

Family structure & gaps by maternal education in educational attainment: a comparative perspective

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Mother's educational raw gaps in reading



Sample sizes in the left panel: France 8 149, Germany 3 249, US 7 669, UK 6 429. Sample sizes in the right panel: France 20 759, Germany 1 935, US 7 054, UK 5 348.

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Mother's educational raw gaps in math



Sample sizes in the left panel: France 8 483, Germany 3 249, US 7 678, UK 6 447. Sample sizes in the right panel: France 20 759, Germany 2 016, US 7 098, UK 5 425.

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Family structure and instability from the child's point of view



Child ever out of union by age (cumulative %)

Ever again in union for children experiencing parental separation (cumulative %) by time since separation



Data from Andersson, et al. (2017) for Germany, France and US, and Panico et al. 2010 for UK.





- A strong SES gap in math and reading scores
- Children's life-course trajectories are becoming increasingly complex and diverse
- Children exposed to non-traditional families report less positive outcomes
- Family transitions disproportionately affect disadvantaged children, who already have fewer social, economic and cultural resources, and undermine their life chances.



- To what extent are family structure and instability associated with math and reading skills during primary and lower secondary school?
- To what extent do family structure and instability account for mother educational gaps in math and reading skills during primary and lower secondary school?
- Do these associations vary across four high-income countries (US, England, France, Germany)?

Data



	FRANCE		GERMANY		US		ENGLAND	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Survey	DEPP	DEPP	NEPS-SC2 (Kinderga rten)	NEPS-SC3 (Grade 5)	ECLS-K		MCS	
Birth cohorts	2005-06	2000-01	2005-06	1998-2000	1994		2000-02	
Period of observation	2012-16	2008-11	2012-16	2010-15	2000-07		2008-12	2012-17
T1	Age 6 (CP)	Age 11 (6 ^{ème})	Age 6 (Grade 1)	Age 11 (Grade 5)	Age 6 (Grade 1)	Age 11 (Grade 5)	Age 7 (Y2)	Age 11 (Y6)
Т2	Age 10 (CM2)	Age 14 (3 ^{ème})	Age 10 (Grade 4)	Age 15 (Grade 9)	Age 11 (Grade 5)	Age 14 (Grade 8)	Age 11 (Y6)	Age 16 (Y11)ª
Sampling	Random sample from national administrative pupil register		School-based sampling		School-based sampling		Area-based sampling	
Original sample size	15,188	34,986	6,734	5,208	21260		18,552	
Analytical sample	8,483	20,759	3,249	2,016	7,678	7,098	6,447	5,425

Method



Outcomes: math and reading score at the end of each school level (primary and secondary), Z scores to be comparable

SES stratifier: mother's education

Variable of interest: family structure and family instability (inspired from McLanahan 2015)

- Stable two parent (biological or adopted) family
- Stable stepfamily
- Stable single mother
- Stable others
- Transition to single mother
- Transition to mother & stepfather
- Other type of transition

Family trajectories at each school level



Family trajectories by mother's education, primary



Family trajectories by mother's education, lower secondary



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Q1: Associations between family trajectories and scores: primary

France

Score gaps at the end of primary



Associations between family trajectories and scores: primary





Associations between family trajectories and scores: lower secondary





Score gaps at the end of lower secondary England Reference: stable two parents





Score gaps at the end of lower secondary



In addition to family structure, we control step by step for:

 Conventionnal controls: child sex, age at T2, foreign born parents, number of siblings, urban/rural area

Alternatively

- Initial level of both scores (at the beginning of the school level)
- Household equivalized Income at T1
- Both initial level and income

Still an effect of family structure once initial level, income and other controls included?



MATH	FRANCE		GERMANY		US		ENGLAND	
	primary	secondary	primary	secondary	primary	secondary	primary	secondary
Stable two bio parents	ref	ref	ref	ref	ref	ref	ref	ref
Stable mother and stepfather	0.033	-0.052**	-0.061	-0.149*	-0.038	-0.051	-0.100*	-0.120**
Stable single mother	-0.038	-0.087***	-0.150**	-0.04	-0.133***	-0.052**	-0.043	-0.046
Stable others	-0.006	-0.008	-0.257*	-0.308**	-0.114	-0.098	-0.055	-0.071
Transition to single mother	-0.077	-0.080***	-0.198*	-0.037	-0.076*	-0.061	-0.046	-0.167***
Transition to mother and stepfather	-0.021	-0.083**	-0.122*	-0.246*	-0.036	0.03	-0.147**	-0.069
Other type of transition	-0.018	-0.041*	0.031	0.091	-0.008	-0.105*	-0.097	-0.012
Ν	8,483	20,759	3,249	2,016	7,678	7,098	6,447	5,425
R2	0.361	0.69	0.387	0.514	0.62	0.722	0.466	0.606

Q2: Drivers of maternal education gaps throughout the models, US



Maths - End of primary

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Maternal education gaps throughout the models







How much of the educational gap does family structure explain?





Much less than income...





Conclusions



- To what extent are family \succ structure and instability associated with math and reading skills during primary and lower secondary school?
- To what extent do family structure and instability account for mother educational gaps in math and reading skills during primary and lower secondary school?
- Do these associations vary across four high-income countries (US, England, France, Germany)?

- They are systematically associated but not so much so once initial scores and income are taken into account, depends of school level, family arrangement and country. Almost always a lone mother penalty.
- To a small extent, less than income. Importance of initial scores.

FS contribution larger in US and England relatively to France and Germany. Less welfare compensation?

Other results



- Role of family on **math or reading**: with some rare exceptions, very similar results. While the educational gap is a bit stronger for math than reading, the topic is not of importance for the family trajectory role.
- Role of family **by school level**: larger effect of family in France for secondary level than primary and also England, similar in the US.
- Transitions versus stable family situations: no clear differences. It seems that scores are the result of a multiprocess that depends on both current and past family trajectories, but only marginally relatively to other factors.



Most limitations are linked to country comparisons.

Not exactly the same child cohorts, older cohorts for US and England.

In France and Germany, not the same cohort observed.

Priority to family categorization comparable between countries (only two points of observation, grouping of other categories), no marital status (not asked in France)