

## Population estimates of disability

### The impact of including or not the population living in institutions

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For the EHLEIS program

# Context: Are disability statistics data representative of the whole population?

The health of the population is measured by health surveys that are most of the time only based on household population: difficulty to organise a survey in institution, various situation worldwide.

		?
Household population		Outside Households

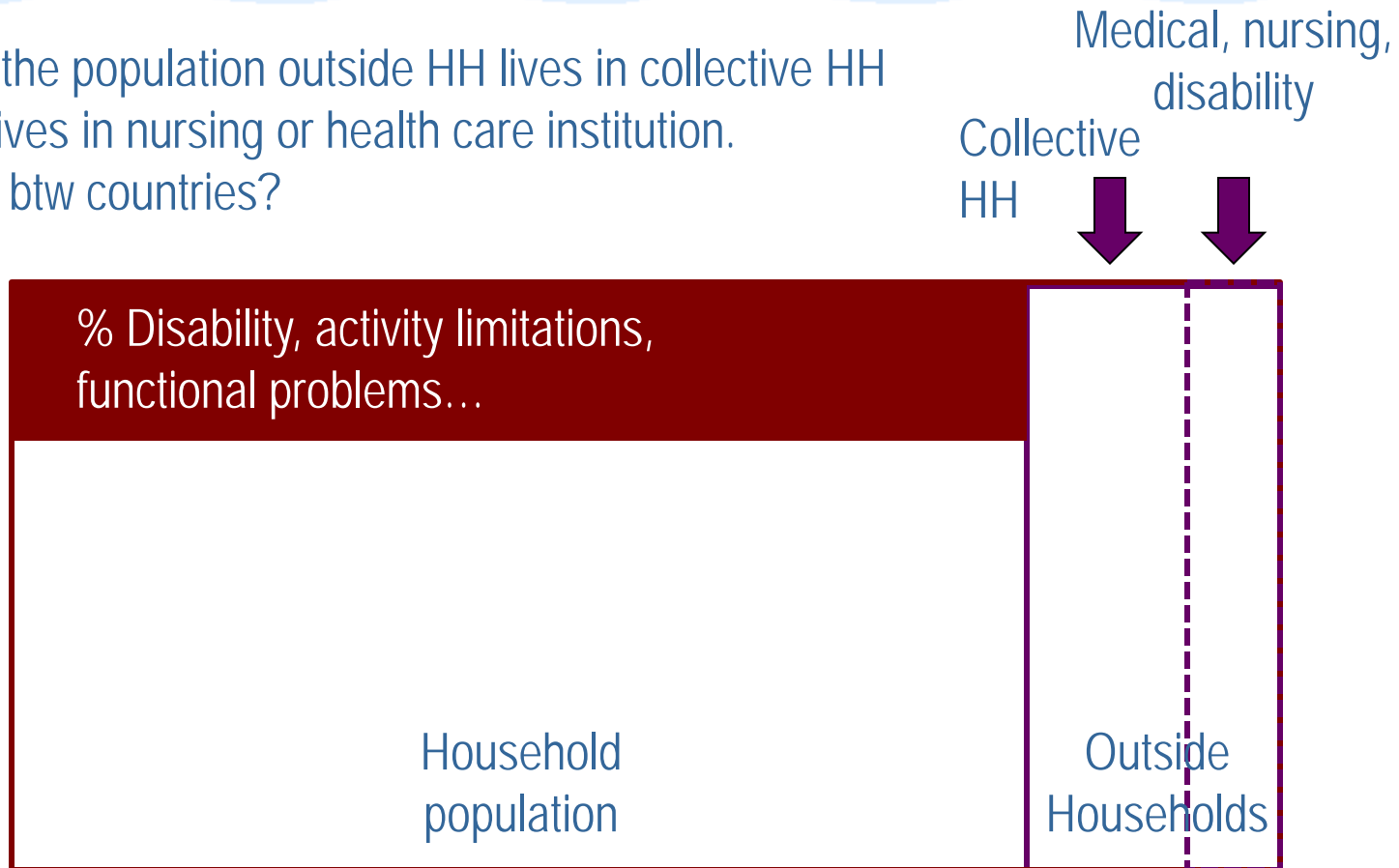
Shall we develop surveys in institutions to be able to compare?

# How do we deal with this so far?

- 1> Proposing an aggregate health indicator, the disability free life expectancy, Sullivan was suggesting considering that living in institution was an expression of disability and recommended considering the prevalence of disability as 100% in institutions (Sullivan, 1971).
- 2> Eurostat calculation of Healthy Life years is only based on HH prevalence, tacitly assuming that the same prevalence can be observed in and outside HH

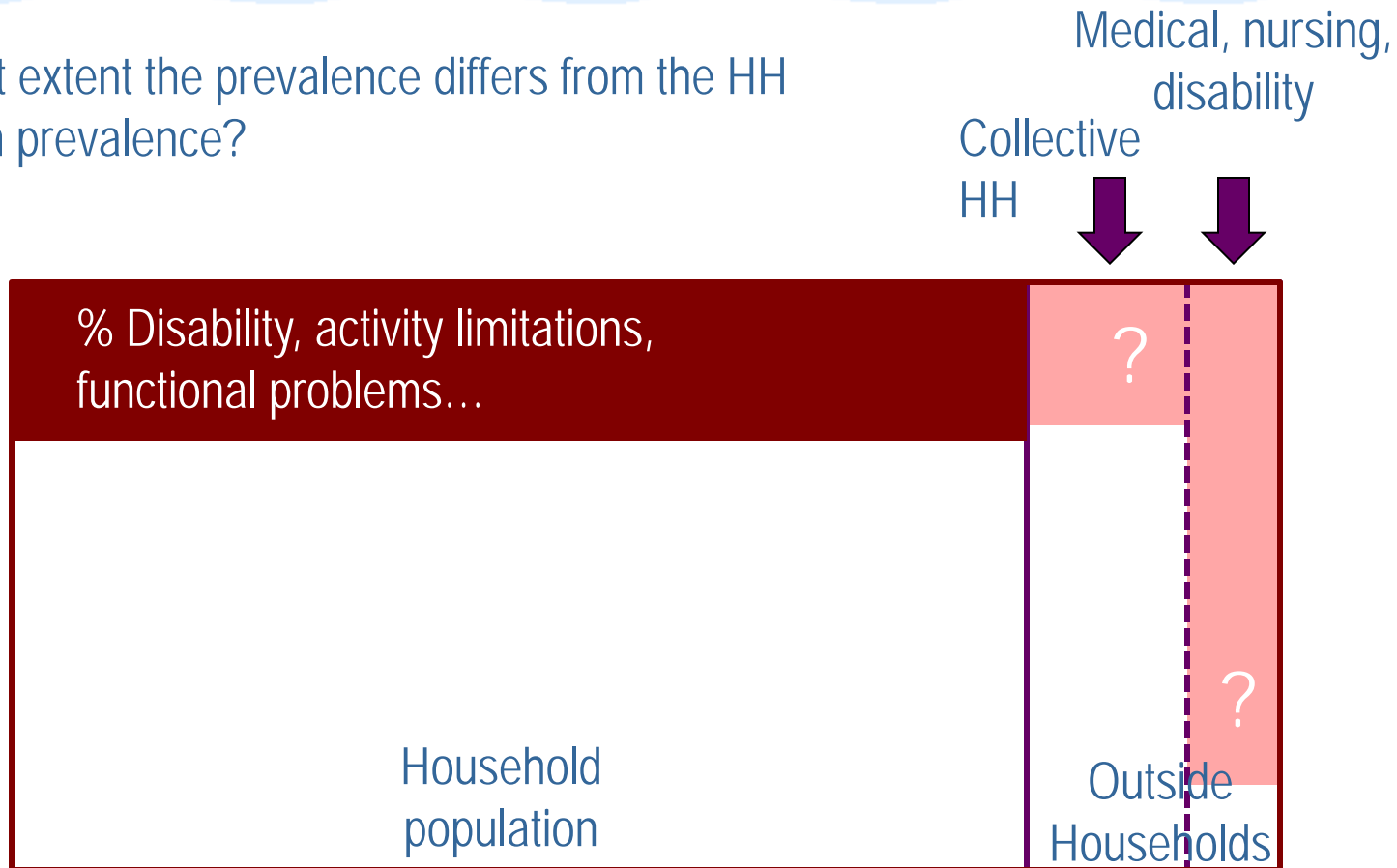
# How relevant are these assumptions

2. A part of the population outside HH lives in collective HH and a part lives in nursing or health care institution.  
Differences btw countries?



# Context

3. To what extent the prevalence differs from the HH population prevalence?



# Assumptions

- > Proposing an aggregate health indicator, the disability free life expectancy, Sullivan was suggesting considering that living in institution was an expression of disability and recommended considering the prevalence of disability as 100% in institutions (Sullivan, 1971).

*While this can be reasonable assumption for nursing homes and long term hospital services, this can be consider as a quite strong assumption for other types of collective, while distinction can not be all the time be made with regular statistics*

- > Eurostat calculation of Healthy Life years is only based on HH prevalence, tacitly assuming that the same prevalence can be observed in and outside HH.

*This assumption might be optimistic considering that part of the population is actually in poorest health than in HH, but it depends on the % of such institutions within the population living outside HH.*

# Questions

What is the impact of these assumptions on estimates?

Is it worth for international comparison to address the issue of survey in institutions?

1. Looking at the European populations living outside HH

- What is the distribution between HH and population outside HH across Europe?
- What is the distribution of the care institutions in the population outside HH (3 countries)?

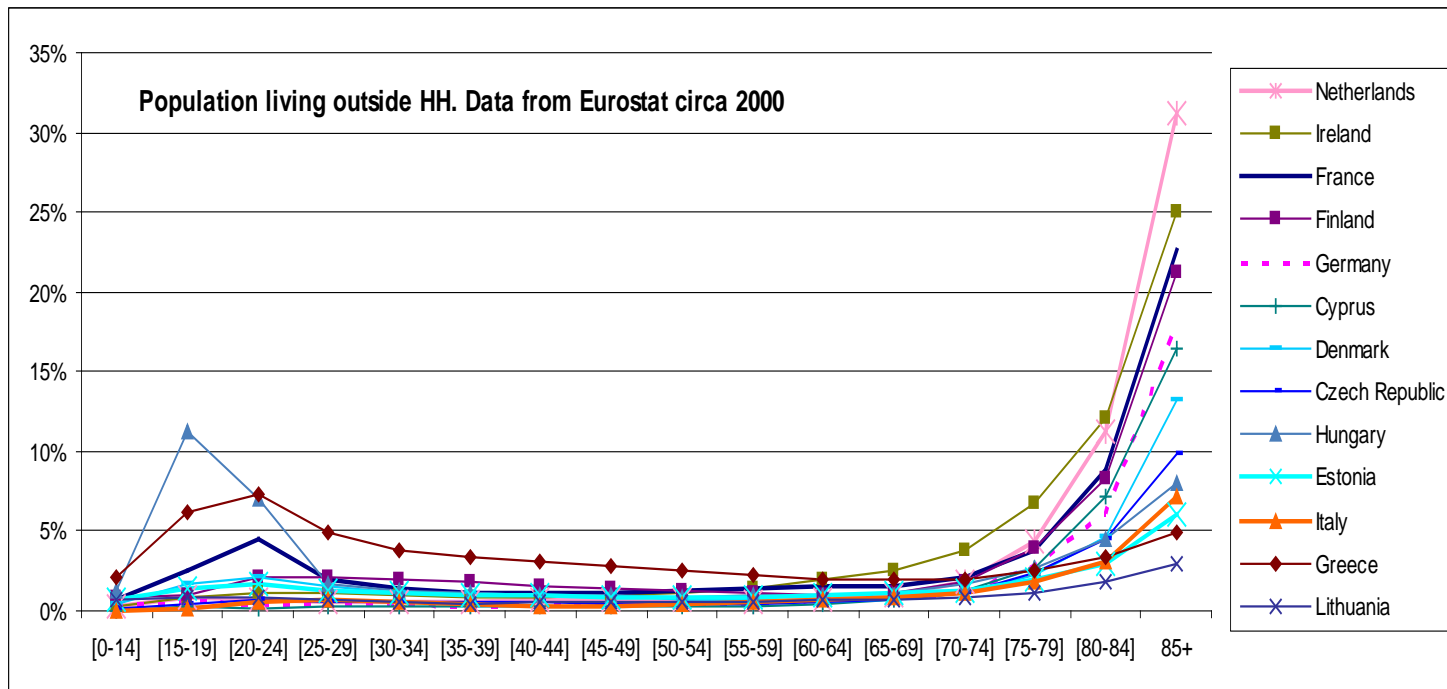
2. The impact on the level of prevalence of disability and on healthy life years?

- - considering Sullivan vs. Eurostat on outside HH population
- - considering Sullivan + + when limited to the care related institutions

3. What is the real prevalence of disability in institutions; in between the two assumptions

# 1. The European populations living outside HH

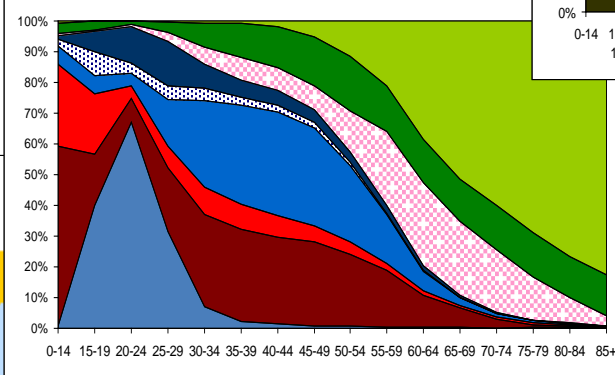
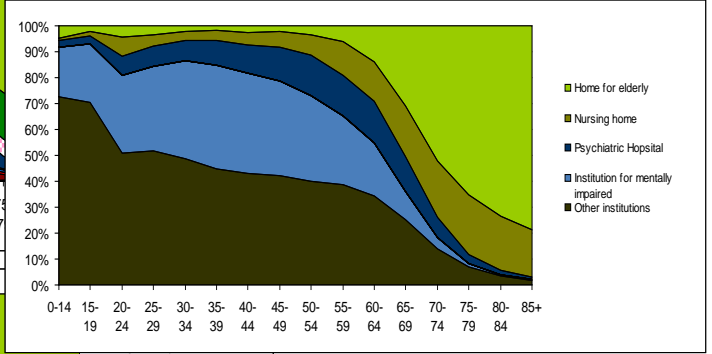
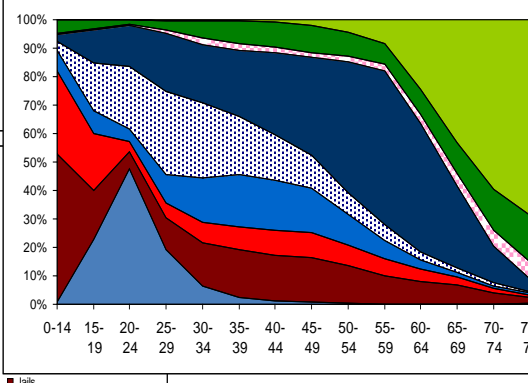
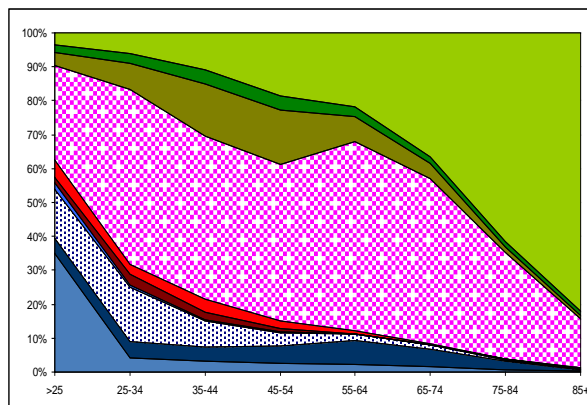
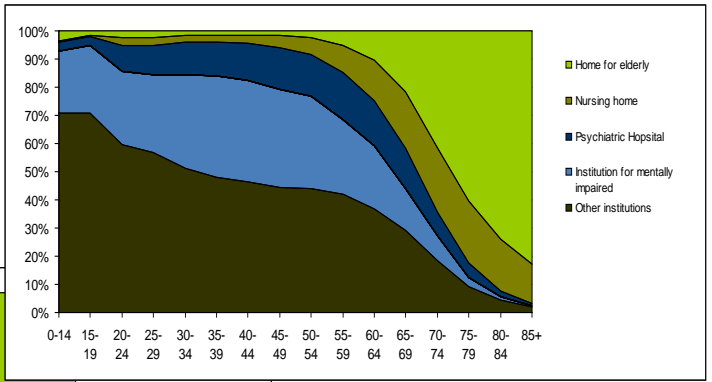
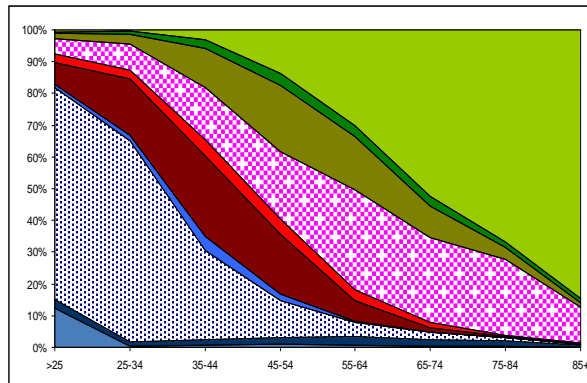
- What is the distribution between HH population and population outside HH across Europe? (example with 13 countries)
  - From 3.5% in Greece to less than 1% in Italy or Cyprus
  - Large variation in the type of population regarding % in age groups





# 1. The European populations living outside HH

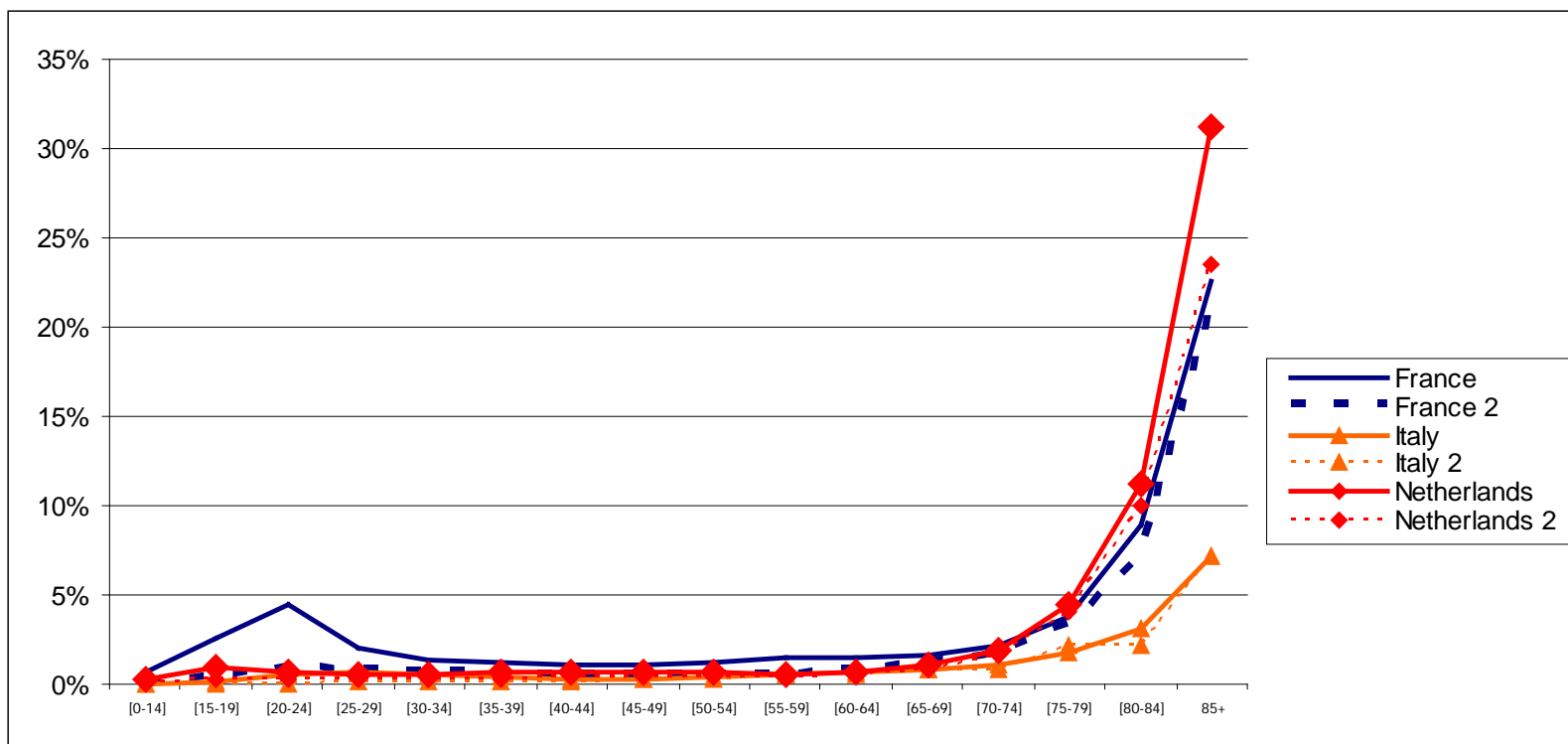
➤ What is the distribution of the institutions/collective HH in the population outside HH across Europe? Example with France, Italy, The Netherlands



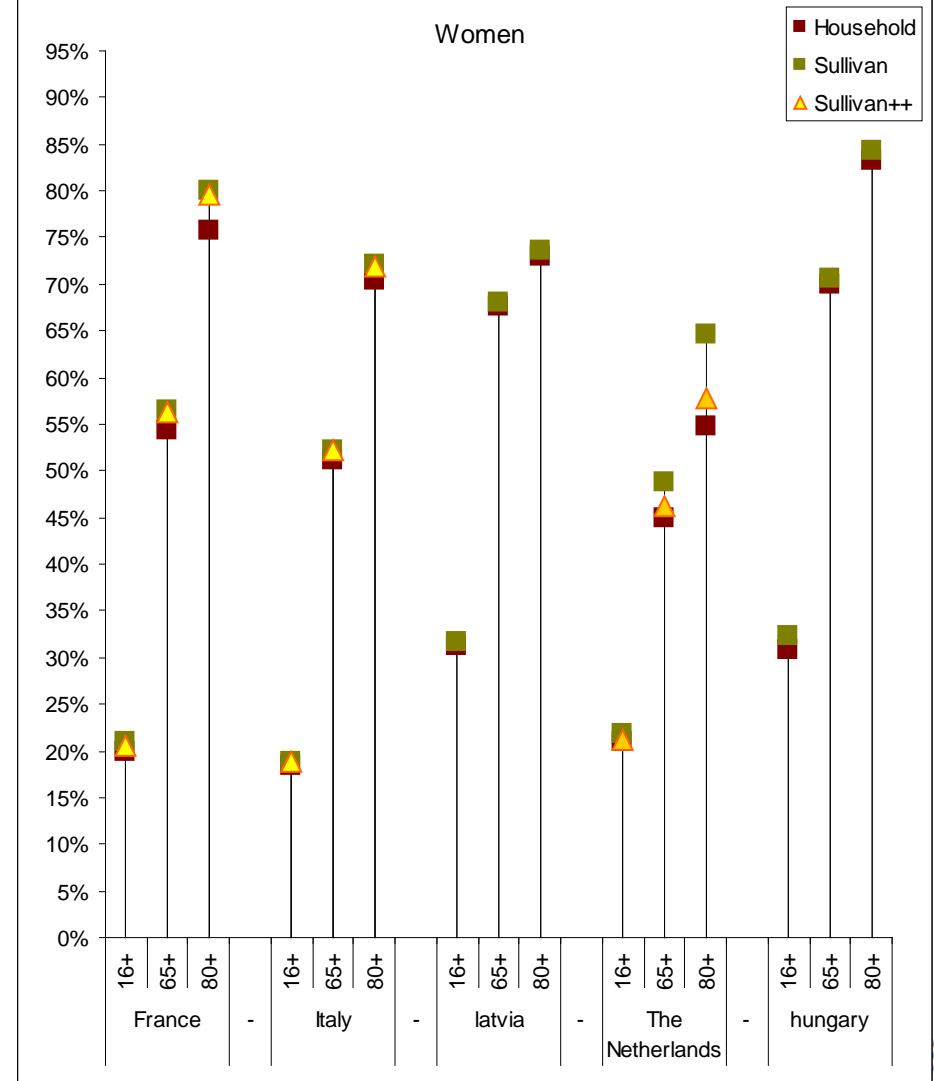
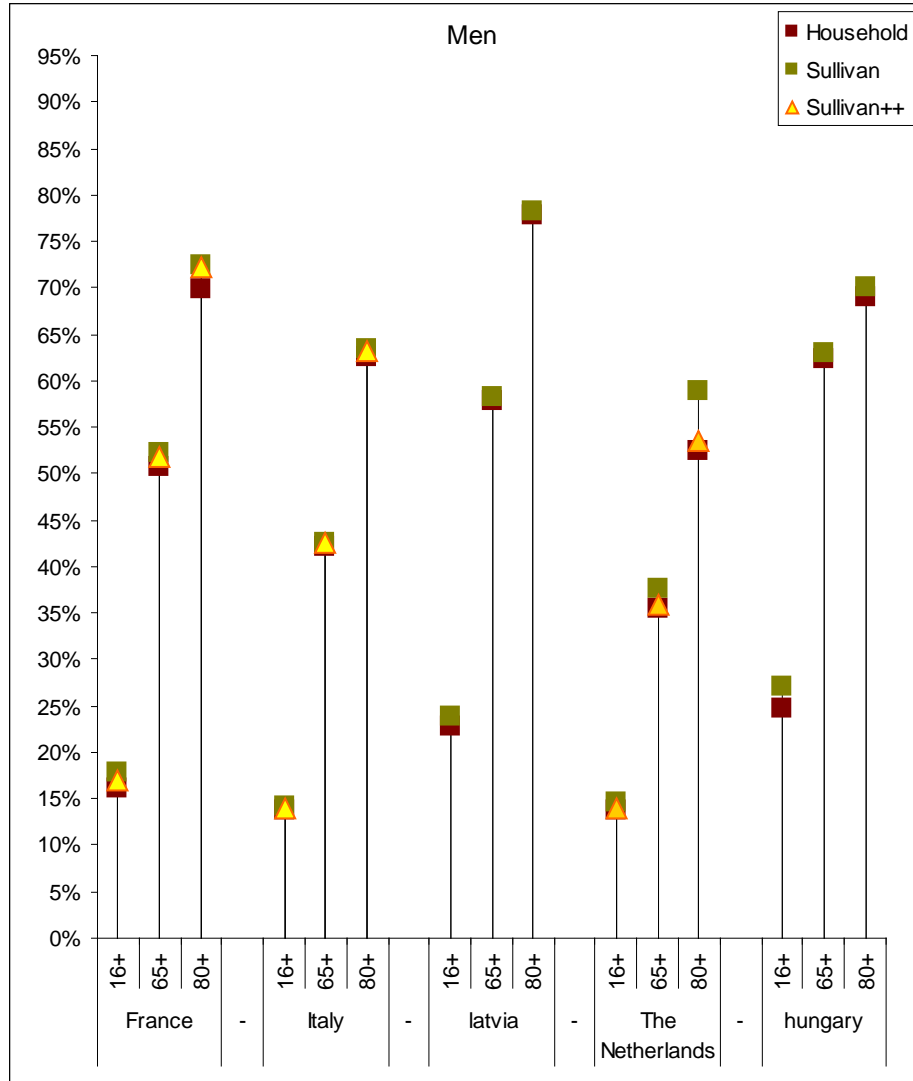
# 1. The European populations living outside HH

- Gap on the Eurostat estimates vs Sullivan with the care related institutions?

% living outside HH and % in nursing/care institutions

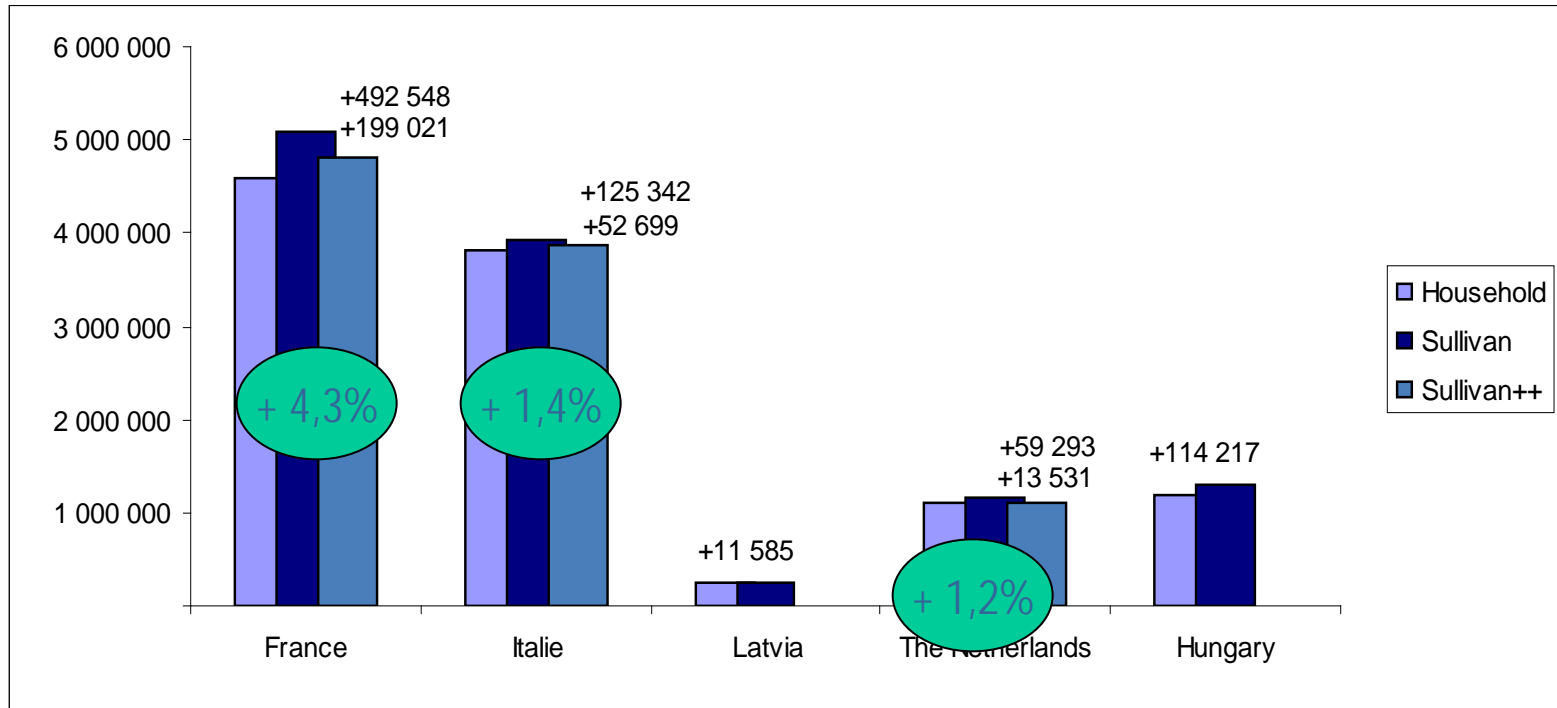


## 2. Impact of the assumptions on the prevalence of « Activity limitation »



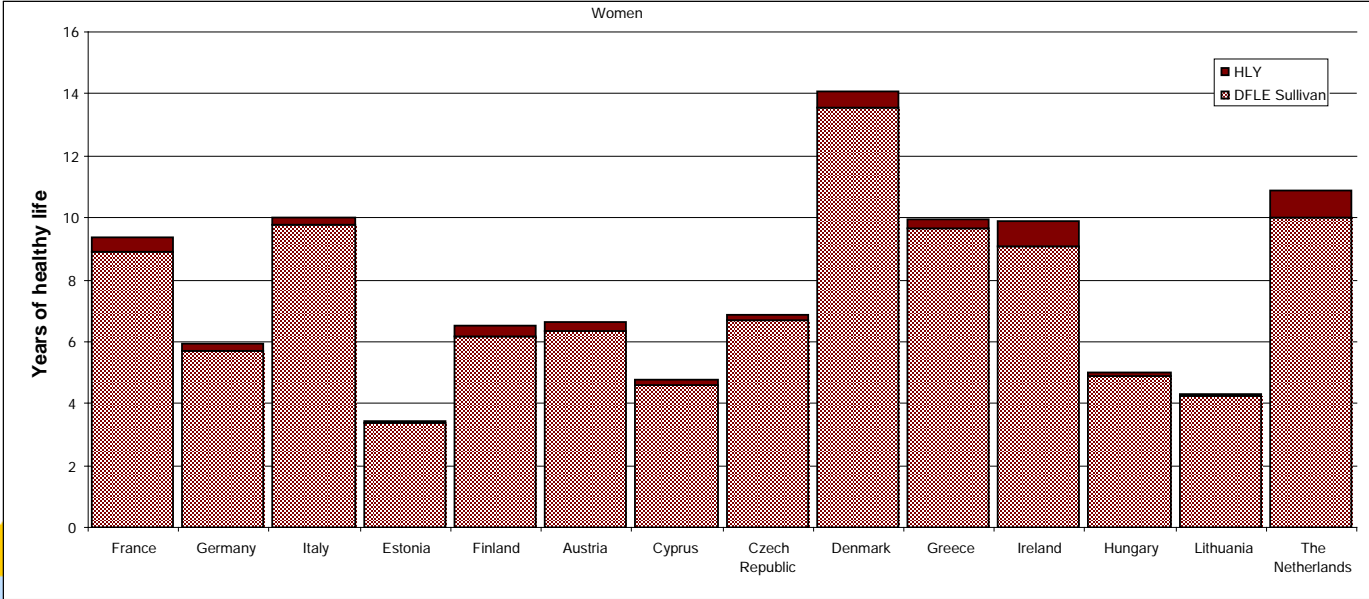
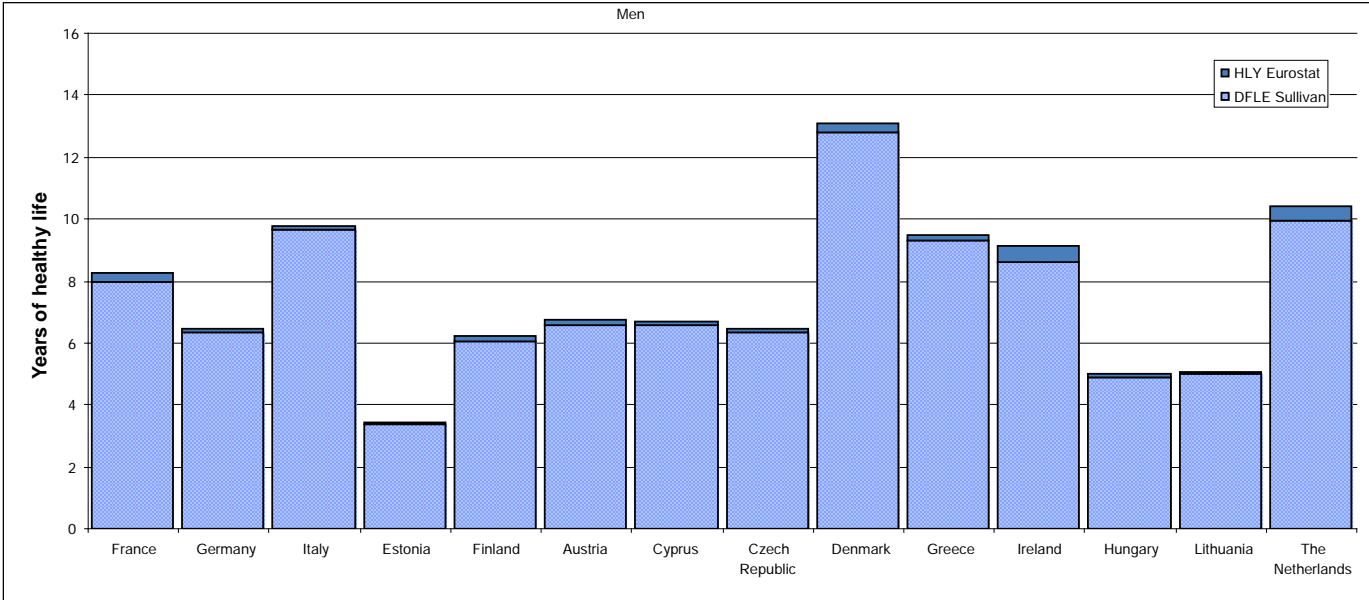
## 2. Effect on the prevalence of « Activity limitation »

The number of people with activity limitation in adult population

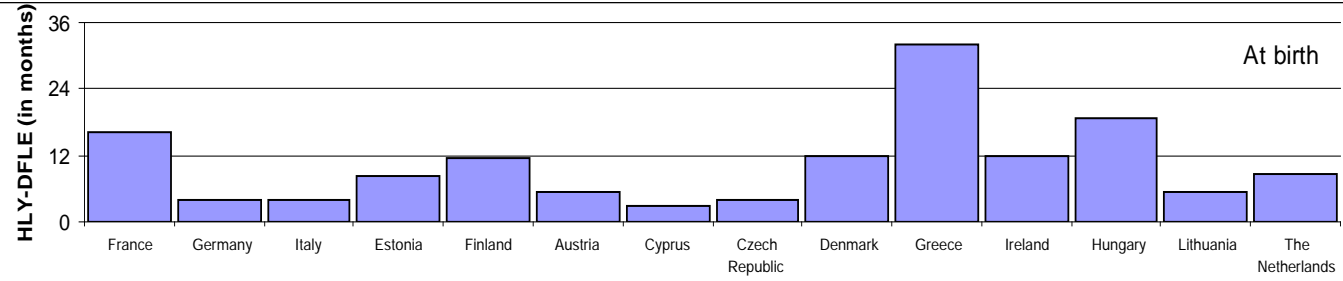


# 2. Effect on HLY calculations

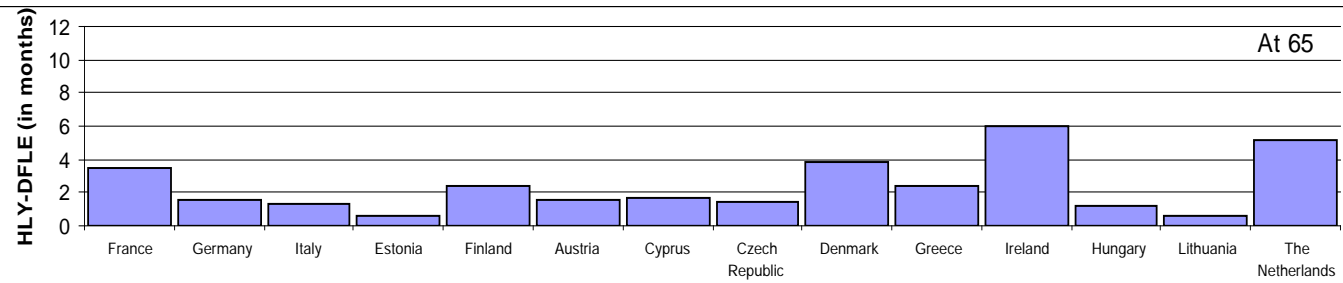
At age 65



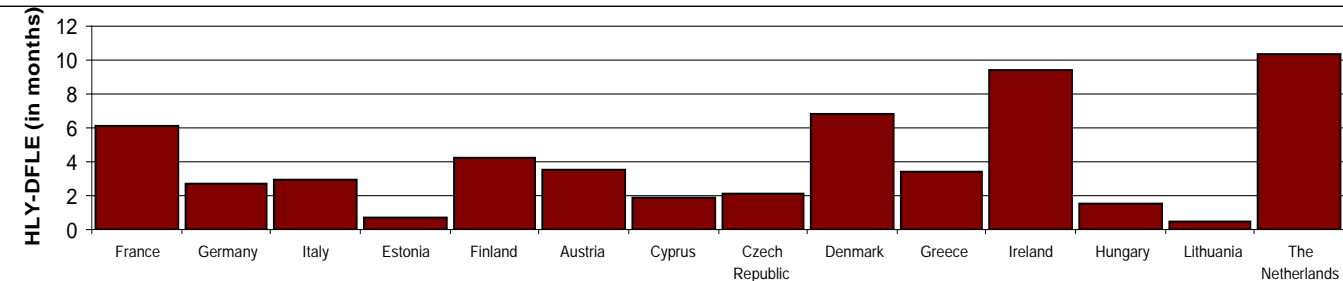
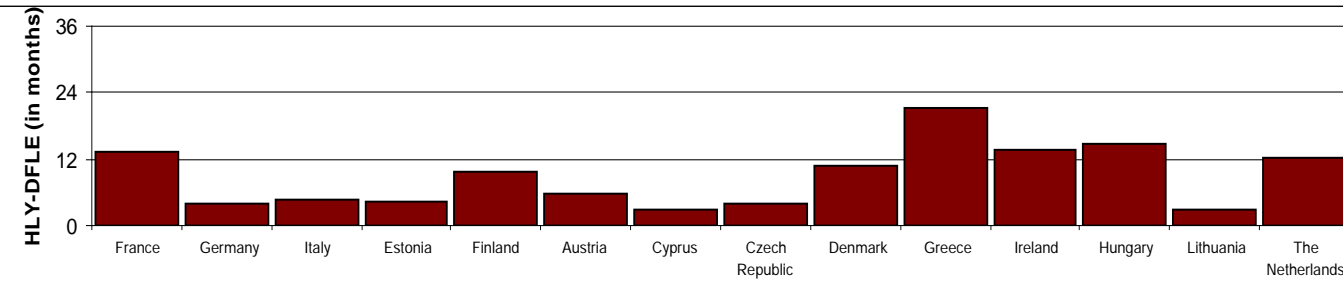
## 2. Effect on HLY calculations



At birth, gap from 30 mth (Gr men) to 2.9 mth (Lth/Cy women)

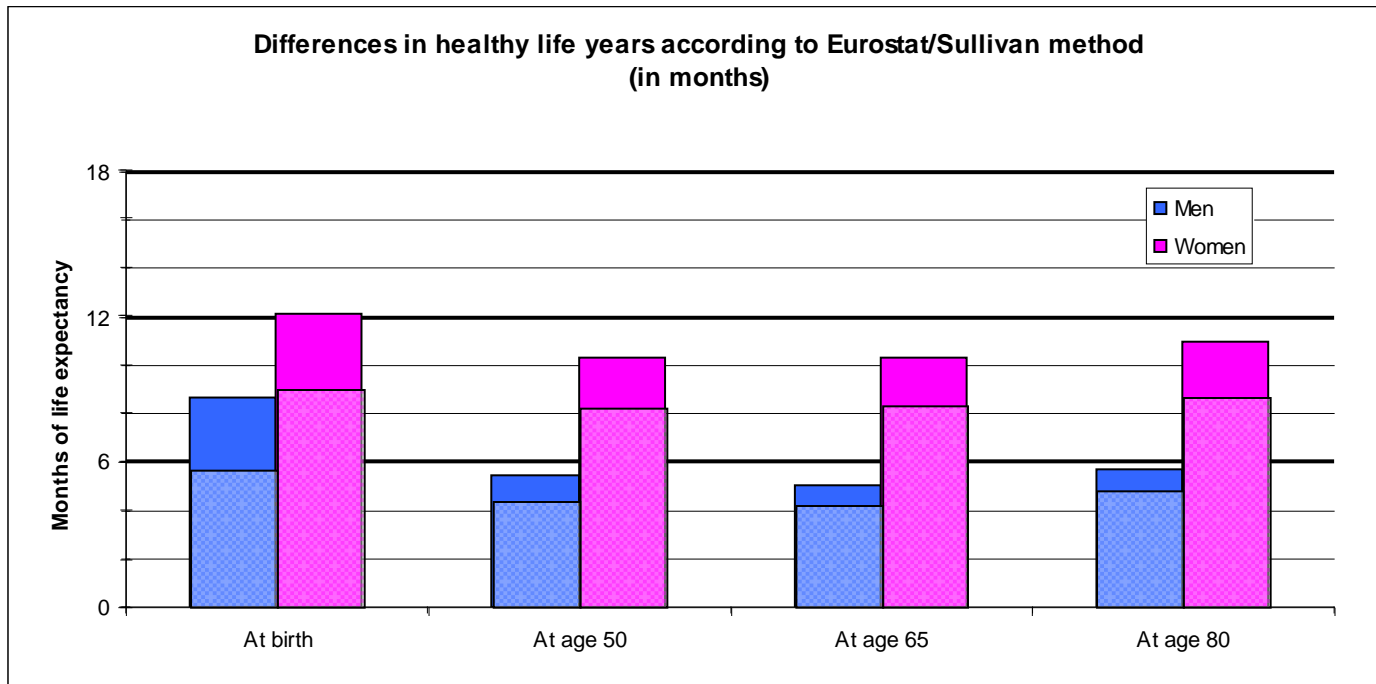


At 65, gap from 8 mth (Ir women) to <1 mth (Lth/Cy women)



## 2. Effect on HLY calculations

Number of years differences between HLY and DFLE in The Netherlands



- High institutionalization rate, due to high rate for elderly
- Up to 1 year difference according to the assumption
- Reduced to less than 10 month if limiting to « care related institutions »

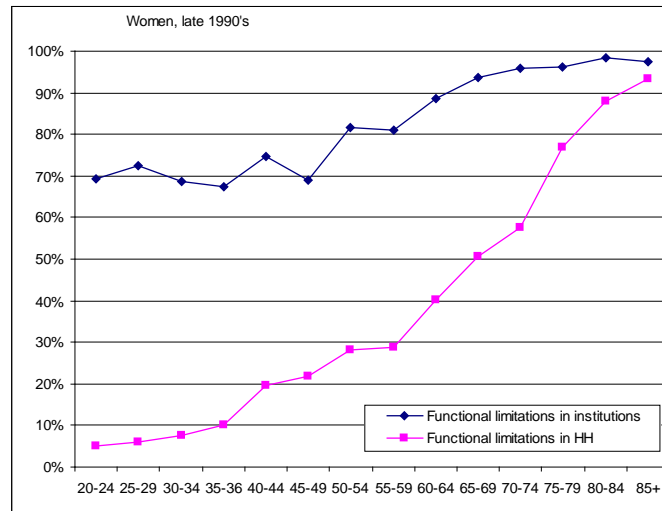
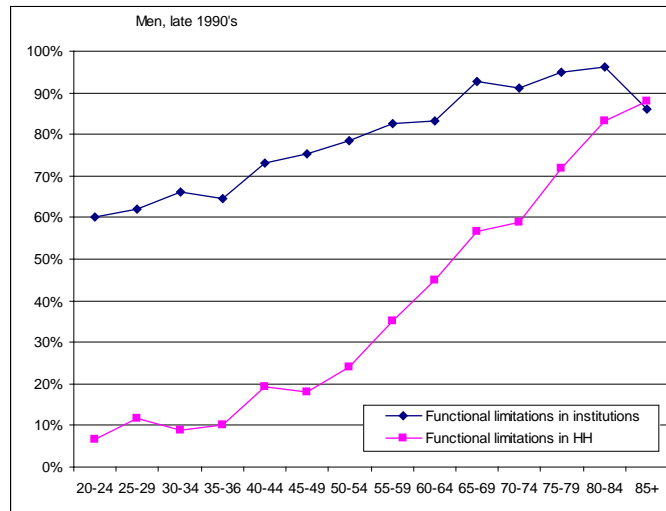
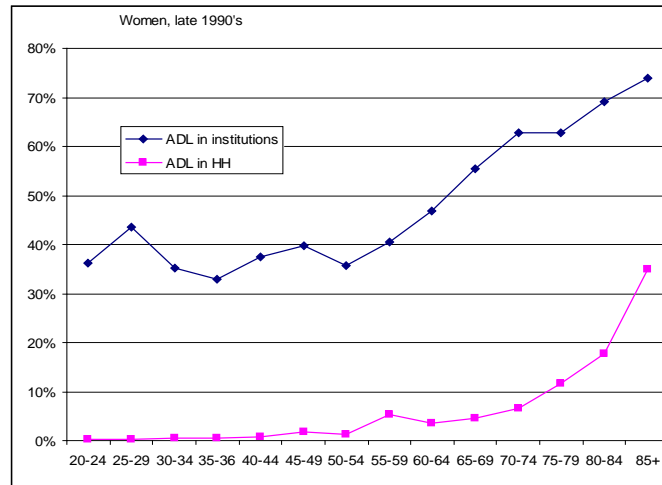
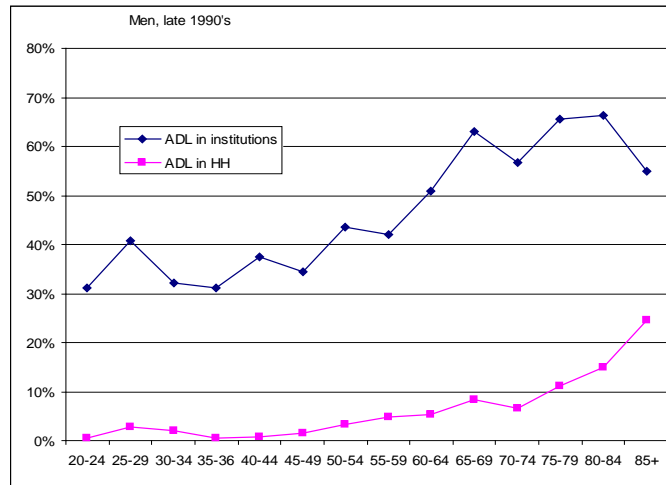
## 2. Effect on HYL calculations

- Eurostat calculations overestimate the HLY to a different extent from one country to another regarding Sullivan assumption
- The gap reduces if considering only care related institutions
- How reliable could be Sullivan assumption compared to Eurostat? What could be the gap in prevalence of GALI in institution vs. HH or vs. 100%?



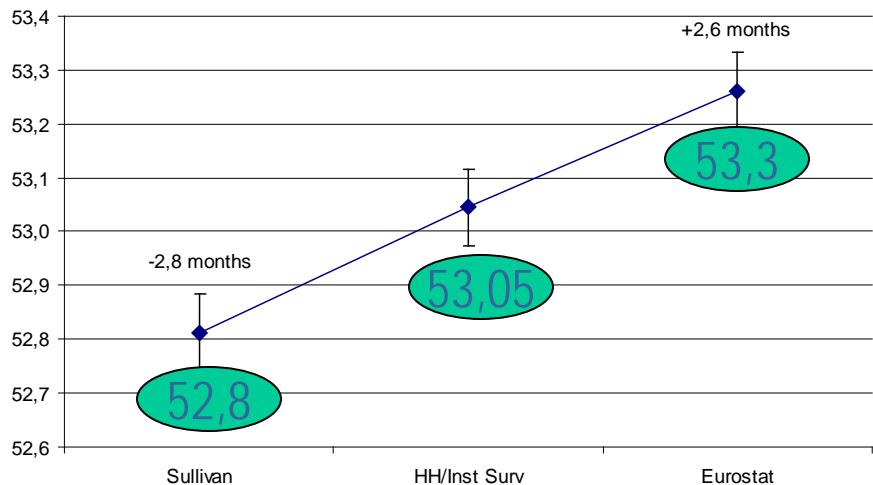
# 3. Estimates based on comparable HH/Institutions survey

In late 1990's, HID is a HH/Institution based on the French health and disability survey:

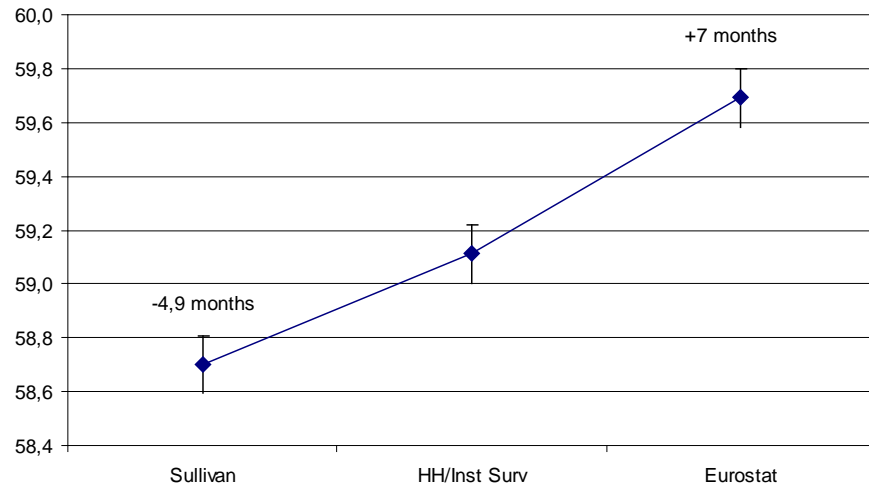


### 3. Estimates based on comparable HH/Institutions survey

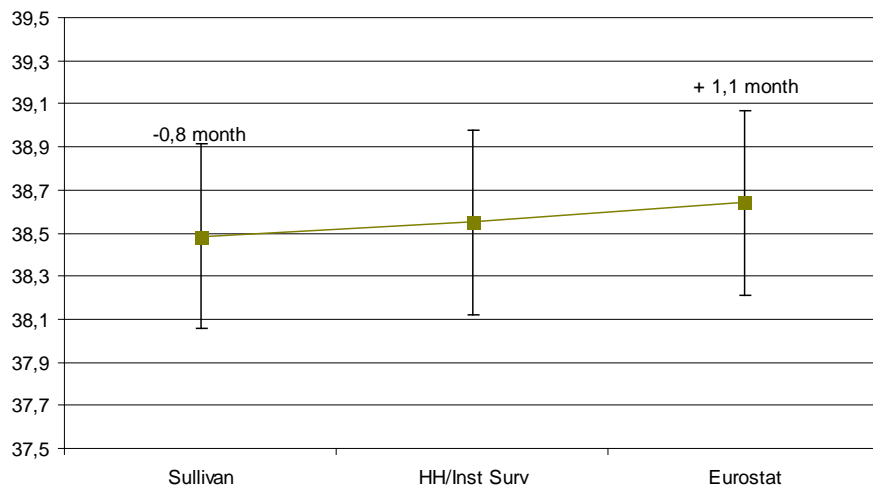
Men. Life expectancy without ADL à 20 ans  
(prevalence around 3% in HH)



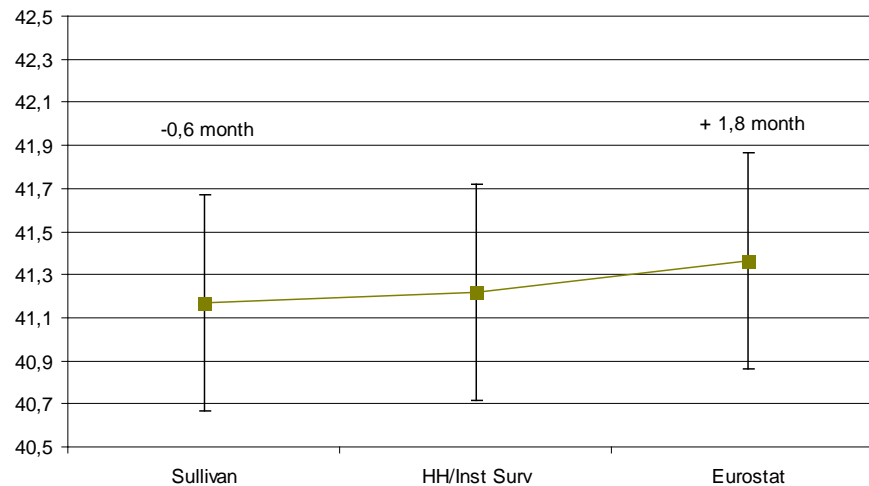
Women. Life expectancy without ADL à 20 ans  
(prevalence around 4% in HH)



Men. Life expectancy without functional limitations à 20 ans  
(prevalence = 25% in HH)



Women. Life expectancy without functional limitations à 20 ans  
(prevalence = 29% in HH)



### 3. Estimates based on comparable HH/Institutions survey

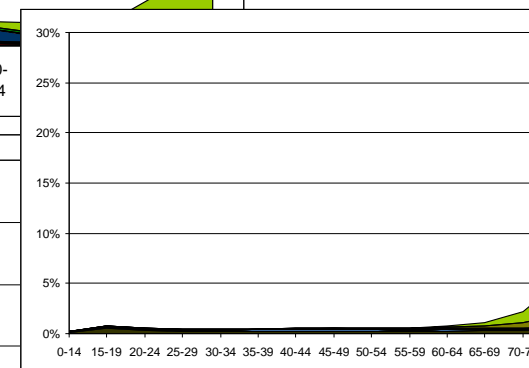
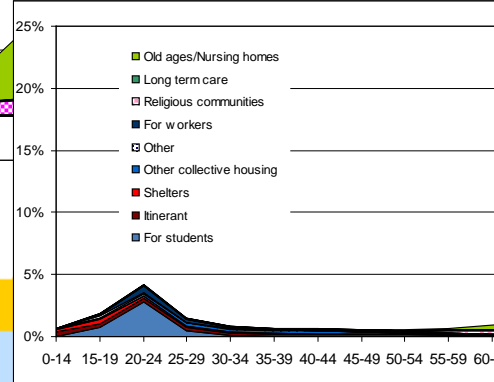
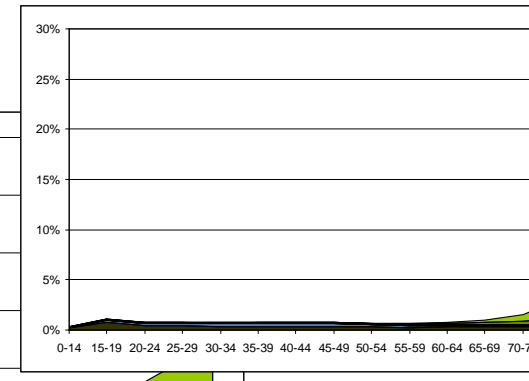
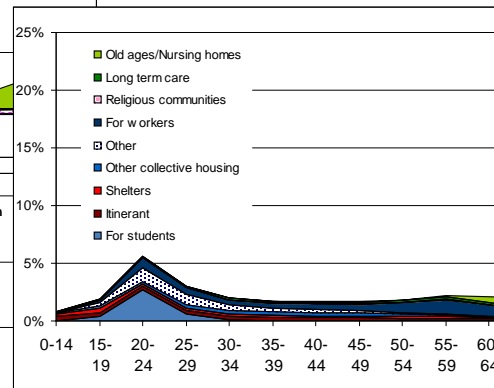
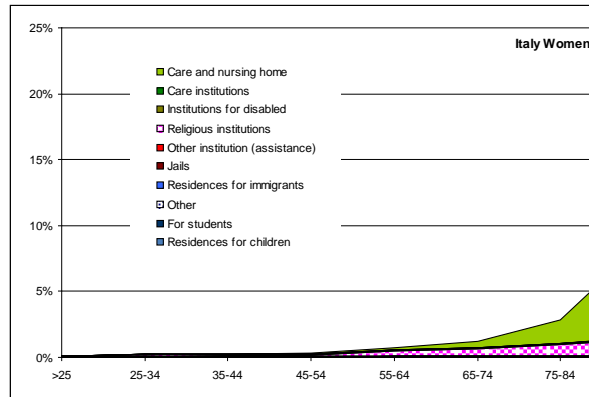
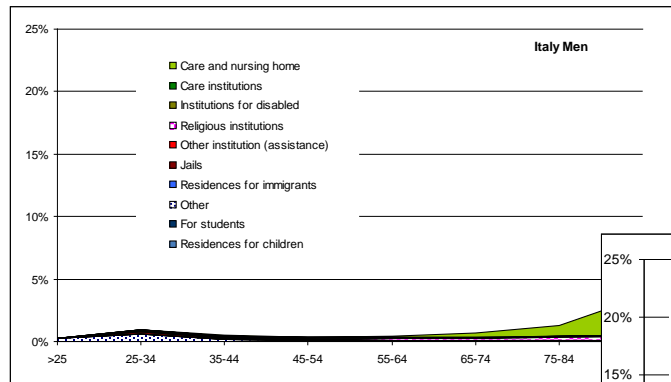
1. For disability status with low prevalence (ADL), the difference btw HH and Inst are large but the total number of persons concerned is limited: the impact of both assumptions is larger than the confidence interval. Eurostat assumption diverges more than Sullivan, reach a 7 month of HLExp at age 20
2. For disability status with high prevalence (common with age...), the difference btw HH and Inst prevalence reduces with age while % living in institution increases. This inverted trends makes the impact of either assumptions low even if Sullivan is closer to the observation. The differences are within the IC.

# Conclusion

1. Based only on HH information, population estimates are underestimating the prevalence of disability. The magnitude of the bias depending on the age patterns of living outside institution and type of disability under consideration.
2. Sullivan assumption seems more accurate but only when statistics allows to focus on health related institutions.
3. But, the variation of the % and type of institutions across Europe prevents from applying Sullivan assumption.
4. In any case, the reality is in between the two assumptions, giving the two limits of a range for the estimates
5. Such approach can be useful to avoid conducting worldwide surveys in institution to better estimate population disability prevalence

# 1. The European populations living outside HH

- What is the distribution of the institutions/collective HH in the population outside HH across Europe? Example with France, Italy and the Netherlands



# 3. The calculations of HLY: Sullivan vs. Eurostat assumption

At birth

