Money marries money intergenerational top household income mobility in Denmark Jens Bonke, M. Azhar Hussain, Martin D. Munk

IARIW 2016

Discussion : Sylvie Michaud

Statistics Canada

Overview

Intergenerational top income mobility: is there assortative mating

- Father with son/daughter, father with son-in-law/daughter-in-law
- Same with mother
- Correlation between two generations household income

In Denmark inter-generational mobility decreasing within top income and low at the very top (true in other countries)

Data source

Administrative registers for Denmark from 1980-2008

- Includes information on earnings, capital income, taxes, benefit payments, education, labour market attachment and it is linked longitudinally
- Study earnings, capital income and total income of people in their 30's (use positivie income, in constant 2008 dollars)
- Permanent income is based on 5-year periods
- Second generation is aged 35-42 years in 2008 (or 7-14 in 1980)
- Exclude singles from the regressions and outliers (1.5% of observations), but tested and did not impact much on results
- 172,800 pairs of married fathers and married daughters/sons (income)

Empirical framework

intergenerational income mobility :

 $\log y_{ci} = \alpha_c + \beta_c \log y_{pi} + \varepsilon_{ci}$

 y_{ci} : income of child in family i , y_{pi} : income of the corresponding parent B_c : intergenerational elasticity of the child's permanent income given the parent income ϵ_{ci} : error term

Model control for first generation's age and age square

Calculated correlation coefficients between the child's income and his/her partner's income If assortative mating in second generation is present, there should be a high correlation coefficient

Also modelled the family to family intergenerational income mobility :

 $\log y_{cpai} = \alpha_{cpa} + \beta_{cpa} \log y_{fmi} + \epsilon_{cpai}$

 y_{cpai} ; income and child i and his partner; y_{fmi} : family income of the father / mother

 B_{cpa} : intergenerational income persistence will be determined the parent to child channel and the assortative mating determinant

Empirical framework

Because social heritage is not equally strong acorss the whole distribution, spline regressions are used

Calculate estimations for parent child-parent pairs belonging to different parent income percentiles

Means that the B coefficients have to be interpreted as the percentage differential in the expected income (or earnings) of the parent within an income fractile

Table 1. De	scriptive statistics	for earnings	and total income	. Father-marrie	ed-child/child-i	n-law, and father-	couple – child-c	ouple. 1,000 DK	K. 2008-prices.	
		Mean	St.dev.	Min.	P10	P50	P90	P95	P99	Max.
Father-mark	ried son, n=135,7	85 and 164,15	55							
Earnings:	Father	358.4	217.82	0.6	192	313	407	552	696	8,799
-	Son	471.6	346.12	0.1	272	396	523	722	917	38,416
Income:	Father	365.7	263.16	0.2	181	314	412	564	724	12,821
	Son	512.3	427.62	0.0	285	425	563	785	1,008	41,869
Father-mark	ried daughter, n=.	132,307 and 1	72,800							
Earnings:	Father	352.4	221.09	1.1	188	310	401	540	681	17,219
C	Dau.	312.9	137.84	0.8	193	292	357	443	531	6,651
Income:	Father	358.8	274.51	0.1	175	310	405	553	706	24,909
	Dau.	337.9	180.15	0.0	204	313	388	484	579	34,262
Father- son-	-in-law, n=58,890	and 69,997 and								
Earnings:	Father	358.7	229.50	1.6	197	314	406	546	691	17,219
	Son-in-law	475.0	336.93	0.1	275	401	529	724	912	25,332
Income:	Father	368.9	288.75	1.0	190	318	414	562	721	24,909
	Son-in-law	518.2	412.21	0.2	290	432	572	792	1,011	25,297
Father- dau	ghter-in-law, n=8	6,600 and 113	3,245							
Earnings:	Father	360.7	220.23	0.7	193	315	409	556	701	8,799
-	Dain-law	305.3	134.18	2.0	187	285	349	435	520	6,695
Income:	Father	368.5	269.01	1.0	182	315	414	569	734	10,955
	Dain-law	332.5	159.70	0.0	202	309	381	476	570	8,937
Father and	mother- son and d	laughter-in-la	w, n=110,755 an	d 117,609						
Earnings:	Parents	463.5	239.62	0.7	238	434	548	696	829	8,799
-	Son/spouse	742.7	398.85	4.0	446	675	839	1,082	1,294	38,418
Income:	Parents	516.2	292.81	28.8	275	474	591	759	924	11,604
	Son/spouse	855.4	501.44	36.5	541	756	947	1,233	1,496	42,241
Father and	mother - daughter	and son-in-la	aw, n=92,343 and	l 97,474						
Earnings:	Parents	464.3	240.71	0.9	245	437	547	690	815	17,219
-	Da/spouse	745.9	370.11	3.6	450	680	843	1,086	1,301	25,548
Income:	Parents	517.0	298.91	38.7	283	478	591	752	907	25,072
	Da/spouse	858.2	463.83	36.5	546	762	952	1,237	1,506	24,860

Table 2. Earnings and income elasticities for father and children and children-in-law. Spline regression										
	<i>P0-25</i>	P25-50	<i>P50-75</i>	P75-90	<i>P90-95</i>	P95-99	P99-99.9	P99.9-100		
Earnings										
Son	0.022**	0.304**	0.413**	0.243**	0.281**	0.220**	0.162**	-0.076		
Daughter	0.018**	0.241**	0.264**	0.181**	0.148**	0.012	0.038	-0.239**		
Married son	0.016**	0.323**	0.430**	0.236**	0.256**	0.239**	0.111**	0.135		
Married daughter	0.017**	0.236**	0.265**	0.179**	0.139**	0.023	0.093*	-0.328**		
Son-in-law	0.008	0.241**	0.286**	0.187**	0.147*	0.099*	0.141*	-0.249*		
Daughter-in-law	0.017**	0.213**	0.193**	0.079**	0.01	0.041	0.01	-0.308*		
Total income										
Son	0.065**	0.390**	0.428**	0.345**	0.252**	0.288**	0.199**	0.466**		
Daughter	0.038**	0.331**	0.319**	0.243**	0.173**	0.094**	0.089**	0.037		
Married son (0.040**	0.350**	0.446**	0.355**	0.252**	0.310**	0.070*	0.879**		
Married daughter	0.025**	0.327**	0.317**	0.250**	0.184**	0.067**	0.138**	-0.05		
Son-in-law	0.006	0.314**	0.329**	0.226**	0.177**	0.077*	0.175**	-0.209*		
Daughter-in-law	0.029**	0.319**	0.200**	0.175**	0.034	0.051*	-0.086*	-0.219*		
* 0.05 <p<0.10. **="" ***="" 0.01<p<0.05.="" p<0.01<="" td=""></p<0.10.>										

Table 3. Earnings and income elasticities for mother and children and children-in-law.Spline regression.

	<i>P0-25</i>	P25-50	<i>P50-75</i>	P75-90	P90-95	P95-99	P99-99.9	<i>P99.9-100</i>
Earnings								
Son	0.013**	0.033**	-0.065**	0.295**	0.328**	0.277**	0.236**	-0.131
Daughter	0.013**	0.061**	0.018	0.325**	0.354**	0.178**	0.299**	-0.014
Married son	0.011**	0.030*	-0.060**	0.350**	0.258**	9.374**	0.132*	-0.054
Married daughter	0.010**	0.077**	0.018	0.313**	0.425**	0.220**	0.288**	0.029
Son-in-law	0.01	0.007	-0.02	0.292**	0.260*	0.062	0.162	-0.018
Daughter-in-law	0.014**	0.045**	-0.002	0.239**	0.276**	0.167**	0.111	0.251
Total income								
Son	0.019**	0.229**	-0 347**	0 110**	0 2 1 0 * *	0 002**	0 074**	0.004
		0.222	-0.5-77	0.448	0.348^{**}	0.293^{**}	$0.2/4^{***}$	0.094
Daughter	0.019**	0.168**	-0.153**	0.448**	0.348** 0.361**	0.293** 0.232**	0.274**	-0.094 -0.006
Daughter Married son	0.019** 0.018**	0.168** 0.187**	-0.153** -0.281**	0.434** 0.498**	0.348** 0.361** 0.258**	0.293** 0.232** 9.378**	0.274*** 0.220** 0.190**	-0.006 0.14
Daughter Married son Married daughter	0.019** 0.018** 0.015**	0.168** 0.187** 0.157**	-0.153** -0.281** -0.124**	0.448** 0.434** 0.498** 0.438**	0.348** 0.361** 0.258** 0.360**	0.293** 0.232** 0.378** 0.268**	0.274*** 0.220** 0.190** 0.293**	-0.006 0.14 -0.075
Daughter Married son Married daughter Son-in-law	0.019** 0.018** 0.015** 0.016**	0.168** 0.187** 0.157** 0.060**	-0.153** -0.281** -0.124** -0.136**	0.448** 0.434** 0.498** 0.438** 0.347**	0.348** 0.361** 0.258** 0.360** 0.213*	0.293** 0.232** 0.378** 0.268** 0.208**	0.274*** 0.220** 0.190** 0.293** 0.160*	-0.094 -0.006 0.14 -0.075 -0.049

* 0.05<p<0.10. ** 0.01<p<0.05. *** <0.01

Table 4. Correlations1 between second generation husband's and wife's income.Separately for earnings and total income. Quantile regression.

	q=0.25	q=0.50	q=0.75	q=0.90	q=0.95	q=0.99	q=0.995
<i>Earnings</i> . Son and daughter-in-law Daughter and son-in-law	0.155*** 0.070***	0.157*** 0.113***	0.153*** 0.152***	0.120*** 0.196***	0.096*** 0.212***	0.027 0.202***	0.021 0.200***
<i>Total income</i> . Son and daughter-in-law Daughter and son-in-law	0.280*** 0.164***	0.258*** 0.199***	0.214*** 0.224***	0.135*** 0.249***	0.104*** 0.245***	0.035 0.188***	0.004 0.165***

* 0.05<p<0.10. ** 0.01<p<0.05. *** p<0.01.

All calculations based on father-son and father-daughter samples controlled for age in the regression analyses.

Table 5. Earnings and income elasticities for first and second generation families.Pooled incomes. Spline regression.

	OLS	P0-25	P25-50	P50-75	P75-90	P90-95	P95-99	P99-99.9 P99.9-100
Earnings								
Son and wife	0.187***	0.064**	0.268**	0.273**	0.404**	0.325**	0.220**	-0.052 0.259**
Daughter& husband	0.167***	0.055**	0.260**	0.214**	0.390**	0.266**	0.085*	0.119* -0.154
Total income								
Son and wife	0.256***	0.137**	0.233**	0.364**	0.448**	0.285**	0.264**	0.014 0.763**
Daughter & husband	0.223***	0.118**	0.211**	0.344**	0.376**	0.299**	0.123**	0.216** 0.018

* 0.05<p<0.10. ** 0.01<p<0.05. *** p<0.01

Conclusions

this study examined mother's/child elasticity

Intergenerational elasticity is higher for income than earnings

Elasticity is smaller for father/daughter than father/son

Mother-child relative intergenerational elasticity similar between earnings and income (at the top of the distribution)

At the very top of the income distribution, persistence of income is high for sons (.466) but not significant for daughters

Income elasticity is greater than earning elasticity for father/married son than for father/married daughter relationship

Questions for the authors

General observation

- Ambitious research project : too ambitious ?
- Could have more details / charts to support some assumptions
- Could be helpful to have some hypothesis / assumptions to explain the results

Data

- father's age between 25-88; have you restricted permanent income to 35-42 like for children?
- If the chidlren's age is 35-42 in 1988, it means 31-38 in 2004; is that too early as a good measure of permanent income ?
- Is the choice of the age group for women a good proxy for permanent income ? Is it too early ?

Questions for the authors

Data

- ▶ Is the sample large enough to support a study of the 0.1%
- There are different sample sizes for the pairs of earnings and the pairs of income; are the models based on the subset of people that have pairs for both earnings and income ?
- Removing the negative income ? Is this the right decision ? (could take the average of the 5 years and then take the log)
- Have such a rich data source; you could use the income of the parents in laws and calculate correlations directly with the parents income
- Have many other variable such as education and labour market that could be used to explain or confirm some hypothesis

