



BIPE Project

Social and ethnic biases in primary education



SES GRADIENT IN TEACHER BIAS & ITS MEDIATORS

Teacher perceptions of academic abilities of primary school students in England, Scotland, and Germany

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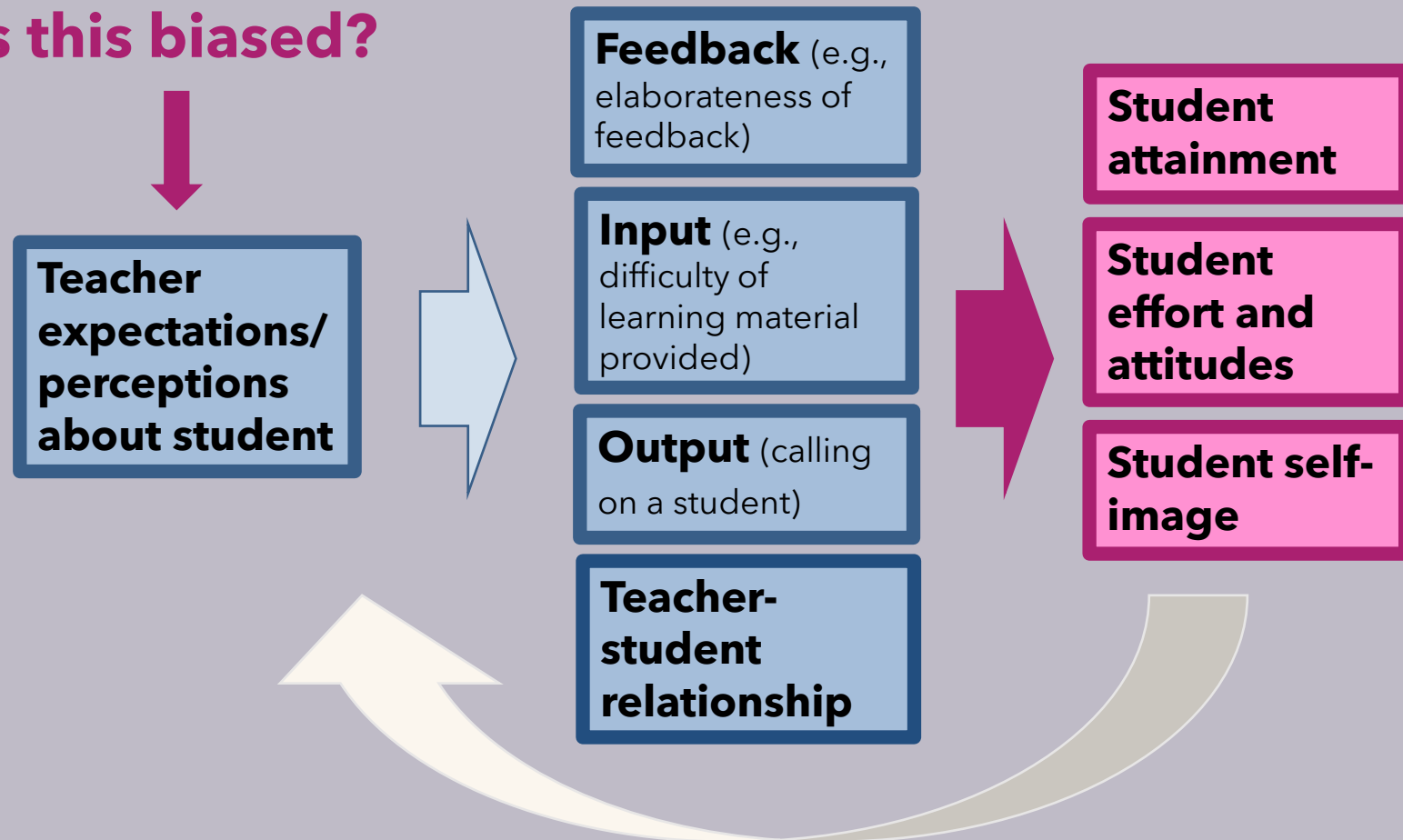
The background is a complex geometric composition. It features a grid of squares and triangles in various colors including shades of blue, pink, purple, and grey. Overlaid on these shapes are several patterns: concentric circles, parallel lines, and a grid of small dots. A white horizontal line with a circular dot at its end extends from the left side of the image towards the text.

THEORETICAL BACKGROUND

MOTIVATION

Self-fulfilling prophecies and feedback loops

Is this biased?



OUR FOCUS

Self-fulfilling prophecies and feedback loops

Is this biased?

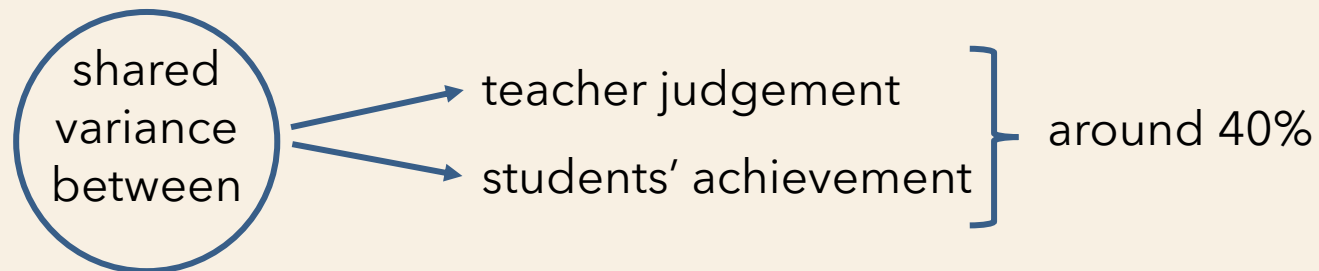


**Teacher
expectations/
perceptions
about student**

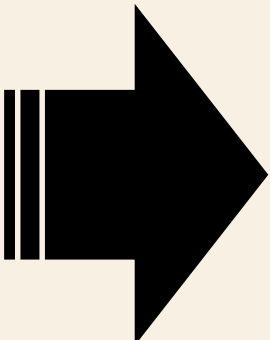
TEACHER JUDGEMENTS & JUDGEMENT BIAS

ACCURACY of teacher judgement varies

From meta-analysis by (Sudkamp et al, 2012)



The remaining variance is **INACCURACY**, (positively or negatively) biased teacher judgement



Empirical evidence shows that students from more socioeconomically disadvantaged families often face lower teacher expectations vis-à-vis their objective achievement measures **JUDGED MORE INACCURATELY**

(e.g., Olczyk et al, 2022; Lorenz et al., 2016; Tobisch & Dresel, 2017; Campbell, 2015; Lee & Newton, 2021; Plewis, 1997; Alvidrez & Weinstein, 1999)

STUDENT SOCIO-ECONOMIC BACKGROUND - I

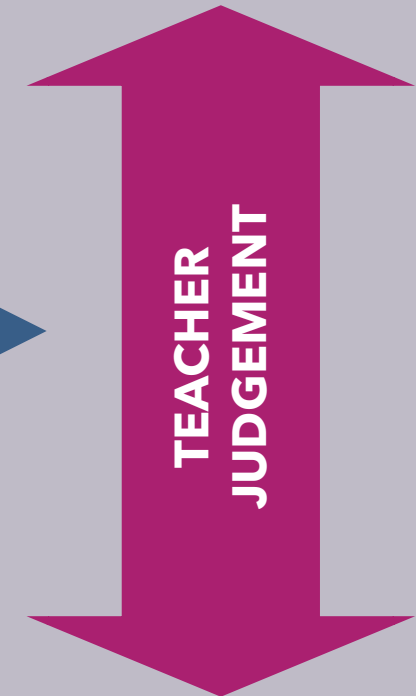
Bourdieu's **CULTURAL REPRODUCTION**

Teachers as gatekeepers: consciously or unconsciously rewarding skills and behaviours of children that are 'closer' to the *culture* of the school.

Teacher's assessments of student's performance and abilities might be affected by students' (and their families') **cultural capital**, expressed as/by:

- ❑ linguistic aptitude of a child (i.e., how they express themselves, their accents, their mannerism, etc.)
Bourdieu and Passeron, 1964
- ❑ extracurricular activities, reading habits, cultural activities (e.g., museum visits), cultural communication at home (e.g., about politics)
Lareau, 2003; DiMaggio 1982; Bodovski and Farkas 2008; Jaeger and Møllegard 2017
- ❑ parental support (e.g., parent-school contact, parent's interest in child's education)
e.g., Barg 2013, 2015

Automatic judgements guided by stereotypes



Information-based judgements

STUDENT SOCIO-ECONOMIC BACKGROUND - II

Bowles and Gintis' **CORRESPONDENCE THEORY**

School systems correspond to the labour market and the work-place: teachers - like employers - reward certain non-cognitive skills depending on the roles and positions of a student/employee.

Bowles and Gintis 1976

Teachers take into account non-cognitive skills when cognitive skills only are assessed.

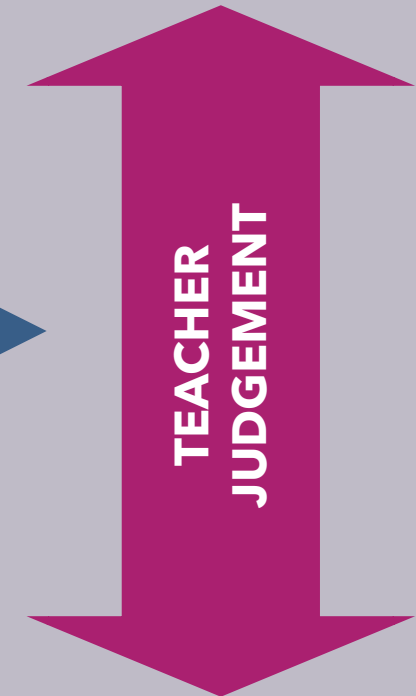
Farkas et al 1990

Teachers consider habits and traits such as perseverance, dependability, docility, consistency, homework completion, participation in class, effort and organisation when assessing children's abilities.

Bressoux and Pansu 2003; Ditton and Krüsken 2006; Farkas et al. 1990; Maaz & Nagy, 2009

Low-SES students and high-SES are rewarded for different traits & habits, for example obedience and independent thinking, respectively.

Automatic judgements guided by stereotypes



Information-based judgements

TEACHERS, SCHOOLS, EDUCATIONAL SYSTEMS

TEACHER PERSONAL CHARACTERISTICS:

attitudes, knowledge, mindset, etc.

INSTITUTIONAL CONTEXT:

conditions and regulations on schools, school system, teacher training, norms & values, cultural-cognitive beliefs

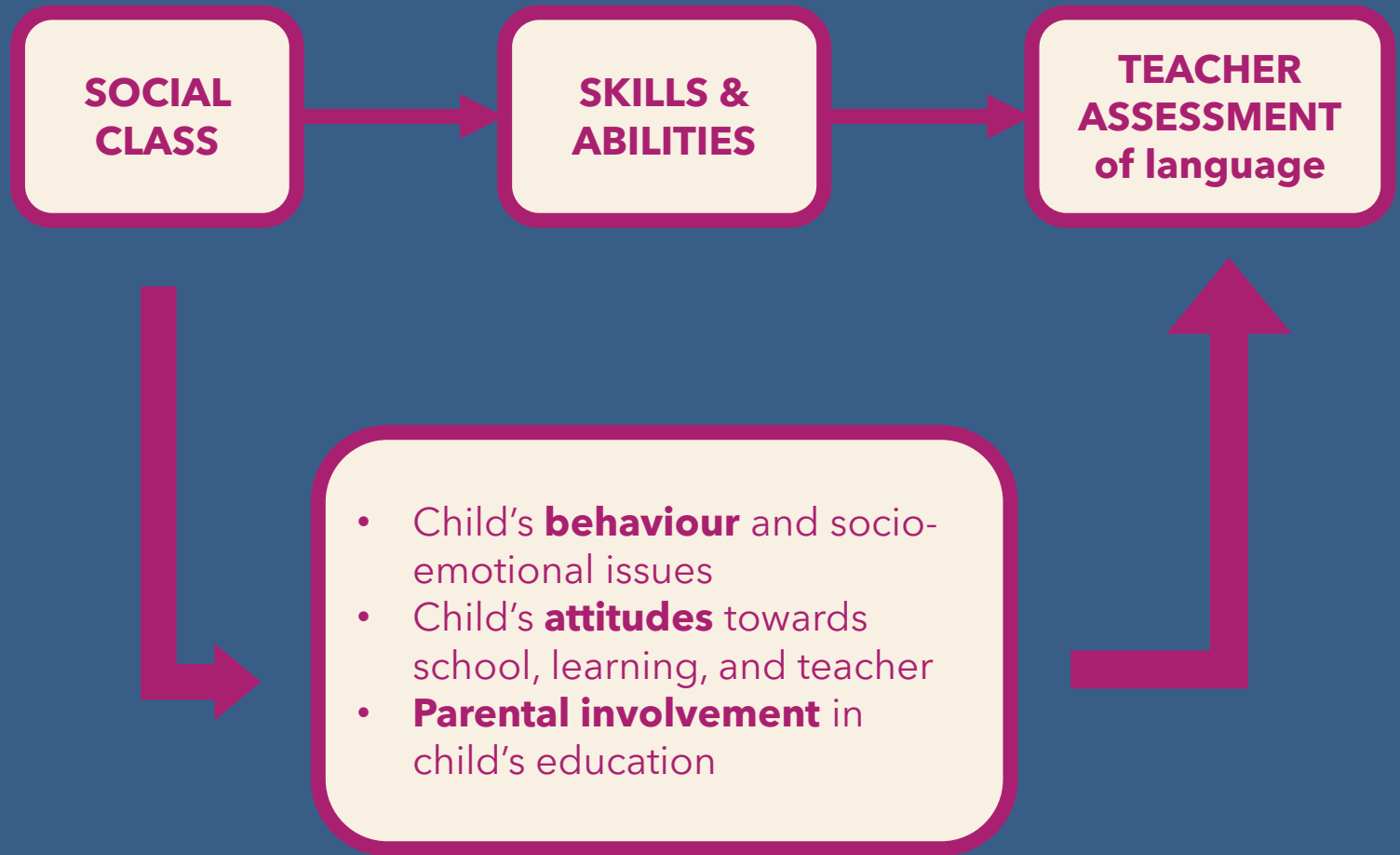
SITUATIONAL CHARACTERISTICS:

time pressure, judgement goals, social cues, etc.

Automatic judgements guided by stereotypes

TEACHER
JUDGEMENT

Information-based judgements



FRAMEWORK

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DATA & METHODOLOGY

DATASETS

	ENGLAND	SCOTLAND	GERMANY
Data set	Millennium Cohort Study (MCS)	Growing Up in Scotland (GUS)	National Educational Panel Study (NEPS)
PSU	Electoral Wards	(aggregated) Data Zones	Schools
Stratification	(within UK countries) - ethnic, disadvantaged, advantaged	Local Authorities	
Sample at wave 1	(in England) 11,533 cohort members and their families	5,217 cohort members and their families	2,996 (sampled in Kindergarten) + 6,341 sampled in GR1)
Birth Cohort	2000-2001	2004-2005	2005 - 2006

ANALYTICAL SAMPLES

Our **target analytical sample(s)** are defined as:

CMs productive at T2 wave, with a non-missing T2 ability score & T2 teacher rating

		ENGLAND	SCOTLAND	GERMANY
T0	start of primary school	Wave 3 Reception Year age 4/5	Wave 5 Primary 1 age 4/5	Wave 3 Grade 1 age 6/7
T1	during primary school	Wave 4 Year 2 age 7/8	Wave 7 Primary 1 age 7/8	Wave 4 Grade 2 age 7/8
T2	end of primary school	Wave 5 Year 6 age 10/11	Wave 8 Primary 6 age 9/10	Wave 5 Grade 3 age 8/9
ANALYTICAL SAMPLES	target	6,085	1,758	4,256
	achieved	5,683	1,573	2,227

VARIABLES I

	time	ENGLAND	SCOTLAND	GERMANY
Language skills, test	T2	BAS II Verbal Similarities	WIAT-II Listening Comprehension	Receptive vocabulary (PPVT)
Teacher rating of child's language skills	T2	<p>In so far as your professional experience will allow, please rate the child in relation to all children of this age in English</p> <p><i>[well above average, above average, average, below average, well below average]</i></p>	<p>Please indicate at which stage this child is currently working at in these areas:</p> <ul style="list-style-type: none"> • Listening and talking • Reading • Writing <p><i>[developing, consolidating, securing]</i></p>	<p>Please assess the following skills and abilities of the child. Compare your child with other children of the same age: language skills in German written language skills (reading & writing)</p> <p><i>[much worse, slightly worse, just as good, slightly better, much better]</i></p>
SES	T1	(unweighted) income quintiles created using equivalised disposable income		
Prior ability (language skills)	T0	BAS II Naming Vocabulary	BAS II Naming Vocabulary	<ul style="list-style-type: none"> • Receptive vocabulary (PPVT) • Grammar (TROG-D)
Other cognitive skills	T0*	<ul style="list-style-type: none"> • BAS II Picture Similarities • BAS II Pattern Construction 	BAS II Picture Similarities	<ul style="list-style-type: none"> • DGCF (NEPS-MAT): mental performance • DGCF (NEPS-BZT): information processing

VARIABLES II

	time	ENGLAND	SCOTLAND	GERMANY
CHILD'S BEHAVIOUR & OTHER SOCIO-EMOTIONAL ISSUES				
Validated scales	T2	SDQ subscales (emotional issues, conduct problems, hyperactivity & inattention, peer problems, prosocial behaviour)		<ul style="list-style-type: none"> TASB: Disruptive behaviour scale BIG 5 (Neuroticism, Conscientiousness, Agreeableness)
CHILD'S ATTITUDES TOWARDS SCHOOL, LEARNING & TEACHERS				
Effort	T2	How often do you try to do your best at school? <i>[all of the time, most of the time, some of the time, never]</i>	How often do you try to do your best at school? <i>[all of the time, most of the time, some of the time, never]</i>	I try hard when tasks are difficult <i>[completely disagree, rather disagree, rather agree, completely agree]</i>
School enjoyment	T2	I like school <i>[not at all, a bit, a lot]</i>	I look forward to going to school <i>[never, sometimes, often, always]</i>	I like going to school <i>[completely disagree, rather disagree, rather agree, completely agree]</i>
Academic self-concept	T2	I am good at English <i>[strongly agree, agree, disagree, strongly disagree]</i>	I am good at reading <i>[strongly agree, agree, disagree, strongly disagree]</i>	
TSR	T2	<ul style="list-style-type: none"> How much do you like your class teacher? <i>[a lot, a little, not at all]</i> How often do you think your class teacher is getting at you? <i>[all of the time, most of the time, some of the time, never]</i> 	<ul style="list-style-type: none"> How much do you like your class teacher? <i>[all of the time, most of the time, some of the time, never]</i> My teacher treats me fairly. <i>[never, sometimes, often, always]</i> 	

VARIABLES III

	time	ENGLAND	SCOTLAND	GERMANY
PARENTAL INVOLVEMENT (school-based)				
Parents' evening	T1	During this school year has anyone at home been to a parents' evening or similar event at CM's school? <i>[yes, no, no - parent's evening has not taken place yet]</i>	Since last interview, have you or your partner attended a parents' evening? <i>[yes, no]</i>	How often do you visit the parent/teacher conferences? <i>[never, rarely, sometimes, often, very often]</i>
Other (specifically arranged) meetings	T1*	Apart from parents' evenings, have you or your partner had any specially arranged meetings with teachers about how CM is doing at school, during this school year? <i>[no meeting, meeting arranged by parents, meeting arranged by teachers, meeting arranged by both, meeting arranged by neither]</i>		How often do you contact teachers outside the parent teacher conferences and open school days regarding behaviour, performance or problems of CM? <i>[never, rarely, sometimes, often, very often]</i>
Volunteering / extra activities	T1	Thinking about CM's school, do you or your partner get involved with any of the things listed on this card? <i>[help out in class or elsewhere (library, school, trips, etc.), fundraising, sports day, drama groups, PTA, school board, ...]</i>	Have you or your partner participated in any of the following activities at your child's school? <i>[volunteer in the classroom/library/school office, PTA, Parent Council, school board, school trip, fundraising, ...]</i>	How often do you engage with the PTA? <i>[never, rarely, sometimes, often, very often]</i> How often do you help with the organisation of parties or events? <i>[never, rarely, sometimes, often, very often]</i>

VARIABLES IV

	time	ENGLAND	SCOTLAND	GERMANY
PARENTAL INVOLVEMENT (home-based)				
Parents' interest in child's school life	T1*	How often do your parents take an interest in your schoolwork? <i>[all of the time, most of the time, some of the time, never]</i>	My parents ask about my day in school <i>[never, sometimes, often, always]</i>	How often do your parents ask how school was? <i>[never, seldomEd, sometimes, often, very often]</i>
Parental educational aspirations	T1	Would you like CM to stay in full-time education after the minimum school leaving age, that is, after 16? <i>[yes, no]</i>	What would you most like CM to be doing at age 16? <i>[staying on at school, go to college/further education, enter family business, start working, start a training course/apprenticeship, do voluntary work, care for a child/family member, start their own family]</i>	No matter which school CM is currently attending or how good their grades are, what school-leaving qualification would you like them to obtain? <i>[Fachhochschulreife, Hochschulreife, Abitur]</i>
Opinions on education	T1*	How much do you agree or disagree that nowadays you need qualifications in order to get a job worth having? <i>[strongly agree, agree, disagree, strongly disagree, DNK/not wish to answer]</i>	<ul style="list-style-type: none"> It's more important to go out and get a job than to take time gaining lots of qualifications, How well a child does in their education will affect how well they do in life. <i>[strongly agree, agree, neither agree or disagree, disagree, strongly disagree]</i>	My friends expect that I would educate CM as well as possible. <i>[does not apply at all, does not really apply, partially applies, applies to some extent, applies completely]</i>



ANALYTICAL STRATEGY

STEP 1: ESTIMATE RESIDUALS

Are teacher's perceptions accurate or inaccurate, i.e., are they negatively or positively biased?

STEP 2: UNIVARIATE ANALYSIS

Is there a SES gradient in (biased) teacher perceptions?

STEP 3: VALUE-ADDED OLS

Is the SES gradient (partially) reduced by any of the sets of MEDIATORS?

TEACHER BIAS: RESIDUALS

METHODOLOGY

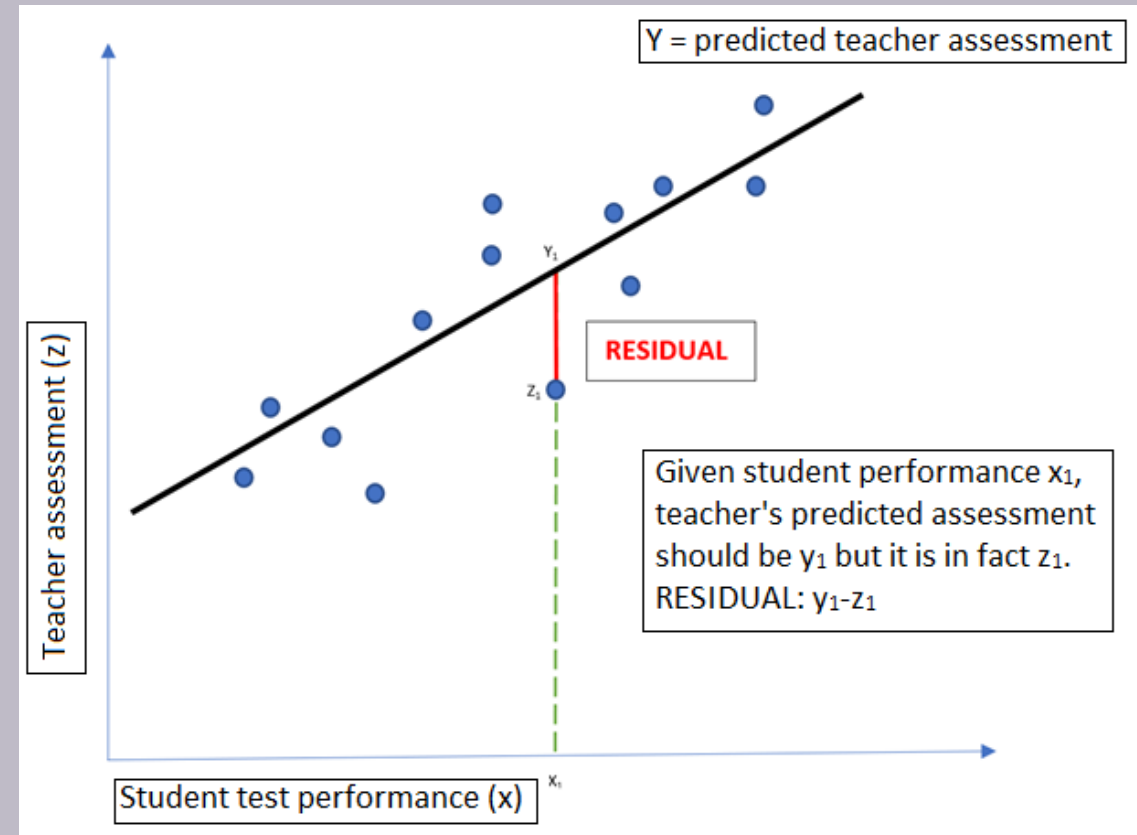
1. Standardise teacher assessment & student performance & student measure;
2. OLS regression of teacher assessment on student performance (& prior ability, other cognitive skills, age at time of testing)
3. Compute residuals
4. Standardise residuals

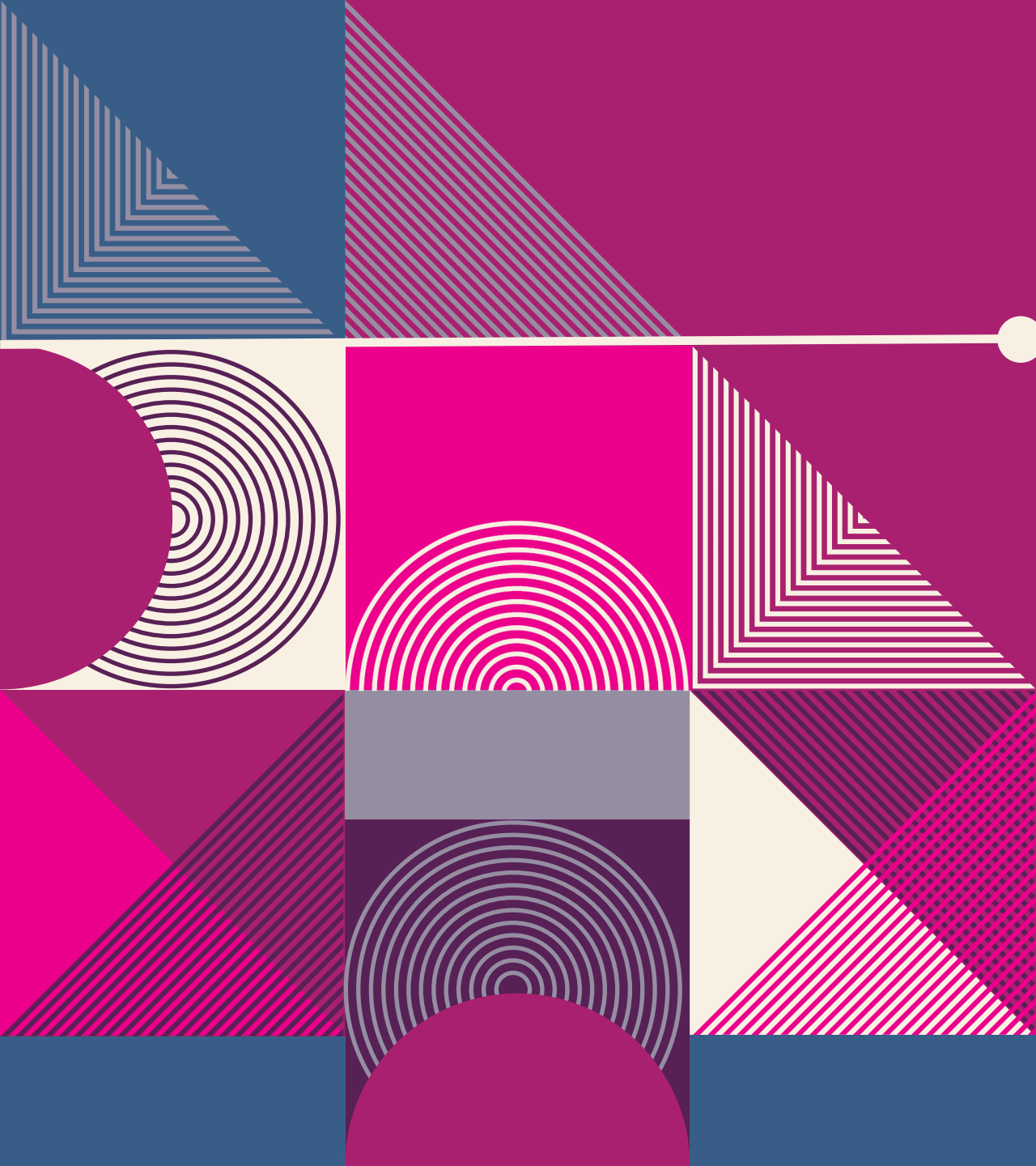


POSITIVE residuals = teacher overestimates student's attitude



NEGATIVE residuals = teacher underestimates student's attitude





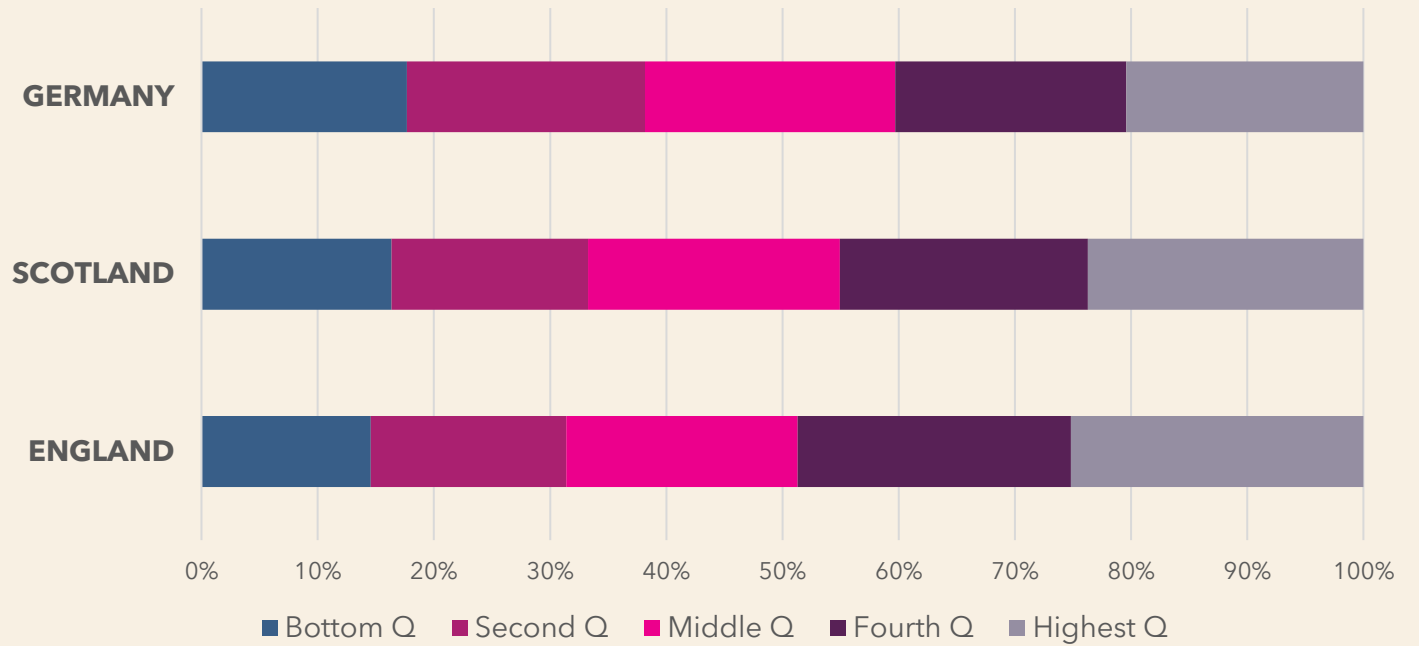
RESULTS

T2 ABILITY & TEACHER RATING

		MAXIMUM SAMPLE			COMMON SAMPLE		
		mean	SD	N	mean	SD	N
ENGLAND	T2 - Language skills ability	58.35	10.07	8474	59.52	9.36	4695
		Well below average	4.4		2.9		
		Below average	15.1		13.6		
	T2 - TR English	Average	35.3	6168	34.7		4695
		Above average	32.1		34.1		
	Well above average	13.2		14.7			
SCOTLAND	T2 - Language skills ability	99.11	13.02	3094	100.12	12.39	1573
		Developing	26.7		25.3		
	T2 - TR listening & talking	Consolidating	57.7	1774	58.5		1573
		Securing	15.7		16.2		
		Developing	27.4		25.6		
	T2 - TR reading	Consolidating	55.1	1782	56.1		1573
	Securing	17.6		18.3			
	Developing	34.6		32.9			
T2 - TR writing	Consolidating	53.3		1783	54.6		1573
	Securing	12.1		12.5			
GERMANY	T2 - Language skills ability	2.51	0.94	5600	2.68	0.86	2655
		Much worse	4.5		2.9		
		Slightly worse	16.7		13.8		
	T2 - TR Vocabulary & sentence construction	Just as good	35.5	4471	34.4		2655
		Slightly better	25.6		28.4		
		Much better	17.7		20.6		
		Much worse	6.8		4.8		
		Slightly worse	20.5		17.6		
T2 - TR Reading & writing	Just as good	32.2	4466	32.1		2655	
	Slightly better	24.8		27.1			
	Much better	15.7		18.5			

T1 INCOME QUINTILE DISTRIBUTION

INCOME QUINTILE DISTRIBUTION
Common sample

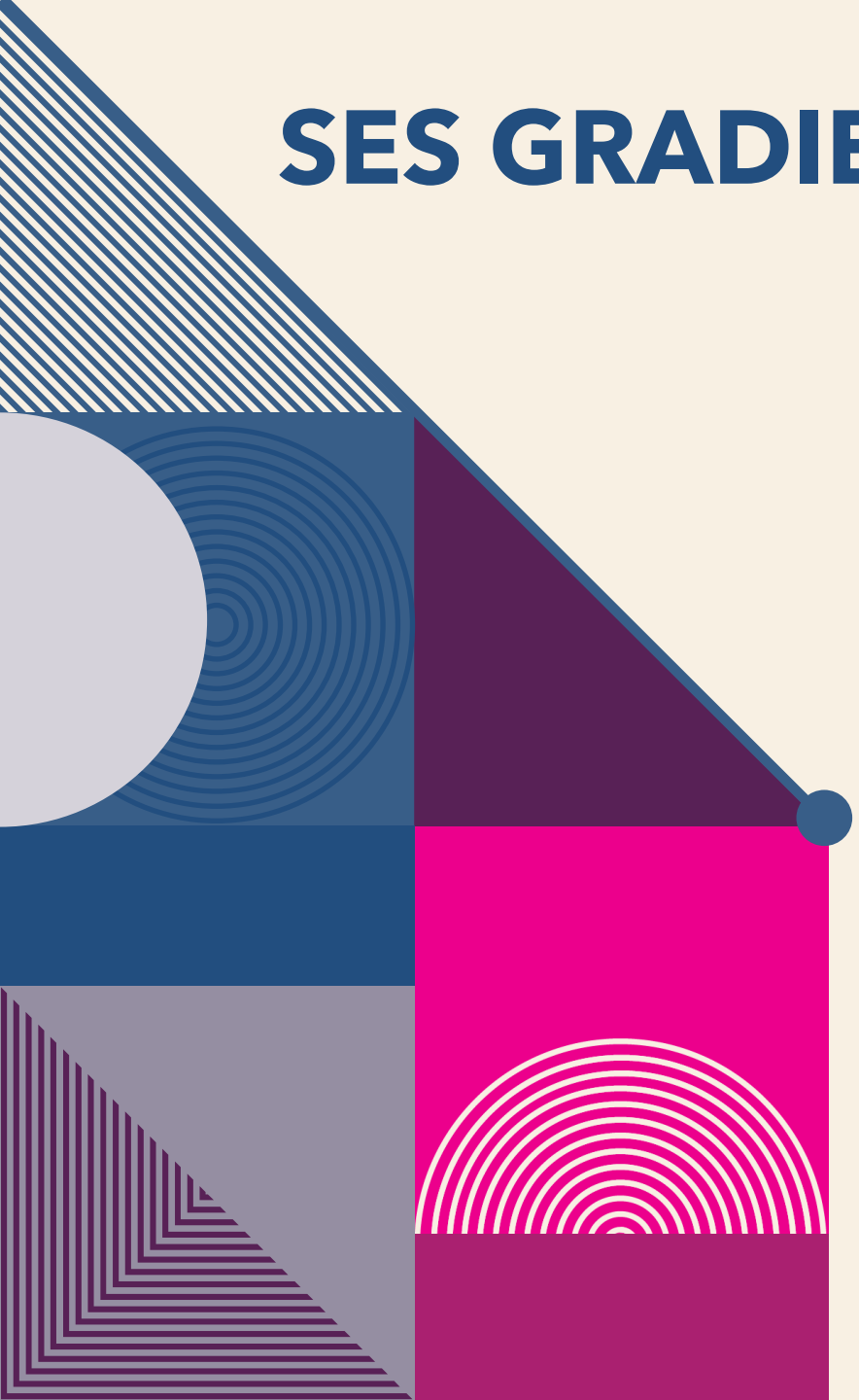


ESTIMATING TEACHER BIAS

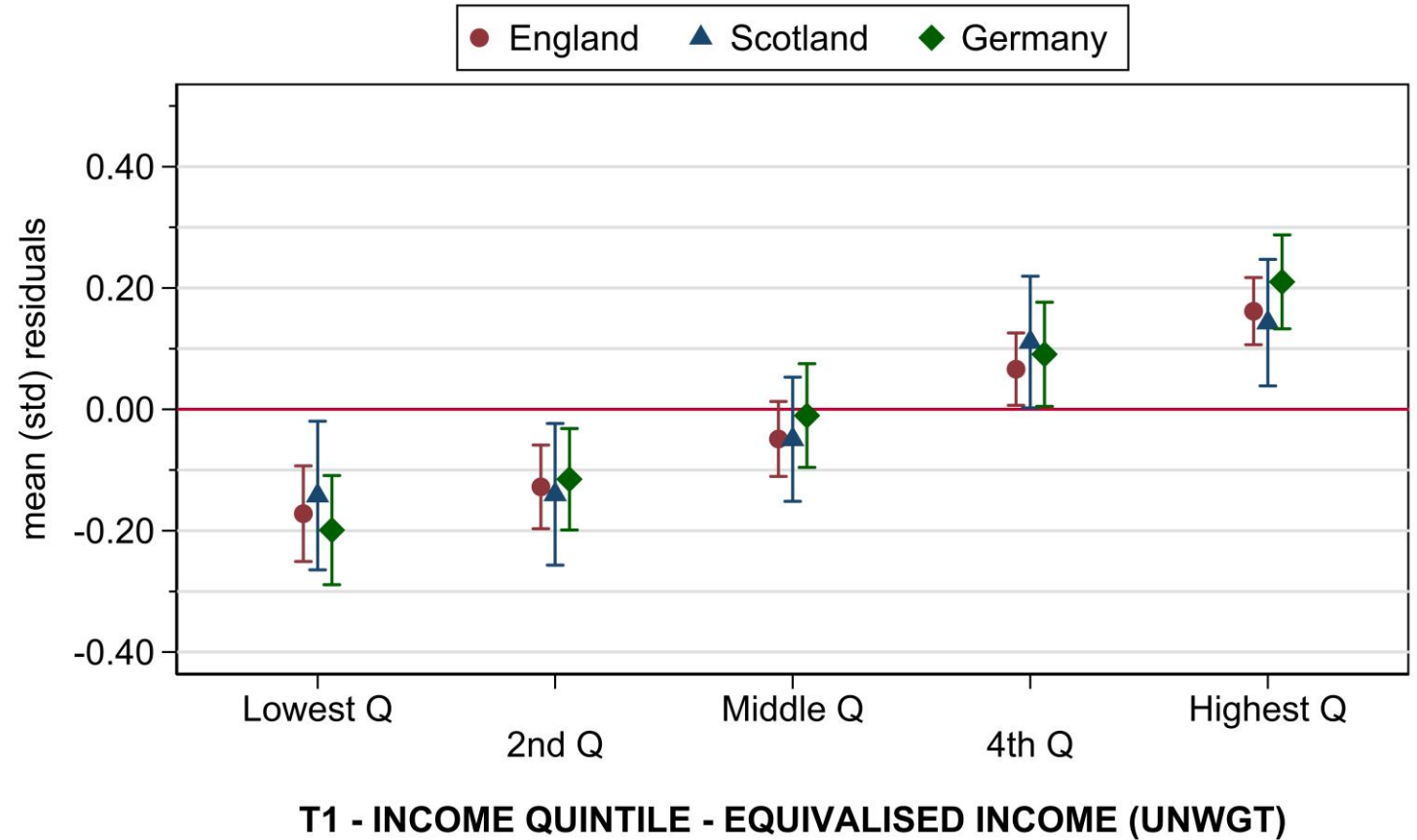
	ENGLAND	SCOTLAND	GERMANY
T2 - TEST SCORE (Language skills), std	0.263*** (0.014)	0.230*** (0.027)	0.149*** (0.026)
T2 - age at time of testing (in months)	0.035*** (0.005)	0.035*** (0.007)	0.007 (0.008)
T0 - PRIOR LANGUAGE SKILLS I, std (E & S) BAS Naming Vocabulary; (G) PPVT	0.206*** (0.014)	0.140*** (0.027)	0.060* (0.026)
T0 - PRIOR LANGUAGE SKILLS II, std (E & S) ; (G) Grammar (TROG-D)			0.256*** (0.022)
T0 - OTHER COG. ABILITIES I, std (E & S) BAS Picture Similarities; (G) DGCF MAT	0.075*** (0.013)	0.057* (0.025)	0.173*** (0.018)
T0 - OTHER COG. ABILITIES II, std (E) BAS Pattern Construction; (S); (G) DGCF BTZ	0.197*** (0.014)		0.027 (0.017)
<i>age controls</i>	X	X	X
Constant	-6.160*** (0.426)	2.124 (3.412)	1.955*** (0.391)
N° of Observations	4695	1573	2655
R ²	0.286	0.130	0.233

STATISTICAL SIGNIFICANCE	
+	p<0.10
*	p<0.05
**	p<0.01
***	p<0.001

SES GRADIENT IN TEACHER ASSESSMENTS

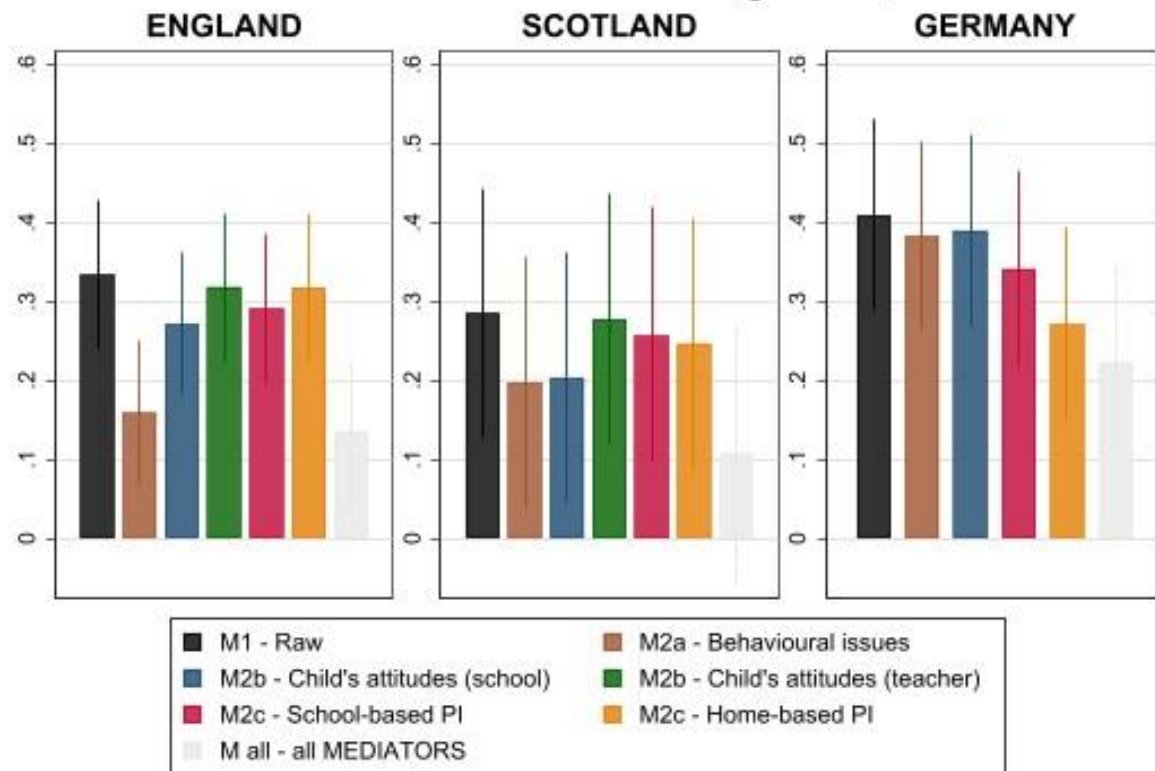


Student's academic ability: Language Skills



MEDIATORS OF SES GRADIENT

SES GAP: Bottom vs. Highest Q



	M2a	M2b_1	M2b_2	M2c	M2d	M ALL
ENGLAND						
REDUCTION, compared to M1	-0.17 *** (0.02)	-0.06 *** (0.02)	-0.02 ** (0.01)	-0.04 *** (0.01)	-0.02 *** (0.01)	-0.2 *** (0.02)
%	52.3	18.7	4.6	12.8	4.9	59.5
SCOTLAND						
REDUCTION, compared to M1	-0.09 *** (0.02)	-0.08 *** (0.02)	-0.01 (0.01)	-0.03 (0.02)	-0.04 ** (0.02)	-0.18 *** (0.04)
%	30.8	28.6	2.6	10.1	13.4	62.5
GERMANY						
REDUCTION, compared to M1	-0.03 * (0.02)	-0.02 * (0.01)		-0.07 *** (0.02)	-0.14 *** (0.02)	-0.19 *** (0.03)
%	6.5	4.7		16.5	33.8	45.4



CONCLUSIONS

MAIN TAKEAWAYS

Is teacher assessment biased?

Is there an SES-gradient to this bias?

What mediates this SES-gradient?

- In all three countries, teacher assessments appear to be only partially accurate (at most 30% of its variation is explained by T2 language skills, T0 prior domain-specific abilities, and T0 non-domain-specific abilities)
- Teacher assessment seems to reflect T2 language skills (and the controls) more in England (and Germany) than in Scotland.
- Teacher assessments is strongly graded along SES-lines: the language abilities of students from the top (bottom) two quintiles are overestimated (underestimated) in a statistically significant way
- The modelled mediators account for 45%-63% of the SES-gap but with differences across countries

DISCUSSION POINTS

Is the difference in explained variance of teacher assessment due to higher/lower levels of TEACHER BIAS or to teacher evaluating language skills in a different way (compared to a cognitive test)?

- In Scotland, the Curriculum for Excellence has a broader and well-rounded approach to skills development and assessment
- In England and Germany, the internal and external tracking incentivise teacher to focus on domain-specific & academic skills

Does the mediation of the SES-gradient in M2a & M2b reflect schools & teachers (un)consciously rewarding specific behaviours and attitudes from children

- Teachers tend to be more middle-class in England (and to a certain extent in Scotland) compared to other countries
- Schools, especially in England, tend to be places that exhibit and expect certain middle-class codified behaviours & attitudes

Does the mediation of the SES-gradient in M2c reflect teachers rewarding specific flavours of PI, namely the ones that are perceived as more strongly socially-graded and salient?

- School-based PI – although more easily visible to the teacher – does not seem to matter as much as home-based P, perhaps because it is not perceived as SES-salient. The difference between the two is much larger in Germany and England than in Scotland.
- The importance of home-based PI, and especially of parental educational aspirations, in Germany perhaps reflect the consequence of an educational system with early external tracking: educational aspirations and might be perceived as more socially-graded and teacher might consider them more (or be more aware of them)

NEXT STEPS

WEIGHTS

To account for item & survey non-response (whether due to wave attrition or non-consent or non-matching to teacher survey or parent survey, we will use a combination of available and constructed weights.

FACTOR / COMPONENT ANALYSIS

We will use factor and/or component analysis

- (1) to explore the different mediation paths,
- (2) as a method of dimension reduction

MEDIATION ANALYSIS

We will explore several (more sophisticated) methodologies for mediation analysis, e.g., using predicted component from PCA in a SEM to model the causal mediation of SES-gradients in teacher bias



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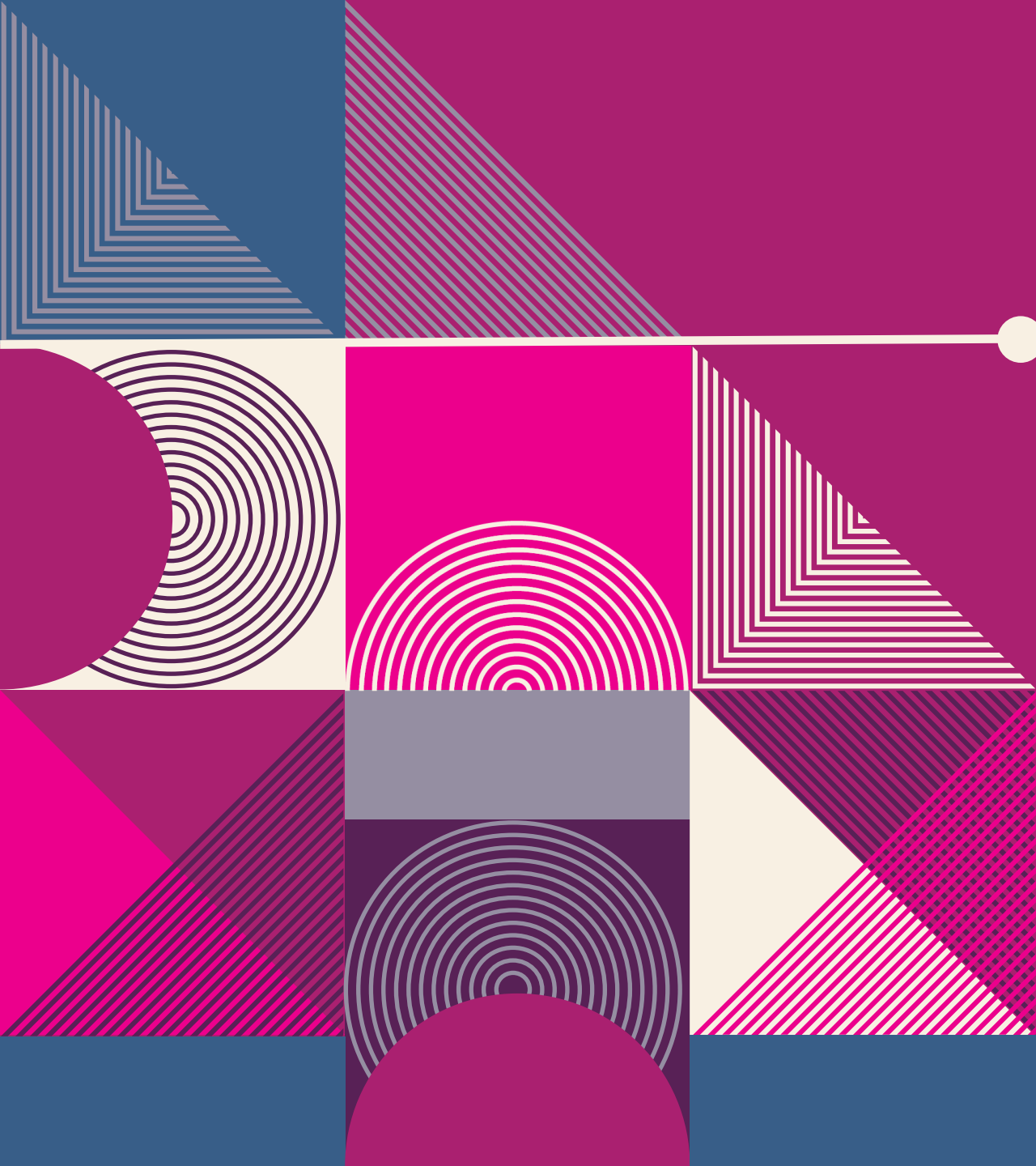


THANK YOU!

ANY QUESTION OR THOUGHT?

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Project website: <https://bipeproject.blogs.bristol.ac.uk>



REFERENCES

REFERENCES - I

- Alvidrez, J., & Weinstein, R. S. (1999). Early teacher perceptions and later student academic achievement. *Journal of educational psychology*, 91(4), 731.
- Barg, K. (2013) The Influence of Students' Social Background and Parental Involvement on Teachers' School Track Choices: Reasons and Consequences. *European Sociological Review*, 29(3), 565-579.
- Barg, K. (2015) Educational Choice and Cultural Capital: Examining Social Stratification within an Institutionalized Dialogue between Family and School. *Sociology*, 49(6), 1113-1132.
- Bourdieu, P., and J.-C. Passeron. 1964. *Les héritiers. Les étudiants et la culture*. Paris: Les éditions de minuit.
- Bodovski, Katerina, Farkas, George, 2008. "Concerted cultivation" and unequal achievement in elementary school. *Soc. Sci. Res.* 37, 903e919
- Bowles, S., and H. Gintis (Eds.). 1976. *Schooling in Capitalist America*. New York: Basic Books.
- Bressoux, P., and P. Pansu. 2003. *Quand les enseignants jugent leurs élèves*. Paris: PUF.
- Campbell, T. (2015) Stereotyped at seven? Biases in teacher judgements of pupils' ability and attainment. *Journal of Social Policy*, 44(3), 517-547. Data citation
- DiMaggio, P. 1982. "Cultural Capital and School Success: The Impact of Status Culture Participation on the Grades of U.S. High School Students." *American Sociological Review* 47:189-201.
- Ditton, H., and J. Krüsken. 2006. "Der Übergang von der Grundschule in die Sekundarstufe I." *Zeitschrift für Erziehungswissenschaft* 9:348-72.
- Farkas, G., Grobe, R. P., Sheehan, D., & Y. Shuan (1990) Cultural Resources and School Success: Gender, Ethnicity, and Poverty Groups within an Urban School District. *American Sociological Review*, 55(1), 127.
- Gentrup et al., (2020);
- Gentrup, S., Lorenz, G., Kristen, C., & Kogan, I. (2020). Self-fulfilling prophecies in the classroom: teacher expectations, teacher feedback and student achievement. *Learning and Instruction*, 66, 101296.
- Hinnant, J. B., O'Brien, M., & Ghazarian, S. R. (2009). The longitudinal relations of teacher expectations to achievement in the early school years. *Journal of educational psychology*, 101(3), 662.
- Jæger, M. M. & S. Møllegaard (2017) Cultural capital, teacher bias, and educational success: New evidence from monozygotic twins, *Social Science Research*, 65, 130-144.
- Kuklinski and Weinstein, 2000
- Jæger, M. M., & Møllegaard, S. (2017). Cultural capital, teacher bias, and educational success: New evidence from monozygotic twins. *Social Science Research*, 65, 130-144.

REFERENCES - II

- Kuklinski, M., & Weinstein, R. (2000). Classroom and grade level differences in the stability of teacher expectations and perceived differential teacher treatment. *Learning Environments Research*, 3(1), 1–34.
- Lareau, A. (2003). *Unequal childhoods: class, race, and family life*. Berkeley, USA: University of California Press.
- Lee, M.W., & Newton, P. (2021). Systematic divergence between teacher and test-based assessment: literature review. Coventry: Ofqual.
- Lorenz, G., Gentrup, S., Kristen, C., Stanat, P., & Kogan, I. (2016). Stereotype bei Lehrkräften? Eine Untersuchung systematisch verzerrter Lehrererwartungen. *Kölner Zeitschrift Für Soziologie Und Sozialpsychologie*, 68(1), 89–111. <https://doi.org/10.1007/s11577-015-0352-3>. Lorenz, 2020;
- Lorenz, G. (2021). Subtle discrimination: do stereotypes among teachers trigger bias in their expectations and widen ethnic achievement gaps?. *Social Psychology of Education*, 24(2), 537-571.
- Maaz, K., Nagy, G., Jonkmann, K., & Baumert, J. (2009). Eliteschulen in Deutschland. Eine Analyse zur Existenz von Exzellenz und Elite in der gymnasialen Bildungslandschaft aus einer institutionellen Perspektive. *Zeitschrift für Pädagogik*, 55(2), 211-227.
- Madon, S., Jussim, L., Eccles, J. (1997). In search of the powerful self-fulfilling prophecy. *Journal of Personality and Social Psychology*, 72(4), 791–809.
- Olczyk, M., et al (2022) Teacher judgements, student social background, and student progress in primary school: A cross-country perspective, *Zeitschrift für Erziehungswissenschaften*. Plewis, 1997;
- Plewis, I. (1997). Inferences about teacher expectations from national assessment at key stage one. *British Journal of Educational Psychology*, 67(2), 235–247.
- Rosenthal, R., Jacobson, L. F., & Jacobson, L. (1968). *Pygmalion in the classroom : teacher expectation and pupils' intellectual development*. Holt, Rinehart and Winston.
- Schneider, T. 2011. "Die Bedeutung der sozialen Herkunft und des Migrationshintergrundes für Lehrerurteile am Beispiel der Grundschulempfehlung." *Zeitschrift für Erziehungswissenschaft* 14:371-96.
- Südkamp, A., Kaiser, J., & Möller, J. (2012). Accuracy of teachers' judgments of students' academic achievement: a meta-analysis. *Journal of Educational Psychology*, 104(3), 743–762.
- Tobisch, A., & Dresel, M. (2017). Negatively or positively biased? Dependencies of teachers' judgments and expectations based on students' ethnic and social backgrounds. *Social Psychology of Education*, 20(4), 731–752. <https://doi.org/10.1007/s11218-017-9392-z>.

DATA CITATION

- University of London, Institute of Education, Centre for Longitudinal Studies. (2020). *Millennium Cohort Study: Longitudinal Family File, 2001-2018*. [data collection]. 4th Edition. UK Data Service. SN: 8172, <http://doi.org/10.5255/UKDA-SN-8172-4>
- University of London, Institute of Education, Centre for Longitudinal Studies. (2022). *Millennium Cohort Study: First Survey, 2001-2003*. [data collection]. 14th Edition. UK Data Service. SN: 4683, DOI: [10.5255/UKDA-SN-4683-6](https://doi.org/10.5255/UKDA-SN-4683-6)
- University of London, Institute of Education, Centre for Longitudinal Studies. (2022). *Millennium Cohort Study: Second Survey, 2003-2005*. [data collection]. 11th Edition. UK Data Service. SN: 5350, DOI: [10.5255/UKDA-SN-5350-6](https://doi.org/10.5255/UKDA-SN-5350-6)
- University of London, Institute of Education, Centre for Longitudinal Studies. (2022). *Millennium Cohort Study: Third Survey, 2006*. [data collection]. 9th Edition. UK Data Service. SN: 5795, DOI: [10.5255/UKDA-SN-5795-6](https://doi.org/10.5255/UKDA-SN-5795-6)
- University of London, Institute of Education, Centre for Longitudinal Studies. (2021). *Millennium Cohort Study: Fourth Survey, 2008*. [data collection]. 8th Edition. UK Data Service. SN: 6411, <http://doi.org/10.5255/UKDA-SN-6411-8>
- University of London, Institute of Education, Centre for Longitudinal Studies. (2021). *Millennium Cohort Study: Fifth Survey, 2012*. [data collection]. 5th Edition. UK Data Service. SN: 7464, <http://doi.org/10.5255/UKDA-SN-7464-5>
- University of London, Institute of Education, Centre for Longitudinal Studies. (2020). *Millennium Cohort Study: Sixth Survey, 2015*. [data collection]. 7th Edition. UK Data Service. SN: 8156, <http://doi.org/10.5255/UKDA-SN-8156-8>
- ScotCen Social Research. (2022). Growing Up in Scotland: Cohort 1, Primary 6 Teacher Survey, 2014-2015: Special Licence Access. [data collection]. UK Data Service. SN: 8366, DOI: <http://doi.org/10.5255/UKDA-SN-8366-1>
- ScotCen Social Research. (2022). Growing Up in Scotland: Cohort 1, Sweeps 1-10, 2005-2020: Special Licence Access. [data collection]. 19th Edition. UK Data Service. SN: 5760, DOI: <http://doi.org/10.5255/UKDA-SN-5760-12>
- NEPS Network. (2022). National Educational Panel Study, Scientific Use File of Starting Cohort Kindergarten. Leibniz Institute for Educational Trajectories (LifBi), Bamberg. <https://doi.org/10.5157/NEPS:SC2:10.0.0>



APPENDIX

SES GRADIENT IN TEACHER ASSESSMENTS

		ENGLAND	SCOTLAND	GERMANY
TOTAL	mean	0.00	0.00	0.00
	sd	1.00	1.00	1.00
Lowest quintile	mean	-0.17	-0.14	-0.20
	sd	1.05	1.00	0.99
Second quintile	mean	-0.13	-0.14	-0.12
	sd	0.99	0.97	0.99
Third quintile	mean	-0.05	-0.05	-0.01
	sd	0.96	0.96	1.04
Fourth quintile	mean	0.07	0.11	0.09
	sd	1.01	1.01	1.00
Highest quintile	mean	0.16	0.14	0.21
	sd	0.97	1.02	0.92

MODEL 2A: BEHAVIOURAL & SOCIO- EMOTIONAL ISSUES

	ENGLAND	SCOTLAND	GERMANY
	0.000	0.000	0.000
	(.)	(.)	(.)
	0.022	-0.005	0.097
	(0.050)	(0.086)	(0.061)
INCOME QUINTILE	0.042	0.034	0.175**
	(0.048)	(0.081)	(0.060)
	0.112*	0.191*	0.270***
	(0.047)	(0.082)	(0.061)
	0.159***	0.197*	0.383***
	(0.047)	(0.081)	(0.061)
(std) SDQ Subscale: Emotional Symptoms	-0.018	-0.018	
	(0.016)	(0.029)	
(std) SDQ Subscale: Conduct Issues	-0.026+	-0.036	
	(0.016)	(0.028)	
(std) SDQ Subscale: Hyperactivity & Inattention	-0.275***	-0.196***	
	(0.017)	(0.030)	
(std) SDQ Subscale: Peer Problems	-0.036*	-0.010	
	(0.016)	(0.030)	
(std) SDQ Subscale: Prosocial Behaviour	-0.005	-0.001	
	(0.018)	(0.031)	
(std) BIG 5: Neuroticism			0.023
			(0.019)
(std) BIG 5: Agreeableness			0.014
			(0.020)
(std) BIG 5: Conscientiousness			0.237***
			(0.020)
(std) TABS: Disruptive Behaviour			-0.007
			(0.021)
CONSTANT	-0.079*	-0.094	-0.189***
	(0.037)	(0.062)	(0.044)
N° of Observations	4695	1573	2655
R^2	0.096	0.052	0.079
F	55.53	F(9, 1563) = 9.60	F(8, 2646) = 28.29
Prob > F	0.000	0.000	0.000

MODEL 2B (1): CHILD'S ATTITUDES TOWARDS SCHOOL & LEARNING - PT.1

		ENGLAND	SCOTLAND	GERMANY	
INCOME QUINTILE	Lowest Q	0.000 (.)	0.000 (.)	0.000 (.)	
	Second Q	0.048 (0.049)	-0.024 (0.086)	0.081 (0.062)	
	Middle Q	0.107* (0.048)	0.022 (0.082)	0.183** (0.061)	
	Fourth Q	0.204*** (0.046)	0.184* (0.082)	0.271*** (0.062)	
	Highest Q	0.271*** (0.046)	0.204* (0.081)	0.390*** (0.062)	
	Never	0.000 (.)	0.000 (.)		
EFFORT	How often do you try your best at school?	Some of the time	-0.077 (0.239)	0.166 (0.205)	
		Most of the time	0.093 (0.230)	0.131 (0.161)	
		All of the time	0.090 (0.231)	0.177 (0.157)	
	I try hard when tasks are difficult	Completely disagree			0.000 (.)
		Rather disagree			-0.027 (0.132)
		Rather agree			0.031 (0.112)
		Completely agree			0.162 (0.108)
	I like school	Not at all	0.000 (.)		
		A bit	0.210** (0.071)		
		A lot	0.386*** (0.072)		
SCHOOL ENJOYMENT	I look forward to going to school	Never		0.000 (.)	
		Sometimes		0.308** (0.116)	
		Often		0.393*** (0.116)	
		Always		0.313** (0.120)	

MODEL 2B (1): CHILD'S ATTITUDES TOWARDS SCHOOL & LEARNING - PT.2

		ENGLAND	SCOTLAND	GERMANY
SCHOOL ENJOYMENT	I like going to school	Completely disagree		0.000 (.)
		Rather disagree		0.109 (0.074)
		Rather agree		0.275*** (0.063)
		Completely agree		0.308*** (0.060)
ACADEMIC SELF- CONCEPT	I am good at English	Strongly disagree	0.000 (.)	0.000 (.)
		Disagree	-0.016 (0.108)	-0.086 (0.231)
		Agree	0.429*** (0.103)	0.354+ (0.214)
		Strongly Agree	0.810*** (0.105)	0.449* (0.215)
		CONSTANT	-0.991*** (0.236)	-0.924*** (0.277)
N° of Observations		4695	1573	2655
R^2		0.110	0.044	0.040
		F(12, 4682)	F(13, 1559)	F(10, 2644)
F		= 48.19	= 5.47	= 11.02
Prob > F		0.000	0.000	0.000

MODEL 2B (2): CHILD'S ATTITUDES TOWARDS TEACHER

		ENGLAND	SCOTLAND
		0.000 (.)	0.000 (.)
		0.042 (0.052)	-0.003 (0.087)
		0.111* (0.050)	0.089 (0.082)
		0.220*** (0.048)	0.250** (0.083)
		0.318*** (0.047)	0.278*** (0.081)
		0.000 (.)	
		0.168+ (0.087)	
		0.187* (0.079)	
		0.315*** (0.078)	
			0.000 (.)
			-0.003 (0.297)
			0.122 (0.293)
			0.168 (0.290)
		0.000 (.)	0.000 (.)
		0.024 (0.078)	-0.178 (0.221)
		0.146+ (0.076)	-0.226 (0.223)
		-0.509*** (0.096)	-0.075 (0.293)
		N° of Observations	4695
		R ²	0.028
		F	15.09
		Prob > F	0.000
			1573
			0.016
			F(9, 4685) = F(9, 1563) =
			2.91
			0.002

INCOME QUINTILE

How often do you think your class teacher is getting at you?

TEACHER FAIRNESS

My teacher treats me fairly

TEACHER-STUDENT RELATIONSHIP

How much do you like your class teacher?

MODEL 2C (1): SCHOOL- BASED PI - PT. 1

		ENGLAND	SCOTLAND	GERMANY
	Lowest Q	0.000 (.)	0.000 (.)	
	Second Q	0.032 (0.051)	-0.007 (0.087)	
INCOME QUINTILE	Middle Q	0.100* (0.050)	0.065 (0.083)	
	Fourth Q	0.204*** (0.049)	0.230** (0.084)	
	Highest Q	0.291*** (0.049)	0.256** (0.082)	
	During this school year has anyone at home been to a parents' evening or similar event at CM's school?	Yes (.)		
		No (0.093)		
		No parents' evening has taken place (0.113)		
PARENT'S EVENING	Have you been to a parent evening this year?	No	0.000 (.)	
		Yes	0.044 (0.085)	
		Never		0.000 (.)
		Rarely		-0.026 (0.213)
	How often do you visit the parent/teacher conferences?	Sometimes		-0.093 (0.211)
		Often		-0.069 (0.192)
		Very often		0.044 (0.188)
	Have you and/or your partner had a specially arranged meeting with your daughter/son's teacher(s)/school?	No (.)	0.000 (.)	
SPECIALLY ARRANGED MEETING WITH TEACHERS/SCHOOL		Yes, arranged by parents (0.045)	-0.068 (0.067)	
		Yes, arranged by teachers (0.070)	-0.106 (0.119)	
		Yes, arranged by both (0.083)	-0.199 (0.121)	
		Yes, arranged by neither	0.051 (0.069)	

MODEL 2C (1): SCHOOL- BASED PI - PT. 2

			ENGLAND	SCOTLAND	GERMANY
		Never			0.000 (.)
		Rarely			-0.115+ (0.065)
		Sometimes			-0.283*** (0.062)
		Often			-0.414*** (0.067)
		Very often			-0.292*** (0.086)
		No	0.000 (.)	0.000 (.)	
		Yes	0.046 (0.031)	0.059 (0.061)	
		Never			0.000 (.)
		Rarely			0.056 (0.059)
		Sometimes			0.093 (0.061)
		Often			0.045 (0.064)
		Very often			0.021 (0.073)
		Never			0.000 (.)
		Rarely			-0.136 (0.093)
		Sometimes			0.029 (0.086)
		Often			-0.009 (0.088)
		Very often			0.032 (0.096)
		CONSTANT	-0.109** (0.042)	-0.189+ (0.099)	0.019 (0.204)
		N° of Observations	4695	1573	2649
		R ²	0.037	0.019	0.044
		F(10, 4684) =		F(10, 1562) =	F(20, 2628) =
		F	18.15	3.00	6.11
		Prob > F	0.000	0.001	0.000

MODEL 2C (2): HOME-BASED PI - PT. 1

		ENGLAND	SCOTLAND	GERMANY
		0.000	0.000	0.000
	<i>Lowest Q</i>	(.)	(.)	(.)
	<i>Second Q</i>	0.044 (0.052)	0.008 (0.087)	0.039 (0.062)
	<i>Middle Q</i>	0.122* (0.050)	0.108 (0.082)	0.125* (0.061)
	<i>Fourth Q</i>	0.235*** (0.048)	0.233** (0.083)	0.178** (0.063)
	<i>Highest Q</i>	0.317*** (0.048)	0.247** (0.081)	0.271*** (0.063)
	<i>Never</i>	0.000 (.)	0.000 (.)	
	<i>Sometimes</i>	0.313* (0.124)	0.249 (0.172)	
	<i>Often</i>	0.395** (0.121)	0.425* (0.172)	
	<i>Always</i>	0.388** (0.120)	0.321+ (0.164)	
	<i>Never</i>			0.000 (.)
	<i>Rarely</i>			0.143 (0.182)
	<i>Sometimes</i>			0.396* (0.166)
	<i>Often</i>			0.476** (0.159)
	<i>Always</i>			0.424** (0.157)
	<i>No</i>	0.000 (.)	0.000 (.)	
	<i>Yes</i>	0.334** (0.109)	0.109 (0.165)	
	<i>Fachhochschulreife</i>			0.000 (.)
	<i>Hochschulreife</i>			0.402+ (0.240)
	<i>Abitur</i>			0.797*** (0.238)

MODEL 2C (2): HOME-BASED PI - PT. 2

		ENGLAND	SCOTLAND	GERMANY	
OPINIONS ON EDUCATION	Nowadays you need qualifications in order to get a job worth having	<i>Strongly agree</i>	0.000 (.)		
		<i>Agree</i>	-0.105*** (0.031)		
		<i>Disagree</i>	-0.173*** (0.048)		
		<i>Strongly disagree</i>	-0.326** (0.115)		
OPINIONS ON EDUCATION	It is more important to go out and get a job than to take time gaining lots of qualifications	<i>Strongly agree</i>		0.000 (.)	
		<i>Agree</i>		-0.181 (0.393)	
		<i>Neither agree nor disagree</i>		0.122 (0.379)	
		<i>Disagree</i>		0.139 (0.378)	
		<i>Strongly disagree</i>		0.292 (0.383)	
		<i>Strongly agree</i>		0.000 (.)	
OPINIONS ON EDUCATION	How well a child does in their education will affect how well they do in life	<i>Agree</i>		-0.044 (0.070)	
		<i>Neither agree nor disagree</i>		-0.171* (0.083)	
		<i>Disagree</i>		-0.096 (0.084)	
		<i>Strongly disagree</i>		-0.271 (0.204)	
		<i>Does not apply at all</i>			0.000 (.)
		<i>Does rather not apply</i>			-0.003 (0.073)
OPINIONS ON EDUCATION	My friends expect that I would educate CM as well as possible	<i>Does partly apply</i>		-0.057 (0.066)	
		<i>Does rather apply</i>		-0.005 (0.065)	
		<i>Does completely apply</i>		-0.040 (0.073)	
		CONSTANT	-0.801*** (0.163)	-0.626 (0.430)	-1.226*** (0.284)
		N° of Observations	4695	1573	2655
	R ²	0.026	0.034	0.056	
	F(11, 4683) =	F(16, 1556) =	F(14, 2640) =		
	F	11.26	3.45	11.29	
	Prob > F	0.000	0.000	0.000	