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# Ocenjevanje števila in velikosti gospodinjstev

# Estimation of the Number and Size of Households

## Uvod

Prva točka v tezah o nacionalnem stanovanjskem programu v Sloveniji govori o tem, da Republika Slovenija, v skladu s svojimi političnimi opredelitvami glede razvoja, izraža javni interes na stanovanjskem področju. Ta temelji na prepričanju, da je stanovanje osnovna človekova potreba pa tudi tržna, socialna in kulturna kategorija. Zato je za uresničevanje tega javnega interesa in izvajanja stanovanjske politike potreben nacionalni stanovanjski program v katerem bi bila stanovanjska politika avtonomna (samostojna), pa tudi integralni del razvojne, socialne in prostorske politike.

Število in sestava gospodinjstev glede na število članov je ena od ključnih postavk pri oceni stanovanjskih potreb. Gre za izrazito demografsko oceno, ki pove, koliko in kakšna imamo gospodinjstva, ocena potrebnega števila stanovanj pa je odvisna tudi od standardov, zastarelosti stanovanjskega fonda, funkcionalne zastarelosti itd.

Število gospodinjstev in njihova sestava je odvisna od sestave prebivalstva. Zato so osnovno izhodišče za oceno bodočega stanja projekcije prebivalstva. Vendar pa projekcije gospodinjstev v primerjavi s projekcijami prebivalstva ne potekajo enako, kajti v Sloveniji se povprečna velikost gospodinjstev še vedno zmanjšuje. To je posledica manjše rodnosti, ki se kaže v zmanjševanju gospodinjstev z večjim številom članov. Hkrati pa hitro narašča število enočlanskih gospodinjstev predvsem zaradi vedno večjega števila starejšega prebivalstva, ki sestavlja

## Introduction

The first point in the thesis on the national housing programme explains how the Republic of Slovenia, in accordance with its own policy definitions, defines housing as an area of public interest This is based on the conviction that housing is a basic human necessity which also belongs in the market, social and cultural categories. To act in accordance with this public interest and put into effect a housing policy, we need a national housing programme which sees housing policy as an integral but autonomous (independent) part of the developmental, social and environmental policies.

The number and composition of households (in terms of number of members) is one of the key factors in the estimation of housing needs. This, however, can only provide a demographic estimate of how many households there are, and of what kind. An estimate of housing needs must also take into account housing standards, the obsolescence of the housing fund, functional obsolescence etc.

The' number of households and their composition depends on the composition of the population. For this reason, population projections are the basic starting point for an estimation of the future situation. Household projections and population projections are not directly comparable since in Slovenia the average size of households is continuing to fall. This is a consequence of the declining birthrate, which is evidenced by the diminishing num-

Demografija Projekcije prebivalstva Projekcije gospodinjstev Stanovanjsko gospodarstvo Metodologija Slovenija

Članek predstavi) a metodologijo izračuna bodočega števila in velikosti gospodinjstev iz starostno spolne sestave prebivalstva.
Predvsem zaradi znižanja povprečne velikosti gospodinjstev in tudi ostalih vzrokov število gospodinjstev narašča hitreje kot število prebivalcev. Predstavljen je tudi matematični model izračuna.

Demography Population projections Household projections Housing economy Metodology Slovenia

The article deals with the methodology of calculation of the future number of households by number of members by age and sex structure of the population caltulated from population projections. Due to decrease in the average size of households, and other reasons, the number of households is growing faster than the population. A mathematical calculation matrix is also added.

veliko enočlanskih gospodinjstev. Tudi prelaganje rojstev na kasnejša leta pomeni večanje števila dvočlanskih gospodinjstev.

## Metode napovedi števila gospodinjstev

Za ocenjevanje bodočega števila gospodinjstev, pa tudi velikosti gospodinjstev, obstaja več metod, ki se med seboj razlikujejo glede:
- natančnosti in zahtevnosti izračuna;
- namembnosti projekcij;
- razpoložljivost podatkov in informacij.

Metode za izračun projekcij gospodinjstev, ki pridejo v praksi največkrat v poštev, lahko razdelimo na pet vrst:
- enostavna predpostavka o bodoči velikosti gospodinjstva;
- uporaba koeficienta poročenih žena na celotno število prebivalcev v posameznih starostnih skupinah;
- uporaba življenjskih tablic;
- uporaba podatkov o porokah, ponovnih porokah, ločitvah;
- uporaba koeficientov nosilstva gospodinjstev.

Te metode niso nujno ločene ena od druge, saj lahko na primer metodo "koeficientov nosilstva gospodinjstev" kombiniramo z življenjskimi tablicami. Pri različnih korekcijah rezultatov pa pogosto uporabljamo tudi enostavne predpostavke o bodoči velikosti gospodinjstev, na temelju podrobnejših obdelav zakonitosti spreminjanja povprečne velikosti gospodinjstev.

Pri našem delu pa je zelo pomembno, da ocenimo poleg bodočega števila gospodinjstev tudi njihovo strukturo po številu članov.

## Ocena bodočega števila in bodoče velikosti gospodinjstev po občinah

Za oceno bodočega števila in bodoče velikosti gospodinjstev smo

ber of large households. At the same time the number of one-member households is on the increase. This is primarily the consequence of the growing proportion of old people in the population. Old people account for most of the one-member households. Another factor is the current tendency to have children at a later age, which leads to an increase in the number of two-member households.

## Methods of Expressing the Number of Households

There exist a number of methods for estimating the future number and size of households. They differ in regard to:
- accuracy and requirements of the calculation;
- purpose of the projections;
- availability of data and information.

The methods for the calculation of household projections which are relevant in most practical cases can be divided into five types:
- simple conjecture about the future size of households;
- application of the married-women coefficient to the total number of inhabitants in specific age groups;
- application of life tables
- use of data on marriages, remarriages and separations
- application of headship rates.

These methods are not necessarily incompatible with each other. It is possible, for example, to combine the “headship rates” method with the life tables method. When it comes to the various adjustments of the results, we often make simple assumptions about the future size of households on the basis of more detailed processing of the legitimacy of changes to the average size of households.

It is extremely important in this process that along with estimates of the future number of households, estimates are also made regarding their structure in terms of number of members.

uporabili metodo, katere bistvo je predpostavka, da sta število in velikost gospodinjstev predvsem odvisna od starostno spolne sestave prebivalstva. Na temelju posebne obdelave demografskih podatkov v popisu leta 1971 smo za Slovenijo ugotovili povezavo med velikostjo gospodinj-stva po številu članov in sicer glede na starost žensk in moških kot nosilcev gospodinjstva. Povezava je izražena z matriko koeficientov, s katerimi lahko za vsako starostno spolno skupino prebivalcev neposredno ocenimo število gospodinjstev različnih velikostnih skupin.

Tako smo naredili osnovno matriko, ki za vsako petletno starostno spolno skupino daje koeficiente verjetnosti za oblikovanja različnega števila gospodinjstev po številu članov. Te vrednosti se časovno tudi spreminjajo, zato smo jih v različnih raziskovalnih in aplikativnih nalogah vedno uskladili s podatki zadnjega popisa prebivalstva.

Prvotno smo ocene delali le za Slovenijo, zaradi lažje dostopnosti do statističnih popisnih podatkov na računalnikih in z večjo zmogljivostjo osebnih računalnikov na inštitutu pa te obdelave uporabljamo tudi za manjša območja.

**Projekcije prebivalstva**

Ocena bodočega števila gospodinjstev po občinah je bila narejena do leta 2010. Osnova za oceno gospodinjstev glede na uporabljeno metodologijo so projekcije prebivalstva, ki so bile narejene za vsako občino posebej. Same metode izdelave projekcije v tem članku ne obravnavamo posebej. Omenimo naj le, daje bila projekcija narejena po naravni rasti (torej ob predpostavki, daje saldo migracij enak nič). Upo-rabili smo koeficiente rodnosti in umrljivosti, ki so bili ocenjeni glede na demografsko stanje okoli leta
1990.

Že rezultati projekcije prebivalstva kažejo na določene spremembe pri

## Estimation of the Future Number and Size of Households by Municipality

Any estimation of the future number and size of households is based on the assumption that the number and size of households is directly related to the age/sex structure of the population. On the basis of special processing of data from the 1971 census we have established for Slovenia a correlation between size of households in terms of number of members and the age of men and women who are heads of households. The correlation is expressed by a matrix of coefficients by means of which we are able to directly estimate for every age/sex group the number of households of different size groups.

In this way we set up a basic matrix which gives for each five-year age/ sex group the probability coefficients for the number of households of each type i.e. in terms of the number of members. These values are currently being adjusted so that our various research and application projects will accord with the information from the last census of the population.

Originally we only made estimates for Slovenia as a whole. Now, using the more powerful computers at the Institute, we are applying the same process to smaller regions.

**Population projections**

Estimates have been made of the number of households by municipalities up to the year 2010. The basis, in terms of the methodology used, for the estimation of households was the population projections made for each municipality separately.

The actual methods for processing these projections will not be dealt with in this article. We will only mention that the projection was made on the basis of natural growth (therefore on the assumption that the balance of migrations equals zero). We used birth-rate and mortality coefficients which were esti-

prebivalstvu Slovenije, ki bodo odločilno vplivale tudi na oceno bodočega števila in bodoče velikosti gospodinjstev.

Posledice sedanje nizke rodnosti bodo še dolgo trajale. Tako lahko pričakujemo, da se bo že do leta 2000 število otrok do 14. leta starosti znižalo za več kot 44 000. Število mladine v starosti 15 do 18 let pa bo upadlo skoraj za 7000. Posledice tega upadanja bodo še bolj izrazite po letu 2000, ko se bodo te maloštevilne generacije začele zaposlovati in se bo zato število aktivnih prebivalcev bistveno znižalo. Ker bodo to zelo maloštevilne generacije, se bo znižalo tudi število rojstev, kljub temu, da bi prišlo do morebitne zvišane rodnosti. To seveda pomeni, da bi Slovenija po letu 2000 dosegla negativno spiralo demografskega razvoja, ki bo posledica sedanje nizke rodnosti.

Po drugi strani pa, podobno kot skorajda po celotni Evropi, pričakujemo intenziven proces staranja prebivalstva. Ta proces zaradi dosedanjega demografskega razvoja v Sloveniji ni bil zelo intenziven (velike demografske izgube pri posameznih generacijah). Sedaj pa lahko pričakujemo celo hitrejše staranje prebivalstva kot v Zahodni Evropi. Zavedati se moramo, da dosegajo starost 65 let in več zelo številčne generacije. Tako naj bi se število prebivalcev starejših od 65 let že do leta 2000 povečalo za več kot 42 000.

Še do večjih nesorazmerij pa bo prihajalo po letu 2000, ko bo močneje prišla do izraza sedanja nizka rodnost, hkrati pa bodo v starejša obdobja prihajale zelo številčne generacije. Zavedati se moramo, da je bila takoj po drugi svetovni vojni rodnost zelo visoka, hkrati pa je tudi daleč največji del priseljenih prebivalcev iz nekdanjih jugoslovanskih republik rojen kmalu po vojni. Zavedati se moramo, da imamo že sedaj v Sloveniji več prebivalcev starih 60 let kot pa novorojenčkov, medtem kot je starih na primer 40 let še bistveno več.

mated on the basis of the demographic situation in around 1990.

The results of the population projection already indicate specific changes in Slovenia's population. These changes will certainly have an influence on the estimate of the future number and size of households.

The consequences of the current low birth-rate will be long-lasting. We can therefore predict that by the year 2000 the number of children up to the age of 14 will have fallen by more than 44,000. The number of young people aged 15-18 will have fallen by almost 7000. The consequences of this decline will be felt even more acutely after 2000 when these small generations reach employment age and the total active population is substantially smaller. Since these generations will be very small it follows that the number of births will also decrease, in spite of a potential increase in the birthrate. This means that without a doubt Slovenia will in the year 2000 be starting on a negative spiral of demographic development which is the direct consequence of today's low birth-rate.

Another important factor is that, as in practically all of Europe, we can expect significant ageing of the population. Because of the demographic development in Slovenia to date, this process has not yet been very intensive (large demographic losses in specific generations). Now, however, we can expect the ageing of the population to be faster than in Western Europe. We have to recognise the fact that extremely large numbers of people are going to live past the age of 65. The number of people aged 65 will, by the year 2000, have grown by more than 42,000.

The situation will be even more disproportionate after the year 2000 when the effects of today's low birth-rate will be more strongly felt and at the same time a large generation will be reaching old age. It is a simple fact that the birth-rate was extremely high immediately after the Second World War and by far the greatest proportion of immigrants from the republics of former Yugoslavia were born shortly after the War. It is also worth pointing out that we already

**Metodologija za preračun gospodinjstev iz prebivalstva**

Delo je potekalo v več fazah, za vsako občino in leto posebej:

1. priredba podatkov iz podatkov popisa ali projekcij prebivalstva v obliko, ki jo potrebujemo za preračun v gospodinjstva;

2. priprava koeficientov pretvorbe iz starostno spolne sestave prebivalstva v gospodinjstva po številu članov;

3. izračun prve ocene o številu in sestavi gospodinjstev;

4. korekcija glede na spremembe v sestavi gospodinjstev, ne glede na spremembe skupnega števila gospodinjstev;

5. ocena bodočega skupnega števila gospodinjstev;

6. premosorazmerna korekcija gospodinjstev glede na število članov na ocenjeno skupno število gospodinjstev;

7. ocena števila prebivalcev, ki smo jo izračunali iz števila gospodinjstev v Sloveniji in nato delna korekcija gospodinjstev glede na število članov;

8. izračun novih koeficientov pretvorbe, ki so osnova za izračun v naslednjem letu.

ad1
Podatki popisov prebivalstva se podajajo med drugim tudi po petletnih starostno-spolnih skupinah. Za naše potrebe smo jih združili v skupino 0 do 19 let, nato po petletnih skupinah do skupine 55 do 60 let, ostale skupine pa smo združili v skupino 60 let in več.

ad2
Izhajali smo iz koeficientov pretvorbe, ki so bili izračunani na osnovi podrobnih obdelav popisov leta 1971, 1981 in 1991. Za vsako občino smo potem izdelali nove koeficiente za leto 1991 in jih nato na osnovi različnih drugih korekcij popravljali za ostala izbrana leta. Pri-

have more people aged 60 than newborn babies in Slovenia, and an even more substantial number of people aged 40, for example.

The methodology for the calculation of households from population
The work was carried out in several phases and for each municipality and each year separately.

1. Adapting data from the census or population projections to make it suitable for calculating households.
2. Preparing coefficients with which to convert population into households by number of members.
3. First estimate on the number and composition of households."
4. Adjustment to take into account changes in the composition of households irrespective of changes in the total number of households.
5. Estimation of the total future number of households.
6. Directly proportional adjustment of the figures for households in terms of number of members on the basis of the estimated total number of households.
7. Estimation of the number of inhabitants calculated from the number of households in Slovenia followed by partial adjustment of households in terms of number of members.
8. Calculation of new conversion coefficients which are the basis for the calculation in the following year.

ad1.
Data in population censuses are presented, among other ways, in terms of five-year age/sex groups. For our purposes we combined 0 to 19 year olds into one group, then proceeded with five-year groups concluding with the group 55-60. The remaining groups, i.e. the over 60s, were also combined into one group.
ad2
We proceeded from the conversion coefficients which were calculated on the basis of a detailed processing of data from the censuses taken in

lagamo tudi izpis koeficientov pretvorbe za leto 1991 občine Ajdovščina. Koeficienti pretvorbe so v vsaki občini različni.

ad3
Na osnovi koeficientov pretvorbe smo izračunali prvo oceno sestave gospodinjstev po številu članov. Ta ocena seveda ni bila pravilna, ker je vedno izhajala iz starejših koeficientov pretvorbe, zato so bile potrebne nadaljnje korekcije.

ad4
Če imamo na nekem izbranem območju v dveh izbranih letih enako število gospodinjstev, to še ne pomeni, da v strukturi gospodinjstev ni prišlo do večjih sprememb. Praviloma se povečuje število gospodinjstev z manjšim številom članov, znižuje pa se število gospodinjstev z večjim številom članov. Zato smo najprej spremenili strukturo gospo-

1971, 1981 and 1991. We went on to work out new coefficients for each municipality for the year 1991 and then adapted them, by means of various other adjustments, for the other selected years. We include here a copy of the conversion coefficients for 1991 for the Ajdovščina municipality. The conversion coefficients are different for each municipality.

ad3
Using these conversion coefficients we made a first estimate of the composition of households in term of the number of members. This estimate was not completely accurate since it relied on older conversion coefficients. For this reason, further adjustments were necessary.

ad4
Even if we end up with the same number of households in a selected region in two selected years, this still does not mean that there have not

***Tabela 1:*** *Koeficienti pretvorbe za izračun števila članov gospodinjstev v petletnih starostnih skupinah prebivalcev za občino Ajdovščina - leto 1991*

***Table 1***: Conversion coefficients for the calculation of the number of household members from each five-year age group of inhabitants in the munici-pality of Ajdovščina - year 1991

| šif/ code | občina/ municipality name | starost/ age | M1 | M2 | M3 | M4 | M5 | M6 | Z1/ W1 | Z2/ W2 | Z3/ W3 | Z4/ W4 | Z5/ W5 | Z5/ W6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | Ajdovščina | 0-19 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0019 | 0.0097 | 0.0014 | 0.0000 | 0.0000 |
| 01 | Ajdovščina | 20-24 | 0.2498 | 0.0038 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1450 | 0.0948 | 0.2713 | 0.1074 | 0.0080 | 0.0020 |
| 01 | Ajdovščina | 25-29 | 0.1127 | 0.0079 | 0.0036 | 0.0008 | 0.0000 | 0.0000 | 0.0444 | 0.1240 | 0.2988 | 0.3361 | 0.0656 | 0.0086 |
| 01 | Ajdovščina | 30-34 | 0.0542 | 0.0091 | 0.0070 | 0.0037 | 0.0011 | 0.0004 | 0.0275 | 0.0894 | 0.2334 | 0.4237 | 0.1392 | 0.0336 |
| 01 | Ajdovščina | 35-39 | 0.0334 | 0.0094 | 0.0075 | 0.0039 | 0.0011 | 0:0004 | 0.0257 | 0.0715 | 0.1928 | 0.4202 | 0.1804 | 0.0797 |
| 01 | Ajdovščina | 40-44 | 0.0254 | 0.0099 | 0.0078 | 0.0041 | 0.0011 | 0.0004 | 0.0292 | 0.1163 | 0.1677 | 0.3451 | 0.1776 | 0.0754 |
| 01 | Ajdovščina | 45-49 | 0.0230 | 0.0108 | 0.0085 | 0.0043 | 0.0012 | 0.0004 | 0.0383 | 0.1416 | 0.1217 | 0.2827 | 0.1535 | 0.1199 |
| 01 | Ajdovščina | 50-54 | 0.0237 | 0.0078 | 0.0037 | 0.0032 | 0.0008 | 0.0003 | 0.0555 | 0.1990 | 0.0848 | 0.1798 | 0.1260 | 0.1226 |
| 01 | Ajdovščina | 55-59 | 0.0229 | 0.0157 | 0.0124 | 0.0063 | 0.0018 | 0.0007 | 0.0695 | 0.2011 | 0.0790 | 0.1305 | 0.1191 | 0.1193 |
| 01 | Ajdovščina | 60 + | 0.0521 | 0.0173 | 0.0136 | 0.0070 | 0.0019 | 0.0007 | 0.1491 | 0.1940 | 0.0315 | 0.0439 | 0.0482 | 0.0729 |

Legenda:
M1 - koeficient pretvorbe, ki izraža, kolikšna je verjetnost, da se bo pri določenem številu moških prebivalcev v določeni starostni skupini oblikovalo določeno število enočlanskih gospodinjstev;

Z3 - koeficient pretvorbe, ki izraža, kolikšna je verjetnost, da se bo pri določenem številu žensk v neki starostni skupini oblikovalo določeno število tričlanskih gospodinjstev.

Key:
M1: - conversion coefficient which expresses the probability of there being a given number of one-member households among a given number of men from a particular age group.

W3: - conversion coefficient which expresses the probability of there being a given number of three-member households among a given number of women from a particular age group.

dinjstev, ne da bi spreminjali skupno število gospodinjstev. Pri tem smo si pomagali z empirično ugotovljenimi koeficienti sprememb v obdobju 1971-1981, ki pa smo jih ponekod še korigirali.

Diferencirani koeficienti spremembe v strukturi gospodinjstev:

| | |
|---|---|
| 1 članska | 110,1 |
| 2 članska | 132,5 |
| 3 članska | 121,1 |
| 4 članska | 125,7 |
| 5 članska | 94,2 |
| 6 'članska | 85,0 |

ad5
Poleg spremenjene strukture gospodinjstev glede na število članov, pa je bilo treba oceniti tudi novo skupno število gospodinjstev. Pri tem smo za leto 1991 uporabili podatke popisa prebivalstva, za leto 2010 pa smo uporabili ocene, ki so temeljile na nadaljnjem zmanjševanju povprečne velikosti gospodinjstev.

Za leto 2010 smo predpostavljali, da se bo ta hitrost zmanjševala in dosegla v 20 letih enako spremembo, kot jo je prej v desetih letih.

been major changes in the structure of households. In general terms the number of households with few members is going up and the number of households with several members is going down. Therefore we first of all converted the structure of households, without changing the total number of households. To do this we used the empirically- established change coefficients from 1971 -1981 which in some places we have corrected further.

Differentiated coefficients of change in the structure of households:

| | |
|---|---|
| 1 member households | 110.1 |
| 2 member households | 132.5 |
| 3 member households | 121.1 |
| 4 member households | 125.7 |
| 5 member households | 94.2 |
| 6 member households | 85.0 |

ad5
Along with the changed structure of households in terms of number of members, it was also necessary to make a new estimate of the total number of households. For 1991 we used the data from the population census, and for 2010 we used estimates based on the continuing fall in the average size of households.

***Tabela 2:*** Spremembe povprečne velikosti gospodinjstev in skupnega števila gospodinjstev med letoma 1991 in 2010 po občinah (primer)

***Table 2:*** *Changes in the average size and total number of households between 1991 and 2010, by municipality (examples)*

| šifra/ code | ime občine municipality name | PVEL/ AVE SIZE 1991 | PVEL/ AVE SIZE 2010 | ŠT/ NO. 1991 | ŠT/ NO. 2010 | IND/ 2010/91 |
|---|---|---|---|---|---|---|
| 1 | AJDOVSCINA | 3.24 | 2.93 | 6989 | 7755 | 111.0 |
| 2 | BREZICE | 3.22 | 3.08 | 7682 | 7583 | 98.7 |
| 3 | CELJE | 2.88 | 2.80 | 22501 | 22743 | 101.1 |
| 4 | CERKNICA | 3.06 | 2.96 | 4910 | 4936 | 100.5 |
| 5 | CRNOMELJ | 3.33 | 3.43 | 5511 | 5358 | 97.2 |
| 6 | DOMZALE | 3.29 | 3.16 | 13448 | 14523 | 108.0 |
| 7-62 | | | | | | |
| | SLOVENIA | | | 640198 | 667399 | 104.2 |

**Legenda:**
PVEL1991 - povprečna velikost gospodinjstev v letu 1991 (2010)

ŠT1991 - število gospodinjstev v letu 1991 (ocena za leto 2010)

IND2010/91 - indeks gibanja števila gospodinjstev v obdobju 1991- 2010 (1991=100)

**Key:**
A VE SIZE 1991 - average size of households in 1991.
AVE SIZE 2010- average size of households in 2010.
No. 1991 - numberof households in 1991 (estimate for 2010)

INDEX 2010/91 - index of the change in the number of households in the period 1991-2010 (1991 = 100)

ad6
Na osnovi nove ocene skupnega števila gospodinjstev smo premosorazmerno korigirali tudi strukturo gospodinjstev po številu članov.

ad7
Ker smo hoteli preveriti pravilnost postopka, smo vedno izračunali tudi število prebivalcev iz ocen števila in velikosti gospodinjstev. Le-to smo za posamezna leta delno korigirali, pri tistih občinah, kjer so bile razlike najbolj očitne.

ad8
Nazadnje smo vedno izračunali nove koeficiente pretvorbe, ki so bili izhodišče za oceno v naslednjem izbranem letu.

## Opis rezultatov

Povprečna velikost gospodinjstev se v Sloveniji še vedno zmanjšuje predvsem zaradi manjšega števila rojstev, rasti števila starejšega prebivalstva (pri katerem je veliko eno in dvočlanskih gospodinjstev), pa tudi zaradi vedno manjšega števila večgeneracijskih družin, ki živijo v istem gospodinjstvu.

Karta sprememb v številu gospodinjstev med letoma 1991 in 2010 kaže vse značilnosti sedanjih demo-

For the year 2010 we worked on the supposition that this rate is going to slow down and that there will therefore be the same change in 20 years as there was before in 10 years.

ad6
On the basis of the new estimate of the total number of households we also made proportional corrections to the structure of households by number of members.

ad7
In order to verify the accuracy of the procedure we also calculated the number of inhabitants from the estimates of the number and size of households. We then made partial corrections for individual years for those municipalities where the differences were most marked.

ad8
Lastly we calculated new conversion coefficients which served as the starting point for the estimate in the next selected year.

**Report of results**

The average size of households in Slovenia is still decreasing, primarily because of the smaller number of births, the increasing number of old people in society (who account for many of the one and two member households) and continuing fall in the number of households made up of different generations of the same family.

***T*abela 3:** Ocena gospodinjstev po številu članov leta 2010 (primeri)

***Table 3:** Estimate of households by number of members in 2010 (exam.)*

| šifra/ code | ime občine/ municipality name | 1ČL/ 1 MEM | 2ČL/ 2 MEM | 3ČL/ 3 MEM | 4ČL/ 4 MEM | 5ČL/ 5 MEM | 6<ČL 6+ | skupaj/ total |
|---|---|---|---|---|---|---|---|---|
| 1 | AJDOVSCINA | 1571 | 1817 | 1370 | 3007 | 615 | 375 | 7755 |
| 2 | BREZICE | 1284 | 1668 | 1546 | 1930 | 656 | 499 | 7583 |
| 3 | CELJE | 4321 | 5919 | 5163 | 5457 | 1197 | 686 | 22743. |
| 4 | CERKNICA | 894 | 1149 | 968 | 1324 | 409 | 192 | 4936 |
| 5 | CRNOMELJ | 664 | 907 | 993 | 1689 | 559 | 546 | 5358 |
| 6 | DOMZALE | 1992 | 2965 | 3116 | 4520 | 1232 | 698 | 14523 |
| 7 | DRAVOGRAD | 445 | 616 | 637 | 857 | 232 | 186 | 2973 |
| 8 | G. RADGONA | 765 | 1105 | 1405 | 1963 | 685 | 589 | 6512 |
| 9-62 | | | | | | | | |
| | SLOVENIA | 112684 | 156321 | 145334 | 178367 | 45871 | 28822 | 667399 |

Legenda:
1 ČL - ocena števila enočlanskih gospodinjstev (2, 3 ...)

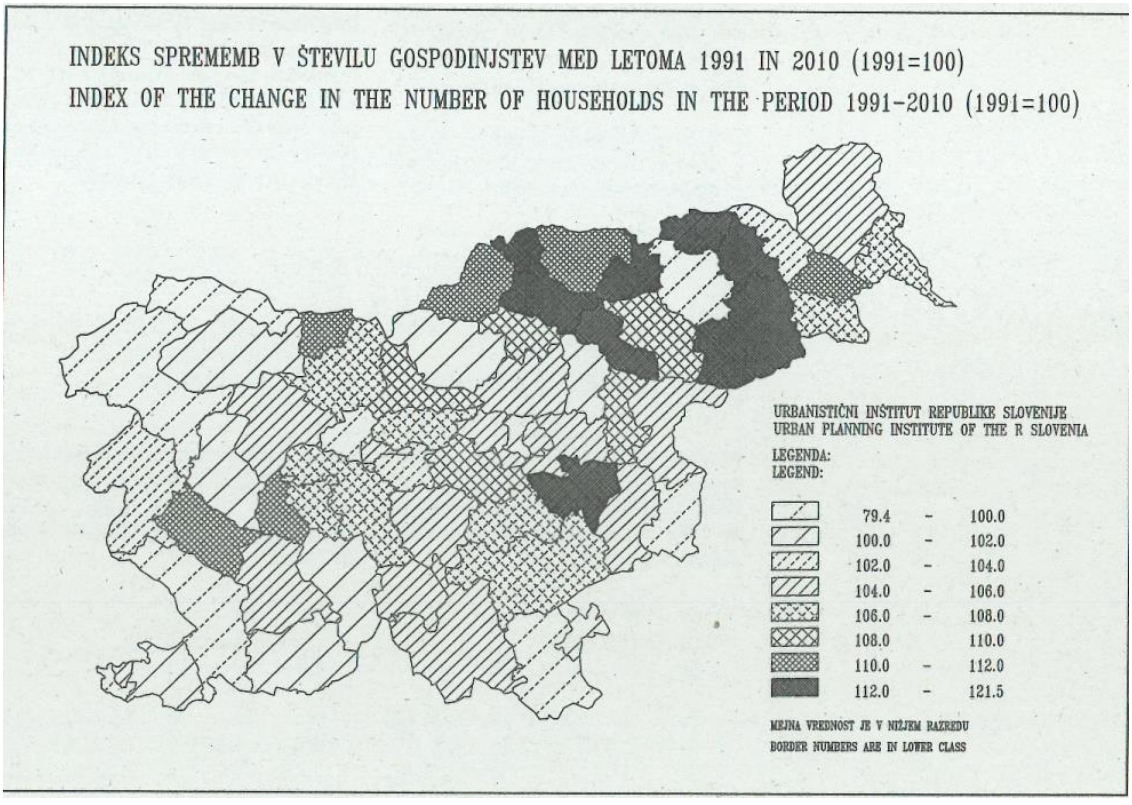
Key:
1 MEM - estimate of the number of one- member households (2 MEM = two-members etc.)

grafskih procesov v Sloveniji. Ocena bodočega števila gospodinjstev je v temelju odvisna od sprememb v številu prebivalcev. Ker pa je Slovenija danes že na demografskem pragu (demografski prag pomeni, da začne število umrlih presegati število rojenih in se s tem začne zniževanje števila prebivalcev), lahko v posameznih občinah pričakujemo znižanje števila gospodinjstev. Zavedati pa se moramo, da lahko v vseh občinah pričakujemo v prvih letih po letu 1991 zviševanje števila gospodinjstev v vseh občinah. Dejansko nazadovanje pa se bo začelo šele po letu 2000, ki pa bo pnekod celo zelo izrazito.

Čeprav se bo v obdobju 2000 - 2010 število prebivalcev v občinah začelo zniževati, pa lahko pričakujemo na posameznih območjih v Sloveniji še vedno močan porast števila gospodinjstev. To velja predvsem za Koroško in severni del Štajerske, kjer je naravna rast prebivalstva še vedno najbolj ugodna, torej je tudi rast števila prebivalcev med najhitrejšimi v Sloveniji. Hkrati pa so to tudi

The chart of changes in the number of households between 1991 and 2010 shows all the characteristics of the current demographic processes in Slovenia. The estimate of the future number of households is fundamentally, dependent on changes in the number of inhabitants. Slovenia today is already on a demographic threshold (this means that the number of deaths is beginning to overtake the number of births) and therefore we can expect a fall in the number of households in certain municipalities. It should be noted, however, that in the years immediately following 1991 a rise in the number of households can be expected in all municipalities. The fall will not actually begin until after the year 2000, at which time it will be very marked indeed in certain areas.

Although the number of inhabitants in the municipalities will begin to fall in the period 2000-2010 we can still expect a steady growth in the number of households in certain municipalities, most notably in Koroška and the northern part of Štajerska, where the natural growth of



območja, ki imajo danes še sorazmerno veliko povprečno velikost gospodinjstev.

Močnejši porast števila gospodinjstev je tudi v nekaterih delih subpanonske Slovenije, predvsem zaradi zmanjševanja povprečne velikosti gospodinjstev. Podoben porast v osrednji Sloveniji pa je posledica sedanje ugodne starostne sestave prebivalstva in stem hitrejše rasti števila prebivalcev. Najmanjši porast ali celo upadanje števila gospodinjstev pa je v zahodnem delu Slovenije, kjer je povprečna velikost gospodinjstev že sedaj zelo majhna, hkrati pa je tudi rast števila prebivalcev najpočasnejša.

**Matematični opis postopka**
(Boldin Danijel dipl. org. inf.)

Oceno bodočega števila gospodinjstev izračunamo s pomočjo podatkov o prebivalcih in koeficientov za pretvorbo prebivalcev v gospodinjstva. Pri tem razdelimo podatke o prebivalcih (moški, ženske) na 10 starostnih skupin (0-19, 20-24, 25-29,...55-59, 60 in več). Začetno stanje opišemo z naslednjimi podatki:

- spolno starostna struktura prebivalstva (moški, ženske) po petletnih starostnih skupinah

the population is still very satisfactory, and among the fastest in Slovenia. Hie average size of households in these regions is still relatively high.

Stronger growth in the number of households is also a feature in certain parts of Sub-Pannonian Slovenia, mainly because of the fall in the average size of households. A similar rate of growth in central Slovenia is the consequence of the favourable age structure of the population and the accompanying faster rate of growth of the number of inhabitants. The lowest rate of growth or overall decline in the number of households is found in the west of the country, where the average size of households is already very small and where at the same time the rate of growth in the number of inhabitants is the slowest.

**Account of the procedure in mathematical terms** (Danijel Boldin)

To make an estimate of the future number of households we use data on inhabitants and coefficients to convert the number of inhabitants into households. We then divide the data on inhabitants (men and women) into ten age groups (0-19, 20- 24, 25-29...55-59, 60+). This initial picture is then presented in terms of the age/sex structure of the population in five-year age groups.

$$M \quad Ž \qquad\qquad M \quad W$$
$$P(t), \; P(t) \qquad\qquad P(t), \; P(t)$$
$$j,i \quad j,i \qquad\qquad j,i \quad j,i$$

j - oznaka občine
i - petletne starostne skupine
t - leto 1991

j - municipality code
i - 5-year age group
t - 1991

Najprej za leto 1991 izračunamo oceno števila gospodinjstev s pomočjo koeficientov pretvorbe za leto 1981 in podatkov popisa prebivalcev leta 1991.

Using the conversion coefficients for 1981 and data from the population census of 1991 we make an estimate of the number of households in 1991.

$$G^{M}_{j,k}(t) = k^{M}_{i}(to) \cdot P^{M}_{j,i}(t) \qquad H^{M}_{j,k}(t) = k^{M}_{i}(to) \cdot P^{M}_{j,i}(t)$$

$$G^{Ž}_{j,k}(t) = k^{Ž}_{i}(to) \cdot P^{Ž}_{j,i}(t) \quad \begin{matrix} j = 1,2,3...62 \\ i = 1,2,3...10 \\ k = 1,2,3...6 \end{matrix} \qquad H^{W}_{j,k}(t) = k^{W}_{i}(to) \cdot P^{W}_{j,i}(t) \quad \begin{matrix} j = 1,2,3...62 \\ i = 1,2,3...10 \\ k = 1,2,3...6 \end{matrix}$$

$$M \quad Ž$$
$$G(t), \; G(t)$$
$$j,k \quad j,k$$

$$M \quad W$$
$$H(t), \; H(t)$$
$$j,k \quad j,k$$

ocena števila gospodinjstev za le-to 1991

Estimate of the number of households in 1991

$$M \quad Ž$$
$$k(to), \; k(to)$$
$$i \quad i$$

$$M \quad W$$
$$k(to), \; k(to)$$
$$i \quad i$$

koeficient pretvorbe prebivalcev v gospodinjstva (moški, ženske) za 5 letne starostne skupine (to).

t - leto 1991
to - leto 1981

coefficient to convert population to households (men and women) for 5-year age groups (to).

t - 1991
to - 1981

Na osnovi podatkov popisa 1991 o številu članov gospodinjstev in izračunane ocene števila gospodinjstev korigiramo koeficiente pretvorbe leta 1981. Tako dobimo nove koeficiente za pretvorbo prebivalcev v gospodinjstva za leto 1991.

On the basis of data from the 1991 census on the number of household members and the estimate of the number of households we corrected the conversion coefficients for 1981. This gave us new coefficients to convert population into households for 1991.

$$k^{M}_{j,i}(t) = k^{M}_{i}(to) \cdot \left( Gp^{M}_{j,k}(t) / G^{M}_{j,k}(t) \right)$$

$$k^{Ž}_{j,i}(t) = k^{Ž}_{i}(to) \cdot \left( Gp^{Ž}_{j,k}(t) / G^{Ž}_{j,k}(t) \right)$$

$$Gp^{M}_{j,k}(t), \; Gp^{Ž}_{j,k}(t)$$

podatki o številu članov gospodinjstev iz popisa 1991

t – leto 1991
to – leto 1981

$$k^{M}_{j,i}(t) = k^{M}_{i}(to) \cdot \left( Hp^{M}_{j,k}(t) / H^{M}_{j,k}(t) \right)$$

$$k^{W}_{j,i}(t) = k^{W}_{i}(to) \cdot \left( Hp^{W}_{j,k}(t) / H^{W}_{j,k}(t) \right)$$

$$Hp^{M}_{j,k}(t), \; Hp^{W}_{j,k}(t)$$

data on number of household members from the 1991 census

t – 1991
to – 1981

S pomočjo koeficientov za pretvorbo prebivalcev v gospodinjstva za leto 1991 in podatkov o prebivalcih iz projekcije za leto 2010 izračunamo oceno števila članov gospodinjstev za leto 2010.

Using the coefficients for converting population into households for 1991 and the population data from the projection for the year 2010 we can estimate the number of household members for 2010.

$$G^{M}_{j,k}(t) = k^{M}_{j,i}(to) \cdot P^{M}_{j,i}(t)$$

$$G^{Ž}_{j,k}(t) = k^{Ž}_{j,i}(to) \cdot P^{Ž}_{j,i}(t)$$

t – leto 2010
to – leto 1991

$$H^{M}_{j,k}(t) = k^{M}_{j,i}(to) \cdot P^{M}_{j,i}(t)$$

$$H^{W}_{j,k}(t) = k^{W}_{j,i}(to) \cdot P^{W}_{j,i}(t)$$

t – 2010
to – 1991

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Dobljeno oceno števila članov gospodinjstev proporcionalno popravimo glede na skupno število gospodinjstev iz projekcije. V nadaljevanju dobljene rezultate popra-vimo z diferencirano korekcijo glede na predpostavke o strukturi gospodinjstev. Rezultate ponovno proporcionalno popravimo. Na koncu izvedemo še korekcijo glede na predvideno število prebivalcev iz projekcije.

Ti končni podatki o številu članov gospodinjstev za leto 2010 nam tvorijo osnovo za korekcijo koeficientov pretvorbe za leto 2010.

The resulting estimate of the number of household members was harmonised (proportionally) with the total number of households from the projection. The results thus obtained were then adjusted using differential correction and with regard to the assumptions on the structure of households. These results had again to be (proportionally) harmonised with the predicted number of inhabitants from the projection.

The final data on the number of household members in 2010 was based on the correction of the conversion coefficients for 2010.

$$k^{M}_{j,i}(t) = k^{M}_{j,i}(to) \cdot \left( Gk^{M}_{j,k}(t) / G^{M}_{j,k}(t) \right)$$

$$k^{Ž}_{j,i}(t) = k^{Ž}_{j,i}(to) \cdot \left( Gk^{Ž}_{j,k}(t) / G^{Ž}_{j,k}(t) \right)$$

t – leto 2010
to – leto 1991

$Gk^{M}_{j,k}(t)$, $Gk^{Ž}_{j,k}$

končna ocena števila gospodinjstev za leto 2010

$G^{M}_{j,k}(t)$, $G^{Ž}_{j,k}$

ocena števila gospodinjstev za leto 2010 izračunana iz koeficientov za leto 1991

$k^{M}_{j,i}(t)$, $k^{Ž}_{j,i}$

koeficienti pretvorbe prebivalcev v gospodinjstva za leto 2010.

$k^{M}_{j,i}(to)$, $k^{Ž}_{j,i}$

koeficienti pretvorbe prebivalcev v gospodinjstva za leto 1991

Aleksander Jakoš, dipl. geogr., Urbanistični inštitut Republike Slovenije

$$k^{M}_{j,i}(t) = k^{M}_{j,i}(to) \cdot \left( Hk^{M}_{j,k}(t) / H^{M}_{j,k}(t) \right)$$

$$k^{W}_{j,i}(t) = k^{W}_{j,i}(to) \cdot \left( Hk^{W}_{j,k}(t) / H^{W}_{j,k}(t) \right)$$

t – 2010
to – 1991

$Hk^{M}_{j,k}(t)$, $Hk^{W}_{j,k}(t)$

final estimate of the number of households in 2010

$H^{M}_{j,k}(t)$, $H^{W}_{j,k}(t)$

estimate of the number of households in 2010 calculated from the 1991 coefficients

$k^{M}_{j,i}(t)$, $k^{W}_{j,i}(t)$

2010 coefficients for converting population into households

$k^{M}_{j,i}(to)$, $k^{W}_{j,i}(to)$

1991 coefficients for converting population into households

Aleksander Jakoš, dipl. geogr., Urban Planning Institute of Republic of Slovenia