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DIFFERENTIAL URBANIZATION IN TURKEY: 1955-2000

AYSE GEDIK, Department of City and Regional Planning, Mimarlik Fakultesi, Orta Dogu Teknik Universitesi, (Middle East Technical University), Inonu Bulvari, 06531 Ankara/Turkiye, Tel: (+90-312) 210 67 18 (or 210 62 02), 0533 520 59 82. Fax: (+90-312) 210 12 50,
E-mail: gedik@arch.metu.edu.tr, and gedik@metu.edu.tr

ABSTRACT

The purpose of this paper is to test the differential urbanization theory for the Turkish case during the 45 years between 1955-2000. The theory is first tested for the country as a whole, and subsequently for each of her three major regions with differing development levels. The findings for Turkey, in general, are consistent with the theory of differential urbanization. She and all her regions are found to be at the "early medium city" stage (i.e., the first phase of "polarization reversal"). In the last period of 1990-2000, there are indications that she is entering the counter-urbanization phase. The timing of the phases and stages in her three regions was consistent with their respective level of development. The special characteristics of the Turkish case and their effects are discussed.

An interesting finding was that in the initial stages of urbanization, such as in 1955-60 period, she experienced the growth of the small size cities instead of large cities which is called in this paper as the pre-concentration phase and reminds one of the Alonso's theory of inverted U-shape.

Key words: Differential urbanization, Turkey, Regional differences, Pre-concentration phase, Alonso

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INTRODUCTION

According to the Population Census of 2000, The Republic of Turkey, as one of the NIC's (Newly Industrialized Countries), she has population of 67.8 million, a 65% urbanization level, and a Gross National Product of approximately 3,000 US$.

In the early 1950's, rural-to-urban migration and urbanization started on a large scale. During the period between 1950 and 2000, the year 1980 can be thought as one of the most significant turning points. The natural population increase rate decreased from 2.4-2.8% to 2.1%. For the first time, the rural population started to decrease. A liberal economy, international trade, an export sector based on manufactured industrial goods, and the financial sector were emphasized. Starting with the 1975-80 period, and more clearly after 1980, regional deconcentration (the "polarization reversal" phase of the differential urbanization theory) was observed. Another striking feature was that suburbanization and ex-urbanization started to take place[1] , and the urban-to-urban flows far surpassed the rural-to-urban flows.

In summary, the level of urbanization increased about three fold from approximately 20% in 1950 to about 60% in 2000. The resultant urban system is rather balanced with intermediate size cities. When measured by the rank-size rule, the coefficient consistently approached -1 with a high degree of linearity (Berry 1961; Kundak et al. 2000).

The purpose of this paper is to test differential urbanization theory for the Turkish case for the 45 years between the eight periods from 1955 to 2000 . Differential urbanization theory proposes consecutive "cycles" of urban development. In each cycle there are the three evolutionary "phases" of urbanization, polarization reversal, and counter urbanization, where the largest net migration and population growth rates are observed in the large-, intermediate-, and small-sized cities. These three phases form "a continuum of development that spans the evolution of urban systems in developed and less developed countries (Geyer and Kontuly 1993, p. 157). Furthermore each phase has two "stages", which are labeled as "early" versus "late". A clean-break is hypothesized to occur after the rates for the small-sized cities exceed those of large-sized cities, which coincide with the late polarization reversal phase. The second cycle begins when rates for large cities start to exceed those of small cities (Geyer and Kontuly 1993, pp. 293-95, 302; Geyer 1996, pp. 313, 317, 325; Kontuly and Dearden 2000).

The position of the Turkish case in the differential urbanization theory is analyzed firstly for all Turkey, and subsequently for each of her three major regions with differing development levels. Special characteristics of the Turkish case and their effects are discussed, which we hope will provide new insights.

DATA

The source of the data is from quinquennial Population "Censuses" taken between 1955 and 2000. In Turkey, there is neither a definition of nor data about "Urban Regions". In this study, the unit of observation is the province centers with a population larger than 125,000[2]. There were 67 provinces in Turkey up until 1985 Census. Subsequently, their number was increased to 73 in 1990 and to 81 in 2000. Mainly because only those province centers with a population larger than 125,000 in 1990 are included in the analyses, the number of observations is reduced to 27[3].

A static definition of the grouping of urban centers is carried out using population sizes from the 1990 Population Census. Dynamic definitions and/or the criteria of grouping the cities according to their population in the starting year of 1955 are not applied. This is because of the fact that in the early Censuses, the population sizes of the province centers are found to be very small. For example, in 1955 Census when the level of urbanization was only 20%, all but six of the province centers have a population less than 100,000 people, and those with more than 500,000 people are only two in number. The total number of urban centers would be only five, with zero or one urban center in each size category. This would be unacceptably low for a test of differential urbanization theory and to make any generalizations.

The definition of the population size groups for the province centers are partly based on the consensus of the various government organizations of Turkey[4]. Furthermore, our analysis of the population sizes clearly indicated cut-off points of 500,000, 250,000, and 125,000. Thus, we have three size categories: the "large" size which is larger than 500,000 (n=7), "medium" size as between 250,000 and 500,000 (n=7), and "small" size as between 125,000 and 250,000 (n=13) (Table 1). Alternative analysis was carried out when the "large-sized" category is disaggregated into "large metropolises" (over one million population) and "smaller metropolises" (between 500,000 and one million) (Table 2).

In the 1990 Population Census of Turkey, "large" sized urban centers (above 500,000) are seven in number. Among the largest is the Istanbul Metropolitan Area, and had a population of 8.2 million in 1990. Ankara M.M., Izmir M.A., Adana M.A., Bursa M.M., Gaziantep M.M., and Konya M.M follow her in size. Istanbul, Ankara, Izmir, and Adana are in the "large metropolises"; and Bursa, Gaziantep, and Konya are in the "smaller metropolises" category (see Table 2).

To counter the data problems in some of the M.M.'s[5] and the potential problem of excluding the growth of suburban areas, three out of seven "large" urban centers (i.e., with a populations larger than 500,000) are defined in terms of metropolitan areas (M.A.) instead of metropolitan municipalities (M.M.) as stated in the Population Census: (1) Istanbul M.A. as the combination of the Istanbul and Kocaeli provinces; (2) Izmir M.A. as Izmir province; and (3) Adana M.A. as the sum of the Adana M.M. and the Icel provincial center. The period after which this change is made in our analysis starts with 1975-80 for Istanbul and Izmir and with 1955 for Adana. The criteria established was according to when the rates of the peripheral areas surpassed those of the M.M.

The medium size urban centers (Antalya, Diyarbakir, Erzurum, Eskisehir, Kayseri, Malatya, Samsun, and S.Urfa); and the small urban centers (Balikesir, Denizli, Elazig, Hatay, K.Maras, Kirikkale, Kutahya, Manisa, Sakarya, Sivas, Trabzon, Van) are scattered throuout the country.

ANALYSIS

The analysis is carried out first in terms of the three main "phases" of the differential urbanization model, i.e. concentration, polarization reversal, and counter urbanization. Subsequently the six respective "stages" are discussed. Furthermore, due to large inter-regional differences, the country is broadly divided into three regions. The national averages (n=27) are similar only to the Central and Black Sea regions (n=10), as these regions have a relatively medium level of development. The other two regions, i.e., the West (n=11), and the East and Southeast regions (n=6), represent the most developed and least developed regions of the country, respectively. Consequently, these two regions exhibit very different trends from each other. The Western region is considered, in this study, as the "urban sub-system" of Turkey. Because of the small sample size, the findings for the individual regions should be considered with caution.

The growth rates for each population size group in each period are calculated as "unweighted" averages of the annual population growth rate of the individual urban centers.

According to the differential urbanization model, the sequence of evolutionary three phases is the following: urbanization, polarization reversal, and counter urbanization. In other words, in an evolutionary sequence, the large urban centers, and subsequently, the medium, and then small size urban centers have the largest rates (Figures 2.a.1-3). If this sequence is represented in an abstract graphical form, the trend is linear and shows a negative slope (Figure 2.a.4). In the above figure, the horizontal axis is the three "evolutionary" phases shown in sequence. The vertical axis is the population size of the cities. The points on the scattergram show which population size category of cities have maximum rates in each of the three different phases. Firstly, we see that in general Turkey followed the expected trend, including the last phase of the counter urbanization, where the small urban centers would have the largest rates (Table 1; Figures 1, 2.b.2-4, 3b-c). Thus, she has completed the first cycle of urbanization.

There was a significant difference between differential urbanization theory and our findings in Turkey concerning the first phase. In the initial phase of "pre-concentration" (1955-60), we see similar trend as in the "early small city" stage (1st phase of counter urbanization). Here we see that the small cities are followed by the "medium" urban centers (Table 1; Figures 3.a.i, 4). In other words, during the "initial" years of urbanization from 1955 to 1960, the "small" urban centers (with populations between 125,000 and 250,000) had the largest population growth rates --instead of the "large" urban centers as is postulated in the theory (Table 1; Figures 1, 2.b.1, 3a, 4). We may ask does Alonso's theory hold true if the set of cities in each category would differ in each period (i.e., a dynamic definition). Our analysis with dynamic categorization showed similar results (Figure 5). The growth rates in the early period of 1955-60 had a negative slope
(R2=0.659, alpha=0,05), where the smallest cities had the largest rates (pre-concentration phase)—which was followed by positive slope (urbanization), and non-linear slope (polarization reversal).

Consequently, we can say that the trend of city growth during the three phases, does not exhibit linearity with a negative slope, as is the case in the previous figure for

differential urbanization theory (Figure 2.a.4). In fact, it shows an inverted-U shape or a bell shape (Figure 2.b.5).

Starting with 1975-80 or more clearly after 1980, the medium-sized urban centers which have the largest growth rates among the three size categories, are dispersed throughout the country: Eskişehir and Antalya in the West; Kayseri, Malatya, and Samsun in the Central Anatolia and the Black Sea, and Erzurum, Diyarbakır and Urfa in the East and Southeast regions. Furthermore, none of them are near any of the large metropolitan areas. Therefore, in Turkey we can speak about "inter-regional" deconcentration, and polarization dispersal.

During the last period of 1990-2000, although the growth rate of the small urban centers is largest, there is very slight difference in the rates between the three categories. Thus we may consider the last period as transition phase between the polarization reversal and the counter urbanization.

However, when the "large" category is disaggregated into "large metropolises" (over one million) and "smaller metropolises" (between 500,000 and one million), i.e., a total of four categories, the pattern was different from the pattern shown when all urban centers (with larger than 500,000) were simply classified as "large"—except the 1955-60 period where largest growth was still observed in the small cities (see Table 2). In the case of four categories, the "urbanization" phase persisted from 1960 all the way up to 2000. On the other hand, it is interesting to note that the "smaller metropolises" category (of size between 500,000 and one million population) which includes Bursa, Konya, and Gaziantep, except for one period (1970-75), always had higher rates than the "large metropolitan " category which includes Istanbul, Ankara, Izmir, and Adana. This finding indicates the importance of criteria for categorization of urban centers according to population size and the process of labeling these categories.

EXPLANATIONS

In 1955-60 period, we hypothesize that in this "initial" state of "urbanization", when education, information level about opportunities in the destination, and the transportation and communication facilities, etc. were of a relatively low level, migration to urban centers was of a rural-to-urban and intra-provincial in nature [6]. Therefore, it is most probable that during 1955-60, with significant intra-provincial rural-to-urban migration, small local province centers attracted migrants from their own

province, and consequently had the largest growth rates during these beginning years of urbanization. The other reason might be the relatively balanced distribution of urban destinations in Turkey (Gedik 1996, p. 13; Rivkin 1965, pp. 78-79, 94, 96).

This finding indicates the possibility that we may need to revise the differential urbanization theory in such a way that the initial phase is not "urbanization" when the highest growth rates are observed in the "large" urban centers; but, on the contrary, it is, as it is called in this paper, a "pre-concentration" phase when the rates of the "small" urban centers surpasses those of all other population size categories (Tables 1-2; Figures 1, 3a, 4). This fact should be given due consideration before we generalize our findings to other countries.

The above stated findings in the Turkish case are consistent with other theories that explain changes through time in terms of an inverted-U shape or a bell shape. For example, according to Alonso, bell-shaped curves represent paths of development for "(1) development stages, (2) social inequality, (3) regional inequality, (4) geographical concentration, and (5) demographic transition" (Alonso 1980, p.5). According to Alonso's hypothesis, the initial and the last phase are similar to each other, but are different in terms of the factors behind the seemingly similar phenomenon. It would be worthwhile to pursue further analyses and verify whether we can represent differential urbanization theory in a similar manner.

The time span for the "pre-concentration" phase lasted in each region according to its level of the development. For example, it lasted for two periods in the least developed region, i.e., the East and Southeast, whereas it lasted for only one period in the other regions of Turkey.

The "pre-concentration" phase is followed by the "urbanization", and by the "polarization reversal" phases in sequence. The "polarization reversal" phase took place in Turkey in 1975-80 (Table 1; Figure 1). Although the growth rates of urban centers in each size category decreased throughout 1955-2000[7], it was more profound in 1975-2000 than between 1955-75 (Figure 4). The decrease in the rates of the large urban centers was larger than the respective decrease in the middle sized urban centers [8]. The relatively lower decrease in the rates for the medium size urban centers--and the resultant polarization reversal phase-- might be due to different reasons in different regions.

For example, in West and Central Turkey, the reasons might be because of increased local entrepreneurship and indigenous industrial development (e.g., in Eskisehir, Kayseri, Malatya, and Samsun), and the increased importance of international tourism in the sun-belt region (e.g., Antalya). On the other hand, it might be largely due to explicit government policies and projects and/or particular circumstances as in East and Southeast Turkey e.g., in Erzurum, Diyarbakir, and S.Urfa).

There was clearly a parallel between the timing of deconcentration towards the medium size category of urban centers, and the development level of regions. Central Turkey and the Black Sea region, with average levels of development, showed polarization reversal in 1975-80, i.e., at the same time as Turkey as a whole . The Western region, the urban sub-system of Turkey, "lead" the national trend and polarization reversal took place as early as 1960-65 or more clearly in 1965-70 . On the other hand, East and Southeast Turkey "lagged" behind the national trend, and polarization reversal was evident in 1980-85 .

CONCLUSIONS

In general, the findings for Turkey, between 1955-2000, are consistent with the theory of differential urbanization. The phases of "urbanization", and later "polarization reversal" took place in sequence. Turkey entered the phase of "polarization reversal" in 1975-80. Turkey and all her three regions, are in the 1st phase of polarization reversal, which we may call the "early medium city" stage –where medium sized urban centers show the largest growth rates, followed by the "large" and then the small cities (Table 1; Figures 1, 3c, 4). The last period of 1990-2000can be considered as the transitional period between polarization reversal and counter urbanization.

Although the evolutionary phases were experienced in sequence, some stages were skipped. Furthermore, an interesting finding was that in the initial stage of urbanization (such as during 1955-60), when rural-to-urban and intra-provincial migration was significant, the first stage was one in which the growth rate of "small" cities was the largest. Thus it might be necessary to revise the first cycle of differential urbanization theory to include four phases, such as "pre-concentration", "urbanization", "polarization reversal" and "counter urbanization", where the largest growth rates would be for the small, large, medium, and small cities, respectively (Table 1; Figures 1, 2.b.5, 4). This

finding is similar to the findings in Alonso that explain various changes through time in terms of an inverted-U shape or a bell shape where the initial and the last phases are similar to one other (Alonso, 1980). The time period when "polarization reversal" took place, the factors behind it, the sequence of stages, and the time span for the "pre-concentration" phase was consistent with the development level of each region.

Because of the problems of data accuracy, the findings presented in this paper should be taken as indicators of the trends. Secondly, before the findings in Turkey are generalized to other developing countries, further analyses should be carried out while keeping in mind the particular characteristics of the Turkish case.

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ENDNOTES

1. For example, Izmit province center (p.c.) grew faster than Istanbul M.M.
2. Initially the minimum size was considered to be 50,000, and thus the minimum population size category ("very small") was 50,000-125,000. However, the subsequent analyses showed that this category mostly had the smallest rates throughout the periods, and thus was excluded from the study. Another consideration was, at the absence of "urban regions" in Turkey, it is thought that the population of 125,000, as the bottom line would be optimum in terms of the comparability with the sizes of the "urban regions" in the most of the developed countries.
3. Batman province center is excluded because of her erratic and exceptional growth. Hatay province center is included because her population was over 124 million, which was very close to the 125,000 threshold, and there was a gap with the next province center that had 117 million population.
4. Such as SPO (State Planning Organization), and SIS (State Institute of Statistics).
5. Unfortunately, due to political interests especially just before the election time, boundaries of provinces, Metropolitan Municipalities, and various settlements drastically change. Old units are divided and new units are created. This becomes problematic for the empirical analysis, especially because these changes are not

recorded in detail. For example, there is no record about the definition of boundaries of the Metropolitan Municipalities before the 1980 Census.

6. In Turkey, even as late as the period of 1965-70, the percentage of intra-provincial village-to-province-center migration was 76% (Gedik 1977, pp. 85,88, 177).

7. This might be partly due to the decrease in the fertility rates, and the consequent decrease in the percentage of the young and mobile ages that make up the pool of supply of the potential migrants. The other reason might be the decreased age specific mobility rates after a certain level of urbanization-- due to the increased supply of the agricultural land in the rural areas in one hand; and the bottleneck in the absorption capacity of the urban centers in the developing countries, on the other hand.

8. The average rates before versus after 1975, for large, medium, and small size urban centers are as follows, respectively, where the values in the parentheses correspond to the values when 1990-97 period is excluded: 0.050 vs. 0.039 (0.043); 0.050 vs. 0.044 (0.047); and 0.051 vs. 0.031 (0.033). Among the large urban centers, the largest decrease in the rates was for Ankara M.M. For example, the growth rate of Ankara M.M. during the periods 1955-60 and 1970-75 ranged as high as between 0.062 and 0.073. But beginning with the 1975-80 period, the rates for Ankara M.M. decreased to low levels (such as between 0.020 and 0.035).

9. GAP (Southeast Anatolian Project) was initialized in 1977, and the GAP Master Plan was prepared in 1988-89. It is envisioned to be completed in 2010. The main emphasis is to develop the region through “water” works for electricity and irrigation; agricultural development and agro-industries; and sustainable human development. It encompasses about 10% of the area and population of Turkey, and includes nine provinces. The project has 22 dams, and 19 hydroelectric centers. The irrigation project targets 1.7 million hectares of land (T.C.B.GAP B.K.I. Baskanligi 2001, pp. 8- 22).

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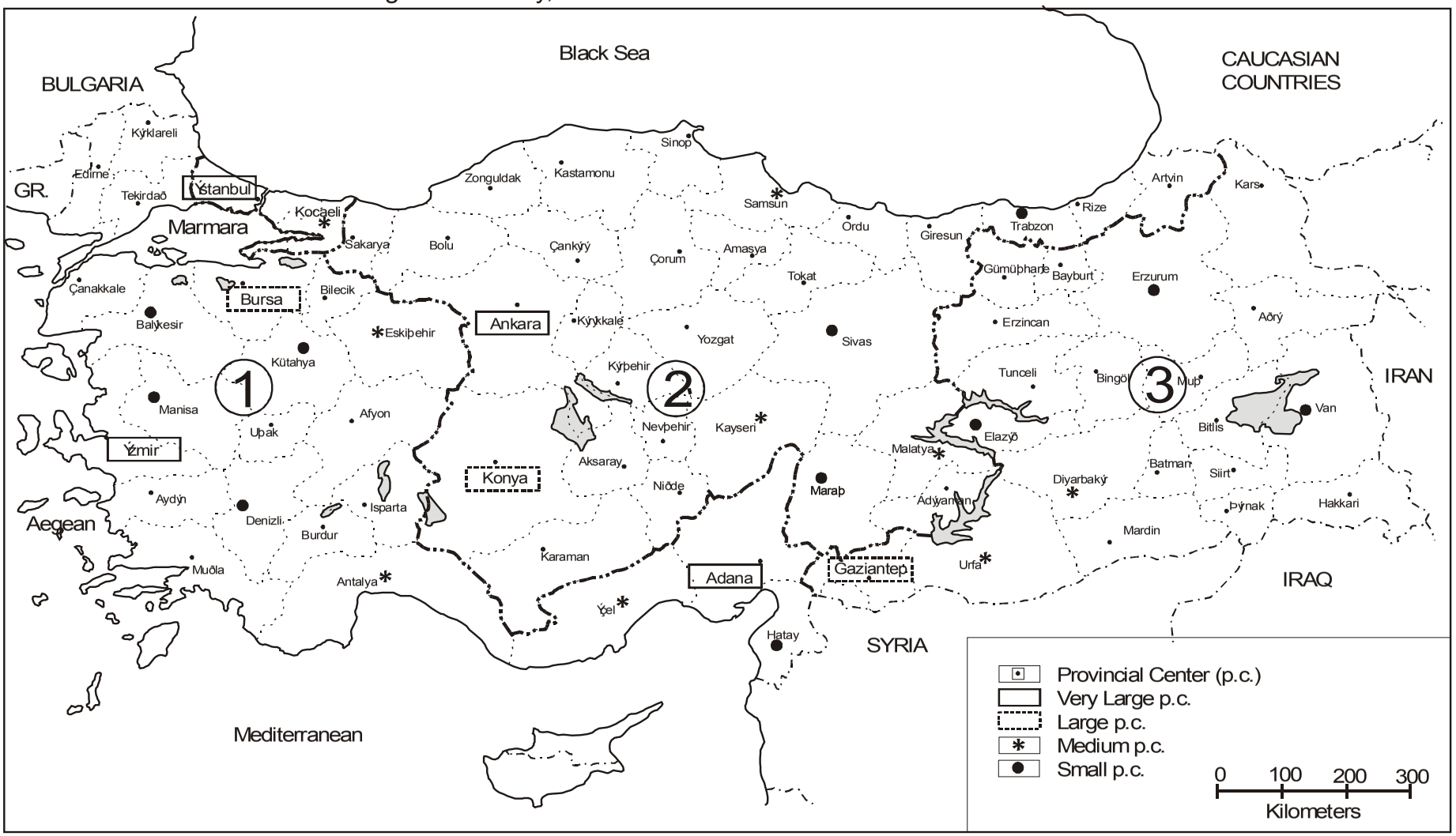


Notes: 1: West Turkey; 2: Central and Black Sea Region; 3: East and Southwest Turkey.

Table 1. Rates of population growth (average annual): Turkey 1955-2000
Source: SIS (1991, 2003).

Period	Large Urb. Cntr.[1] (n=7)	**Medium Urb. Cntr.**[2] (n=7)	Small Urb. Cntr.[3] (n=13)	Large Urb. Cntr.[1] (n=7)	**Medium Urb. Cntr.**[2] (n=7)	Small Urb. Cntr.[3] (n=13)
55-60	0,051	0,055	**0,064**	0,051	0,055	**0,064**
60-65	**0,052**	0,044	0,041	**0,053**	0,050	0,050
65-70	**0,054**	**0,054**	0,050			
70-75	**0,051**	0,047	0,042	**0,047**	0,045	0,041
75-80	0,042	**0,043**	0,040			
80-85	0,049	**0,054**	0,041	0,045	**0,050**	0,031
85-90	0,040	**0,045**	0,033			
90-20	0,029	0,030	**0,032**	0,029	0,030	**0,032**

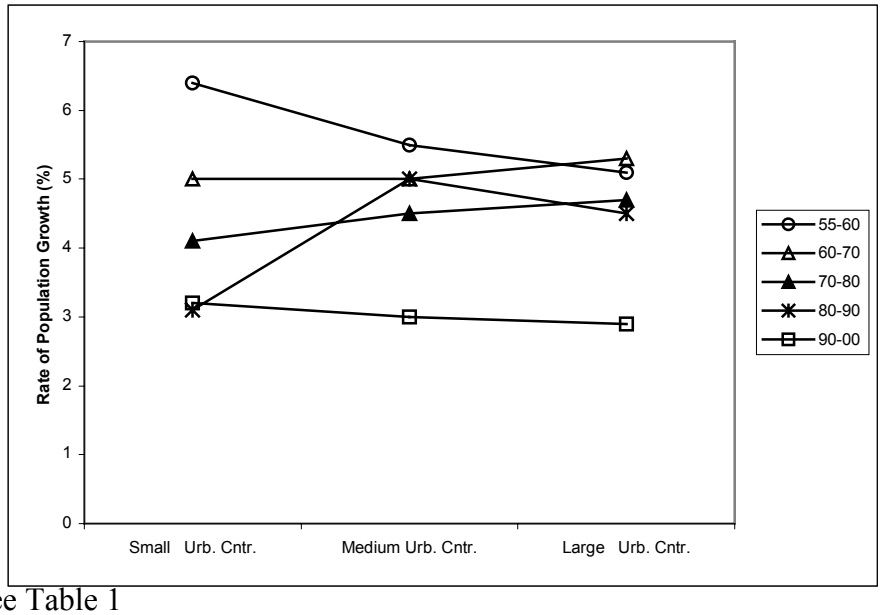
Notes: (1) Larger than 500,000 in 1990 Pop. Census; (2) Between 250,000-500,000; (3) Between 125,000-250,000.

Table 2. Rates of population growth (average annual): Turkey 1955-2000
Source: SIS (1991, 2003).

Period	Large Metrop.[1] (n=4)	Smaller Metrop.[2] (n=3)	**Med. Urb. Cntr.**[3] (n=7)	Small Urb. Cntr.[4] (n=13)	Large Metrop.[1] (n=4)	Smaller Metrop.[2] (n=3)	**Med. Urb. Cntr.**[3] (n=7)	Small Urb. Cntr.[4] (n=13)
55-60	0,054	0,046	0,055	**0,064**	0,054	0,046	0,055	**0,064**
60-65	0,049	**0,057**	0,044	0,041	0,048	**0,057**	0,050	0,050
65-70	0,051	**0,057**	0,054	0,050				
70-75	**0,054**	0,048	0,047	0,042	0,045	**0,049**	0,045	0,041
75-80	0,035	**0,051**	0,043	0,040				
80-85	0,043	**0,057**	0,054	0,041	0,040	**0,052**	0,050	0,031
85-90	0,036	**0,047**	0,045	0,033				
90-20	0,024	**0,036**	0,030	0,032	0,024	**0,036**	0,030	0,032

Notes: (1) Larger than 1,000,000; (2) Between 500,000 and 1,000,000; (3) Between 250,000-500,000; (4) Between 125,000-250,000.

Figure 1. Rates of population growth (average annual): Turkey 1955-2000



Source: See Table 1

Figure 2. The three evolutionary phases and the population size categories with largest aveage growth rates.

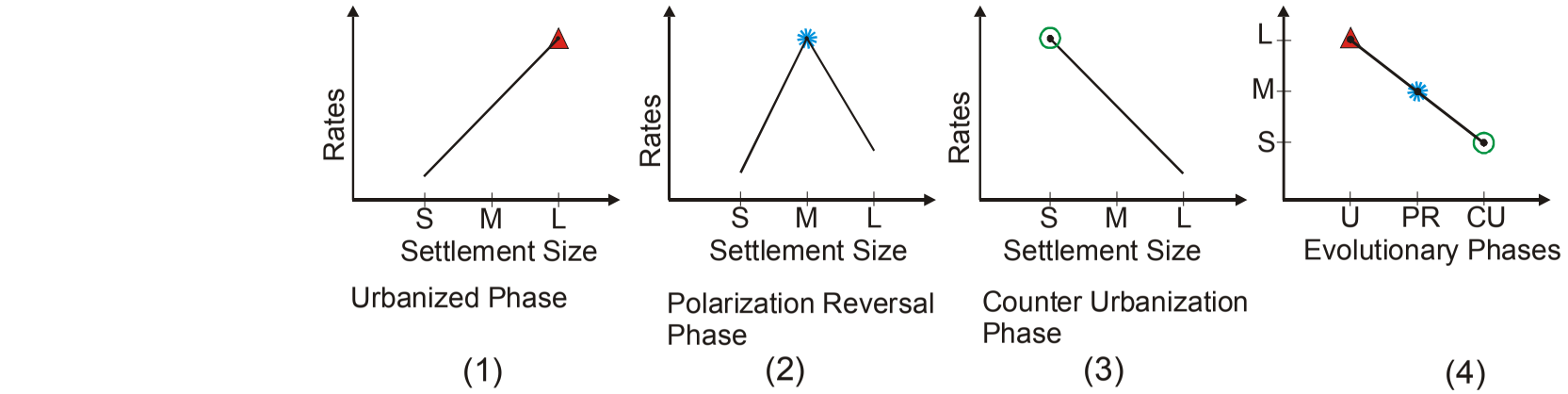


Figure 2a. Differential Urbanization Theory

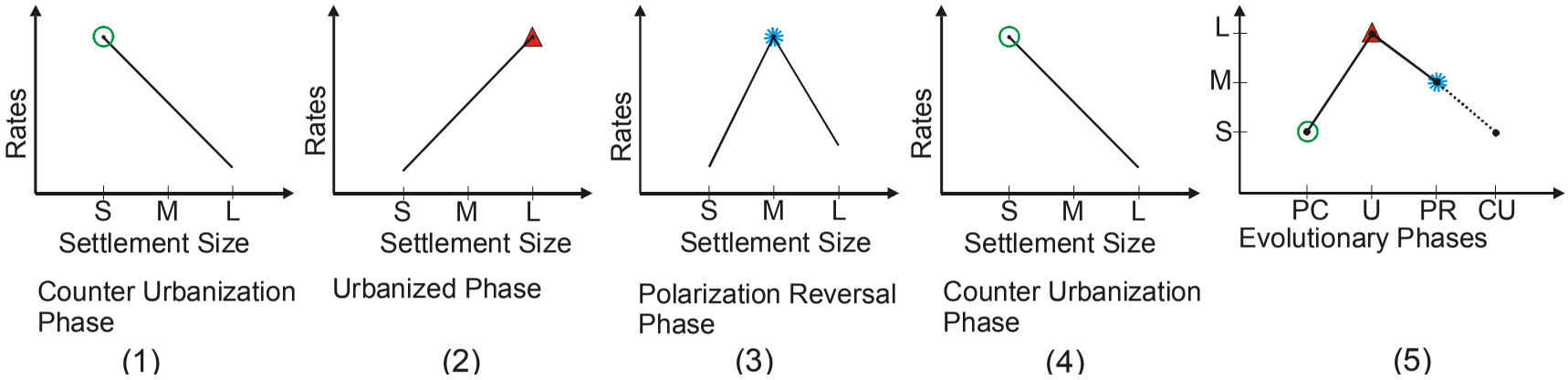


Figure 3. The stages in each evolutionary phase in Turkey.

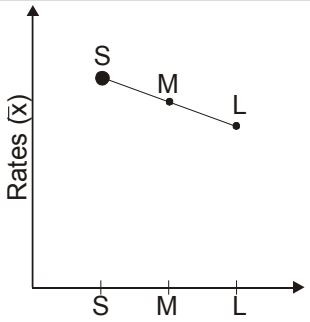


Fig. 3.a.i. E.S.C. (V)
(Early Small City stage, V th stage)

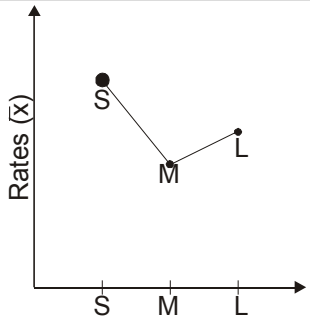


Fig. 3.a.ii. A.S.C. (VI)
(Advanced Small City stage, VI th stage)

Figure 3a. Pre-Concentration Phase

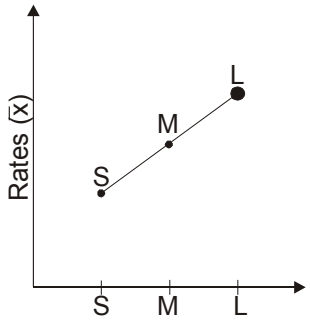


Fig. 3.b.i. A.L.C. (II)
(Advanced Large City stage, II nd stage)

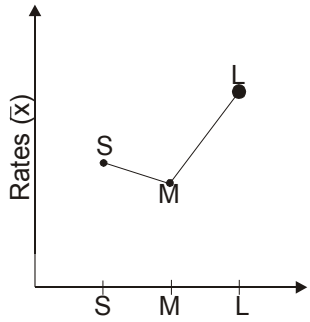


Fig. 3.b.ii. E.L.C. (I)
(Early Large City stage, I st stage)

Figure 3b. Urbanization Phase (Evolutionary Phase 1)

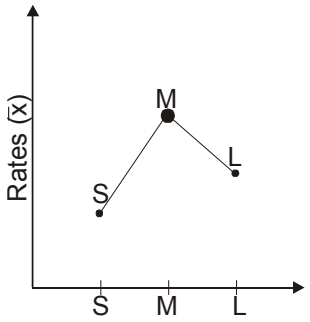
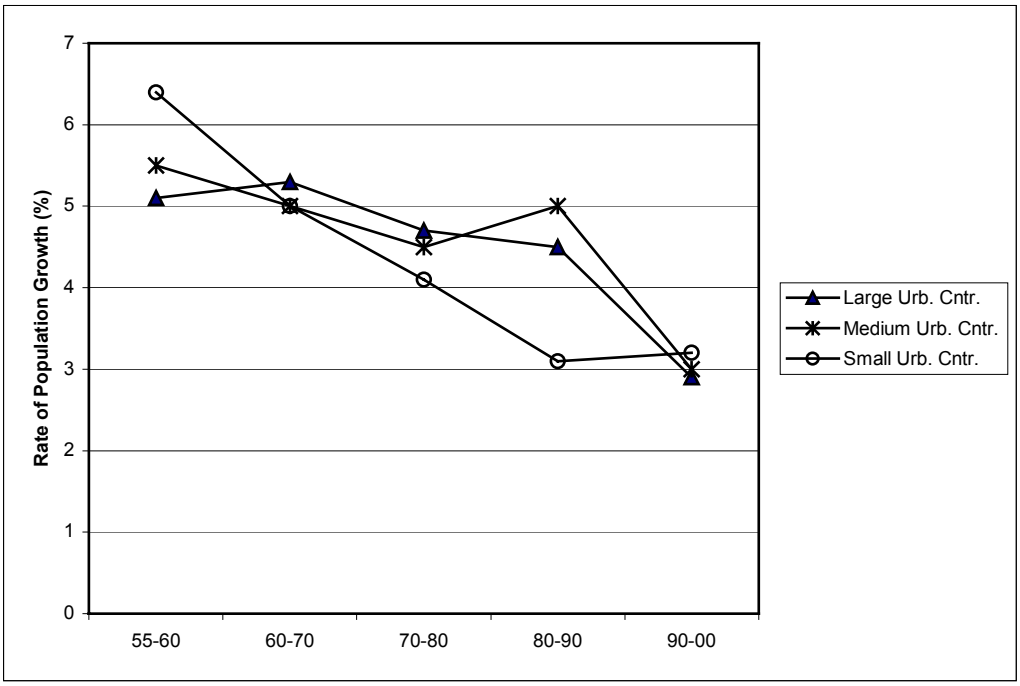


Fig. 3.c.i. E.M.C. (III)
(Early Medium City stage, III rd stage)

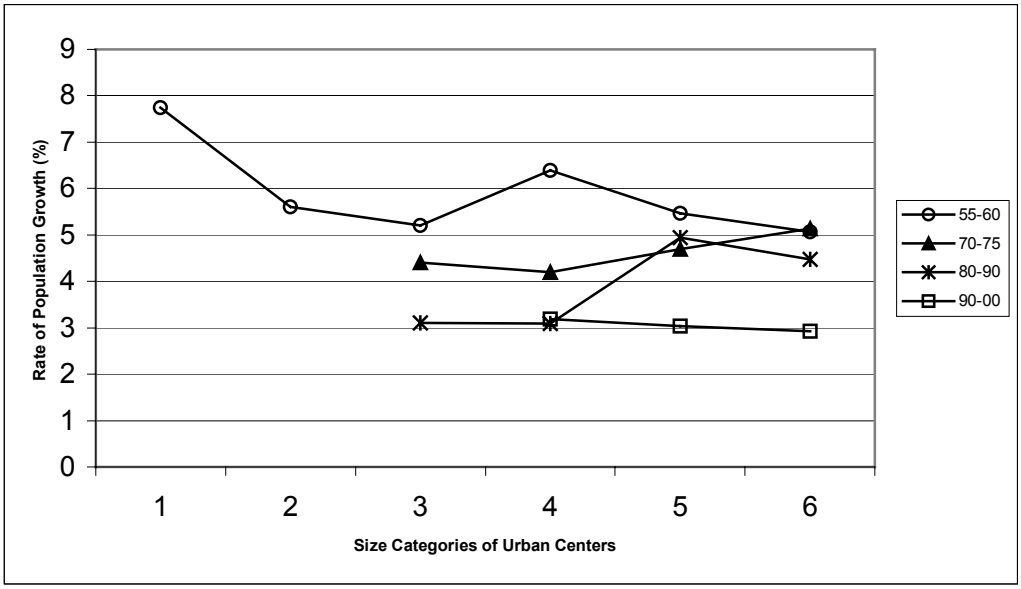
Source: Table 1

Figure 4. Evolutionary phases, population growth rates and size categories of urban centers.



Notes: 55-60: pre-concentration, 60-80: urbanization, 80-90: polarization reversal, 90-00: counter-urbanization
Source: See Table 1

Figure 5. Population growth rates and size categories of urban centers: dynamic definition



Notes: Number in size categories are in terms of population sizes (in 1000's), relevant to all periods: 1, 15.75-31.25; 2, 31.25-62.5; 3, 62.5-125; 4, 125-250; 5, 250-500; 6, 500-1million; 7, over 1 million. Categories 4,5,6 and 7 are small, medium, large and very large, respectively.