Estimating the impact of marriage on child development

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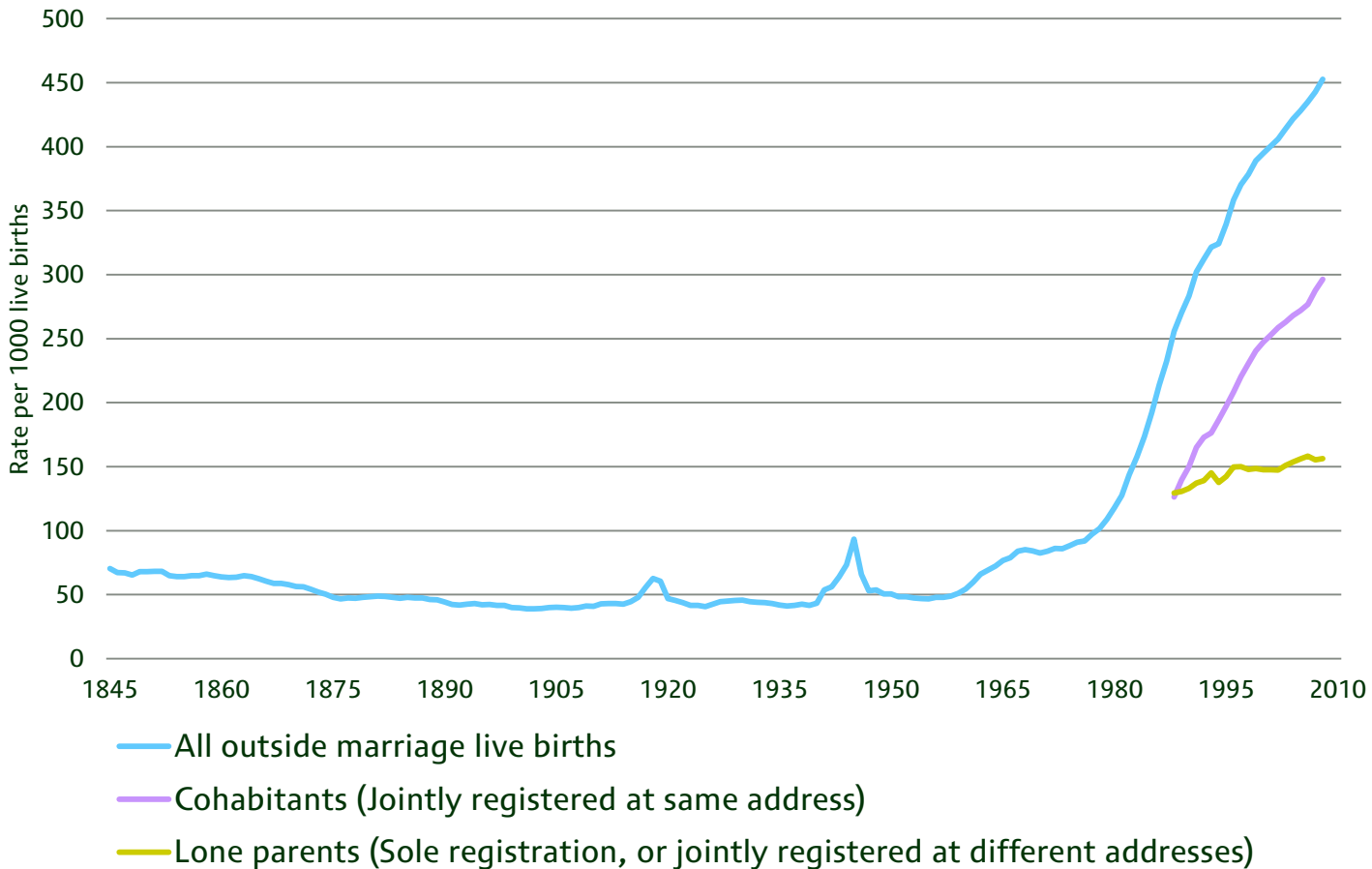
Overview

- Introduction:

  – Motivation

  – Previous literature

  – MCS Data

  – Methodology

- Findings:

  – The outcomes of children born to married and cohabiting parents

  – The characteristics of married and cohabiting parents

  – Outcome gaps controlling for observed differences

  – Support from BCS Data

- Conclusions

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Introduction

Births outside marriage

Rate per 1000 live births

- All outside marriage live births
- Cohabitants (Jointly registered at same address)
- Lone parents (Sole registration, or jointly registered at different addresses)

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Motivation

- Is marriage a better environment to bring up children, compared to cohabitation?

- ➤ This is a very live issue in the UK policy debate:

- – "I want us to recognise marriage in the tax system so as a country we show we value commitment." (David Cameron)

- – "Given that married relationships tend to have greater longevity and stability than other forms, this Government believes marriage often provides an excellent environment in which to bring up children. So the Government is clear that marriage should be supported and encouraged." (White paper, 2012)

- But it is a very difficult question to answer

- We try to inform the policy debate but cannot provide a definitive answer

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Previous literature (1)

- Children of married parents have better education and behavioural outcomes compared to children of cohabiting parents

  - Wide literature, but mainly from the USA

  - Bumpass and Lu (2000); Acs and Nelson (2004); Manning and Brown (2006); Kiernan and Mensah (2009)

- Cohabiting relationships are more prone to break-down, which is associated with negative outcomes for children

  - Ermisch and Pronzato (2008) ; Kiernan and Mensah (2009) ; Andersson (2002)

- But is this a causal effect of marriage? Or does it simply reflect the different sorts of people who decide to get married (selection)?

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Previous literature (2)

- Theoretical benefits of marriage (relative to cohabitation):
  - Marriage involves greater legal and social commitment:
  - ➢ Fosters more co-operative behaviour between parents? (Nordblom, 2004)
  - ➢ Gives more bargaining power to women? (Rangel, 2006)
  - ➢ Reduces stress within relationships? (Artis, 2007)

- The 'selection' issue
  - Couples choose whether to cohabit and/or get married
  - They differ in observable and unobservable characteristics
  - ➢ Observable ones are easier to deal with
  - ➢ Unobservable ones are much more difficult

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Previous literature (3)

- Most of the previous literature does not deal with selection on unobservable characteristics (e.g. degree of love and commitment)

- One exception (Bjorklund et al, 2007)
  - Looked at effect of parental marriage over cohabitation on Swedish children's education outcomes
  - Swedish couples were induced into marriage through financial incentive (1989 Widow's pension reforms)
  - Temporary increase in marriage rates
  - No causal effect on children's outcomes

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Our research

- What would we ideally *like* to ?

  - Provide an estimate of the *causal impact* of marriage compared to cohabiting on children's outcomes

  - But this requires a natural experiment that doesn't exist in the UK

- What *can* we do?

  - Set out outcomes for current cohort of UK children

  - Provide our *best estimate* of the causal impact

  ➢ Control for characteristics of the parents that reflect selection into marriage (exogenous)

  ➢ Try not to over-control for characteristics that are caused by marriage (endogenous)

  ➢ Use BCS data to corroborate our findings

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Finding the causal impact of marriage

- How much of the gap between children of married and cohabiting parents is a causal effect?

  - Selection: how much of the gap is due to the sorts of people that are likely to get married?

  - Pathway: how much of the gap is caused by marriage itself?

	Group 1		
Exogenous	Very likely		
Endogenous	Unlikely		
Examples…	Religion Ethnicity		

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Finding the causal impact of marriage

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	Group 1	Group 2	
Exogenous	Very likely	Likely	
Endogenous	Unlikely	Possible	
Examples...	Religion Ethnicity	Education Relationship quality	

Finding the causal impact of marriage

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  - Selection: how much of the gap is due to the sorts of people that are likely to get married?

  - Pathway: how much of the gap is caused by marriage itself?

	Group 1	Group 2	Group 3
Exogenous	Very likely	Likely	Possible
Endogenous	Unlikely	Possible	Likely
Examples…	Religion Ethnicity	Education Relationship quality	Relationship stability Stress/ parenting practices

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Data (1) Our sample

- Millennium Cohort Study (born around 2000)
- Sample of ~9,000 children, born to married or cohabiting couples
  - Those with non-missing marital status at birth
  - Those with non-missing child outcomes at age 3, 5 and 7

- Parental marital status measured at birth: Cohabiting vs. formally

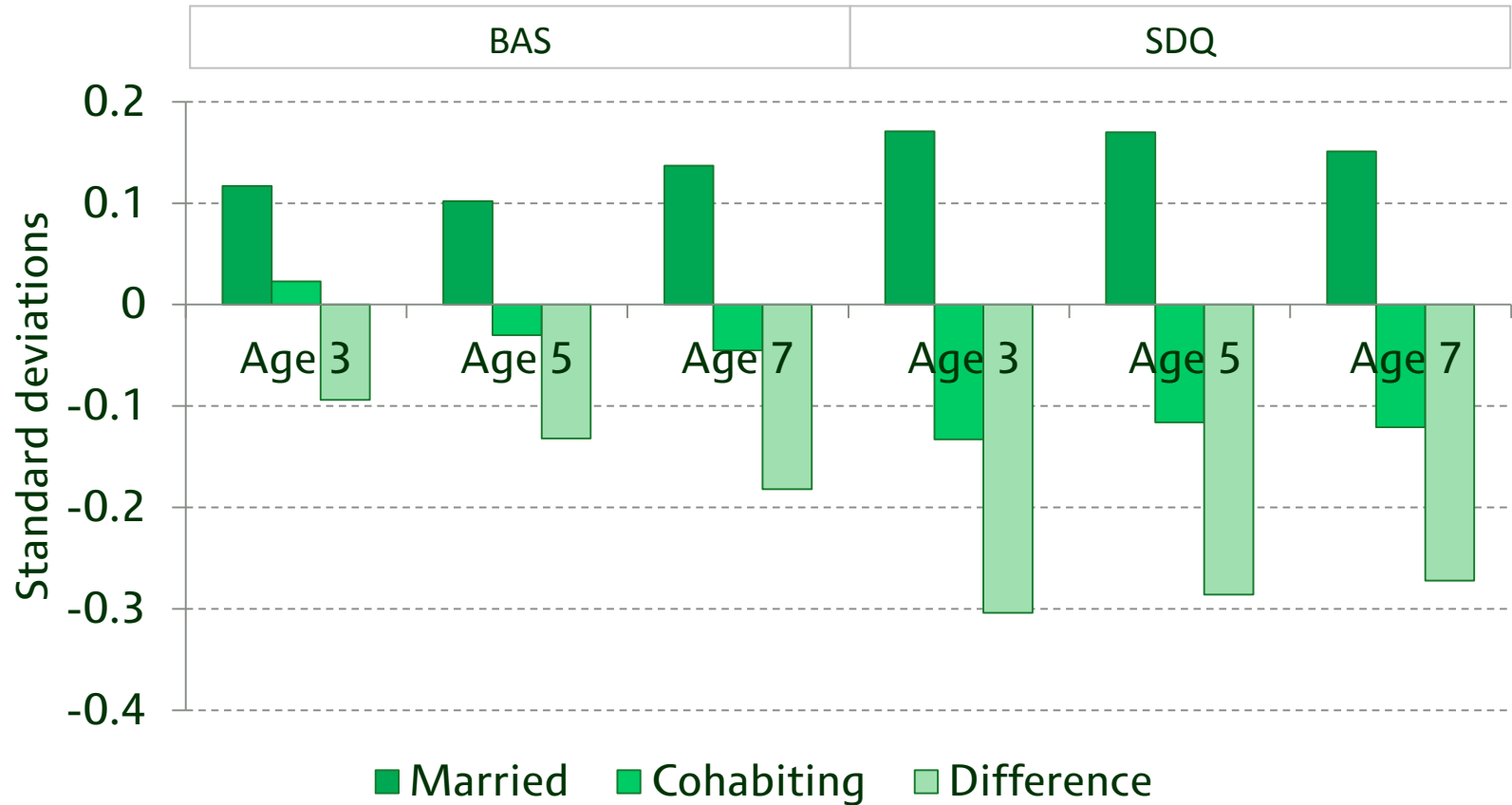| Proportion of births to couples:	Our sample	ONS birth statistics
Married and living together	70%	71%
Cohabiting	30%	29%

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Data (2): Measuring child outcomes

- Cognitive development at ages 3, 5 and 7:
  - British Ability Scales
    - Age 3: vocabulary
    - Age 5: vocabulary, picture similarity and pattern construction
    - Age 7: word reading, pattern construction and maths

- Social and emotional development at ages 3, 5 and 7
  - Strength and Difficulties Questionnaire

- Age adjusted and standardised scores:
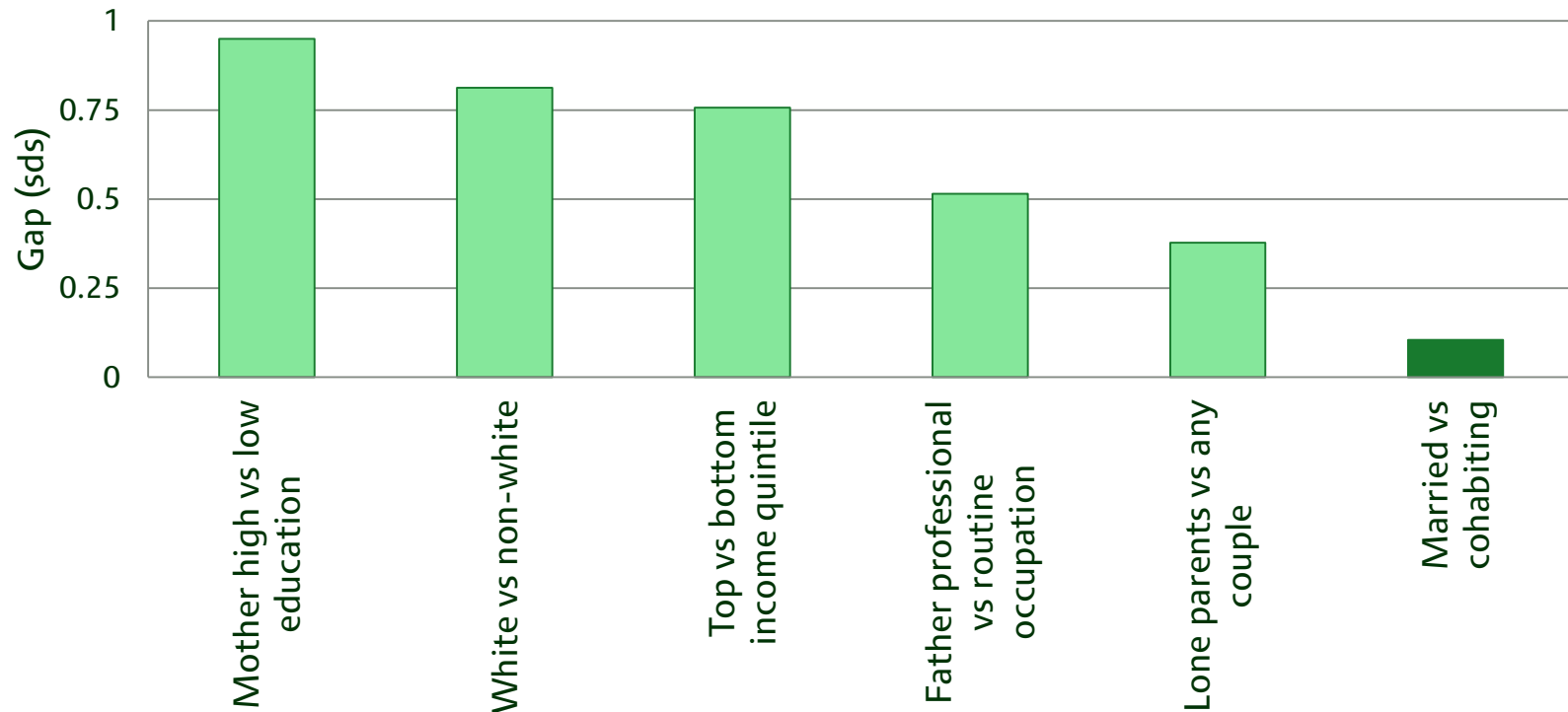 - Units expressed in standard deviations (mean of 0 and standard deviation of 1)

Findings

Difference in outcomes between children born to married and cohabiting parents in the MCS

How do the married-cohabiting gaps compare to other gaps?

Cognitive development at age 3

Y-axis: Gap (sds), ranging from 0 to 1

Categories:
- Mother high vs low education
- White vs non-white
- Top vs bottom income quintile
- Father professional vs routine occupation
- Lone parents vs any couple
- Married vs cohabiting

How do the married-cohabiting gaps compare to other gaps?

Social and emotional development at age 3
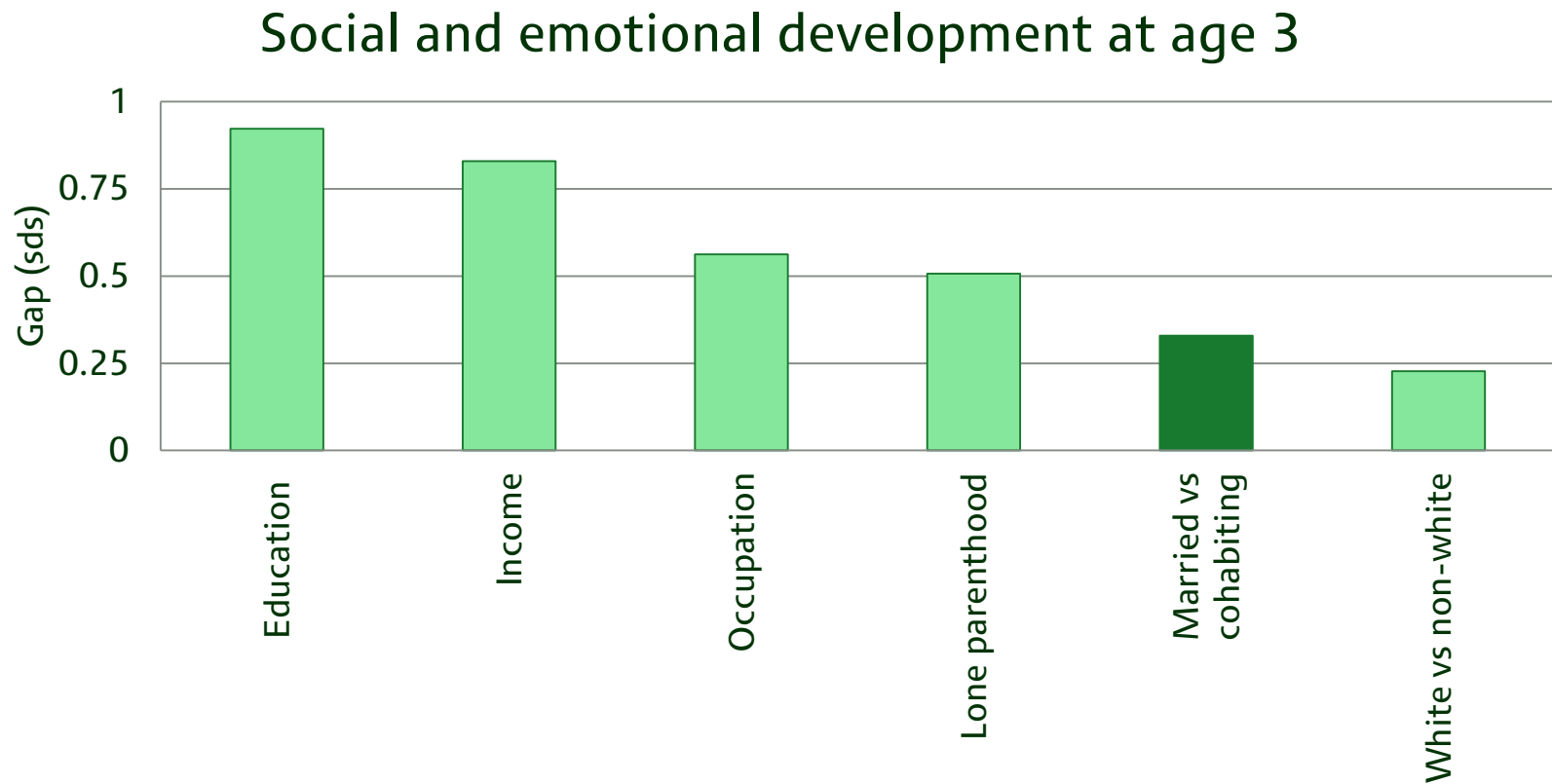
Characteristics that are very likely to be exogenous (group 1)

- Ethnicity

- Immigrant status

- Religion

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Who decides to get married? Ethnicity

Legend: Cohabiting at birth of child ■ Married at birth of child

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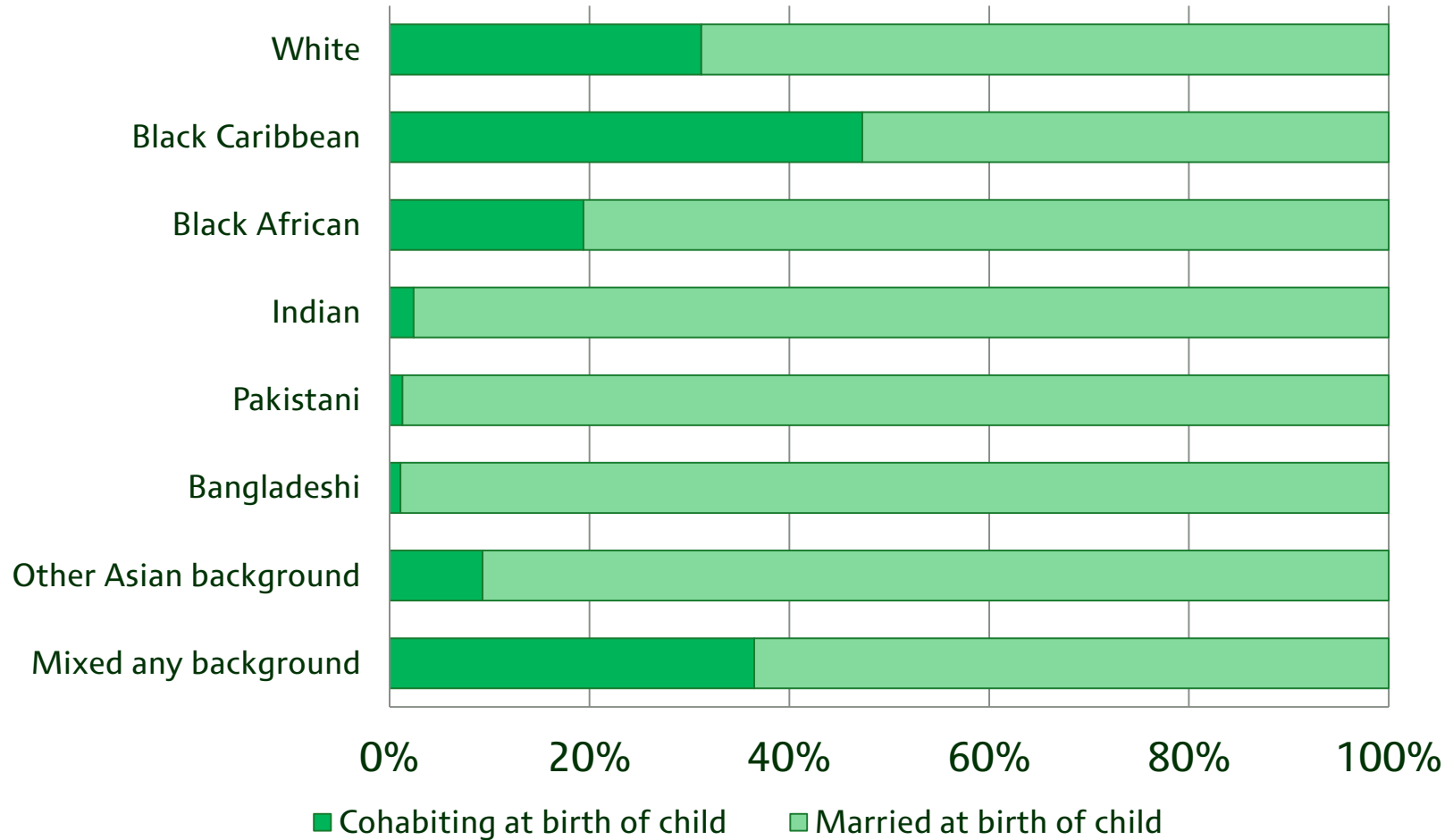
Who decides to get married? Immigrant status and religion

Mother born in the UK

No religion

Christian: any denomination

0%   20%   40%   60%   80%   100%

■ Couples that are married at birth   ■ Couples that are cohabiting at birth

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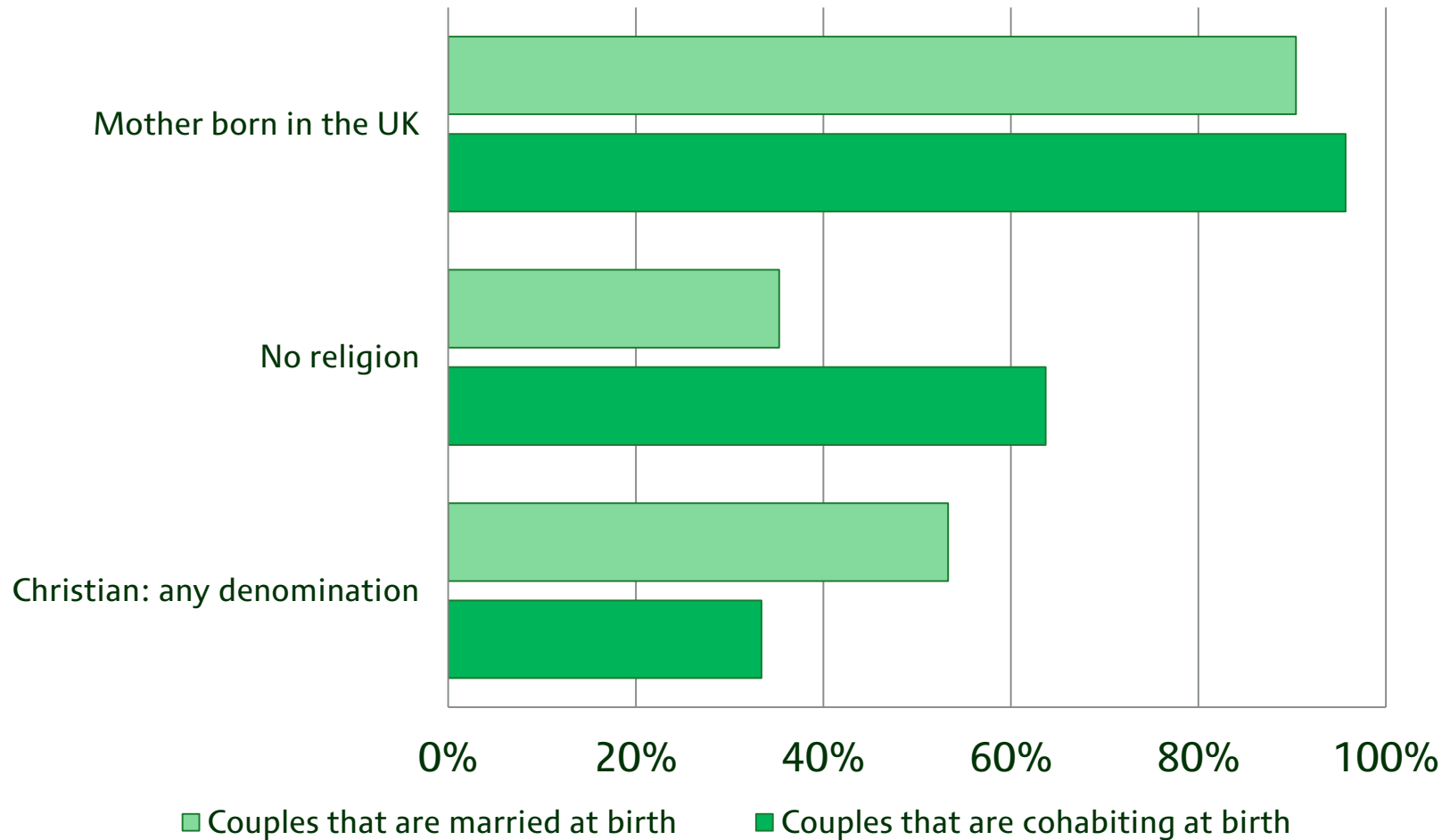
Characteristics that will reflect selection, but also could be affected by marriage (group 2)

- Education

- Occupational status
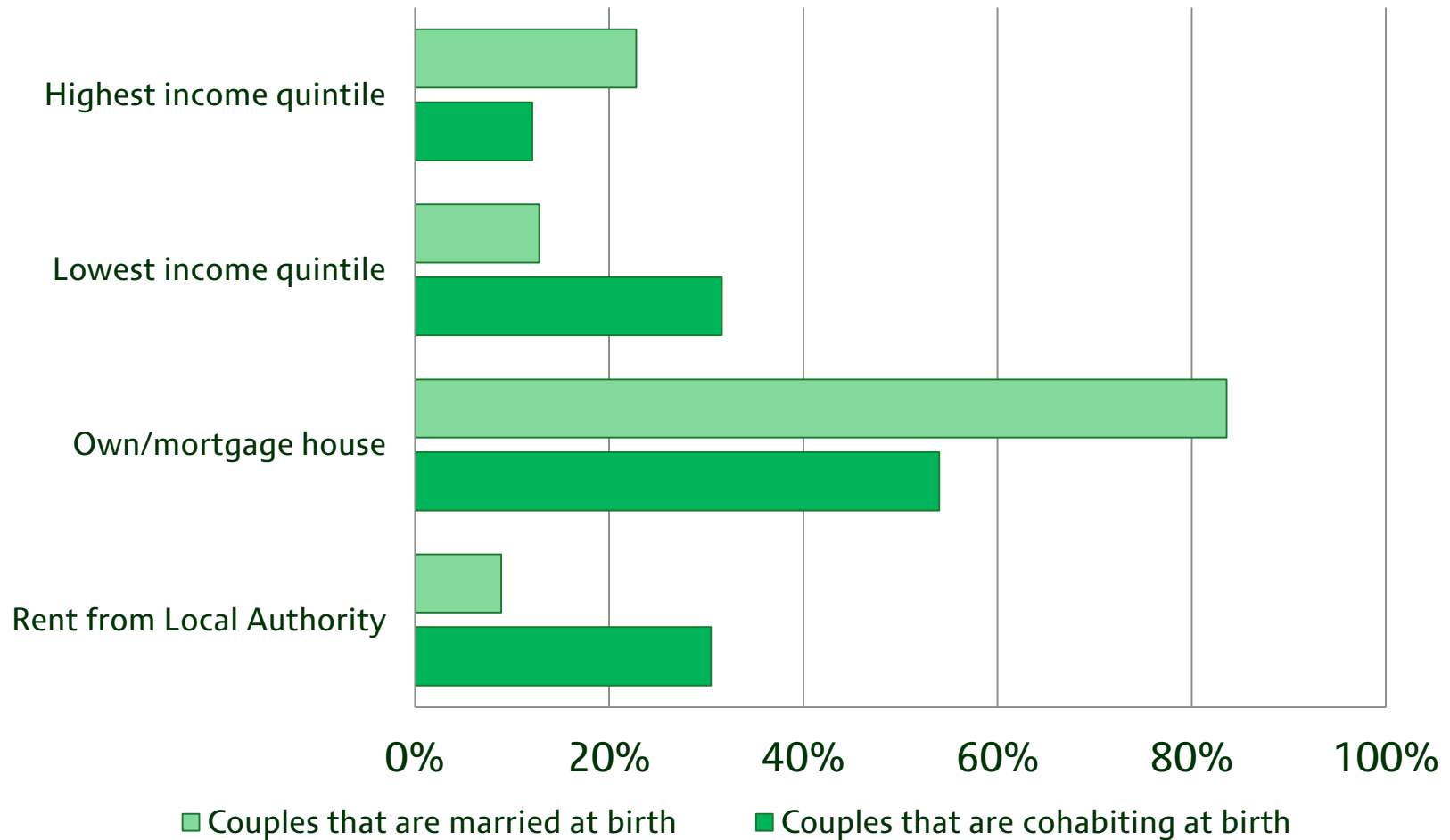
- Household income early in the child's life

- Housing tenure

- Mother's age at her first birth

- Length of relationship

- Planned pregnancy

- (Early) relationship quality

- These can all be debated…

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Who decides to get married? Education and occupational status
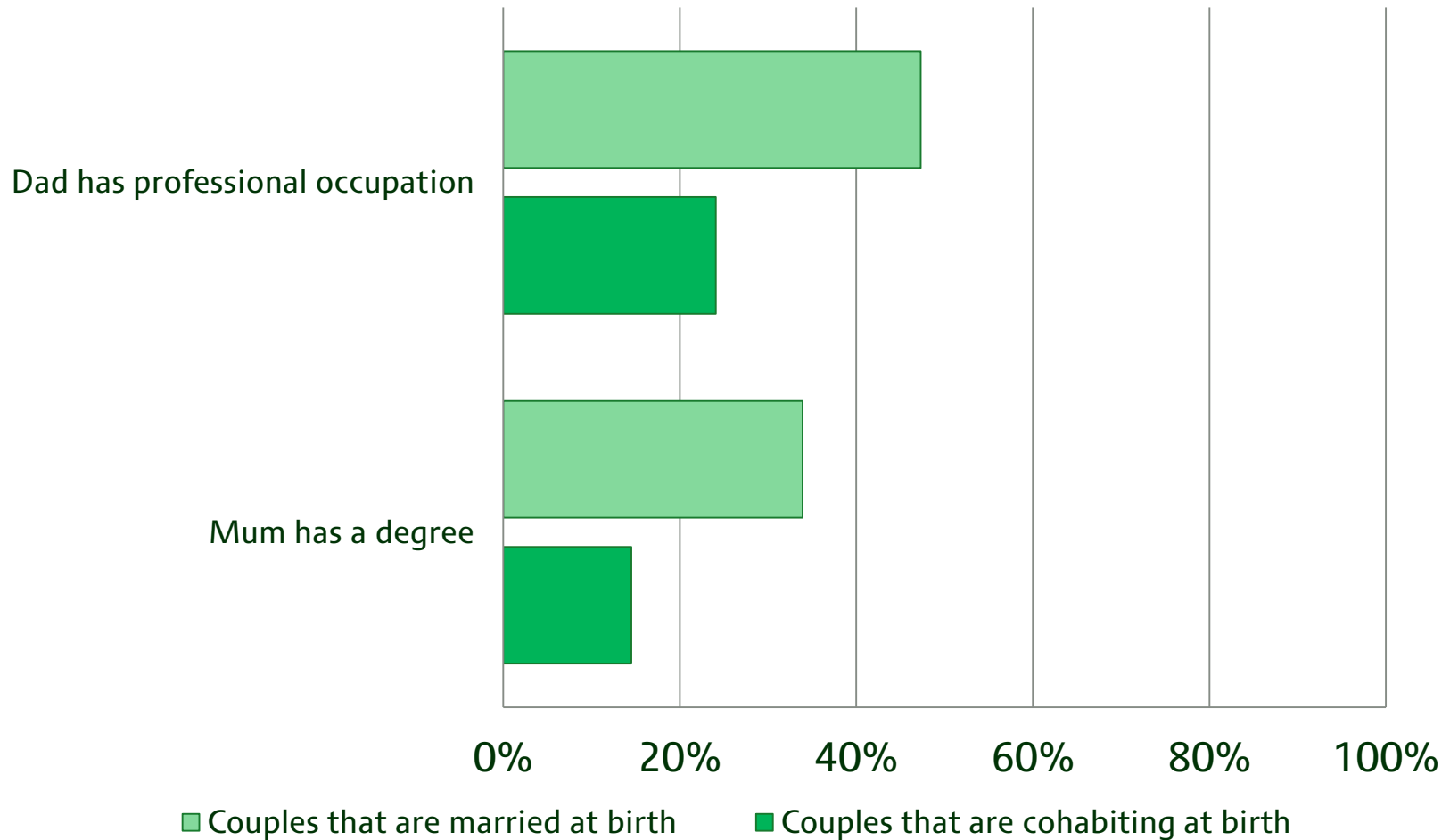
Who decides to get married? Income and housing tenure when the child is 9 months old

Who decides to get married? Family structure and age of the mother at her first child

Horizontal bar chart comparing "Couples that are married at birth" (light green) and "Couples that are cohabiting at birth" (dark green) across categories: Teen mother with 1st child, Lived together for more than 6 years, Lived together for less than 2 years, Planned pregnancy. X-axis: 0% to 100%.

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What are the characteristics of married couples? Relationship quality

Partner usually sensitive and aware of needs

Wish there was more warmth and affection

Suspect on the brink of separation

0%   10%   20%   30%   40%

■ Couples that are married at birth   ■ Couples that are cohabiting at birth

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Cohabiting parents are more likely than married couples to be:

- White or Black Caribbean

- No religion

- A child of separated parents

- Low qualified

- Home renters rather than homeowners

- Teenager at birth of first child

- Lived together for short time (e.g. less than two years)

- Report the pregnancy was unplanned

- Lower relationship quality (when baby is 9 months old)

- Poorer maternal mental health (when baby is 9 months old)

- Less likely to have lower paternal involvement with baby (at 9 months)

- Less likely to set regular bedtimes (at the age of 3)

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**						
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * p < 0.05, ** p < 0.01

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

E also controls for occupational status, household income, tenure and work at 9 months

F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**					
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * $p < 0.05$, ** $p < 0.01$

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**				
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * $p < 0.05$, ** $p < 0.01$

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

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F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**	0.021			
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * p < 0.05, ** p < 0.01

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

E also controls for occupational status, household income, tenure and work at 9 months

F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**	0.021	0.087**		
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * p < 0.05, ** p < 0.01

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

E also controls for occupational status, household income, tenure and work at 9 months

F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**	0.021	0.087**	0.057	
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * $p < 0.05$, ** $p < 0.01$

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

E also controls for occupational status, household income, tenure and work at 9 months

F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**	0.021	0.087**	0.057	0.061
BAS (age 5)							
BAS (age 7)							
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * $p < 0.05$, ** $p < 0.01$

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

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G also controls for relationship quality at 9 months

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**	0.021	0.087**	0.057	0.061
BAS (age 5)	-0.135**	-0.143**	-0.111**	-0.018	0.013	0.003	0.002
BAS (age 7)	-0.189**	-0.170**	-0.141**	-0.036	0.002	0.003	0.006
SDQ (age 3)							
SDQ (age 5)							
SDQ (age 7)							

Note: * $p < 0.05$, ** $p < 0.01$

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

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Outcome	A	B	C	D	E	F	G
BAS (age 3)	-0.094**	-0.137**	-0.093**	-0.021	-0.087**	-0.057	-0.061
BAS (age 5)	-0.135**	-0.143**	-0.111**	-0.018	-0.013	-0.003	-0.002
BAS (age 7)	-0.189**	-0.170**	-0.141**	-0.036	-0.002	-0.003	-0.006
SDQ (age 3)	-0.314***	-0.300***	-0.270***	-0.179***	-0.113***	-0.062*	-0.028
SDQ (age 5)	-0.284***	-0.270***	-0.242***	-0.162***	-0.104***	-0.064*	-0.026
SDQ (age 7)	-0.274***	-0.264***	-0.230***	-0.154***	-0.091**	-0.038	-0.005

Note: * $p < 0.05$, ** $p < 0.01$

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

E also controls for occupational status, household income, tenure and work at 9 months

F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

Conclusions: married versus cohabiting at birth

- **Cognitive ability**
- Small gap in cognitive development at ages 3, 5 and 7
- This is largely explained by the fact that cohabiting parents:
  - *Have lower education*
  - *Have lower occupational status*
  - *Have lower income*
  - *More likely to live in social housing*
- Than married parents

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Conclusions: married versus cohabiting at birth

- **Social and emotional development**

- Larger gap in social and emotional development at ages 3, 5 and 7

- This is largely explained by the fact that cohabiting parents:

  - *Have lower education*

  - *Have lower socio-economic status*

  - *More likely to have unplanned pregnancies*

  - *Are likely to report lower relationship quality when their child is 9 months*

- Than married parents

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But . . .

- Many of the factors used to account for these differences are observed *after* marriage decisions have been taken

- We cannot rule out the fact that these characteristics may have been affected by marriage and so cannot *perfectly* distinguish between selection and possible pathways

- We can overcome these issues using the BCS data, as it provides us with very rich information about one of the child's parents from their *own* childhood, long *before* marriage decisions were taken

- The inclusion of such characteristics in our model ensures that we are capturing selection into marriage rather than 'controlling away' any effects of marital status on child development

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British Cohort Study data

- BCS sampled all individuals born in GB in one week in April 1970

- Eight waves to date: age 5, 10, 16, 26, 29, 34 and 38

- Children of half of the remaining cohort members were randomly selected for interview at the age 34 wave

- For these children we have rich measures of cognitive ability, social skills, attitudes and behaviours and family background characteristics from one of the child's parents to add to our set of exogenous "group 1" characteristics

  - Factors that influence child development (such as cognitive ability)

  - Factors that proxy for characteristics that may influence child development (such as household income as a child)

BCS data: problems

1. Non-random attrition
2. Limited age range of parents
3. Sample only those that live with the BCS parent

Implications of data problems

- Results are not nationally representative
    - More affluent sample than MCS
- Children of male members of the BCS that have separated from their partner will be less likely to be included. Will bias results if these children are systematically different from those included.
    - Reassuringly, results hold for the female BCS subsample

BCS: measuring child development

- BAS: different tests for children of different ages

  - Age 3 to 5: vocabulary and early number concepts

  - Age 6 to 16: word reading, spelling and number skills

- SDQ: available for children aged 3 to 16

- Standardising by age is complicated

  - Large range in ages

  - Age of child at survey is non-random – determined by their parents' choice about when to have children

  - Use nationally representative average scores within narrowly defined age bands and SDs from BCS sample (similar to MCS sample) to standardise our sample as best we can

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Difference in outcomes between children born to married and cohabiting parents in the BCS
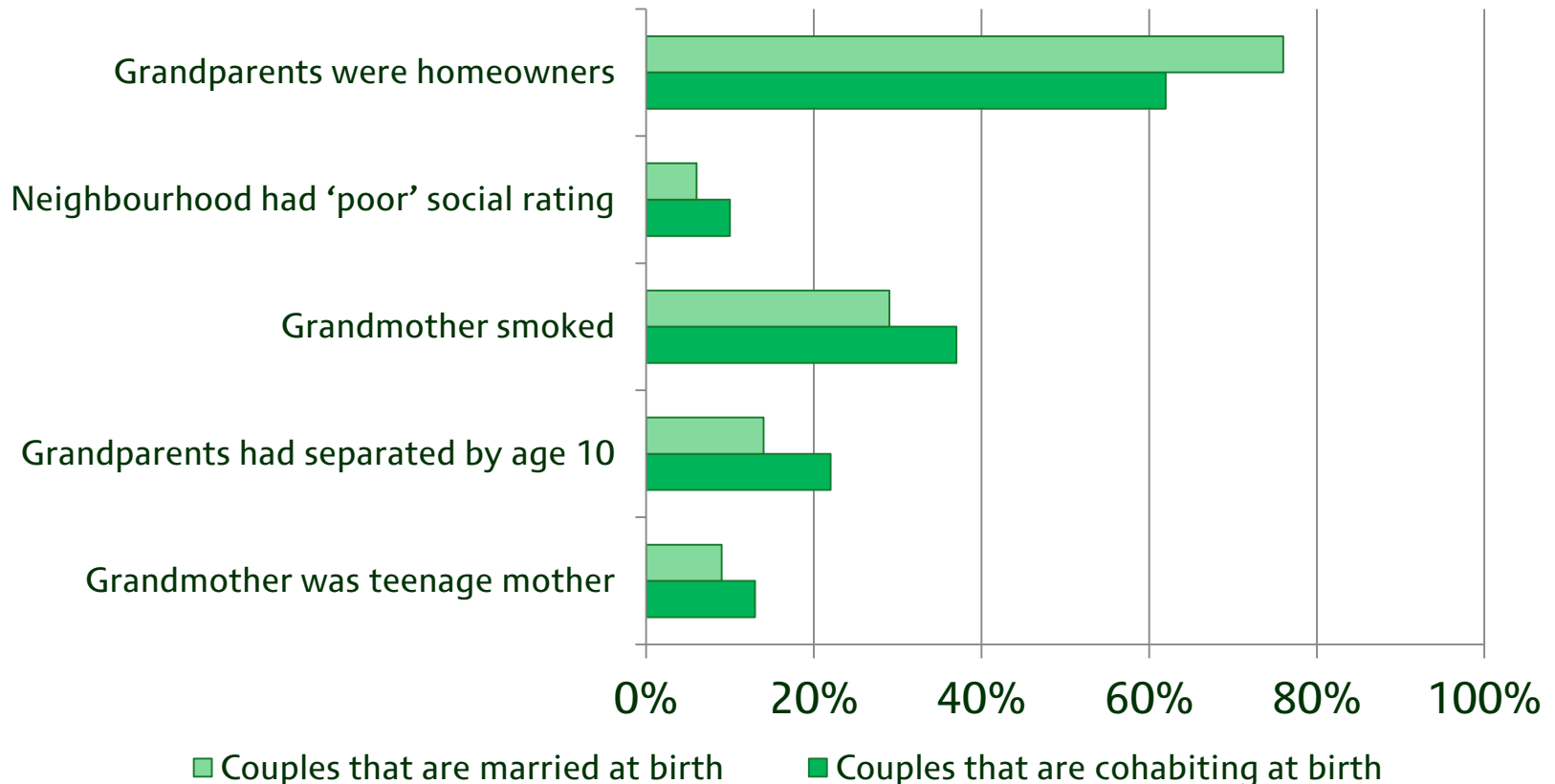

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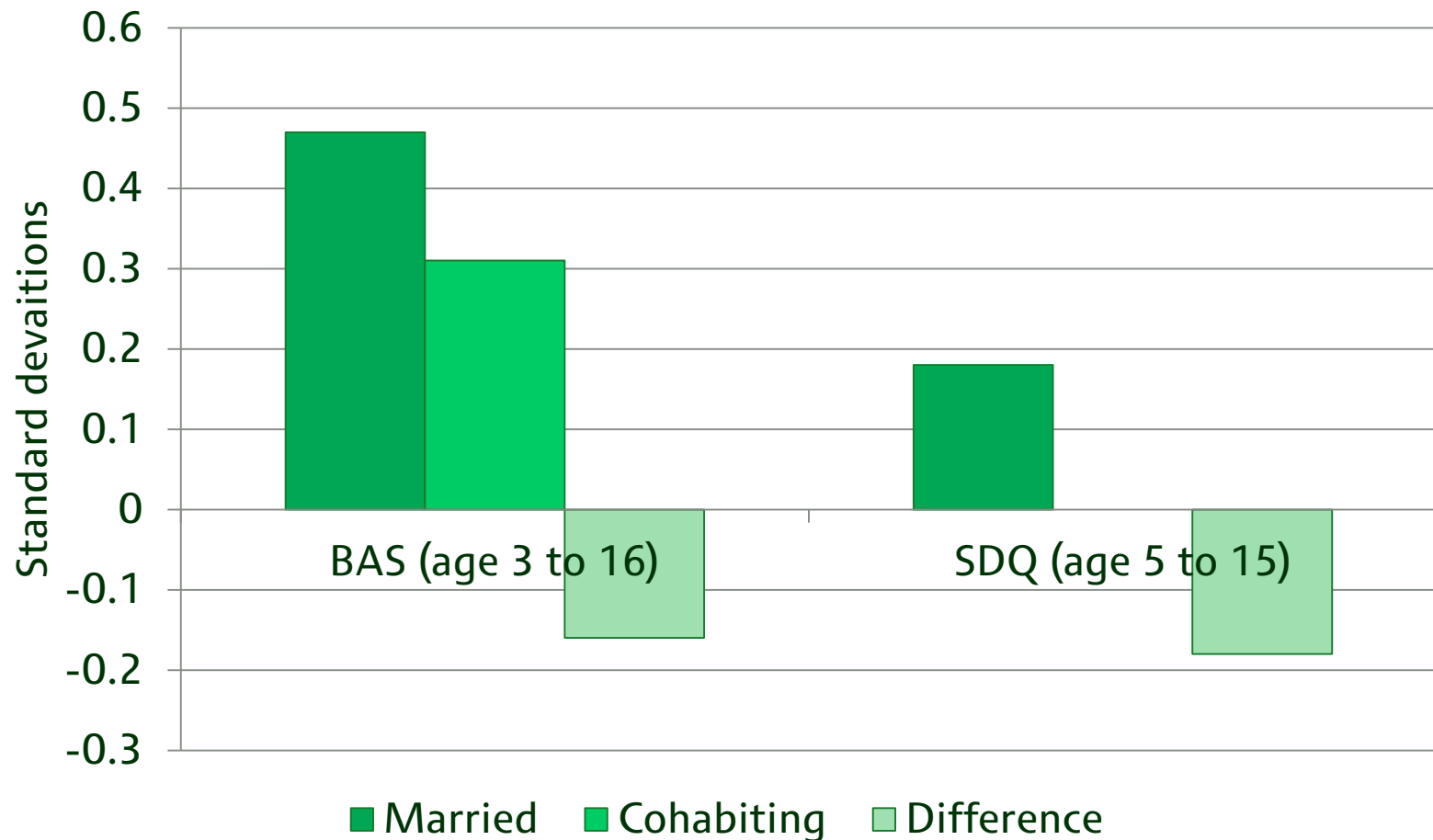
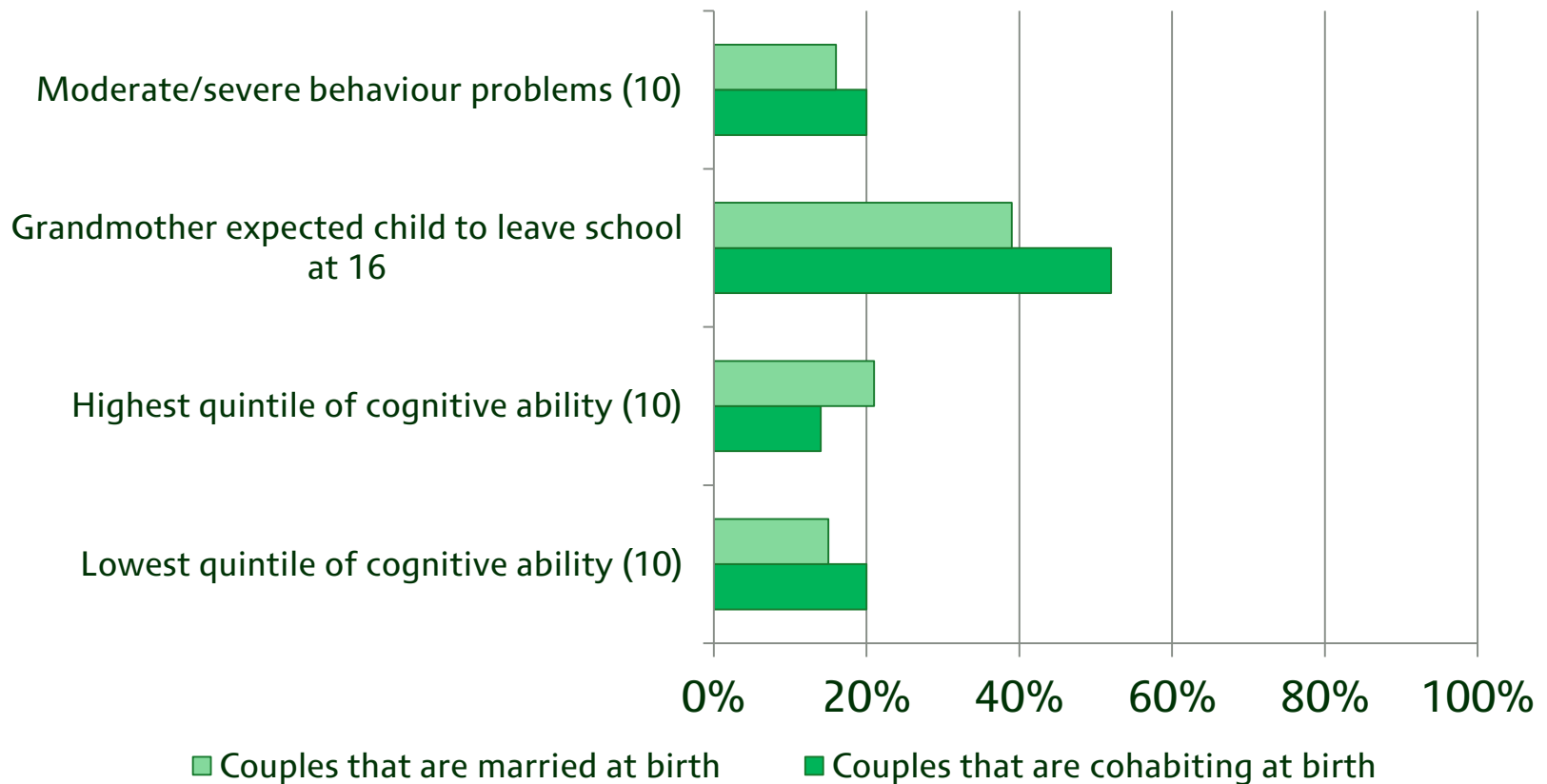# Characteristics that are unlikely to be affected by marriage (group 1)

- Parent's socio-economic circumstances as a child

- Parent's cognitive ability

- Parent's behaviour at age 10

- Grandmother very interested in parents education

- Religion

- Parent was in care as a child

- Grandparents separated when parent was a child

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Who decides to get married? Grandparents' background

Horizontal bar chart comparing couples married at birth vs couples cohabiting at birth across grandparents' background factors:

- **Grandparents were homeowners**: married ~76%, cohabiting ~62%
- **Neighbourhood had 'poor' social rating**: married ~6%, cohabiting ~10%
- **Grandmother smoked**: married ~29%, cohabiting ~37%
- **Grandparents had separated by age 10**: married ~14%, cohabiting ~22%
- **Grandmother was teenage mother**: married ~9%, cohabiting ~13%

■ Couples that are married at birth   ■ Couples that are cohabiting at birth

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Who decides to get married? Parents' childhood ability

Explaining the differences in development between children born to cohabiting and married couples using the BCS

	1	2	3
BAS, ages 3 to 16 (N=3020)	-0.152**	-0.144**	-0.032
SDQ, ages 5 to 15 (N=2291)	-0.177**	-0.167**	-0.052

Note: * $p < 0.05$, ** $p < 0.01$

1 controls for no characteristics of the parents

2 controls for characteristics of the child and parents that closely match those exogenous variables available in the MCS. Child: gender, ethnicity. Parent: religion, in care as child, own parents separated, mother/father born outside UK, height

3 controls for characteristics of the parent additionally available in the BCS. Parent: socio-economic circumstances as a child, cognitive ability, behaviour during childhood, mother's interest in education, expectations of education, age of mother when born, stammer/stutter as child, smoking by age 16, overweight as child

- Differences in cognitive and socio-emotional development between children born to cohabiting and married parents seem to largely reflect selection, rather than pathways through which marriage might affect child development

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Conclusions

- Our findings using the MCS suggest that the differences in child outcomes between married and cohabiting couples largely reflects differential selection rather than a causal effect of marriage

- Arguments against our conclusion must show that marriage itself leads to very significant improvements in:

  - parents' socio-economic status and

  - relationship quality

- Characteristics in the BCS data pre-date the marriage decision

- Findings from BCS corroborate findings from MCS

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Policy implications

- Marriage / cohabitation "gap" is relatively small, without accounting for selection

- Marriage itself seems not to drive differences in outcomes

- Many factors influence children's development

- Other areas should be the focus for policy?

  - Education

  - Cognitive skills

  - Planned pregnancy

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Outcome	A	B	C	D	E	F	G
Natural parents live apart for at least a month before the child is 3	0.177**	0.164**	0.148**	0.099**	0.062**	0.031**	0.020*
Natural parents not living together at age 3							
Natural parents not living together at age 5							
Natural parents not living together at age 7							

Note: * p < 0.05, ** p < 0.01

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

E also controls for occupational status, household income, tenure and work at 9 months

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Outcome	A	B	C	D	E	F	G
Natural parents live apart for at least a month before the child is 3	0.177**	0.164**	0.148**	0.099**	0.062**	0.031**	0.020*
Natural parents not living together at age 3	0.135**	0.119**	0.109**	0.070**	0.047**	0.026**	0.016*
Natural parents not living together at age 5	0.154**	0.136**	0.124**	0.086**	0.057**	0.028**	0.016
Natural parents not living together at age 7	0.174**	0.152**	0.135**	0.095**	0.062**	0.029*	0.015

Note: * p < 0.05, ** p < 0.01

A controls for the child's month and year of birth

B also controls for mother's ethnicity, immigration status and religion

C also controls for mother's background (ever in care, own parents separated, children from a previous relationship)

D also controls for the highest educational qualification of the mother and father

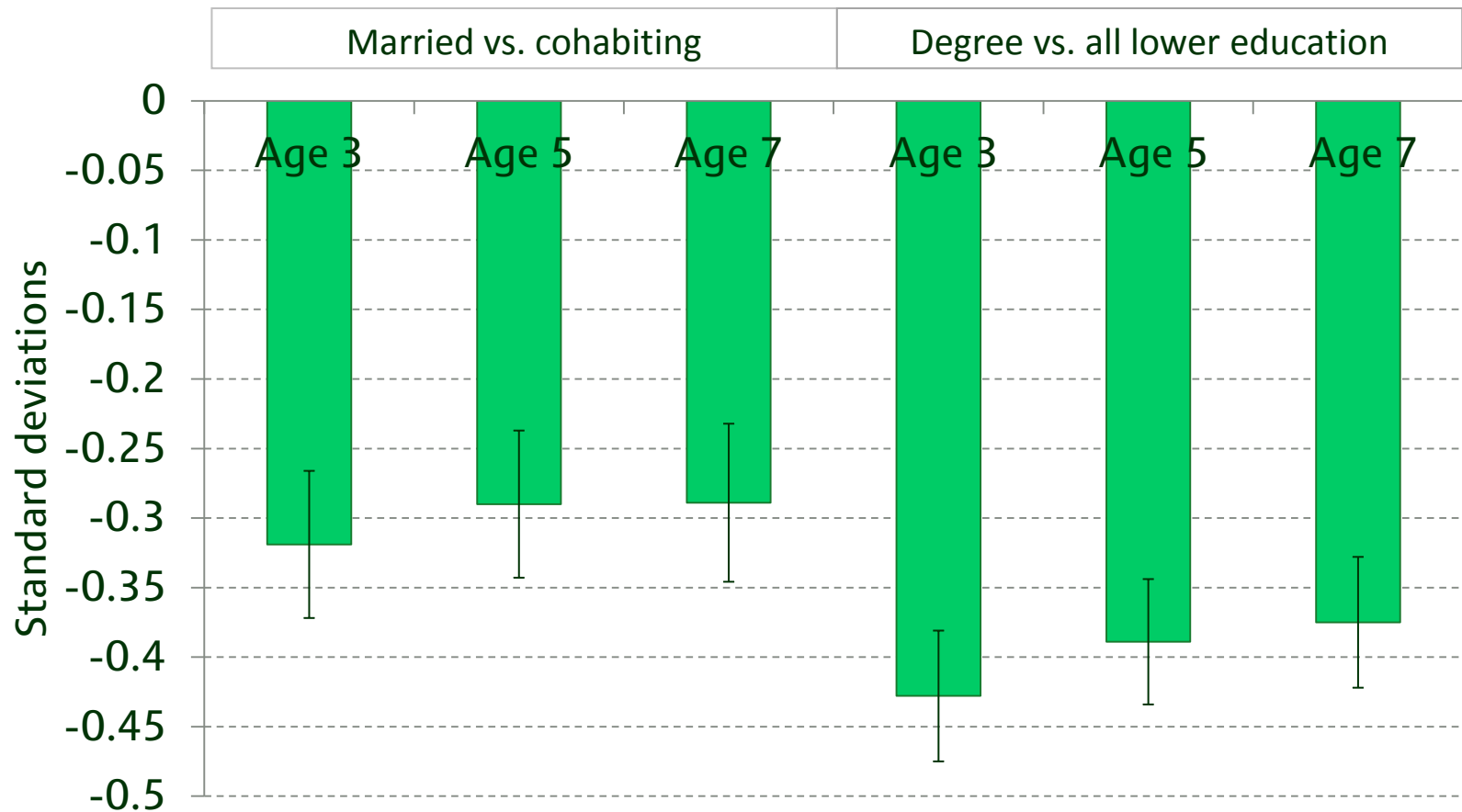E also controls for occupational status, household income, tenure and work at 9 months

F also controls for family structure at 9 months

G also controls for relationship quality at 9 months

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BAS over time for different comparison groups

SDQ over time for different comparison groups
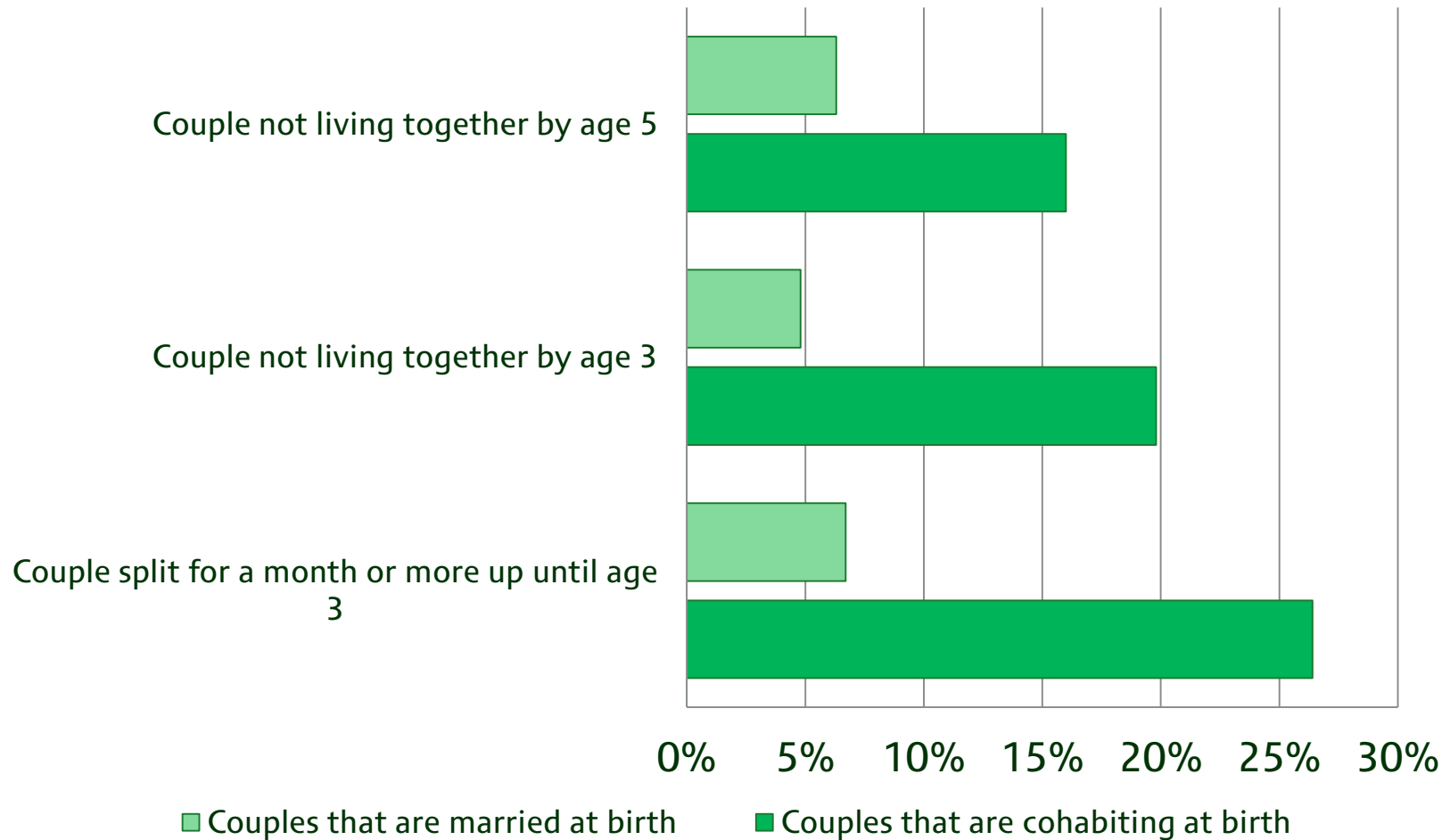
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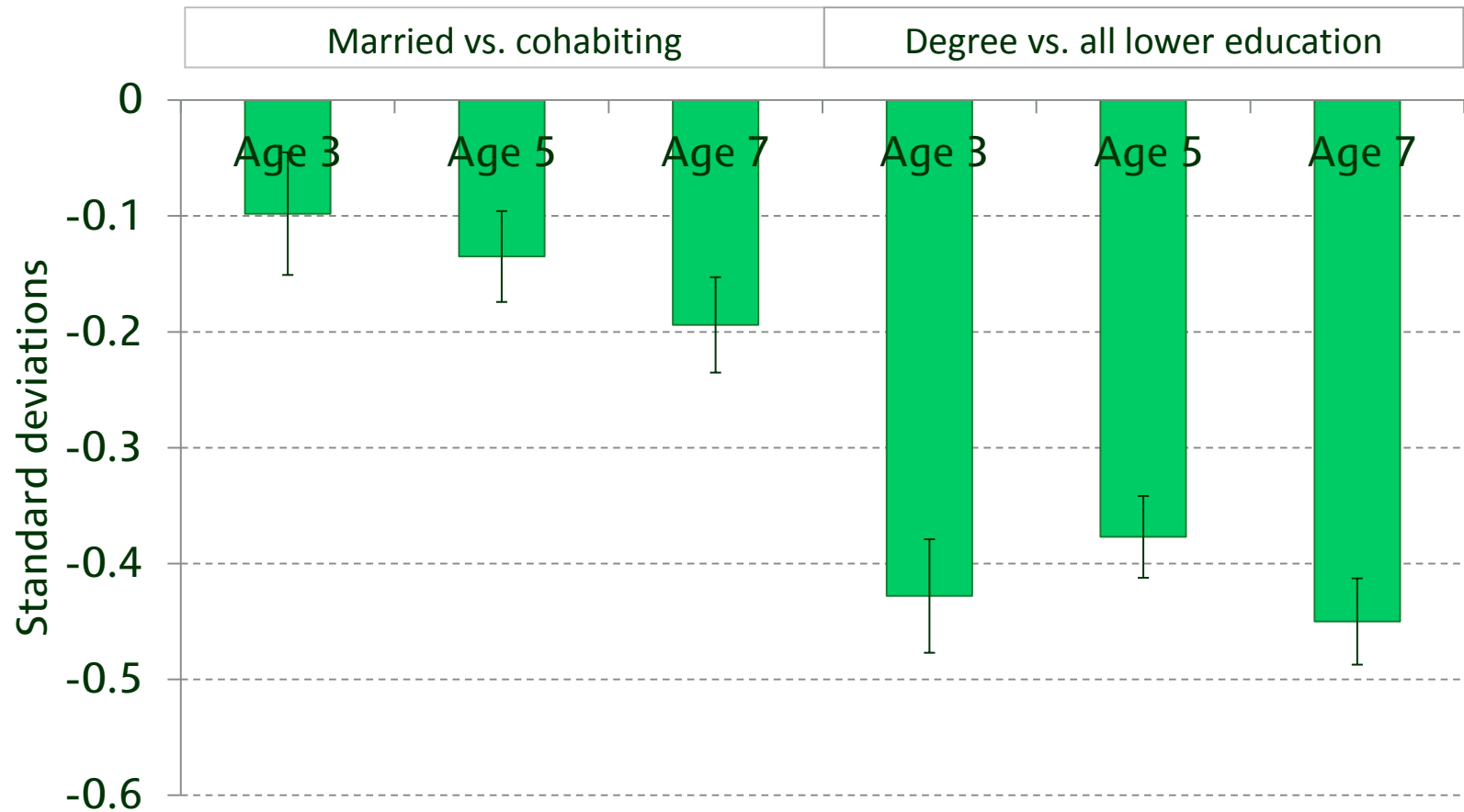
Characteristics are more likely to be affected by marriage, but may still reflect selection
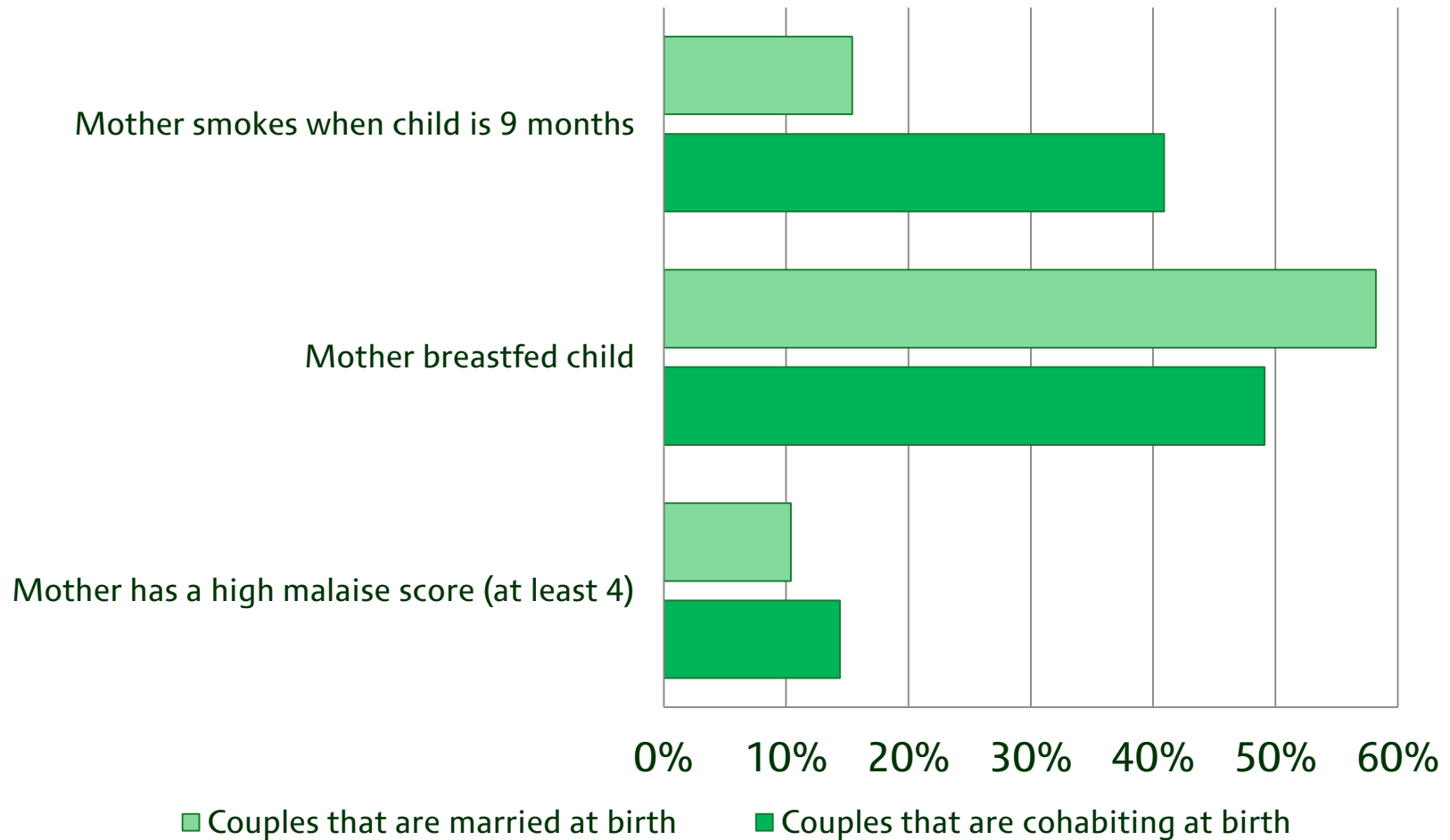
- Labour supply later in the child's life

- Relationship quality later in the child's life

- Couple experience a period of separation

- Couple split up later in the child's life

- Health outcomes (mother and child)

- Parenting outcomes

- We think of these characteristics as possible pathways

- These can also be debated…

What are the characteristics of married couples? Relationship stability

Couple not living together by age 5

Couple not living together by age 3

Couple split for a month or more up until age 3

0% 5% 10% 15% 20% 25% 30%

■ Couples that are married at birth   ■ Couples that are cohabiting at birth

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What are the characteristics of married couples? Mother's health and health related behaviours

Mother smokes when child is 9 months

Mother breastfed child

Mother has a high malaise score (at least 4)

0% 10% 20% 30% 40% 50% 60%

■ Couples that are married at birth ■ Couples that are cohabiting at birth

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What are the characteristics of married couples? Parenting and home routines

Father's involvement is in the lowest quintile at 9 months

Mother thinks good or very good parent at age 3

Father thinks good or very good parent at age 3

Child has regular bedtime

Child is read to daily

0% 20% 40% 60% 80% 100%

■ Couples that are married at birth ■ Couples that are cohabiting at birth

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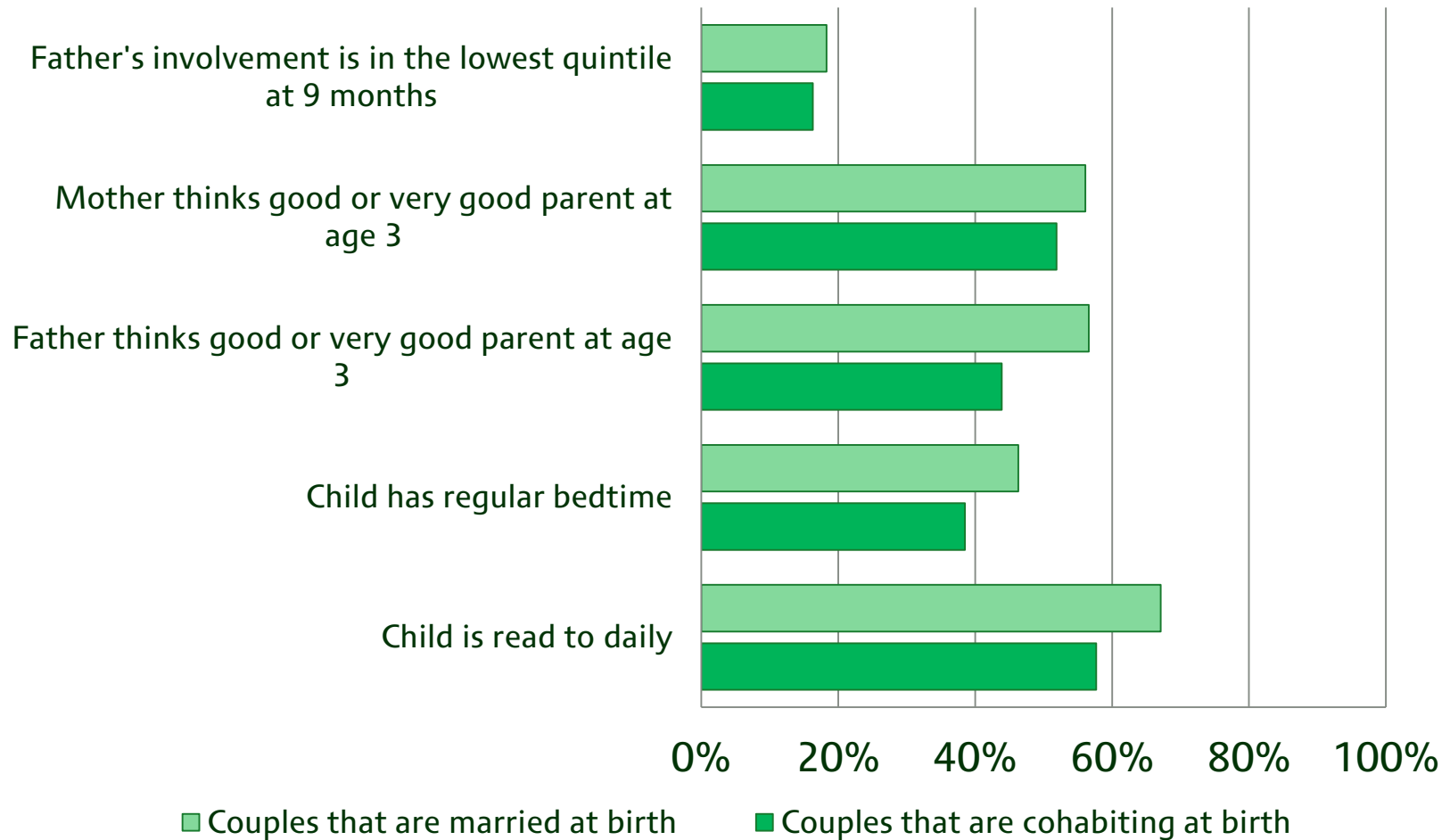
Legal arrangement	Married couples	Cohabiting couples
Parental responsibility	Both married parents	An unmarried mother has sole responsibility unless birth is jointly registered
Financial support	Legal duty to support the other	No legal duty to support the other
Debt	No difference	
Occupational pension	Must offer equal benefits for husbands and wives	No obligation to offer equal benefits
Welfare benefits and tax credits	No difference	
Tax	No difference Unless one partner born before 6 April 1935 (See inheritance tax)	
Inheritance	Money or property is exempt from inheritance tax No will – surviving partner will automatically inherit all or some	Money or property is not exempt from inheritance tax. No will – surviving partner will not automatically inherit

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Legal arrangement	Married couples	Cohabiting couples
Ending the relationship	Formal process - divorce	Informal process
Money and possessions	Property owned by each partner is taken into account for financial settlement on divorce.	The person who bought an item generally owns it. Owned jointly if bought from a joint account.
Contact with children	No difference	
Financial support of children	No difference	
Housing	Both have a right to remain in the home	No legal right to remain in the home if sole tenant

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