

Homogamy and social structure over time in Finland

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Aims

- Construct CAMSIS scales for Finland
- Test the effects of homogamy on partnership matching with the scaling approach

CAMSIS scale for Finland

- Model the social distance between occupational units using average patterns of social interaction/cohabitation between incumbents of occupations
 - www.camsis.stir.ac.uk
 - Correspondence analysis for large numbers of units using Stata macro; RC2 association models in R (gnm) for smaller numbers of units for standard errors
- Interpret the social distance dimension as indicating the structure of social stratification (the reproduction of social inequality)

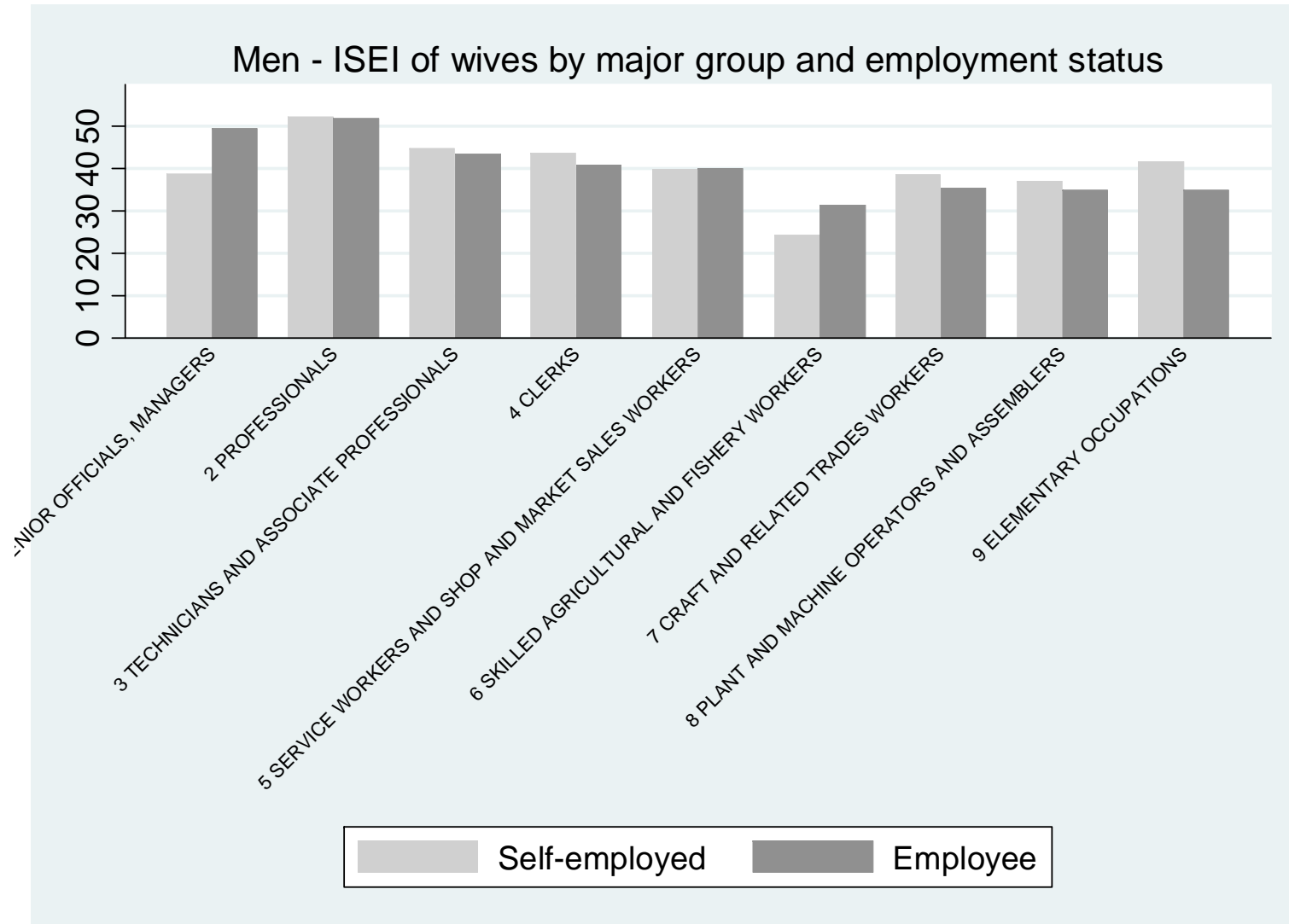
Census data inputs

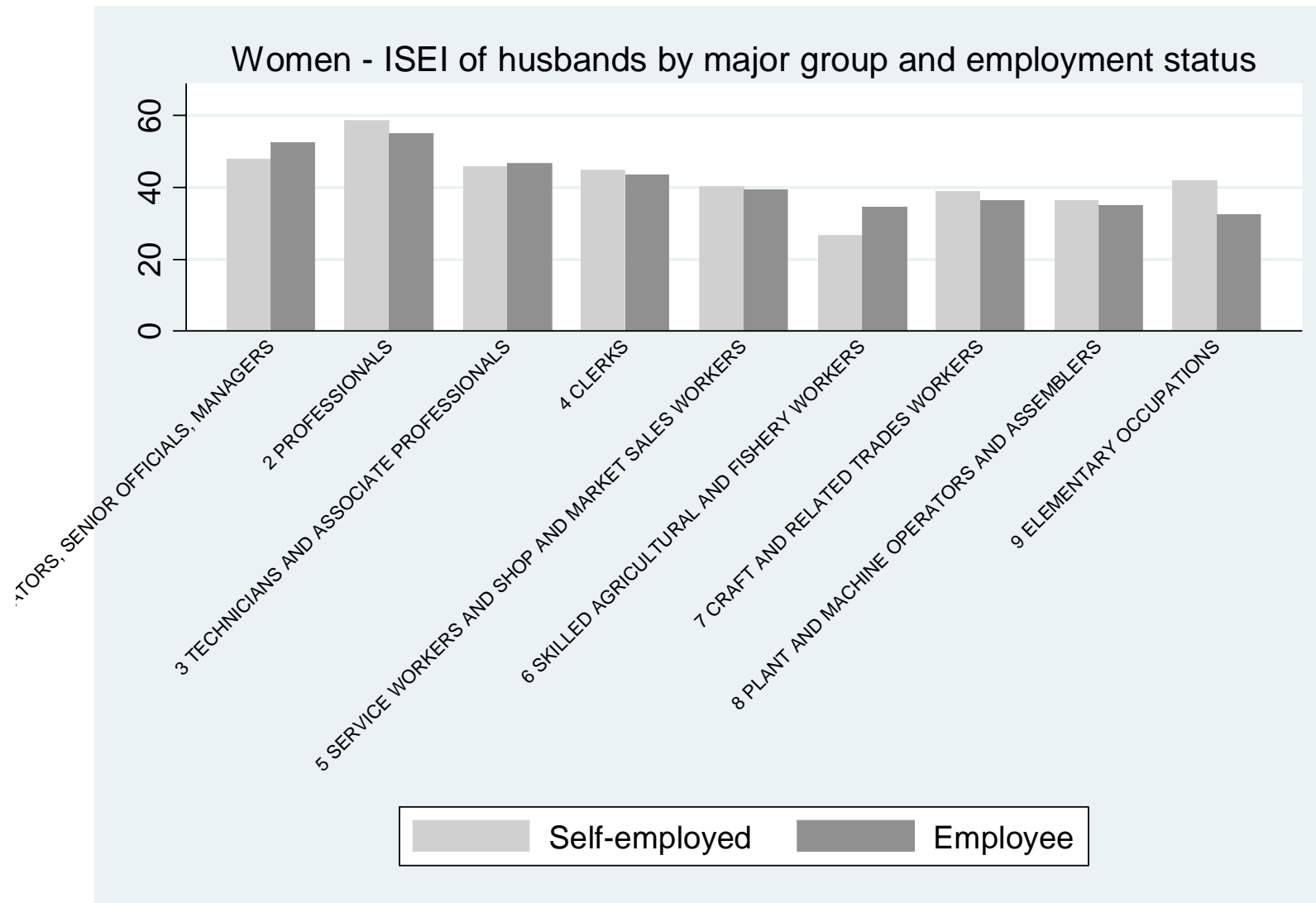
year	stats	hocc	wocc
1970	mi n	12251	12251
	max	93302	93302
	N	23938	23938
1975	mi n	12251	12251
	max	93302	93302
	N	33619	33619
1980	mi n	12251	12251
	max	93302	93302
	N	46563	46563
1985	mi n	12251	12251
	max	93302	93302
	N	59855	59855
1990	mi n	12251	12251
	max	93302	93302
	N	77796	77796
1995	mi n	1102	1102
	max	99992	99992
	N	60298	60298
2000	mi n	1102	1102
	max	99992	99992
	N	84572	84572
2005	mi n	1102	1102
	max	99992	99992
	N	103579	103579
Total	mi n	1102	1102
	max	99992	99992
	N	490220	490220

- Cohabiting couples, current or previous occupation
 - Job coded into 4 digit ISCO
 - Plus 2 category employment status
- 5 yearly and pooled data

Employment status

(self-employed/ employee)





- *Could ignore this data (noise/inconvenience)*
- We choose to use it for groups 6-9 only

Occupational units

- Occupations were recoded to finest level of detail available (in ISCO-by-employment status location) according to a rule of thumb that at least 30 cases must represent the occupation
- Pre-defined recoding rules (use ISCO sub-groups)

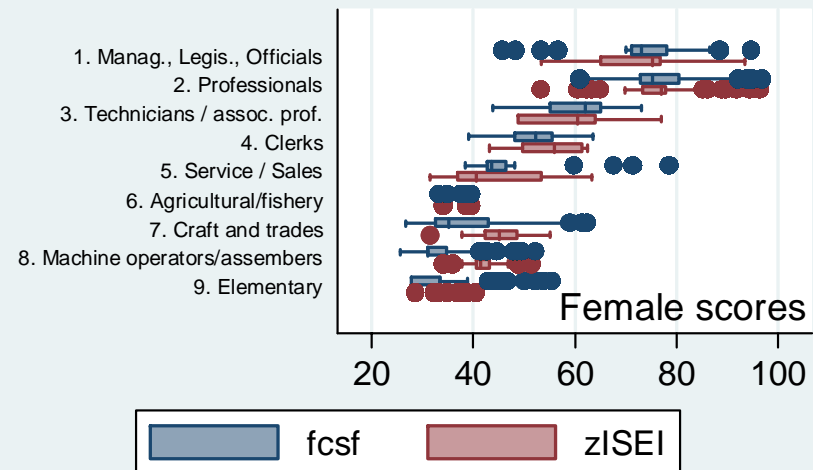
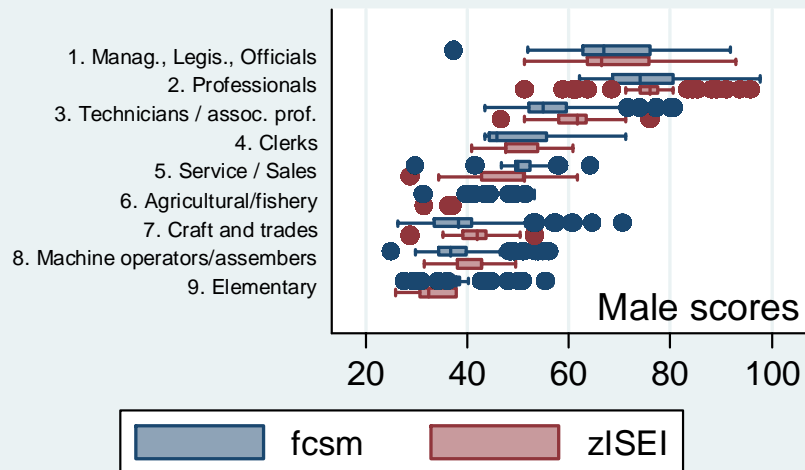
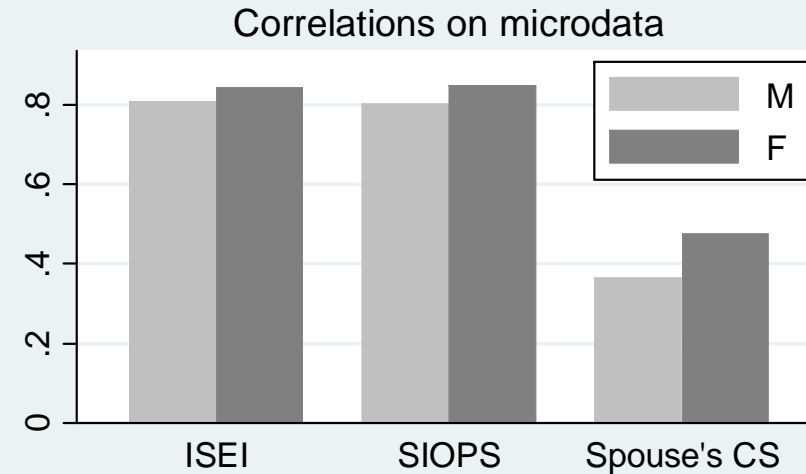
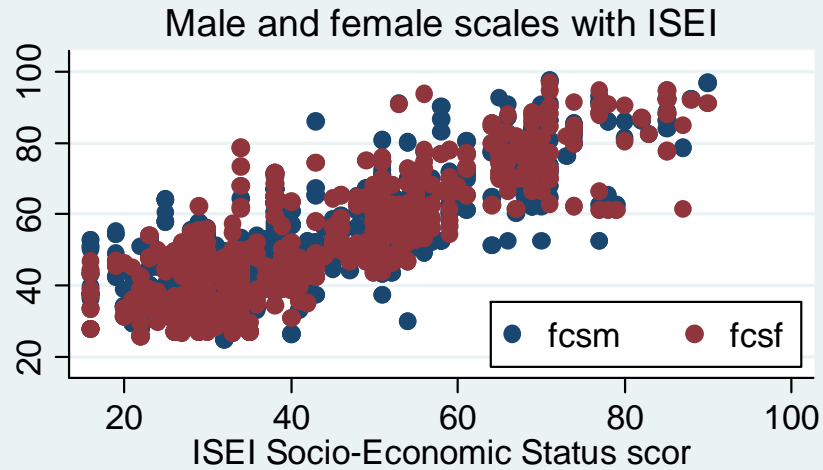
		1970	75	80	85	90	95	2000	2005	all
Number of occs	M	108	129	158	172	183	221	237	248	350
	F	71	91	104	120	135	160	186	208	283

Scale derivations using algorithms

Algorithms proceed by:

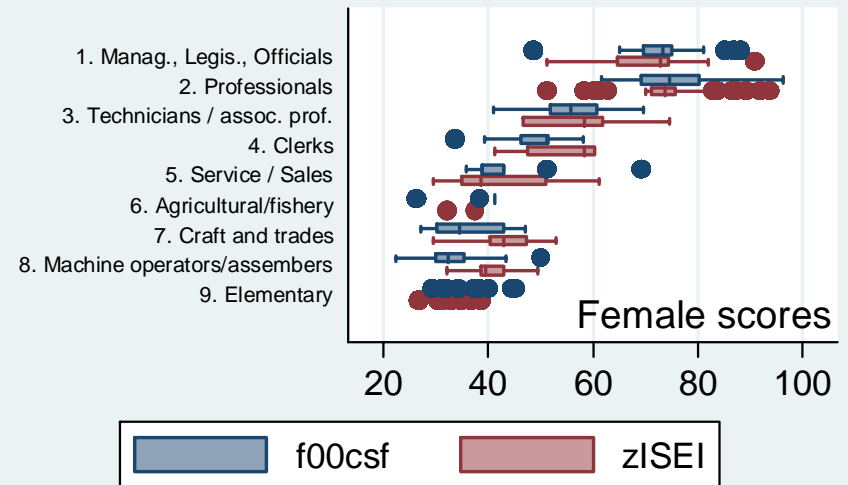
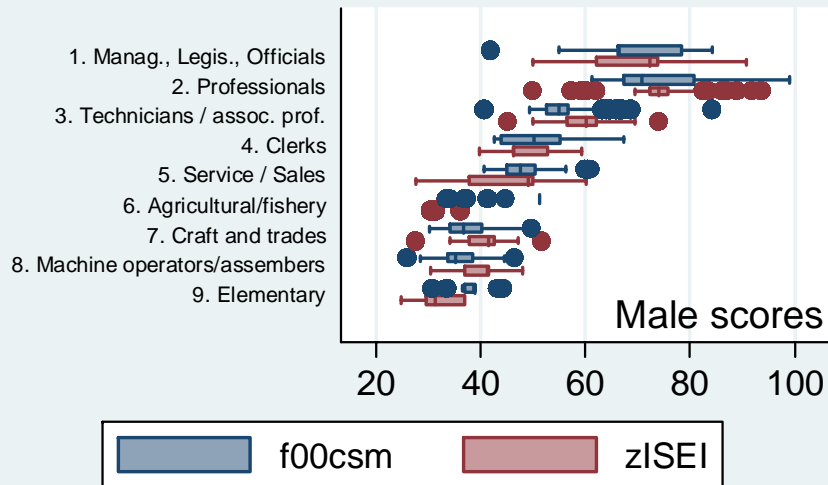
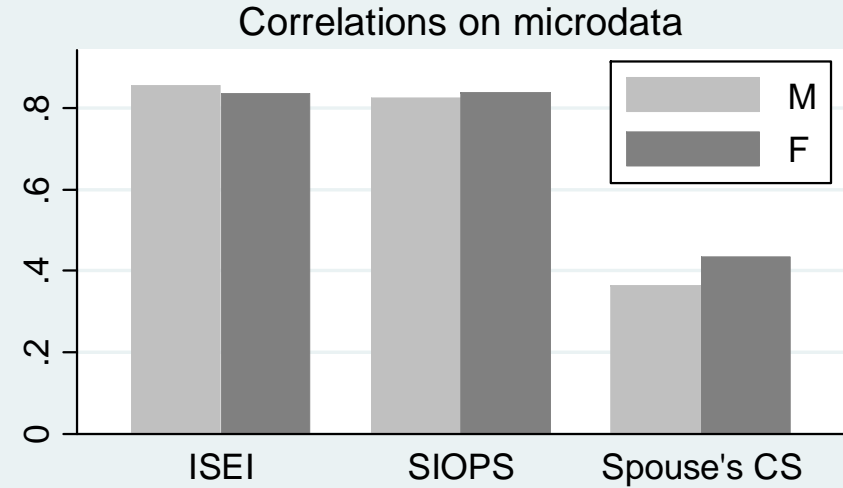
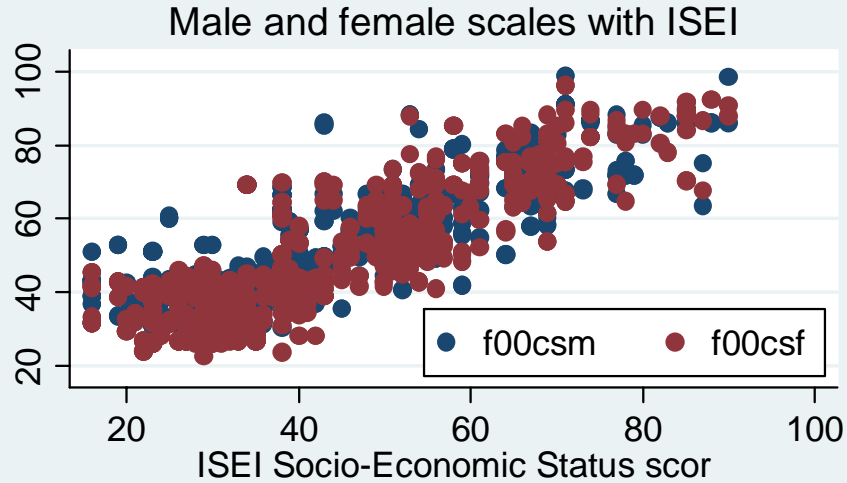
- i. Define any cohabiting combinations to be excluded from models (ISCO diagonals and farming related pseudo-diagonals – 1311; 6***; 9211)
- ii. Recode occupations to avoid sparsity for the remaining cases
- iii. Perform CA and extract dimension scores
- iv. Standardise scores to mean 50, sd 15
- v. Distribute dimension scores from analytical categories to all ISCO categories according to recoding algorithm

Finland, 1975-2005, u1



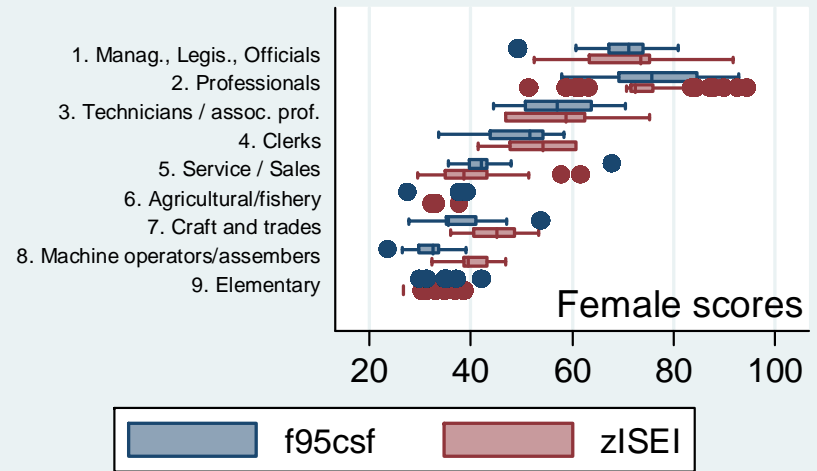
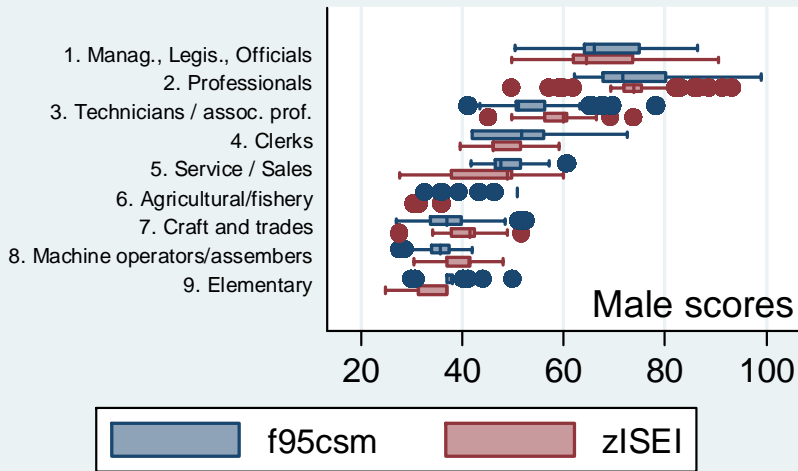
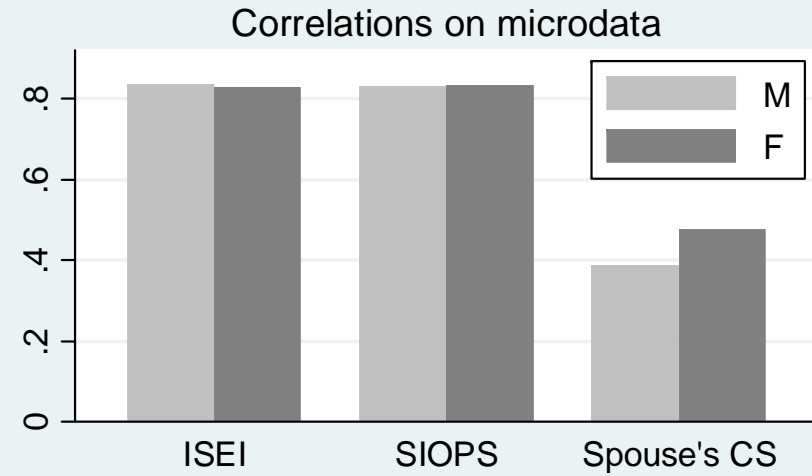
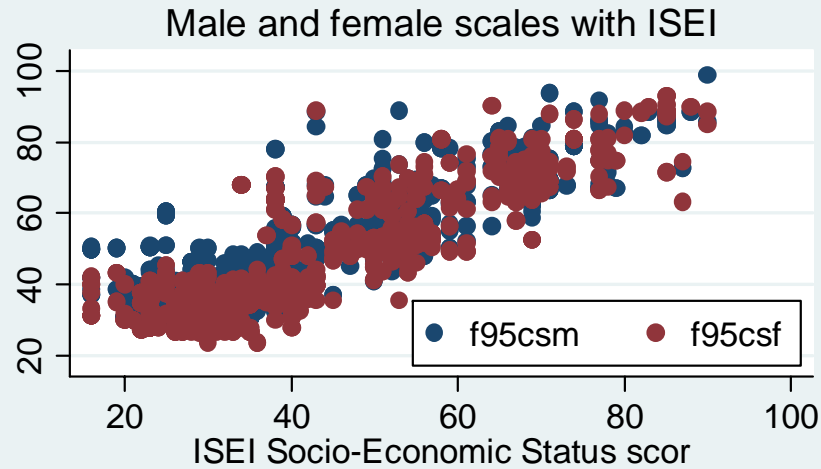
Source: Finland 1975-2005, male-female cohabiting couples. N =487829 total, 436701 used in CA
In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 2000, u1



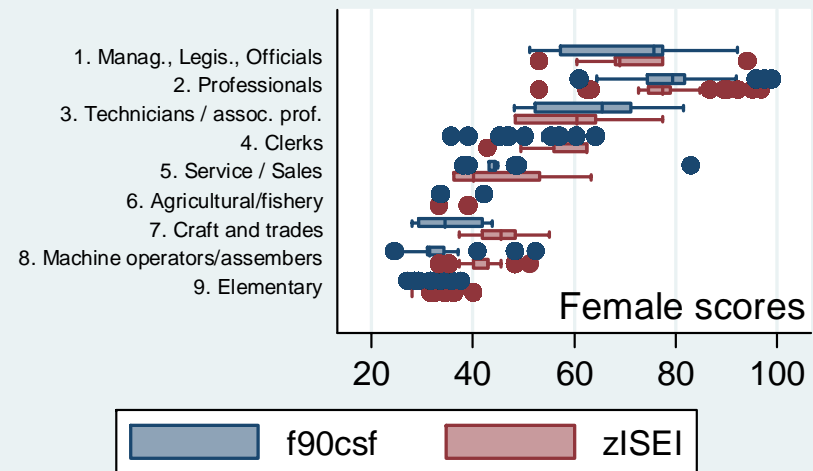
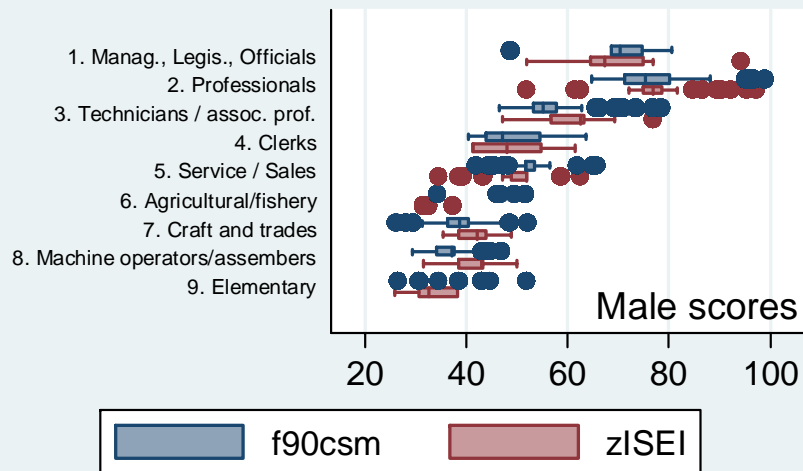
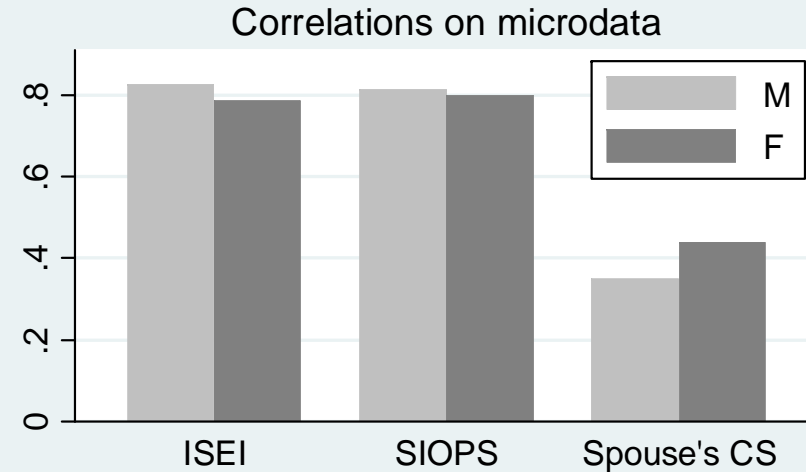
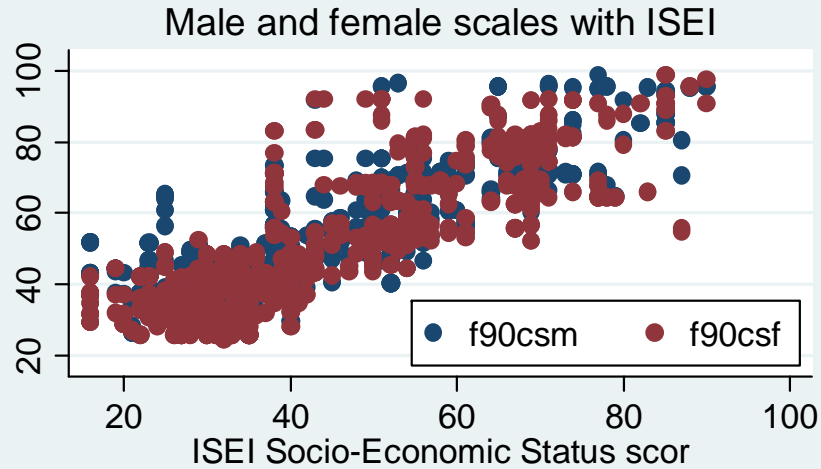
Source: Finland 2000, male-female cohabiting couples. N = 83776 total, 77584 used in CA
 In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 1995, u1



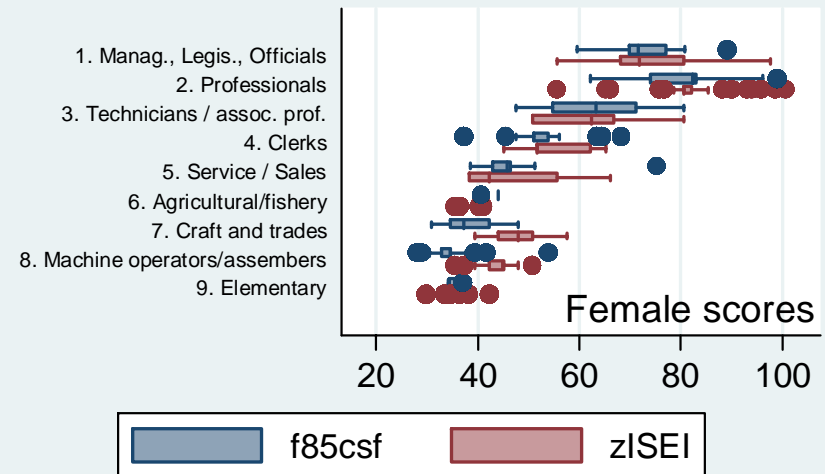
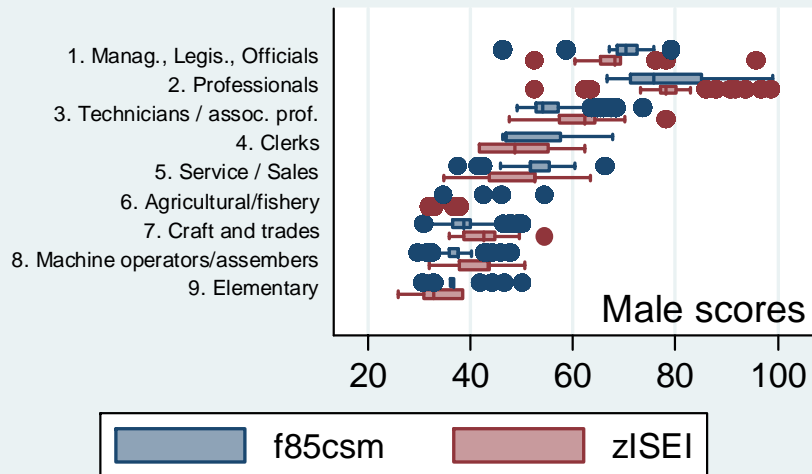
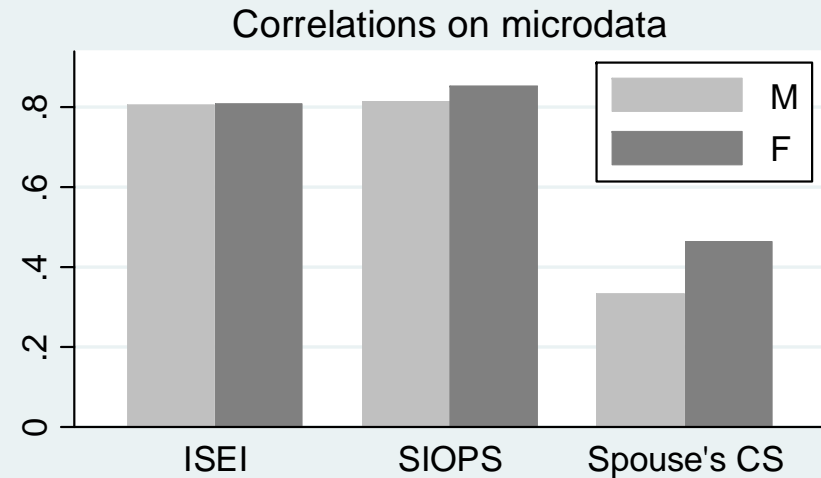
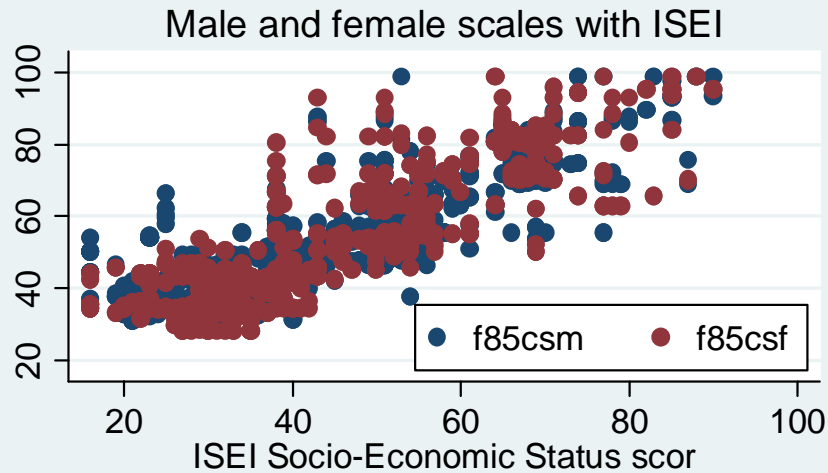
Source: Finland 1995, male-female cohabiting couples. N = 59659 total, 54545 used in CA
 In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 1990, u1



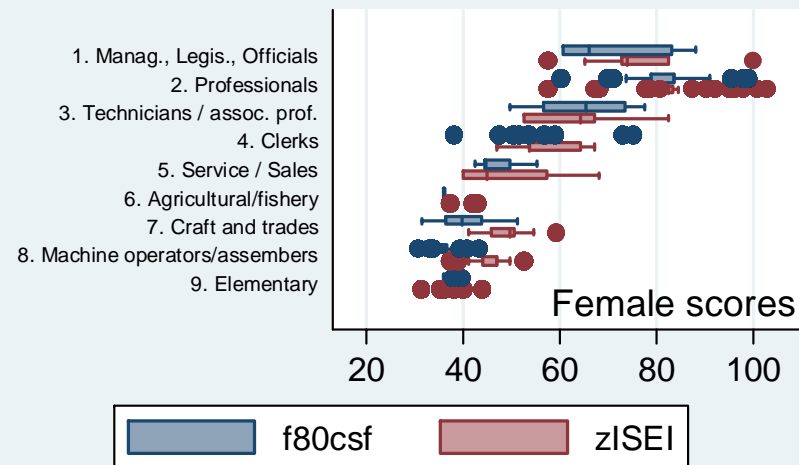
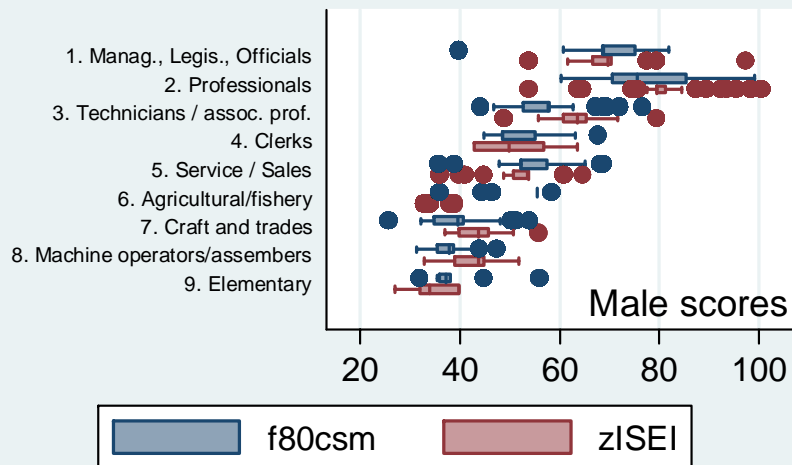
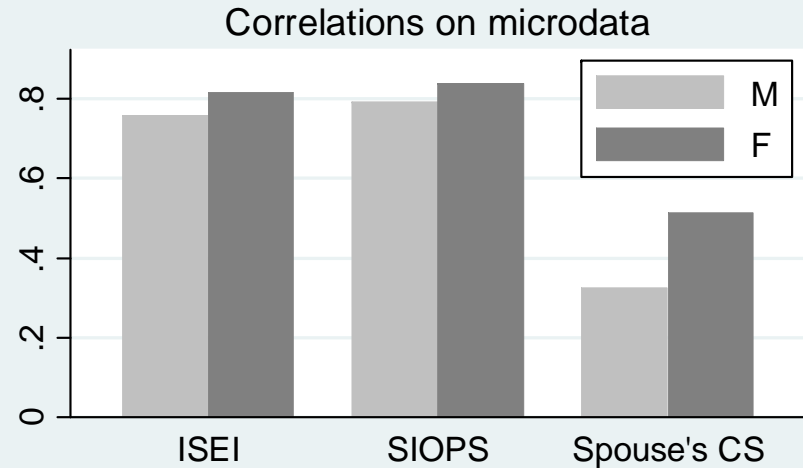
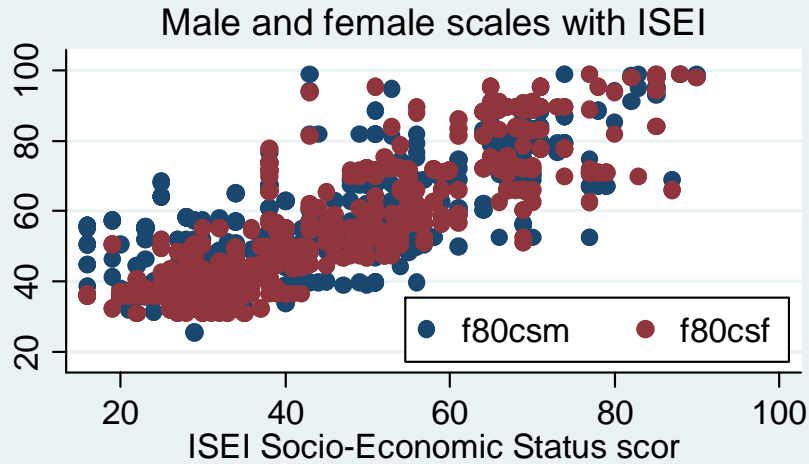
Source: Finland 1990, male-female cohabiting couples. N = 77796 total, 69879 used in CA
In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 1985, u1



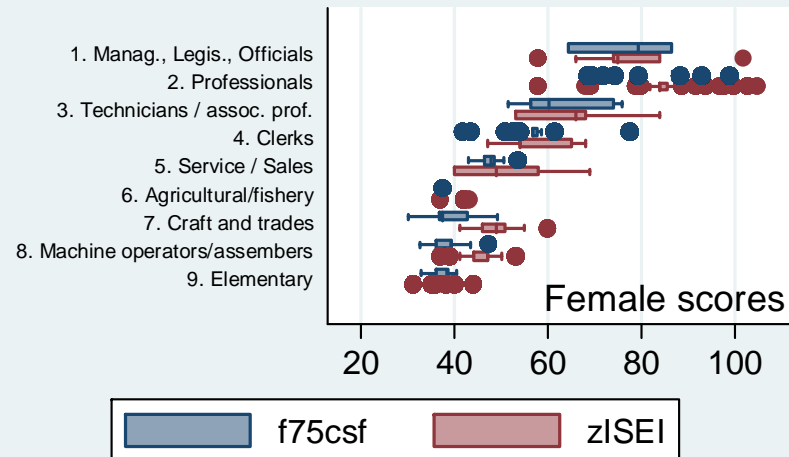
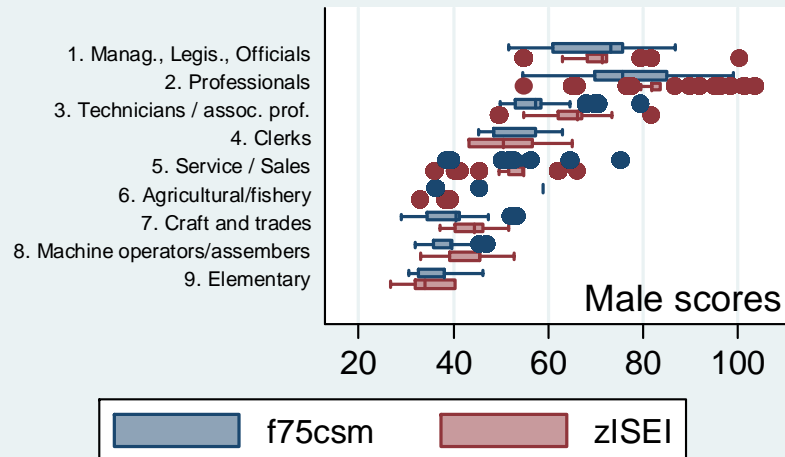
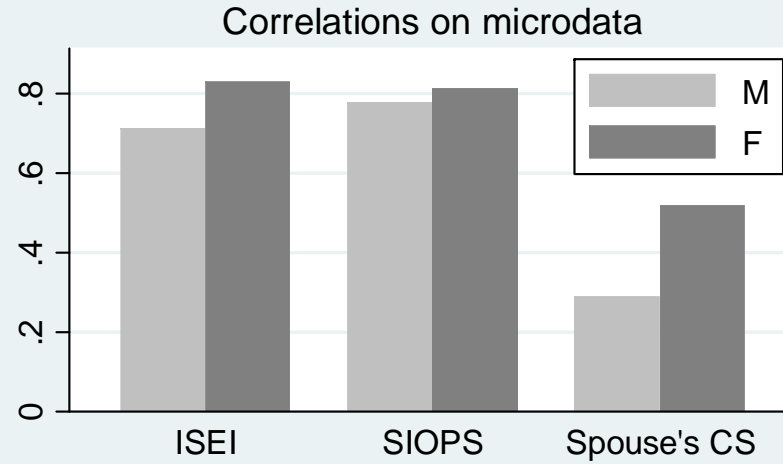
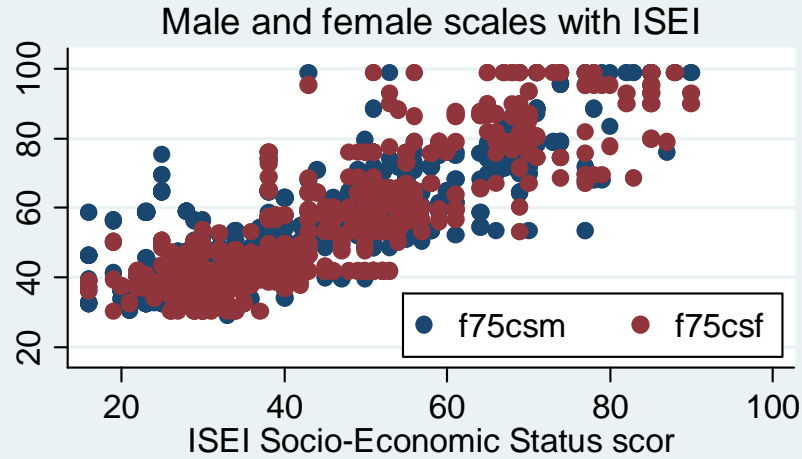
Source: Finland 1985, male-female cohabiting couples. N =59855 total, 53165 used in CA
In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 1980, u1



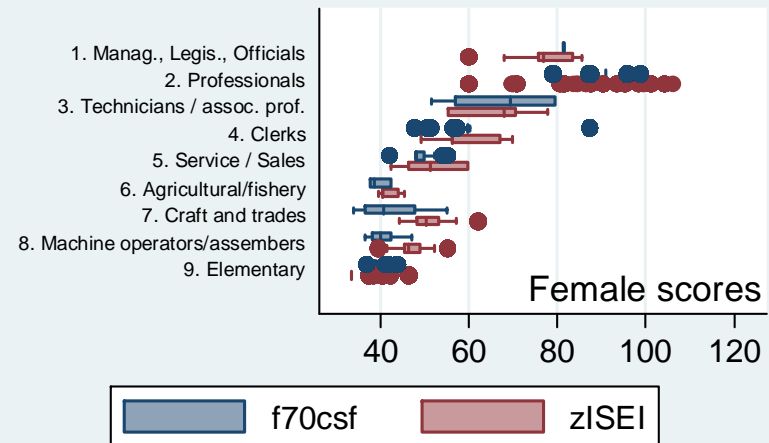
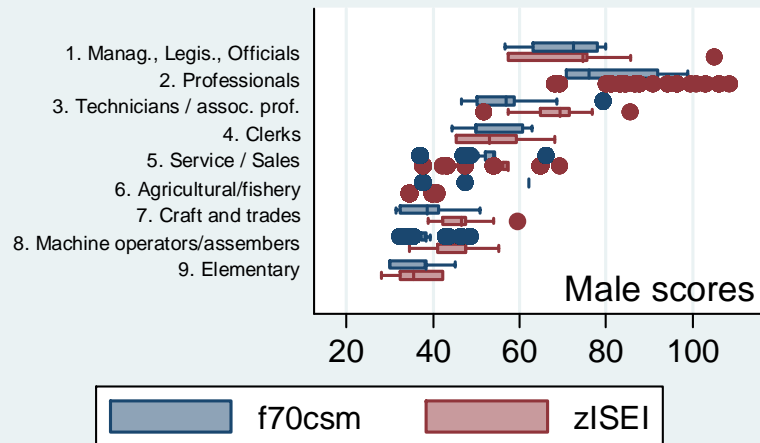
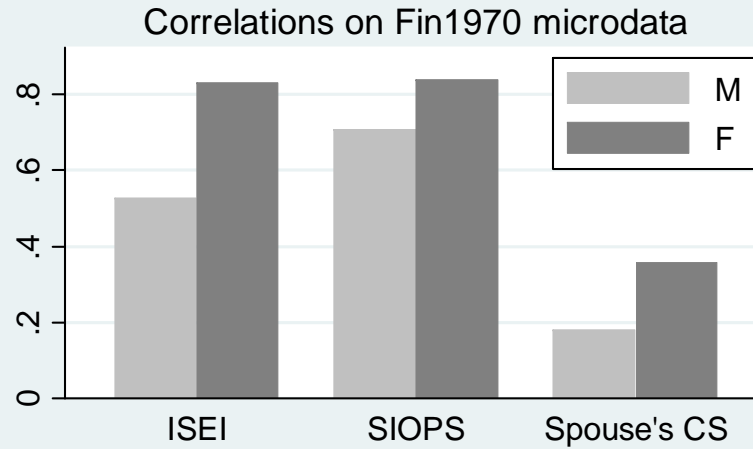
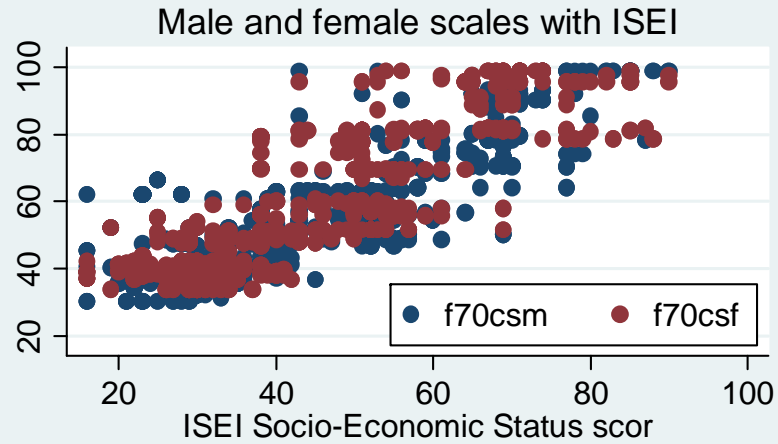
Source: Finland 1980, male-female cohabiting couples. N =46563 total, 39669 used in CA
 In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 1975, u1



Source: Finland 1975, male-female cohabiting couples. N = 33619 total, 28087 used in CA
In boxplots, ISEI scales are rescaled to mean 50, SD 15

Finland, 1970, scale_1970_2.do



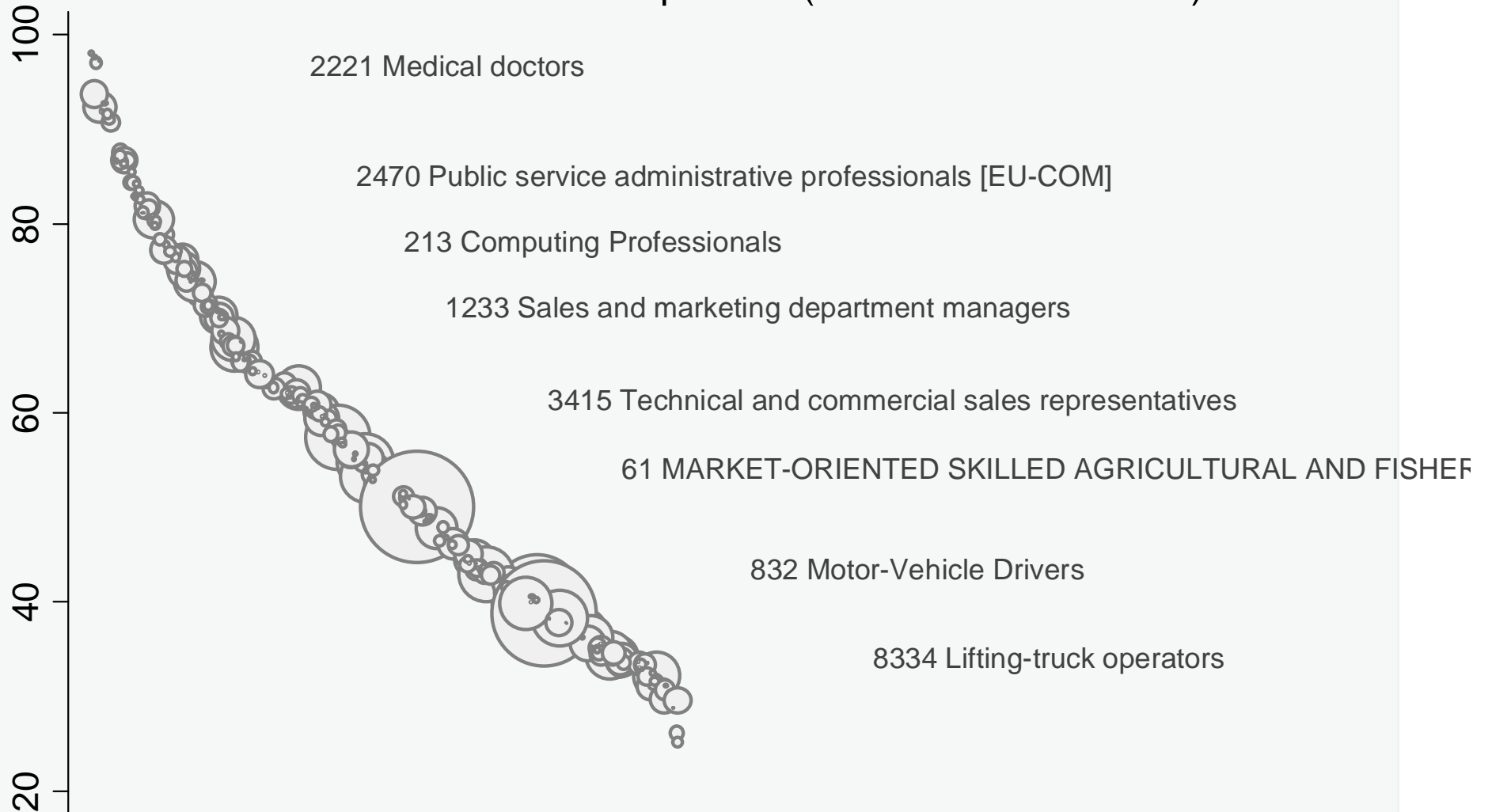
Source: Finland 1970, male-female cohabiting couples. N = 23938 total, 18004 used in CA
 In boxplots, ISEI scales are rescaled to mean 50, SD 15

Some further illustrative examples

- The role of detailed occupational differences
- Illustrative male and female scale values
- The problem of farmers

Finland 1970-2005, Male occupations

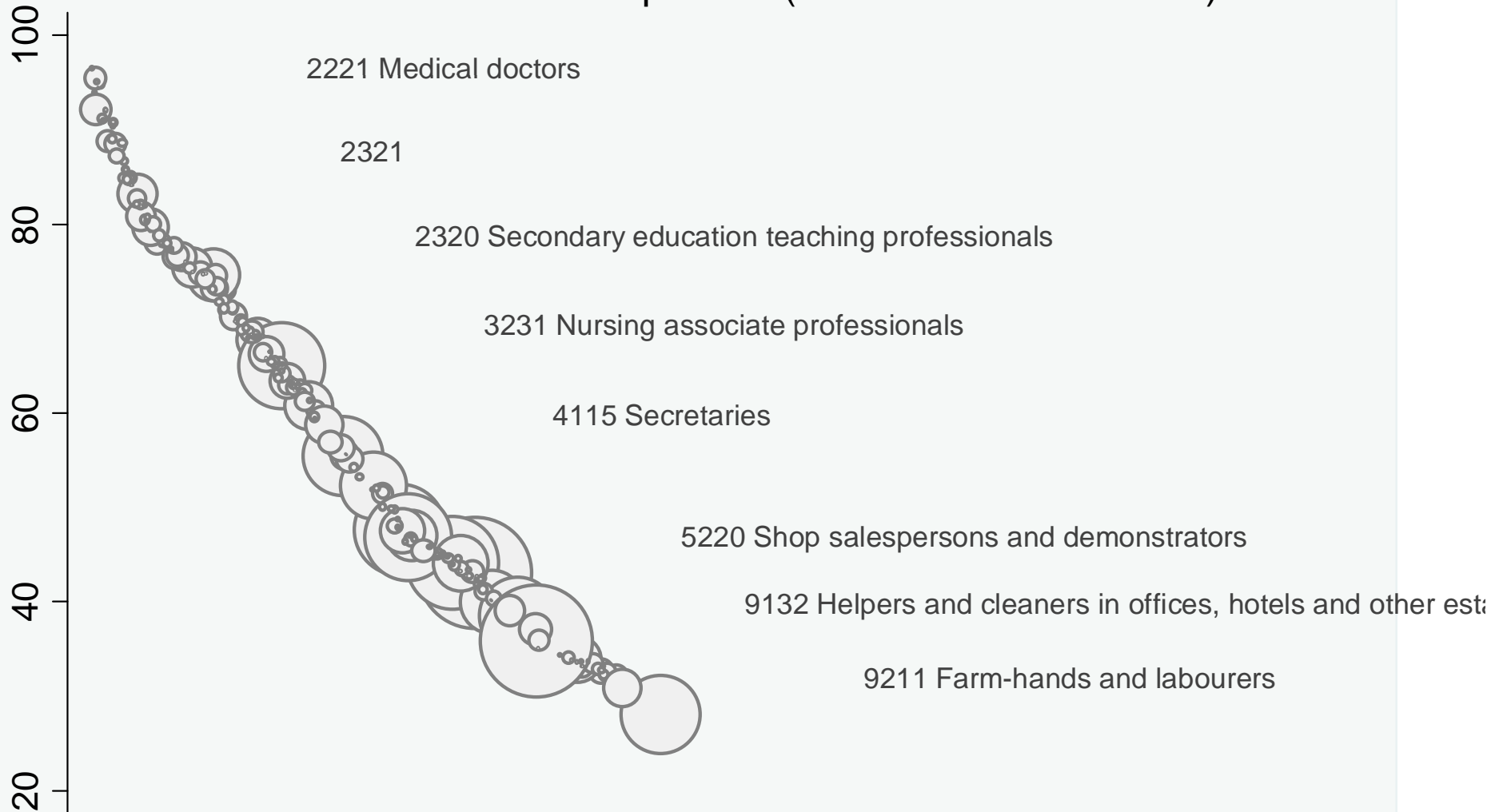
CAMSIS scores for 350 occupations (male combined scale)



(Labels are given for the largest HISCO units within the CAMSIS 10-point range)

Finland 1970-2005, Female occupations

CAMSIS scores for 283 occupations (female combined scale)



(Labels are given for the largest ISCO units within the CAMSIS 10-point range)

hi sco88	mean(h_csm)	mean(h_csf)
1233 Sales and marketing department mana	66.93	72.88
213 Computing Professionals	73.84	72.89
2145 Mechanical engineers	67.64	69.99
2320 Secondary education teaching profes	62.18	74.47
2470 Public service administrative PROFE	80.78	79.12
3112 Civil engineering technicians	54.95	56.45
3115 Mechanical engineering technicians	51.61	53.60
3415 Technical and commercial sales repr	57.10	60.81
3419 Finance and sales associate profess	53.39	55.11
4142 Mail carriers and sorting clerks	44.37	39.05
5220 Shop salespersons and demonstrators	49.91	42.63
61 MARKET-ORIENTED SKILLED AGRICULTURAL	52.59	38.62
614 Forestry and Related Workers	32.13	33.26
712 Building Frame and Related Trades Wo	46.42	54.11
7121 Builders, traditional materials	28.78	27.03
7124 Carpenters and joiners	34.12	43.99
7136 Plumbers and pipe fitters	39.11	45.15
7141 Painters and related workers	34.86	32.43
7212 Welders and flamecutters	33.59	34.42
7213 Sheet metal workers	35.07	32.25
722 Blacksmiths, Tool-Makers and Related	36.64	31.16
723 Machinery Mechanics and Fitters	38.57	35.01
7241 Electrical mechanics and fitters	41.34	38.52
832 Motor-Vehicle Drivers	38.05	45.44
8332 Earth-moving- and related plant ope	35.11	49.48
9141 Building caretakers	38.11	35.03
933 Transport Labourers and Freight Hand	38.64	38.71

Males: Combined scale (1970-2005)

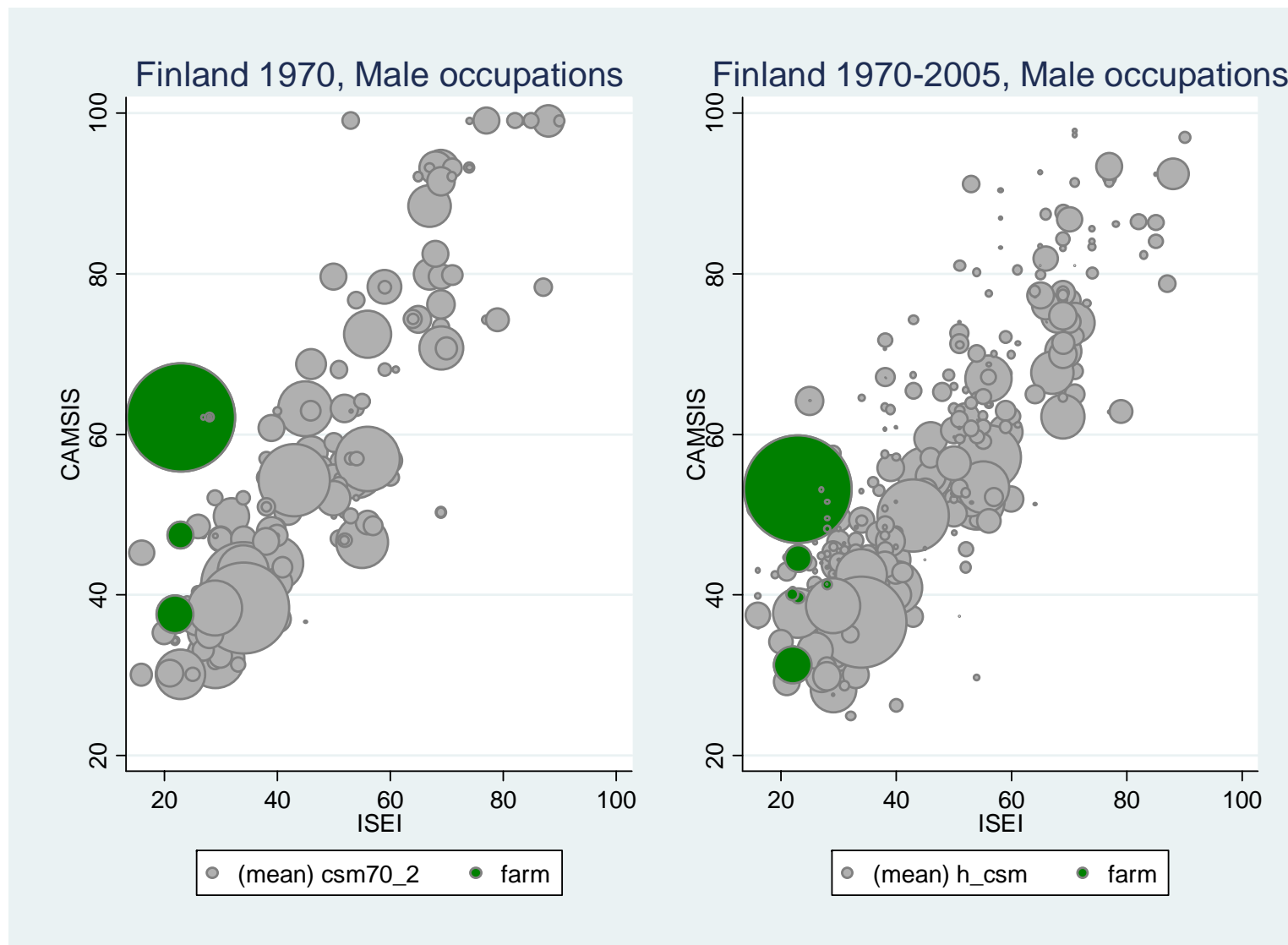
Male and female CAMSIS scale scores for those ISCO units with over 4000 males in each ISCO

wi sco88	mean(w_csm)	mean(w_csf)
2320 Secondary education teaching profes	62.18	74.47
2321	86.71	83.52
2331 Primary education teaching professi	81.87	75.41
2332 Pre-primary education teaching prof	74.22	67.73
3231 Nursing associate professionals	67.12	65.13
3415 Technical and commercial sales repr	57.10	60.81
3419 Finance and sales associate profess	53.39	55.11
3433 Bookkeepers	61.86	53.89
411 Secretaries and Keyboard-Operating C	59.37	58.66
4115 Secretaries	60.78	55.55
4190 Other office clerks	55.74	48.15
4212 Tellers and other counter clerks	57.02	52.17
5121 Housekeepers and related workers	49.54	47.74
5122 Cooks	46.54	38.31
5123 Waiters, waitresses and bartenders	49.34	40.28
5131 Child-care workers	57.86	44.60
5132 Institution-based personal care wor	64.16	47.26
5133 Home-based personal care workers	57.92	43.66
5141 Hairdressers, barbers, beauticians	57.66	46.72
5220 Shop salespersons and demonstrators	49.91	42.63
61 MARKET-ORIENTED SKILLED AGRICULTURAL	52.12	38.55
8263 Sewing-machine operators	41.27	31.34
9132 Helpers and cleaners in offices, ho	50.74	33.55
9211 Farm-hands and labourers	37.52	27.63

Females: Combined scale (1970-2005)

Male and female CAMSIS scale scores for those ISCO units with over 4000 females in each ISCO

Note how men in female jobs often have higher averages: e.g. 9132 is a 'average' job in the male distribution, but is more than 1 SD below average in the female distribution.



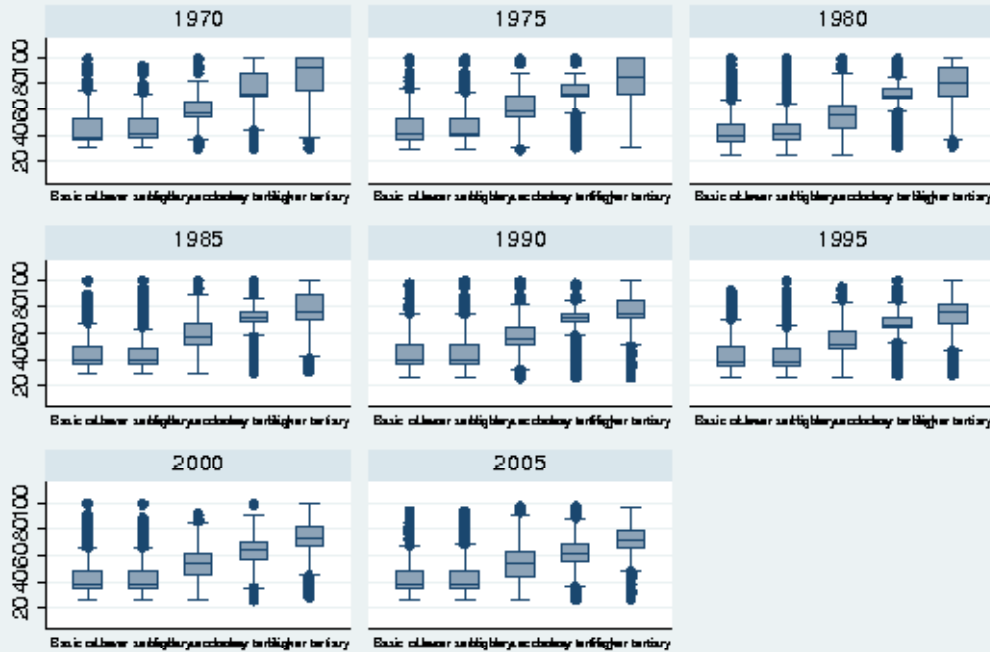
i.e. The placement of farmers is influential to the correlation with other things, and is likely to change between scales/time

CAMSI/ISEI micro comparisons

- Education
- Income quintiles
- Erikson-Goldthorpe classes

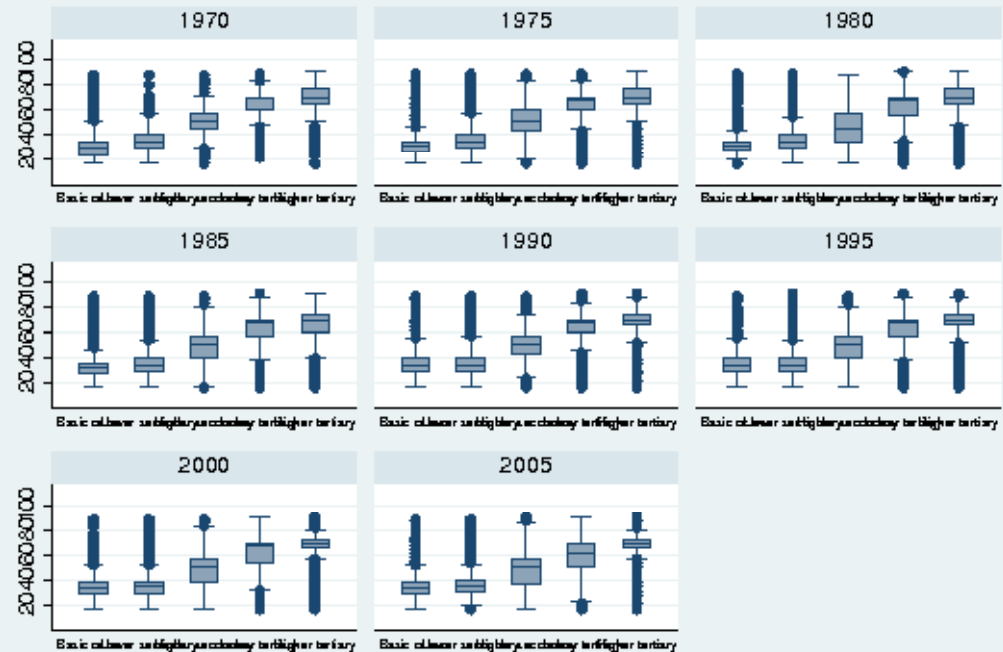
- Separately for men and women
 - Using male scales

CAMSIS by Education, men



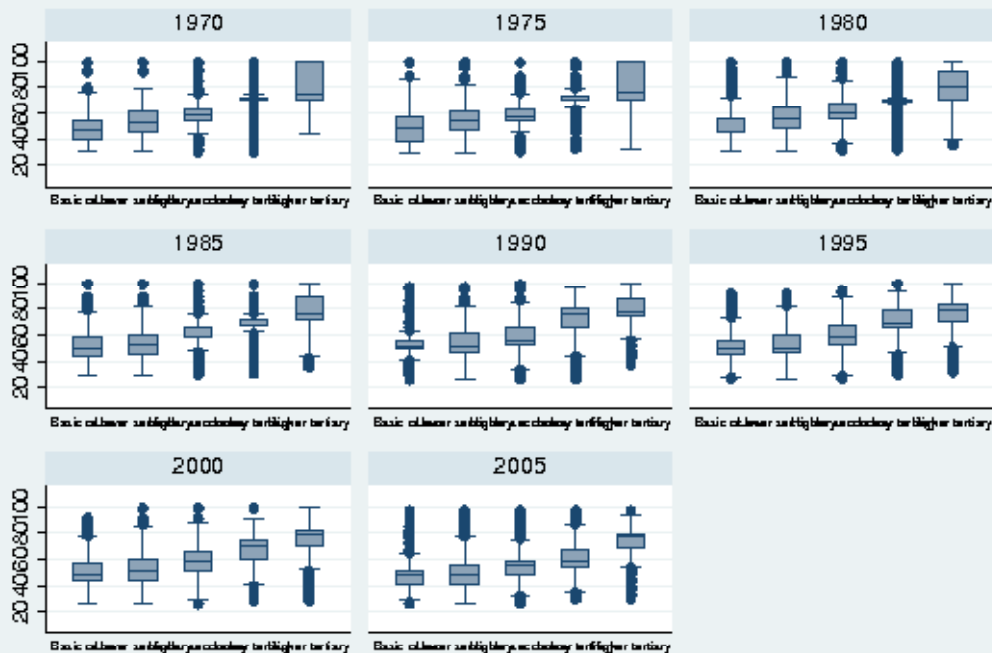
Associations with education, men

ISEI by Education, men



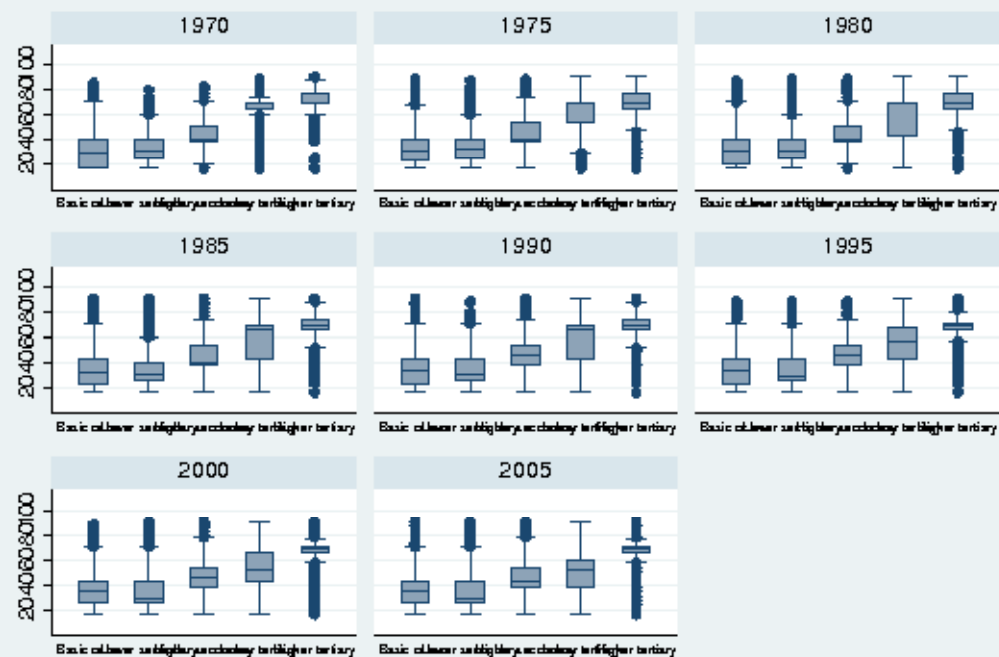
	R2	ISEI	FCS
1970		44	38
1975		44	42
1980		42	43
1985		47	49
1990		47	50
1995		52	53
2000		47	49
2005		55	48

CAMSIS by Education, women



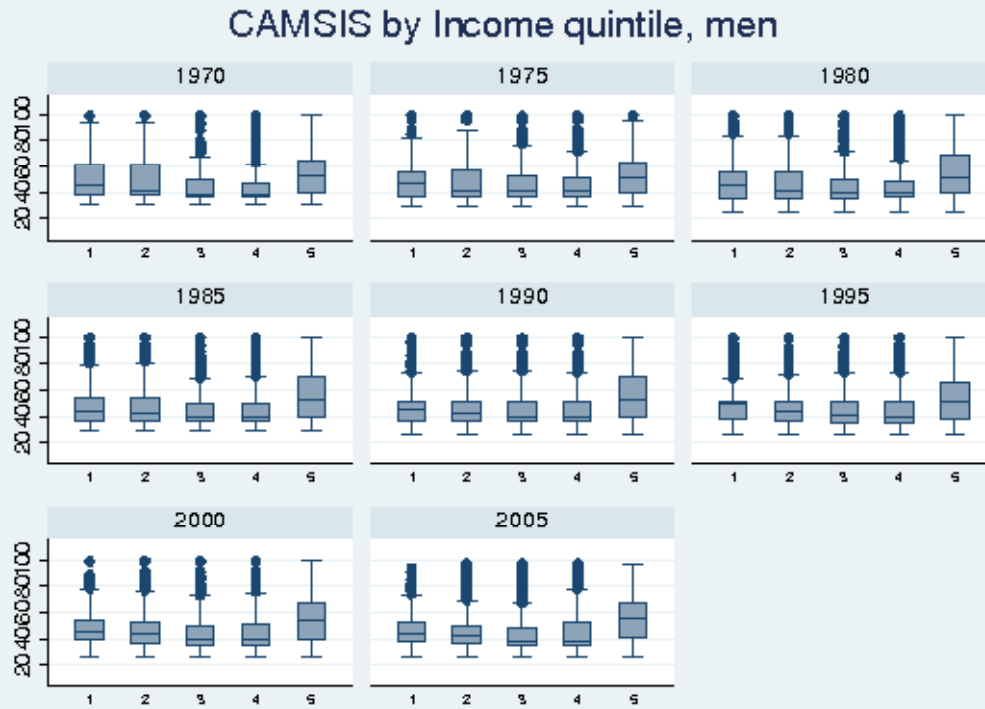
Associations with education, women

ISEI by Education, women

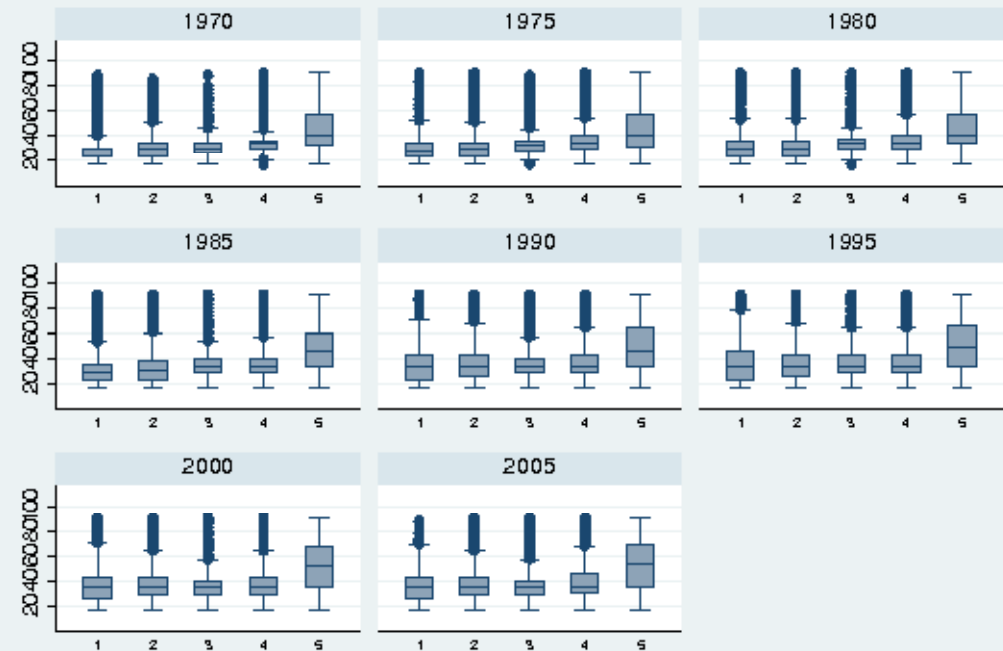


	R2	ISEI	FCS
1970		31	48
1975		30	49
1980		30	52
1985		33	51
1990		32	51
1995		41	50
2000		38	49
2005		39	47

Associations with income, men

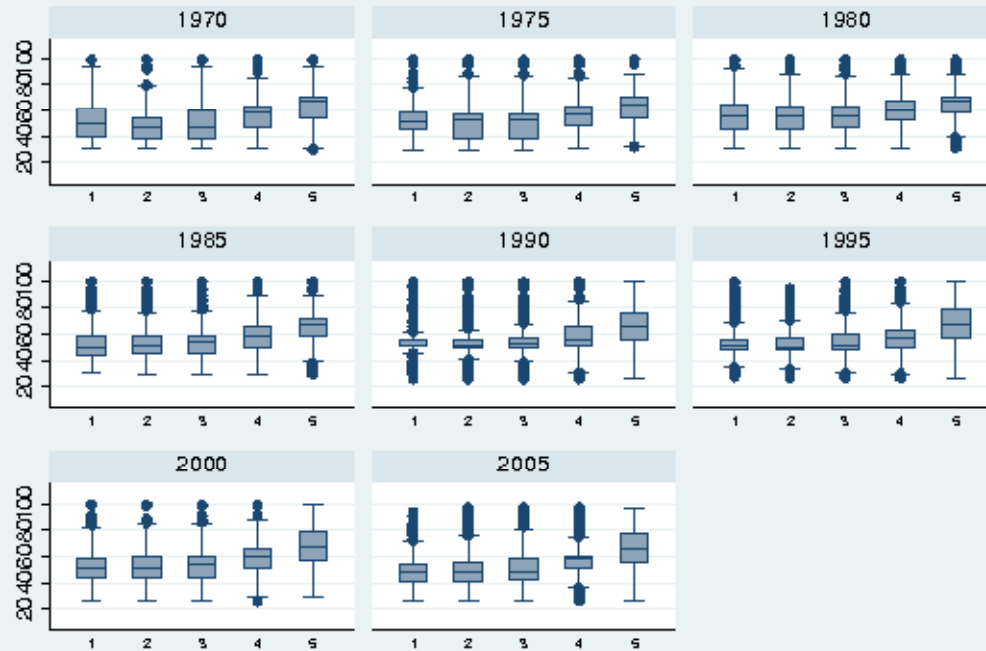


ISEI by Income quintile, men



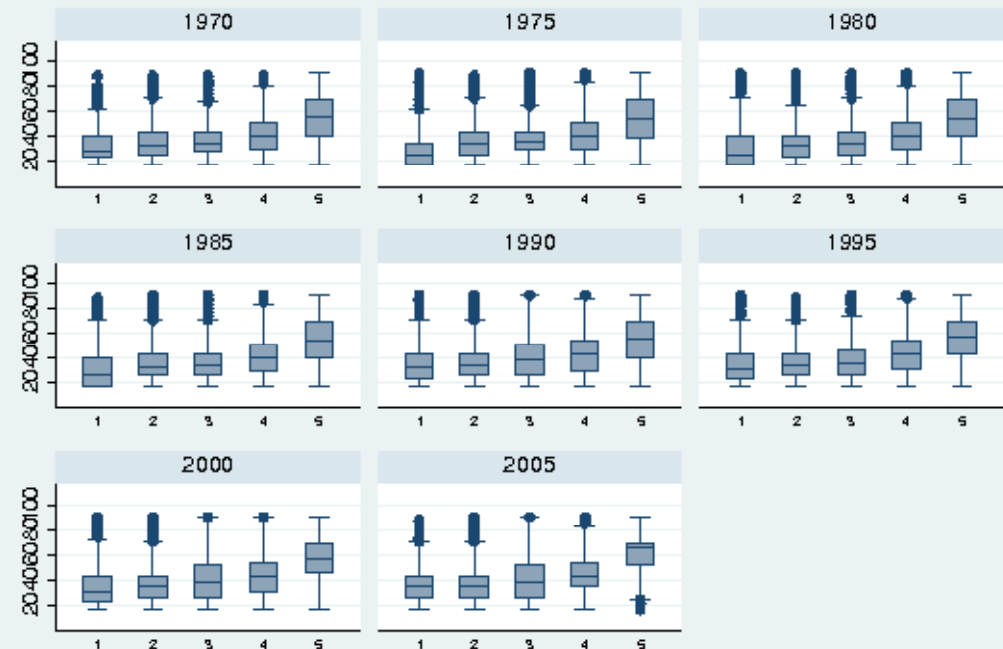
R2	ISEI	FCS
1970	23	16
1975	16	13
1980	16	13
1985	16	13
1990	14	13
1995	13	11
2000	15	13
2005	17	16

CAMSIS by Income quintile, women



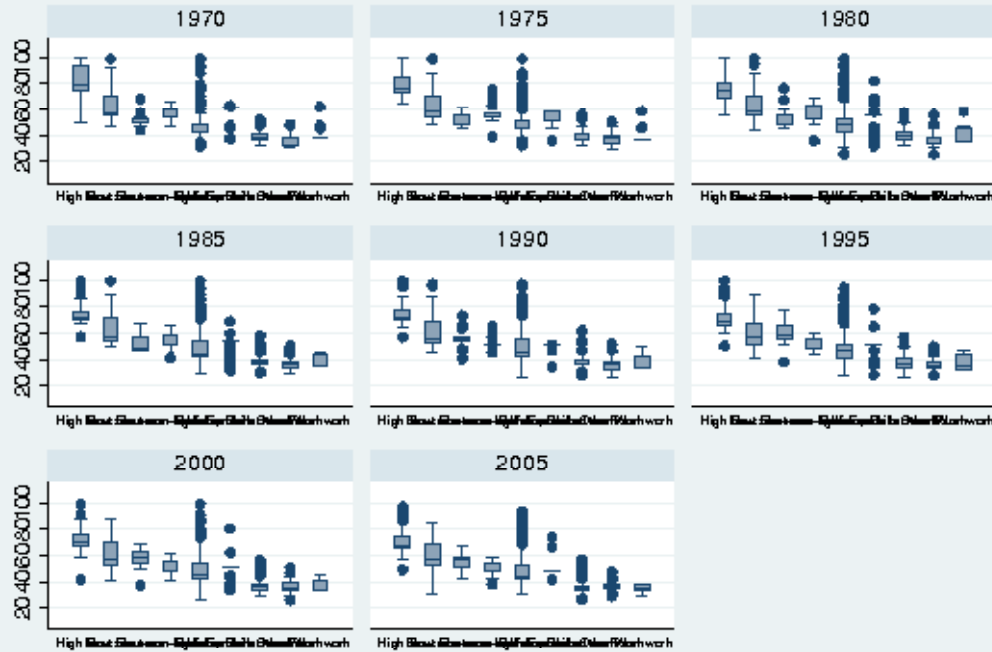
Associations with income, women

ISEI by Income quintile, women



R2	ISEI	FCS
1970	20	32
1975	18	24
1980	16	18
1985	18	23
1990	15	21
1995	18	22
2000	19	21
2005	21	24

CAMSIS by EGP, men



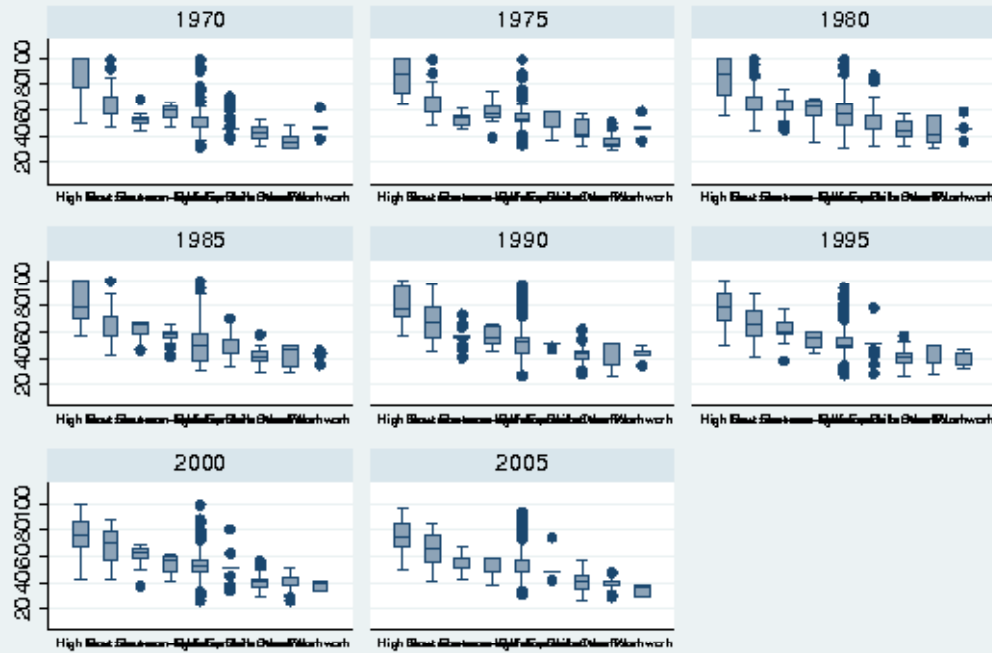
Associations with EGP, men

ISEI by EGP, men



	R2	ISEI	FCS
1970		82	70
1975		82	79
1980		80	77
1985		79	75
1990		77	70
1995		77	73
2000		79	74
2005		78	75

CAMSIS by EGP, women



Associations with EG, women

ISEI by EGP, women



	R2	ISEI	FCS
1970		76	72
1975		76	75
1980		74	77
1985		74	75
1990		71	72
1995		71	71
2000		73	73
2005		73	76

Changes in homogamy

- Argument: homogamy increasing in most societies
 - Kalmijn, 1998; Sweeney & Cancian, 2004; Schwarz & Mare, 2005; Blossfeld, 2009
- “Natural” test with couple-data based stratification data
- Change in scales = change in the way how couple relationships are stratified
- Does changing homogamy play a role in this?

- Loglinear RC-models
 1. RC-coefficients for men and women, changing marginals, diagonal cells controlled
 2. RC-estimates for men and women, allowing change in diagonals
- RC-coefficients assuming no yearly change should be the same as the scale values from CA
- The impact of the changes in homogamy should be observed as a change in RC coefficients between the models

Models for ISCO88 Major groups

	L-squared	df	DI	BIC	AIC
Mod 1. year:men + year:women + Diagonals(men:women)	48087,6	496	0,117	41540,3	47081,6
Mod 2. 1 + RC-association	3713,9	481	0,029	-2638,1	2737,9
Mod 3. 2 + Linear change in diagonals	3015,7	473	0,025	-3219,1	2057,7
Mod 4. 2 + Non-lin. change in diagonals	2816,6	425	0,022	-2715,3	1966,6

The effects of the change in homogamy on RC coefficients

		No change		Linear change		Non-lin change	
		Coeff	SE	Coeff	SE	Coeff	SE
Men	Manag/legis/offic	0	0	0	0	0	0
	Profess	-0,03	0,01	-0,01	0,01	-0,01	0,01
	Tech/Assoc profs	0,42	0,01	0,42	0,01	0,42	0,01
	Clerks	0,62	0,01	0,61	0,01	0,61	0,01
	Service/Sales	0,59	0,01	0,59	0,01	0,59	0,01
	Agriculture	0,78	0,01	0,78	0,01	0,78	0,01
	Crafts/Trades	1,03	0,01	1,02	0,01	1,02	0,01
	Mach operators	1,09	0,01	1,08	0,01	1,08	0,01
	Elementary	1	0	1	0	1	0
Women	Manag/legis/offic	0	0	0	0	0	0
	Profess	-0,05	0,01	-0,05	0,01	-0,05	0,01
	Tech/Assoc profs	0,24	0,01	0,24	0,01	0,24	0,01
	Clerks	0,41	0,01	0,40	0,01	0,40	0,01
	Service/Sales	0,64	0,01	0,64	0,01	0,64	0,01
	Agriculture	0,85	0,01	0,85	0,01	0,85	0,01
	Crafts/Trades	0,83	0,01	0,83	0,01	0,83	0,01
	Mach operators	1,05	0,01	1,05	0,01	1,05	0,01
	Elementary	1	0	1	0	1	0

Homogamy estimates change to wrong direction!

Homogamy change for...

	Coef.	SE
Manag/legis/offic	0,00	0,01
Profess	-0,12	0,01
Tech/Assoc profs	0,00	0,01
Clerks	0,02	0,01
Service/Sales	0,00	0,01
Crafts/Trades	-0,04	0,01
Mach operators	0,01	0,01
Elementary	-0,08	0,01

Caveats

- Previous results suggest increasing homogamy according to education => occupations different story?
- 1-digit level simply too coarse?
- Now all cohabs, restricting analyses to marriages?

Conclusions

- Social interaction distance scales appear to measure stratification quite well on Finnish data
 - Differences between men and women
 - Main difference between years involves farmers
 - Homogamy trends don't seem to matter
- Work very much in beginning...