Ethnic Group Fertility Rates for London using HES

BSPS
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Why Use HES

- Increasing numbers of second generation ethnic minorities born in UK weakened the validity of this link.

- Aim to use ethnicity of mother from HES as a much stronger indicator.

- HES, theoretically, provides direct information about mother's ethnic group and age and the baby.

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What is HES?

- HES is a secure record-level database of Hospital Episode Statistics.

- Covers all NHS Trusts in England but excludes private hospitals.

- Originally restricted to hospital admitted patient care, now includes out-patient care.

- Contains over 160 information fields (input data plus derived).

- 2002/2003 extract for Greater London contains 1.8 million patient records.

HES Fields for Fertility

- ADMISSION METHOD: **Emergency; Maternity; Hospital Transfer; Other (birth).**

- EPISODE TYPE: **Delivery**; Birth; Other delivery; Other birth.

- ETHNIC GROUP: **Ethnic group of patient**.

- LOCAL AUTHORITY DISTRICT: **LA of residence of patient**.

- SEX: **Gender of patient**.

- AGE AT START OF EPISODE: **Age of patient** on admission (whole years).

Data Issues

- HES database was not designed for demographic modelling purposes.

- Most recent annual extract accessed in collaboration with the London Health Observatory runs from April 2002 – March 2003.

- ONS births data (Vital Statistics – VS1, and Births statistics) is for calendar year 2002.

- Female base populations are for 2001 Census, grossed to 2001 MYE.

- 2001 Census Ethnic Categories introduced April 2001, but still not used 100% by March 2003

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Live Births

HES BIRTHS IN GREATER LONDON (April 2002 – March 2003) BY LOCAL AUTHORITY CODE OF RESIDENCE				
LOCAL AUTHORITY OF RESIDENCE OF BABY		**TOTAL BIRTHS**	**TOTAL BIRTHS BY STATED ETHNICITY OF BABY**	**% BIRTHS BY STATED ETHNICITY OF BABY**
All Codes	**Total**	**109,143**	**48,651**	**44.58**
	2001	87,432	47,709	43.71
	1991	21,711	942	0.86
London Codes	**2001**	**13,265**	**8,121**	**7.44 (61.2)**
	1991	4,872	3	0.00
Non-London	2001	314	165	0.15
	1991	282	1	0.00
Not Known	2001	73,853	39,423	36.12
	1991	16,557	938	0.86
Note: In HES the patient in a birth episode is the baby				

Deliveries - 1

HES DELIVERIES IN GREATER LONDON (April 2002 – March 2003) BY LOCAL AUTHORITY CODE OF RESIDENCE			
LOCAL AUTHORITY OF RESIDENCE OF MOTHER	**TOTAL DELIVERIES**	**TOTAL DELIVERIES BY STATED ETHNICITY OF MOTHER**	**% DELIVERIES BY STATED ETHNICITY OF MOTHER**
All Codes — Total	106,261	79,615	74.92
All Codes — 2001	95,769	74,691	70.29
All Codes — 1991	10,492	4,924	4.63
London Codes — 2001	**89,547**	**69,757**	**65.65 (77.9)**
London Codes — 1991	9,915	4,652	4.38
Non-London — 2001	5,275	4,168	3.92
Non-London — 1991	512	233	0.22
Not Known — 2001	947	766	0.72
Not Known — 1991	65	39	0.04
Note: In HES the patient in a delivery episode is the mother			

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Deliveries - 2

HES DELIVERIES FOR LONDON RESIDENCE BY AGE GROUP OF MOTHER (April 2002 – March 2003)				
AGE GROUP OF MOTHER		**TOTAL DELIVERIES**	**TOTAL DELIVERIES BY STATED ETHNICITY OF MOTHER**	**% DELIVERIES BY STATED ETHNICITY OF MOTHER**
All Ages	**Total**	**99,462**	**74,409**	**74.81**
	2001	89,547	69,757	70.13
	1991	9,915	4,652	4.68
10 - 49	**2001**	**89,097**	**69,445**	**69.82 (77.9)**
	1991	9,811	4,650	4.68
Other Ages	2001	450	312	0.31
	1991	104	2	0.00
Note: In HES the patient in a delivery episode is the mother				

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ONS Vital Statistics - 1

GREATER LONDON – MATERNITIES AND BIRTHS IN 2001 (FROM ONS VITAL STATISTICS – VS2)	
EVENT TYPE	**OCCURRENCE**
All Maternities	103,143
Live Births	104,162 *
(difference)	(1,019)
Ratio: Live Births/Maternities	1.0099
Multiple Maternities	1590
Still Births	620
* 105,603 in 2002	

Assumption: MATERNITY -> DELIVERY -> BIRTH.

Can initially assume that 1 Delivery = 1 Live Birth.

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ONS Vital Statistics - 2

GREATER LONDON - LIVE BIRTHS IN 2002 (FROM ONS VITAL STATISTICS – VS1)	
PLACE OF CONFINEMENT	**LIVE BIRTHS**
Total	105,603
NHS	101,265
Non-NHS	2,231
At Home	2,000
Elsewhere	107

Assumption: Sample of 69,445 HES deliveries by stated mother's ethnicity and age 10 - 49 yrs relates to the 101,265 NHS births. **Initially assume the HES sample represents all 105,603 births (65.8% sample).**

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Methodology

- HES deliveries for 2002/03 provide a structure by 5-year Age Band and 2001 Census Ethnicity coding of mother for 69,445 births.

- Use ONS/HES Age Band birth ratios to gross up and estimate Age/Ethnicity structure for all 105,603 births in 2002.

- Reduce Ethnicity structure from sixteen to ten groups by aggregation.

- Obtain 5-year Age Band by 2001 Ethnic Category female populations from ONS Census Table ST101, gross to 2001 MYE, and reduce to ten ethnic groups by aggregation.

- Derive ASFR by 5-year Age Band and aggregated ethnic group.
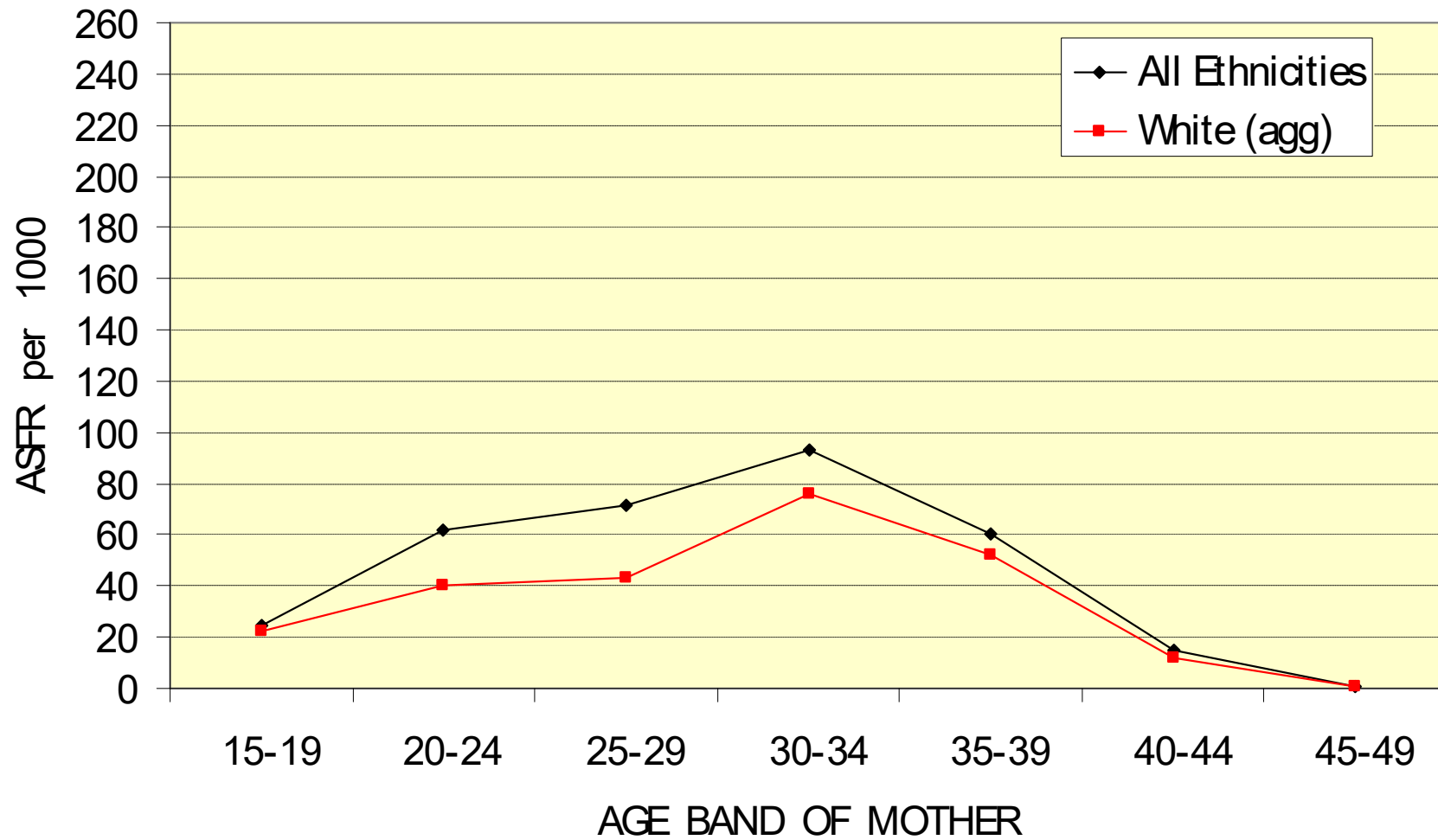
- Derive TPFR by aggregated ethnic group.

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Birth Structure By Age of Mother – 2002/03

AGE OF MOTHER	ONS LIVE BIRTHS (from Births statistics for 2002)	HES DELIVERIES IN 2002/03 (2001 codes only)	RATIO ONS/HES
All ages	105,603	69,445	1.52
15 – 19 *	5,232	3,427	1.53
20 - 24	16,957	11,676	1.45
25 - 29	25,798	17,727	1.46
30 - 34	33,526	21,369	1.57
35 - 39	19,903	12,504	1.59
40 +	4187	2742	1.53
* Including 10 - 14			

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Ethnic Classification Links

FEM 15-49	AGG. GROUPS	2001 CATEGORIES	FEM 15-49
1,374,402	WHITE	WHITE: BRITISH	1,098,273
		WHITE: IRISH	56,124
		WHITE: OTHER	220,004
115,133	BLACK CARIBBEAN	BLACK OR BLACK BRITISH: CARIBBEAN	115,133
127,591	BLACK AFRICAN	BLACK OR BLACK BRITISH: AFRICAN	127,591
44,705	BLACK OTHER	BLACK OR BLACK BRITISH: OTHER BLACK	18,713
		MIXED: WHITE & BLACK CARIBBEAN	16,247
		MIXED: WHITE & BLACK AFRICAN	9,745
134,556	INDIAN	ASIAN OR ASIAN BRITISH: INDIAN	134,556
41,342	PAKISTANI	ASIAN OR ASIAN BRITISH: PAKISTANI	41,342
43,339	BANGLADESHI	ASIAN OR ASIAN BRITISH: BANGLADESHI	43,339
29,328	CHINESE	CHINESE OR OTHER: CHINESE	29,328
51,698	OTHER ASIAN *	MIXED: WHITE & ASIAN	15,295
		ASIAN OR ASIAN BRITISH: OTHER ASIAN	36,403
58,414	OTHER *	MIXED: OTHER MIXED	17,074
		CHINESE OR OTHER: OTHER	41,341

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ASFR (2002/03)

Legend:
- All Ethnicities
- White (agg)

Y-axis: ASFR per 1000 (0 to 260)

X-axis: AGE BAND OF MOTHER (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49)
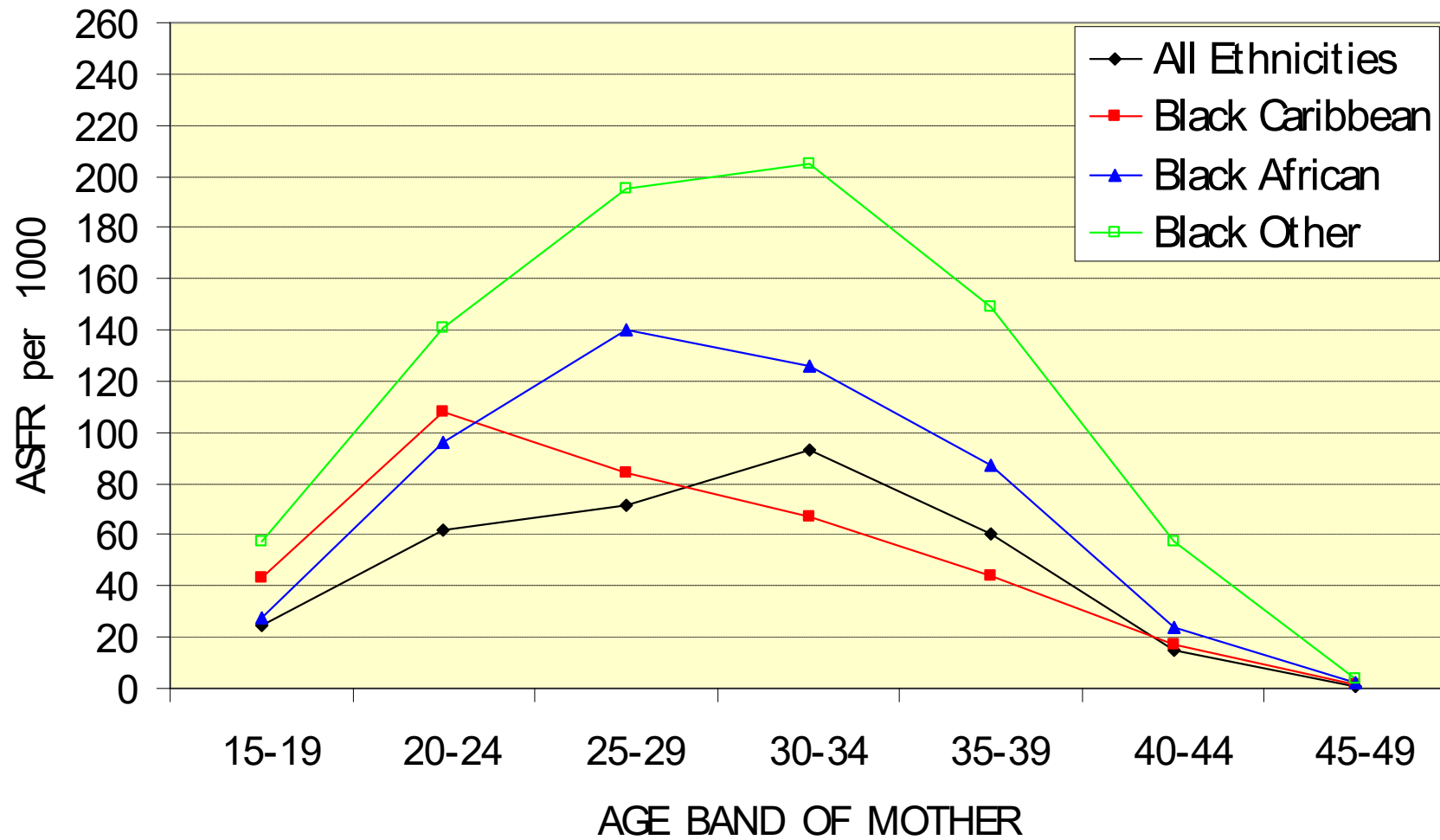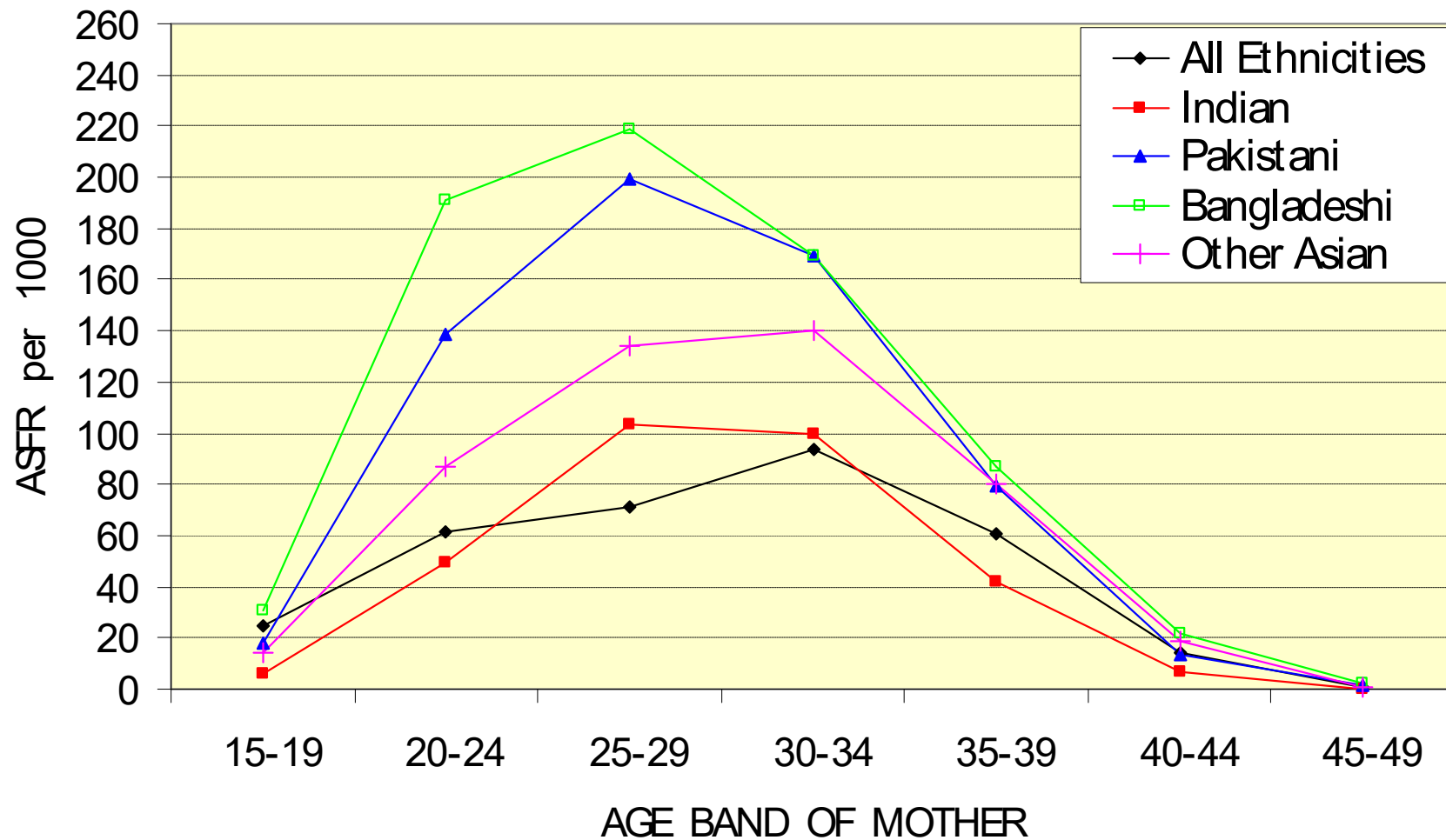
ASFR (2002/03)

ASFR (2002/03)

ASFR (2002/03)

TPFR (2002/03)

GLA AGGGREGATED ETHNIC GROUPS

TPFR values by ethnic group:
- All Ethnicities: 1.63
- White (agg): 1.23
- Black Caribbean: 1.82
- Black African: 2.52
- Black Other: 4.04
- Indian: 1.53
- Pakistani: 3.10
- Bangladeshi: 3.61
- Chinese: 1.08
- Other Asian: 2.38
- Other: 4.50
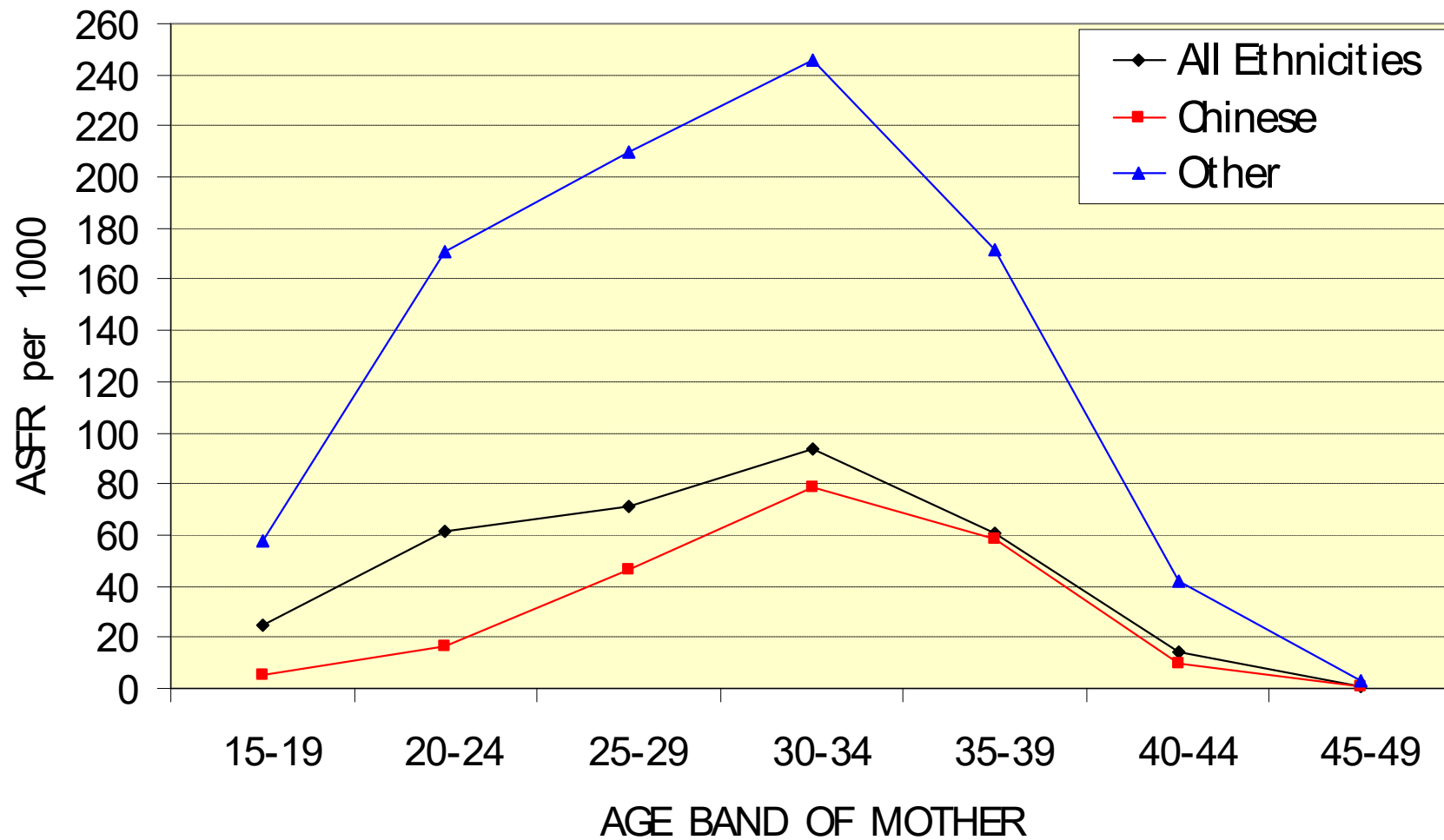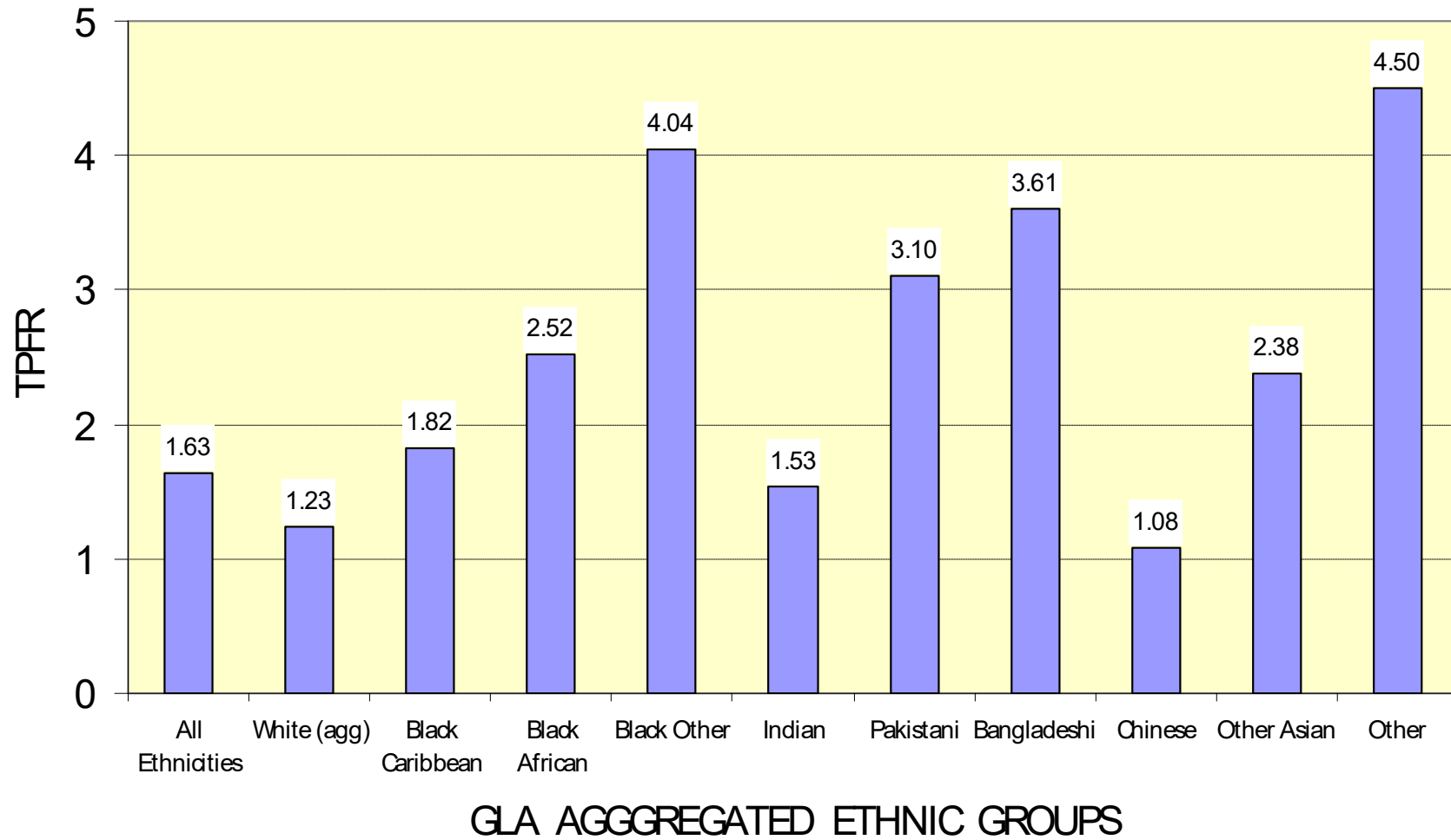
Summary of Results

Aggregated groups (GLA projections)	PEAK ASFR		GFR*	TPFR**
	VALUE	AGE GROUP		
ALL ETHNICITIES	93	30 - 34	52	1.63
WHITE	76	30 - 34	39	1.23
BLACK CARIBBEAN	108	20 - 24	50	1.82
BLACK AFRICAN	140	25 - 29	83	2.52
BLACK OTHER	205	30 - 34	130	4.04
INDIAN	103	25 - 29	47	1.53
PAKISTANI	199	25 - 29	101	3.10
BANGLADESHI	218	25 - 29	126	3.61
CHINESE	79	30 - 34	32	1.08
OTHER ASIAN	140	30 - 34	75	2.38
OTHER	245	30 - 34	144	4.50
* births per 1000 women aged 15-49		** births per woman over her lifetime		

QA

- Application of rates to Census population – no. of births as proxy for <1

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Ratios between HES estimated Births and Census 0 year olds

Y-axis: Ratios

X-axis: Aggregated Ethnic Groups

X-axis categories: White (agg), Black Caribbean, Black African, Black Other, Indian, Pakistani, Bangladeshi, Chinese, Other Asian, Other
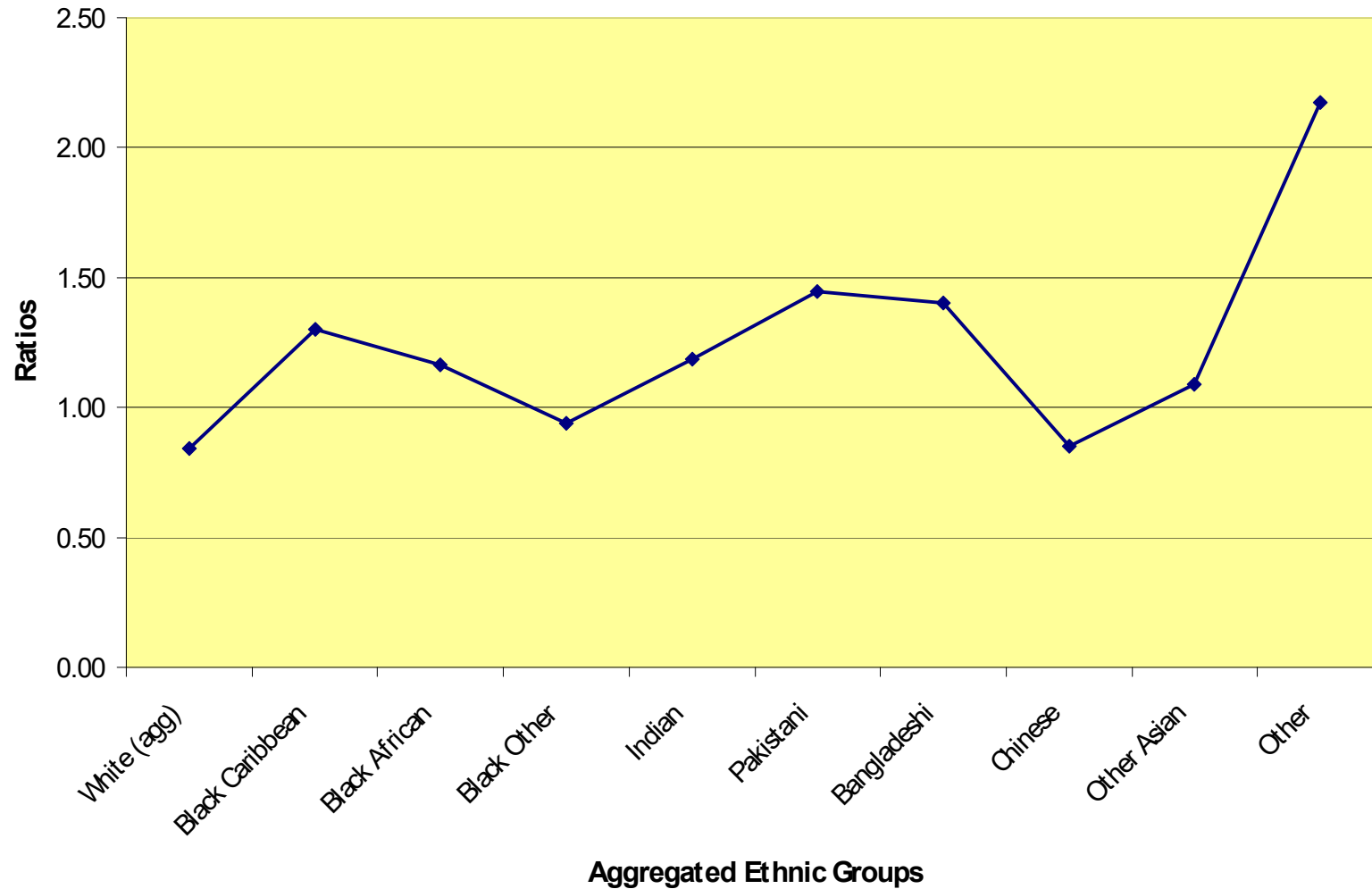
Future Work

- Use 2002/2003 HES data for births in conjunction with ONS Commissioned Tables to investigate link between ethnicities of mother and child.

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