, increased energy consumption, road networks, excessive mass transit facilities, a decline in agricultural land for urban development, and over-concentration of the population in cities all these factors have a significant impact on the urban climate and environmental pollution (Zhao & Zhang, 2018). The framework below provides a clear guideline for understanding how urbanization and economic development are connected to increased CO₂ emissions (Niu & Lekse, 2018).



Source: Niu & Lekse (2018)

Figure 3: Factors affecting carbon emissions

As countries progress from low to middle development, economic growth takes precedence over environmental sustainability. Environmental harm becomes more critical as countries go through higher phases of development, and then societies seek strategies to become more environmentally friendly. Two-thirds of worldwide Greenhouse gases are produced by urban people. Urbanization currently accounts for 55% of the world population, and this figure is expected to rise up to 66% by 2050. Obviously, the most pressing practical concerns are found in Africa and Asia, where a key question is whether rapid urban population development may help to improve living standards and reduce poverty without the environment being harmed. Climate change initiatives are a shared responsibility, particularly for those who live in urban areas. The leaders have led an uncontrolled and unregulated increase of carbon-focused growth for generations but now they will have to take the responsibility in order to reduce the CO₂ émission (Shahbaz et al., 2017).

China has achieved great economic success over the last three decades, with its GDP accounting for 14.08 percent of world GDP. In 1960, the urban population in China accounted for 16% of the total population. By 2019, China's urban population constituted 60% of the country's total population. China's energy usage accounted for 24% of global energy consumption in 2018. China, the world's second-largest economy, is facing a number of environmental problems as a result of its economic boom and urbanization strategy. For instance, in the year 2018, China's CO₂ emissions climbed by 2.2% making for 27.8% of total CO₂ emissions worldwide, with an average annual growth rate of 2.5% from 2007 to 2017. In 2019, China accounted for 27% of total Greenhouse gas emissions in the world. The increase in CO₂ emissions is attributable to a rise in the use of fossil fuels for electricity generation, which accounted for approximately 86 percent of China's major energy usage in 2020. China, therefore, has pledged to reduce CO₂ per unit GDP by 60–65 % by 2030, compared to 2005 levels. To put it another way, China's economic growth must be complemented by minimum environmental risks (Adebayo, Agboola, et al., 2021).

The link between Urbanization and Economic growth in Asia

Asia is rapidly urbanizing, with the proportion of the people living in urban areas predicted to treble between 2000 and 2030. Consequently, the worldwide urban population is anticipated to grow from 1.52 billion in 1970 to 4.6 billion by 2030. Asian cities will account for a large percentage of this growing urbanization. Malaysia is an East Asian country rich in natural resources and culturally varied. And the key focus of the economic growth of the country during the last three decades has been urbanization (Yazdi & Dariani, 2019). Japan has the highest per capita real G.D.P. growth with an urbanization ratio of 91.7% (Japan - Urbanization, 2022c), whereas Bangladesh is the poorest state in Asia having an urbanization ratio of 37.41% only (Bangladesh - Urbanization, 2022a). In 2011, China reached the significant milestone of 50% of its population living in urban areas, up from only 20% in 1980. The magnitude of job growth in cities has been reflected in the extraordinary speed of urbanization (Turok & McGranahan, 2019). Because of improved productivity, the annual per capita

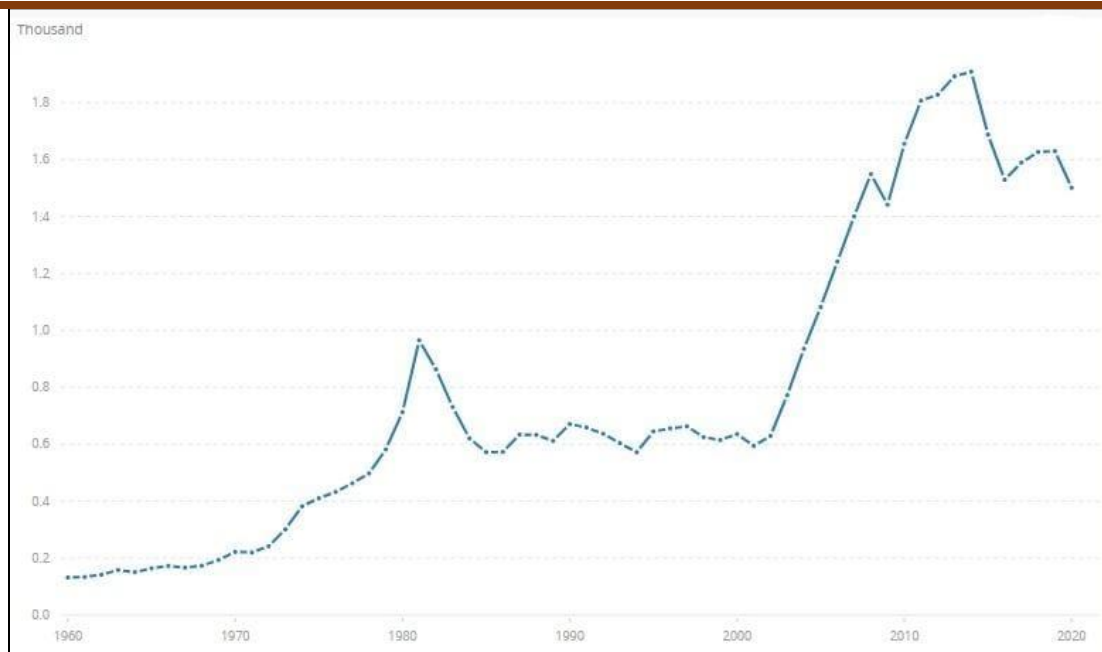
household income in Chinese urban regions is now nearly 2.7 times higher than in rural areas (China per capita, 2022b).

By 2030, the urban population of South Asia is expected to increase by over 250 million people. The advantages of urbanization in terms of growth have also increased. South Asia has made significant progress toward greater wealth. Between 2000 and 2012, the region's average GDP per capita increased by about 56%, from \$2,560 to \$4,000, for an average yearly growth rate of more than 3.8 %. Cities in South Asia have yet to fully realize their economic and sustainability potential. Despite substantial growth since the turn of the century, South Asia's part of the international economy remains disproportionately small in comparison to its urban population. One of the main reasons for this is that its urbanization has been chaotic and disguised. The haphazard nature of urbanization is reflected in the presence of slums and sprawl. Messy and obfuscated urbanization is an inability to appropriately solve traffic congestion caused by urban population pressure. Congestion limits are harming both sustainability and the agglomeration economies that can bring more prosperity to South Asian cities and the region. East Asia and the Pacific generated 29 percent of international GDP in 2011, with a share of the overall urban population of 32 percent (a ratio of 0.91) in the international urban population. South Asia generated 8% of global GDP, with a 14 percent share of the world's urban population (a ratio of 0.57) (Leveraging urbanization, 2015).

In Northeast Asia, the rapid urban agglomeration has taken place in the last few decades, and mega cities have to absorb the population beyond their capacities. In a study, it was also found that by 2014 North Asia tops the chart by producing the highest Co2 followed by South East Asia, and South Asia (Hashmi et al., 2021).

The link between Urbanization and Economic growth in Africa

Over the next 40 years, Africa's urban population is forecast to more than triple, from 395 million in 2010 to 1.339 billion in 2050, accounting for 21% of the world's estimated urban population. Cairo, Kinshasa, Lagos, Accra, Johannesburg–Pretoria, Khartoum, and Nairobi are the continent's seven megacities or cities with populations exceeding 10 million (Güneralp et al., 2017). As this development is greatly taking place in small and medium cities it can bring economic prosperity to the continent (Urban Growth in Africa, 2022). But the situation, in reality, is a little challenging. The urban agglomeration is majorly unplanned and not supported by any investments thus it neither produces any employment options nor any housing schemes. This poor urbanization results in the form of urban slums (Page et al., 2020). African cities, with an urbanization rate of roughly 40% in 2020, are poorer than cities in other developing regions with similar degrees of urbanization. Due to low per capita GDP public and corporate investments in residential, infrastructures and other capital are limited. The figure below shows the GDP per capita of the Sub-Saharan region which is between 1000 to 1500 dollars for the last 15 years (GDP per capita, 2022b). In the year 2020, the GDP per capita growth of the region was -4.5 approximately indicating a severe recession in the economy (GDP per capita growth, 2022d). Therefore, African city dwellers spent 55% more on housing and 42% more on transportation than people in other regions with the same level of urbanization (Page et al., 2020).



Source: GDP per capita (2022)

Figure 4: GDP per capita - Sub-Saharan Africa

Empirical evidence suggests that urbanization in Africa is not only economically non-beneficial but it is also harmful to the environment. Urban sprawls are the major contributor to increased environmental pollution in Africa. Urbanization is one of the major reasons for increased CO₂ emissions. This means that it supports higher Carbon dioxide emissions in West Africa (Musah et al., 2020). In order to counteract urban sprawl while boosting urban density, effective urban planning (including architecture, development, and administration) is essential. Lower environmental damage and efficient service delivery will be the two advantages of denser urban cities, especially when they are combined with efficient transportation networks and systems (with a focus on public transportation) that promote better connectivity, along with efficient energy resources and waste disposal management systems. This would make African cities more efficient, controllable, resilient, and economical, while also safeguarding the population's livelihood and welfare, maximizing energy resource efficiency, and fostering a sustainable economy (Effiong, 2016). Africa has also adopted its own new urban strategy in 2015, in which cities are viewed as development engines and keys to the continent's future success. The African Urban Agenda (AUA) is an UN-Habitat initiative aimed at promoting sustainable urbanization practices across Africa (Güneralp et al., 2017).

The link between Urbanization and Economic growth in Europe

Mankind is on a big journey to the cities from 1980 until 2080. The world's population will be 80% urbanized by the end of this century. With roughly 90% of its population living in cities, Europe will be at the forefront of this transition. Cities with populations of less than 250,000 people make up 28% of city residents in Europe, which is less than in Africa (33%), but greater than in North America (17%). Around 26% of the population lives in urban areas with populations of 1 million to 5 million people. Around 14% of Europeans reside in cities with populations exceeding 5 million people. However, Europe was not always so urbanized and the way the European urban system is organized has changed dramatically in the last fifty years. Europe has successfully transitioned from an industrial and predominantly agricultural continent to an urban and metropolitan one (Urban development, 2020).

Agglomeration of people, labor, investment, and ideas increasingly connected clusters of cities centered on value-added services, innovation, and creative economies in Europe. Some governments, such as the United Kingdom, Germany, and France, have tried to limit financial incentives for sprawl and have begun to re-densify

in order to promote economic growth for local services and economic activity. Central European cities are making their mark on the world stage at varying rates and with varying degrees of success since the start of the 21st century. Several of Europe's largest cities have transitioned to a market economy with relative ease, diversifying their urban economies and attracting international investment. Many other capitals and significant cities in the region have the ability to compete successfully in the European economy, but they need to be modernized, notably, in terms of urban governance, coordination, and infrastructure improvements thus, showing that in Europe urbanization was not that much problematic and chaotic as it seems in the developing countries of today and urbanization in Europe through planning and management greatly helped in boosting the economy. The current European urban system consists of the following categories of cities: **International centers** having worldwide importance that have turned into economic engines for the new Member States. **Specialized poles** have global significance, at least in some aspects of the urban economy (Clark et al., 2018). Cities are tasked with managing a network of resources (energy, materials, trash, ecological systems, water, and food) while also providing healthy living conditions for ever-increasing metropolitan populations. The recent increase in urbanization and associated human activity has had positive economic and social consequences, but it has also resulted in risks from air pollution, excessive noise, effluents, and severe weather events causing an alarming situation in the region. As a result, international and European Union (EU) policies are increasingly focusing on healthier and sustainable urban development. For example, the 2030 Sustainable Development Agenda and its goals, the New Urban Agenda of the United Nations Human Settlements (Carmichael et al., 2017).

Economic expansion, trade, and urban population all have a positive and considerable impact on CO₂ emissions, in Canada. According to the findings, a 1% rise in economic growth, commerce, or urban population causes 0.35%, 0.48%, and 1.02 % increases in emissions of CO₂, respectively. It also reveals that the urban population contributes the most to increasing CO₂ emissions in Canada (Rahman & Vu, 2020).

The link between Urbanization and Economic growth in Australia

Since European colonization, human populations have been steadily increasing in Australian coastal areas, with no signs of slowing since 2011. The increase in the urban population also increases the strain on the climate. The Australian Bureau of Statistics reports that, on a national scale, population growth has been highest near the shore since 1991. From 2011 to 2014, the tendency was much stronger, showing that coastal population expansion is speeding up (Clark & Johnston, 2017). In Australia, population growth is one of the key main causes of climate change mentioned in the Drivers report (Jackson, 2016). The urban and natural surroundings face both opportunities and difficulties as a result of agglomeration and economic growth. The majority of opportunities are linked to the economic activity that allows jobs and services to be created. Current infrastructure networks and services, such as water distribution, garbage removal, treatment, and disposal, and transportation, are put under strain by urban centers (Coleman, 2017). At a 1% significance level, Australia's data show that economic growth has a positive impact on CO₂ emissions. This translates as a 1% increase in economic growth, resulting in a 1.45% rise in CO₂ emissions. Economic growth is a primary contributor to increasing CO₂ emissions in Australia, according to the data (Rahman & Vu, 2020).

With about 9 million of the country's 24 million inhabitants living in only two cities (Melbourne and Sydney), Australia has become one of the world's most urbanized countries. Australia's urbanization trends are only expected to accelerate. Due to urban agglomeration, 50% of the state's job growth is concentrated within a 2-kilometer range of Sydney and Melbourne's metropolitan centers. This is owing to the post-industrial economy's strong rise in service-based businesses. In highly populated locations, such firms benefit more from being located near other service providers (Wyeth, 2017). With approximately 82% of the population living in Urban areas Australia has a good GDP per capita of 51,680 USD in 2020 (GDP per capita, 2022a) which reflects the relationship between urbanization and economic growth in the region.

The link between Urbanization and Economic growth in America

Latin America's urbanization rate has skyrocketed. It is now almost 80% higher than it is in other parts of the world. It was around 13% of the world's urban population in 1950, but by 2015, it has risen to 80%, representing a 93 percent increase from 1950. Urbanization has a positive relationship with per capita income, as well as the capital, labor, and productivity indicators. Despite the fact that a large proportion of the population lives in cities, Latin America's progress is not accelerated. According to the survey, in nations with a greater degree of urbanization, productivity is substantially greater in countries like Chile and Argentina (where it approaches 90%). But the weak economic growth of Latin America is because of the lack of administered urban agglomeration and migration (Growth of urbanization, 2017).

Cities are the economic engines of North America, offering possibilities for everyone in the state, encompassing suburban, rural, and remote villages. The top 100 metro areas in the United States account for more than three-quarters of the country's gross domestic product. Urban areas have brought people and businesses together in close proximity, fostering innovation and resulting in significant economic advantages and growth. More Americans have moved to cities in the past few years 65,000 people moved to Los Angeles between 2010 and 2013, compared to 97,000 in the preceding decade (Kashef & El-Shafie, 2020).

In Central America, the urban population might double in the next 35 years as a result of natural population growth and rural-to-urban migration, bringing 25 million additional people to cities. While the majority of the urban population is clustered in large agglomerations, secondary cities have accounted for 20–30% of population increase in recent years, increasing their importance in national urban systems. With over 78 percent of the region's gross domestic product (GDP) centered in metropolitan regions, cities generate a vast number of jobs and economic activity (Aguilera, 2017).

Since 1950, CO₂ emissions in Latin American and Caribbean (LAC) countries have gradually climbed, surpassing 451 million metric tons in 2008. In 2008, Brazil and Mexico were among the top 20 CO₂ polluters in the world, accounting for 52.6 percent of the continent's CO₂ emissions. In the previous ten years, Latin America has experienced regular high rates of economic growth and strong financial development. Financial development has shown to be a critical tool for economic growth as manufacturing has expanded as a result of globalization. However, increased productivity and economic benefit have increased energy demand, resulting in environmental damage by increasing the rate of CO₂ emission (Adebayo, Agboola, et al., 2021).

Conclusion

Urbanization has been a major area to study and analyze since the last century. The urban ratio of the people around the globe has increased dramatically over the last few decades and is expected to increase more in the future. Urbanization is considered to be important for the economic growth of a region as it promotes urban agglomeration that clusters the manufacturers, suppliers, and buyers all in the same place thus increasing the process of production and consumption that ultimately boosts the economy. Agglomeration economy is a widely studied theory on this topic it is used to explain why urbanization is beneficial for economic growth and as well as its harmful consequences on the environment. One of the major threats of increased urbanization is the excessive energy or fossil fuel consumption leading to increased emission of CO₂ in the atmosphere. The link between urbanization and economic growth has been extensively studied in many research papers but the link is not as simple as it seems to be. The relationship between urbanization and economic growth can't be studied independently because they are connected with a lot of other factors. According to the direct relationship between urbanization and economic growth, the economy of the world should be in a good condition with the high urban population all around the world but, this is not the reality. It has been observed that during the initial stage of urbanization, it helps in promoting strong economic growth but, if this initial stage of urbanization is not completely planned and financed then the result will urban slums and urban shanty. There are many examples of such unplanned urbanization in various regions of the world and especially in developing countries. During the initial phase of urbanization, the focus of the people and leaders is only on the economic progress thus they indirectly pollute the atmosphere with tons of CO₂.

When the initial phase of urbanization has finished and the economy has stabilized enough then, the people of that region focus on being sustainable and minimizing the harmful effects they have caused to the environment.

The United Nations Sustainability Goals are one of the biggest examples of the phenomenon. China the second-largest economy in the world is one of the best examples to understand the role planned urban agglomeration plays in boosting the economic growth of a country. Furthermore, during the 1900s China only focused on industrialization and greatly polluted its atmosphere with excessive release of CO₂ gas. And now when China's economy has stabilized majorly it has developed a sustainable production policy over the last few years. The link between urbanization and economic growth has also been studied with respect to all the continents of the world for a better understanding. In Asia, it was found that there are some countries with a high ratio of urbanization having a higher GDP value. Whereas it also has some developing countries where the urbanization is high and rapidly increasing but there is no significant economic growth. The reason is that these urbanizations are unplanned which only burdens the economy and creates a shortage of resources as well. In Africa majorly all cities have unplanned urbanization that is harming the atmosphere without any economic benefit. These unplanned migrations have resulted in Urban slums in many regions. In Europe and Australia, there are some cities that have urbanized years ago and are economic centers of the regions like London and Sydney respectively. Whereas, economic globalization has also led other rural people to migrate but the only difference between them is that in Europe it is planned and administered to avoid any chaos and focuses only on the economic development. Both these continents are in their later phases of urbanization where economic growth is not boosted a lot by urbanization and results in greater CO₂ emission. Both the continents are working hard to adopt sustainability in their production to minimize the hazards of CO₂. In the last, America was studied, and it can be said that the ideal example of the relationship after China is America which significantly proves the contribution of its higher urban ratio to its high GDP. Lastly, it can be concluded as the link between urbanization and economic growth is greatly positive during the initial phase. After that, it will work but not at an accelerated pace and be chaotic if not planned and managed properly. Agglomeration theory is very useful in planning and understanding urbanization but if not managed wisely can result in urban slums. And in every scenario, there is an increased energy consumption which ultimately increases CO₂ emission in the atmosphere.

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