How the household structure will change in the aging population of the Czech Republic in forthcoming decades?

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Population in developed countries is characterised by population ageing. The average age and share of population 60+ on total population, as main indicators for population ageing recognition, are increasing and population forecasts reveal that the process has not finished yet. Such a profound change in population age-structure has with no doubt many consequences. One of them is also a change in household structure. Therefore, the main objective of our contribution is to examine the impact of changing age-structure on future household structure and size for the Czech Republic till the year 2040. Due to the recommendations of the 2010 World Population and Housing Census Programme and Eurostat, which are reflected in the methodology of the Czech population census held in 2011, the forecast deals with the selected types of housekeeping households, namely: one-couple families with/without children, lone-parent families with/without children and one- person households. Although, household projections have a relatively long tradition in the Czech Republic, the first one was constructed in 1963 with the time horizon to 1980, the household forecast methodology is deeply discussed at least for two reasons: new data specification and needs for the forecast, and utilization of two distinct approaches, deterministic and probabilistic.

According data of the Czech Statistical Office (CZSO), the life expectancy at birth in the Czech Republic increased for both men and women from 67.9 and 73.4 years in 1960 to 70.0 and 80.9 years in 2012 respectively. In addition, the average age rose from 34.4 years in 1960 to 41.2 in 2012 and share of population 60+ on total population increased from 14.5 per cent to 23.5 per cent in the same years. The population ageing is not only due to improvement in mortality in the Czech Republic, but also due to low level of fertility. While the total fertility rate equalled to 2.1 children per woman in 1960, the value declined to 1.45 children per woman in 2012. The lowest level of the total fertility rate was reached a few years after the Velvet Revolution, in 1999, when the total fertility rate amounted 1.13 children per woman (CZSO, 2013). These changes are apparent also in the household structure (See Table 1).

The total number of housekeeping households which are in definition framed by the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living (OECD, 2013), increased by more than 1.3 million households in period 1961-2011. Furthermore, share of one-couple families

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on housekeeping families declined from almost 80 in 1961 to 50 per cent in 2011 and the proportion of one-parent families and one-person household on housekeeping households increase to 14 and 32 per cent in 2012 in the given order.

Table 1: Households by studied type, censuses 1961–2011, the Czech Republic

Census year	Housekeeping households	One-couple families	Lone-parent families	One-person households	One-couple families	Lone-parent families	One-person households
	In thousands				In % of Housekeeping households		
1961	3035	2405	250	515	79.2	8.2	17.0
1970	3365	2488	307	669	73.9	9.1	19.9
1980	3791	2557	325	939	67.5	8.6	24.8
1991	3984	2513	434	1090	63.1	10.9	27.4
2001	4216	2334	576	1276	55.4	13.7	30.3
2011[*)]	4375	2193	612	1422	50.1	14.0	32.5

*) one-couple and lone-parent families without families in households consisting of three or more families
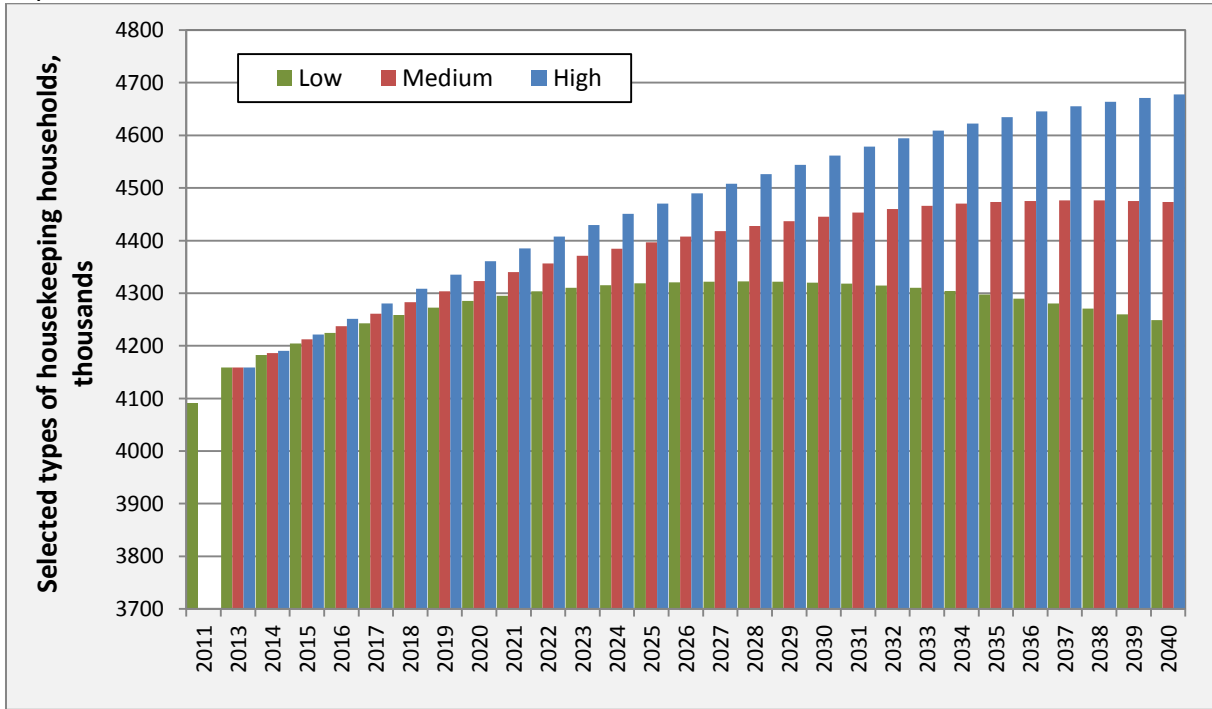*Source: Czech Statistical Office, 2013c*

The previous households forecasts for the Czech Republic (e.g. Bartoňová, Kučera 2005; CZSO, 2005) were predominantly focused on census household and utilised the conventional headship rate method (United Nation, 1973). Also in our deterministic household forecast is the conventional headship rate applied, but due to change in population census methodology from the permanent residence to usual residence in census 2011, the future structure and size of housekeeping household is studied. In spite of the fact, that the conventional headship rate method was developed in the first half of the 20th century, the method is in modification still applied in research due its consistency and robustness. As Sherbov and Ediev (2007) pointed out, significant changes in fertility and mortality affect the age-specific headship rates only moderately. In addition, the headship rates also reflect the socioeconomic development in a given country. However there are arguments preferring the conventional headship rate method, the arguments against the method also exist. Therefore, to avoid inconsistencies in deterministic forecast of housekeeping household size the approach introduced by Ediev (2007) is utilized. The method employs conditional shares of households among households of the same or larger size what eliminates the problem that households with *k* and more members has the average size less than *k* in the forecast (Ediev, 2007).

Preliminary results of deterministic household forecast for the Czech Republic till the year 2040, which utilized data of the Czech Population and Housing census 2011 and the population projection issued by the Czech Statistical Office in 2013, reveals that in all variants (low, medium, high) the overall number of studied types of housekeeping household will probably increase by the end of the projected period in comparison to 2011. More precisely the low variant assumes increase by 3.9 per cent, medium 9.4 per cent and high variant by 14.4 per cent. A closer look at the structure reveals that the main contributor

to the increase in all variants will be under given assumptions primarily one-person households. One-couple families and lone-parent families will be most likely contributing to the overall increase in number of studied housekeeping household till 2040 in all variants only moderately in the Czech Republic. Considering size of housekeeping households, in medium variant, which is in case of deterministic forecast assumed as most probable, the proportion of one-couple families size 2 would probably increase on the total number of one-couple families and the number of lone-parent families size 3, 4, 5 and 6 and more would rather stagnate between 2013 and 2040 (See Figure 2). As a result it is expected that the average size of studied housekeeping households will decrease over the studied period.
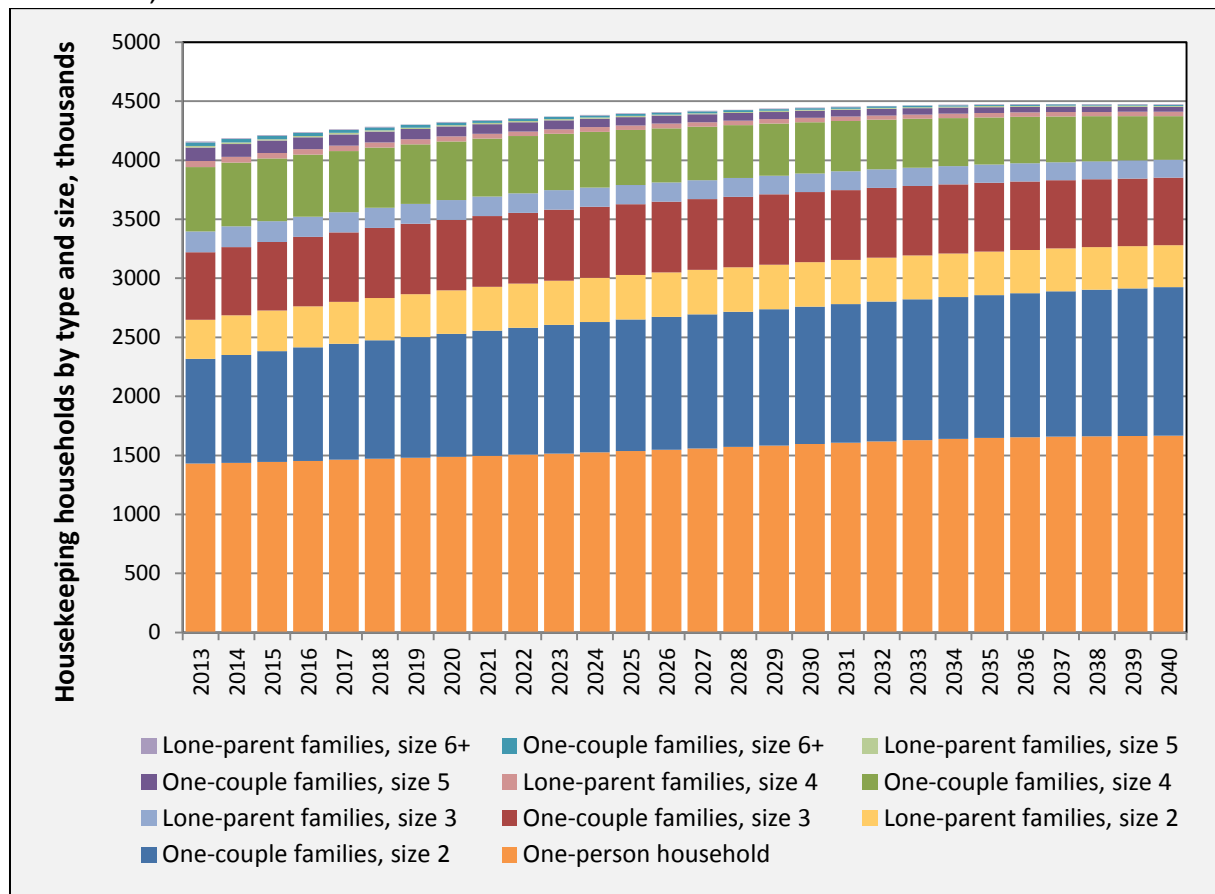
While the further step in deterministic forecast is additional assumptions' specification, the probabilistic household forecast for the Czech Republic is in progress. Therefore, the research contributes not only to the knowledge of current and possible future household structure in the Czech Republic till 2040, but also to discussion on household forecast methodology.

Figure 1: The overall number of selected housekeeping households by variants, the Czech Republic, 2011, 2013-40

Note: 2011 real data
Source: Authors' calculation

Figure 2: Projected housekeeping households by type and size, the Czech Republic, 2013-2040, medium variant

Source: Authors' calculation

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