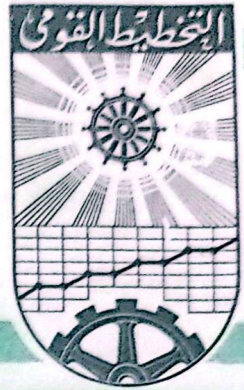


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REGIONAL DISPARITIES
AND URBAN SETTLEMENT SYSTEM.
(the Case of Egypt)

BY

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1. Introduction

No doubt, the relative advanced technology, division of labour, uneven population distribution between national territories ect., are interacting factors which influence the location of industries and services. This creates the existing settlement system and agglomerations in a country. The dynamics of the existing settlement systems have induced human activities to concentrate in certain centres and created such hierarchical system of central places. These central places with accumulated time become of different functions and sizes. Hierarchical class system implies that large centres are functionally more complexity than the smaller ones "... with this increasing functional complexity being accompanied by increasing size of the urban complementary region, and that by virtue of the differential provision of central functions there is interdependence between urban centres in the provision of central goods and services" (B.J. Berry and W. L. Garrison, 1958, P. 145).

It may be suggested from the above mentioned analysis that, one of the main causes of regional disparities - among others - is the existing urban centres system in the country. Thereon, taken Egypt as a case study, the main objectives of the present paper are confined to:

- 1) explore the regional disparities in Egypt, and
- 2) to answer the question of: Is there such (a) relationship(s) between regional disparities and the existing hierarchical urban class system in Egypt?

It is worthy to be mentioned that the aim of the present study is not to tackle all the problems of regional disparities and settlement system in Egypt, but rather to assess such a relation between urban settlement system and regional disparities.

2. Regional Disparities in Egypt:

Nowadays, the problems of regional disparities have been given increased attention throughout the world. The general interest in this subject is due to: first, setting optimum distribution of the socio-economic activities among national territorial space as a basic target; and second, the need for the realization of the social adjustment goals between national spaces (see B. Prandecka and S.M. Zawdzki, 1968).

The worldwide phenomena of regional disparities can be attributed, to a large extent, to: historical, socio-economic, geographical, institutional framework, political factors and conditions which are at play within the spatial territories of a country (see J. Friedmann and W. Alonso, 1965). These factors and conditions are shaping the national economic space of the country and forming the existing arrangement of the hierarchical urban settlement system within it (see P.E. Lloyd and P. Dicken, 1977 PP. 386-389 and, R.L. Morrill, 1974, PP 4-6). The accumulation effects of the existing urban place system exerts themselves on regional disparities resulting from the uneven distribution of human activities.

Moreover, in Egypt the problem of the disparities between governorates is acute, due to: historical and geographical conditions, cultural and demographic conditions and factors, and investment allocation policies.

However, all these factors are interrelated and acting upon each other.

For example, the river Nile and the nature of the Egyptian topography have created many problems which have interact together to generate the so-called regional disparities and differences among the various governorates in Egypt. The nature of upper Egypt is green ribbon between two parallel ranges of hills. This of course, limits any possibilities of agricultural expansion. Topographic nature lead population to concentrate in less than 4% of the total Egyptian area.

Historically, Egypt plagued by foreign domination which influenced the evaluation of traditional urban cities such as Cairo and Alexandria, keeping the rest of the country in a had state (see Charles Issawi, 1963, PP. 4-5). Further, classes of feudalism, elites and high foreign classes have dwelt in the main cities where all life facilities were concentrated.

In 1960's the first five year plan had been carried out. But the policy of investment allocation has accentuated regional disparities because it was concentrated in the traditional areas. Besides the elaboration of that plan was on the sectoral level and effectively ignoring the spatial elements (M.H. Fag-El Nour, 1971). Evidently, the adopted criteria

for diagnosis and solving intersectoral allocation problems did not directly solve the interregional allocation problems. Thus increasing the problems of regional disparities in Egypt.

As a result of the above mentioned causes the population migration had been directed towards the urban areas, especially to the main cities of Cairo and Alexandria. This situation benefitted the urban centres and limited the possibilities of socio-economic development in rural areas and thus increased the regional disparity gap.

By analysing some socio-economic indices during the years of 1969/70 and 1970/71 in Egypt (see Azza Soliman, 1978) the results are the following:

- a) Population are concentrated in two main governorates, Cairo and Alexandria.
- b) The countryside represents the low level of socio-economic conditions. While the urban areas represents the high levels resulting from the concentration of socio-economic activities within them especially the two major cities.

Anyhow, it seems that the policies applied in 1960's are continuing in 1970's. For example Cairo and Alexandria are still the major partners sharing about 20.3% and 12.7% respectively of the total investment during the five year plan 1978/1982.

Eventually, the above mentioned means that regional and national development policies in Egypt has not yet considered the importance of spatial and regional planning. In any case, the continuation of the existing regional development policies will complicate the problem during the coming years, especially if comprehensive and regional planning will not be considered and applied consciously (El-Sayed Kilany, 1978).

3. Urban System in Egypt

1. Urban Size Distribution

It was observed that different growth rates give rise to different distribution functions and hence it is necessary to study and evaluate the spatial point pattern. For along time, the explanation of the size distribution of cities attracted the attention of many sociologists, economists, geographers and statisticians (See B. Goodall, 1972, PP. 289-299). In spite of that, there is no acceptable theory to explain exactly this phenomenon.

Many authors argued the difficulties of this problem and the impossibility " ... to favour one theory or another on the basis of its prediction, since any one of the observed statistical relationships is compatible with several theories while many of individual theories are consistent with more than one of the standard empirical distribution (H. Richardson, 1973, P. 139).

May be one of the most popular methods to studying the spatial point pattern is the rank-size-rule. But rank-size-rule is not the only way to study the distribution functions in which dynamic aspects may be introduced into central place models.

. Curry (1967) concentrated on the behavioral aspects and time whereby he states that the spatial pattern of centre service may be gainfully understood only through:

- a) retailer's behavior over time and their location policy in space, &
- b) consumers' behavior in time and in space.

Obviously it is clear from Curry's assertions that time is the key factor to understand the geography of central place.

On the basis of the economic concepts of the neoclassical equilibrium, N. Rashevsky developed a theory of city size distribution. Simply it deals with, the migration between cities as occurring because of the migrants searching for higher income. Further, when he introduced the marginal productivity concept in his analysis, he asserted that equilibrium is achieved when productivity ($\bar{z}$) per head is equalized between cities (H. Richardson, 1973).

$$\bar{z}_1 = \bar{z}_2 = \bar{z}_3 = \bar{z}_n \dots \quad (1)$$

As he suggested the generalization of productivity function takes the form:

$$\bar{z} = f(P_1, P_i) \dots \quad (2)$$

Where,

P_i = total number of people inhabiting all cities of size P_i .

Then the number of cities becomes:

$$N = \sum \frac{P_i}{P_i} \dots \dots (3)$$

The productivity function (equation 2) needs to be specified if it is wanted to solve the city size distribution problem. When urban productivity was expressed as a function of the city size and population distribution of the system as a whole (National Population, the size class population and the total number of the city), Rashevsky used the above mentioned formula (3) to find city sizes distribution.

Regardless, the received criticism on the theory of the distribution of city size, the rank-size-rule model will be used in order to achieve the main objectives of the present paper.

2. Rank-size rule Model

G.K. zipf (1948) had been formulated such a relationship between urban size and number of urban areas in a ranking rule given by the formula:
(See Brian J.L. Berry, 1964, PP. 147-63)

$$P_r = P_1 / r^q$$

Where,

r = the rank of a city

P_r = the population of a city of rank r

P_1 = the population of a largest city

q = an exponent which generally has a value close to 1

The above mentioned formula depends upon the frequency distribution of city sizes which are hump-shaped and positively skewed to the lognormal distribution. The expression of lognormal process is as follows:

$$\log P_r = \log P_1 - q \log r$$

If the data yield a good fit, the city size distribution can be expressed by a straight line with slope $-q$. The special case of the rank size distribution is obtained where $q = 1$, and this is the so-called rank-size-rule.

However, the rank-size-rule exhibits its expediency throughout the world especially for the space economics which have been attained a high level of economic development and urbanization. Furthermore, such relationship is also found in large size countries and in those countries which have a long urban tradition (Brain, B.J.L. Berry, 1961, PP. 573-588).

The implication of the rank-size-rule is, if the rank-size-rule applies exactly then the population of, say, the third ranking centre would be one third of the population of the first ranking etc. The importance of Zipf formula is that, some empirical evidence proved a relationship in a relative regularity between the size and number of urban areas.

From the theoretical point of view, the main idea of the rank-size-rule depends upon increasing complexity of space economy. This space economy brings many more factors to form urban centres and this results in an urban size distribution which is closer to the above mentioned rank-size

pattern. The size of an urban area is positively correlated with the number of economic activities which are located within it. Accordingly, urban areas become the centre of market-oriented activities which are differently affected by the various scale economies and other factors.

The Egyptian case does not fit the implication of the rank-size-rule. That is to say (See table no. 1 and figure No. 1) a marked gap appears between the largest urban area and the smaller ones. Berry presented the same results from his large scale comprehensive study on thirty-eight countries at varying economic development levels. This study revealed that, thirteen countries had rank-size-rule distribution of urban settlements and fifteen had a primate distribution in which every country was dominated by one or two large cities (Berry 1961). In fact this is the case of Egypt where Cairo and Alexandria are dominating by the national territorial space due to their large number of urban population and activities.

Moreover, the Egyptian case reveals that the concentration of the socio-economic activities are on a limited space area representing less than 4% of the total area of the country, as a result of the influence of a few strong forces such as the concentration of political power which is accompanied by a number of economic activities located within the large cities.

4. Concluding Remarks

It can be easily said that any model for ranking size of cities could not be universally acceptable. This is to say it is difficult to mold the size of cities according to a single model. However, all models mentioned in this paper may give a partial explanation.

This study attempted to disclose such a relation between urban settlement system and regional disparities. This may prove that, the principle problems of the two main cities are not really self generated, rather these problems can be said to be generated from the system of settlements at large. That is to say, during the present stage of national development the policy maker should improve the existing urban settlement system instead of building new towns. In other words, everything that happens in one of the regions inevitably affects the other regions and causes some changes within it. Thus changes in the various regions can be produced either directly, by making changes in a given region itself, or indirectly, by making innovations in other regions, and causing repercussions in the first one.

Recently, the attention of the Egyptian authorities were directed towards solving regional problems through focusing on the establishment of new towns. But in town planning attentions are focused on the physical aspects which are treated as the tool for meeting the needs of inhabitants. Town planner's thought, are completely concerned with the physical space. This is true because of their conceptual thinking and of the aims they hope to achieve. But in fact the town planners concepts are not in conformity

with those of the regional economic planners. The aim of the latter is not to only concentrate on the physical aspects of planning but also on obtaining maximum welfare and to consider the building of new towns as one of the tools for achieving this objective. In this context the attention will be concentrated, to a large extent, on the functioning of a given system.

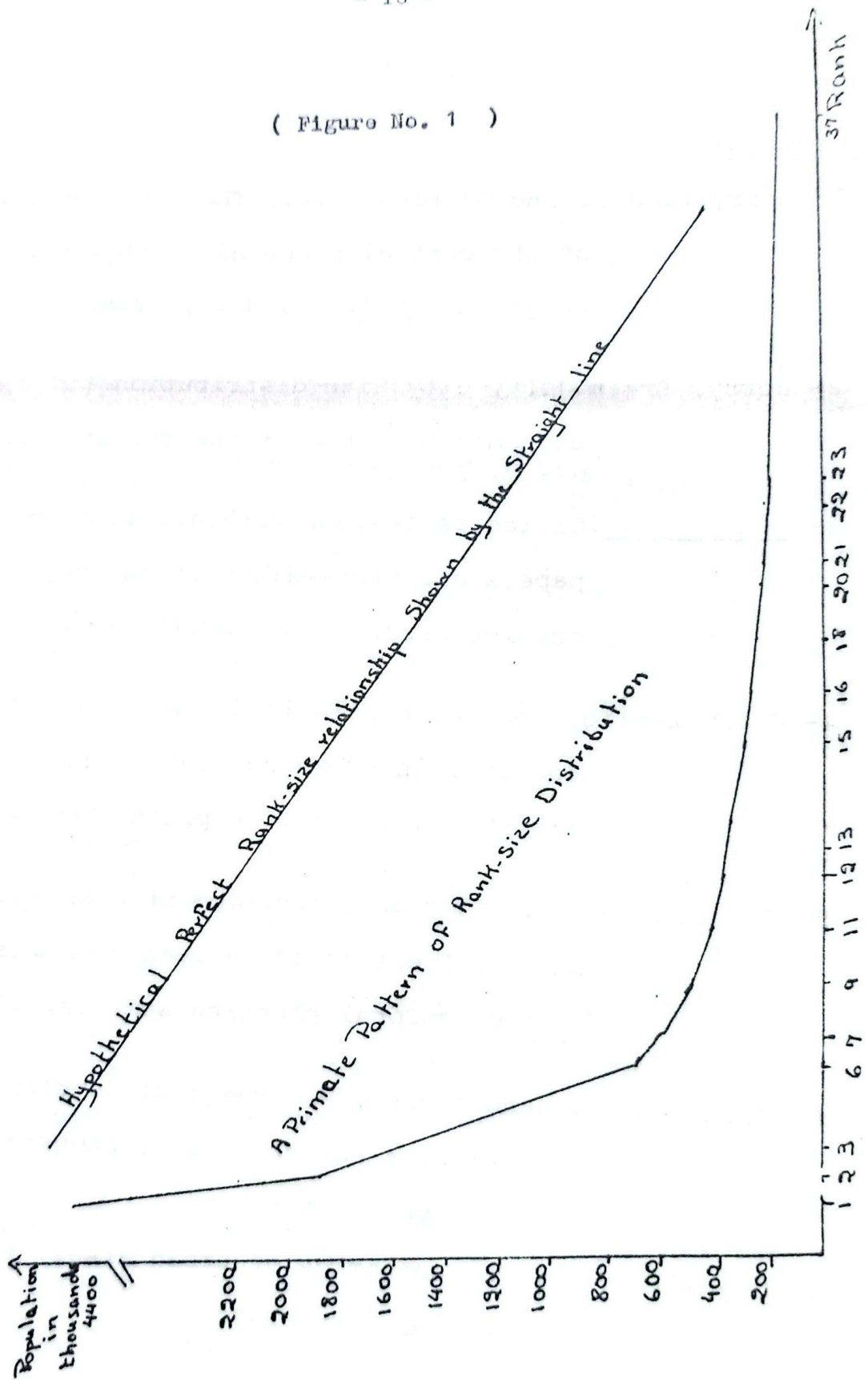
In Egypt urban areas are not evenly distributed throughout the country. It is clear that there has been a tendency to expand existing industrial works and build new ones in regions that are already urbanized and industrialized, and this has aggravated the social and economic disequilibrium between the regions.

In general it is clear that, in the two main cities, industrialization have relatively exceeded than in other governorates. Together with other factors, the unbalance between urbanization and industrialization have created the primate pattern of rank-size distribution and have caused this imperfect rank-size relationships - which is shown by the straight line in the figure no. 1.

**Rank-size distribution of urban areas in Egypt
(1967)**

Urban areas	Urban population	Ranks
Cairo	4406	1
Alexandria	1860	2
Giza	692	6
Gharbia	615	7
Dakahlia	479	9
Sharkia	408	11
Qalubia	405	11
Behira	362	12
Mina	347	13
Asyut	344	13
Sehag	344	13
Port said	291	15
Qena	285	15
Suez	277	16
Monufia	244	18
Kafr El-shiekh	222	20
Beni-Suef	208	21
Fayum	206	21
Aswan	200	22
Ismailia	190	23
Damietta	119	37

(Figure No. 1)



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