

**Where you were born and where you live
Does it influence your mortality risk ?
BELGIUM (1991-2009)**

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Question addressed

- The survival in adult and older ages varies from place to place and could also vary depending the place of birth.
- The aim of this contribution is to estimated separately the **effect of the place of birth and the place of residence** controlling the mortality risk by sex, age and level of education

Data used

- The whole Belgian population born before 1950 is followed in the *National Population Register* between the 1st January 1991 and the 31 December 2009.
- We consider 4,24 millions persons. Among these 1,55 millions died during the observation period. Every person is characterised by the place of birth and the place of residence on 1st January 1991 considering the 43 Belgian administrative 'arrondissement'.

Method followed

We apply the survival analysis with outcome = 1 (death) or 0 (survival till 2009).

The covariates included in the models are

- Sex, age (continuous) and level of education in all models
- In models 2, 3 and 4, Migration = 0 (Not movers, born and living in the same arrondissement) = 1 (internal movers, born and living in two different arrondissements). Foreign born are excluded.
- In models 2 and 4, Place of birth (arrondissement)
- In models 3 and 4, Place of residence in 1991 (arrondissement)

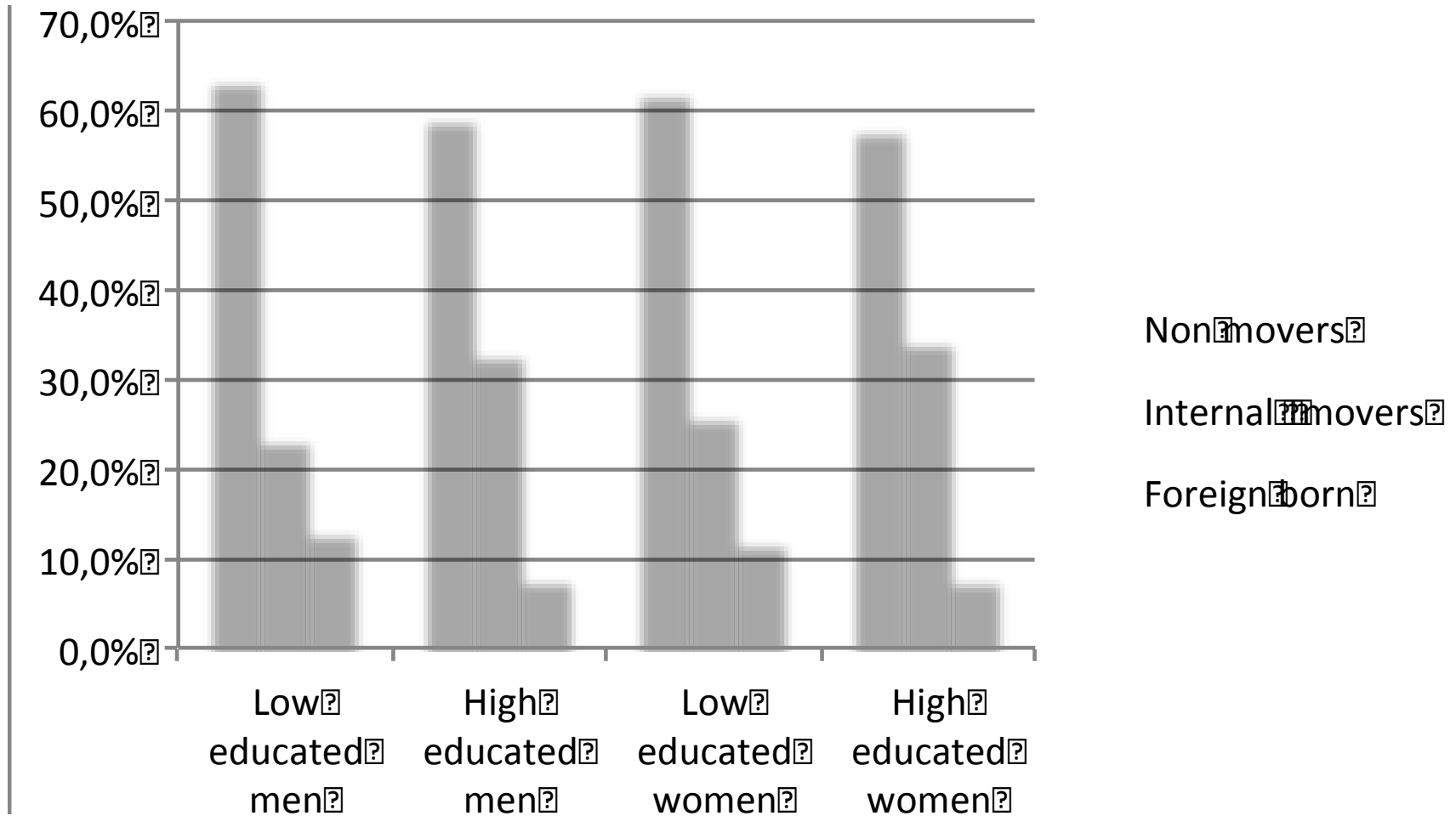
Population studied :

persons born before 1950

observed from 1 January 1991

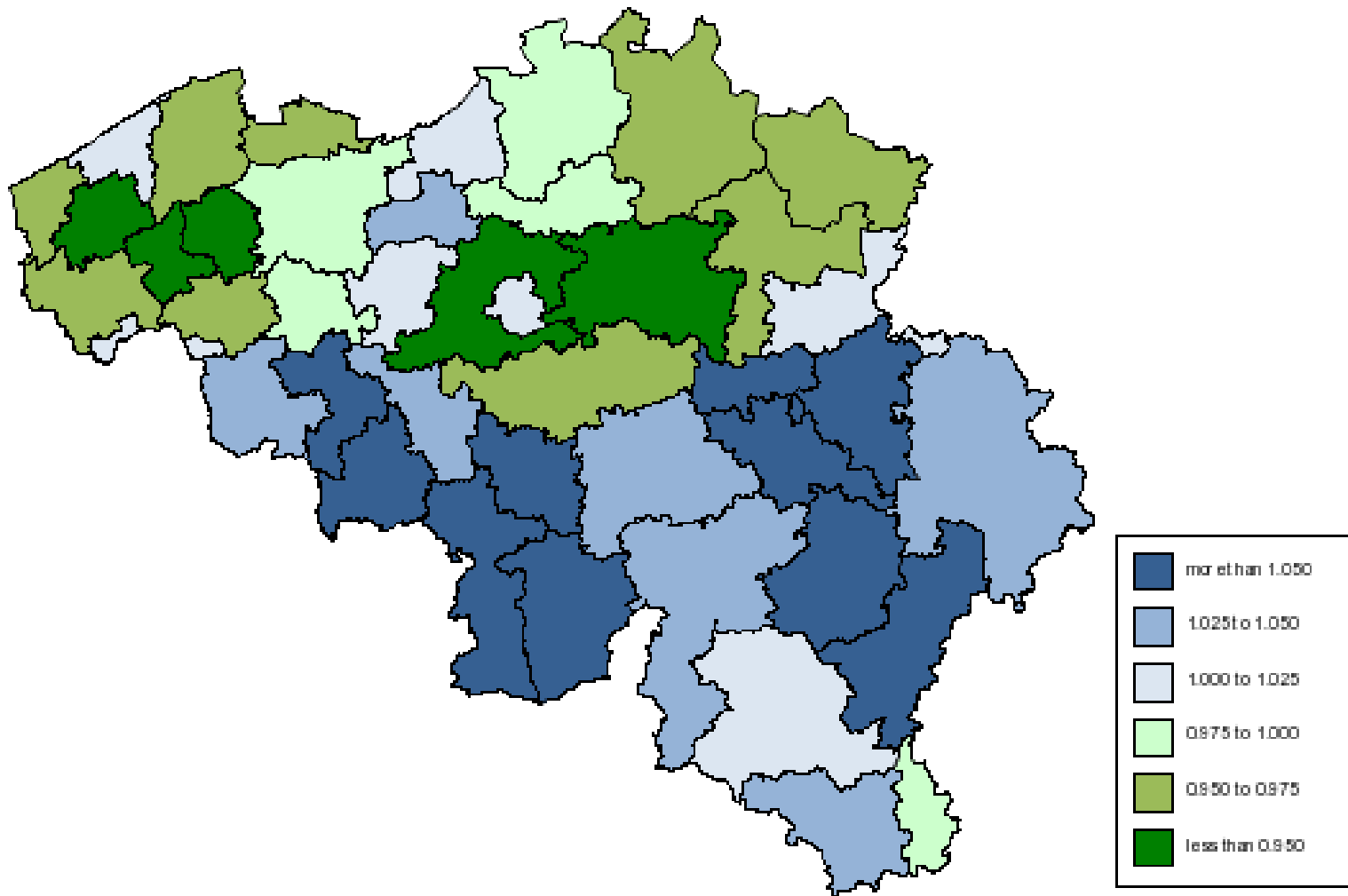
	LEVEL OF EDUCATION			
Men	Low	High	Total	% High
Non-movers	590.802	598.482	1.189.284	50,3%
Internal-movers	218.187	333.130	551.317	60,4%
Foreign-born	121.485	79.053	200.538	39,4%
Total	930.474	1.010.665	1.941.139	52,1%
Women	Low	High	Total	% High
Non-movers	775.338	607.769	1.383.107	43,9%
Internal-movers	324.926	360.263	685.189	52,6%
Foreign-born	148.612	81.323	229.935	35,4%
Total	1.248.876	1.049.355	2.298.231	45,7%

Movers and non-movers by sex and level of education

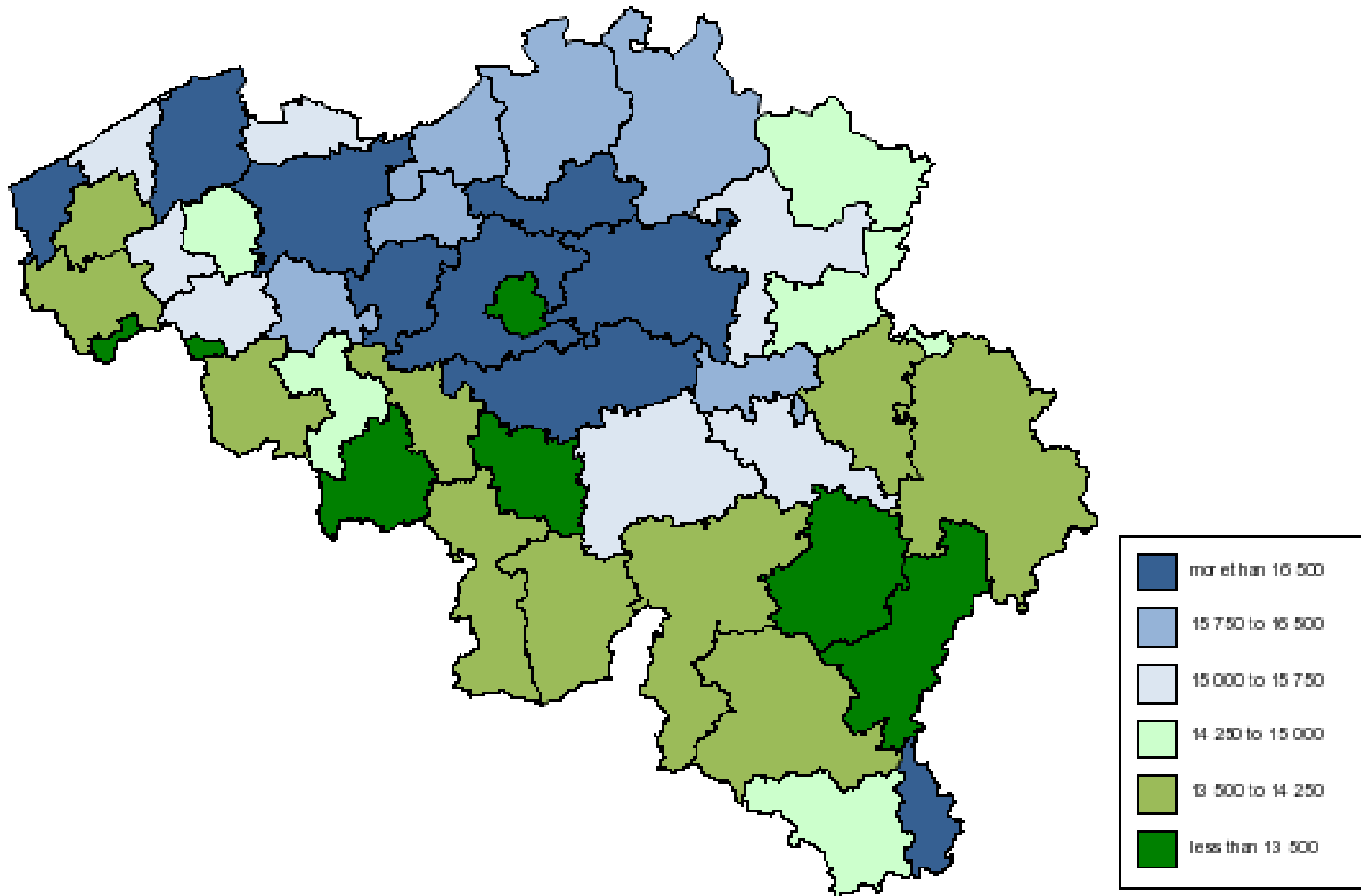


	Model 1 (no place of birth, no place of residence)	Model 2a (only place of birth)	Model 2b (only place of residence)	Model 3 (with place of birth and place of residence)
Age (continuous)	1.122	1.122	1.122	1.122
Sex (Male reference)	0.580	0.576	0.575	0.575
Education (low reference)	0.799	0.789	0.791	0.789
Change of arrondissement (Non-mover reference)	0.989	0.987	0.983	0.989
Place of birth (Wald statistics)		9,577		921
Place of residence in 1991 (Wald statistics)			9,695	1,037
-2LogLikelihood (initial value 46,293,403)	43,870,155	43,860,721	43,860,605	43,859,685
Pseudo R ² de Nagelkerke	0.0523	0.0525	0.0526	0.0548

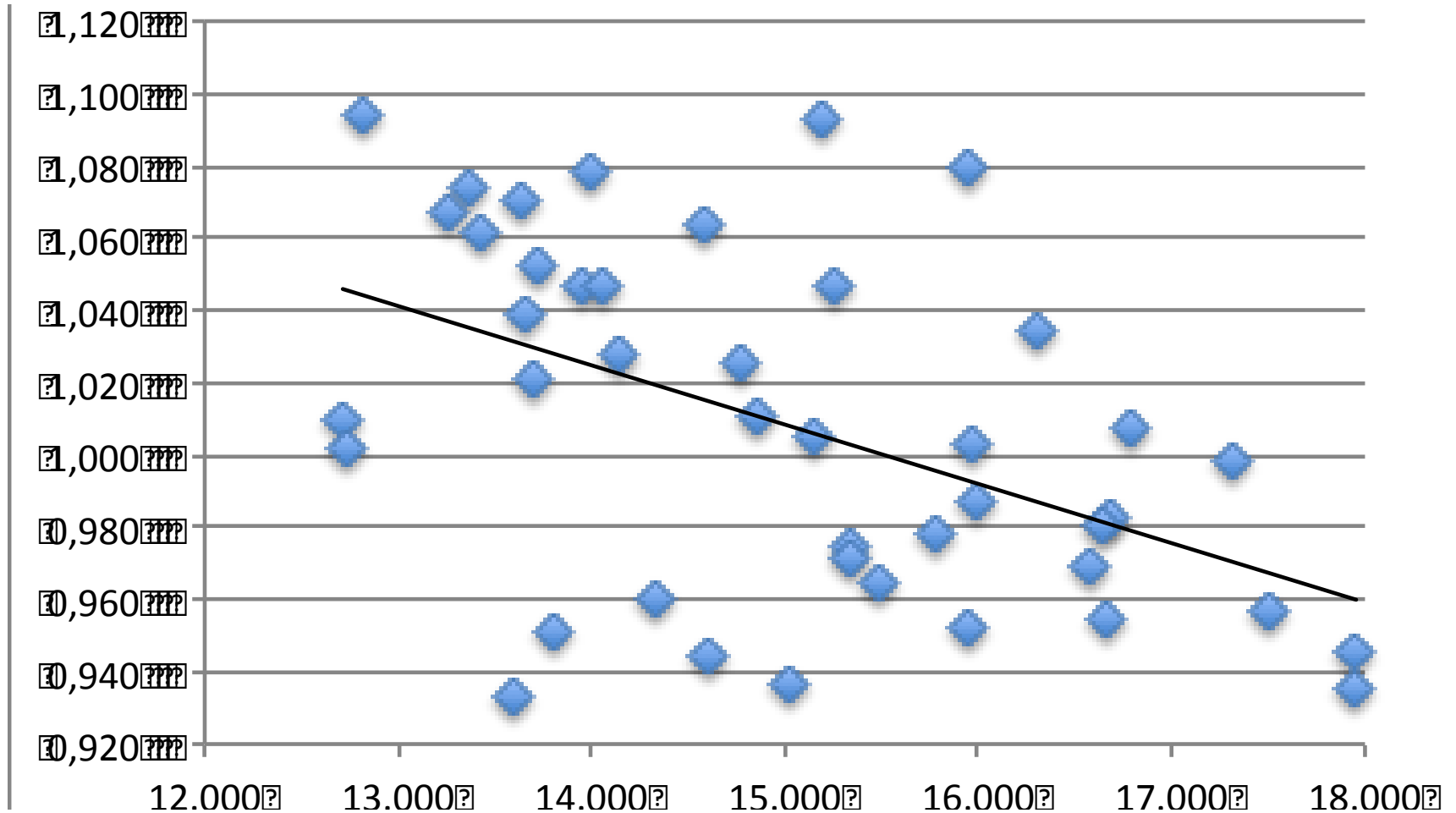
HR to die by place of residence in 1991



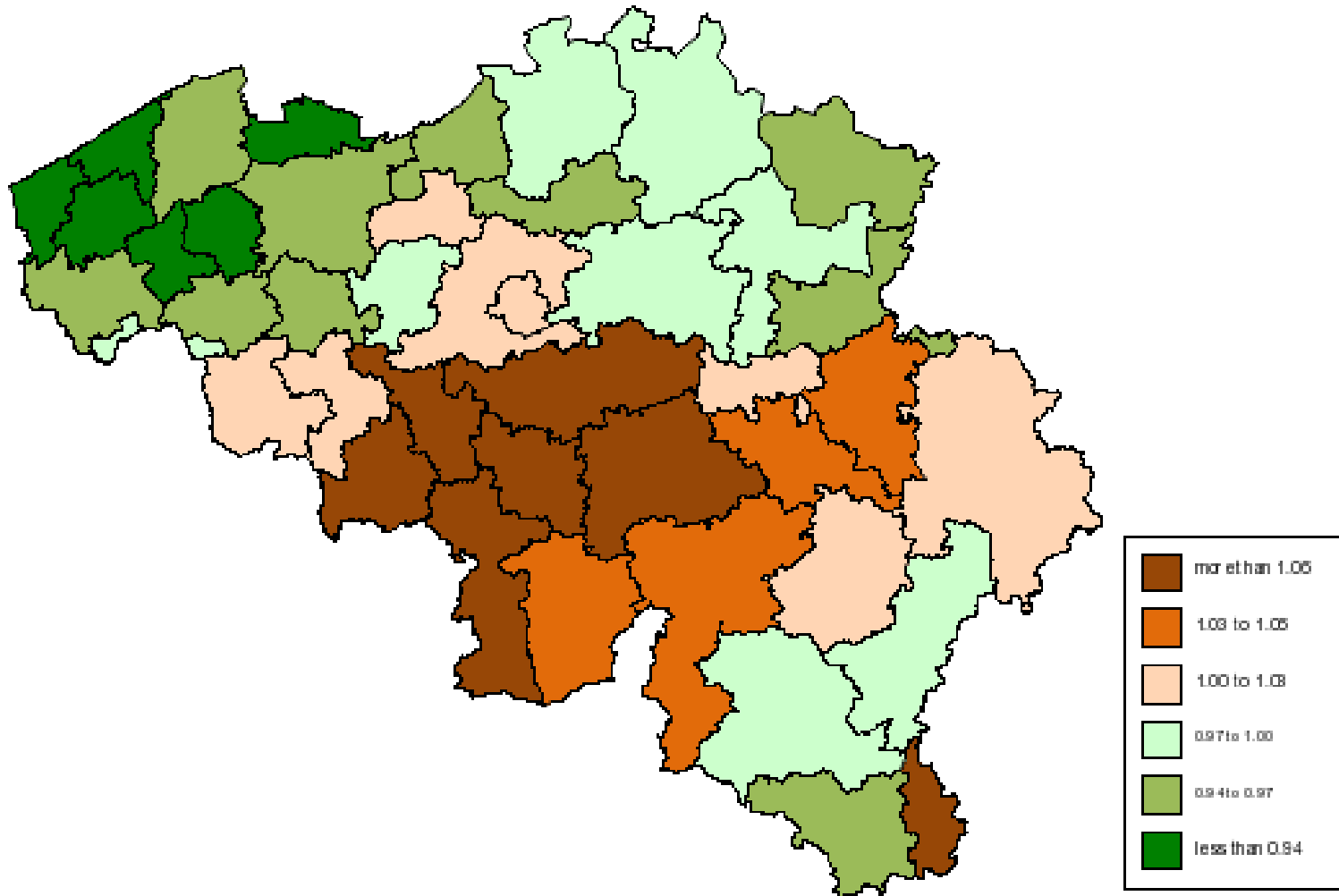
Average income 2008



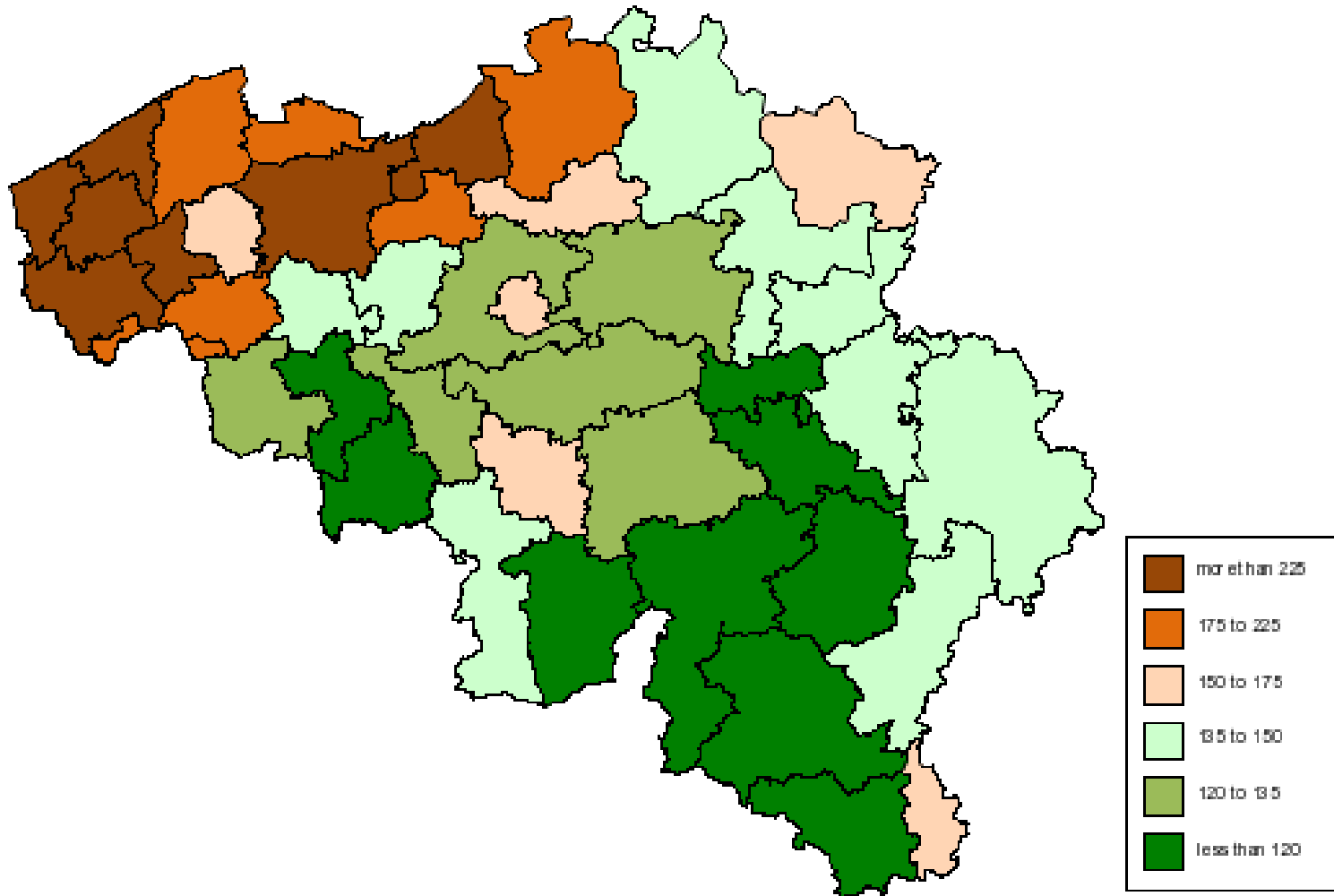
Correlation between average income (2008) and odd ratios to die by place of residence in 1991



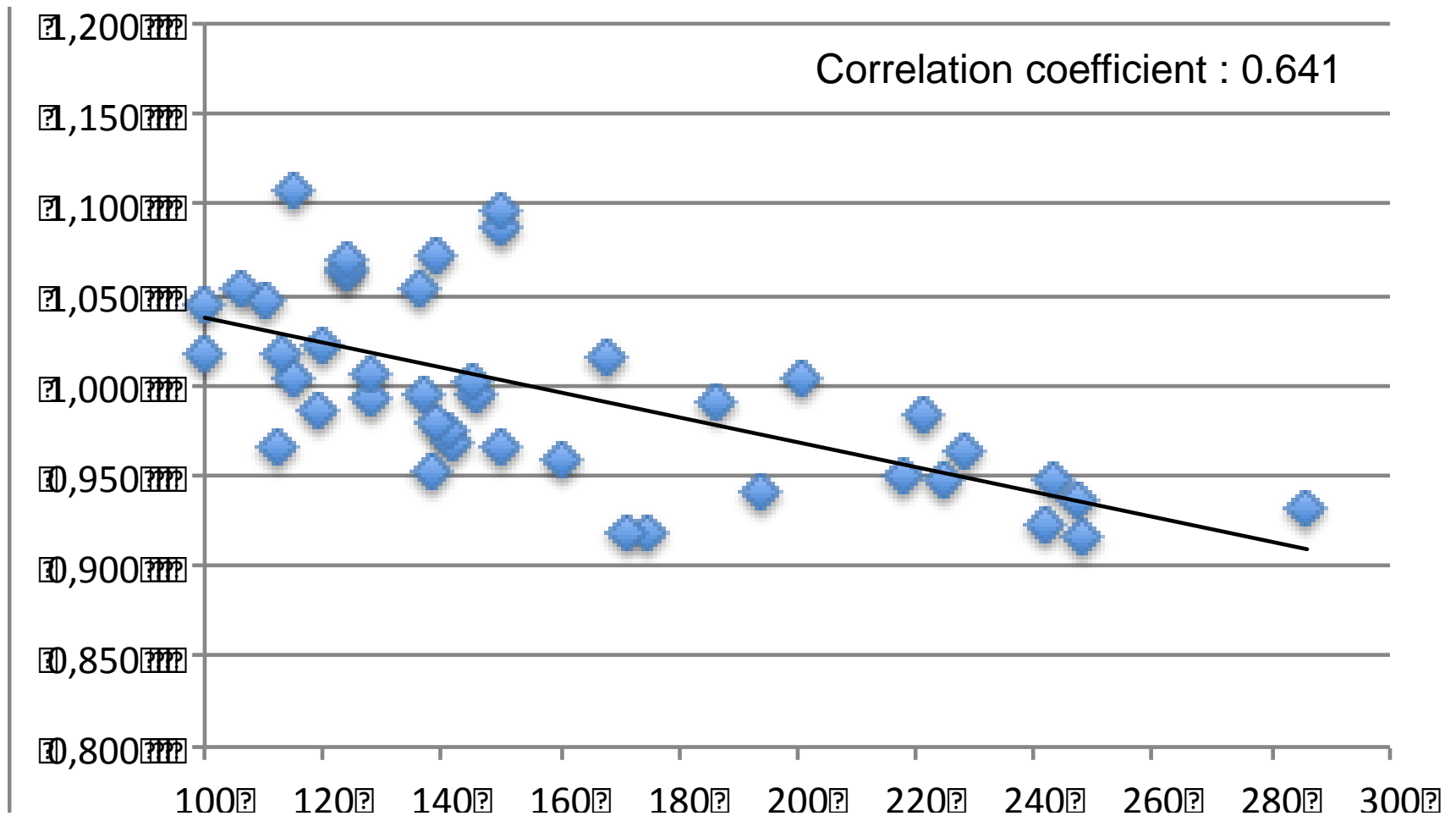
HR to die by place of birth



Infant mortality rates in 1898-1900



Correlation between infant mortality rates (1898-1900) and odd ratios to die by place of birth



	Place of birth	Infant Mortality Rate 1898-1900
VEURNE	0,917	248
EECKLOO	0,918	175
TIELT	0,920	171
DIXMUIDE	0,922	242
OSTENDE	0,932	286
ROESELAERE	0,936	247
BRUGGE	0,941	194
IEPER	0,947	225
ST-NICOLAAS	0,948	243
KORTRIJK	0,950	218
OUDENAARDE	0,951	138
MAASEIK	0,958	160
GENT	0,963	228
VIRTON	0,965	112
MECHELEN	0,966	150
TONGEREN	0,967	142
HASSELT	0,974	141
TURNHOUT	0,979	139
MOUSCRON	0,983	221
NEUFCHATEAU	0,987	119
ANTWERPEN	0,991	186
LEUVEN	0,993	128
BASTOGNE	0,995	137
ALOST	0,996	146

	Place of Birth	Infant Mortality Rate 1898-1900
VERVIERS	1,001	145
DENDERMONDE	1,005	201
MARCHE	1,005	115
FLEMISH BRABANT	1,006	128
BRUSSELS	1,015	168
WAREMME	1,017	113
ATH	1,018	100
SOIGNIES	1,022	120
PHILIPPEVILLE	1,044	100
DINANT	1,046	110
LIEGE	1,054	136
HUY	1,054	106
THUIN	1,062	124
BRABANT WALLON	1,065	124
NAMUR	1,069	124
TOURNAI	1,072	139
ARLON	1,087	150
CHARLEROI	1,096	150
MONS	1,108	115

Discussion

- The impact of the place of residence has been largely studied and the spatial pattern of mortality by 'arrondissement' is well known.
- The impact of the place of birth is a new finding that do not support the positive relation between better early life conditions and longer survival found by numerous authors.

THANKS