Investigating the Central Place Theory: A Case Study on Uzbekistan

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Abstract

Economic Geography is a sub-branch of geography that deals with issues such as the location, place, economic activities, human activities, and how these factors are interlinked to help understand the distribution of organizations and activities. This field can be further broken down to evaluate the factors on an individual level. Space or location analysis is where local growth models are treated as an economic resource that provides a strategic advantage for the firms located in them. Therefore, it is trivial to emphasize the importance of location for economic activity; however, only recently, it has been given due considerations by economic theory. The purpose of this study is to evaluate how the physical dimensions of Uzbekistan have improved the economy in recent times compared to the Soviet era and to investigate the central place theory about Mahallas. The methodology utilized for this paper was country-specific research and existing studies on space and location analysis. The paper also focuses on evaluating the renowned Central Place theory by Walter Christaller and its application using Uzbekistan as a case. This is a conceptual paper; therefore, literature review and recommendations based on previous studies will be the prime methodology. The findings based on extensive research confirm that there has been incremental growth in space and location analysis. It was also found that Uzbekistan has successfully utilized its space and territories for economic development. Also, the Central Place theory was applied in an interesting manner to Mahallas in Uzbekistan. Finally, the paper also highlights the importance of technological advancement and transportation to the success of economic development. This study follows a conceptual approach. Therefore, the limitation is to utilize the theories conducted by other researchers and apply them to Uzbekistan. Another practical limitation is that the researchers should have extensive knowledge about the country-specific in this case, Uzbekistan. Future studies can be done on conducting quantitative research using some of the empirical models from economic geography. This research paper contributes to the existing body of research on locational analysis and regional studies as well as economic development. There has been limited research conducted on economic development of Uzbekistan; a growing economy post-soviet era, and therefore, it is important to evaluate the significant contribution.

Keywords: *Economic Geography; Central Place Theory; Location Analysis; Regional Study; Economic Development*

INTRODUCTION

Economists and geographers look at the world as space, and this concept makes it easy to analyze any given situation, it also assists in making geographical and economic decisions. Space determines the way an economic system operates, and it can be a source of economic externalities, both positive and negative. The study of spatial economics has a long but relatively tiny history. Economic geography helps to generate advantages of the area and gathers geographical information such as the accessibility of an area of easiness or challenges and gets information about the endowment of raw materials which are really important factors to make the economic movement.

Uzbekistan, after getting independence in 1991, started to increase its economy rapidly, which can be seen in any industry such as agriculture, innovation, and many other industries, including the economy. This paper discussed the importance of economic geography in general, basic macroeconomic

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concepts, population growth impact in Uzbekistan, and discussed location analysis theories in the example of Uzbekistan's economic and geographical situation. This research gives a broad overview of the economic geography and theoretical applications in the day to day business life, which proves the necessity of this subject in today's economy. The combination of both Economy and Geography can be extremely useful to make any decision for the government or private sector decision makers because it can give macro and micro understanding of any given countries' situation.

LITERATURE REVIEW
Importance of economic geography

The terminology, economic geography has been defined as the study of human economic activities under varying conditions associated with distribution, consumption, production, and exchange of resources, location, and spatial distribution and organization of economic practices around the world (Coe, Kelly and Yeung, 2013). The economic geography relates to the world as space, and it is the source of advantages in terms of reducing transportation costs and also by enhancing the production processes. This is also made possible due to the amount of information gathered. Geographers are concerned with three kinds of analysis they are spatial or location analyses which work with numbers, characteristics, activities, and distributions. Second is ecological analysis they look at the relationship between humans and the environment, and the final and third one is a regional analysis, they study the combination of the first two themes in a real differentiation (Haggett, 1990).

According to Malecki (2015), economic geography has moved beyond its original focus on the location of production to embrace the various other human forces such as social, cultural, political, and institutional. These affect and are affected by economic activity. The continuous change ensures that new ideas and new empirical knowledge are always characteristic of the field, and this attracts new researchers and their fresh thinking and new approaches. However, the natural resources of different countries have been distributed differently by nature, and this helps the researchers to analyze the geographic distribution of resources and potential for development in the future. As stated by Capello (2011), it results from previous factors such as the fertility of the land due to the work of man, social fixed capital, human capital, and accessibility which measures as the weighted distance from the main centers of production and consumption.

Basic Economic Details – Uzbekistan

An economy consists of a large group of buyers and sellers that also determine how scarce resources are allocated. These are related to production and consumption activities. Under the concept of economy, there are several concepts linked with the economy such as; balance of trade, unemployment, rate of inflation, government debt, interest rate, stock market, gross national product (GNP), gross domestic product (GDP), GDP per capita, exchange rate, population density, and consumer spending. For a good economy, all the above aspects should be working well to be efficient and effective in the economic business cycle. According to Trading Economics (2019), Uzbekistan's inflation rate has grown drastically, and it was recorded at 14 percent in 2018. In this country, the inflation rate has been on an average 5.04 percent from 2006 until 2018, reaching an all-time high of 14 percent in 2017 and a record low of 2 percent in 2008 (Figure 1).

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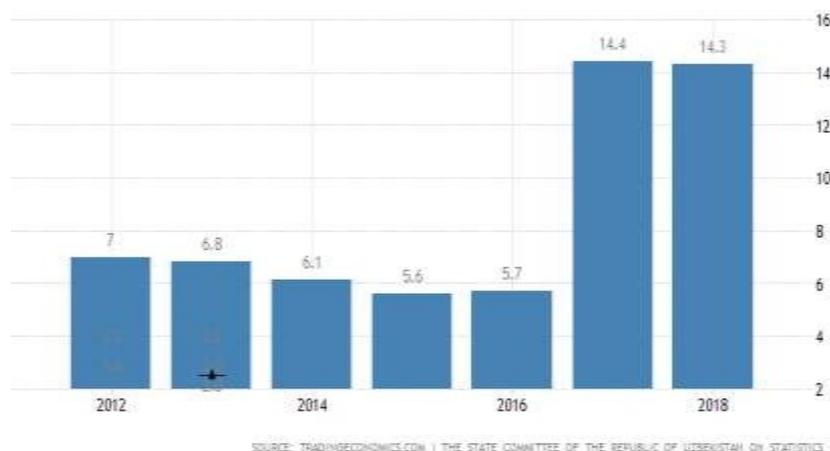*Fakriyor Jamoliddinov, Dr Jacinta Dsilva*

Figure 1. Uzbekistan Inflation Rate

According to BBC (2018), the land that is now known as Uzbekistan was the center old trade route that connected Uzbekistan with the rest of the world. The country was under the rule of the Russian Empire and then the Soviet Union, before gaining independence from the Soviets in 1991. The main indicator to know the growth of the economy is the GDP as it indicates how healthy and rapidly growing the economy of the country is. The GDP is a measure of the total value of the goods and services being produced in an economy in a given period. According to the Trading Economics (2019), GDP of Uzbekistan expanded 5 percent year-on-year in the third quarter of 2018. GDP in Uzbekistan averaged 8 percent from 2006 until 2018, reaching an all-time high of 10 percent in the third quarter of 2007 and a record low of 4 percent in the first quarter of 2006 (Raupova, Kamahara, and Goto, 2014). Figure 2 highlights the annual GDP growth rate from January 2016 to July 2018.
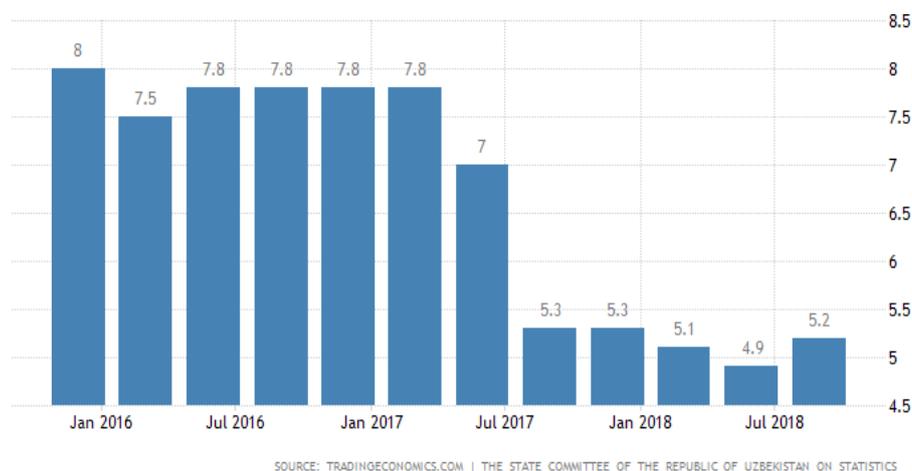

Figure 2. Uzbekistan GDP Annual Growth Rate

Another important factor for economic growth is population density; this measures the density of the population in a specific area. For example, if the global population is around 7.5 billion and the Earth's total area including land and water is 5.1 billion square kilometers, then the population density can be calculated around 7,500,000,000 ÷ 510,000,000 = 14.7 per km2 (Cardillo and Mace, 2014). By the population density, Uzbekistan is placed 136th in the World Countries by Population Density Ranking,

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and the population density in Uzbekistan is 77 per Km2, it is positive that Uzbekistan based on GDP and population density has an immense impact, but the economic strategy should be built in that way where everyone should be well treated because 35 percent of the population lives in an urban area (Ruziev and Ghosh, 2009).

Uzbekistan population accounts for only 0.43% of the world population; this makes it the 42nd most populous country (Table 1). Moreover, the population of Uzbekistan is ranked as a number one in Central Asia and number 3rd in the CIS countries. If it is looked through economic geographers' point of view, the total land area is 425,400 Km2 (164,248 sq. miles), and this result makes them 59th place in the ranking. Another important fact about Uzbekistan is that the median age in Uzbeks is 26.7 years, this means that 63% of people can work in various industries in and around Uzbekistan and it increases economy's labor-intensive industries (worldometers, 2019).

Table 1. Population of Uzbekistan (2019 and historical)

Year	Population	Yearly % Change	Yearly Change	Migrants (net)	Median Age	Fertility Rate	Density (P/Km²)	Urban Pop %	Urban Population	Country's Share of World Pop	World Population	Uzbekistan Global Rank
2019	32,807,368	1.37 %	442,372	-8,863	26.7	2.35	77	35.1 %	11,522,815	0.43 %	7,714,576,923	43
2018	32,364,996	1.42 %	454,355	-8,863	26.7	2.35	76	35.0 %	11,334,708	0.42 %	7,632,819,325	44
2017	31,910,641	1.48 %	463,846	-8,863	26.7	2.35	75	34.9 %	11,152,328	0.42 %	7,550,262,101	44
2016	31,446,795	1.52 %	470,774	-8,863	26.7	2.35	74	34.9 %	10,975,466	0.42 %	7,466,964,280	44
2015	30,976,021	1.60 %	473,945	-13,294	26.3	2.38	73	34.9 %	10,804,131	0.42 %	7,383,008,820	44
2010	28,606,294	1.53 %	418,822	-28,026	24.5	2.49	67	35.1 %	10,049,933	0.41 %	6,958,169,159	43
2005	26,512,184	1.30 %	332,653	-48,459	22.8	2.51	62	36.0 %	9,551,947	0.41 %	6,542,159,383	42
2000	24,848,920	1.68 %	397,131	-48,527	21.0	3.10	58	37.4 %	9,293,082	0.40 %	6,145,006,989	39

Importance of location, distance, territory, and place in Economic geography

Space can be described as not only the physical or geographical location, but also the activities that take place in that location, and the resources it provides (Coe, Kelly and Yeung, 2013). Geography also has its basic concepts that can be categorized as follows: location, distance, territory, and place. Location is the relative distance in the position of people and objects or coordinates. To be more specific about location, it is the place where a point or object exists. It is important as it is more precise than place and can take the form of human settlements, cities, villages, etc. It was first studied by Johann Von Thünen and Walter Chris taller and they saw space in terms of relative location – how the relationship is between the producers and market places as well as the relationship between the consumers and the marketplaces. The absolute and relative distance can help in different types of challenges in business, for example, to save transport cost, travel time, goods transfer, etc. (Coe, Kelly and Yeung, 2013). An entity can be a government, regional bodies, international bodies, or it can be non-governmental bodies. Those understandings can help to economic geographers to make the best decision to find the right target market, to calculate distance, to figure out geographical or political barriers and helps to understand the behavior of the nation which leaves in that area.

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Geopolitical location of Uzbekistan

Uzbekistan is considerably big; however, a landlocked country in Central Asia, this also means that its neighboring countries do not have any seaports. The greater part of the territory of Uzbekistan consists of desert and population density is high in rural areas. This country is the third largest former member of the Soviet Union, with over 30 million inhabitants, and it was one of the poorest Economies during the Soviet era. At least 1 in 10 households received support from the scheme in 1997. Uzbekistan has the availability of natural resources such as oil and gas. However, they haven't been developed. Other than the oil and natural gas, some amount of uranium and gold resources can be found in Uzbekistan. Historically, Uzbekistan was an important part of the old trade route, and cities such as Samarkand, Bukhara, and Khiva are still key political and tourism components of the country. As stated by Tolipov (2011), modern-day Uzbekistan is centered around its capital in Tashkent, though the country has substantial regional divisions. While the western half is thinly dispersed population in the desert, the majority of the population is located in the agricultural areas.

Even though Uzbekistan is geopolitically rich, it faces some issues such as poor water supply. It's birth rate is high, and this increases the demographics, which further creates social tension in the country. Uzbekistan benefits from unique geo-strategic and geopolitical advantages due to its position being the only country sharing borders with the rest of the four states in Central Asia. The country has started to participate in international politics very actively, and this step has boosted the economy as well as helped to reduce the unemployment rate (Tolipov, 2011). Improvements in transportation, infrastructure, and communication are integral to the development of any society and its economy, and Uzbekistan was no exception. Development of transportation has played a broad role in shaping Uzbekistan's economy as it supports to make clusters and agglomerations, enhances jobs and labor market accessibility, enhances supply chain efficiency, increases productivity and opens new markets for businesses. Improvements in communication helped to increase the output of the economy by acquiring the right information at the right time and to make informed decisions about the various industries.

Location Theory

Johann Heinrich von Thünen's a Location Theory

Thünen's goal was to uncover laws that governed the interaction of agriculture prices, land uses, and distance, as farmers seek to maximize profit. He has affected both the location theory and the economic geography as a whole; he even set out to determine the influence of transport costs on the location of crop production. (Capello, Roberta, and Nijkamp, 2011). Transportation costs were the important factor in his study, crops needed to be arranged close to the production location and the market, and he told: "with increasing distance from The Town, the land will progressively be given up to products cheap to transport about their value." (Okelly and Bryan, 1996). Figure 3 discusses the location theory designed by Johann Heinrich von Thünen.

1. City
2. Intensive Agriculture
3. Forest Resources
4. Grain Farming
5. Livestock Farming

Figure 3. Thünen's a Location Theory

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Walter Christaller's a Central Place Theory

According to the study of Capello in 2011, it was found that the high demand for accessibility led to higher competition between residential and industrial activities. Businesses generally wanted to move closer to the cities. Walter Christaller explained the existence of urban systems, which is cities of varying sizes, with the help of central place theory and formulated models that can explain the urban hierarchy. For example, the size and frequency of urban centers at every level in the hierarchy, and therefore, the market area of each of them (Curtis, and Lipsey, 1982). To find the geographical distribution of the urban centers, he found the distance between the cities and those at different levels compared to them. (Figure 4).
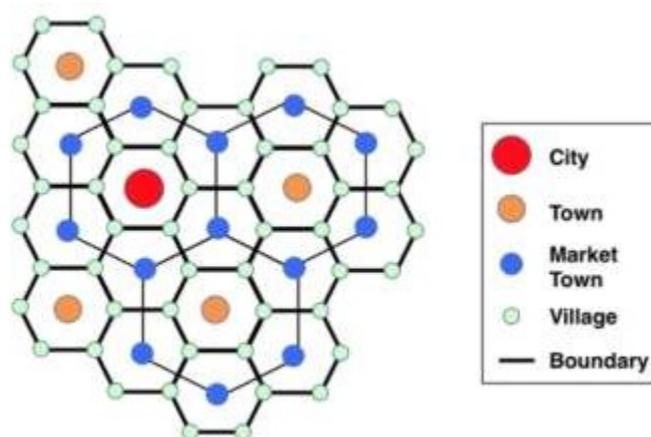

Figure 4. Christaller's a Central Place Theory

METHODOLOGY

Research is a process of inquiry and investigation. It is quite systematic and methodical, and it can increase knowledge about a specific thing (Amaratunga et al., 2002) while Uma Sekaran (1992), defines research as a systematic and organized endeavor to understand a specific problem that needs a solution. It is a series of steps designed and followed, with the objective of finding answers to the issues that are of concern, whereas Cooper and Emory (1995) looked at research as a form of inquiry aimed at gathering enough information to propose a solution. The methodology used in the study was an extensive literature search supported by data collected through scholarly journal papers and important websites providing authentic information about the development, inflation rate, population density, and related information. This is a conceptual paper; therefore; the major part of the discussion is through using secondary information.

RESULT AND DISCUSSION
Application of Walter Christaller's Central Place theory to Uzbekistan

Before Applying Walter Christaller's central place theory to Uzbekistan in more detail, some recognition is needed of the place of the Mahallas in Uzbek society. As discussed earlier in the paper in central place theory that a high demand for accessibility triggers competition between the different activities which can be seen in the example of the Mahallas because these local groups elect a chairman and a committee of "elders", who then decide on the basis of their local knowledge which are the neediest families in the community, and, within certain limits, how much support they deserve

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(Coudouel, Marnie and Micklewright, 2011). This is a highly advantageous system that aims to benefit the most people by making rational decisions that can be applied to other economies as well.

Moreover, this system contains clear guidelines to the Mahallas; there is no formal set of rules or requirements for the conditions for benefit. Central Place theory perfectly can be applied in the Mahalla concept because some number of the Mahalla makes a small town which is located in the center and all households of the Mahalla go to the market of that town. Flowingly, a few numbers of small towns will make a big city with one center of trading for all the small town households. This concept will be extremely useful for any institution, whether it is government or business entities because it will help to study any specific area in detail about their culture, tradition, and needs. Figure 5 below highlights the arrange of the Mahalla when applied to the central place theory.
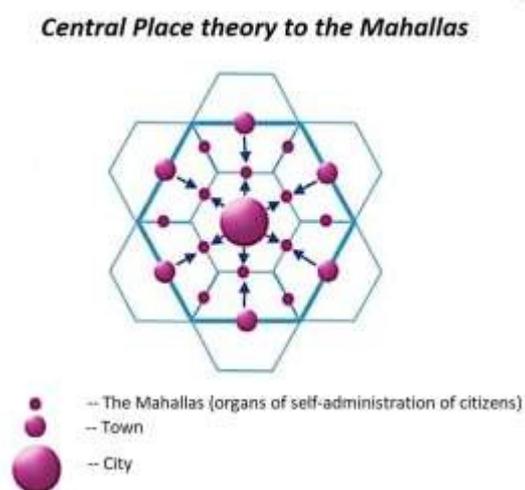

Figure 5. Christaller's Central Place theory to the Uzbekistan – the Mahallas

CONCLUSION

In conclusion, the subject of economic geography is important in developing countries such as Uzbekistan because it helps to understand the structure of the economy and its relationship with the key activities with other areas around the world due to rapid growth or globalization. It can help understand not only the geographical location of the country but to know more about different aspects of a particular region. This paper contributes to the existing knowledge of the topic by investigating the economic development of Uzbekistan. The paper also highlights the economic geography of the economic, transportation, and communication systems that support networks of trade in all kinds of goods and services being traded in an economy. The paper further discussed the central place theory and applied the Mahalla to the theory, which is a closer arrangement in Uzbekistan compared to the central place theory.

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Appendix 1

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Appendix 2

Uzbekistan Population Forecast

Year	Population	Yearly % Change	Yearly Change	Migrants (net)	Median Age	Fertility Rate	Density (P/Km²)	Urban Pop %	Urban Population	Country's Share of World Pop	World Population	Uzbekistan Global Rank
2020	33,235,825	1.42 %	451,961	-8,863	28.2	2.24	78	35.3 %	11,716,797	0.43 %	7,795,482,309	43
2025	35,146,617	1.12 %	382,158	-8,863	30.2	2.13	83	36.3 %	12,770,986	0.43 %	8,185,613,757	44
2030	36,712,267	0.88 %	313,130	-8,863	31.9	2.04	86	38.0 %	13,963,798	0.43 %	8,551,198,644	48
2035	38,059,262	0.72 %	269,399	-8,863	33.2	1.97	89	40.1 %	15,259,675	0.43 %	8,892,701,940	50
2040	39,246,465	0.62 %	237,441	-8,863	34.3	1.90	92	42.1 %	16,530,597	0.43 %	9,210,337,004	51
2045	40,238,337	0.50 %	198,374	-8,863	35.7	1.86	95	44.1 %	17,741,084	0.42 %	9,504,209,572	51
2050	40,950,366	0.35 %	142,406	-8,863	37.2	1.83	96	46.0 %	18,842,195	0.42 %	9,771,822,753	55

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