CHANGES IN AGE PATTERNS IN THE PROCESS OF DEMOGRAPHIC TRANSITION (DUBROVNIK DATA)

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ABSTRACT: During the period from the seventeenth to the early twentieth century, the age patterns in the Dubrovnik region reveal that, in addition to the well-documented process of demographic transition that took place during the past two centuries (and which in many countries is still going on), similar transitional processes of lesser or greater intensity took place in earlier periods. In this analysis of the changes in age patterns caused by the processes of demographic transition, particular attention is given to the application of Sundbärg's classification of age patterns.

The process of demographic transition

The development of age patterns is strongly influenced by the process of demographic transition.¹ The theory of demographic transition is well advanced and has a considerable literature. In spite of specific differences in opinion and criticism, the theory is accepted by the majority of demographers

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as a law—a historically conditioned phenomenon in the development of a population that occurs under the direct influence of the factors of economic and social development.² This paper will discuss the basic characteristics and peculiarities of this process as it occurred in the Dubrovnik region.³

During the pretransitional period, nativity and mortality rates were high, and over the long term there was no significant rise in the population. However, during the first stage of the demographic transition process, the death rate, especially infant mortality, began to fall, while the birth rate remained high. This change was caused by improvements in health care and hygiene, the elimination of certain illnesses, and the introduction of inoculation. The result of this disproportion between the birth and death rates was a high natural population growth rate, the consequence of which was a significant rise in the population. During the middle stage of transition, the birth rate also began to fall, and by the end of the process both mortality and nativity fell to a very low level, and consequently, the natural growth rate fell to zero or barely positive. In France, the mortality rate began to fall from its high pretransition level to below 30% in the eighteenth century, while in the United States and the other countries of western and northwestern Europe this change took place in the first half of the nineteenth century.⁴ According to Jakov Gelo, this period of change in mortality did not begin in Croatia until about 1880.⁵

The main "symptoms" of transition, which in addition to a lower general mortality rate include a fall in the infant death rate as well as a longer average life expectancy, show us that by the first half of the nineteenth century, the transition of mortality was well under way. In fact, this process had already started in the eighteenth century, just as it had in France, the first to feel the effects of demographic transition.

² See: Alica Wertheimer-Baletić, *Demografija, Stanovništvo i ekonomski razvitak.* Zagreb: Informator, 1982: pp. 78-129; Jakov Gelo, *Demografske promjene u Hrvatskoj 1780. do 1981. g.* Zagreb: Globus, 1987: pp. 49-59, as well as the literature cited therein.

³ Other works of mine concerning demographic transition in the Dubrovnik region include: Nenad Vekarić, *Stanovništvo poluotoka Pelješca*, I. Dubrovnik: Zavod za povijesne znanosti HAZU u Dubrovniku, 1992; Nenad Vekarić, »Demografski uzroci iseljavanja s dubrovačkog područja u Ameriku u 19. i početkom 20 stoljeća.« *Dubrovnik*, new series, 3/5 (1992): pp. 97-102; Nenad Vekarić, »The Influence of Demographic Trends on the Number of Undivided Family Households in Southern Croatia.« *The History of the Family* 1/4 (1996): pp. 461-476.

⁴ A. Wertheimer-Baletić, *Demografija*: pp. 90-91.

⁵ J. Gelo, *Demografske promjene u Hrvatskoj*: p. 15.

In the period from 1831 until 1869, approximately 23% of the infants born in Croatia died in their first year of life. During the same period, Dubrovnik's agricultural areas register a rate of 15%, while in marine-oriented communities it was only 10%. During a similar period (1828-57), 14.3% of the babies born in the city of Dubrovnik died before their first birthday.⁶

Out of the total number of people over the age of 10 who died between 1831 and 1900: in the rural areas of the Dubrovnik region 42.9% of the males and 45.4% of the females were older than 70; in marine-oriented communities, 46.2% of the males and 50% of the females had reached 70; and in the city of Dubrovnik (1828-57) 33.2% of the males and 48% of the females were that old. If we compare this to Croatia, however, in 1857 only 10.2% of the males and 10.7% of the females who died were 70 or older.⁷ Even in eighteenth century, the average person from Dubrovnik lived one third longer (the average age at death being 24.1 years for the period from 1758-1807) than the inhabitants of the towns of northern Croatia (the average in Gradec, today's upper town in Zagreb, being 15.9 between 1777 and 1807; in Križevci, 16.3 between 1778 and 1807). Due to the effects of transition in Dubrovnik, this difference became even greater in the nineteenth century: during the period lasting from 1808 to 1857 the average age at death in Dubrovnik was 36.7, in Zagreb 21.2, and in Križevci 17.9.⁸

In the nineteenth century the overall mortality rate was considerably lower in Dubrovnik than in Croatia. From 1811 to 1857 it was 22.8% in the city of Dubrovnik, 16.7% (1831-69) in the region's marine-oriented communities, and 24.5% in Dubrovnik's rural areas. During the same period, the mortality rate in Croatia ranged from 36.2 to 40.7%. In Europe and the United States the rates were closer to those of Dubrovnik: in Denmark (1810-50) it ranged from 20.1 to 26.8%, in France from 23.5 to 25.9%, in Sweden from 20.6 to 33.1%, and in the United States from 20 to 24%.

⁶ Stjepan Krivošić, *Stanovništvo Dubrovnika i demografske promjene u prošlosti*. Dubrovnik: Zavod za povijesne znanosti JAZU, 1990: pp. 135, 162.

⁷ J. Gelo, *Demografske promjene u Hrvatskoj*: p. 166; S. Krivošić, *Stanovništvo Dubrovnika*: p. 162; N. Vekarić, *Stanovništvo poluotoka Pelješca*: p. 94.

⁸ Vladimir Stipetić, »Predgovor.«, in: Stjepan Krivošić, *Stanovništvo Dubrovnika i demografske promjene u prošlosti*. Dubrovnik: Zavod za povijesne znanosti JAZU u Dubrovniku, 1990: p. 8.

⁹ J. Gelo, *Demografske promene u Hrvatskoj*: p.162; S. Krivošić, *Stanovništo Dubrovnika*: p. 80; N. Vekarić, *Stanovništvo poluotoka Pelješca*: pp. 94-102.

Furthermore, the birth rate in the Dubrovnik region was lower than in Croatia, but as a result of the transitional process this difference was not as great as the difference in mortality. The birth rate in Croatia surpassed 40% throughout the entire nineteenth century and did not fall below this mark until the first decade of the twentieth century. In the agricultural areas of the Dubrovnik region the birth rate varied between 35 and 40%, while in the city it was even lower, between 25 and 30%.¹⁰

In other words, the process of demographic transition in Dubrovnik started well before the fall of the Dubrovnik Republic (Ragusa), that is, in the late eighteenth century, and about half a century later in the region's rural areas. In addition, the process lasted considerably longer than in any other region of Croatia. This can be explained by the fact that, when the Republic lost its independence and was placed under the same jurisdiction as the remaining Croatian regions, Dubrovnik's demographic statistics were equalized with those of the other Croatian regions (especially neighboring Dalmatia), just as the water level in two connected vessels will be the same. In this way, the process of demographic transition in Dubrovnik and its vicinity, which had started one hundred years earlier than in Croatia, did not end one hundred vears earlier as well, but at the same time as in the rest of Croatia—in the 1960s. In the Dubrovnik region the middle stage of demographic transition was unusually long lasting. It was a period of overpopulation which caused a series of negative demographic consequences (among other things, an increase in the intensity of emigration).

Sundbärg's classification of age pattern types

According to the classification of the Swedish demographer Gustav Sundbärg, a model which is widely accepted by experts in the field of demography, based on the age of fertility, there are three different types of age pattern. These patterns differ in terms of the relationship between the child contingent (0-14 yrs.) in the population and the grandparent contingent (50 yrs. and older). The first of these, the progressive age pattern type, is typical of the early stages of demographic transition. In this type, the child contin-

¹⁰ J. Gelo, *Demografske promjene u Hrvatskoj*: p. 123; S. Krivošić, *Stanovništvo Dubrovnika*: p. 76; N. Vekarić, *Stanovništvo poluotoka Pelješca*: pp. 89-93

gent outnumbers the grandparent contingent to a considerable degree. The second is known as the transitional or stationary type. This pattern appears during the middle stage of the transition process, when the child and grandparent contingents of the population become more or less equal in size. Sundbärg's third type of age pattern is known as the regressive type and typically appears in the final stage of demographic transition. In this case, the grandparent contingent of the population surpasses the child contingent (see Table 1).¹¹

| Age structure type | | Population (%) | |
|--------------------|------|----------------|-------------|
| Age structure type | 0-14 | 15-49 | 50 and more |
| Progressive type | 40 | 50 | 10 |
| Stationary type | 26,5 | 50,5 | 23 |
| Regressive type | 20 | 50 | 30 |

Table 1. Sundbärg's Classification of Age Pattern Types

Source: Gustav Sundbärg, *Bevölkerungsstatistik Schwedens 1750-1900*. Stockholm, 1907. As quoted in A. Wertheimer-Baletić, *Demografija*: p. 247.

An analysis of the age patterns in the Dubrovnik region during the period lasting from the seventeenth to the end of the nineteenth century has revealed some deviation from Sundbärg's model. Is this due to Dubrovnik's unique sociopolitical history? Or perhaps a classification of age pattern types based upon the criterion of fertility is adequat for interpreting the type of demographic transition process that was going on in Sundbärg's time, but cannot explain the types of transitional processes that had occurred earlier in history? This article is an attempt to address these questions with the aid of specific patterns recorded in several different microunits within the Dubrovnik region.

¹¹ A. Wertheimer-Baletić, *Demografija*: pp. 245-248.

Samples

Thirteen samples were taken from six areas in the Dubrovnik region. The parishes of Pridvorje (in Konavle), Lisac (Dubrovačko primorje), and Ponikve (Pelješac) were chosen as examples of mainland rural agriculturally dependent communities whose population tended to live in complex extended families. Trstenica (parish of Karmen) on the Pelješac peninsula, was chosen as an exclusively seafaring area. The parish of Cavtat was also a seafaring community, but its inhabitants' way of life was decidedly urban. Lastovo is an example of an island parish whose economy was based upon agriculture and fishing. In Trstenica, Cavtat, and Lastovo the nuclear family was the prevailing type.

The selection of samples was also based upon the availability of archival records. Three seventeenth-century samples were taken, three from the eighteenth century, and six from the nineteenth century. In addition, one sample from 1918 was taken. The samples included all locations within the parishes studied, with the exception of the parishes of Pridvorje and Lisac. Because the territories of these two parishes changed over time, only certain localities were selected.

The samples from the parishes of Pridvorje in Konavle included data for five localitites: Kuna, Mihanići, Pridvorje, and Ljuta. Today Drvenik is also part of this parish, but in 1673 it was not. Therefore, in order to make the data comparable across time, that locality was not taken into account. Similarly, in 1673 the parish included the village of Kokoti (part of the locality of Popovići), and because Kokoti was later placed under the jurisdiction of another parish, it also was not included in the study. Three samples were taken for the parish of Pridvorje:

Sample 1: Observation date: 31 December 1673. Source: Dubrovnik Republic Census of 1673/4.¹² Size of sample: 716 people. Selected age groups: 10-14 years (persons born 1659-1663), 20-24, and 25-29 (1644-53). The following age groups were unusually small, due to the fact that the ages recorded by the census taken were more often rounded off to a number ending with a zero than to one ending with a five: 35-39, 45-49, 55-59, 65-69, 75-79, and 85-89.

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¹² Census of the Dubrovnik Republic of 1673 (further referred to as C1673/4.), Diplomata et Acta, ser. 76, no. 1809 (State Archives of Dubrovnik).

Sample 2: Observation date: 31 December 1831. Source: *Status Animarum* of the parish of Pridvorje from 1833, as well as a genealogical analysis of the Pridvorje parish population based upon data obtained from parish registers.¹³ Size of sample: 1,160 people. Selected age groups: underpopulated groups: 20-24, 25-29 (1802-1811) (born around the time of the fall of the Dubrovnik Republic) as well as: 0-4 (1827-1831), 35-39, 40-44, 45-49 (1782-1796).

Sample 3: Observation date: 31 December 1880. Source: *Status Animarum* of the parish of Pridvorje from 1848, as well as a genealogical analysis of the Pridvorje parish population based upon data obtained from parish registers.¹⁴ Size of sample:1,447 people. Selected age groups: underpopulated groups: 0-4 and 5-9 (1871-1880), probably due to diphteria and cholera epidemics. As well as: 35-39, 40-44, and 45-49 (1826-1840).

The parish of Lisac in Dubrovačko primorje included eight localities in 1673: Trnovica, Točionik, Podimoć, Lisac, Čepikuće, Podgora, Mravinca, and Trnova. Today Mravinca and Trnova belong to other parishes, but since only a seventeenth-century sample was taken for this parish, these two villages were included in the data.

Sample 4: Observation date: 31 December 1673. Source: Dubrovnik Republic Census of 1673/4.¹⁵ Size of sample: 978 people. Selected age groups: 35-39, 40-44, and 45-49 (1624-1638), 60-64 and 65-69 (1604-1613).

In the parish of Ponikve on the Pelješac peninsula there are six localities: Dančanje, Zabrđe, Sparagovići, Boljenovići, Metohija, and Duba.

Sample 5: Observation date: 31 December 1831. Source: *Status Animarum* of the parish of Ponikve from 1831, as well as a genealogical analysis of the Ponikve parish population based upon data obtained from parish registers.¹⁶ Size of sample: 679 people. Selected age groups: underpopulated group: 15-19 (1812-1816), due to occurrences related to the fall of the Dubrovnik Republic. As well as: 30-34 and 35-39 (1792-1801), 45-49 (1782-1786), 55-59 (1772-1776).

¹³ Status Animarum Pridvorje, 1 (Pridvorje Parish Archives).

¹⁴ Status Animarum Pridvorje, 2 (Pridvorje Parish Archives).

¹⁵ Zdravko Šundrica, »Popis stanovništva Dubrovačke Republike iz 1673/4. godine.« *Arhivski vjesnik* 2 (1959): p. 452.

¹⁶ N. Vekarić, Stanovništvo poluotoka Pelješca: p. 109.

Six samples were taken for the island of Lastovo, the whole of which formed one parish.

Sample 6: Observation date: 31 December 1673. Source: Genealogical analysis of the population of the parish of Lastovo based upon data obtained from parish registers. Size of sample: 897 people. Selected age groups: underpopulated groups: 5-9 and 10-14 (1659-1668), 40-44 and 45-49 (1619-1628), and 70-74 (1599-1603).

Sample 7: Observation date: 31 December 1730. Source: Genealogical analysis of the population of the parish of Lastovo based upon data obtained from parish registers. Size of sample: 818 people. Selected age groups: 5-9, 10-14, and 15-19 (1711-1725), 25-29 (1701-1705), 35-39 (1691-1695), 45-49 and 50-54 (1676-1685), and 75-79 (1651-1655).

Sample 8: Observation date: 31 December 1780. Source: Genealogical analysis of the population of the parish of Lastovo based upon data obtained from parish registers. Size of sample: 938 people. Selected age groups: 5-9, 10-14, and 15-19 (1761-1775), 30-34, 35-39, and 40-44 (1736-1750).

Sample 9: Observation date: 31 December 1830. Source: Genealogical analysis of the population of the parish of Lastovo based upon data obtained from parish registers. Size of sample: 1,049 people. Selected age groups: One broad selection of all age groups from 10-39 years (1791-1820) was underpopulated probably as a result of occurrences at the time of the fall of the Dubrovnik Republic. The 55-59-year age group (1771-1775) was also underpopulated.

Sample 10: Observation date: 31 December 1880. Source: *Status Animarum* of Lastovo parish from ca. 1900, as well as a genealogical analysis of the population of the parish of Lastovo based upon data obtained from parish registers.¹⁷ Size of sample: 1,134 people. Selected age groups: underpopulated groups: 5-9, 10-14, and 15-19 (1861-1875), due to epidemic. As well as: 30-34 (1846-1850), 45-49 (1831-1835), 60-64 and 65-69 (1806-1815) (fall of the Republic).

Sample 11: Observation date: 31 December 1918. Source: *Status Animarum* of Lastovo parish from ca. 1900, as well as a genealogical analysis of the population of the parish of Lastovo based upon data obtained from parish

¹⁷ Status Animarum Lastovo, 1 (Lastovo Parish Archives).

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registers.¹⁸ Size of sample: 1,483 people. Selected age groups: underpopulated group: 0-4 (World War I). As well as: 45-49, 50-54, 55-59, and 60-64 (1854-1873).

In 1751, Trstenica on the peninsula of Pelješac was formed into one parish whose seat was in the village of Karmen (Podgorje). This parish consisted of six localities: Nakovana, Viganj, Kućište, Podgorje, Orebići, and Stankovići.

Sample 12: Observation date: 31 December 1751. Source: *Status Animarum* of Karmen parish from 1747, as well as a genealogical analysis of the parish of Trstenica based upon parish registers.¹⁹ Size of sample: 1,645 people. Selected age groups: 0-4 (1747-1751), 15-19 (1732-1736), and 35-39, 40-44, and 45-49 (1702-1716).

The parish of Cavtat in Konavle included Cavtat and neighboring Obod.

Sample 13: Observation date: 31 December 1830. Source: *Status Animarum* of Cavtat parish from 1830, as well as a genealogical analysis of the parish of Cavtat based upon parish registers.²⁰ Size of sample: 827 people. Selected age groups: 0-4, 5-9, and 10-14 (1816-1830), 25-29 (1802-1806) (fall of the Dubrovnik Republic), 45-49 (1782-86), and 65-69 (1762-1766).

Analysis of the samples

Upon a comparison of the above Dubrovnik region samples, the following phenomena become apparent:

(1) The child-grandparent ratio is to a greater degree in favor of the child contingent in rural areas than in seafaring and urban communities. This difference is a consequence of a lower birth rate in urban and seafaring communities.

¹⁸ Ibid.

¹⁹ Nenad Vekarić, »Stanovništvo Trstenice 31.12.1751. godine.« *Anali Zavoda za povijesne znanosti IC JAZU u Dubrovniku* 24-25 (1987): pp. 139-159; N. Vekarić, *Stanovništvo poluotoka Pelješca*: p. 108.

²⁰ Niko Kapetanić and Nenad Vekarić, »Stanovništvo Cavtata i Oboda 31.12.1830. godine.« Anali Zavoda za povijesne znanosti HAZU u Dubrovniku 33 (1995): pp. 117-142; Status Animarum Cavtat, 1 (Cavtat Parish Archives).

(2) Although the difference in age patterns between rural and seafaring areas was expected from the beginning of the study (this was the very reason for choosing such samples), the age pattern development on the island of Lastovo came as somewhat of a surprise. The age pattern of Lastovo indicates that the demographic transition process on that island occurred later than in the other areas of the Dubrovnik region. In fact, on Lastovo the process developed along with the process in Dalmatia. Lastovo's distance from Dubrovnik and its broad autonomy can also be seen in its demographic shifts, which indicate that the influence of the very close region of Dalmatia was stronger than that of Dubrovnik. Thus the transition process began on Lastovo only around 1880, half a century later than in Dubrovnik's mainland rural areas, and a full century later than in the Republic's seafaring and urban communities.

(3) The analysis of age pattern development determined that two mortality transition processes took place on Lastovo! The first began around 1730 and ended in the end of the eighteenth century, while the second (which is already known) began around 1880 (see Graph 1). In addition to this information, one should be aware of the fact that the 1730's mark the end of the worst and most long-lasting demographic crisis in the history of the Dubrovnik Republic, which began after the fall of Bosnia and Herzegovina in the late fifteenth century. From 1498 until 1673 the Republic's population fell to one third of its previous level (from about 88,548 to about 26,067), and its lowest level was probably in the second or third decade of the eighteenth century. A number of factors affected that negative trend: selection due to overpopulation coupled with great epidemics (first half of the sixteenth century), the Candian and Morean Wars, the earthquake of 1667, and the epidemics of the seventeenth and early eighteenth centuries.²¹ This was followed by a stable period with a long-lasting fall in the death rate, which fell under 25%, this is also proven by the data on natural population shifts on the island of Lastovo from 1750 to 1800 (see Table 2). Then, in the beginning of the nineteenth century, another rise in mortality began, coinciding with the huge changes in governmental relations that were incited by Napoleon's European campaign.

²¹ Nenad Vekarić, »Broj stanovnika Dubrovačke Republike u 15., 16. i 17. stoljeću.« Anali Zavoda za povijesne znanosti HAZU u Dubrovniku 29 (1991): p. 19.



Graph 1 - Transition Processes on Lastovo Observed in Terms of Age Pattern Development (1673-1918).

Table 2. Natural Population Growth (Fall) on Lastovo from 1751 to 1810 by Decade.

| Period | Births | Deaths | Natural growth (decline) | Population in the initial year | Birthrate | Mortality rate | Natural growth (decline) rate |
|-----------|--------|--------|--------------------------------|--------------------------------------|-----------|-------------------|--|
| 1751/1760 | 295 | 155 | 140 | 790 | 37.34 | 19.62 | 17.72 |
| 1761/1770 | 298 | 243 | 55 | 880 | 33.86 | 27.61 | 6.25 |
| 1771/1780 | 273 | 225 | 48 | 910 | 30.00 | 24.73 | 5.27 |
| 1781/1790 | 343 | 208 | 135 | 940 | 36.49 | 22.13 | 14.36 |
| 1791/1800 | 292 | 157 | 135 | 1020 | 28.63 | 15.39 | 13.24 |
| 1801/1810 | 265 | 370 | -105 | 1100 | 24.09 | 33.64 | -9.55 |

Sources: La3K (1747-1819); La2M (1747-1846).

(4) If we are to take Sundbärg's model into consideration, the age pattern of the rural mainland parishes of the Dubrovnik region in the second half of the seventeenth century would be classified as an example of the stationary type, or rather, as being in transition between the progressive type and the stationary type (the child-grandparent ratio in Pridvorje being 29.89 : 19.27 and in Lisac 34.46 : 23.52). But even if we do accept such a classification, we must ask ourselves the following question: how is it possible that, at a time which certainly belongs to the pretransition period (in relation to a known process of demographic transition), the grandparent contingent makes up such a large portion of the population, that is, the child-grandparent ratio is 3 : 2 (or even lower) rather than the expected 4 : 1?

However, if we examine the age pattern development on Lastovo over a longer time period and locate an earlier mortality trend, then we even begin to understand the age pattern of the mainland rural parishes of the Dubrovnik region in the seventeenth century. This was actually a phase in an earlier transition process (Graph 2).

In order to observe this earlier process more easily, however, it would be necessary to deviate from Sundbärg's model. Dividing the population into child (0-14), parent (15-49), and grandparent (50 and older) contingents may be appropriate for examining a process of demographic transition that has been taking place (or took place and has already run its course) in the last two centuries. However, the question arises as to whether such a division would be appropriate for examining earlier transition processes, or for that matter, for examining such processes in the future. Division according to the criterion of fertility is unchangeable because the human period of fertility is always the same. Therefore, this classification cannot follow variations in time that are the result of changes in the structure of the population. It would probably be more appropriate for such a study to classify the members of the population according to working age. Today, fifty-year-olds are no longer elderly people—in fact, they are in their best years and should logically belong to the parent, and not the grandparent, contingent. In fact, because of this, today's demographic statistics avoid the use of fertility as the criterion for division, favoring a wider middle contingent (15-64). Three or four centuries ago (in this part of the world), a forty-year-old was already considered old. Because of the economic structure at that time (predominantly agrarian), a child of nine years was already old enough to work, and would perform a variety of tasks in the house, in the fields, etc. (as is the case even today in

nondeveloped countries). If we thus divide our populations into contingents based upon working age for our samples from the seventeenth and eighteenth centuries, then it will become even more clear that the age patterns of that period are characteristic of the regressive age pattern type (see Table 3).

Graph 2 - Transition Processes at Pridvorje (Konavle) Observed in Terms of Age Pattern Development (1673-1918).



Table 3. Division of Population into Age Contingents in the Seventeenth Century and the First Half of the Eighteenth Century.

| Area | Year | Age group (%) | | | | |
|---|------|-------------------------|-------------------------|-------------------------|--|--|
| | | 0-9 | 10-45 | 46 and more | | |
| Pridvorje Parish Lisac Parish Lastovo | 1673 | 21.93 24.54 22.18 | 55.31 46.63 55.86 | 22.76 28.83 21.96 | | |
| Lastovo | 1730 | 20.90 | 44.51 | 34.59 | | |

If we observe in this way the age patterns of the rural mainland parishes of the Dubrovnik region, we can reconstruct the transition processes that took place: in 1673 the child-grandparent ratio implies an early "regressive" age pattern (which has only just changed from a "stationary" pattern). One half century later, it will transform (as on Lastovo) into a late "regressive" pattern (peak of the crisis), which will already indicate a new stage in the development of the population. The new transition process will begin around 1730 and end around 1820, after having passed through all phases. By 1830, the next process of demographic transition will already be under way (the age pattern will be characteristic of a "progressive" pattern on the rise), and in 1880 the age pattern will already be "stationary".

(5) The child contingent was the least resistant to the crisis, and thus it went through periods of sudden change. In contrast, as the crisis worsened and approached its peak, the grandparent contingent grew in relation to the overall population. Throughout the seventeenth century and in the first thirty years of the eighteenth century there was an overall decline in the population of the Dubrovnik Republic that was caused by various factors (the Candian and Morean Wars, the earthquake of 1667, the epidemics of the late seventeenth century and the first quarter of the eighteenth). Because of this, the percentage of grandparents was considerably high in 1673 (ranging from 17.39% on Lastovo to 23.52% in Lisac) and showed a tendency to grow even further. At the peak of the crisis, the grandparent contingent on Lastovo reached a high 19.44%. On the other hand, the child contingent grew smaller as the crisis progressed (on Lastovo: from 31.66% in 1673 to 27.87% in 1730). Then for the next half century stable conditions reversed the age pattern: the grandparent contingent fell to 17.39%, while the child contingent rose to 29.54%. In the following transition cycle the same types of change repeated themselves. It should also be noted that the parent contingent follows the path of the child contingent rather than the grandparent contingent: in stable periods it grows, and it becomes smaller in times of long-term crisis.

(6) The age patterns of Dubrovnik region microunits generally have higher levels than in Dalmatia, Istria, Croatia, and Slavonia. According to all indicators, until its fall, the Dubrovnik Republic was at the same level as the developed countries of western Europe. This fact, among others, is manifested in Dubrovnik's higher average age and its early start in the transition process (Table 4). However, before it would be possible to reconstruct earlier transition processes, it would be necessary to determine how the age patterns in those areas looked during the seventeenth and the first half of the eighteenth century.

Table 4. Population Structure by Age Group According to the Criterion of Fertility.

| Area | Year | 1 | Age group (| %) |
|--|------|--|---|--|
| | | 0-14 | 15-49 | 50 and more |
| Pridvorje Parish (Dubrovnik area) Lisac Parish Lastovo (Dubrovnik area) | 1673 | $29.89 \\ 34.36 \\ 31.66$ | $50.84 \\ 42.13 \\ 50.95$ | 19.27 23.52 17.39 |
| Lastovo (Dubrovnik area) | 1730 | 27.87 | 52.69 | 19.44 |
| Trstenica (Dubrovnik area) | 1751 | 28.80 | 50.30 | 20.00 |
| Croatia Lastovo (Dubrovnik area) | 1780 | $\begin{array}{c} 39.00\\ 29.54 \end{array}$ | $51.20 \\ 53.07$ | 9.80 17.39 |
| Cavtat Lastovo (Dubrovnik area) | 1830 | $24.57 \\ 27.18$ | 49.88 50.59 | 25.55 22.23 |
| Pridvorje Parish (Dubrovnik area) Ponikve (Dubrovnik area) | 1831 | $33.28 \\ 32.50$ | $\begin{array}{c} 45.95\\ 47.40\end{array}$ | $\begin{array}{c} 20.78\\ 20.00 \end{array}$ |
| France | 1851 | 29.0 | 52.0 | 19.0 |
| Dalmatia Istria Vojna krajina (Military Border Zone) Croatia and Slavonia | 1857 | 33.41 33.93 35.73 34.92 | 52.53 52.18 55.20 54.64 | 14.16 14.89 9.07 10.44 |
| Slovenia | 1870 | 32.9 | 49.4 | 17.7 |
| Pridvorje Parish (Dubrovnik area) Lastovo (Dubrovnik area) USA | 1880 | $27.44 \\ 24.34 \\ 36.0$ | $\begin{array}{r} 49.43 \\ 48.84 \\ 51.0 \end{array}$ | 23.22 26.82 13.0 |
| Lastovo (Dubrovnik area) | 1918 | 29.19 | 50.19 | 20.62 |
| Dalmatia Croatia | 1961 | $31.91 \\ 27.22$ | 46.12 49.60 | $\begin{array}{c} 21.97\\ 23.18\end{array}$ |
| Dalmatia Croatia | 1981 | 31.29 28.47 | 49.77 51.30 | 18.94 20.23 |
| Konavle (Dubrovnik area) Croata | 1991 | $20.76 \\ 19.65$ | 47.64 49.60 | $\frac{31.60}{30.75}$ |

Sources (in addition to the samples described above):

For Dalmatia, Istria, Croatia, Slavonia and Vojna krajina (military frontier): J. Gelo, *Demografske promjene u Hrvatskoj*: pp. 204, 282-288. For Konavle in 1991: Tonko Radica and Rafaela Kovačević-Pašalić, »Konavle - demografska obilježja i procesi.«, in: *Konavle u prošlosti, sadašnjosti i budućnosti*, 2. Dubrovnik: Zavod za povijesne znanosti HAZU, 1999: p. 320. For Croatia in 1991: *Statistički ljetopis* 1992: p. 59. For France, Slovenia and USA: Jakov Gelo, »Usporedna slika demografskih promjena Hrvatske i odabranih zemalja od 1780. do 1980. godine.« *Stanovništvo* 3 (1982): p. 96.

Note: The category "unknown" was excluded from the 1991 data, and for this reason the results here differ from those published in the publication *Statistički ljetopis 1992*: p. 58.

Conclusion

(1) The process of demographic transition is not only a specific process that reflects great changes that have taken place in the last two centuries. It is rather a general process in the development of a population that occurs in lesser or greater intervals, with varying intensity, and with more or less turbulent consequences. It is simply the demographic reflex of the functioning of a society in the constant process of the establishment and disintegration of equilibrium.

(2) A period of transition, however, is not typically a closed circle, but would be more comparable to a spiral. This is because the last phase of one process is at the same time the first phase of the next. A period of transition has a rising phase, which is manifested by a progressive age pattern, then a phase of stagnation (bringing about a stationary age pattern), followed by a falling phase (resulting in a regressive age pattern). A period of transition coincides with general change within a society. In times of depression or crisis, there will be a rise in the percentage of elderly people. Because they are more resistant to insecure conditions and epidemics, this group experiences the least amount of sudden variation in its mortality rate.²²

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²² This is certainly due to the child-grandparent ratio. In periods of positive change, because of the fall in mortality and the longer average lifespan, the grandparent contingent automatically grows in number. However, if the child coningent grows faster, the percentage of elderly people in the overall population falls. In periods of crisis as well, all contingents fall in absolute number, but if the greatest descent occurs among the child contingent, the relative size of the grandparent contingent grows.

(3) The particular process of demographic transition that has taken place in the last two centuries (and is still going through its course in some countries of the world) is the most intense such process that has ever been observed. That is why it comes to mind first when demographic transition is discussed. But this is also because its development coincided with the development of the field of demographic statistics, for which it served as the primary testing model. There is no reason to believe, however, that such intense transition processes never occurred in the past. In all likelihood they have occurred simultaneously with every great advancement in civilization.

(4) Every process of demographic transition in a specific region also has its own unique characteristics, unique causes, unique intensity, and unique micro-influences. Depending on these factors, the child-grandparent ratio (i.e., the age pattern) will vary.

(5) The "final outcome" of a demographic transition process will depend upon its intensity. It is characteristic for the demographic transition process of the past two centuries to begin with a great fall in mortality, and to end with a great fall in natality (see Graph 3). A less intense process will look somewhat different. It will always start with a great fall in mortality, but depending on specific causes and conditions, it may end with the mortality rate returning to the pretransition level (Graph 4) or even with the mortality rate rising to a level higher than at the start of the process, but accompanied by a fall in natality (Graph 5).

(6) If we observe one transition period in isolation, it is my opinion that we will need to describe yet another age pattern type which might be called the pretransition stationary type. The progressive age pattern type (e.g., with a child contigent of 40% and a grandparent contingent of 10%) is an indicator of the first phase of a transition process in which the size of the child contingent is the expression of a fall in the birth rate of infants and small children. Before the beginning of the demographic transition process the age pattern is more balanced, with the possibility that the grandparent contingent outnumbers the child contingent if the previous demographic crisis was heavy. All of the Dubrovnik examples (Lastovo, Pridvorje, Lisac) reveal this type of development in age structure. Thus the age structure in one process of demographic transition would go through the following phases:

pretransitional stationary type —> transitional progressive type —> transitional stationary type —> transitional regressive type

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Graph 3 - Complete Demographic Transition

Graph 4 - Demographic Transition with Temporary Mortality Transition



Graph 5 - Mild Demographic Transition



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(7) If we observe transition processes dynamically, as stages in the development of a population that constantly changes and goes through cycles, we see that the transitional spiral mentioned above is never-ending:

... pretransitional stationary type —> transitional progressive type —> transitional stationary type —> transitional regressive type —> post-transitional stationary type (= pretransitional stationary type of a new process of transition) ...

(8) In historical demographic studies of processes of demographic transition, the age groups should be defined according to the demographic situation of the time period that is being studied. Sundbärg's division by the criterion of fertility is appropriate for the period in which he published his research (late nineteenth and early twentieth century). For earlier transition processes (i.e., seventeenth century) in this region, however, it seems more appropriate to divide the population into younger contingents (e.g., 0-9, 10-45, 46 and older). Conversely, when observing contemporary processes of transition it seems appropriate to raise the ages of each contingent (e.g., 0-19, 20-64, 65 and older, and even greater deviation from Sundbärg in the boundary between the parent and the grandparent contingent).

| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 716 | 350 | 366 | 100 | 100 | 100 | |
| 0-4 | 84 | 47 | 37 | 11.73 | 13.43 | 10.11 | |
| 5-9 | 73 | 44 | 29 | 10.20 | 12.57 | 7.92 | |
| 10-14 | 57 | 24 | 33 | 7.96 | 6.86 | 9.02 | |
| 15-19 | 79 | 38 | 41 | 11.03 | 10.86 | 11.20 | |
| 20-24 | 58 | 32 | 26 | 8.10 | 9.14 | 7.10 | |
| 25-29 | 44 | 24 | 20 | 6.15 | 6.86 | 5.46 | |
| 30-34 | 68 | 31 | 37 | 9.50 | 8.86 | 10.11 | |
| 35-39 | 34 | 19 | 15 | 4.75 | 5.43 | 4.10 | |
| 40-44 | 56 | 23 | 33 | 7.82 | 6.57 | 9.02 | |
| 45-49 | 25 | 11 | 14 | 3.49 | 3.14 | 3.83 | |
| 50-54 | 39 | 18 | 21 | 5.45 | 5.14 | 5.74 | |
| 55-59 | 15 | 8 | 7 | 2.10 | 2.29 | 1.91 | |
| 60-64 | 39 | 9 | 30 | 5.45 | 2.57 | 8.20 | |
| 65-69 | 6 | 4 | 2 | 0.84 | 1.14 | 0.55 | |
| 70-74 | 19 | 12 | 7 | 2.65 | 3.43 | 1.91 | |
| 75-79 | 6 | 2 | 4 | 0.84 | 0.57 | 1.09 | |
| 80-84 | 11 | 3 | 8 | 1.54 | 0.86 | 2.19 | |
| 85-89 | 1 | | 1 | 0.14 | 0.00 | 0.27 | |
| 90-94 | 2 | 1 | 1 | 0.28 | 0.29 | 0.27 | |
| Average age | 29.10 | 26.97 | 31.14 | | | | |
| Medial age | 25.91 | 23.59 | 29.50 | | | | |

Sample 1. Population Structure of the Parish of Pridvorje by Age and Sex on 31 December 1673



| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 1160 | 598 | 562 | 100 | 100 | 100 | |
| 0-4 | 130 | 67 | 63 | 11.26 | 11.22 | 11.29 | |
| 5-9 | 138 | 76 | 62 | 11.95 | 12.73 | 11.11 | |
| 10-14 | 118 | 52 | 66 | 10.22 | 8.71 | 11.83 | |
| 15-19 | 103 | 47 | 56 | 8.92 | 7.87 | 10.04 | |
| 20-24 | 82 | 43 | 39 | 7.10 | 7.20 | 6.99 | |
| 25-29 | 77 | 42 | 35 | 6.67 | 7.04 | 6.27 | |
| 30-34 | 94 | 58 | 36 | 8.14 | 9.72 | 6.45 | |
| 35-39 | 64 | 26 | 38 | 5.54 | 4.36 | 6.81 | |
| 40-44 | 56 | 35 | 21 | 4.85 | 5.86 | 3.76 | |
| 45-49 | 57 | 38 | 19 | 4.94 | 6.37 | 3.41 | |
| 50-54 | 69 | 34 | 35 | 5.97 | 5.70 | 6.27 | |
| 55-59 | 53 | 24 | 29 | 4.59 | 4.02 | 5.20 | |
| 60-64 | 37 | 13 | 24 | 3.20 | 2.18 | 4.30 | |
| 65-69 | 27 | 11 | 16 | 2.34 | 1.84 | 2.87 | |
| 70-74 | 23 | 14 | 9 | 1.99 | 2.35 | 1.61 | |
| 75-79 | 16 | 11 | 5 | 1.39 | 1.84 | 0.90 | |
| 80-84 | 11 | 5 | 6 | 0.95 | 0.84 | 1.08 | |
| 85-89 | 5 | 2 | 3 | 0.43 | 0.34 | 0.54 | |
| Average age | 28.98 | 29.03 | 28.93 | | | | |
| Medial age | 25.65 | 26.79 | 24.62 | | | | |

Sample 2. Population Structure of the Parish of Pridvorje by Age and Sex on 31 December 1831



| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 1447 | 731 | 716 | 100 | 100 | 100 | |
| 0-4 | 115 | 64 | 51 | 7.95 | 8.76 | 7.12 | |
| 5-9 | 135 | 70 | 65 | 9.33 | 9.58 | 9.08 | |
| 10-14 | 147 | 63 | 84 | 10.16 | 8.62 | 11.73 | |
| 15-19 | 146 | 83 | 63 | 10.09 | 11.35 | 8.80 | |
| 20-24 | 137 | 69 | 68 | 9.47 | 9.44 | 9.50 | |
| 25-29 | 125 | 59 | 66 | 8.64 | 8.07 | 9.22 | |
| 30-34 | 87 | 41 | 46 | 6.01 | 5.61 | 6.42 | |
| 35-39 | 68 | 31 | 37 | 4.70 | 4.24 | 5.17 | |
| 40-44 | 77 | 39 | 38 | 5.32 | 5.34 | 5.31 | |
| 45-49 | 74 | 34 | 40 | 5.11 | 4.65 | 5.59 | |
| 50-54 | 94 | 46 | 48 | 6.50 | 6.29 | 6.70 | |
| 55-59 | 88 | 48 | 40 | 6.08 | 6.57 | 5.59 | |
| 60-64 | 54 | 29 | 25 | 3.73 | 3.97 | 3.49 | |
| 65-69 | 44 | 25 | 19 | 3.04 | 3.42 | 2.65 | |
| 70-74 | 26 | 13 | 13 | 1.80 | 1.78 | 1.82 | |
| 75-79 | 12 | 8 | 4 | 0.83 | 1.09 | 0.56 | |
| 80-84 | 12 | 6 | 6 | 0.83 | 0.82 | 0.84 | |
| 85-89 | 5 | 2 | 3 | 0.35 | 0.27 | 0.42 | |
| 90-94 | 1 | 1 | | 0.07 | 0.14 | 0.00 | |
| Average age | 30.64 | 30.78 | 30.48 | | | | |
| Medial age | 26.76 | 26.44 | 27.12 | | | | |

Sample 3. Population Structure of the Parish of Pridvorje by Age and Sex on 31 December 1880



| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 978 | 464 | 514 | 100 | 100 | 100 | |
| 0-4 | 128 | 63 | 65 | 13.09 | 13.58 | 12.65 | |
| 5-9 | 112 | 60 | 52 | 11.45 | 12.93 | 10.12 | |
| 10-14 | 96 | 50 | 46 | 9.82 | 10.78 | 8.95 | |
| 15-19 | 89 | 43 | 46 | 9.10 | 9.27 | 8.95 | |
| 20-24 | 66 | 27 | 39 | 6.75 | 5.82 | 7.59 | |
| 25-29 | 64 | 27 | 37 | 6.54 | 5.82 | 7.20 | |
| 30-34 | 61 | 30 | 31 | 6.24 | 6.47 | 6.03 | |
| 35-39 | 47 | 28 | 19 | 4.81 | 6.03 | 3.70 | |
| 40-44 | 33 | 13 | 20 | 3.37 | 2.80 | 3.89 | |
| 45-49 | 52 | 22 | 30 | 5.32 | 4.74 | 5.84 | |
| 50-54 | 59 | 31 | 28 | 6.03 | 6.68 | 5.45 | |
| 55-59 | 41 | 19 | 22 | 4.19 | 4.09 | 4.28 | |
| 60-64 | 36 | 13 | 23 | 3.68 | 2.80 | 4.47 | |
| 65-69 | 26 | 10 | 16 | 2.66 | 2.16 | 3.11 | |
| 70-74 | 41 | 14 | 27 | 4.19 | 3.02 | 5.25 | |
| 75-79 | 15 | 9 | 6 | 1.53 | 1.94 | 1.17 | |
| 80-84 | 12 | 5 | 7 | 1.23 | 1.08 | 1.36 | |
| 85-89 | 0 | - | - | 0.00 | 0.00 | 0.00 | |
| Average age | 29.53 | 28.14 | 30.77 | | | | |
| Medial age | 24.92 | 23.15 | 26.35 | | | | |

Sample 4. Population Structure of the Parish of Lisac by Age and Sex on 31 December 1673



| Age | | Population | | Distribution (%) | | |
|-------------|-------|------------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female |
| Total | 679 | 346 | 333 | 100 | 100 | 100 |
| 0-4 | 94 | 53 | 41 | 13.84 | 15.32 | 12.31 |
| 5-9 | 71 | 39 | 32 | 10.46 | 11.27 | 9.61 |
| 10-14 | 56 | 27 | 29 | 8.25 | 7.80 | 8.71 |
| 15-19 | 43 | 27 | 16 | 6.33 | 7.80 | 4.80 |
| 20-24 | 59 | 33 | 26 | 8.69 | 9.54 | 7.81 |
| 25-29 | 53 | 25 | 28 | 7.81 | 7.23 | 8.41 |
| 30-34 | 40 | 23 | 17 | 5.89 | 6.65 | 5.11 |
| 35-39 | 44 | 25 | 19 | 6.48 | 7.23 | 5.71 |
| 40-44 | 50 | 24 | 26 | 7.36 | 6.94 | 7.81 |
| 45-49 | 33 | 10 | 23 | 4.86 | 2.89 | 6.91 |
| 50-54 | 40 | 18 | 22 | 5.89 | 5.20 | 6.61 |
| 55-59 | 21 | 8 | 13 | 3.09 | 2.31 | 3.90 |
| 60-64 | 24 | 7 | 17 | 3.53 | 2.02 | 5.11 |
| 65-69 | 18 | 8 | 10 | 2.65 | 2.31 | 3.00 |
| 70-74 | 16 | 7 | 9 | 2.36 | 2.02 | 2.70 |
| 75-79 | 12 | 10 | 2 | 1.77 | 2.89 | 0.60 |
| 80-84 | 4 | 2 | 2 | 0.59 | 0.58 | 0.60 |
| 85-89 | 1 | - | 1 | 0.15 | 0.00 | 0.30 |
| 90-94 | 0 | - | - | 0.00 | 0.00 | 0.00 |
| Average age | 29.22 | 27.46 | 31.04 | | | |
| Medial age | 26.60 | 24.24 | 29.11 | | | |

Sample 5. Population Structure of the Parish of Ponikve by Age and Sex on 31 December 1831



| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 897 | 428 | 469 | 100 | 100 | 100 | |
| 0-4 | 123 | 55 | 68 | 13.71 | 12.85 | 14.50 | |
| 5-9 | 76 | 42 | 34 | 8.47 | 9.81 | 7.25 | |
| 10-14 | 85 | 43 | 42 | 9.48 | 10.05 | 8.96 | |
| 15-19 | 86 | 43 | 43 | 9.59 | 10.05 | 9.17 | |
| 20-24 | 82 | 35 | 47 | 9.14 | 8.18 | 10.02 | |
| 25-29 | 75 | 35 | 40 | 8.36 | 8.18 | 8.53 | |
| 30-34 | 70 | 32 | 38 | 7.80 | 7.48 | 8.10 | |
| 35-39 | 63 | 29 | 34 | 7.02 | 6.78 | 7.25 | |
| 40-44 | 40 | 24 | 16 | 4.46 | 5.61 | 3.41 | |
| 45-49 | 41 | 17 | 24 | 4.57 | 3.97 | 5.12 | |
| 50-54 | 51 | 19 | 32 | 5.69 | 4.44 | 6.82 | |
| 55-59 | 38 | 20 | 18 | 4.24 | 4.67 | 3.84 | |
| 60-64 | 21 | 12 | 9 | 2.34 | 2.80 | 1.92 | |
| 65-69 | 16 | 10 | 6 | 1.78 | 2.34 | 1.28 | |
| 70-74 | 11 | 7 | 4 | 1.23 | 1.64 | 0.85 | |
| 75-79 | 16 | 5 | 11 | 1.78 | 1.17 | 2.35 | |
| 80-84 | 2 | - | 2 | 0.22 | 0.00 | 0.43 | |
| 85-89 | 1 | - | 1 | 0.11 | 0.00 | 0.21 | |
| Average age | 27.57 | 27.34 | 27.79 | | | | |
| Medial age | 24.82 | 24.57 | 25.13 | | | | |

Sample 6. Population Structure of the Parish of Lastovo by Age and Sex on 31 December 1673



| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 818 | 385 | 433 | 100 | 100 | 100 | |
| 0-4 | 94 | 39 | 55 | 11.49 | 10.13 | 12.70 | |
| 5-9 | 77 | 34 | 43 | 9.41 | 8.83 | 9.93 | |
| 10-14 | 57 | 28 | 29 | 6.97 | 7.27 | 6.70 | |
| 15-19 | 63 | 31 | 32 | 7.70 | 8.05 | 7.39 | |
| 20-24 | 90 | 47 | 43 | 11.00 | 12.21 | 9.93 | |
| 25-29 | 69 | 34 | 35 | 8.44 | 8.83 | 8.08 | |
| 30-34 | 75 | 34 | 41 | 9.17 | 8.83 | 9.47 | |
| 35-39 | 38 | 13 | 25 | 4.65 | 3.38 | 5.77 | |
| 40-44 | 53 | 29 | 24 | 6.48 | 7.53 | 5.54 | |
| 45-49 | 43 | 19 | 24 | 5.26 | 4.94 | 5.54 | |
| 50-54 | 40 | 22 | 18 | 4.89 | 5.71 | 4.16 | |
| 55-59 | 46 | 20 | 26 | 5.62 | 5.19 | 6.00 | |
| 60-64 | 35 | 17 | 18 | 4.28 | 4.42 | 4.16 | |
| 65-69 | 17 | 8 | 9 | 2.08 | 2.08 | 2.08 | |
| 70-74 | 13 | 6 | 7 | 1.59 | 1.56 | 1.62 | |
| 75-79 | 3 | 2 | 1 | 0.37 | 0.52 | 0.23 | |
| 80-84 | 5 | 2 | 3 | 0.61 | 0.52 | 0.69 | |
| Average age | 29.30 | 29.70 | 28.94 | | | | |
| Medial age | 27.10 | 27.06 | 27.14 | | | | |

Sample 7. Population Structure of the Parish of Lastovo by Age and Sex on 31 December 1730



| Age | | Population | | Distribution (%) | | | |
|-------------|-------|------------|--------|------------------|-------|--------|--|
| | Total | Male | Female | Total | Male | Female | |
| Total | 938 | 458 | 480 | 100 | 100 | 100 | |
| 0-4 | 115 | 63 | 52 | 12.26 | 13.76 | 10.83 | |
| 5-9 | 78 | 34 | 44 | 8.32 | 7.42 | 9.17 | |
| 10-14 | 84 | 39 | 45 | 8.96 | 8.52 | 9.38 | |
| 15-19 | 85 | 41 | 44 | 9.06 | 8.95 | 9.17 | |
| 20-24 | 86 | 48 | 38 | 9.17 | 10.48 | 7.92 | |
| 25-29 | 81 | 39 | 42 | 8.64 | 8.52 | 8.75 | |
| 30-34 | 60 | 22 | 38 | 6.40 | 4.80 | 7.92 | |
| 35-39 | 53 | 20 | 32 | 5.65 | 4.37 | 6.88 | |
| 40-44 | 60 | 34 | 26 | 6.40 | 7.42 | 5.42 | |
| 45-49 | 73 | 41 | 32 | 7.78 | 8.95 | 6.67 | |
| 50-54 | 45 | 22 | 23 | 4.80 | 4.80 | 4.79 | |
| 55-59 | 36 | 16 | 20 | 3.84 | 3.49 | 4.17 | |
| 60-64 | 25 | 11 | 14 | 2.67 | 2.40 | 2.92 | |
| 65-69 | 19 | 6 | 13 | 2.03 | 1.31 | 2.71 | |
| 70-74 | 17 | 9 | 8 | 1.81 | 1.97 | 1.67 | |
| 75-79 | 13 | 7 | 6 | 1.39 | 1.53 | 1.25 | |
| 80-84 | 8 | 6 | 2 | 0.85 | 1.31 | 0.42 | |
| Average age | 29.04 | 28.94 | 29.13 | | | | |
| Medial age | 26.36 | 25.64 | 27.14 | | | | |

Sample 8. Population Structure of the Parish of Lastovo by Age and Sex on 31 December 1780



| Age | Population | | | Distribution (%) | | |
|-------------|------------|-------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female |
| Total | 1049 | 495 | 554 | 100 | 100 | 100 |
| 0-4 | 108 | 50 | 58 | 10.30 | 10.10 | 10.47 |
| 5-9 | 108 | 55 | 53 | 10.30 | 11.11 | 9.57 |
| 10-14 | 69 | 32 | 37 | 6.58 | 6.46 | 6.68 |
| 15-19 | 73 | 41 | 32 | 6.96 | 8.28 | 5.78 |
| 20-24 | 85 | 40 | 45 | 8.10 | 8.08 | 8.12 |
| 25-29 | 56 | 25 | 31 | 5.34 | 5.05 | 5.60 |
| 30-34 | 73 | 36 | 37 | 6.96 | 7.27 | 6.68 |
| 35-39 | 74 | 34 | 40 | 7.05 | 6.87 | 7.22 |
| 40-44 | 100 | 45 | 55 | 9.53 | 9.09 | 9.93 |
| 45-49 | 70 | 38 | 32 | 6.67 | 7.68 | 5.78 |
| 50-54 | 60 | 28 | 32 | 5.72 | 5.66 | 5.78 |
| 55-59 | 35 | 10 | 25 | 3.34 | 2.02 | 4.51 |
| 60-64 | 48 | 21 | 27 | 4.58 | 4.24 | 4.87 |
| 65-69 | 38 | 16 | 22 | 3.62 | 3.23 | 3.97 |
| 70-74 | 28 | 14 | 14 | 2.67 | 2.83 | 2.53 |
| 75-79 | 17 | 7 | 10 | 1.62 | 1.41 | 1.81 |
| 80-84 | 5 | 2 | 3 | 0.48 | 0.40 | 0.54 |
| 85-89 | 1 | - | 1 | 0.10 | 0.00 | 0.18 |
| 90-94 | 1 | 1 | - | 0.10 | 0.20 | 0.00 |
| Average age | 31.97 | 31.13 | 32.72 | | | |
| Medial age | 31.78 | 30.69 | 32.97 | | | |

Sample 9. Population Structure of the Parish of Lastovo by Age and Sex on 31 December 1830



| Age | Population | | | Distribution (%) | | |
|-------------|------------|-------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female |
| Total | 1134 | 548 | 586 | 100 | 100 | 100 |
| 0-4 | 138 | 77 | 61 | 12.17 | 14.05 | 10.41 |
| 5-9 | 74 | 31 | 43 | 6.53 | 5.66 | 7.34 |
| 10-14 | 64 | 28 | 36 | 5.64 | 5.11 | 6.14 |
| 15-19 | 80 | 46 | 34 | 7.05 | 8.39 | 5.80 |
| 20-24 | 95 | 49 | 46 | 8.38 | 8.94 | 7.85 |
| 25-29 | 86 | 42 | 44 | 7.58 | 7.66 | 7.51 |
| 30-34 | 70 | 36 | 34 | 6.17 | 6.57 | 5.80 |
| 35-39 | 78 | 37 | 41 | 6.88 | 6.75 | 7.00 |
| 40-44 | 78 | 31 | 47 | 6.88 | 5.66 | 8.02 |
| 45-49 | 67 | 34 | 33 | 5.91 | 6.20 | 5.63 |
| 50-54 | 74 | 29 | 45 | 6.53 | 5.29 | 7.68 |
| 55-59 | 68 | 31 | 37 | 6.00 | 5.66 | 6.31 |
| 60-64 | 40 | 15 | 25 | 3.53 | 2.74 | 4.27 |
| 65-69 | 44 | 27 | 17 | 3.88 | 4.93 | 2.90 |
| 70-74 | 46 | 20 | 26 | 4.06 | 3.65 | 4.44 |
| 75-79 | 15 | 9 | 6 | 1.32 | 1.64 | 1.02 |
| 80-84 | 12 | 4 | 8 | 1.06 | 0.73 | 1.37 |
| 85-89 | 4 | 2 | 2 | 0.35 | 0.37 | 0.34 |
| 90-94 | 1 | - | 1 | 0.09 | 0.00 | 0.17 |
| Average age | 33.45 | 32.43 | 34.40 | | | |
| Medial age | 32.21 | 30.28 | 34.41 | | | |

Sample 10. Population Structure of the Parish of Lastovo by Age and Sex on 31 December 1880



| Age | Population | | | Distribution (%) | | |
|-------------|------------|-------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female |
| Total | 1483 | 726 | 757 | 100 | 100 | 100 |
| 0-4 | 89 | 44 | 45 | 6.00 | 6.06 | 5.94 |
| 5-9 | 186 | 101 | 85 | 12.54 | 13.91 | 11.23 |
| 10-14 | 158 | 78 | 80 | 10.65 | 10.74 | 10.57 |
| 15-19 | 129 | 69 | 60 | 8.70 | 9.50 | 7.93 |
| 20-24 | 128 | 63 | 65 | 8.63 | 8.68 | 8.59 |
| 25-29 | 127 | 57 | 70 | 8.56 | 7.85 | 9.25 |
| 30-34 | 116 | 63 | 53 | 7.82 | 8.68 | 7.00 |
| 35-39 | 110 | 56 | 54 | 7.42 | 7.71 | 7.13 |
| 40-44 | 87 | 40 | 47 | 5.87 | 5.51 | 6.21 |
| 45-49 | 47 | 17 | 30 | 3.17 | 2.34 | 3.96 |
| 50-54 | 38 | 21 | 17 | 2.56 | 2.89 | 2.25 |
| 55-59 | 58 | 29 | 29 | 3.91 | 3.99 | 3.83 |
| 60-64 | 57 | 26 | 31 | 3.84 | 3.58 | 4.10 |
| 65-69 | 63 | 24 | 39 | 4.25 | 3.31 | 5.15 |
| 70-74 | 37 | 20 | 17 | 2.49 | 2.75 | 2.25 |
| 75-79 | 34 | 11 | 23 | 2.29 | 1.52 | 3.04 |
| 80-84 | 14 | 6 | 8 | 0.94 | 0.83 | 1.06 |
| 85-89 | 4 | 1 | 3 | 0.27 | 0.14 | 0.40 |
| 90-94 | 1 | - | 1 | 0.07 | 0.00 | 0.13 |
| Average age | 30.59 | 29.24 | 31.89 | | | |
| Medial age | 27.05 | 25.79 | 28.14 | | | |

Sample 11. Population Structure of the Parish of Lastovo by Age and Sex on 31 December 1918



| Age | Population | | | Distribution (%) | | |
|-------------|------------|-------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female |
| Total | 1645 | 818 | 827 | 100 | 100 | 100 |
| 0-4 | 148 | 84 | 64 | 9.00 | 10.27 | 7.74 |
| 5-9 | 169 | 88 | 81 | 10.27 | 10.76 | 9.79 |
| 10-14 | 157 | 84 | 73 | 9.54 | 10.27 | 8.83 |
| 15-19 | 151 | 75 | 76 | 9.18 | 9.17 | 9.19 |
| 20-24 | 154 | 78 | 76 | 9.36 | 9.54 | 9.19 |
| 25-29 | 141 | 69 | 72 | 8.57 | 8.44 | 8.71 |
| 30-34 | 105 | 59 | 46 | 6.38 | 7.21 | 5.56 |
| 35-39 | 95 | 45 | 50 | 5.78 | 5.50 | 6.05 |
| 40-44 | 92 | 47 | 45 | 5.59 | 5.75 | 5.44 |
| 45-49 | 90 | 41 | 49 | 5.47 | 5.01 | 5.93 |
| 50-54 | 105 | 52 | 53 | 6.38 | 6.36 | 6.41 |
| 55-59 | 70 | 34 | 36 | 4.26 | 4.16 | 4.35 |
| 60-64 | 44 | 20 | 24 | 2.67 | 2.45 | 2.90 |
| 65-69 | 42 | 15 | 27 | 2.55 | 1.83 | 3.26 |
| 70-74 | 35 | 14 | 21 | 2.13 | 1.71 | 2.54 |
| 75-79 | 20 | 3 | 17 | 1.22 | 0.37 | 2.06 |
| 80-84 | 18 | 5 | 13 | 1.09 | 0.61 | 1.57 |
| 85-89 | 7 | 3 | 4 | 0.43 | 0.37 | 0.48 |
| 90-94 | 2 | 2 | - | 0.12 | 0.24 | 0.00 |
| Average age | 30.04 | 28.22 | 31.84 | | | |
| Medial age | 26.56 | 25.07 | 28.06 | | | |

Sample 12. Population Structure of the Parish of Karmen (Trstenica) by Age and Sex on 31 December 1751



| Age | Population | | | Distribution (%) | | |
|-------------|------------|-------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female |
| Total | 827 | 401 | 426 | 100 | 100 | 100 |
| 0-4 | 69 | 35 | 34 | 8.48 | 8.75 | 8.21 |
| 5-9 | 67 | 35 | 32 | 8.23 | 8.75 | 7.73 |
| 10-14 | 64 | 37 | 27 | 7.86 | 9.25 | 6.52 |
| 15-19 | 83 | 43 | 40 | 10.20 | 10.75 | 9.66 |
| 20-24 | 63 | 35 | 28 | 7.74 | 8.75 | 6.76 |
| 25-29 | 46 | 25 | 21 | 5.65 | 6.25 | 5.07 |
| 30-34 | 62 | 36 | 26 | 7.62 | 9.00 | 6.28 |
| 35-39 | 60 | 32 | 28 | 7.37 | 8.00 | 6.76 |
| 40-44 | 54 | 23 | 31 | 6.63 | 5.75 | 7.49 |
| 45-49 | 38 | 14 | 24 | 4.67 | 3.50 | 5.80 |
| 50-54 | 51 | 21 | 30 | 6.27 | 5.25 | 7.25 |
| 55-59 | 37 | 17 | 20 | 4.55 | 4.25 | 4.83 |
| 60-64 | 41 | 16 | 25 | 5.04 | 4.00 | 6.04 |
| 65-69 | 25 | 9 | 16 | 3.07 | 2.25 | 3.86 |
| 70-74 | 36 | 13 | 23 | 4.42 | 3.25 | 5.56 |
| 75-79 | 9 | 5 | 4 | 1.11 | 1.25 | 0.97 |
| 80-84 | 6 | 3 | 3 | 0.74 | 0.75 | 0.72 |
| 85-89 | 2 | 1 | 1 | 0.25 | 0.25 | 0.24 |
| 90-94 | 1 | - | 1 | 0.12 | 0.00 | 0.24 |
| Unknown | 13 | 1 | 12 | - | - | - |
| Average age | 32.79 | 30.51 | 34.99 | | | |
| Medial age | 31.77 | 28.20 | 36.07 | | | |

Sample 13. Population Structure of Cavtat by Age and Sex on 31 December 1830

