

# **Deconcentration, Counter-urbanization, or Trend Reversal? The Population Distribution of Switzerland, Revisited**

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## **ABSTRACT**

This study analyzes trends in the population distribution of Switzerland, with focus on the period 1980-2000. It updates and extends an earlier study (Schaeffer, 1992a). The extensions include analyses of population distribution trends by region and citizenship. Results show that Switzerland experienced deconcentration in the 1970s at the cantonal level, and in the 1980s and 1990s at the district level. The results also show a trend of moving away from large densely populated districts to small, sparsely populated and medium sized districts. There was a strong suburbanization trend starting the 1950s and counter-urbanization during 1980-2000. The core urban areas experienced the slowest growth at the end of the century. Although the foreign permanent resident population increased from 11.6% at the beginning of the century to 20.7% in 2005, its role in shaping the distribution pattern is low.

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## 1. INTRODUCTION

Population distributions are among the most studied issues in the world (e.g., Champion and Hugo, 2004). In response to new demographic developments in the 1980s, first noticed in the United States, which showed that for a while at least, rural areas grew at a faster pace than urban areas, many authors analyzed population distributions in industrialized countries (Champion, 1987, 1990, and 1994; Fielding, 1982 and 1989; Frey, 1988; Frey and Speare, 1992; Jones et al., 1984; Kanaroglou, 1992; Kontuly and Vogelsang, 1988; Kontuly et al., 1984; Kontuly and Braun, 1992; Kontuly and Schon, 1994; Long and Nucci, 1997a and 1997b; and Schaeffer, 1992a). It was not immediately clear if the new development was a reversal of the historic trend from a predominately rural to a predominately urban society, or if it was a case of continued but less concentrated urbanization, or if it was a case of urban decentralization (Meijers, 2008; Schneider and Woodcock, 2008). Any of these developments could have resulted in faster growth in counties (districts, regions) categorized as rural than in urban ones. Bourne (1980) early on commented on the complexity of the theoretical issues involved. Deconcentration and counter-urbanization are sometimes used interchangeably to describe trends in population movement away from large urban centers. Although several authors (Frey, 1988; Schaeffer, 1992a; Mitchell, 2004) defined these two concepts as different population distribution patterns, there is still inconsistency in their use (Mitchell, 2004).

In recent years, the questions have changed somewhat, as there is little evidence of a trend reversal. Nevertheless, the spatial distribution of populations continues to attract attention, such as in a study of the Netherlands (Bontje, 2001), China's Pearl River Delta (Lin, 2001), Beijing metropolitan region (Feng, Wang, and Zhou, 2009), Latin America (Lattes, 1998), and the United States (Henrie and Plane, 2006). The increased attention paid to emerging economies such as China, India, and Brazil resulted from the dramatic economic changes in these countries,

which have led to significant population redistributions from rural to urbanized areas. Changes on a large scale are both the result of, and have consequences for, a country's economic, social, cultural, and environmental development.

This research takes a look at Switzerland, a country that has been economically strong and stable, and whose population has been growing at a slow pace. The overall stability hides several important changes, however, namely the effects of an aging population and of a different immigrant population than in the past. The differences in the foreign-born<sup>1</sup> population, which accounts for more than 20 percent of the total population, are only partially the more diverse set of origin countries than in the past. Maybe more important are changes between 1950 and 2000 in the relative distribution of foreign residents with permanent versus those with annually renewable visas and work permits (OECD, 2008), because, unlike permanent visas, annual visas usually come with location and employment constraints. In addition, as in other advanced economies, there have been changes in the make-up of industries, with employment in services growing and declining in manufacturing. An earlier study by Schaeffer (1992a) ended with the year 1980, when these changes were still at an early stage of development.

Switzerland is also an interesting case study because of its terrain, which consists of the pre-alpine region (Swiss Plateau), where most of the population is concentrated, and the mountainous alpine and Jura regions. Most settlements in the latter two regions are considerably less accessible than those in the former, which obviously affects settlement and industrial location patterns. Resulting regional policy concerns are explained in OECD (1991). At least three border regions—Basel (Germany and France), Geneva (France), and the southern part of the

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<sup>1</sup> The immigrant population is smaller than the foreign-born population because the latter includes individuals born in Switzerland. Unlike the United States and many other countries, Switzerland does not automatically award citizenship to those born within its territory.

Canton of Tessin (Italy)—have an economic and population dynamic that is influenced by the presence of a large number of daily border-crossers and, in the case of Basel and Tessin, the proximity of large cities nearby in the neighboring country.

Swiss Federal Planning Law (1979) has as one its goals the promotion of a “reasonably” decentralized population and economy (Article 1.c<sup>2</sup>). In addition to efficiency concerns—when towns decline infrastructure is often left underutilized—this goal also has a political dimension. In a multiethnic federal country, large population shifts from one language region to another or from traditionally agrarian to long-established urban societies could threaten political balance and peace. The Swiss federal government has therefore designed programs to help lagging areas. One example was the Swiss Federal Law on Investment Aid in Mountain Regions (revised 1997) (Swiss Federal Government, 1974/1997) which provides assistance for infrastructure investments in Swiss mountain regions. A new law on regional policy replaced it in 2006 and broadened the geographic coverage of the law by abandoning the exclusive focus on mountain regions. It focuses more generally on regional competitiveness and includes provisions for cross-border cooperative efforts (Swiss Federal Council, 2005; Swiss Federal Government, 2006). Flückiger, Frey, and Gmünder (2001) provide additional detail concerning challenges and changes in land use planning and regional policy in Switzerland at the advent of the new century.

Although this research builds on Schaeffer (1992a) and therefore highlights changes between 1970 and 2000, we include information dating back to 1900 to track changes that first came with continued industrialization and urbanization, as well as changes caused by large infrastructure investments, such as the construction of a series of alpine train and automobile

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<sup>2</sup> The federal, cantonal, and local governments support efforts ....to promote the social, economic, and cultural life in the different regions of the country and to achieve a reasonable (angemessene, could also be translated as “appropriate”) decentralization of population and economy. (Summarized and translated by authors)

tunnels, and the development of a national highway system (Autobahn). This study will assess whether the population distribution trend of the 1970s continued until the end of the 20<sup>th</sup> century. Specifically, we will answer the following questions: (1) Is Switzerland's population concentrating or deconcentrating? (2) What are the effects of regional differences? (3) Is there any trend toward counter-urbanization? And, finally: (4) Is there any indication of trend reversal?

The remainder of this article is organized into four sections. In the next section we will introduce the measures of population distribution patterns used in this research. Section 3 describes the data. Results are presented in Section 4. Section 5 concludes the article with a summary and discussion of findings.

## 2. MEASURES OF POPULATION DISTRIBUTION PATTERNS

### 2.1. Deconcentration

Deconcentration is defined as slower population growth in areas with above average density than in areas with below average density. The standard measure used in the literature is the Hoover index ( $H_{it}$ ).

$$(1) \quad H_{it} = \frac{1}{2} \sum_{i=1}^N |P_{it} - A_i| 100$$

$N$  is the number of regions that completely cover the country and are mutually exclusive. The variables  $P_{it}$  represent the proportion of the country's population residing in region  $i$  at time  $t$ , and  $A_i$  is the proportion of the country's area covered by region  $i$ . The index is 0 if, in every region  $i$ , the shares of the country's population and of the country's territory are identical (perfect deconcentration). The measure approaches 100 if everyone lives in just one area which is small in size (perfect concentration). Thus, high values of  $H_{it}$  indicate a very uneven

population distribution, and vice versa. Clearly, the choice of geographic unit of analysis affects the value of  $H_{it}$ , as the index is 0 if the unit of analysis is the whole country.

One of the extensions by Long and Nucci (1997) is to calculate separate indexes for the sub-regions of the United States, in addition to the national index. This allows checking for the existence of different patterns in different regions. In a multi-cultural federal county like Switzerland, the nature of change in the population distribution among different regions is of great interest as Swiss cantons vary by official language, cultures, geographic features, economic structure, and degree of urbanization. All these characteristics may have some impact on migration patterns and should therefore be taken into account.

## **2.2. Counter-urbanization**

Counter-urbanization is the reversal of the long trend towards more and larger urban settlements. It is a process of settlement system change. Counter-urbanization is thus seen as occurring when population growth in areas with small populations exceeds that in large population centers (Dean et al., 1984). This definition is compatible with that proposed by Champion (1994) and Fielding (1982). The relationship between the size of a settlement or region and net migration has also been employed in the literature (Fielding, 1982; Kontuly and Vogelsang, 1988; Kanaroglou and Braun, 1992). In this study, we use the relationship between population density and growth per square kilometer ( $km^2$ ).

## **2.3. Trend Reversal**

Trend reversal exists if the population distribution becomes more similar to that of the past. Therefore, we compare the percent of a country's population living in a region,  $i$ , in base year, 0, and in an ending year,  $t$ . We use the average of the absolute differences by region as our measure,  $TR_{0,t}$ . Trend reversal exists if  $TR_{0,t}$  declines.

$$(2) \quad TR_{0,t} = \sum_{i=1}^N \frac{1}{N} \left| \frac{\text{Population in region } i \text{ in base year}(0)}{\text{Population in Switzerland in base year}(0)} \right| \left| \frac{\text{Population in region } i \text{ in year}(t)}{\text{Population in Switzerland in year}(t)} \right|$$

As before,  $N$  stands for the number of regions. It is worth noting that, given Switzerland's rural past, trend reversal implies counter-urbanization, but that the reverse is not true.

### 3. DATA

The population data used in our study are from the decennial censuses of Switzerland from 1900 to 2000 [Swiss Federal Office of Statistics/Bundesamt für Statistik, various years<sup>3</sup>]. The war-time census of 1940 was delayed and taken in 1941. Population figures after 2000 are available, but they are based on a different procedure than that used in the census. Although we do not expect large discrepancies, we judge the potential for error large enough not to use the newer data. Thus, the focus of the analysis is the period 1970-2000. This study builds on Schaeffer's (1992a) research and checks if trends he identified—deconcentration and minor counter-urbanization in the 1970s—continued between 1970 and 2000. We also take a look at the influence of the foreign-born on the population distribution.

The geographic subdivisions used in our analysis are the cantons (26) and districts (175), respectively. Cantons are the functional equivalent of states, though they have the territorial size of counties, and the districts' functions are comparable to those of a county in the United States, though with less power.<sup>4</sup> The change in population in cities with more than 30,000 residents is

<sup>3</sup> The Swiss Federal Office of Statistics grants access to the data via the World Wide Web for a fee of approximately \$50/year.

<sup>4</sup> Swiss communities occupy a much stronger political position than counties. Communities cover all of Switzerland. Unlike in the United States, there are no unincorporated areas where the county is the prime provider of local public services. Hence, Swiss districts play a very limited role.

assessed to supplement the district level analysis. We grouped the 175 Swiss districts into the seven main regions<sup>5</sup>, as defined by the Swiss Federal Office of Statistics. This permits the comparison of regional concentration/deconcentration during the study period.

More than 70 percent of Switzerland is covered by the Alps in the central and southern regions, and the Jura mountains along its western border with France. The Swiss Plateau is a hilly pre-alpine basin that stretches from Geneva in the southwest across most of northern and central Switzerland, to Lake Constance in the northeast. Most of Switzerland's large towns are located on this plateau. The country's population is very unevenly distributed, with nearly 90 percent living on the Swiss Plateau. An estimated 70 percent of the population is classified as urban, but most people live in small towns. There are only 17 cities with a population of at least 30,000. The country's total population in 2000 was 7,204,100, of which 5,779,700 were Swiss citizens and 1,424,400 were foreign nationals. Thus, Switzerland hosts a large and growing foreign-born population: 16.7% in 1990, 19.2% in 2000, and 20.7% in 2005.

The rate of natural population growth in Switzerland is low, as in most of Europe. Thus, net international migration is the major growth engine, even more so if we also consider children born to foreign residents. The immigrant population grew from 11% in 1900 to 20.7% in 2005. The majority of immigrants are from European countries. Traditionally they came mainly from Italy and later also from Spain, but the fall of the Iron Curtain also brought an increasing number of immigrants from Eastern Europe, particularly the countries that formed the former Socialist

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<sup>5</sup> The regions are:

1. Lake Geneva Region: Geneva, Vaud, Valais, regional cities: Geneva and Lausanne
2. Espace Mittelland: Bern, Jura, Neuachatel, Fribourg, Solothurn; regional city: Bern
3. Northwestern Switzerland: Basel-City, Basel-Country, Aargau; regional city: Basel-City
4. Zurich: (Canton of) Zurich; regional city: Zurich
5. Eastern Switzerland: St. Gall, Glarus, Schaffhausen, Appenzell I.R., Appenzell A.R., Grisons, and Thurgau; regional city: St. Gall
6. Central Switzerland: Zug, Lucerne, Uri, Schwyz, Obwalden, and Nidwalden, regional city: Lucerne
7. Ticino: Canton of Tessin; regional city: Lugano



Republic of Yugoslavia. In the most recent years, German immigration has grown to where Germans are the largest single group of immigrants in several regions. These groups of immigrants are culturally close to the native population. In the case of Austrians, Germans, Italians, and the French, they already speak one of the four national languages. Language affinity affects location patterns of immigrants. For example, the vast majority of Portuguese immigrants settled in the French speaking part of Switzerland. Immigration from outside Europe has also been increasing. There are no obvious reasons to assume that the distribution pattern of immigrants follows the same pattern as that of the native Swiss. Therefore, the Hoover Index for Swiss citizens and immigrant permanent residents is calculated separately and compared at the cantonal level.

Switzerland is 41,293 km<sup>2</sup> (15,734 sq. miles) in size. However, in this study we will use only the 31,995 km<sup>2</sup> of land area. The average size of a canton is 1,588 km<sup>2</sup> (605 sq. miles). However, there are large differences in size between cantons: the population of Zurich is almost 100 times that of Appenzell Innerrhoden, and Grison has 192 times of the land area of Basel-City. For this study, the Canton of Geneva has been divided into the City of Geneva and the “rest of the canton.” Because the Canton of Geneva is also the District of Geneva, as a result of splitting off the city we have 176 entities at the district level.

## **4. TRENDS IN POPULATION DISTRIBUTIONS**

### **4.1. Deconcentration**

The values of the Hoover Index for cantons show that the concentration of the population of Switzerland increased steadily between 1900 and 1970. During the ten years from 1970 to 1980, however, the Hoover Index decreased and then increased again until 2000. The

contribution of each canton to the changes in the index is a function of its successive differences between its proportion of national population and land share, respectively. Since the share of land was fixed during the study period, the changes are due to growth or decline in the share of national population.

**Table 1. Hoover Index for Cantons, Districts, and Regions, 1900-2000**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	HI all cantons	All Districts	Lake Geneva Region	Espace Mittelland	Northwestern Switzerland	Zurich	Eastern Switzerland	Central Switzerland	Ticino
1900	31.56	41.22	45.67	29.00	28.89	36.84	48.04	30.46	40.38
1910	32.21	42.54	45.75	29.76	31.16	40.20	49.50	31.76	43.01
1920	32.72	43.28	48.14	31.18	31.92	40.75	49.18	32.44	43.26
1930	33.01	44.26	48.00	32.49	33.58	43.97	47.88	33.46	44.09
1941	33.07	44.99	48.43	33.78	34.59	46.23	47.49	33.11	44.58
1950	33.75	46.18	50.25	35.18	35.68	46.58	47.87	33.84	44.00
1960	34.91	48.71	54.15	37.87	37.89	44.16	48.95	35.58	44.53
1970	35.30	50.31	56.36	39.89	38.06	38.56	49.95	37.98	45.78
1980	35.12	50.35	56.50	40.37	36.56	35.83	50.17	38.68	46.84
1990	35.20	49.92	55.52	39.86	34.50	33.70	50.85	39.28	48.28
2000	35.23	49.47	55.14	39.11	32.39	31.96	50.89	39.57	48.53

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office

**Table 2. Cantons and Changes in Hoover Index, 1970-2000**

Overall change in Hoover Index of cantons	1970-80	1980-90	1990-00
	-0.18	0.09	0.028
Change in Hoover Index by canton:	1970-80	1980-90	1990-00
Zürich	-0.02	-0.24	-0.02
Bern	0.13	0.20	0.29
Basel-City	-0.27	-0.15	-0.16
Basel-Country	0.09	-0.03	-0.03
Vaud	0.07	0.22	0.02
Aargau	0.11	0.13	0.06
Geneva	0.10	0.02	0.08
All other cantons	-0.39	-0.06	-0.22

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office

Table 2 shows the contributions of selected cantons to the change of the Hoover index. In the 1970s, the Hoover Index declined by  $-0.18$ , showing a clear indication of deconcentration. During that period, 14 cantons made positive contributions to the change of the Hoover Index and 12 cantons made negative contributions. The most notable negative contribution came from Basel-City, where the national share of the population decreased by 0.54 %, resulting in a contribution of  $-0.27$  to the decrease of the Hoover Index. This canton lost more than 31,000 people while the country was growing at the rate of 1.53%. Bern, Aargau, and Geneva were the major positive contributors to the index, as their share of the national population was increasing. Zurich, the most populous canton (17.64 % of Swiss population in 1980 and 4.15% of the land area) made a small negative contribution. Schaeffer (1992a) noted, “In a small country there is a greater danger that one or a few regions have a disproportionate weight in the calculation of the Hoover index” (p 92). Although in percentages, the population decline of Bern was higher than the decline of Zurich for the entire three decades (Table A1), Bern was able to contribute positively to the index. This indicates the strong influence of Zurich on the index due to the large difference between its population share relative to its share of the land.

In the 1980s and 1990s, the index increased by a small amount, indicating modest renewed concentration. The major contributors in the 1980 were the same as during the 1970s. The contributions of Zurich and Basel-City were negative while Bern, Aargau, and Vaud were the major positive contributors. Geneva made a small positive contribution and the rest of the cantons had a negative impact in the Hoover Index. During the 1990s, of the most populous cantons only Bern continued to make a strong positive contribution. Geneva’s positive contribution, though significantly smaller, had increased close to its contribution during the 1970s, after having dropped to a low 0.02 during the 1980s. The opposite roles as negative and

positive contributors, respectively, during the thirty year period played by the most populous cantons of Zurich, Bern, Vaud, Basel-City, and Geneva makes for an interesting contrast. These cantons contain not only the largest populations, but also major cities that are economic, political, and social centers.

At the district level (Table 1), we find different population patterns than at the cantonal level. The concentration level, as measured by the Hoover Index, is much higher (41.00-50.35 compared to 31.56-35.30). There was minor concentration in the 1970s while there is clear indication of deconcentration in the 1980s and 1990s. This differs from what was happening in many other developed countries. In the United States, for example, the county based Hoover Index decreased in the 1970s, increased in the 1980s and decreased again by a small amount in the 1990s (Long and Nucci, 1997a).

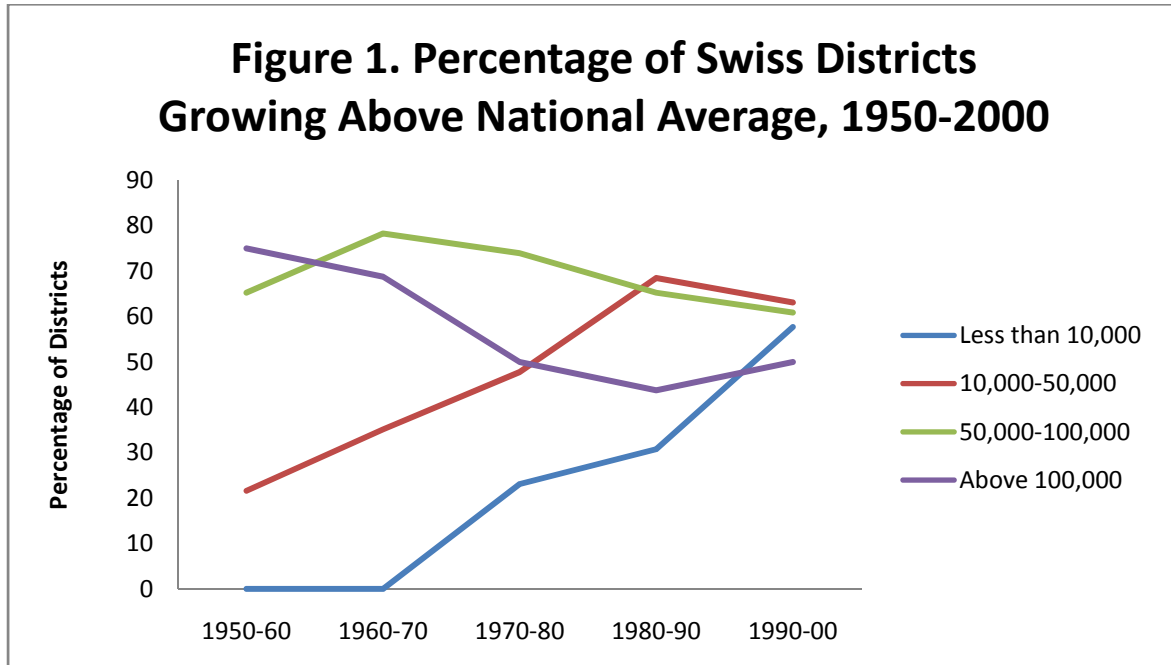


Figure 1 (see also Table A2) illustrates how districts fared when grouped by population size over the 50 year period from 1950 to 2000. The districts are separated into four groups,

depending on their population size in 2000: less than 10,000 (26 districts), 10,000-50,000 (111 districts), 50,000-100,000 (23 districts), above 100,000 (16 districts). In the aggregate, districts with largest populations were growing at a rate above the national average in the 1950s, whereas the smallest districts were growing at the slowest pace. Starting in the 1960s, the number of districts growing above the national average declined continuously until the 1990s, and the relative success of two smallest groups of districts improved significantly. The majority of the sparsely populated districts had started below the national average, but experienced a sharp upward trend after the 1950s, indicating a trend away from large, densely populated districts toward sparsely and medium sized districts. We discern no geographical trend in terms of the big losers during 1970-2000, except that most of the districts that include the big cities like Zurich (-30.3%), Basel-City (-36.2%), and Bern (-20.4%) were among the major losers. The biggest gainers were located in the cantons of Vaud and Zurich (outside the city's political borders). In the district of Geneva, the district as whole grew by 19.00%, while the City of Geneva recorded only 2.5% growth, below the national average of 16.52%.

The regional Hoover Index is presented in Table 1. The regional population concentration/deconcentration trend was not uniform during the 20<sup>th</sup> century. The only uniform pattern observed is the deconcentration during the 1980s and 1990s in the Lake Geneva, Espace Mittelland, Northwestern Switzerland, and Zurich regions. These four regions occupy 40% of the land and are home to 72% (year 2000) of the population. Starting from 1960s, we see population concentration in the regions of Eastern Switzerland, Central Switzerland, and Tessin. In the 1970s, both the regions of Zurich and the Northwestern Switzerland region (Basel-City is the regional center), experienced deconcentration. As discussed above, the national deconcentration during the 1970s was mainly due to the demographic change in these two big regions. The

Central Switzerland region experienced deconcentration once, in the 1930s, as a result of a poor economy that was hit especially hard by the Great Depression. In the Tessin region, which consists of the Canton of Tessin, deconcentration in the 1940s can likely be attributed to the negative impact of World War II on this region. The deconcentration in the 1980s 1990s in the districts can be related to deconcentration in the four big regions of Lake Geneva, Espace Mittelland, Northwestern Switzerland, and Zurich, although some large cities in this region are starting to show signs of renewed population growth, as predicted by Schaeffer (1992b).

**Table 3 Hoover Index by Citizenship**

Year	Total Population	Swiss Citizens	Foreign Nationals
1970	35.18	34.61	44.88
1975	34.97	34.41	44.47
1980	34.89	34.25	45.51
1985	34.77	33.95	44.81
1990	34.74	33.63	44.01
1995	34.81	33.07	42.42
2000	34.97	32.99	43.08
2005	35.12	33.06	43.31

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office

This research also explores the distribution patterns of Swiss and foreign nationals, respectively, for 1970-2005. The immigrant population increased in size from 11.6% at the beginning of last century to 20.7% in 2005. The number of foreign nationals for 2005 is based on actual statistical information, while the information on their distribution by region in that year is based on a forecast by the Swiss Federal Office of Statistics. From 1984-2005, the immigrant population grew at an average annual rate of 2.25%. During this period the average annual growth rate for Swiss citizens was 0.35% (Figure A.1). Thus, immigrants were the driving force of national population growth. The majority of immigrants is of European origins (close to 80%) and lives in the cantons of Zurich, Geneva, Vaud, and Bern.

The Hoover Index for Swiss citizens decreased steadily from 1975 until 2000 (Table 3), indicating deconcentration. In the 21<sup>st</sup> century the trend reversed and the Hoover Index increased. For foreign nationals there is no clear trend. Deconcentration occurred during 1970-1975 and 1980-1995 while concentration was recorded during 1975-1980 and 2000-2005.

The Hoover Index of total population shows much smaller fluctuations than the pieces of each group. This indicates that the foreign population, which increased by 53.90% between 1970 and 2005, did influence the national population distribution pattern, but their influence was much smaller than that of natives, as measured by the respective correlation coefficients of the Hoover Index of each group with the Hoover Index of the total population (0.058 and 0.180, respectively). Of course, their smaller influence of foreign versus Swiss nationals is a reflection of the former's smaller size.

The particular focus of this study is the population pattern between 1970 and 2000. The national index shows deconcentration at the cantonal level in the 1970s, while at the district level deconcentration started a bit later, in the 1980s and 1990s. The regional Hoover Index gives a mixed picture. Major population centers show a pattern of deconcentration during the 1970s, 1980s, and 1990s and sparsely populated regions show a pattern of regional concentration.

## **4.2. Counter-urbanization**

Table 4 and Figure 2 show the correlation between density, and population growth at the cantonal level. The correlation coefficient was strongly positive until the 1970s. At the district level the correlation dropped just below zero in the 1960s already. From 1970 until 2000 it was negative, indicating counter-urbanization. A closer look at the data by canton reveals a clear outlier, however. Basel-City with a population density of over 5,000/km<sup>2</sup> has a disproportionate influence on the correlation coefficient. Between 1970 and 2000 its population density declined

from 6,349.9/km<sup>2</sup> to 5,083.2/km<sup>2</sup>. When we combined Basel-City and Basel-Country (both of them were once one canton and the latter is the “natural hinterland of the former) and recalculated the correlation, the coefficient stayed positive, though it declined in size.

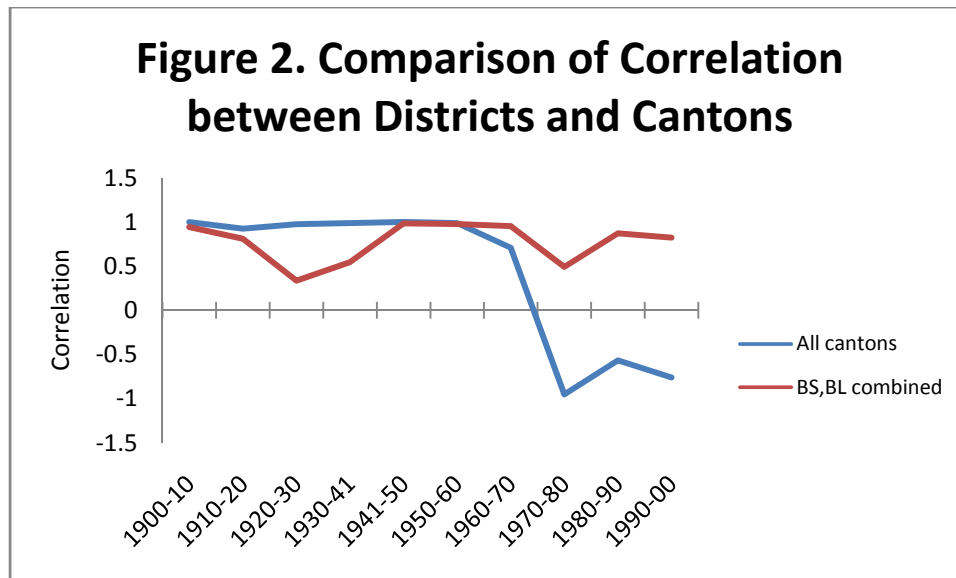
**Table 4 Correlation between Deviation from National Average of Density and Population Growth**

	1900-10	1910-20	1920-30	1930-41	1941-50	1950-60	1960-70	1970-80	1980-90	1990-00
All Cantons	0.998	0.923	0.975	0.987	0.999	0.987	0.707	-0.953	-0.568	-0.762
BS,BL combined	0.943	0.811	0.336	0.546	0.984	0.977	0.953	0.492	0.872	0.824
All districts	0.972	0.935	0.289	0.582	0.991	0.959	-0.0005	-0.919	0.661	0.323
Districts w/o BS and City of Geneva	0.893	0.836	0.805	0.922	0.968	0.854	0.138	-0.730	0.054	-0.084

Source: Calculated from Swiss population data from the Swiss Federal Office for Statistics

At the district level, we found a strong urbanization pattern that lasted until about 1960. Then there were two decades of counter-urbanization before urbanization returned in 1980 through 2000. The urbanization trend was relatively strong during 1989-1990, but decreasing during 1990-2000 (Table 4). In this case, however, there are two outliers. One is once again the Canton of Basel-City (BS) and the other is the City of Geneva. The Canton of Geneva occupies a very small territory and hence the canton also serves as the district. For this study we divided the district/canton into the City of Geneva and the rest of the district/canton. In 1970, the population density of the city was above 10,000/km<sup>2</sup> compared to 687 in the rest of the district. The coefficient was recalculated without Basel-City and the City of Geneva. Even with the deletion of these two outliers, we see a strong counter-urbanization trend during 1970-80, a weak urbanization in 1980-90, and weak counter-urbanization in the 1990-00 period.

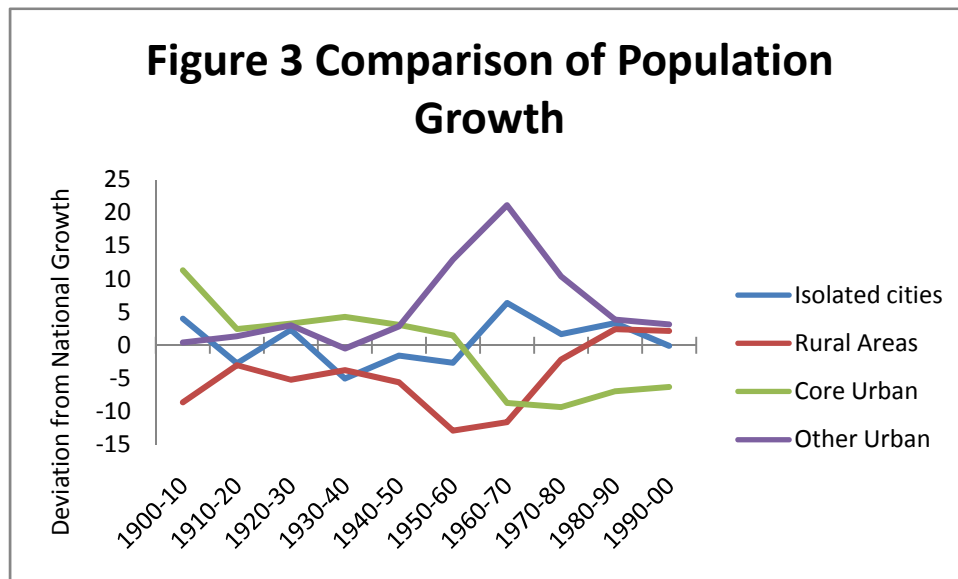




The population loss of in major cities could indicate either counter-urbanization or sub-urbanization, because the losses occurred within the cities’ political boundaries while the economic, social, and cultural influence of these major cities reaches much further. However, the population losses of almost all Swiss cities with a population above 30,000 lost population between 1970 and 2000 add to the evidence for counter-urbanization (appendix, Table A.4). These cities lost a combined total of 184,586 people, most of them (88%) during 1970-80. In other words, the losses were not limited to the largest cities. Geneva stood out from among the five largest cities (populations above 100,000). While it lost population during 1970-80, it gained population during the final two decades of the last century.

Comparing urban and rural population growth from 1900-2000, we see a clear shift in growth patterns, which began during 1960-70. Prior to the 1960s, the urban population grew above national and rural growth rates. During the 1960s rural population growth exceeded urban growth for the first time. A more detailed look at the data provides additional information. In Switzerland, urban communities are divided into three groups: core city (Kernstadt einer

Agglomeration), other metropolitan communities (andere Agglomerationsgemeinden), and isolated cities (isolierte Städte). If we compare these three urban groups with the rural group (ländliche Gemeinden), we see that at the end of the century core urban areas experienced the slowest growth rates. Smaller urban communities close to the core cities (suburbs) started to grow faster than the latter during the 1950s, indicating suburbanization (Figure 3). Growth in rural areas started to surpass that of core cities in the 1970s, indicating some counter-urbanization occurring simultaneously with suburbanization. The minor counter-urbanization during the 1970s that was identified by Schaeffer (1992a) continued until the end of the century.



### 4.3. Trend Reversal

The trend reversal indexes at the cantonal level (Table 5) show that the smallest change in population distribution occurred during the 1941-50 and 1990-2000 periods. The changes of the 1970s were also relatively small. There is a clear decline in the magnitude of the change starting in the 1960s. At the cantonal level, the index was steadily increasing during the study period 1900-2000, though after the 1960s, the increases were becoming smaller. The slowdown is particularly apparent for the last decade (Table 5, trend reversal by decade).

There is some evidence of trend reversal, defined as a decline in the overall index at the district level, where the cumulative index declined in the 1980. However, it grew again in the 1990s and reached its highest level yet. Therefore, the evidence suggesting a trend reversal is very weak since the index decline only during one decade and then increased again. Hence, although there is some evidence of counter-urbanization, the evidence during the 20<sup>th</sup> Century does not suggest a trend reversal.

**Table 5. Trend Reversal**

		TR by Decade ( $TR_{i,t+10}$ )								
Decade	1900-10	1910-20	1920-30	1930-41	1941-50	1950-60	1960-70	1970-80	1980-90	1990-00
<b>TR</b>										
<b>Cantons</b>	0.12345	0.12569	0.17297	0.12177	0.09253	0.18496	0.16728	0.11088	0.12806	0.09644
<b>TR</b>										
<b>Districts</b>	0.04519	0.02679	0.03520	0.03132	0.02159	0.04371	0.05388	0.03875	0.02783	0.02557
		Cumulative TR ( $TR_{1900,t}$ )								
<b>Base</b>										
<b>year</b>										
<b>1900</b>	<b>1900-10</b>	<b>1900-20</b>	<b>1900-30</b>	<b>1900-41</b>	<b>1900-50</b>	<b>1900-60</b>	<b>1900-70</b>	<b>1900-80</b>	<b>1900-90</b>	<b>1900-00</b>
<b>TR</b>										
<b>Canton</b>	0.12345	0.17918	0.31167	0.38409	0.46121	0.63823	0.71346	0.73023	0.75567	0.80698
<b>TR</b>										
<b>Districts</b>	0.04519	0.05604	0.08076	0.10332	0.12035	0.15600	0.17554	0.18332	0.18254	0.18605

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office

## 5. SUMMARY AND CONCLUSIONS

This study provides evidence of deconcentration and counter-urbanization in Switzerland during the second half of the last century. Different Swiss regions experienced deconcentration during different periods, which is why the national Hoover index alone does not give a clear picture of the population distribution pattern. The results also show a trend of moving away from large densely populated districts and towards smaller, more sparsely populated and medium sized districts. Although the foreign population doubled in size in the last century, its role in shaping in the country's population distribution is fairly low.

Suburbanization and counter-urbanization were occurring because core urban centers were growing slower than smaller urban and rural areas. During the last decade of the century, most major cities lost population to smaller urban and rural areas. The cantons of Aargau, Vaud, Ticino, Thurgau, and Fribourg were net gainers from internal migration, while Basel-City, Grison, Bern, Geneva, and St. Gall were the biggest losers. Zurich was the dominant destination of international net migration. There is very little evidence of trend reversal (as defined in this study).

This study did not analyze causes for population deconcentration and counter-urbanization. The analysis provided only descriptive statistics, which allowed us to identify the regions where concentration, deconcentration, and counter-urbanization were occurring. It safe to guess that a significant part of the growth in the cantons of Aargau and Schwyz during the last few decades is the result of increases in the population and geographic size of the Zurich metropolitan region (Agglomeration Zürich), in no small part because investments into transportation infrastructure (interstates, commuter trains) significantly reduced commuting times, making distant communities much more desirable. In addition to Aargau and Schwyz, the cantons of Thurgau benefitted from these investments, and even the cities of Zug and Lucerne see a significant flow of daily commuter traffic between themselves and the Zurich metropolitan region. Similar trends are visible in other metropolitan regions, though they are not (yet?) as pronounced. This suggests that internal and external push and pull factors shape the population distribution pattern, and the study of differential counter-urbanization (Kontuly and Geyer, 2003) could yield additional insights.

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## Appendix

**Table A.1. Deviations from National Population Growth Rates by Canton, 1900-2000**

<b>Canton</b>	<b>1900-10</b>	<b>1910-20</b>	<b>1920-30</b>	<b>1930-40</b>	<b>1940-50</b>	<b>1950-60</b>	<b>1960-70</b>	<b>1970-80</b>	<b>1980-90</b>	<b>1990-00</b>
National Growth Rate	13.21	3.38	4.80	4.90	10.53	15.14	15.49	1.53	7.98	6.03
Zurich	3.70	3.50	9.89	4.29	4.66	7.42	0.84	-0.18	-2.97	-0.19
Bern	-2.85	1.58	-2.07	1.36	-0.14	-3.93	-4.66	-1.90	-3.00	-4.54
Lucerne	0.92	2.51	2.16	4.19	-2.48	-1.62	-1.20	0.72	2.19	1.40
Uri	-0.96	5.03	-8.99	13.97	-5.94	-3.01	-9.02	-2.14	-7.02	-4.36
Schwyz	-7.71	-1.15	-0.43	1.87	-3.73	-5.34	2.48	4.20	7.03	8.92
Obwalden	-0.75	-1.02	5.64	-0.06	-1.76	-10.58	-9.55	4.00	4.24	5.69
Nidwalden	-7.71	-2.17	3.08	10.33	1.23	-0.71	0.05	10.10	7.49	6.66
Glarus	-10.22	-1.83	0.58	-7.38	-2.22	-8.55	-20.45	-5.30	-3.10	-6.87
Zug	-1.00	8.74	4.16	1.63	4.74	9.12	14.06	10.13	4.69	10.93
Fribourg	-4.06	-0.95	-4.67	1.26	-6.16	-14.83	-2.22	1.20	7.31	7.15
Solothurn	2.95	8.22	5.60	2.55	-0.49	2.63	-3.87	-4.22	-1.72	-0.59
Basel-city	7.90	0.14	5.38	4.73	5.08	-0.34	-11.34	-14.74	-10.18	-11.71
Basel-country	-1.60	3.63	7.09	-2.64	3.07	20.54	20.95	4.99	-1.53	-1.65
Schaffhausen	-2.17	6.01	-3.29	0.15	-3.57	-0.43	-5.07	-6.26	-4.02	-4.32
Appenzell I. Rh.	-4.61	-3.69	-9.08	-9.23	-10.2	-18.75	-14.09	-3.67	0.01	-0.63
Appenzell A. Rh.	-8.34	-7.90	-16.32	-13.52	-3.42	-13.1	-15.28	-4.41	1.72	-3.59
Saint Gall	7.81	-5.81	-7.90	-4.96	-2.53	-5.32	-2.23	0.42	1.08	-0.1
Grisons	-1.20	-1.01	0.62	-3.39	-3.63	-7.59	-5.57	0.04	-2.36	1.54
Aargau	-1.52	1.01	3.04	-0.73	0.68	4.86	4.56	3.12	3.95	1.85
Thurgau	5.96	-2.63	-4.70	-3.39	-2.12	-4.00	-5.62	-1.01	5.93	3.29
Tessin	-0.56	-5.89	-0.22	-3.23	-2.40	-3.43	10.03	6.79	-1.85	2.71
Vaud	-0.38	-3.37	-0.27	-1.42	-0.58	-1.39	3.68	1.77	5.84	0.43
Valais	-1.02	-3.49	1.56	3.84	-3.21	-3.46	0.70	4.35	6.25	3.01
Neuchatel	-7.84	-4.67	-10.14	-10.07	-1.84	0.06	-0.90	-7.92	-4.43	-3.61
Geneva	3.61	7.01	-4.58	-2.87	5.52	12.61	12.43	3.73	0.66	3.07
Jura	-10.96	-3.86	-9.66	-3.58	-5.08	-8.40	-9.58	-5.01	-6.06	-3.02

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office

**Table A.2. Percentage of Districts Growing above National Average**

<b>District by Population in 2000</b>	<b>1950-60</b>	<b>1960-70</b>	<b>1970-80</b>	<b>1980-90</b>	<b>1990-00</b>
<b>&lt; 10,000</b>	0.00	0.00	23.08	30.77	57.69
<b>10,000-50,000</b>	21.62	35.14	47.75	68.47	63.06
<b>50,000-100,000</b>	65.22	78.26	73.91	65.22	60.87
<b>&gt; 100,000</b>	75.00	68.75	50.00	43.75	50.00

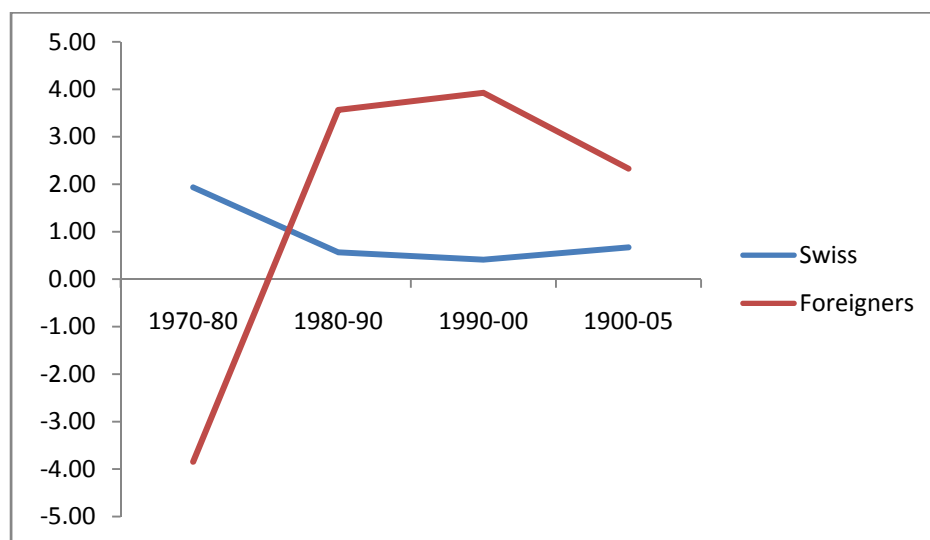
Source: Calculated from Swiss population data from the Swiss Federal Statistics Office



**Table A.3. Deviation from Swiss Population Growth**

	1900-10	1910-20	1920-30	1930-40	1940-50	1950-60	1960-70	1970-80	1980-90	1990-00
<b>Rural</b>	-8.62	-3.02	-5.21	-3.76	-5.59	-12.90	-11.61	-2.18	2.43	2.16
<b>Urban</b>	6.22	1.90	3.14	2.09	2.93	6.26	4.75	0.77	-0.83	-0.76

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office



**Table A.4. Population Change in Major Cities\***

Cities	Percentage Change			Absolute Change		
	1970-80	1980-90	1990-00	1970-80	1980-90	1990-00
Zurich	-12.57	-1.21	-0.48	-53118	-4479	-1770
Geneva	-9.86	9.29	4.05	-17113	14537	6922
Basel	-14.43	-2.04	-6.65	-30714	-3715	-11870
Bern	-10.56	-6.14	-5.65	-17151	-8916	-7704
Lausanne	-7.30	0.60	-2.50	-10034	763	-3198
Winterthur	-6.43	0.23	4.05	-5964	201	3524
St. Gall	-6.19	-0.80	-3.47	-5005	-610	-2611
Luzern	-9.45	-3.55	-2.52	-6601	-2244	-1538
Biel	-16.38	-3.53	-6.24	-10540	-1900	-3238
Thun	1.01	3.58	5.67	368	1320	2166
Köniz	2.88	11.57	1.27	936	3868	473
La Chaux-de-Fonds	-12.07	-0.91	0.33	-5113	-340	122
Schaffhausen	-7.52	-0.07	-1.74	-2785	-25	-597
Freiburg	-5.78	-2.79	-2.22	-2295	-1045	-808
Chur	2.71	2.59	0.37	844	831	121
Neuenburg	-11.23	-2.47	-1.98	-4356	-849	-665
Vernier	25.78	1.86	3.78	5732	520	1077
		<b>Average</b>			<b>Total</b>	
All major cities	-7.70	0.27	-1.11	-162909	-2083	-19594

Source: Calculated from Swiss population data from the Swiss Federal Statistics Office

\*Population > 30,000