

New Macrosimulations of Living Arrangements and Households in Germany

Definitions

Living Arrangements,
Households
ProFamY

Assumptions

Procedural Assumptions
Demographic
Assumptions
Nuptiality
Consensual Unions
Leaving Households

Options

Results

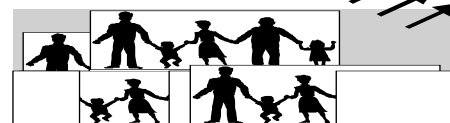
Four Statures
Five Statures
Proportion Change
Household Size
Household Structure
The Elderly

Empirical Parameters

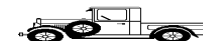
Leaving , CU
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Living arrangements
and households



birth , partnership formation ,
migration

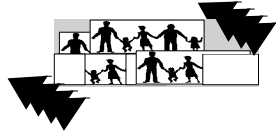


death , leaving parental home ,
partnership solution , migration ,
institutional household



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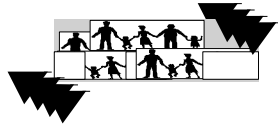
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- Living arrangements:
 - own household (yes/no)
 - generations within the household (one-generation, two-generations, three-generations household)
 - marital status (never married, married, living separated, divorced, widowed)
 - children within the household
 - type of partnership (marriage / consensual union)
- (private) households (main places of residence), institutions
- family (within the household)



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ProFamy

(Zeng, Vaupel und Wang, 1997; Zeng, Wang, in Hullen 2001)

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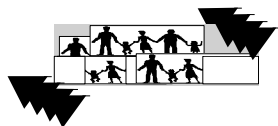
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- modeling of Markov-processes
- groups of individuals of the same living arrangement are the base aggregates of the projections (base population). They differ by age, gender, marital status / type of partnership, living together with parents resp. in institutions, number of children and number of children living in the household
- Either a female or a male adult person are the „marker“ of the household. With it relevant properties of the household are determined.



ProFamy: Procedural Assumptions

It is presumed that status changes occur at differing points in time during a year.

- Births take place during both the first and the second halves of the year.
- The other demographic events are to take place in mid-year: deaths, migration, changes in living together with parents, changes in marital status/partnership and changes in children surviving or living in the household.
- Because the projections initially take place separately for gender and generations, inconsistencies which can be expected must be compensated.

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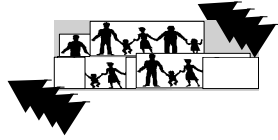
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Demographic Assumptions

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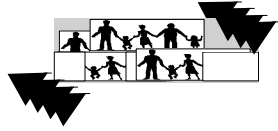
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- Fertility: TFR as in the base period 1996 at about 1.32, mean age at first birth 29.47 years (marital births 1996)
- Mortality: male life expectancy increasing until 2040 with 5.7 years to 79.3, female increasing with 5.5 years to 85.8
- Migration: zero balance, no effects of migration to the population structure



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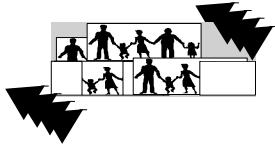
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Assumptions on nuptiality

- male marriage propensity 64 per cent, first marriage age 30 years, female marriage propensity 73 per cent, first marriage age 27.6 years
- age specific divorce rate: peak at the age 30 - 34 with 0.02
- propensity of remarriage: men 56 per cent, women 61 per cent



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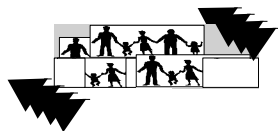
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Assumptions on consensual unions

- minimum duration three months
- entry transition rate: peak with men at age 20 - 24 at 0.07, with women at the same age at 0.08
- transition rate to marriage: 0.02
- separation rate: peak at 0.11 with men at age 21 - 22 resp. at 0.13 with women at the same age



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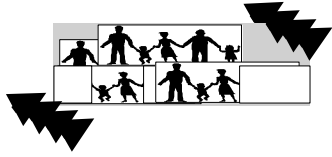
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Leaving households

- Leaving the parental home: propensity of men 89 per cent, women 93 percent, mean age 24 years resp. 21.6 years
- constant age and gender proportions of the population living in institutions



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Profamy: user options

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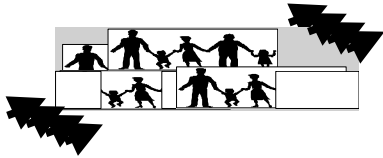
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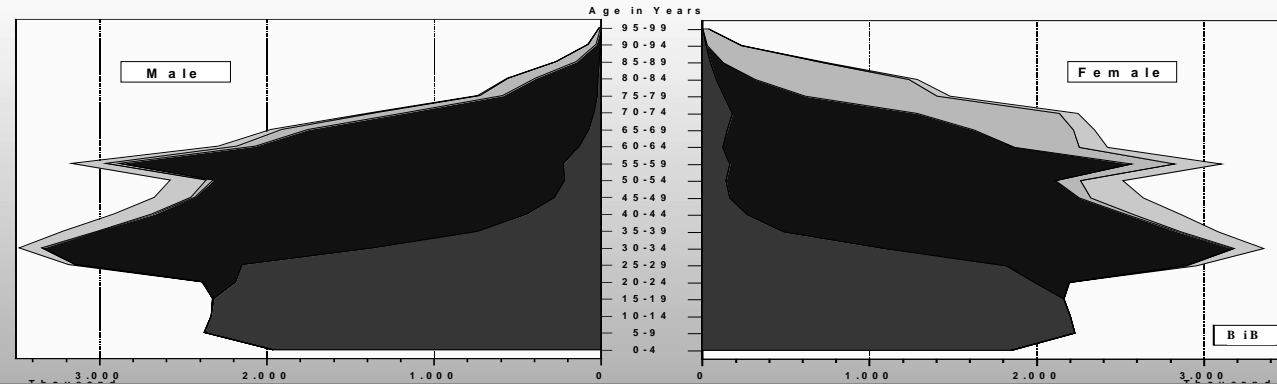
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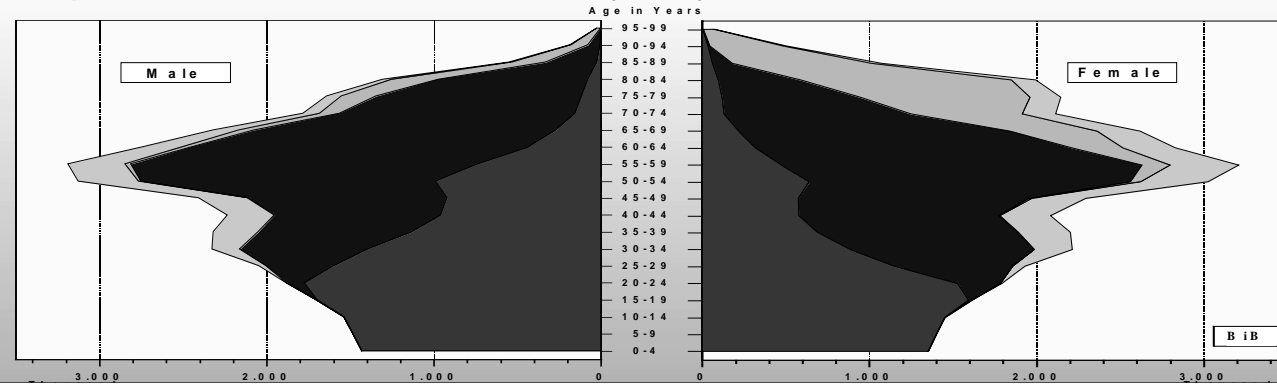
- two-sex consistency for marriages of numbers of married people
- children of separated parents are living with their mothers
- details of three-generation households
- differing mortality by marital status
- re-entries into the parental household
- regional differences (rural/urban differences)
- married persons, living separated



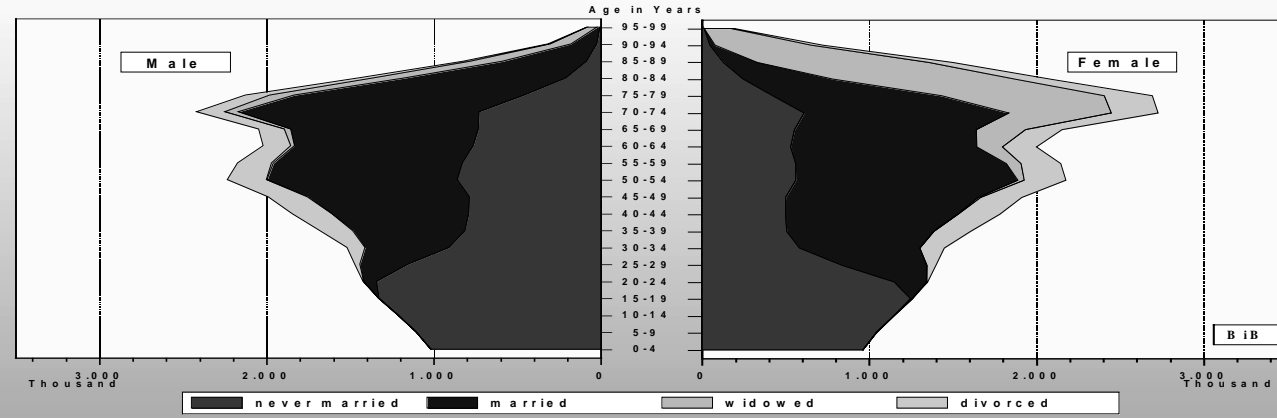
Population in Germany by marital status, 1996



Population in Germany by marital status, 2020



Population in Germany by marital status, 2040



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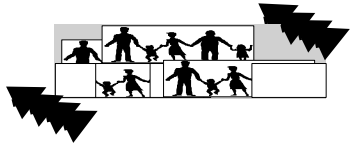
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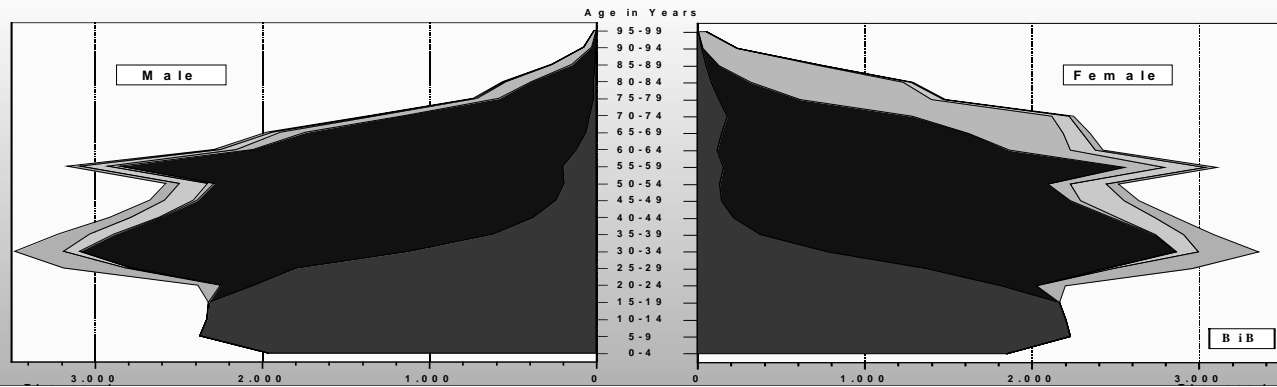
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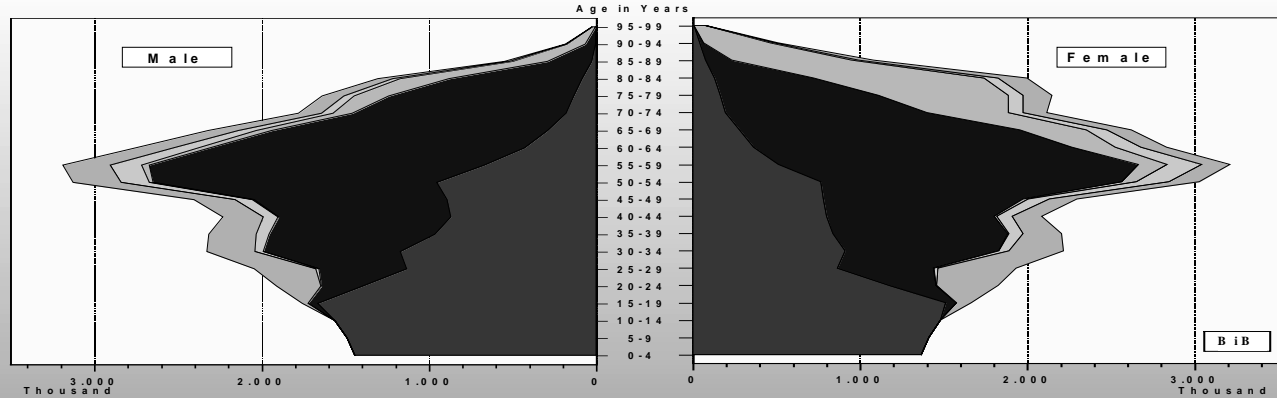
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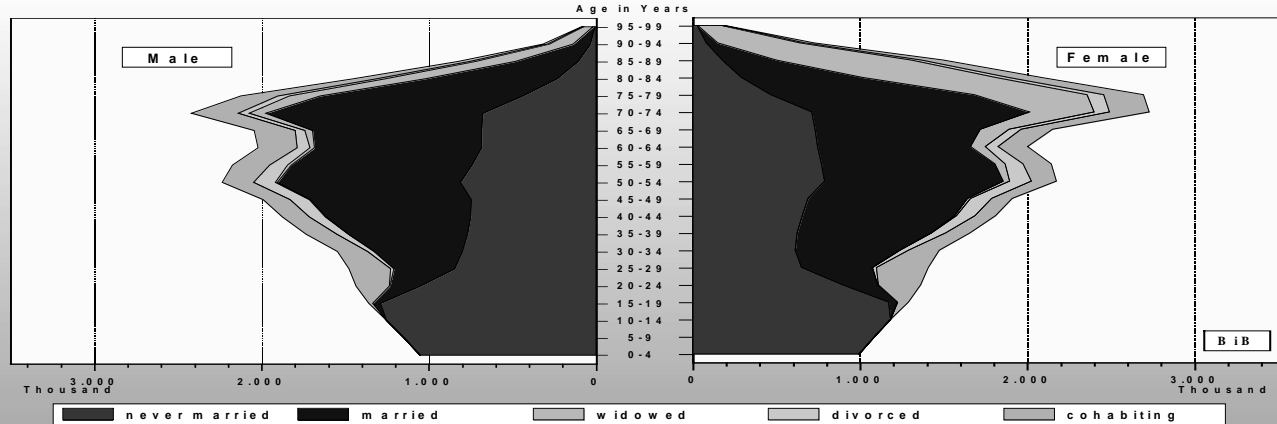
Population in Germany by status including cohabiting, 1996



Population in Germany by status including cohabiting, 2020



Population in Germany by status including cohabiting, 2040



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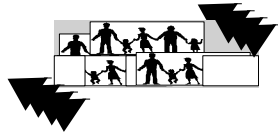
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1996 » 2040

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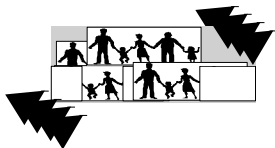
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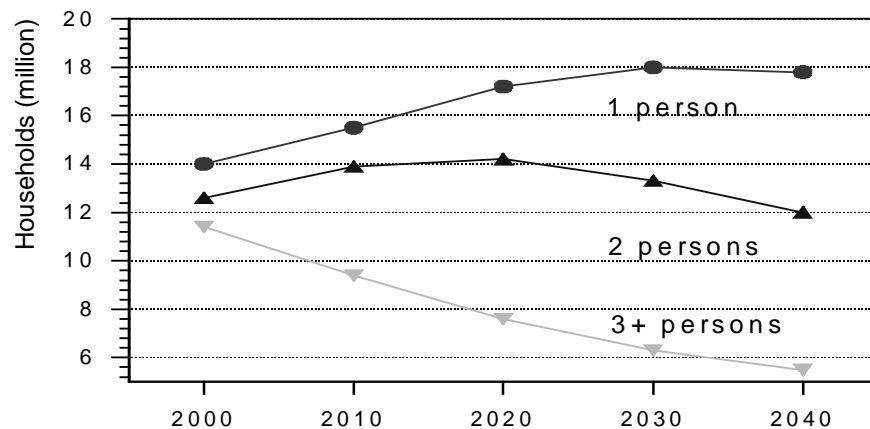
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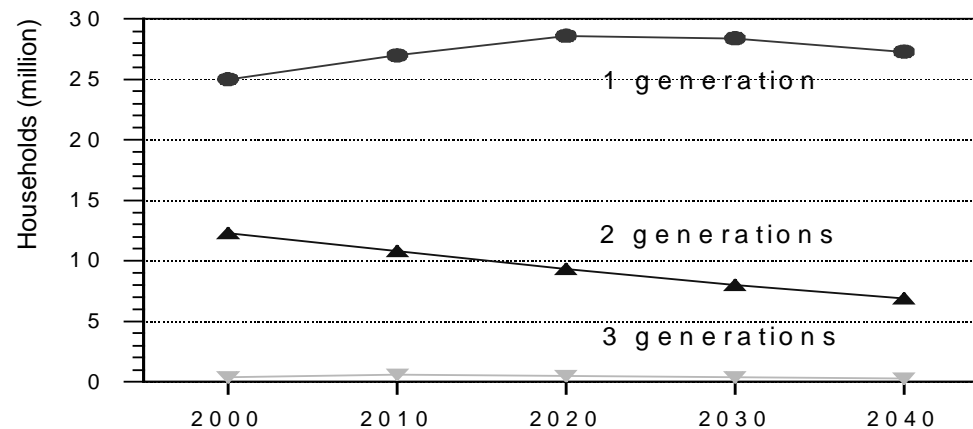
- there will be more and more cohorts with more never married persons than married persons until the age of 40
- The proportion of married men (1996 51%) will decrease to 40%, the proportion of married women (1996 47%) to 38%; their absolute number will diminish by one-third
- Never married men 1996 42 %, 2040 50 %; never married women 1996 37%, 2040 37%.
- Widowed men 1996 3%, 2040 3%; women 13%, 2040 16%
- divorced men 1996 4-5%, 2040 7%; women 1996 4-5%, 2025 9%



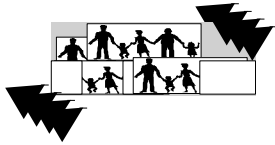
Households by number of persons and generations



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One-generation households

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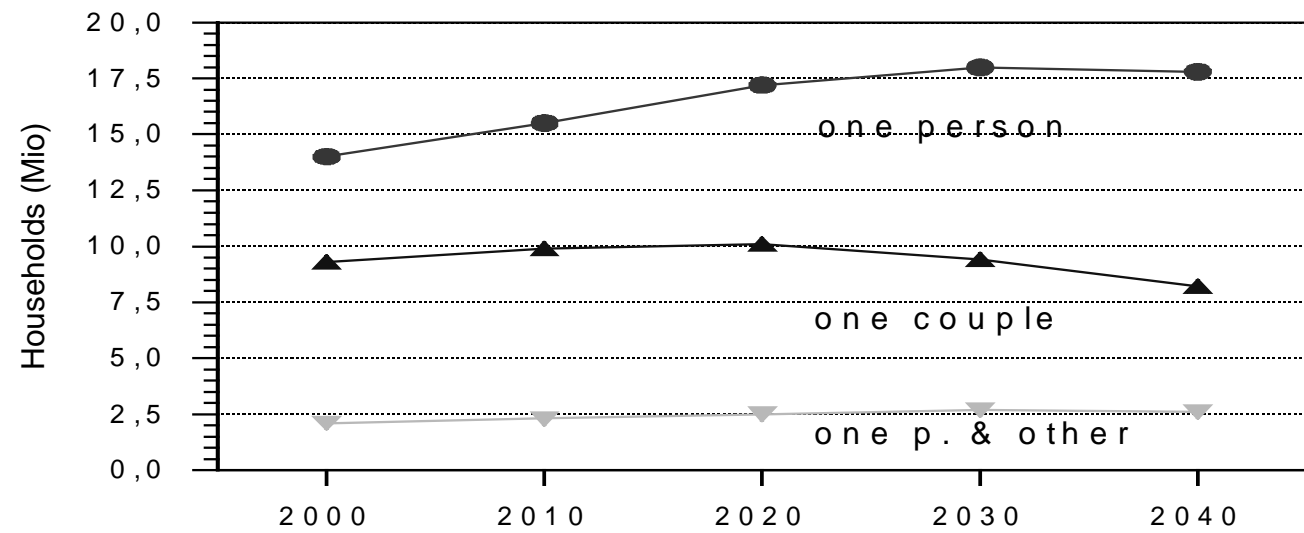
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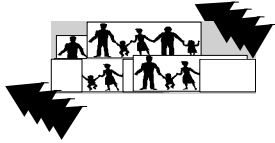
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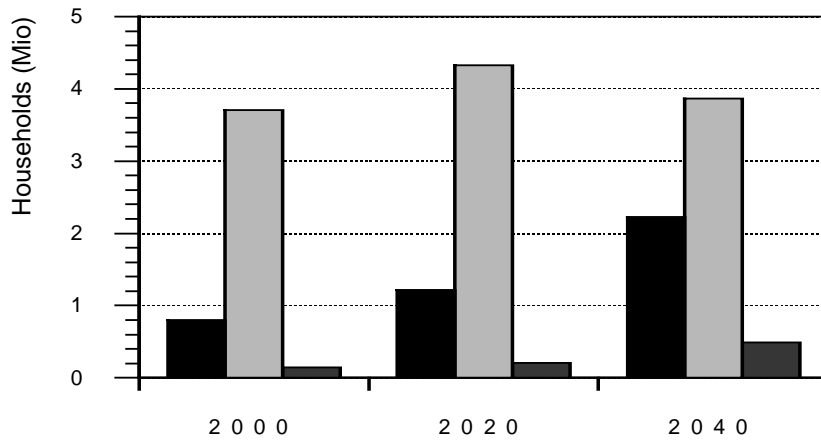


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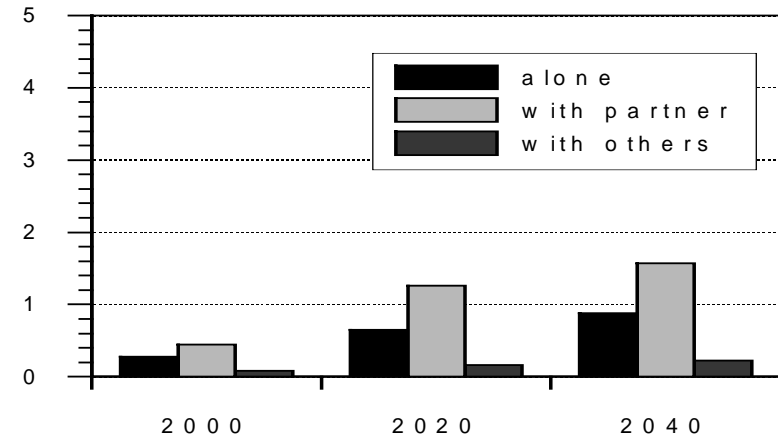


Households of the elderly

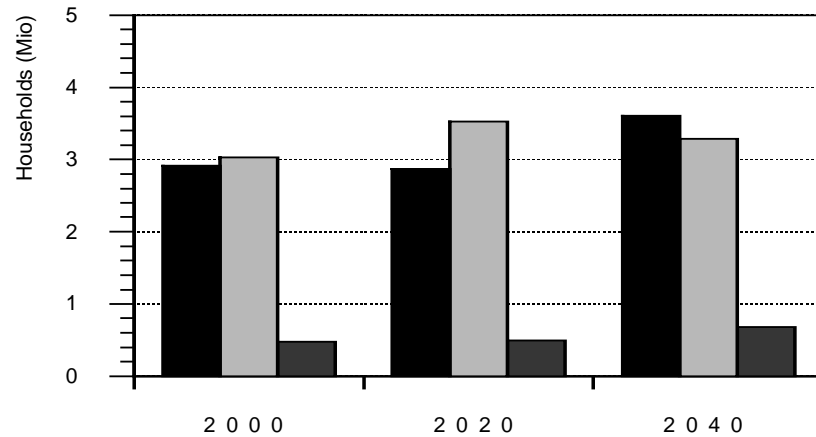
M a l e 6 5 - 7 9



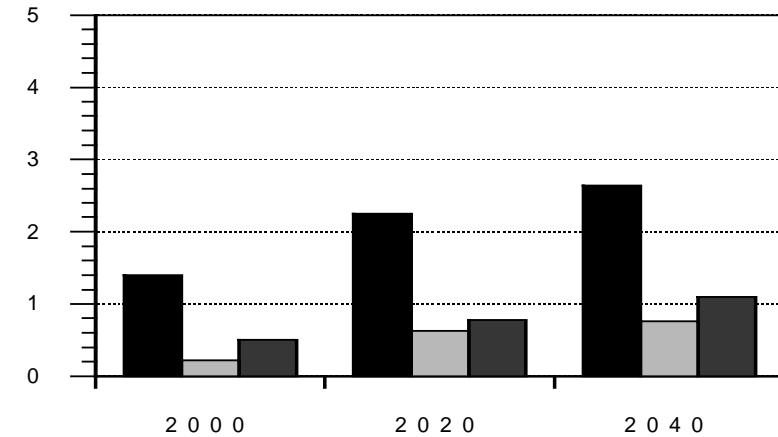
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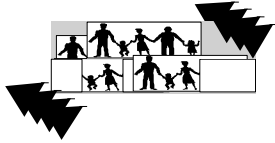


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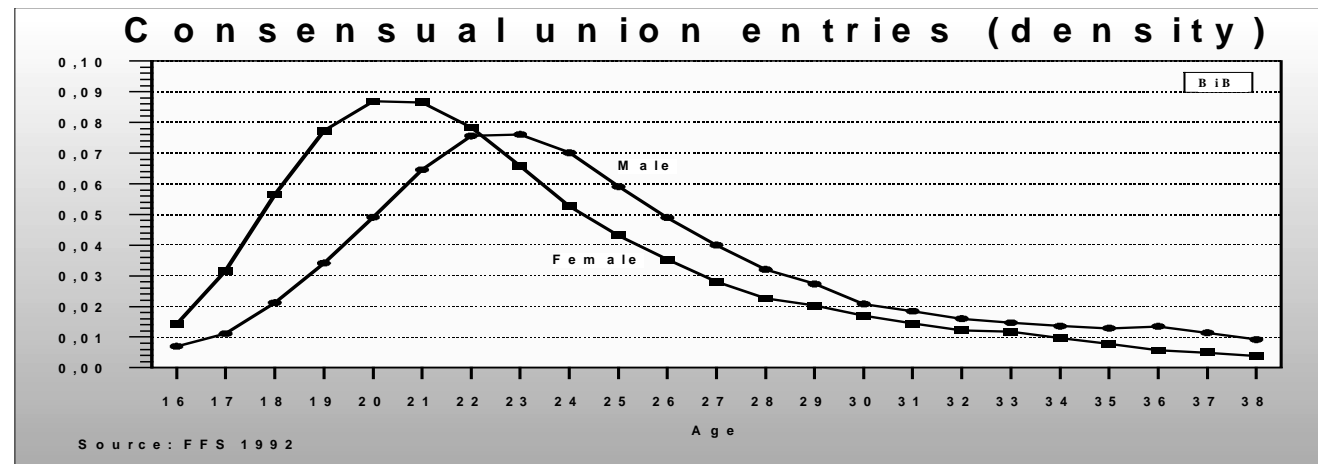
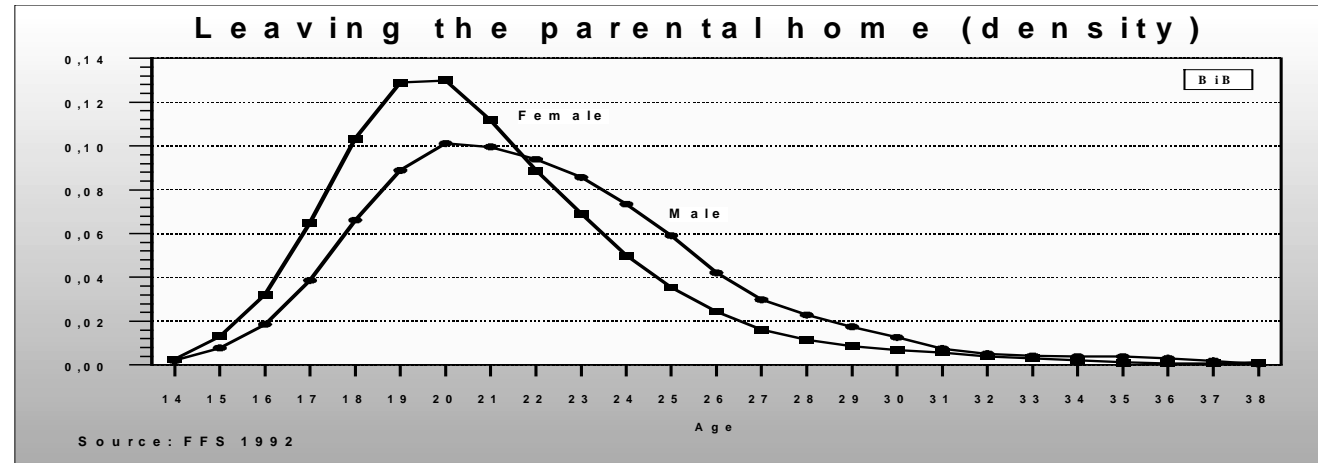


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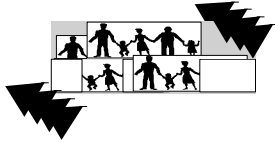
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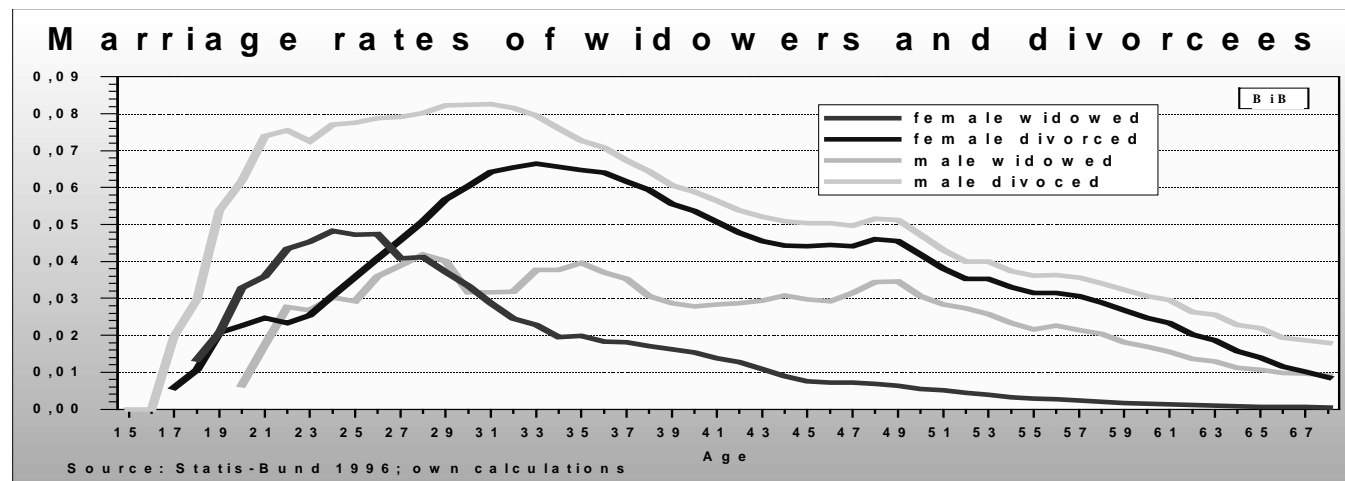
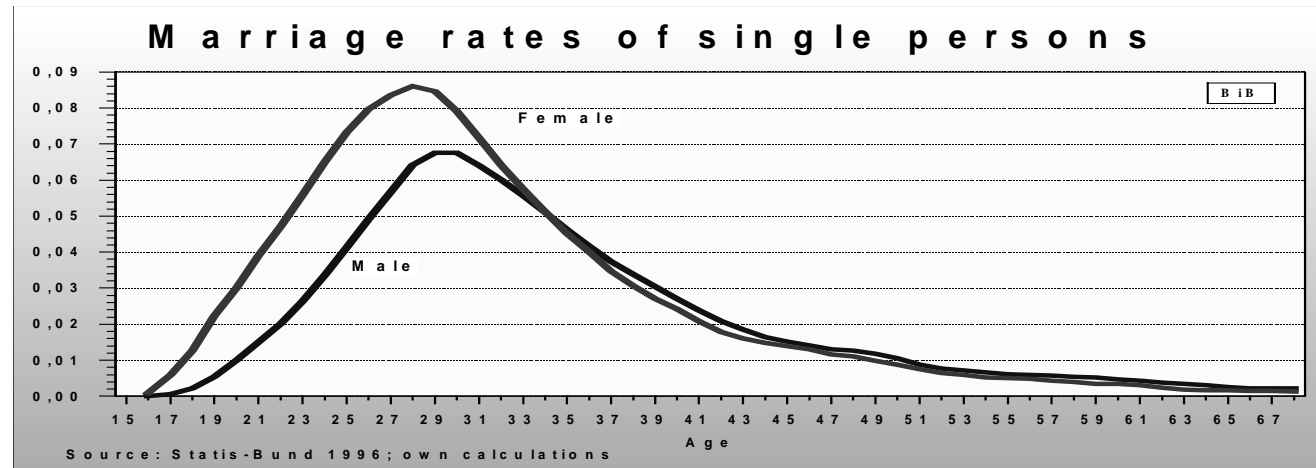
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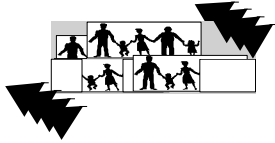
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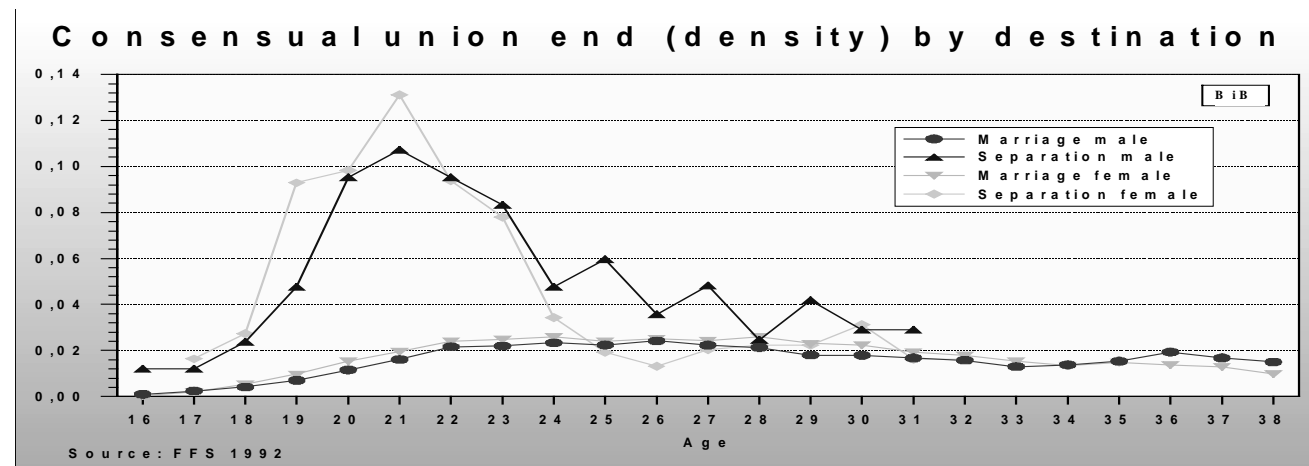
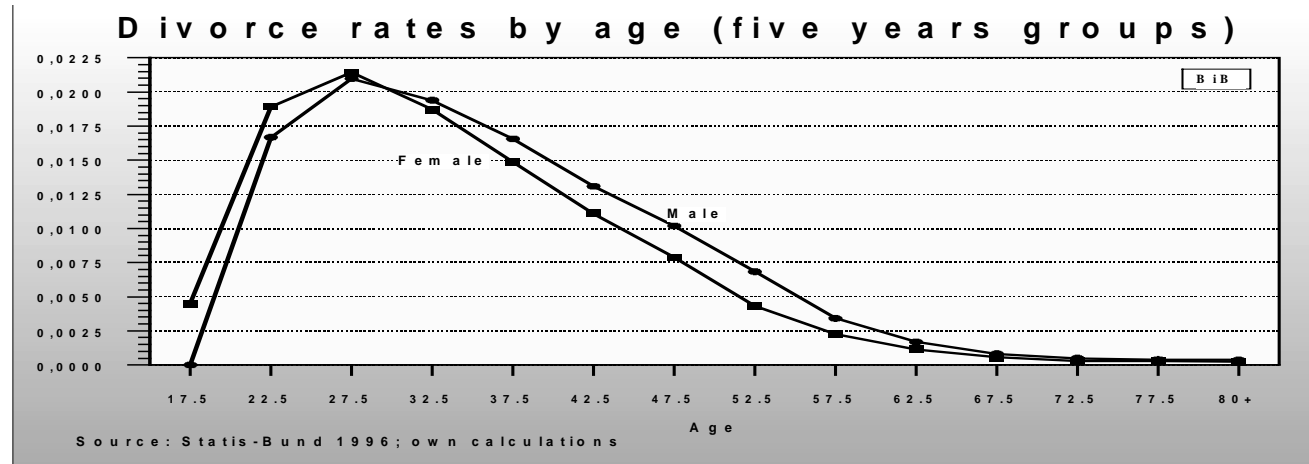
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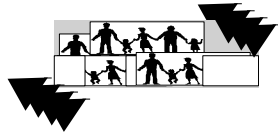
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Hullen, Gert (ed.): Living Arrangements and Households - Methods and Results of Demographic Projections. Wiesbaden 2001. (= Materialien zur Bevölkerungswissenschaft,)

Zeng Yi; Vaupel, James W.; Wang Zhenglian: A multi-dimensional model for projecting family households - with an illustrative numerical application. In: Mathematical population studies, 6, 1997, 3: 187-216.

Zeng Yi; Vaupel, James W.; Wang Zhenglian: Household Projection Using Conventional Demographic Data. In: Lutz, Wolfgang; Vaupel, James W.; Ahlburg, Dennis A. (ed.): Frontiers of Population Forecasting. Supplement to Vol. 24 1998 Population and Development Review. New York (Population Council) 1999: 59-87.