



## The Possibility of Transforming the North Upper Egypt Region into Independent Urban areas Outside the Dominance of Cairo's centralized Region.

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### ABSTRACT

The North Upper Egyptian region has many resources that encourages urban growth. Unfortunately, this region suffers from marginalization, and lack of services and economic activities. Therefore, the Northern Upper Egypt region largely depends on Cairo region, which has a significant impact on the North Upper Egypt. This dependency resulted in large population migration and a notable decline in the percentage of urban development and population concentration. This study aims to investigate the changes occurring in the region and the influence of the centralization of Cairo region even after the huge population growth. Using theories of regional planning that include the population size and spheres of influence of each region to determine changes in the region's urban importance and generate some recommendations for the development of cities in the North Upper Egyptian region and their release from Cairo's authority.

## 1. Introduction

The North Upper Egyptian region has had numerous changes in its population, economics, degree of development, and service accessibility. For example, establishing the new cities of New Minya City, New Beni-Suef City, and New Fayoum City has increased the number of residents. Also, numerous business bases have been constructed that attract inhabitants. For example, the recently established industrial zones in Beni-Suef and Minya. Health and educational services have been provided. Therefore, it has become necessary to understand the existing regional status to develop the North Upper Egypt region because of the lack of interest in developing secondary regions [4].

Within this framework, the study aims to analyze the relationships between the North Upper Egyptian centers through an analysis the size of the region's cities, changes in city size and growth rates, rank and size distribution, and the correlation between these cities' sizes, their distance from one another, and their spheres of influence. Particularly considering how much the cities of Upper Egypt are impacted by the Cairo region. This region was suffering from a serious lack of services (educational-healthcare-entertainments) and economic activity, which prompted the population to migrate to Cairo, which reduced the region's role in development and urbanization and weakened its influence [1,4].

### 1.1. Aims of the Study

The research main aims as following:

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1. Encourage the development of the North Upper Egypt region and reduce the influence of Cairo.
2. Evaluating each region's zones of influence, sizes and rankings according to its population.
3. Determining the largest area of influence in the region to develop it, as well as the degree of the influence of the other cities, based on the relationship between their sizes and distances, and how this relationship has changed until 2020.

### 1.2. Research problem

The division of Egypt into planning regions has increased administrative and bureaucratic complexity, distributed resources and responsibilities differently, exacerbated economic gaps between different regions, directed resources unfairly between regions, and increased Cairo's centralization and control over the rest of the regions.

## 2. Literature Review

Regional planning theories as measures of city sizes and ranks in planning regions help to understand the relationship between cities, and they are as follows:

### 2.1. Rank and size rule (Ziff)

This rule is predicated on the idea that the population size and the pattern that a distribution map's city rankings follow are related. Theoretically, if we were to rank the cities in a nation in descending order, the first city would be the largest, followed by the second, which would be half the size of the first, the third, which would be one-third of the first, and so on [7].

$$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{x}$$

### 2.2. INTERACTION THEORY

This theory assumes that the strength of the relationship between two cities varies positively according to their size and negatively according to the square of the distance between them [11].

$$I = \frac{P_1 P_2}{D^2}$$

### 2.3. BREAKING POINT THEORY

Using the central place hypothesis, the boundary between two urban areas of different sizes is determined. The theoretical position of the margin of an urban field can be calculated by using a technique known as breaking point theory. This is a simple variation on the standard gravity model. The breaking point between two towns divides the people who will travel to one town from those who will

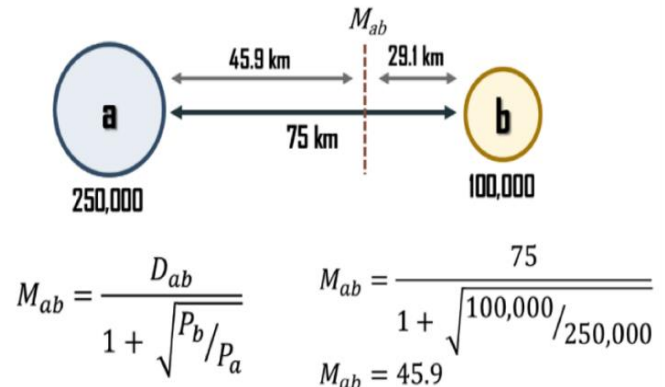


Figure 1: Areas of influence [3]

travel to another town for similar services. If enough breaking points can be established around a town, its theoretical urban field can be delimited in that way. fig 1[3]

### 2.4. REILLY'S LAW

This law aims to find a way to predict the number of people who come to a city from another city [11].

$$MAC = \frac{PA}{PB} * \left(\frac{DBC}{DAC}\right)^2$$

### 2.5. The Jeffersonian theory

The Jeffersonian theory, which proposes that there is a large difference between the size of the first city and the next one after it, with the latter being more than twice in size, will be used to gauge the extent of size disparity between cities in the region. In remote and peripheral areas without big cities that may draw in and house elite business and service operations from higher echelons (centers) that aren't present in the area, urban domination is desired [10].

### 3. Material and Methods

#### 3.1. Study methodology

Through three approaches:

#### **Inductive Approach:**

Theoretical: By examining theories and research related to the study topic and their definitions.

#### **Analytical Approach:**

By applying some theories to the cities of the North Upper Egypt region, including:

- Analyzing the changes in urbanism of cities in the North Upper Egypt region.
- Analyzing the size and rank of cities in the North Upper Egypt region.
- Breakpoint Theory to identify the spheres of influence within the region and their interactions.

#### **Deductive Approach:**

Through this approach, the outcomes of the analytical approach are deduced, and some recommendations are derived. This is an attempt to propose the most important strategies that can be followed for the development of the region and the proposed policies to achieve these strategies for the development of the North Upper Egypt region and to reduce Cairo's impact on the region.

### 4. Results

#### 4.1. Analysis of the size and rank(ziff) of the cities in the North Upper Egypt region

**Table 1** indicates that while the rank of small cities decreases, the rank of larger cities increases, and certain small cities' ranks remain unchanged, reflecting a rise in emigration from those areas. Larger cities are growing in number, which indicates that there are more services and activities to carry out in the area that attract citizens, leading to increased development. Cities with small populations maintained the same and saw a decrease in population as a result of migration, which means that there are no plans or development efforts happening to improve their services and attraction factors.

It's noticeable that Beni-Suef and Fayoum ascended to a larger size. Some cities (Ibshaway-Tamia-Al-Adwa-Youssef Al-Siddiq) maintained their size, however Senuris-Al-Usta's rating changed and they were moved from a higher size group.

**Table:1** Size classification of urban centers' data: sources[1,4]

City	2020		Change in rank	
Fayoum	1	1	0	-
Beni-Suef	3	2	1	Increase
Al Minya	2	3	-1	Decrease
Mallawi	4	4	0	-
Nasser	6	5	1	Increase
Samalut	5	6	-1	Decrease
Al Fashn	9	7	2	Increase
Sinnuris	12	8	4	Increase
Bani Mazar	7	9	-2	Decrease
Biba	10	10	0	-
Maghagha	8	11	-3	Decrease
Abu Qurqas	11	12	-1	Decrease
Itsa	18	13	5	Increase
Samasata	16	14	-2	Decrease
Al Wasta	15	15	0	-
Ihnasia	17	16	-1	Decrease
Matai	13	17	-4	Decrease
Deir Mawas	14	18	-4	Decrease
Ibshaway	19	19	0	-
Tamiya	20	20	0	-
Al Adwa	21	21	0	-
Yusuf Al Sadiq	22	22	0	-

**Table 2: The Jeffersonian theory on the North Upper Egypt region's data: sources [1,4]**

city	The rank and basic size		The rank-size rule adjusted		Rank difference	Adjustment difference
	difference	size	difference	Best size		
Fayoum			75438.3	589091		14.7
Beni-suef	5323.5-	256826.5	43042.5	294545.5	2.1-	17.1
Al Minya	37054.3	171217.7	-11908.3	196363.7	17.8	5.7-
Mallawi	12032.8	128413.3	6826.8	147272.8	8.6	4.9
Nasser	8863.4	102730.6	6224.2	117818.2	7.9	5.6
Samalut	8134.2	85608.8	4438.8	98181.8	8.7	4.7
Al Fashn	12028.0	73379.0	1251.1-	84155.9	14.1	1.5-
Sinnuris	18449.4	64206.6	9019.6-	73636.4	22.3	10.9-
Bani Mazar	21695.4	57072.6	-13313.4	65454.6	27.5	16.9-
Biba	23804.7	51365.3	-16260.9	58909.1	31.7	21.6-
Maghagha	27156.3	46695.7	-20298.3	53553.7	36.8	27.5-
Abu Qurqas	29702.6	42804.4	-23416.1	49090.9	41.0	32.3-
Itsa	15598.2	39511.8	9795.3-	45314.7	28.3	17.8-
Samasata	12798.5	36689.5	7410.1-	42077.9	25.9	15.0-
Al Wasta	15042.5	34243.5	-10013.3	39272.7	30.5	20.3-
Ihnasia	16228.7	32103.3	-11513.8	36818.2	33.6	23.8-
Matai	17506.1	30214.9	-13068.6	34652.4	36.7	27.4-
Deir Mawas	13514.7	28536.3	9323.7-	32727.3	32.1	22.2-
Ibshaway	10568.6	27034.4	6598.2-	31004.8	28.1	17.5-
Tamiya	10891.4	25682.7	7119.5-	29454.6	29.8	19.5-
Al Adwa	7933.7-	24459.7	11526.0	28052.0	48.0-	69.7
Yusuf Al Sadiq	-19383.9	23347.9	22812.9	26776.9	489.0-	575.5

#### 4.2. Analysis The Jeffersonian theory on the North Upper Egypt region

The Jeffersonian theory, which proposes that there is a large difference between the size of the first city and the next one after it, with the latter being more than twice in size, will be used to gauge the extent of size disparity between cities in the region.

The amount of disparity between the first city (Fayoum) and the second city (Beni-Suef) is simple, 2%, and the amount of disparity between the rest of the cities is very simple, not exceeding 50% between the same size category, but a large negative disparity appears in the last two cities, which are Youssef El- Siddiq and El-Adwa.

#### 4.3. Identifying the areas of influence for the cities of the North Upper Egypt region

**Table 3: Distance of the break point. data sources [1,4]**

cities	the break point	
	From small city	From large city
Beni-Suef - Cairo	14.9	93.1
Nasser – Beni-Suef	3.9	6.1
Nasser - Al Minya	47	65
Mallawi - Al Minya	18.9	23.1
Biba – Beni-Suef	7	13
Al Fashn - Beni Suef	6	7
Maghagha - Al Fashn	9.6	10.4
Bani Mazar - Maghagha	8.1	8.9
Samalut - Bani Mazar	10	11
Samalut - Al Minya	9	14
Samalut - Abu Qurqas	20.5	23.5
Abu Qurqas - Al Minya	7	12
Abu Qurqas - Mallawi	9	13

It is noted from **Table (3)**, that the scope of influence of Greater Cairo extends to Nasser City, although it used to expand to include all the cities of Minya Governorate as mentioned in earlier study ("AN ANALYSIS OF THE URBAN SYSTEM OF THE NILE VALLEY IN EGYPT." ) [2]

This means that it is the beginning of limiting the influence of Cairo on the Upper Egypt region and the beginning of providing services and development in the region.

- The influence of Beni-Suef City extends to include Nasser to Beba.
- The influence of Fashn City extends from Beba to the middle of the distance between it and Maghgha City.
- The influence of Minya extends to include (Maghgha-Beni Mazar-Matai-Samalut-Abu Qurqas)
- The influence of Mallawi extends from Abu Qurqas to Deir Mawas.

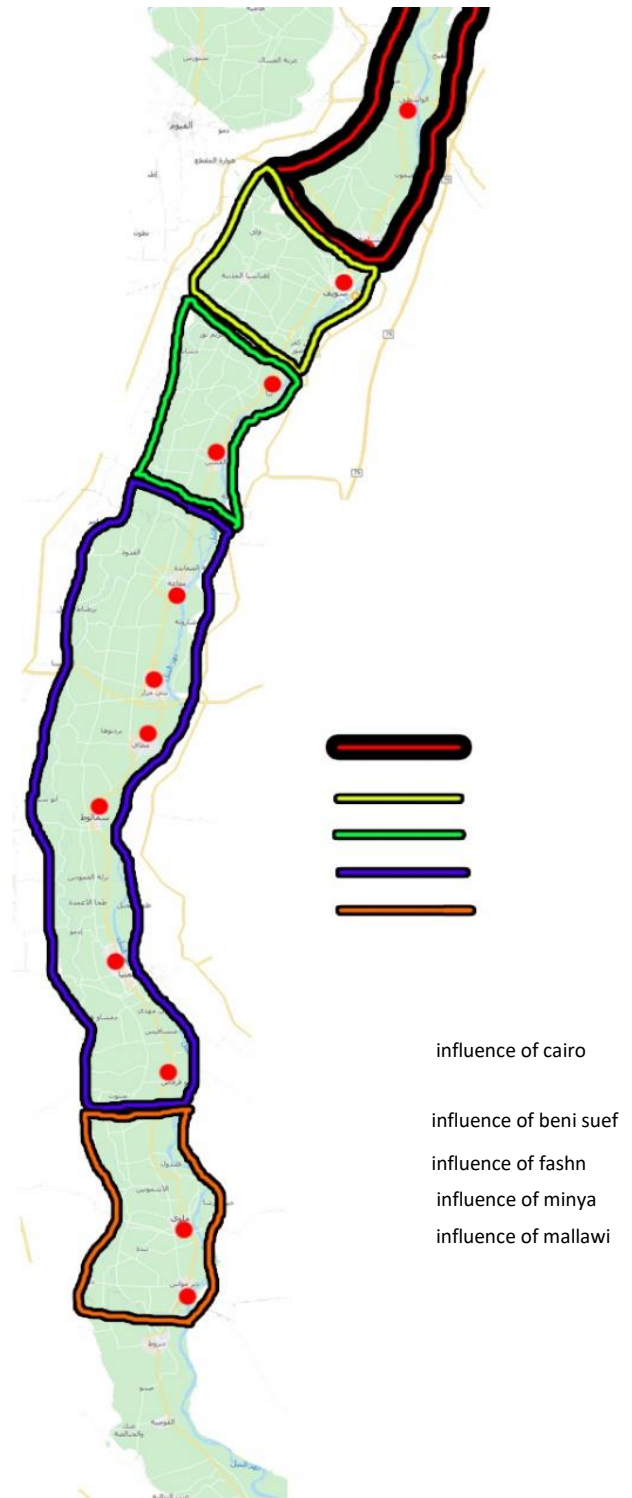


Figure 2: Distance of the break point.source: Prepared by the researcher

## 5. Conclusion

Based on earlier analyses and findings, the following conclusions have been determined: the rate of urbanization has increased in 2020, particularly in cities with higher populations. The increase suggests that the region is developing faster and that there are more services available there. In recent times, Cairo's power has also diminished, providing a chance of possibility for the region's independence if an effective strategy for its whole improvement is implemented. The cities of Malawi, Beni-Suef, Fashn, and Minya had a significant impact on this region.

Small cities, on the other hand, have little effect on development and can actually lead to a rise in migration from area. Therefore, in order to increase population and turn these cities into development hotspots, efforts must be directed at recognizing their weaknesses, whether related to employment or services.

In addition, there is a significant decrease in the zone of Cairo's influence over the northern Upper Egypt region compared to the results of the study conducted from 1947 to 2006, where Cairo's zone of influence extended during that period to include the northern Upper Egypt region to the city of Mallawi.[2]

### 5.1 The recommendations are as follows:

-diversifying the region's economic activity rather than depending on just one.

- There is a need to expand the influence of Minya in the northern part of Upper Egypt, as its impact was substantial and extended from the borders of Fashn to Abu Qurqas. As a result, Cairo will have no further influence over the region as long as it develops.

-To attract more citizens and decrease their migration to Cairo, concentrate on developing new employment opportunities in new areas like New Beni-Suef, New Fayoum, and New Minya. Additionally.

- the region's agriculture needs to be prioritized, and agricultural lands shouldn't be left fallow.

-Urbanization of the desert hinterland to separate agricultural areas from future development areas.

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