

Exclusion from English secondary schools – a cohort analysis

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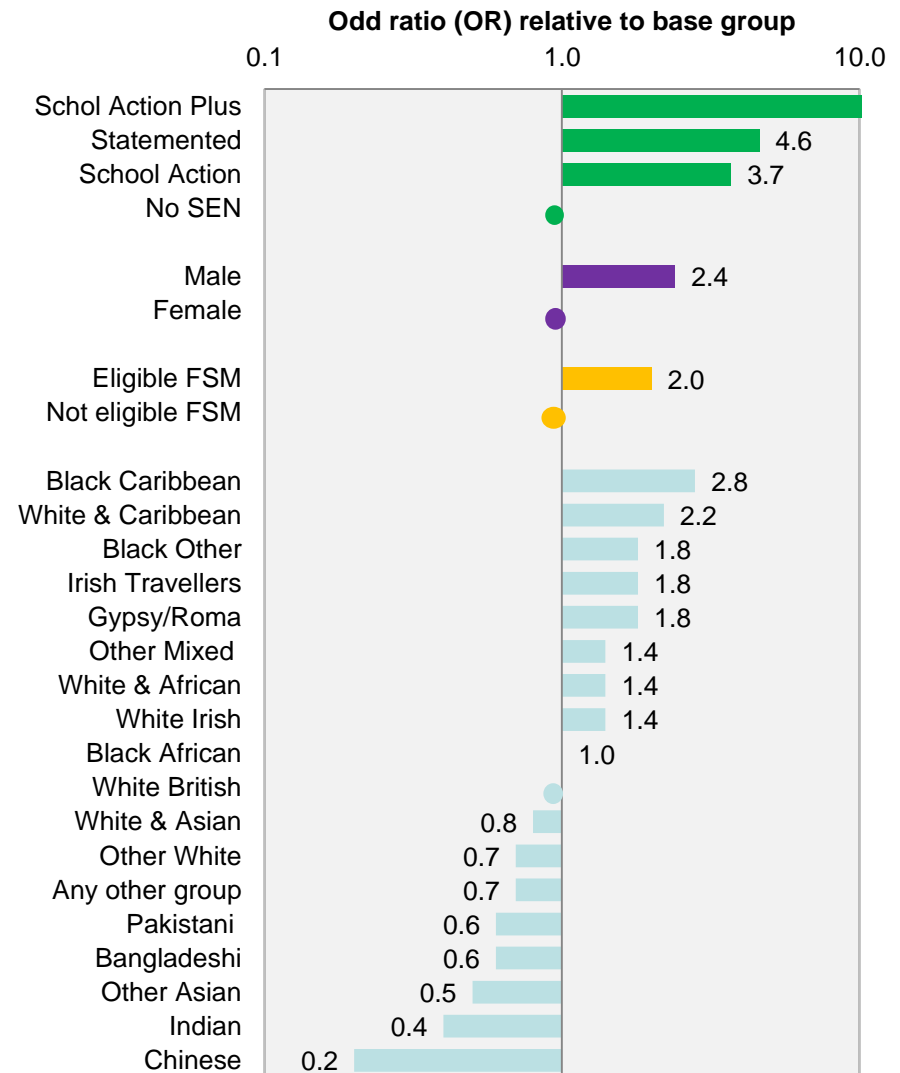
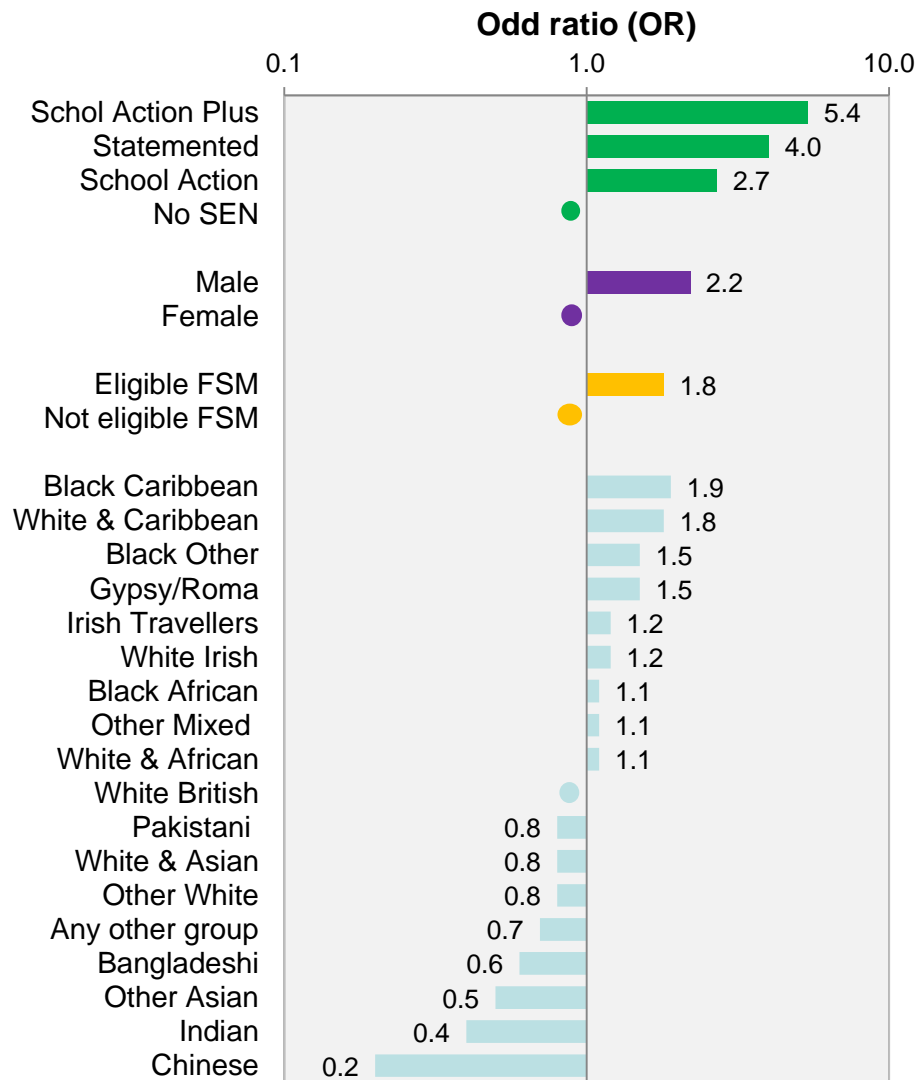
Objectives of the session

- Brief overview of previous analyses of national data on exclusions, reasons for my interest
- Report first longitudinal analysis of exclusions for an English cohort of students using NPD from Y7–Y11 (2006-2011)
- Main conclusion: Substantial ethnic disproportionality, cannot be explained by SES/poverty or wide range of predictors, large school and LA level variation which cannot be accounted for by our (limited) school variables

Review

- Exclusion is a disciplinary sanction, can be fixed term (FTE) or permanent (PE), widely used in England: 16.3% of our students (1:6) experienced 1+ FTE Y7-Y11, PE just 0.68%.
- We do not make a judgement on whether exclusions 'works' or is a good or bad thing – are interested in proportionality in its use, particularly across ethnic groups
- School exclusion is emblematic issue particularly for Black Caribbean parents & community

FTE & PE England 2009/10



FTE: Approximately 5.1% of White British but 10.9% of Black Caribbean students. Source: DFE (2012) A profile of pupil exclusions in England. DFE-RR190.

Research questions

- Looking beyond a single year snapshot:

RQ1: Are Black students moved more quickly to exclusion than White British? (Survival analysis)

RQ2: Are Black students more at risk for multiple exclusions *over and above* increased risk for first exclusion? (Survival analysis)

RQ3: Looking at the total number of exclusions over whole secondary period, what % of the variance is at school level? Can school level variables account for any variation? (ML Ordinal)

RQ4: What is the likelihood of PE conditional on FTE? Is it equivalent across ethnic and social groups? (ML Logistic)

The current study dataset

- Cohort starting Y7 in Sep. 2006 (n=573,000)
 - Pupil characteristics from Sep/Jan Y7
 - Ethnicity, gender, age, entitlement to a FSM, Income Deprivation Affecting Children Index (IDACI), Looked After (CLA), SEN stage & primary need
 - KS2 test scores from summer Y6
 - Absence data for autumn & spring Y7
 - Exclusions records (one record per exclusion)
 - Y7, Y8, Y9, Y10 & Y11
 - School details from Y7 School Level Database (SLD)
 - School type (grammar, academy, foundation etc), Pupil Teacher Ratio (PTR), ethnic composition (%White British, %Caribbean)

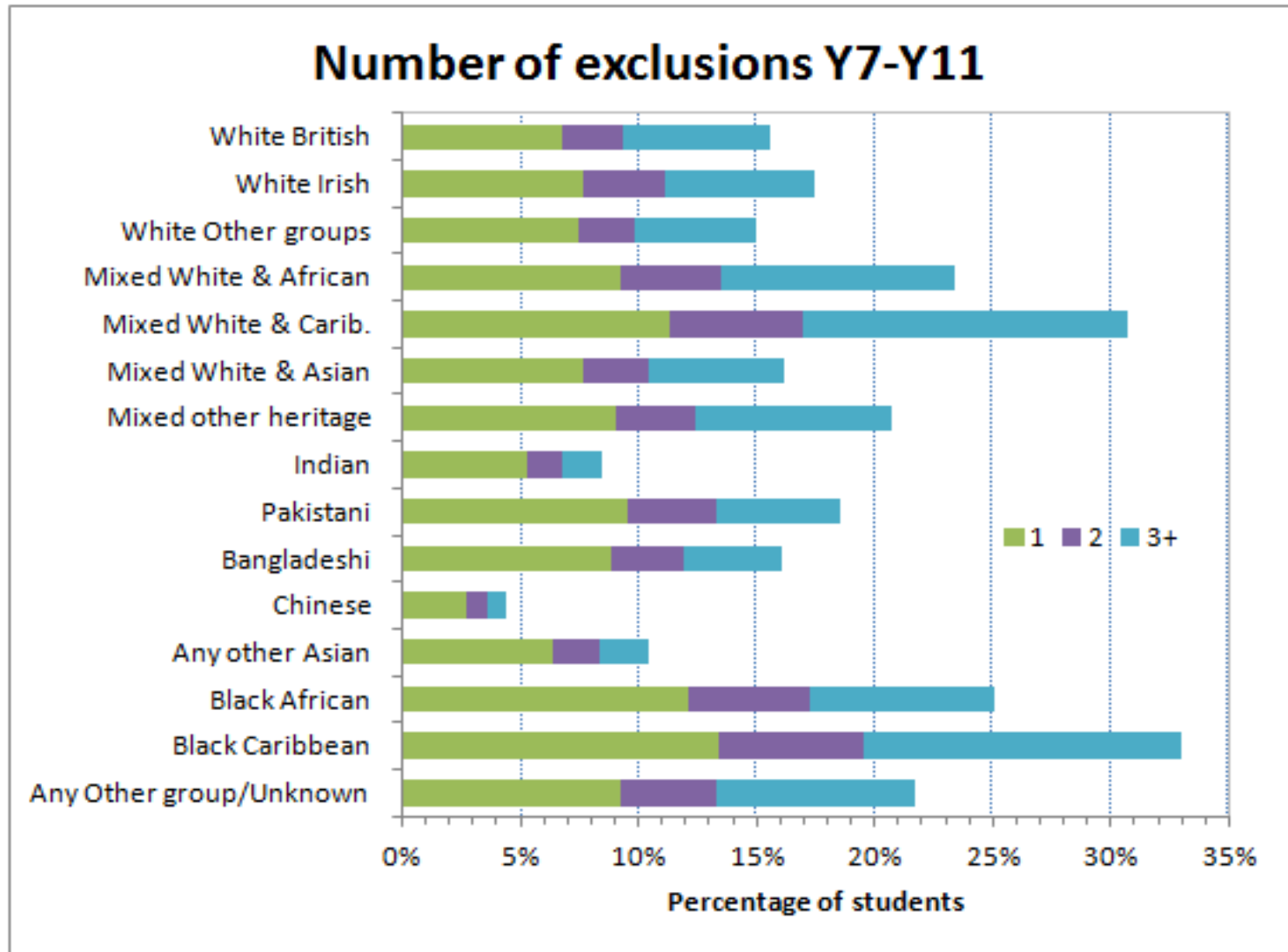
Method notes

- Have not included SEN in modelling because:
 - Behavioural, Emotional & Social Difficulties (BESD) the largest category of SEN, accounts for 27% of all secondary students at SAP/Statemented (ASC 2013)
 - 50% of students classified BESD experience a FTE, rates for other SEN are <1%-10% (DFE, 2012, p27)
 - Black Caribbean & Mixed White Caribbean more than twice as likely as White British to be identified with BESD even after control for poverty (Strand & Lindsay, 2009)
 - For our cohort the number SAP/Statemented for BESD more than doubles between Y7 & Y10
- Identification of BESD is part of the same process of behaviour management as exclusion, not an independent predictor of it

Interpretation of statistics

- Odds Ratios (OR) and WALD Statistics
 - Statistical sig. will often be a poor guide to importance given huge sample size;
 - ORs $>1.33:1$ (or conversely $<0.75:1$) indicate a difference of 33% in odds of occurrence;
 - Size of WALD statistics evaluated in judging contribution of explanatory variables.

Number of exclusions by ethnic group



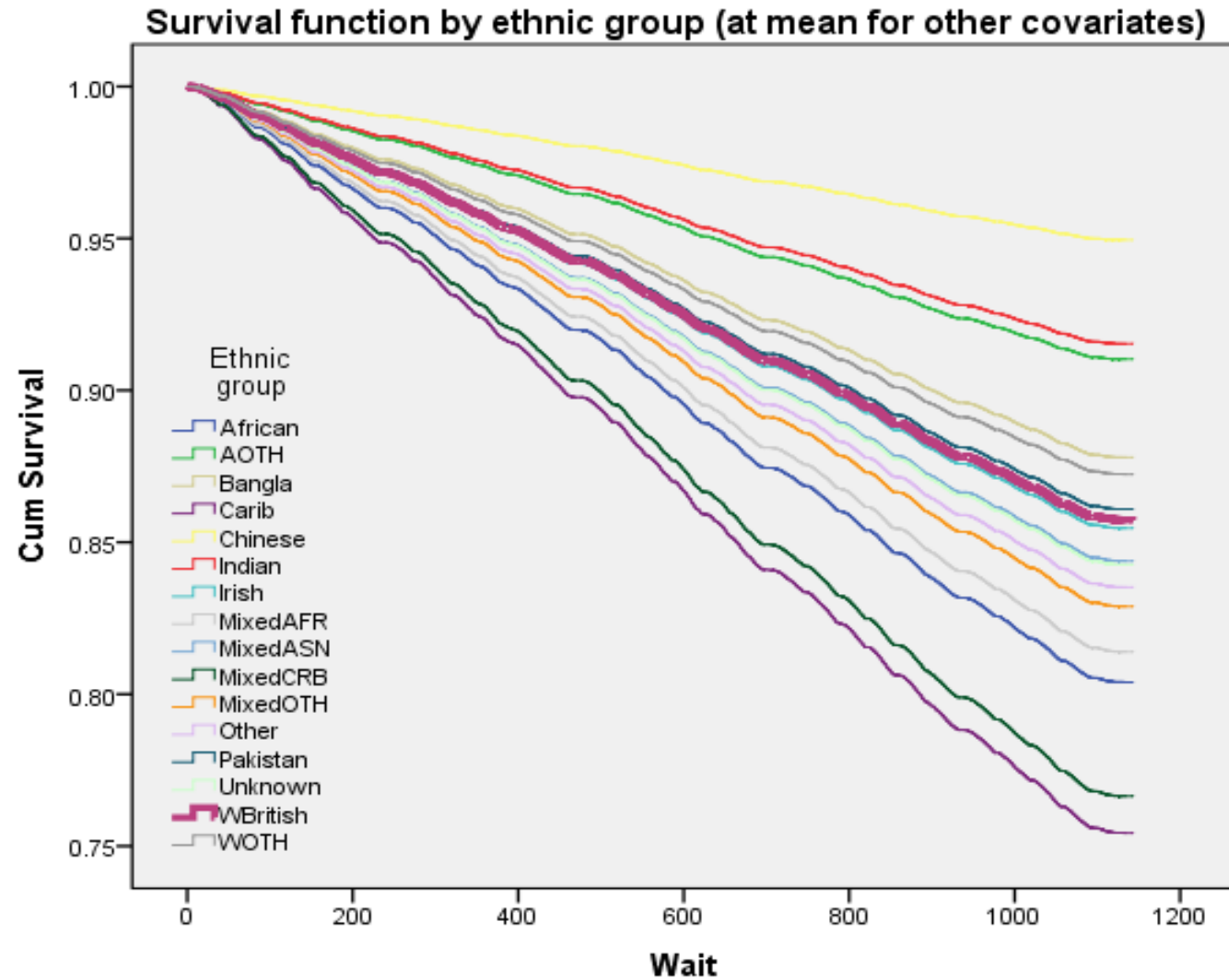
RQ1: Survival Analysis

Explanatory variable	Wald statistic	Odds Ratio (OR)
Gender	9,391	2.18
Absence from school (normalised)	4,483	1.28
Poverty - Entitled to free school meals (FSM)	3,249	1.62
- IDACI (1 SD change)	1,769	1.18
Ethnicity	2,277	-
Key stage 2 attainment (NC fine-grade level)	2,144	0.74
In local authority care	1,528	2.90
School type	504	-
Interaction of FSM and ethnicity	402	-
School composition	317	-

Ethnic coefficients

Ethnic group	Unadjusted OR	Adjusted OR
White Irish	1.14	1.03
White Other groups	0.96	0.81
Mixed White & African	1.57	1.38
Mixed White & Carib.	2.18	1.69
Mixed White & Asian	1.04	1.06
Mixed other heritage	1.37	1.23
Indian	0.52	0.54
Pakistani	1.21	0.81
Bangladeshi	1.03	0.67
Chinese	0.27	0.35
Any other Asian	0.65	0.59
Black African	1.72	1.18
Black Caribbean	2.40	1.83
Any Other group/Unknown	1.45	1.07

Survival function



RQ2: Multiple exclusions

Number of FTEs	Number of students	Proportion who are subsequently given an FTE	Number permanently excluded	Percentage who are permanently excluded
0	480,507		332	0.07%
1	41,172	56%	440	1.1%
2	16,234	69%	405	2.5%
3	9,435	74%	406	4.3%
4	6,342	76%	400	6.3%
5	4,556	77%	347	7.6%
6	3,565	77%	316	8.9%
7	2,664	78%	240	9.0%
8	1,956	79%	198	10.1%
9	1,593	79%	174	10.9%
10 or more	5,849		579	9.9%
Total	573,873		3,837	

Of those given one FTE 56% get a second but 44% do not get excluded again, success?

- Cox's regression for wait until second exclusion
- Strongest predictors are low prior attainment (0.80), FSM (1.29), IDACI (1.28) and boy (1.17), but still significant ethnic coefficients (see next slide)

Explanatory variable	1st Exclusion	2nd Exclusion	3rd Exclusion
	OR	OR	OR
Gender = Male	2.12	1.17	1.10
In local authority care previously	1.27	1.11	1.05
In local authority care currently	1.45	1.16	1.13
Fine grade score in KS2 English	0.50	0.80	0.88
Fine grade score in KS2 Maths	0.98	0.97	0.99
Fine grade score in KS2 Science	0.90	0.97	1.00
Eligible for FSM	1.96	1.29	1.15
IDACI	2.45	1.28	1.11
White Irish	1.16	1.18	1.01
White other	0.86	0.98	1.11
Mixed White & Caribbean	1.89	1.34	1.22
Mixed White & African	1.50	1.22	1.16
Mixed White & Asian	1.13	1.09	1.22
Mixed other heritage	1.33	1.14	1.18
Indian	0.56	0.68	0.78
Pakistani	0.88	0.90	0.86
Bangladeshi	0.74	0.82	0.80
Asian other groups	0.60	0.72	0.82
Chinese	0.32	0.76	0.70
Black African	1.19	0.92	0.90
Black Caribbean	2.00	1.20	1.14
Any Other Group	1.12	1.02	1.03
N (R²)	543,191 (14.9%)	88,594 (6.1%)	49,395 (2.6%)

RQ2 - summary

- Increased risk of multiple exclusions (conditional on the first) for:
 - Mixed White & Black Caribbean (1.34) and Black Caribbean (1.20) move more rapidly to 2nd FTE
 - Indian (0.68), Chinese (0.76) & Asian Other (0.72) low odds of 1st FTE but even where happens < 2nd FTE
- Power of models decline as N exclusions increases, assume parity beyond 3rd exclusion
- N.B. Even if there was ethnic parity in 2nd FTE conditional on first, remember >30% BCRB/MWBC in 1+ FTE group as opposed to 15% White British

RQ3: ML Ordinal - school effects

- Random selection of LA whose code ended in 0 or 5: 157,267 students in 1,124 schools in 35 LA's
- Ordinal regression with DV= total n of exclusions
- Variance partition

Level	Var	%
Pupil	1.000	73.9%
School	0.265	19.6%
LA	0.089	6.6%

School variable coefficients

School characteristic	Coeff.	Odds ratio	Standard error (se)
School type			
Academy	0.335	1.40	0.628
Comprehensive 11-18	0.009	1.01	0.609
Grammar	-0.599	0.55	0.621
Modern	0.170	1.06	0.635
Other	-0.098	0.91	0.594
School resources			
Student-teacher ratio	-0.009	0.99	0.013
School composition			
% Eligible for FSM	-0.008	0.99	0.003***
% White British students	0.002	1.00	0.002

ML implications

- Large variance at school level (20%) but measured school characteristics explain relatively little of it.
 - Grammar school lower exclusions (OR= 0.55)
 - School %FSM: 1SD (12%) increase reduces OR= 0.91.
 - NB pupil level FSM OR= 2.0 and IDACI OR= 1.84. Schools with high %FSM more tolerant of behaviours that would trigger disciplinary procedures in other schools, or just spurious?
- 6% variance at LA level, compared to approx. 2% for pupil achievement and 1% for pupil progress (DFE, 2004). While LA's have little direct effect on disciplinary policy in schools, this may highlight LA role in leading collaborative arrangements between schools (e.g. exclusion trading/managed moves)

RQ4: Risk of Permanent exclusion (PE)

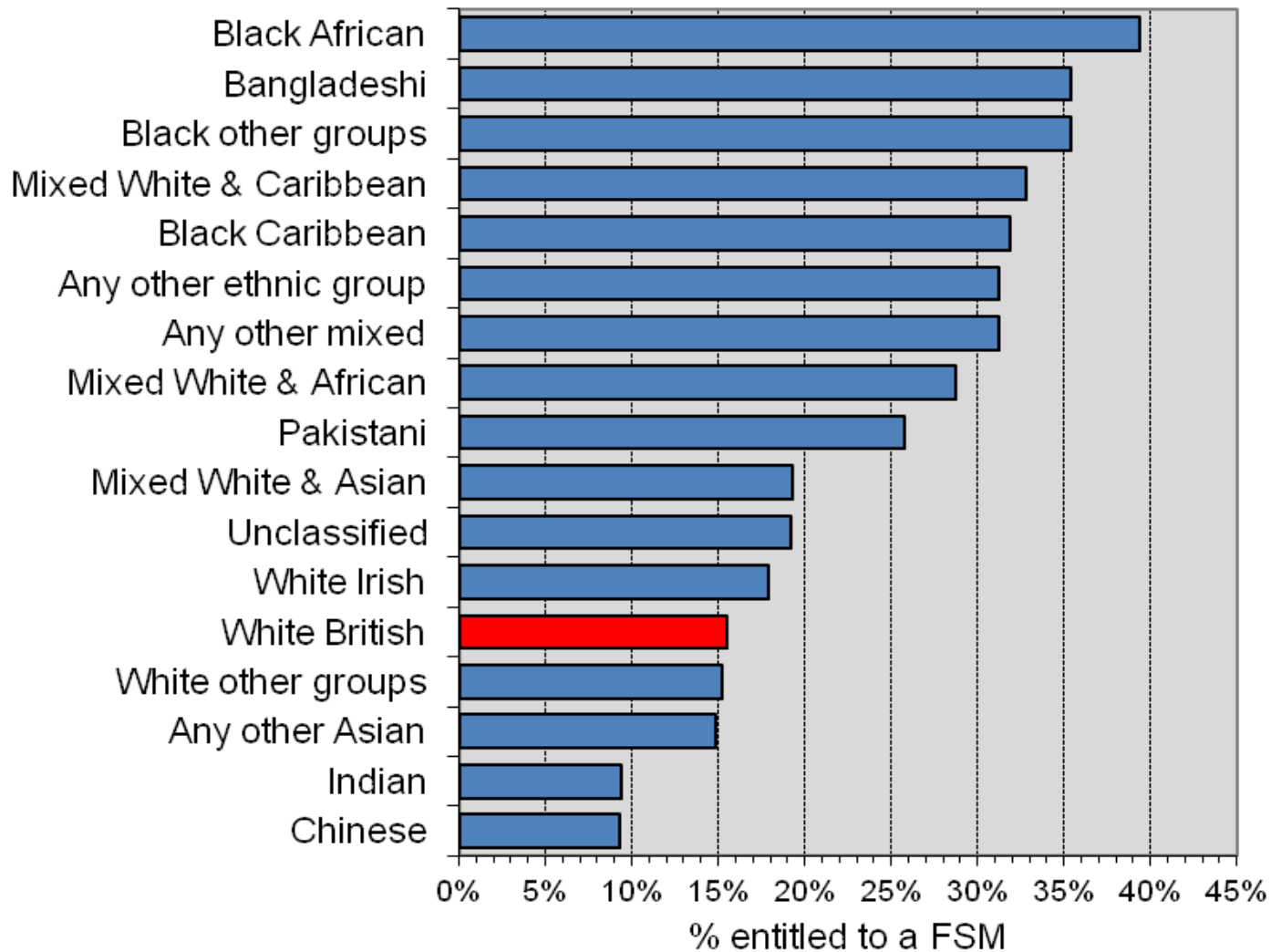
- We know risk of PE is much greater for Black students (see Slide 4). Question here is whether risk of PE is greater over and above history of FTE?
- All exclusions as cases (n=290,000) with the 3,725 (1.3%) PE coded (1). ML as exclusions nested within students, with successive exclusions treated as repeated measures (Generalised Linear Mixed Model (GLMM) in SPSS)
- Previous FTE history by far the largest predictor of whether exclusion is PE by an order of magnitude. Above that the only robust association is IDACI, increasing odds by 1.30 for a 2SD change.

Conclusions

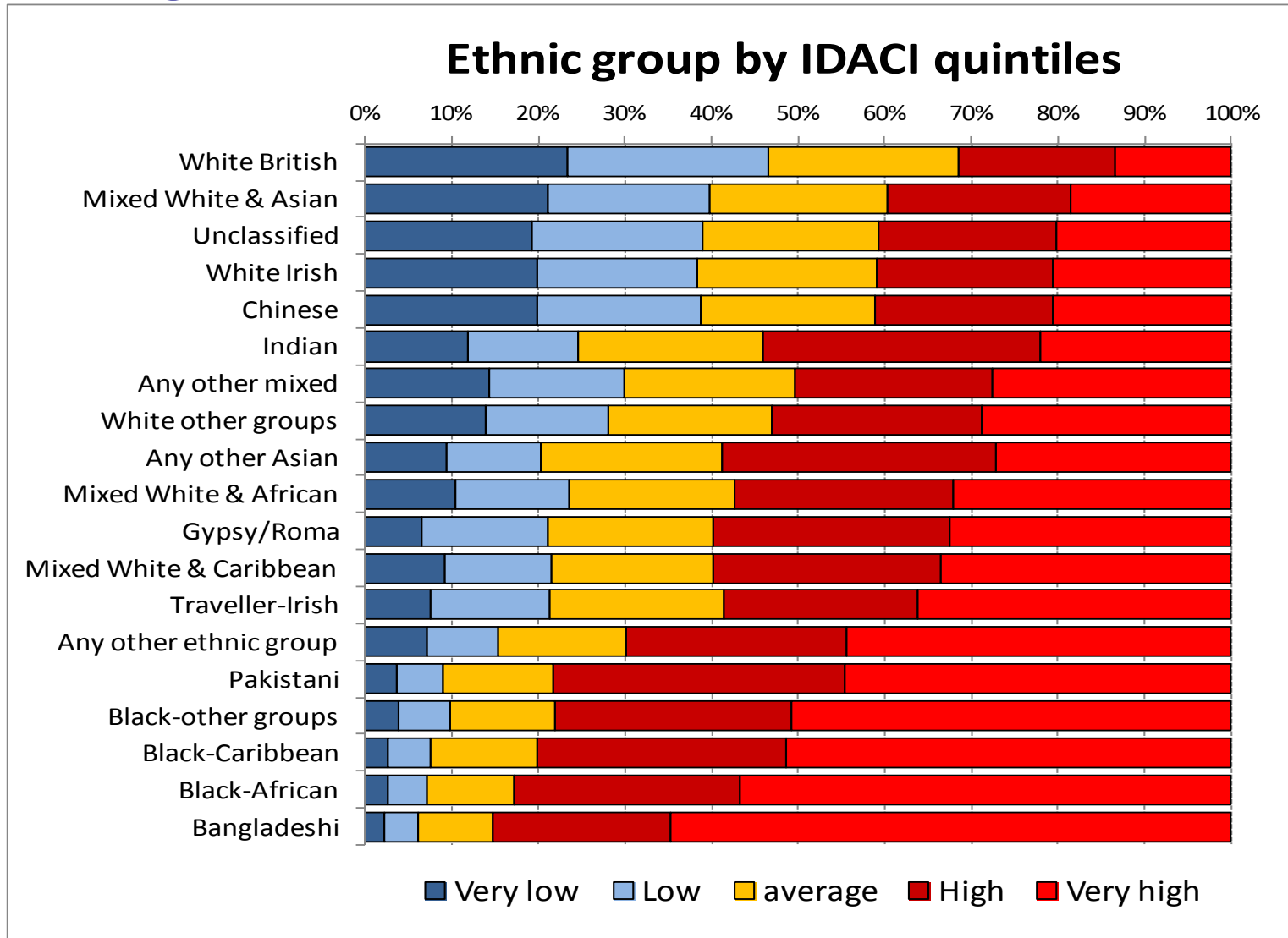
- First longitudinal analysis of NPD exclusions data
- Ethnicity is not the strongest predictor of exclusion, gender, poverty, absence bigger, but as large as the effect of KS2 test score
- Ethnic coefficients remain sig. after control, suggests Black students not only more likely to be excluded, but also moved more quickly to exclusion relative to White British
- Large school (20%) and LA (6%) component, but reasons for variation not explained

End of Session – Thank you

% entitled to FSM by ethnicity (2011)



Neighbourhood Deprivation (IDACI)



Survival analysis (First Exclusion)

