

## EHLEIS. Working Paper

# The impact of disability in institution on the general population estimates of disability: The example of HLY

WORK IN PROGRESS

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**The impact of disability in institution on the general population estimates of disability: the example of HLY**

1. The health of the population can be measured by health surveys (HS) that are most of the time only based on household population (HH). The reason is the difficulty to survey populations living outside HH (sample, interview etc.)
2. A part of the population outside HH lives in nursing or health care institutions and is therefore in poor health. Nevertheless, institutions like collective households (students, young workers, etc) host populations that have no more reason to be in poor health than the HH population and sometimes less. Thus, not all the population that is omitted by HS should be considered as associated to poor health or disability.
3. The question is therefore to what extent might the HH population be representative of the whole population regarding health indicators? Variations in HH vs Institution populations across countries might modify the conclusions regarding level of HLY and country gradient.
4. Proposing an aggregate health indicator, the disability free life expectancy, Sullivan considered that living in institution was an expression of disability (Sullivan, 1971). He therefore recommended considering the prevalence of disability as 100% in institutions. While this can be reasonable thinking of nursing homes and long term hospital services, this is a quite strong an assumption for other types of collective households. Previous calculations for France show that the impact of such an assumption depends on the type of disability indicator used (Cambois et al. 2008).
5. On the other hand, 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 strong assumption derives from the fact that the coverage of the surveys varies to such an extent across Europe, that an assumption of 100% disability prevalence in institution is not justifiable. This assumption is optimistic considering that part of the population is actually in poorest health than in HH.
6. In this paper we compare the outcome of both assumptions on the European data on "activity limitations" that are used to compute the HLY. We further develop by using French and Italian data on the type of institution to provide more accurate results. To what extent including institutions affect the HLY indicators? To what extent might it change the differences between countries?

## The impact of disability in institution on the general population estimates of disability: the example of HLY



### Context

1. The health of the population is measured by health surveys that are most of the time only based on household population due to difficulty to organise a survey comparable to the one in HH, in population living outside HH (the sample and interview etc.)
2. A part of the population outside HH lives in nursing or health care institution and are therefore in poor health.
3. But not all the population that is omitted by HS should be considered as associated to poor health or disability.



To what extent the HH population might be representative of the whole population regarding health indicators?



## Assumptions

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).
  - *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 households.*
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.
  - *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

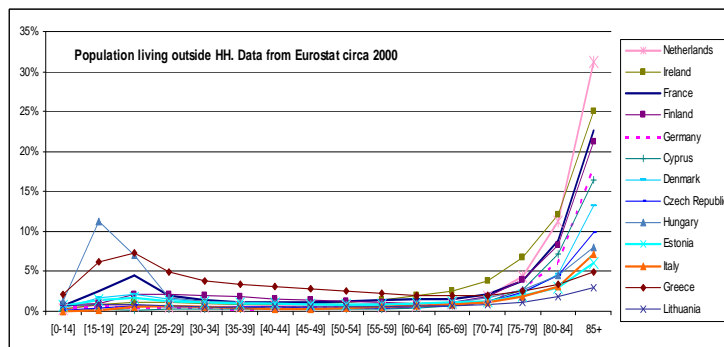
1. The European populations living outside HH
  - What is the distribution between HH and population outside HH across Europe?
  - What is the distribution of the care institutions in the population outside HH across Europe?
2. The calculations of HYL considering Sullivan assumption vs. Eurostat assumption
  - Gap on the Eurostat estimates vs Sullivan with the population outside HH?
3. The Eurostat estimates vs Sullivan with the care related institutions
4. Further research made in France with data form comparable HH/Insti Survey



How many years of healthy life are artificially added from the Eurostat estimates ?

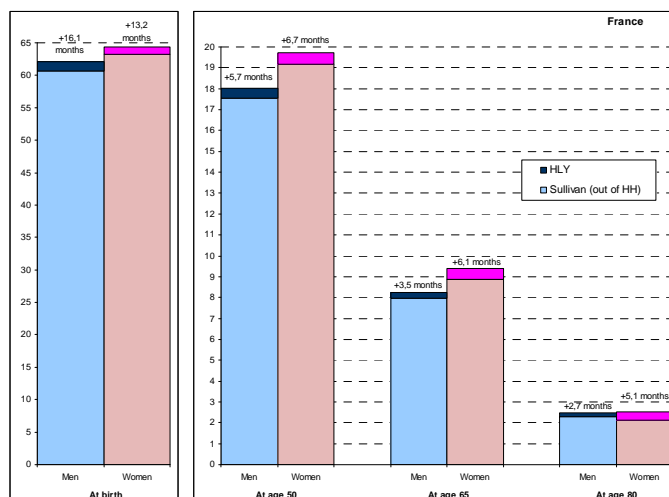
## 1. The European populations living outside HH

- 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



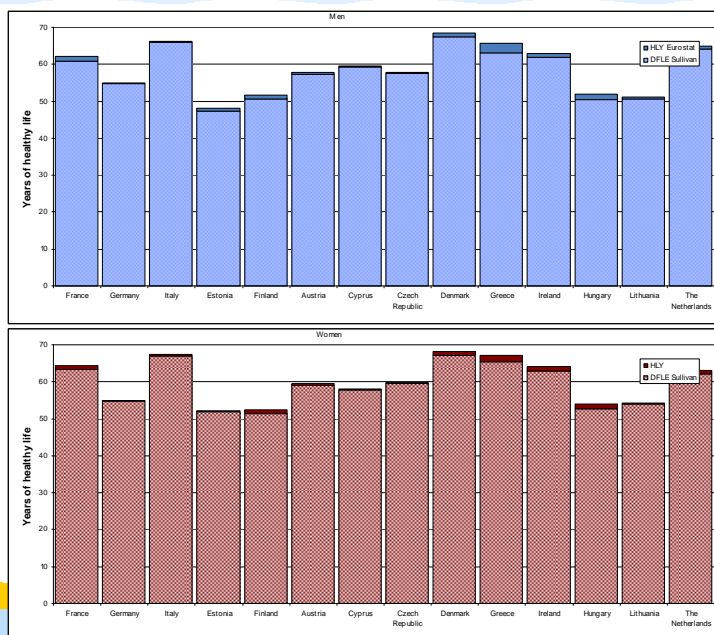
## 2. The calculations of HYL: Sullivan assumption vs. Eurostat assumption

- Gap on the Eurostat estimates vs Sullivan with the population outside HH?



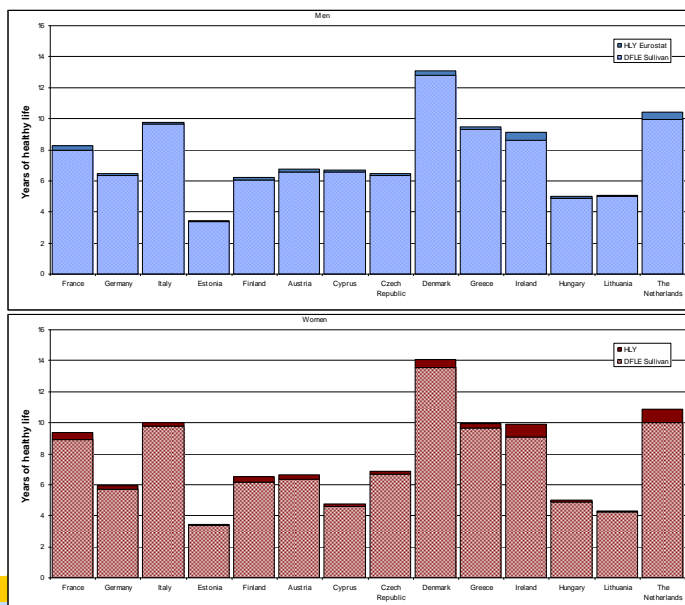
## 2. The calculations of HYL: Sullivan assumption vs. Eurostat assumption

At birth

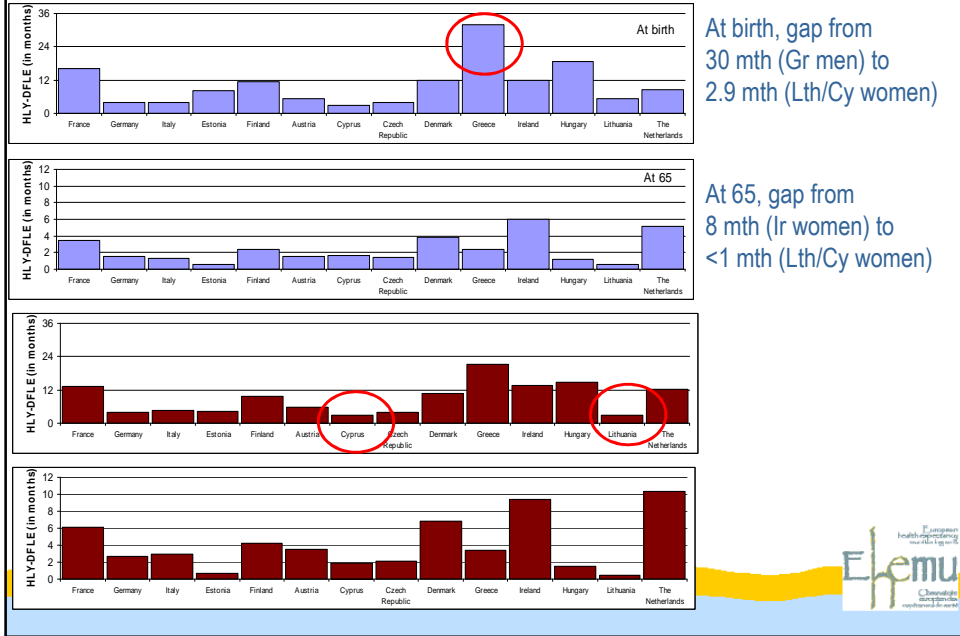


## 2. The calculations of HYL: Sullivan assumption vs. Eurostat assumption

At age 65

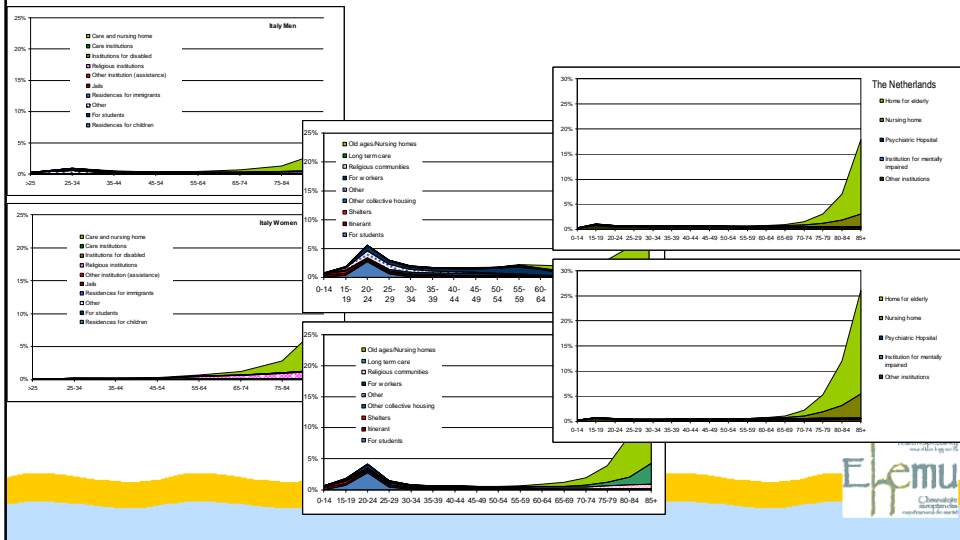


## 2. The calculations of HYL: Sullivan assumption vs. Eurostat assumption



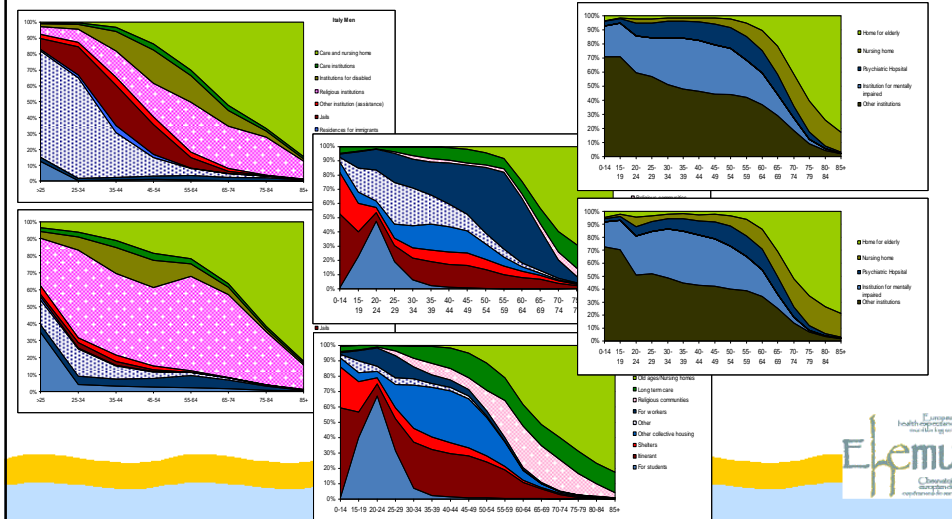
## 3. The calculations of HYL: Sullivan to the care related institutions

➤ 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 HYL: Sullivan to the care related institutions

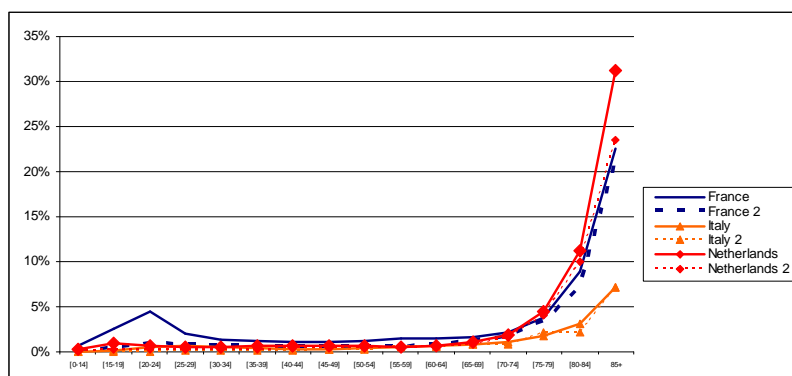
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### 3. The calculations of HYL: Sullivan to the care related institutions

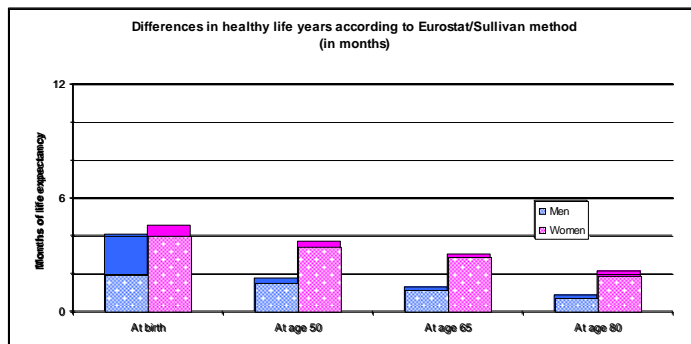
➤ Gap on the Eurostat estimates vs Sullivan with the care related institutions?

% living outside HH and % in nursing/care institutions



### 3. The calculations of HYL: Sullivan to the care related institutions

Number of years differences between HLY and DFLE in Italy

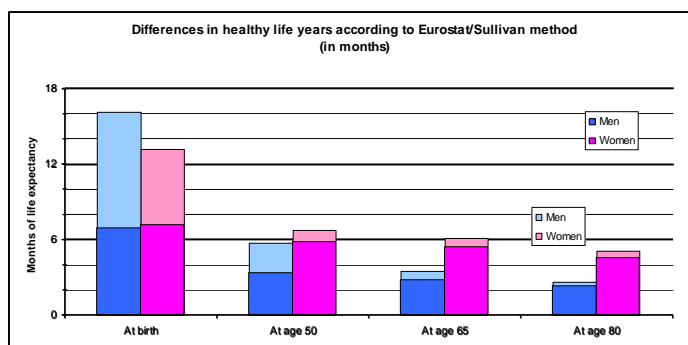


- Low institutionalization rate
- Less than 4 month difference according to the assumption
- Even reduced at birth if limiting to « care related institutions »



### 3. The calculations of HYL: Sullivan to the care related institutions

Number of years differences between HLY and DFLE in France

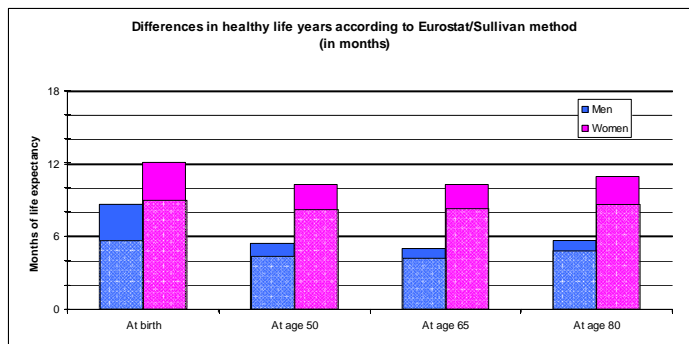


- High institutionalization rate, due to both high rate for young and elderly
- Difference can reach 16 months
- But reduced to 7 month at birth if limiting to « care related institutions »



### 3. The calculations of HYL: Sullivan to the care related institutions

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 months if limiting to « care related institutions »



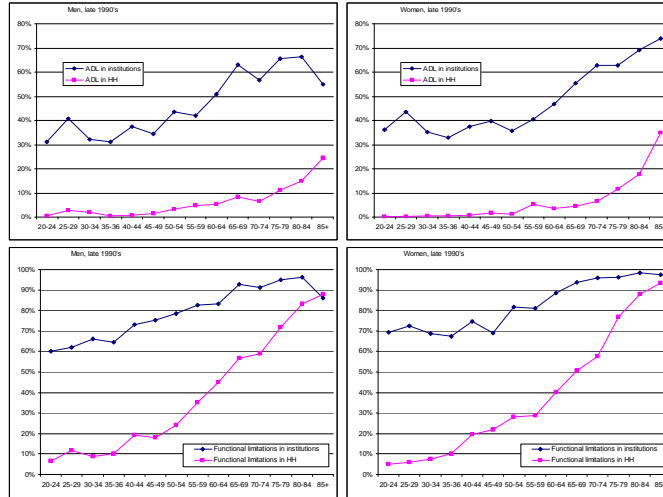
### 3. The calculations of HYL: Sullivan to the care related institutions

- 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%?

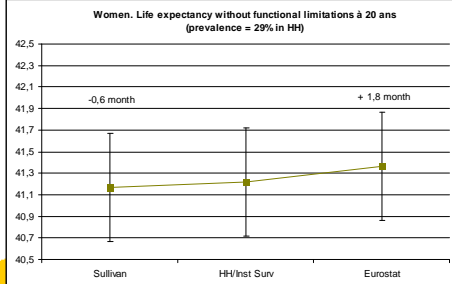
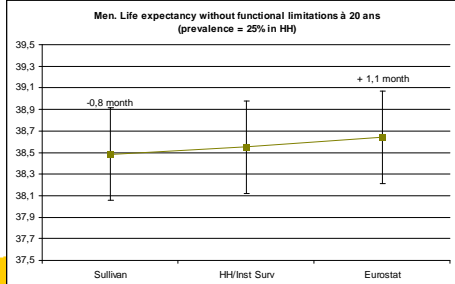
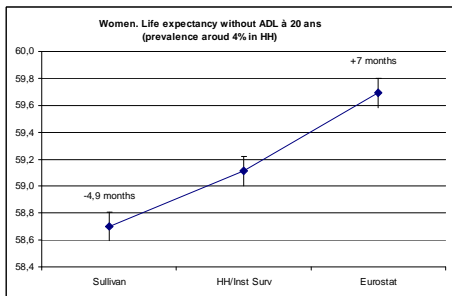
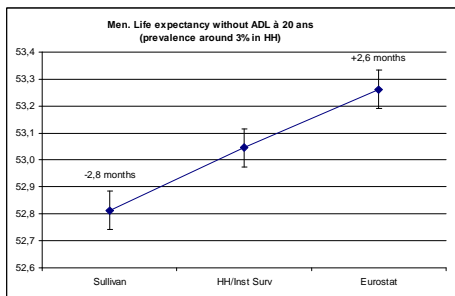


#### 4. Estimates based on comparable HH/Institutions survey

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



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



#### 4. 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. The Eurostat assumption is overestimating the HLY to various extent across Europe. The magnitude of the gap reaching more than a year in countries where the % in institution is high
2. Sullivan assumption seems more accurate than Eurostat assumption regarding the gap between estimates based on observed values
3. But, the variation of the % and type of institutions across Europe prevents from applying Sullivan assumption.
4. Compared to "Sullivan estimates" the order between country do not change a lot (Within IC?)
5. What GALI in care institutions looks like? This would be known for France soon. Should be in the situation in btw FL and ADL