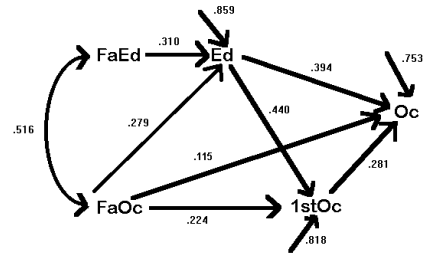


Mothers matter!

Harry B.G. Ganzeboom
RC28 Spring Conference, Beijing
May 14-17 2009

The Blau-Duncan model (1)



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The Blau-Duncan model (2)

- BD-model refers to men, ...
- ... relative to their fathers
- **What about women:**
 - *respondents*
 - *mothers?*

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BD-model for women

- Usual results / expectations for women:
 - Women's occupation is more strongly determined by their education than men's;
 - Women's career mobility less strong than for men [more continuity]; low SEI women have stronger tendency to quit employment than high SEI women;
 - Father's occupation has smaller effect on women's occupation than on men's occupation.

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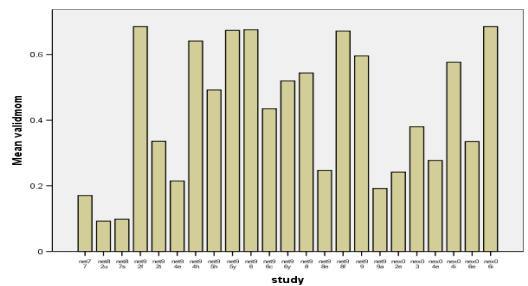
Mothers occupations in the Netherlands (and elsewhere)

- Incidence varies dramatically (10%-65%) among surveys due to question format: "at R age 15" / "ever" (Table 1).
- Many mothers (in the Netherlands) are not gainfully employed when respondent "was growing up / age 12-16"; however, many were employed before that time (Table 2b).
- Underlying assumption (ESS!): mother's occupation does not matter when she did not work in this occupation when respondent was growing up.

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Valid M-Occ in ISMF 1977-2006



Cases weighted by WEIGHT FACTOR FOUND IN ORIGINAL FILE

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However: theory

- Resources: mother's employment / occupation matters to respondent's status attainment because it brings additional (financial, social) resources to the household.
- Time-budget: mother's employment has a negative effect on respondent's status attainment because she has no time left to help her children (in school).
- Corollary: *the best mother is a former teacher*.

Mother's effects in ISMF-NL

- ISMF: Intergenerational mobility data harmonized in standardized format [EDUCYR, ISEI].
- Some 23 ISMF files for the Netherlands contain a valid measure of mother's occupation.
- Table 1b shows effects on (A) education, (B) current/last occupation, with gender-role model.
- Conclusions: Mothers matter, in particular for women.

Research questions

- Does mother's occupation matter for educational and occupational status attainment?
 - How do size of and trends in social background effects change when mother's occupation into account?
- Do maternal occupations matter for mothers who were not gainfully employed when respondent was growing up?

Conclusions

- Yes, mothers occupations matter, for both educational and occupational attainment in first and most recent job.
- Gender-role modelling: fathers matter more for men, and (in particular) mother matter more for women.
- Mother's occupation also matters, when mother did not work at Resp. age 15 (but some time earlier).
- (No conclusions on trends yet).

Data & design: ISSP-NL

- Data collected in 1996-1998-1999-2004-2006-2008 (ISSP-NL and related surveys). N=8059.
- Occupation (father – mother – first – current / last) measured with two independent indicators: (A) 'crude' [showcard] measure and (B) detailed occupations. Both are expressed in ISEI metric.
- Question on mother is about her occupation ever. An additional question asks when she worked last.

ISSP1987: self-classification

Here is a list of different types of jobs. Which type did your father have when you were 16 years / [did you have in] the first job you had after you finished your full-time education / [do you have] in your job now?

1. Professional and technical (for example: doctor, teacher, engineer, artist, accountant)
2. Higher administrator (for example: banker, executive in big business, high government official, union official)
3. Clerical (for example: secretary, clerk, office manager, civil servant, bookkeeper)
4. Sales (for example: sales manager, shop owner, shop assistant, insurance agent, buyer)
5. Service (for example: restaurant owner, police officer, waiter, barber, caretaker)
6. Skilled worker (for example: foreman, motor mechanic, printer, tool and die maker, electrician)
7. Semi-skilled worker (for example: bricklayer, bus driver, tannery worker, carpenter, sheet metal worker, baker)
8. Unskilled worker (for example: labourer, porter, unskilled factory worker)
9. Farm (for example: farmer, farm labourer, tractor driver)

Was your father / were you / are you self-employed, or did he /did you / do you work for someone else?

1. Self-employed, own business or farm
2. Work[ed] for someone else

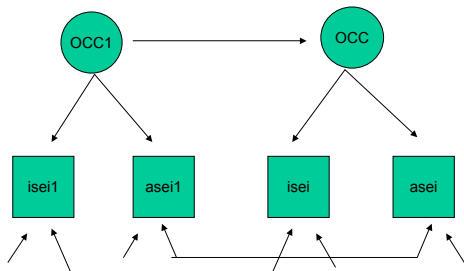
Design: a fully error-corrected occupation measure

- Double measurement of occupations allows for the detection / repair of:
 - Random measurement error: residual / total variance.
 - Systematic measurement error:
 - Method effects: correlated error between similar measures of occupational status.
 - Education bias: correlated error between crude occupation measures and education of the incumbent.
- See Ganzeboom (2005) and De Vries & Ganzeboom (2008) for a similar analysis.

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SEM / MTMM model



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Results – Table 3

- Mothers matter:
 - For educational attainment, effects of mother's occupation is as large as father's, for both men and women.
 - For occupational attainment, the effect of mother's occupation is basically restricted to women. Father's occupation influences occupational attainment of both men and women (gender role modeling).
 - Effect of father's occupation is clearly larger when mother does not report an occupation.

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Results – Table 4

- Many respondents report mother's occupation, despite claiming that she never worked!
- For educational attainment, mothers occupations worked before respondent was around age 15, matter just as much as her occupations reported before that age. However, not more...
- In the occupational career, mothers occupations worked before respondent was age 15, matter, but not as much as when she worked when respondent was age 15.

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Conclusions

- Yes, mothers occupations matter, for both educational and occupational attainment in first and most recent job.
- Gender-role modelling: fathers matter more for men, and (in particular) mother matter more for women.
- Mother's occupation also matters, when mother did not work at Resp age 15 (but some time earlier).
- (No conclusions on trends yet).

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**Table 1a: % Mothers with
valid Occupation data in
ISMF-NL**

| | | |
|--------|-------|-------|
| net77 | 17.0% | 3136 |
| net82u | 9.2% | 725 |
| net87s | 9.8% | 815 |
| net92f | 68.5% | 1756 |
| net92t | 33.6% | 2822 |
| net94e | 21.5% | 1425 |
| net94h | 64.1% | 1014 |
| net95h | 49.2% | 2300 |
| net95y | 67.3% | 815 |
| net96 | 67.6% | 675 |
| net96c | 43.5% | 1511 |
| net96y | 52.0% | 614 |
| net98 | 54.4% | 758 |
| net98e | 24.7% | 1672 |
| net98f | 67.1% | 1887 |
| net99 | 59.6% | 2039 |
| net99a | 19.2% | 8779 |
| nex02e | 24.2% | 1824 |
| nex03 | 38.0% | 6623 |
| nex04e | 27.7% | 1423 |
| nex04i | 57.6% | 1426 |
| nex06e | 33.5% | 1410 |
| nex06i | 68.5% | 1605 |
| Total | 37.5% | 47055 |

| Table 1b: Effects of father's and mother's occupation [ISEI] on respondent's education and occupation. Source: 23 ISMF files for the Netherlands. | | |
|--|--------|-------|
| | MEN | WOMEN |
| <u>Education</u> | | |
| Father Occ. | 0.254 | 0.241 |
| Mother Occ. | 0.167 | 0.208 |
| R2 | 13.7% | 20.7% |
| <u>Occupation</u> | | |
| Father Occ. | 0.085 | 0.079 |
| Mother Occ. | 0.032 | 0.074 |
| Education | 0.522 | 0.490 |
| | 0.175 | 0.065 |
| R2 | 33.6%% | 29.9% |

Table 2a: Mothers employment by her household cycle, by survey

| | 1996 | 1998 | 1999 | 2004 | 2006 | 2008 | Total |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Missing | | | | | 5.3 | | 0.9 |
| 1 Mother never worked | 23.4 | 23.3 | 24.9 | 18.2 | 61.1 | 17.2 | 27.9 |
| 2 Mother worked only before marriage | 20.7 | 17.6 | 37.7 | 15.7 | 1.5 | 13.1 | 18.4 |
| 3 Mother worked during marriage | 23.6 | 19.7 | 11.5 | 29.1 | 5.3 | 27.3 | 19.0 |
| 4 Mother worked R16 | 32.2 | 39.4 | 26.0 | 37.0 | 26.8 | 42.4 | 33.8 |
| | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | 627 | 705 | 1957 | 1372 | 1420 | 2053 | 8134 |

Table 2b: Mothers most recent employment by her household cycle, by birth cohort respondent

| | | COHORT Birth Cohort Respondent | | | | Total |
|-------|--------------------------------------|--------------------------------|---------------|---------------|---------------|---------------|
| | | 1 1945 | 2 1955 | 3 1965 | 4 1975 | |
| Mwork | 1 Mother never worked | 40.3 | 31.5 | 22.1 | 18.2 | 28.1 |
| | 2 Mother worked only before marriage | 25.6 | 22.9 | 16.8 | 8.6 | 18.6 |
| | 3 Mother worked during marriage | 15.7 | 18.8 | 20.3 | 22.1 | 19.2 |
| | 4 Mother worked R 16 | 18.3 | 26.8 | 40.8 | 51.2 | 34.1 |
| Total | | 100.0 2023 | 100.0 2067 | 100.0 2021 | 100.0 1948 | 100.0 8059 |

Table 2c: MISEI (detailed occupation) for employed mothers, by household cycle, by birth cohort

| | 1945 | | 1955 | | 1965 | | 1975 | | Total | |
|-----------------------------|------|-----|------|------|------|------|------|------|-------|------|
| | ISEI | N | ISEI | N | ISEI | N | ISEI | N | ISEI | N |
| Missing | 37.5 | 6 | 28.4 | 7 | 39.7 | 10 | 41.6 | 18 | 38.3 | 41 |
| 1 Mother never worked | 32.4 | 59 | 26.1 | 47 | 28.7 | 27 | 39.7 | 21 | 30.8 | 154 |
| 2 Mother worked bef marr | 34.7 | 285 | 35.9 | 283 | 37.8 | 216 | 41.7 | 98 | 36.6 | 882 |
| 3 mother worked during marr | 37.3 | 194 | 38.0 | 248 | 41.3 | 275 | 44.1 | 305 | 40.6 | 1022 |
| 4 Mother worked R 16 | 38.4 | 316 | 39.0 | 502 | 41.6 | 773 | 45.1 | 943 | 42.0 | 2534 |
| Total | 36.5 | 860 | 37.3 | 1087 | 40.6 | 1301 | 44.5 | 1385 | 40.2 | 4633 |

Table 3: Lisrel estimates for status attainment and measurement equations. Standardized solutions.

| | (A) MEN Ever Employed Mothers | (B) WOMEN Ever Employed Mothers | (C) MEN Never Employed Mothers | (D) WOMEN Never Employed Mothers |
|--------------------|---|---|--|--|
| N | 2100 | 2100 | 1200 | 1000 |
| Chi2 | 156.3 | 75.3 | 32.1 | 59.2 |
| NDF | 39 | 39 | 51 | 51 |
| Education | | | | |
| Father Educ | 0.129 | 0.240 | 0.153 | 0.173 |
| Mother Educ | 0.110 | 0.112 | 0.111 | 0.098 |
| Father Occ. | 0.195 | 0.044 | 0.197 | 0.276 |
| Mother Occ. | 0.056 | 0.143 | - | - |
| R2 | 17.6% | 24.0% | 16.5% | 24.1% |
| First Occ | | | | |
| Father Occ. | 0.148 | 0.075 | 0.193 | 0.197 |
| Mother Occ. | 0.030 | 0.112 | - | - |
| Education | 0.642 | 0.612 | 0.646 | 0.619 |
| R2 | 52.5% | 48.3% | 54.4% | 52.5% |
| Current Occ | | | | |
| Father Occ. | 0.063 | 0.058 | 0.100 | 0.025 |
| Mother Occ. | 0.046 | 0.064 | - | - |
| Education | 0.359 | 0.408 | 0.438 | 0.397 |
| First Occ | 0.430 | 0.398 | 0.367 | 0.424 |
| R2 | 60.9% | 62.0% | 62.9% | 58.9% |
| Measurement | | | | |
| FASEI | 0.923 | 0.938 | 0.935 | 0.915 |
| FISEI | 0.812 | 0.825 | 0.825 | 0.852 |
| MASEI | 0.869 | 0.861 | - | - |
| MISEI | 0.853 | 0.841 | - | - |
| ASEI1 | 0.872 | 0.801 | 0.907 | 0.808 |
| ISEI1 | 0.812 | 0.750 | 0.826 | 0.761 |
| ASEI | 0.909 | 0.827 | 0.917 | 0.832 |
| ISEI | 0.743 | 0.748 | 0.773 | 0.774 |

Table 4: Lisrel estimates for status attainment and measurement equations, for mother ever employed at different stages of their life-cycle. Standardized solution.

| | Mothers empl. at R age 15 | | Mothers empl. before R Age 15 | |
|--------------------|---------------------------|--------------|-------------------------------|--------------|
| | (A) MEN | (B) WOMEN | (C) MEN | (D) WOMEN |
| N | 1200 | 1200 | 1200 | 1200 |
| Chi2 | 57.1 | 59.1 | 77.2 | 35.4 |
| NDF | 39 | 39 | 39 | 39 |
| Education | | | | |
| Father Educ | 0.172 | 0.233 | 0.090 | 0.246 |
| Mother Educ | 0.127 | 0.139 | 0.099 | 0.065 |
| Father Occ. | 0.138 | 0.007 | 0.231 | 0.077 |
| Mother Occ. | 0.058 | 0.145 | 0.070 | 0.144 |
| R2 | 17.4% | 22.9% | 17.7% | 23.4% |
| First Occ | | | | |
| Father Occ. | 0.075 | 0.029 | 0.215 | 0.105 |
| Mother Occ. | 0.111 | 0.167 | -0.047 | 0.080 |
| Education | 0.592 | 0.595 | 0.678 | 0.633 |
| R2 | 44.8% | 46.0% | 58.7% | 50.5% |
| Current Occ | | | | |
| Father Occ. | 0.079 | 0.046 | 0.058 | 0.055 |
| Mother Occ. | -0.013 | 0.064 | 0.042 | -0.011 |
| Education | 0.341 | 0.363 | 0.286 | 0.430 |
| First Occ | 0.474 | 0.480 | 0.557 | 0.469 |
| R2 | 60.0% | 66.4% | 70.3% | 70.6% |
| Measurement | | | | |
| FASEI | 0.917 | 0.940 | 0.929 | 0.935 |
| FISEI | 0.808 | 0.821 | 0.817 | 0.829 |
| MASEI | 0.893 | 0.873 | 0.803 | 0.827 |
| MISEI | 0.823 | 0.836 | 0.883 | 0.850 |
| ASEI1 | 0.878 | 0.796 | 0.869 | 0.807 |
| ISEI1 | 0.782 | 0.756 | 0.843 | 0.730 |
| ASEI | 0.902 | 0.817 | 0.900 | 0.813 |
| ISEI | 0.745 | 0.754 | 0.806 | 0.737 |

Table 5a: Residual variances and MTMM residual correlation for observed occupation measures. MEN

| | fasei | fisei | masei | misei | asei1 | isei1 | asei | isei |
|-------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|----------------------------|
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| fasei | 0.148 (0.014) 10.258 | | | | | | | |
| fisei | - - | 0.341 (0.015) 22.688 | | | | | | |
| masei | 0.050 (0.010) 4.970 | - - | 0.262 (0.017) 15.486 | | | | | |
| misei | - - | 0.054 (0.010) 5.185 | - - | 0.270 (0.017) 16.062 | | | | |
| asei1 | 0.008 (0.006) 1.224 | - - | 0.008 (0.006) 1.224 | - - | 0.241 (0.017) 13.891 | | | |
| isei1 | - - | 0.019 (0.006) 2.971 | - - | 0.019 (0.006) 2.971 | - - | 0.332 (0.017) 19.339 | | |
| asei | 0.008 (0.006) 1.224 | - - | 0.008 (0.006) 1.224 | - - | 0.062 (0.011) 5.465 | - - | 0.179 (0.018) 9.762 | |
| isei | - - | 0.019 (0.006) 2.971 | - - | 0.019 (0.006) 2.971 | - - | 0.061 (0.012) 5.287 | - - | 0.419 (0.018) 23.265 |

Table 5a: Residual variances and MTMM residual correlation for observed occupation measures. WOMEN

| | fasei | fisei | masei | misei | educ | asei1 | isei1 | asei | isei |
|-------|------------------------------------|------------------------------------|----------------------------|----------------------------|-------|----------------------------|----------------------------|----------------------------|----------------------------|
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| fasei | 0.121 (0.014) 8.892 | | | | | | | | |
| fisei | - - | 0.317 (0.014) 22.388 | | | | | | | |
| masei | 0.032 (0.010) 3.316 3.317 | - - | 0.259 (0.016) 16.006 | | | | | | |
| misei | - - | 0.048 (0.010) 4.737 4.738 | - - | 0.292 (0.016) 18.120 | | | | | |
| asei1 | 0.011 (0.007) 1.618 | - - | 0.011 (0.007) 1.618 | - - | - - | 0.357 (0.022) 16.147 | | | |
| isei1 | - - | 0.014 (0.007) 2.073 | - - | 0.014 (0.007) 2.073 | - - | - - | 0.436 (0.022) 20.218 | | |
| asei | 0.011 (0.007) 1.618 | - - | 0.011 (0.007) 1.618 | - - | - - | 0.141 (0.014) 10.025 | - - | 0.318 (0.020) 15.753 | |
| isei | - - | 0.014 (0.007) 2.073 | - - | 0.014 (0.007) 2.073 | - - | - - | 0.089 (0.014) 6.436 | - - | 0.444 (0.020) 22.191 |

Appendix 1: Descriptive statistics status attainment variables, by gender and employment of mother

| | Men, employed mothers | | | Women, employed mothers | | | Men, non-employed mothers | | | Women, non-employed mothers | | |
|--------|----------------------------------|------|------|------------------------------------|------|------|--------------------------------------|------|------|------------------------------------|------|------|
| | M | STD | N | M | STD | N | M | STD | N | M | STD | N |
| Feduc | 9.9 | 3.2 | 2593 | 9.9 | 3.3 | 2588 | 9.1 | 3.1 | 1565 | 9.3 | 3.2 | 1282 |
| meduc | 9.2 | 2.6 | 2602 | 9.3 | 2.7 | 2627 | 8.1 | 2.1 | 1540 | 8.2 | 2.3 | 1305 |
| fasei | 46.9 | 18.4 | 2592 | 47.7 | 18.4 | 2615 | 43.7 | 17.6 | 1555 | 45.4 | 18.3 | 1293 |
| fisei | 47.3 | 16.3 | 2515 | 47.7 | 16.6 | 2531 | 44.5 | 16.0 | 1497 | 45.1 | 16.5 | 1240 |
| masei | 39.6 | 15.4 | 2552 | 41.4 | 15.7 | 2565 | - | - | 0 | - | - | 0 |
| misei | 39.9 | 16.1 | 2278 | 40.5 | 16.0 | 2412 | - | - | 0 | - | - | 0 |
| educ | 12.3 | 3.1 | 2615 | 12.0 | 2.9 | 2649 | 11.6 | 3.1 | 1661 | 11.2 | 2.9 | 1403 |
| asei1 | 49.0 | 17.6 | 2467 | 51.3 | 13.9 | 2424 | 47.6 | 17.1 | 1532 | 49.1 | 14.1 | 1234 |
| isei1 | 47.7 | 15.5 | 2472 | 47.8 | 13.8 | 2429 | 45.4 | 15.3 | 1527 | 46.6 | 14.2 | 1231 |
| asei | 55.4 | 16.9 | 2145 | 52.6 | 14.3 | 2040 | 52.7 | 16.9 | 1290 | 51.1 | 14.5 | 992 |
| isei | 53.6 | 15.1 | 2110 | 49.9 | 15.0 | 1983 | 51.3 | 15.5 | 1256 | 48.4 | 15.4 | 963 |
| age | 42.0 | 11.5 | 2641 | 40.4 | 11.6 | 2676 | 46.6 | 11.0 | 1677 | 45.9 | 11.5 | 1423 |
| cohort | 1960.4 | 11.7 | 2641 | 1962.7 | 11.8 | 2676 | 1956.4 | 11.3 | 1677 | 1958.0 | 11.6 | 1423 |

Appendix 2a: Correlations for men, mother with valid occupation codes

| | feduc | meduc | fasei | fisei | masei | Misei | educ | aseil | iseil | asei | isei | age | cohort |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| feduc | 1.000 | 0.673 | 0.691 | 0.593 | 0.484 | 0.475 | 0.371 | 0.255 | 0.272 | 0.278 | 0.225 | -0.244 | 0.283 |
| meduc | 0.673 | 1.000 | 0.533 | 0.468 | 0.574 | 0.583 | 0.336 | 0.216 | 0.228 | 0.236 | 0.172 | -0.321 | 0.361 |
| fasei | 0.691 | 0.533 | 1.000 | 0.750 | 0.591 | 0.522 | 0.351 | 0.303 | 0.314 | 0.318 | 0.260 | -0.164 | 0.183 |
| fisei | 0.593 | 0.468 | 0.750 | 1.000 | 0.494 | 0.527 | 0.326 | 0.278 | 0.315 | 0.304 | 0.259 | -0.116 | 0.129 |
| masei | 0.484 | 0.574 | 0.591 | 0.494 | 1.000 | 0.734 | 0.269 | 0.232 | 0.222 | 0.253 | 0.199 | -0.191 | 0.229 |
| misei | 0.475 | 0.583 | 0.522 | 0.527 | 0.734 | 1.000 | 0.291 | 0.217 | 0.252 | 0.241 | 0.202 | -0.199 | 0.224 |
| educ | 0.371 | 0.336 | 0.351 | 0.326 | 0.269 | 0.291 | 1.000 | 0.609 | 0.565 | 0.626 | 0.526 | -0.078 | 0.087 |
| aseil | 0.255 | 0.216 | 0.303 | 0.278 | 0.232 | 0.217 | 0.609 | 1.000 | 0.711 | 0.633 | 0.483 | 0.067 | -0.040 |
| iseil | 0.272 | 0.228 | 0.314 | 0.315 | 0.222 | 0.252 | 0.565 | 0.711 | 1.000 | 0.534 | 0.512 | 0.052 | -0.029 |
| asei | 0.278 | 0.236 | 0.318 | 0.304 | 0.253 | 0.241 | 0.626 | 0.633 | 0.534 | 1.000 | 0.692 | 0.097 | -0.067 |
| isei | 0.225 | 0.172 | 0.260 | 0.259 | 0.199 | 0.202 | 0.526 | 0.483 | 0.512 | 0.692 | 1.000 | 0.095 | -0.068 |
| age | -0.244 | -0.321 | -0.164 | -0.116 | -0.191 | -0.199 | -0.078 | 0.067 | 0.052 | 0.097 | 0.095 | 1.000 | -0.933 |
| cohort | 0.283 | 0.361 | 0.183 | 0.129 | 0.229 | 0.224 | 0.087 | -0.040 | -0.029 | -0.067 | -0.068 | -0.933 | 1.000 |

Appendix 2b: Correlations for women, mothers with valid occupation codes

| | feduc | meduc | fasei | fisei | masei | Misei | educ | aseil | iseil | asei | isei | age | cohort |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| feduc | 1.000 | 0.666 | 0.706 | 0.619 | 0.492 | 0.488 | 0.445 | 0.274 | 0.260 | 0.333 | 0.302 | -0.233 | 0.263 |
| meduc | 0.666 | 1.000 | 0.521 | 0.466 | 0.609 | 0.588 | 0.415 | 0.262 | 0.240 | 0.315 | 0.282 | -0.283 | 0.323 |
| fasei | 0.706 | 0.521 | 1.000 | 0.775 | 0.584 | 0.548 | 0.365 | 0.265 | 0.260 | 0.320 | 0.271 | -0.155 | 0.172 |
| fisei | 0.619 | 0.466 | 0.775 | 1.000 | 0.489 | 0.534 | 0.345 | 0.251 | 0.269 | 0.289 | 0.256 | -0.134 | 0.139 |
| masei | 0.492 | 0.609 | 0.584 | 0.489 | 1.000 | 0.724 | 0.330 | 0.257 | 0.239 | 0.306 | 0.239 | -0.162 | 0.203 |
| misei | 0.488 | 0.588 | 0.548 | 0.534 | 0.724 | 1.000 | 0.358 | 0.250 | 0.260 | 0.289 | 0.272 | -0.154 | 0.178 |
| educ | 0.445 | 0.415 | 0.365 | 0.345 | 0.330 | 0.358 | 1.000 | 0.520 | 0.488 | 0.585 | 0.534 | -0.183 | 0.212 |
| aseil | 0.274 | 0.262 | 0.265 | 0.251 | 0.257 | 0.250 | 0.520 | 1.000 | 0.601 | 0.606 | 0.430 | 0.057 | -0.030 |
| iseil | 0.260 | 0.240 | 0.260 | 0.269 | 0.239 | 0.260 | 0.488 | 0.601 | 1.000 | 0.429 | 0.484 | 0.055 | -0.026 |
| asei | 0.333 | 0.315 | 0.320 | 0.289 | 0.306 | 0.289 | 0.585 | 0.606 | 0.429 | 1.000 | 0.617 | -0.013 | 0.055 |
| isei | 0.302 | 0.282 | 0.271 | 0.256 | 0.239 | 0.272 | 0.534 | 0.430 | 0.484 | 0.617 | 1.000 | -0.029 | 0.063 |
| age | -0.233 | -0.283 | -0.155 | -0.134 | -0.162 | -0.154 | -0.183 | 0.057 | 0.055 | -0.013 | -0.029 | 1.000 | -0.929 |
| cohort | 0.263 | 0.323 | 0.172 | 0.139 | 0.203 | 0.178 | 0.212 | -0.030 | -0.026 | 0.055 | 0.063 | -0.929 | 1.000 |

Appendix 2c: Correlations for men, mothers without valid occupation codes

| | feduc | meduc | fasei | fisei | masei | Misei | educ | aseil | iseil | asei | isei | age | cohort |
|--------|--------|--------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| feduc | 1.000 | 0.627 | 0.681 | 0.602 | 0 | 0 | 0.370 | 0.307 | 0.289 | 0.300 | 0.274 | -0.162 | 0.174 |
| meduc | 0.627 | 1.000 | 0.473 | 0.416 | 0 | 0 | 0.311 | 0.267 | 0.253 | 0.265 | 0.244 | -0.190 | 0.203 |
| fasei | 0.681 | 0.473 | 1.000 | 0.772 | 0 | 0 | 0.337 | 0.383 | 0.319 | 0.372 | 0.323 | -0.059 | 0.061 |
| fisei | 0.602 | 0.416 | 0.772 | 1.000 | 0 | 0 | 0.319 | 0.335 | 0.333 | 0.318 | 0.307 | -0.069 | 0.063 |
| masei | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| misei | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| educ | 0.370 | 0.311 | 0.337 | 0.319 | 0 | 0 | 1.000 | 0.641 | 0.588 | 0.667 | 0.563 | -0.080 | 0.087 |
| aseil | 0.307 | 0.267 | 0.383 | 0.335 | 0 | 0 | 0.641 | 1.000 | 0.751 | 0.664 | 0.507 | 0.042 | -0.038 |
| iseil | 0.289 | 0.253 | 0.319 | 0.333 | 0 | 0 | 0.588 | 0.751 | 1.000 | 0.550 | 0.524 | 0.031 | -0.034 |
| asei | 0.300 | 0.265 | 0.372 | 0.318 | 0 | 0 | 0.667 | 0.664 | 0.550 | 1.000 | 0.710 | 0.043 | -0.042 |
| isei | 0.274 | 0.244 | 0.323 | 0.307 | 0 | 0 | 0.563 | 0.507 | 0.524 | 0.710 | 1.000 | 0.010 | -0.015 |
| age | -0.162 | -0.190 | -0.059 | -0.069 | 0 | 0 | -0.080 | 0.042 | 0.031 | 0.043 | 0.010 | 1.000 | -0.934 |
| cohort | 0.174 | 0.203 | 0.061 | 0.063 | 0 | 0 | 0.087 | -0.038 | -0.034 | -0.042 | -0.015 | -0.934 | 1.000 |

Appendix 2d: Correlation for women, mothers without valid occupation codes

| | feduc | meduc | fasei | fisei | masei | misei | educ | aseil | iseil | asei | isei | age | cohort |
|--------|--------|--------|--------|--------|-------|-------|--------|--------|--------|-------|-------|--------|--------|
| feduc | 1.000 | 0.605 | 0.659 | 0.605 | 0 | 0 | 0.439 | 0.331 | 0.317 | 0.275 | 0.280 | -0.158 | 0.170 |
| meduc | 0.605 | 1.000 | 0.444 | 0.402 | 0 | 0 | 0.348 | 0.221 | 0.232 | 0.203 | 0.239 | -0.231 | 0.237 |
| fasei | 0.659 | 0.444 | 1.000 | 0.779 | 0 | 0 | 0.413 | 0.361 | 0.310 | 0.341 | 0.300 | -0.086 | 0.105 |
| fisei | 0.605 | 0.402 | 0.779 | 1.000 | 0 | 0 | 0.384 | 0.351 | 0.344 | 0.258 | 0.286 | -0.021 | 0.028 |
| masei | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| misei | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| educ | 0.439 | 0.348 | 0.413 | 0.384 | 0 | 0 | 1.000 | 0.559 | 0.531 | 0.580 | 0.536 | -0.121 | 0.140 |
| aseil | 0.331 | 0.221 | 0.361 | 0.351 | 0 | 0 | 0.559 | 1.000 | 0.614 | 0.595 | 0.458 | 0.013 | -0.003 |
| iseil | 0.317 | 0.232 | 0.310 | 0.344 | 0 | 0 | 0.531 | 0.614 | 1.000 | 0.435 | 0.519 | 0.025 | -0.017 |
| asei | 0.275 | 0.203 | 0.341 | 0.258 | 0 | 0 | 0.580 | 0.595 | 0.435 | 1.000 | 0.643 | 0.033 | 0.002 |
| isei | 0.280 | 0.239 | 0.300 | 0.286 | 0 | 0 | 0.536 | 0.458 | 0.519 | 0.643 | 1.000 | 0.008 | 0.009 |
| age | -0.158 | -0.231 | -0.086 | -0.021 | 0 | 0 | -0.121 | 0.013 | 0.025 | 0.033 | 0.008 | 1.000 | -0.943 |
| cohort | 0.170 | 0.237 | 0.105 | 0.028 | 0 | 0 | 0.140 | -0.003 | -0.017 | 0.002 | 0.009 | -0.943 | 1.000 |