Improving health expectancies and the inequality paradox

Patrick Deboosere[1] Rana Charafeddine[2]
Sylvie Gadeyne[1] Herman Van Oyen[2]

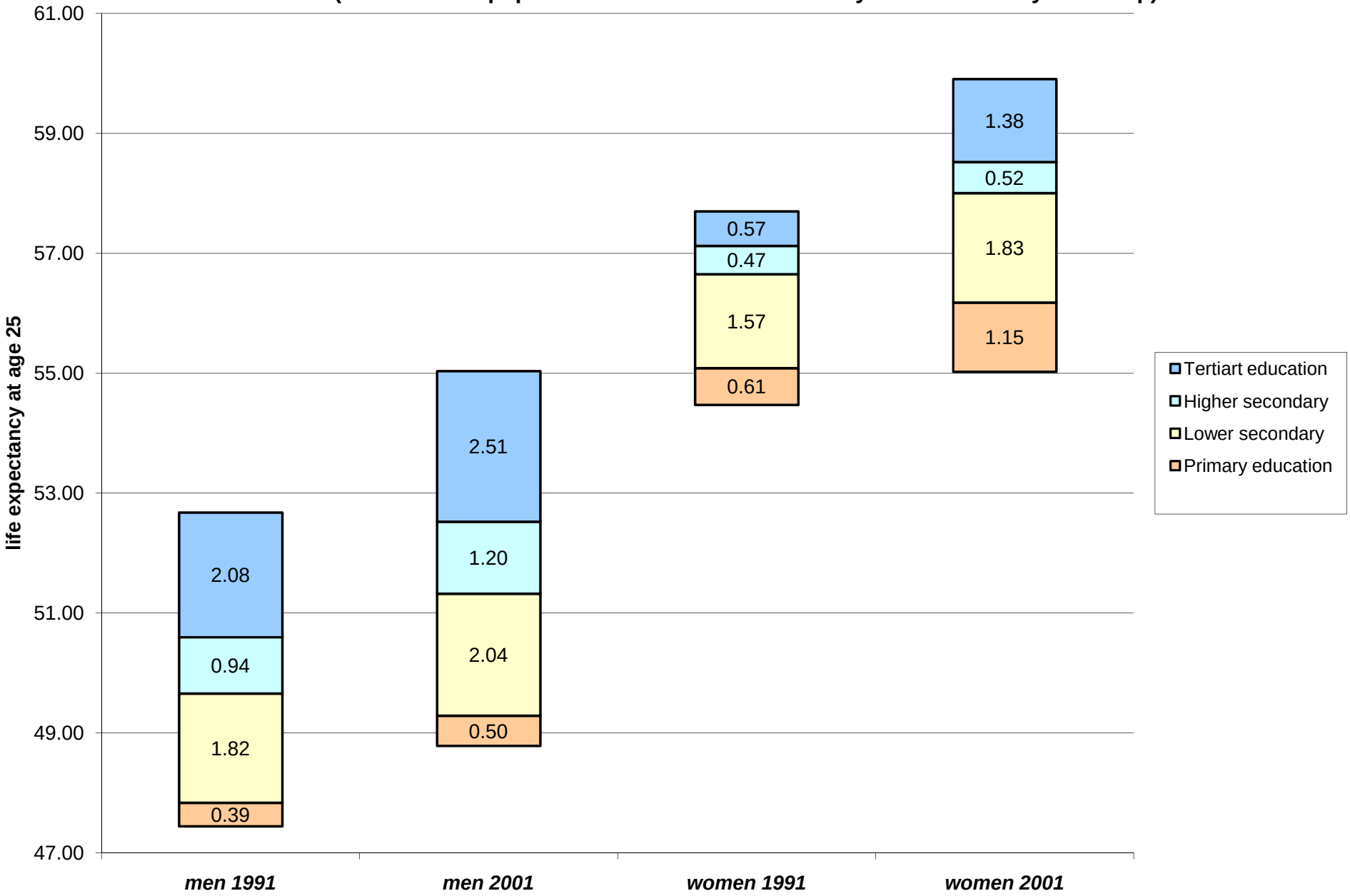
(1) Vrije Universiteit Brussel
(2) Scientific Institute of Public Health

Reves – Havana, Cuba – May 19-21 2010

Background: observations

- 1. Belgium:
  - Life expectancy and healthy life expectancy increased over the last decades. This is true for almost all social groups (according to a large set of different indicators of SEP) with the only exception of the group without formal education
  - Over the same periode health and mortality inequalities have widened, also when excluding the lowest educated.
- 2. International research:
  - The persistance or increase in health inequalities has been observed in most European countries (Cavelaars et al. 1998, Huisman et al. 2004, Kunst et al. 2005, Knesebeck et al. 2006)
  - For the UK a widening of the mortality gap has been reported (Blane, Bartley & Davey Smith, 1997)
  - Some interesting exceptions: Austria

Belgium: Life Expectancy at age 25
Additional years of life expectancy by educational attainment and gender compared to men and women without formal education
(Data: census populations of 1991 & 2001 with 3 years of mortality follow-up)



Background: discussion points

- 1. Discussion on the welfare regimes
  - Mackenbach (1997) Why do Scandinavian welfare regimes not perform better?
  - Eikemo et.al. (2007) Health inequalities according to educational level in different welfare regimes: a comparison of 23 countries – observed that Scandinavian welfare regimes were placed less favourably than the Anglo-Saxon and East European and they stated that:“Rather surprisingly, given that the overall health of their population is amongst the best in the world, countries that emphasise egalitarian principles, such as Sweden and Norway, do not seem to offer any exceptions in this respect.”

Background: discussion points

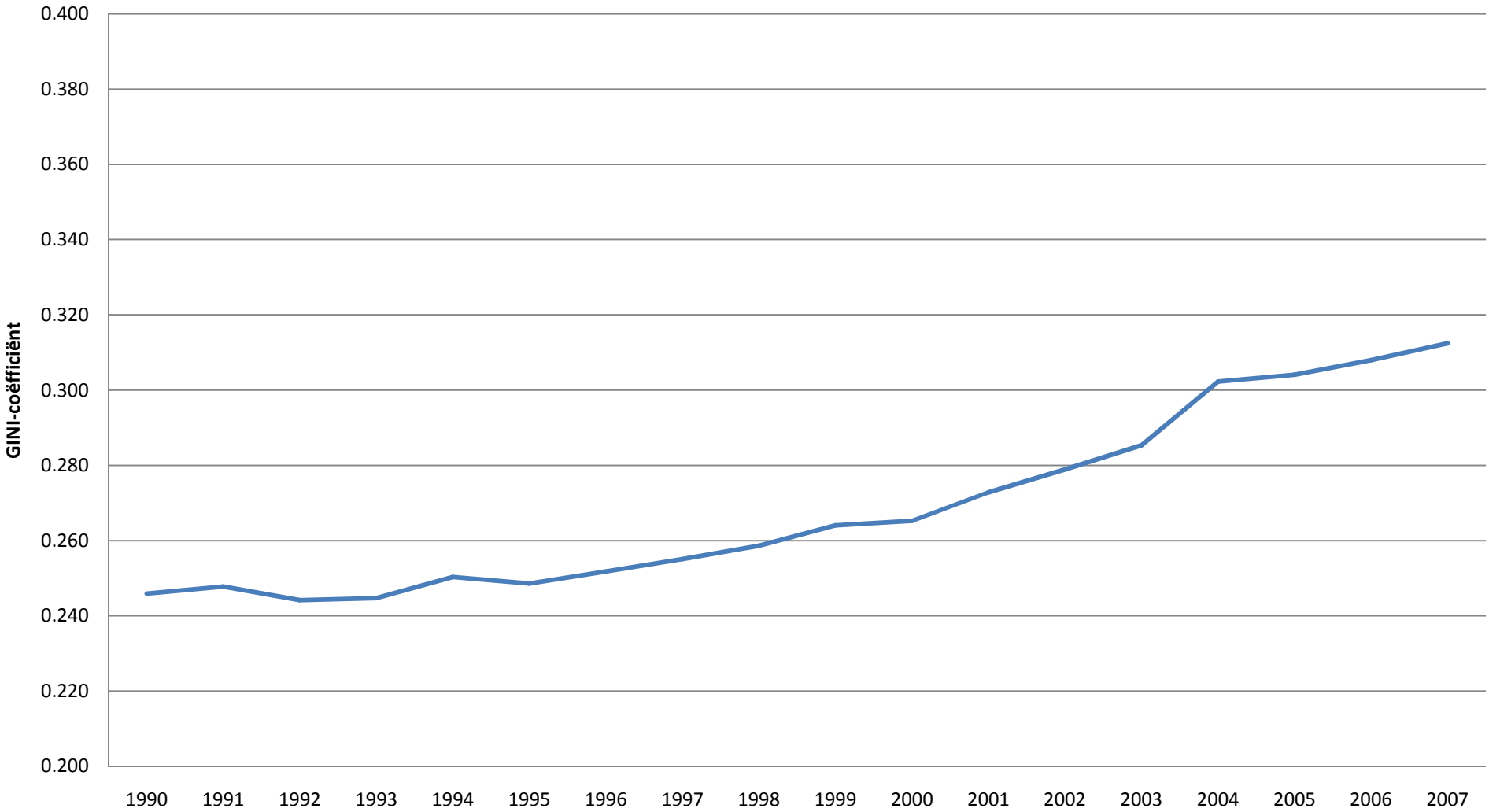
- 2. Discussion on the underlying mechanisms
  - problems measuring inequality (Judge et al. 2005)
  - increasing social inequality, not necessarily translated in material deprivation (Wilkinson)
  - reappearence of the health selection debate linked to social mobility
    - The old debate (Illsley 1986, West 1991) “Rethinking the health selection explanation” (West)
    - Introduction of the “gradient constraint” concept (Bartley & Plewis, 1997, Blane e.a. 1999): the mobility process moderates health differentials
    - Increasing social mobility: an effective policy to reduce health inequalities (Bartley & Plewis, 2007)
    - Recently: “Evidence that social mobility can widen health inequalities” (Boyle e.a., 2009)

Background: discussion points

- 3. A. Palloni (2008) “Triggering Inequality and Health Gradients: Do Health Selection Effects Matter?” looking for an integrated theoretical framework to explain the potential existance of health selection effects as a mechanism producing the observed adult socioeconomic gradient in health and mortality

  - Need to look at differential processes according to different age bands: age, cohort, period effect
  - We will concentrate on the intergenerational social mobility & in particular the educational transition of the 1972-1976 birth cohorts in relation with their health outcome

Evolution GINI-coëfficiënt – based on taxable income (netto after taxes)
Belgium 1990 – 2007
Data: Statistics Belgium



Data: 528.109 persons

Census 1991

Educational level from parents from

1972-1976 birth cohorts

(97%)

Census 2001

Educational level

+ health status

from

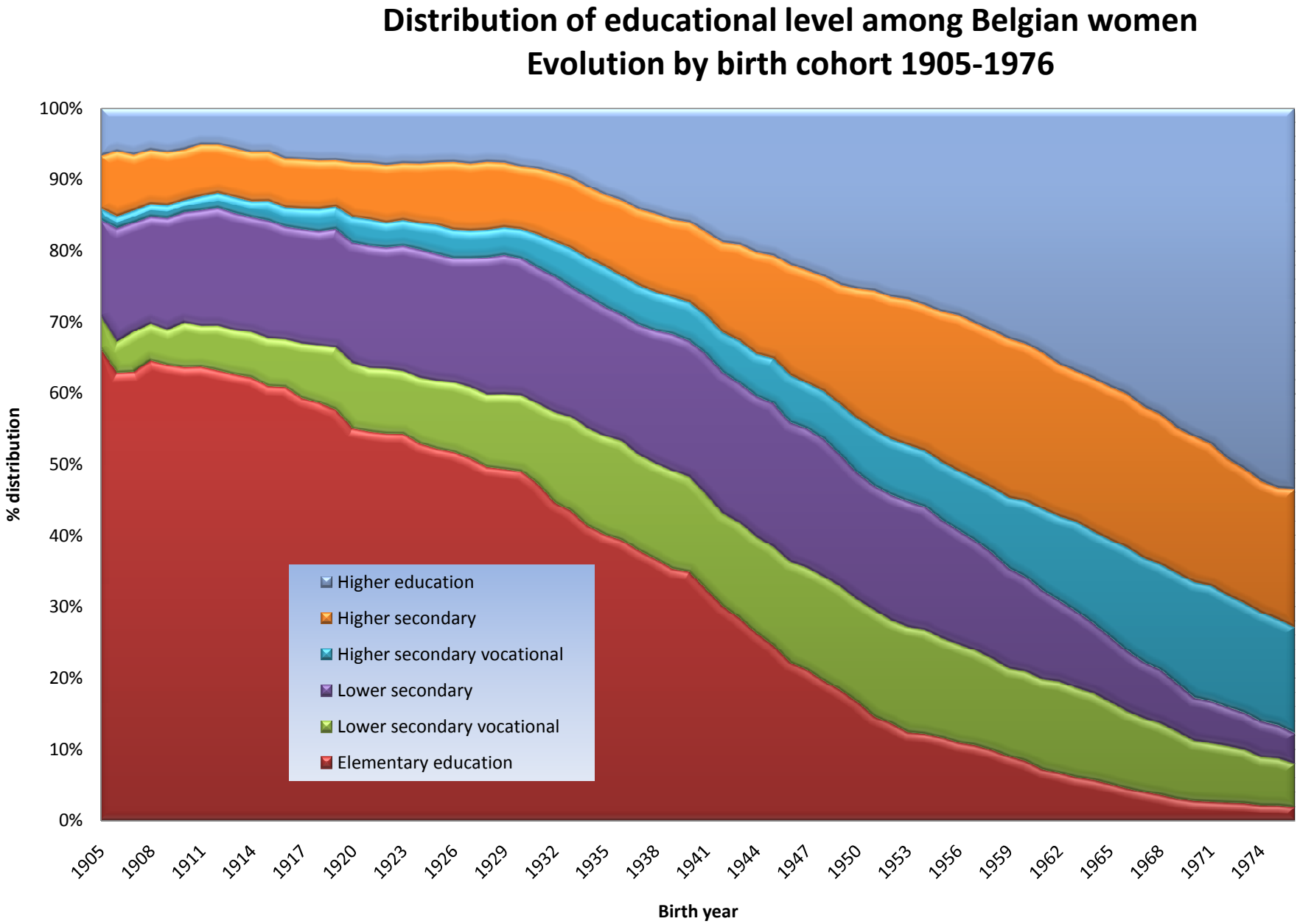
1972-1976 birth cohorts

The Belgian educational system

- Egalitarian
- State funded untill the age of 18, small tuition fee in higher education & system of governemental support for low incomes
- Compulsory education till 18 (1984)
- Track system in secundary school system: general, technical and vocational
- Low score for integration of children from migrant origin

Before looking to the transition:

- Illustration of the general shift in educational composition of the Belgian population
- The extreme high inequality appearing in the youngest age cohorts due to a selection effect: the lowest educational groups are increasingly smaller and more and more composed of persons with health problems


Distribution of educational level among Belgian women
Evolution by birth cohort 1905-1976
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% distribution
1905
1908
1911
1914
1917
1920
1923
1926
1929
1932
1935
1938
1941
1944
1947
1950
1953
1956
1959
1962
1965
1968
1971
1974
Birth year
Higher education
Higher secondary
Higher secondary vocational
Lower secondary
Lower secondary vocational
Elementary education

O.R. Less than good health
Birth cohorts 72-76 & their parents

	birth cohorts 72-76	Parents
Highest educational level	O.R. LTGH	O.R. LTGH
No formal education	7,0	4,6
Elementary education	6,4	3,5
Lower Secondary	3,8	2,4
Higher Secondary	2,1	1,6
Higher Education (Tertiary)	1,0	1,0

O.R. Less than good health
Birth cohorts 72-76 & their parents

	birth cohorts 72-76	Parents	
Highest educational level	O.R. LTGH	O.R. LTGH	N
No formal education	7,0	4,6	28.405
Elementary education	6,4	3,5	98.437
Lower Secondary	3,8	2,4	140.982
Higher Secondary	2,1	1,6	104.943
Higher Education (Tertiary)	1,0	1,0	115.070

O.R. Less than good health
Birth cohorts 72-76 & their parents

	birth cohorts 72-76		Parents	
Highest educational level	O.R. LTGH	N	O.R. LTGH	N
No formal education	7,0	5.047	4,6	28.405
Elementary education	6,4	8.532	3,5	98.437
Lower Secondary	3,8	66.891	2,4	140.982
Higher Secondary	2,1	196.840	1,6	104.943
Higher Education (Tertiary)	1,0	250.799	1,0	115.070

Results

- The educational transition: the relation between parental educational level, own educational level and health

Transition matrix:
Parental education and own education of 1972-1976 birth cohorts
Belgium

	Highest educational attainment 72-76 birth cohorts					
Parental education men	no formal	elementary	lower sec.	higher sec.	higher	total
no formal education	3,2	4,5	28,5	47,3	16,5	21179
elementary education	1,5	3,7	23,2	48,8	22,7	53480
lower secondary	1,0	2,0	17,8	46,3	33,0	75717
higher secondary	0,7	1,2	10,8	41,1	46,2	56851
higher education	0,4	0,5	4,5	23,4	71,2	61426
total	2864	5462	40850	108859	110618	268653
	1,1	2,0	15,2	40,5	41,2	

Parental education women	no formal	elementary	lower sec.	higher sec.	higher	total
no formal education	2,5	3,2	23,1	47,2	24,0	20329
elementary education	1,2	2,2	16,4	45,9	34,4	51596
lower secondary	0,8	1,1	11,1	39,6	47,4	72808
higher secondary	0,6	0,6	6,4	31,4	61,1	55303
higher education	0,3	0,3	2,1	14,4	83,0	59420
total	2183	3070	26041	87981	140181	259456
	0,8	1,2	10,0	33,9	54,0	

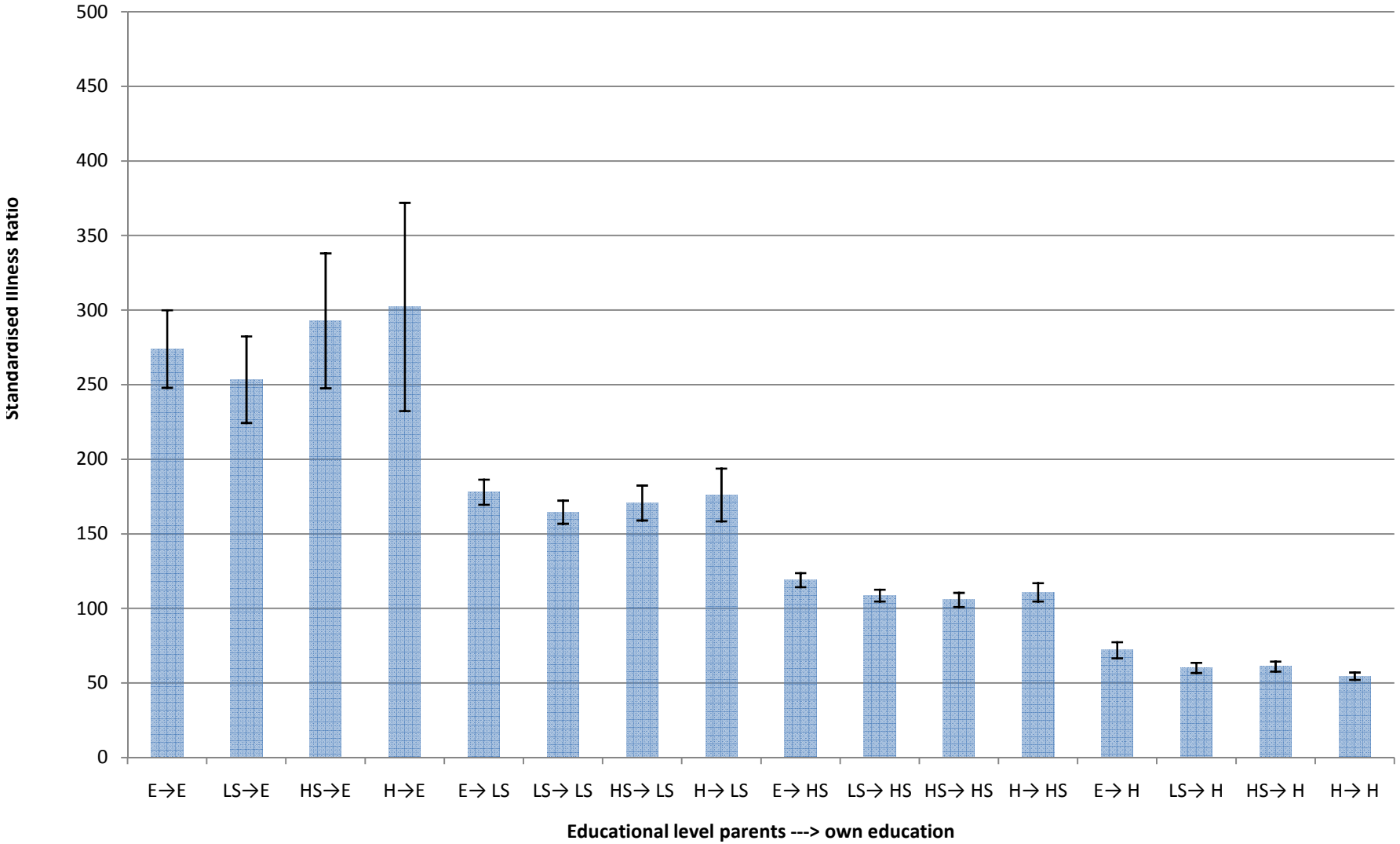
Transition matrix parental education (1991) - own education (2001):
prevalence of less than good self-assessed health for each transition cell

	Highest educational attainment 72-76 birth cohorts					
Parental education men	no formal	elementary	lower sec.	higher sec.	higher	total
no formal education	23,2	25,1	17,0	11,9	7,5	21179
elementary education	23,5	21,3	13,9	9,3	5,6	53480
lower secondary	24,4	19,7	12,8	8,5	4,7	75717
higher secondary	23,7	22,8	13,3	8,2	4,8	56851
higher education	35,4	23,5	13,7	8,6	4,3	61426
total	2864	5462	40850	108859	110618	268653
Parental education women						
Geen diploma	25,5	27,1	20,5	12,5	7,9	20329
Lager onderwijs	23,3	26,1	17,0	10,1	5,0	51596
Lager secundair	24,7	23,2	16,9	8,8	4,5	72808
Hoger secundair	23,8	22,8	15,9	8,0	4,2	55303
Hoger onderwijs	29,7	33,8	18,9	9,6	3,9	59420
totaal	2183	3070	26041	87981	140181	259456

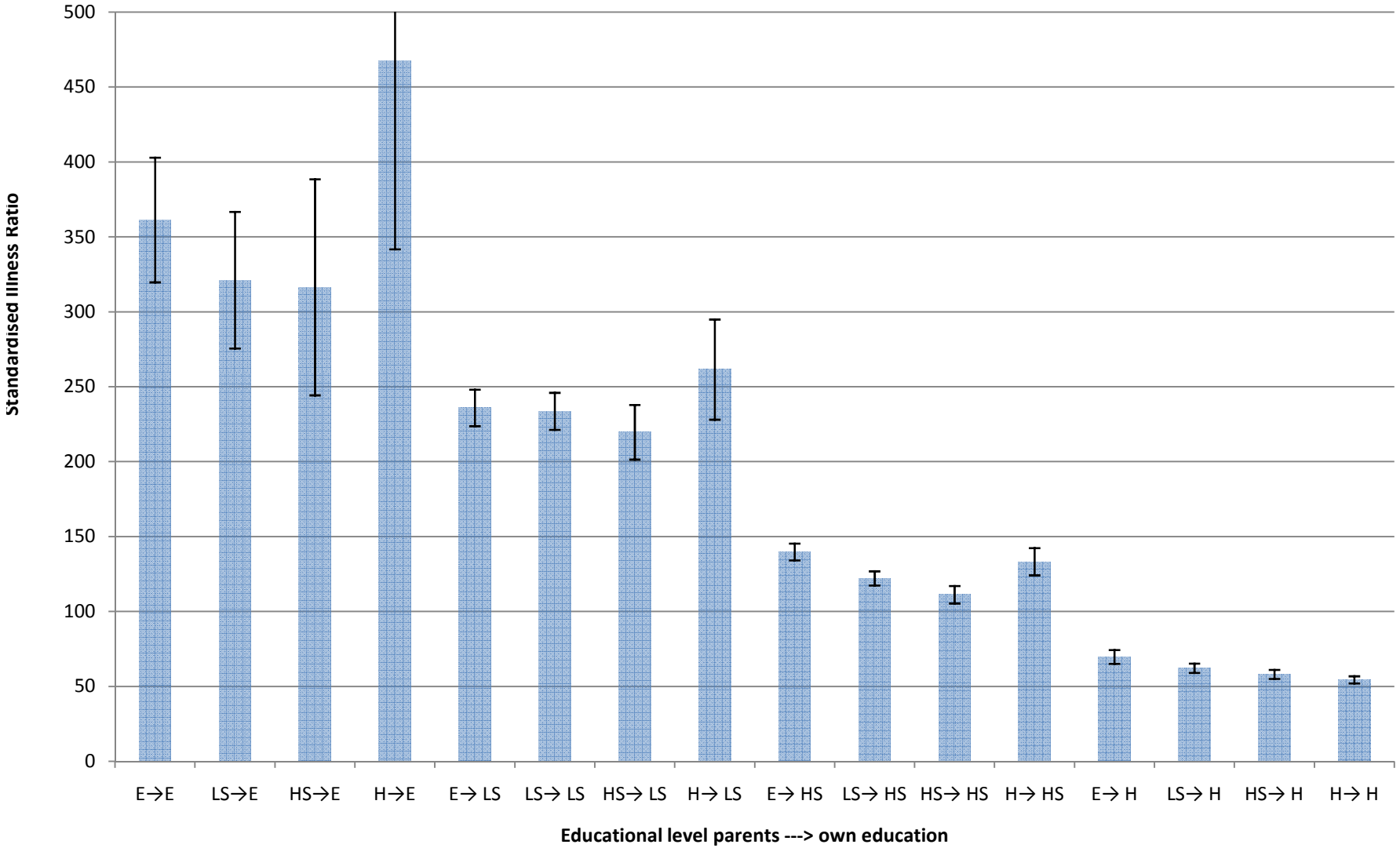
Standardized Illness Ratio

- For each cell of the transition matrix the age standardised illness ratios (SIRs) are produced.
- The standard population is represented by the total population. For each origin/destination cell the observed illness is compared to the expected illness and a 95% confidence interval can be calculated.

Less than good self-assessed health by educational level of the parents and own educational attainment: men age 25-29



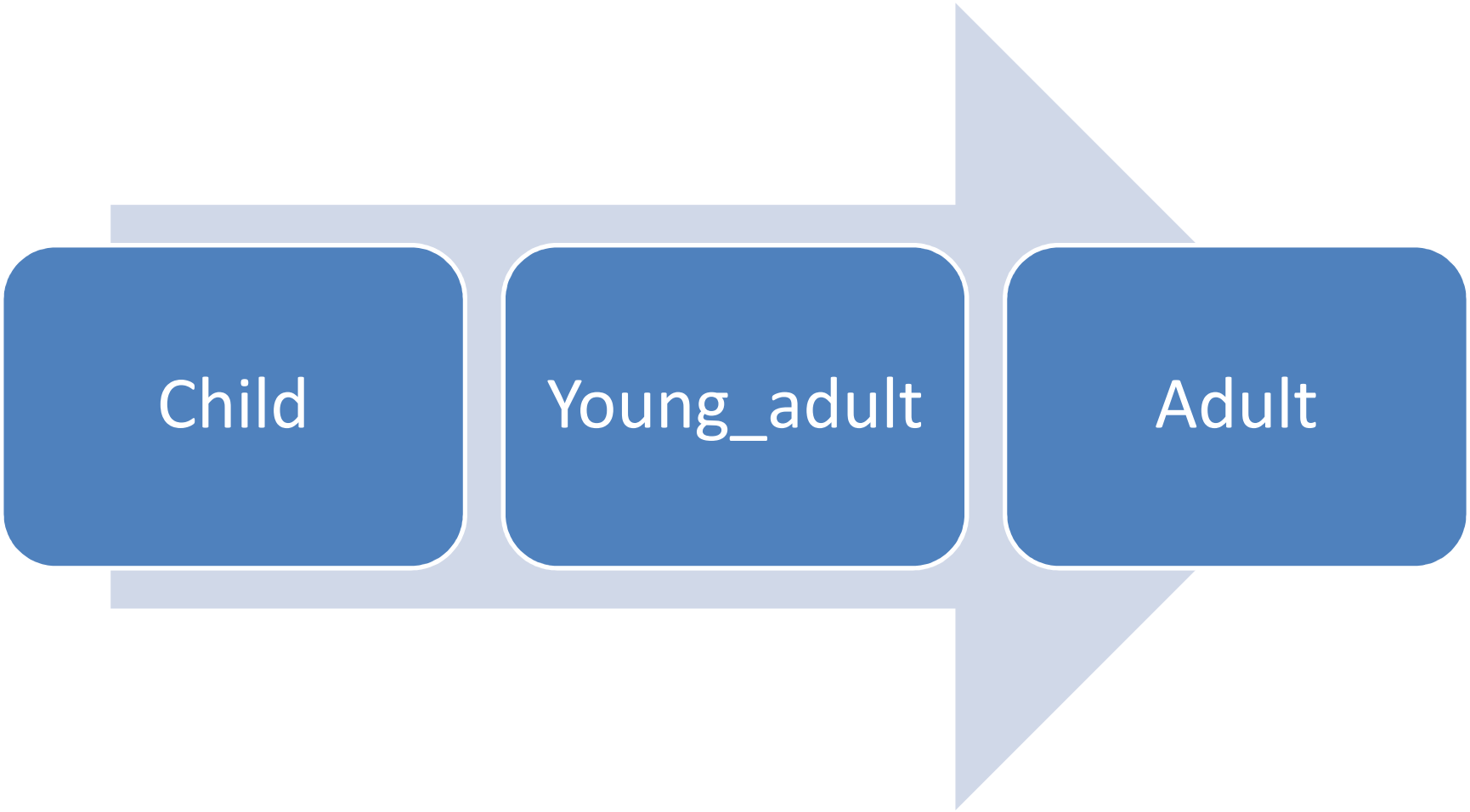
Less than good self-assessed health by educational level of the parents and own educational attainment: women age 25-29



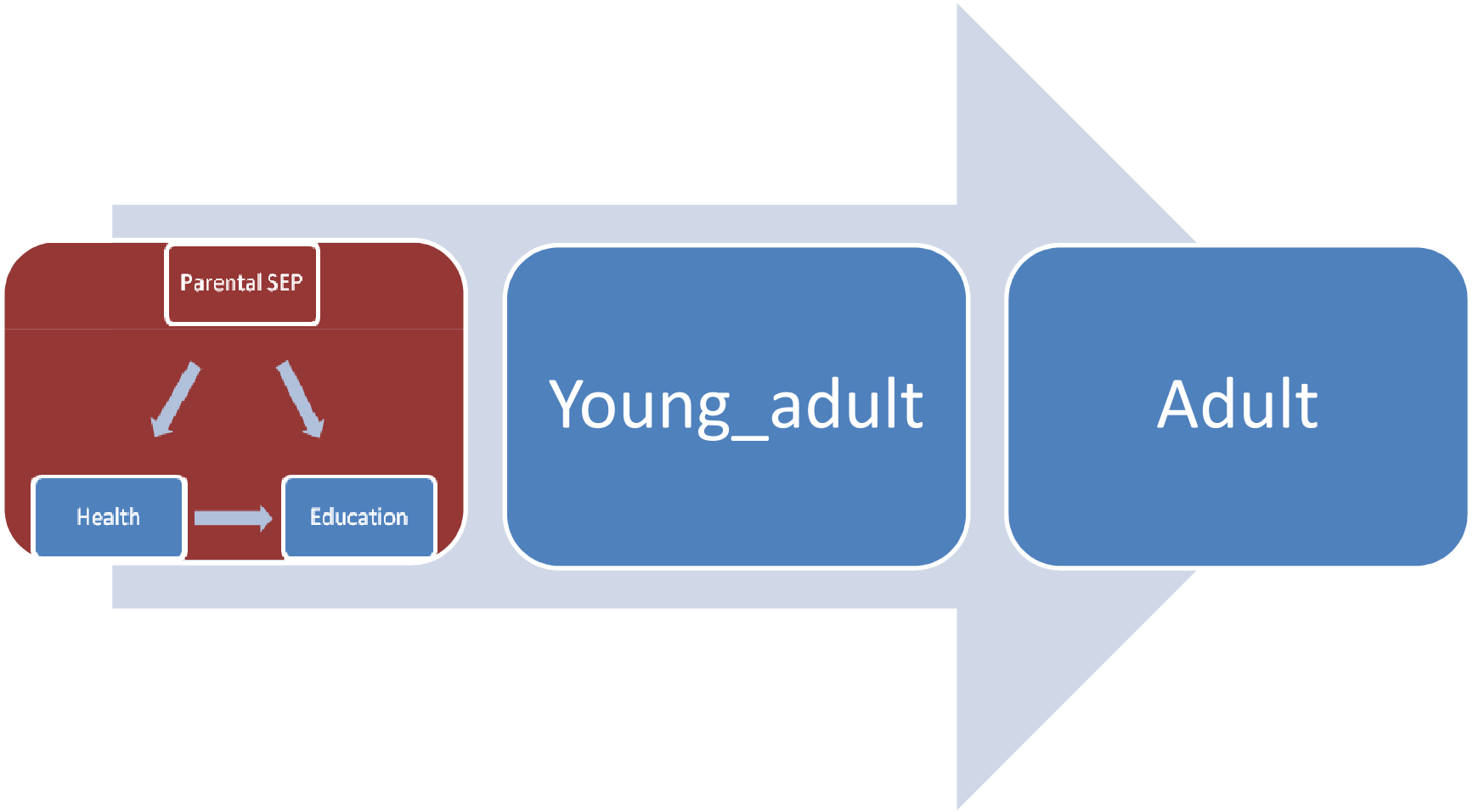
The paradox of improving equity AND health inequality

- At least based on Belgian data we have to conclude that improving equity (as far as educational attainment is concerned) AND improving health expectancies can also increase the indicators of health inequalities.
- The classic separation of three conflicting and opposed explanations resulting from the first comments of the Black report do not allow for a correct interpretation as already clearly pointed out by Olle Lundberg in his 1991 paper on “Childhood Living Conditions, Health Status and Social Mobility”.

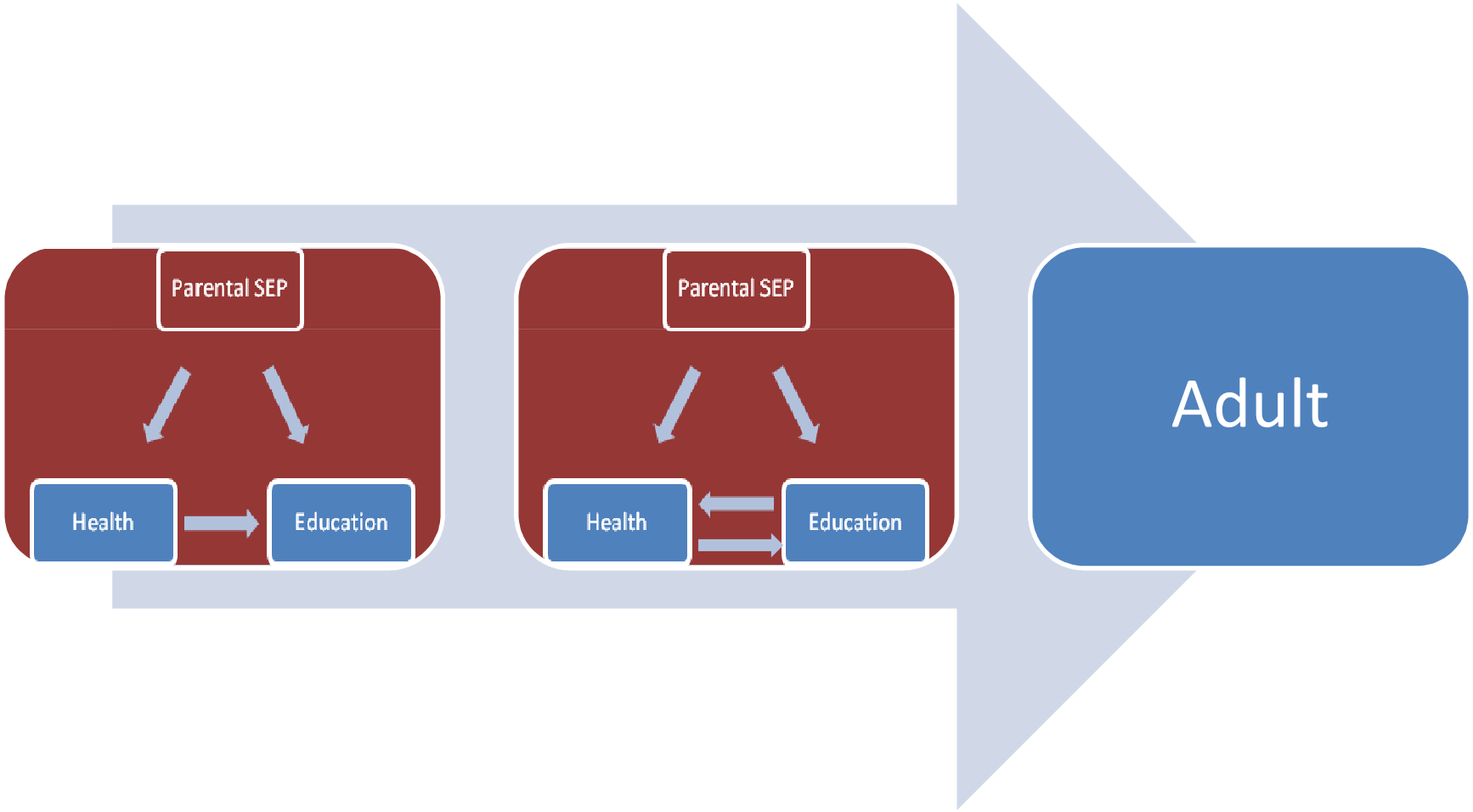
Conclusion: Shifts in causal relationships over the live course



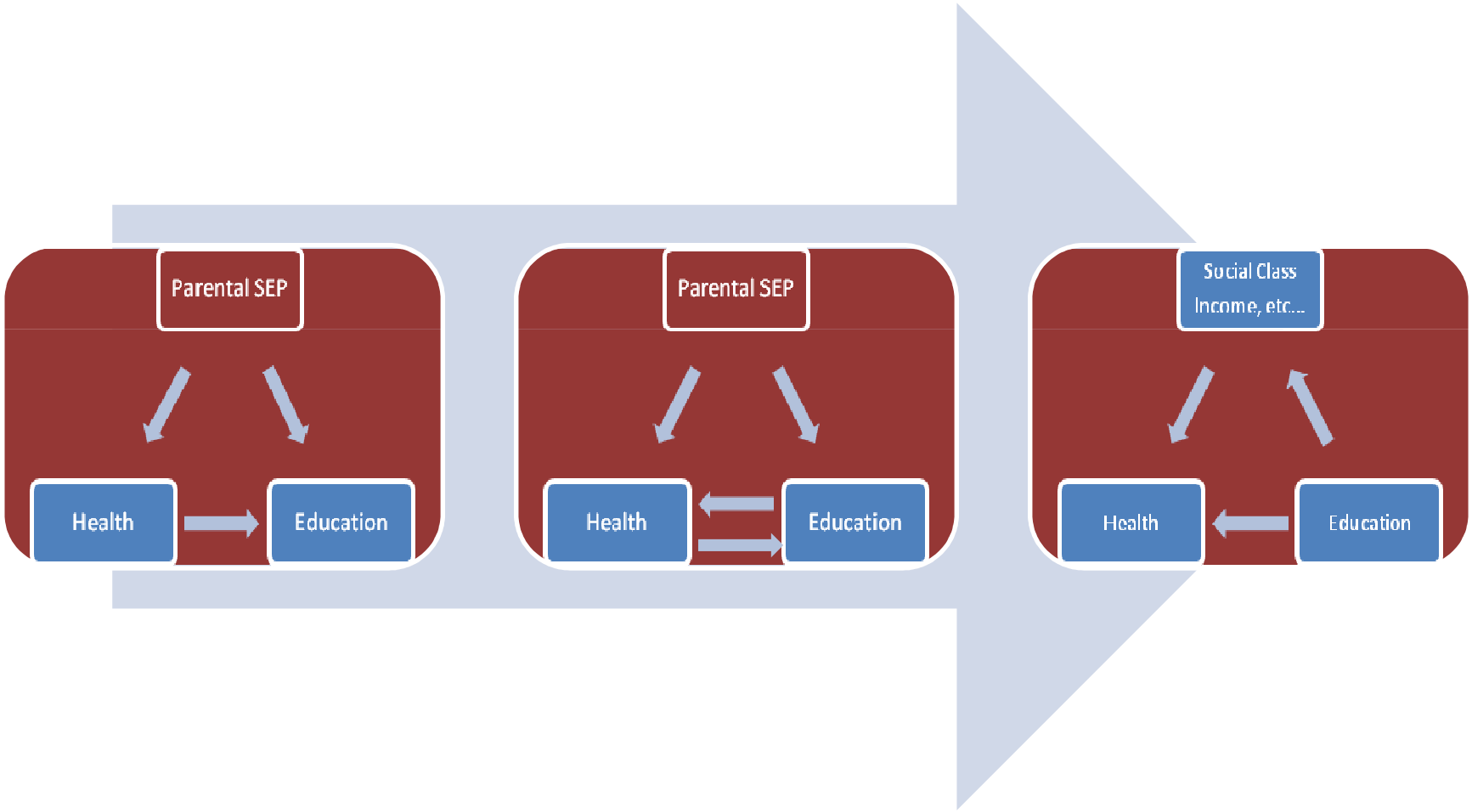
Conclusion: Shifts in causal relationships over the live course



Shifts in causal relationships over the live course



Conclusion: Shifts in causal relationships over the live course



Additional considerations

- An egalitarian educational system does not exclude the persistance of inequalities in access to higher education and needs a permanent reevaluation.
- Improving upstream conditions remains on the long run the most effective way to improve health expectancies and to reduce health inequalities (= activily organizing upwards intergenerational social mobility)
- Intergenerational social mobility is a collective endeavour of our societies, the product of solidarity, whereas intragenerational mobility is in general more the result of individual efforts, opportunities or risks

Thank you for your attention

Acknowledgements:

The Belgian Federal Science Policy: Tackling Health Inequalities in Belgium