

RANK-SIZE DISTRIBUTIONS FOR SMALL SETTLEMENTS IN TURKEY

A CASE STUDY OF HILVAN AND SARAYÖNÜ-KADINHANI-ILGIN AREA

Güven GÜLÖKSÜZ

1. Auerbach, F. Das Gesetz der
Bevölkerungskonzentration, *Potsdam's
Mitteilungen*, V. 59, 1913, pp.74-76.

Students of the system of cities have observed a remarkable regularity in the distribution of the city-size clusters. Within a given area-countries, regions, etc.- cities have been found to display a definite hierarchic distribution: One city appears to be dominant. There are relatively few large cities, many medium-sized cities and a host of smaller cities. Hence starting with Auerbach¹, various authors have given attention to the regular relationship between the size of cities and their number and rank, which is formally stated as *rank-size rule*.

Available research on the size continuum of settlements has been concentrated upon the upper or urban limb of the distribution. The analysis of the small centers has been largely avoided. The reluctance stems mainly from the insufficiency of census data on small centers and from the variance at the delimitation of urban places from country to country.

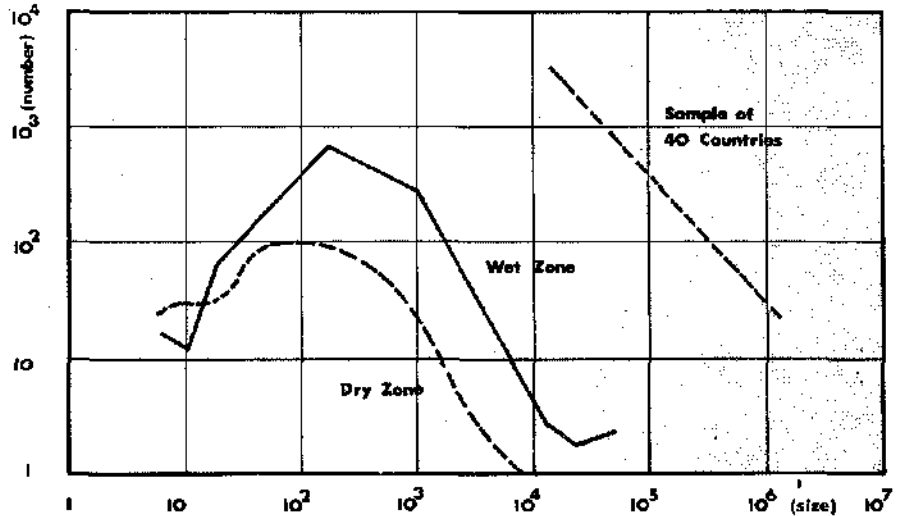
This paper is an attempt to enter this rather unexplored zone. The main features of the lower-limb rank-size relationships are described in the first part. The second part undertakes to examine, compare and evaluate the lower-limb of the settlement distributions in two sample areas in Turkey, namely *Hilvan ilçesi*(Urfa) and *Sarayönü, Kadınhanı, Ilgın İlçeleri*(S-K-I Area) (Konya).

I. LOWER END OF THE DISTRIBUTION

As mentioned before, the number of studies exploring the lower-limb rank-size relationship is limited. Nonetheless, whatever research we have, suggests that rank-size rule fails to apply to the lower part of the distributions. Under this rule, the number of settlements should continue to expand as size decreases, i.e. we should expect more farmsteads than hamlets and more hamlets than villages.

2. K. A. Gunawardena, 'Service Centers
in Southern Ceylon', Unpublished
Doctoral Dissertation, Cambridge
University, 1964.

K.A. Gunawardena studied the settlement pattern in southern Ceylon². He found that the rank-size rule was reversed at the sub-village limb.



Frequency distributions for settlement sizes in the Wet Zone and Dry Zone of southern Ceylon. Source: Haggett, 1965, p.107.

As seen in the figure above, only the upper limb of the distribution validates the assertion that the number of settlements continue to expand as size decreases. After a certain level rank-size rule is reversed. Gunawardena's "results suggest that the studies so far conducted on larger population clusters have, in fact, been describing only one limb (the upper or urban limb) of the population continuum".³

3. P. Haggett, *Locational Analysis in Human Geography*, London: Edward Arnold, 1965, pp. 106-107.

Allen R.H. Baker's study on the rural settlements in France for 1846 confirms Gunawardena's findings: "The frequency distribution of the 783 population clusters, when plotted on double-log paper, shows the characteristic curve which Gunawardena discovered for the Wet and Dry Zone of Ceylon".⁴

4. A.R.H. Baker, Reversal of the Rank-Size Rule: Some 19.th Century Rural Settlements in France, *The Professional Geographer*, v. 21, Nov. 1969, pp. 398-392.

The upper limb of the settlement continuum—units with populations ranging from 1000 down to 7—seems to accord with rank-size relationship. In other words, the number of settlements increases as size decreases. However, rank-size rule is reversed for settlement units with populations ranging from 1 to 7.

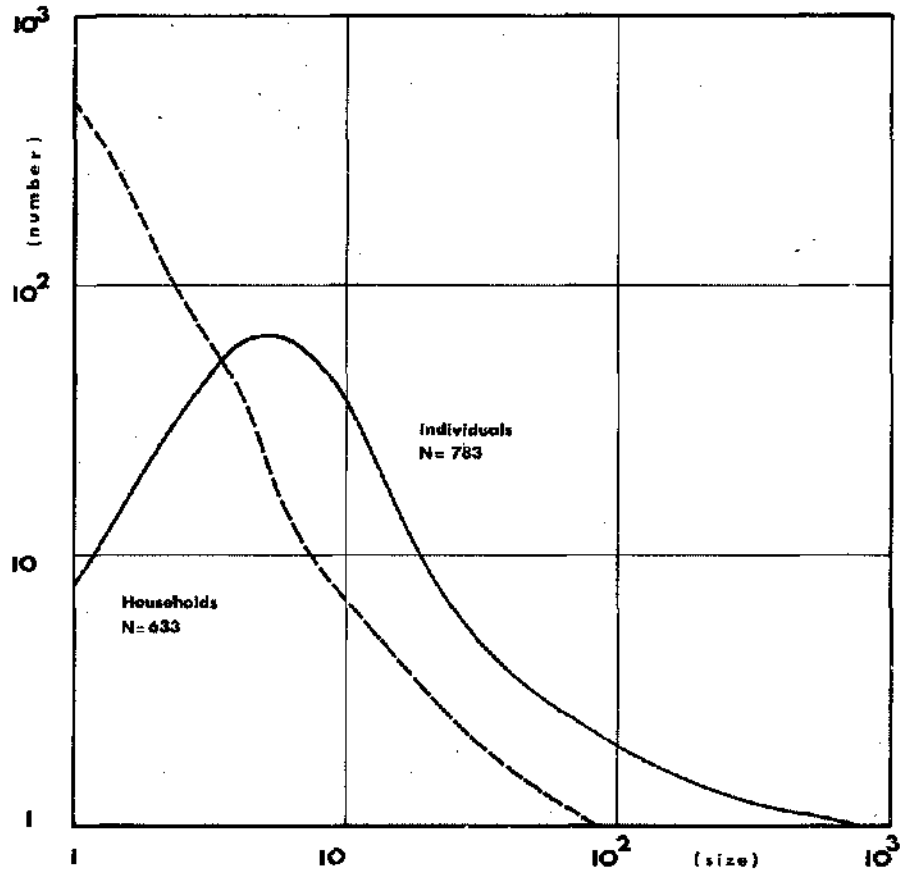
II. THE SIZE DISTRIBUTIONS OF SETTLEMENTS IN TWO AREAS IN TURKEY

A. THE STUDY AREA

In this paper Hilvan İlçesi in the province of Urfa and Sarayönü, Kadınhanı, Iğın İlçeleri (S-K-I Area) were selected as samples to study the behavior of the lower limb of the settlement-size distributions.

The two areas show some similarities and some discrepancies. They are *similar* in the following ways:

- The number of settlements in the two sample areas are pretty close, Hilvan consisting of 147 and S-K-I Area 101 population clusters.



Frequency distributions for settlement sizes of a random sample of communes on the plateau between the rivers Loire and Loir in 1846, Source: Baker, 1969, p.390.

- The two areas display topographical similarities. They are both situated on flat steppes. They both have continental climate.
- The economic base of both areas is agriculture. The crop pattern is similar, wheat being the main produce. However, S-K-I Area is at a more advanced level in agriculture on a partially irrigated land.

The differences between the two areas are as follows:

- There are distinct discrepancies in land ownership. Most villagers work on their own land in S-K-I Area. In Hilvan, on the other hand, feudal relationships still prevail and land ownership is not widespread. The majority of people there work for "bey"s and "ağa"s.
- S-K-I Area is in a relatively more developed region in Turkey, namely in central Anatolia, whereas Hilvan is located in the most backward southeast Anatolia Region.
- The Baghdad Railway constructed in 1910's passes through Ilgın, Kadınhanı and Sarayönü İlçeleri. Hilvan hasn't had any connections with the railway system.

B. METHODOLOGY

.. In this paper frequency distributions will be employed to delineate the size continuum of population clusters in our study area, whereby the size of settlements will

be plotted against the number of settlements on the double-log graph paper.

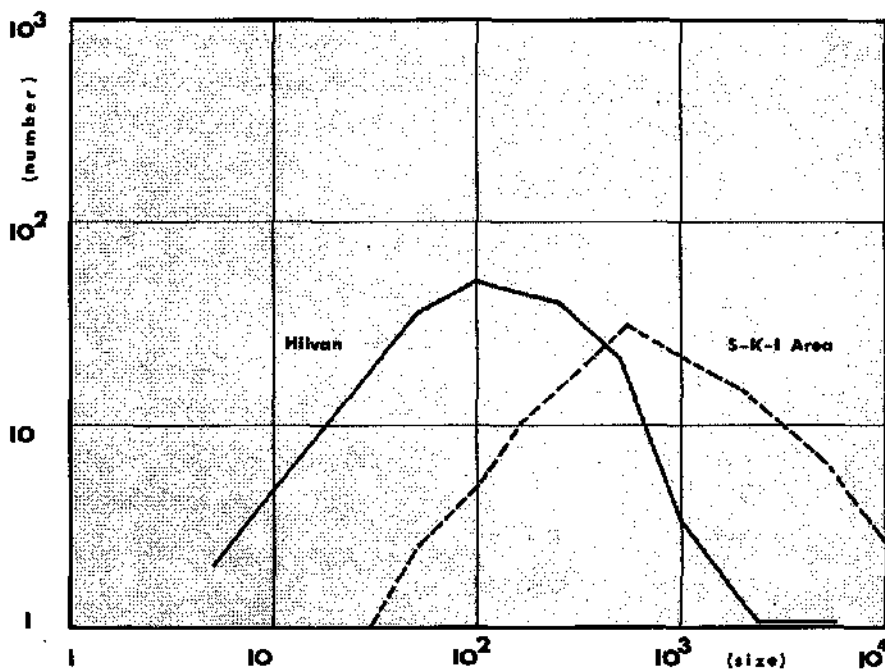
- .. The two areas will then be compared with references to the plotted settlement distributions. The lower-limb behavior in the samples from Turkey will also be examined with respect to their conformance with the observations in the other parts of the world, mainly in Ceylon and France.
- .. An attempt will be made, lastly to dig beneath the underlying factors behind the existing settlement distributions.
- .. Population data will be obtained from *Genel Nüfus Sayımı, 1970* and from a research being conducted by State Planning Organization(KÖYD) on the hierarchy of central places(1974), for S-K-I Area and Hilvan respectively.

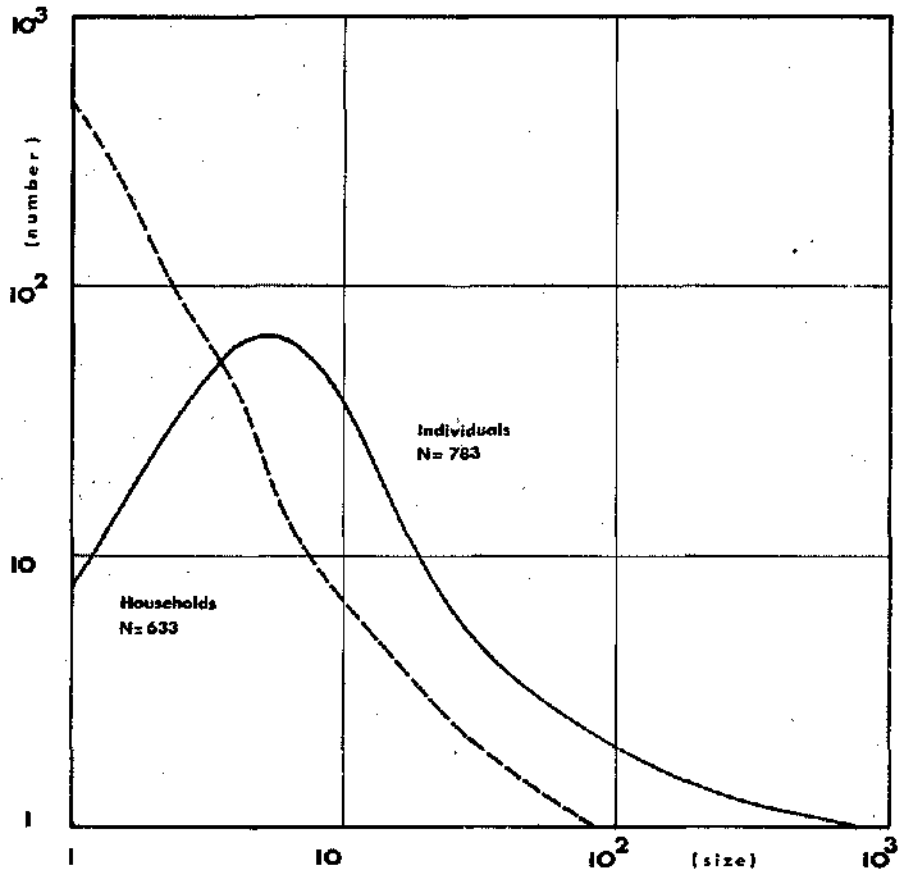
C. SETTLEMENT-SIZE DISTRIBUTIONS IN OUR STUDY AREA

The frequency distributions were obtained by plotting size of settlements against a number of settlements based on the data below:

NUMBER OF SETTLEMENTS IN EACH SIZE GROUP, S-K-I 1970, HILVAN 1974

Size Groups	Number of Settlements	
	S-K-I Area	Hilvan
0- 50	2	30
51- 100	4	47
101- 200	11	40
201- 500	33	24
501- 1000	23	4
1001- 2000	16	1
2001- 5000	7	0
5001-10000	3	1
10000+	2	0





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S. N. Tuğbilek, *Türkiye İskân Coğrafyası, Kır İskânı*, İstanbul: İst. Univ. Coğrafya Enst. 1967, pp. 124-129.

efficiently. The ethnic structure of the region also enhances the dispersal of the population into small clusters in some cases. The explosion of population has induced the appearance or enlargement of numerous *mezra*. The growing population, not being able to survive under the worsening of the already-formidable conditions in the villages, have moved permanently into the once-temporary *mezra* or settled in new ones.⁵ The presence of large number of small centers in Hilvan is partly attributable to these socio-economic and political factors. Such phenomena have not been prevalent in Sarayönü-Kadınhanı-İlgin Area.

The income level of the inhabitants of Hilvan is lower than that of S-K-I people. Their potential as buyers of a market is extremely limited. As such, they cannot create enough demand to satisfy the "threshold requirements" of several activities. So the presence of such a great number of small centers in Hilvan is also explainable with the terminology of "central place theory". The comparatively more affluent inhabitants of S-K-I can create sufficient threshold demand for higher-order activities and render the maintenance of larger centers possible.

The role railways play in furthering the development of centers is crucial. Baghdat Railway passing via Sarayönü, Kadınhanı and İlgin should be mentioned as another important factor promoting larger centers.

As to the underlying reasons behind the reversal of rank-size relationships at the lower limbs of the distributions, there remains much that needs clarification.

TÜRKİYE'DE KÜÇÜK YERLEŞME MERKEZLERİ İÇİN SIRA-BÜYÜKLÜK DAĞILIMLARI

ÖZET

HİLVAN VE SARAYÖNÜ-KADINHANI-İLGİN ÜZERİNDE BİR İNCELEME

Şehirler sistemi üzerinde çalışanlar şehir büyüklük dağılımında oldukça belirgin bir kademeli düzen gözlemlediler. Verilmiş bir alanda -ülke, bölge, vb.- bir en büyük şehir, birkaç büyük şehir, birçok orta büyüklükte şehir ve pek çok sayıda küçük şehir bulunmaktadır. Auerbach'tan başlayarak (1913) bazı yazarlar şehirlerin büyüklüğü ile sayı ve sıraları arasındaki ilişkiyi ortaya koymaya, başka bir deyişle sıra-büyüklük kuralı üzerinde çalıştılar.

Elimizdeki bugüne değin yapılmış araştırmalar çokça dağılımların üst-şehirselle (urban)-kısımlarına ilişkindir. Küçük merkezlerin incelenmesinden genellikle kaçınılmıştır. Bu çekimsellik küçük merkezlerle ilgili bilgilerin yetersizliğine ve merkezi yerler büyüklük kavramlarının ülkeden ülkeye farklılık göstermesine bağlanabilir.

Çalışmamız bu pek incelenmemiş konuya girme çabasıdadır. Birinci bölümde küçük yerleşme merkezlerinin büyüklük dağılımı üzerine genel bilgi dünya deneyinden iki örnekle birlikte verilmektedir. Bu örnekler belli noktalardan sonra yerleşme büyüklüğünün azalmasına rağmen, yerleşmeler sayısının artmayıp

azaldığını, diğer bir deyişle sıra-büyüklik kuralının ters döndüğünü göstermektedir.

İkinci bölümde Türkiye'de iki alan için -Hilvan (Urfa) ve Sarayönü-Kadınhanı-İlgın (Konya) yerleşme büyüklüğü ve sayısı ilişkileri incelenmiştir. Hilvan ve S-K-I eğrileri yukarıda söz konusu edilen örneklerin sonuçlarını doğrulamaktadır. Hilvan'da 51-100, S-K-I'da 201-400 ulamından sonra, sıra-büyüklik kuralının öngördüğünün tersine, yerleşme merkezi sayısında bir azalış izlenmiştir. Ayrıca, yerleşmelerin Hilvan'da %85'inin S-K-I'da ise yalnızca %23'ünün 250 nüfusun altında olduğu saptanmıştır.

Hilvan'da küçük merkezlerin böylesine yoğun oluşu mülkiyet biçimi, etnik yapı, nüfusun hızlı artışıyla kişilerin köylerde barınamamaları, düşük gelir düzeyi gibi etkenlerle açıklanabilir. Böyle etkenlerin Hilvan'a oranla daha az belirgin olduğu S-K-I'da, demiryolu olanağı gözönüne alınınca, daha çok sayıda büyük merkezin yer alması olağan sayılabilir. Sıra-büyüklik kuralının dağılımların alt kısmında ters dönmelerinin nedenlerinin ise açıklığa kavuşturulması gerekmektedir.

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