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Parental ethnic identity and child development*

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Abstract

We examine the relationship between parental ethnic identity and cognitive development in ethnic minority children. This aspect of parental identity may shape children's cognitive outcomes through a direct influence on parenting behaviour, or by mediating parental access to social resources. Drawing an ethnic minority sample from a detailed UK cohort study, we find a negative association between maternal majority identity and children's cognitive test scores. This result is driven by poor households, by those who lack local family support networks, and by those who mostly speak a foreign language at home. We suggest that differential access to social resources is the most persuasive explanation of this result. Differences in parenting behaviour do not seem to play an important role.

JEL codes: I21; J13; J15

Keywords: Ethnic identity, national identity, child development

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1 Introduction

Early childhood circumstances and parental investment play a central role in the development of social and cognitive skills in children, and have therefore been implicated in a range of important later outcomes, including educational attainment, employment, and health (Becker, 1981; Becker and Tomes, 1976; Conti and Heckman, 2014; Cunha et al., 2006; Knudsen et al., 2006). Unexplained ethnic disparities in such outcomes are also often attributed to experiences in the early years (Carneiro et al., 2005). Factors which differentially affect the behaviour or social environment of ethnic minority parents are therefore of central interest for understanding ethnic disparities over life. Parental ethnic identity may be particularly important in this respect.

A literature in economics now recognises identity as a key determinant of individual and group behaviour. Much of this work follows the framework provided by Akerlof and Kranton (2000). Identity is defined as a person's "sense of self", arising from her membership of different social categories. These categories can be based on characteristics such as gender, language, ethnicity, or nationality, and each is associated with different behavioural norms. Adherence to or deviation from these norms shapes the rewards associated with different actions. As a result, identity is implicated in a wide variety of social and economic activities, including pro-social behaviour (Bernhard et al., 2006; Chen and Li, 2009), support for redistributive policies (Costa i Font and Cowell, 2015), consumption preferences (Chiswick, 2009), and contributions to public goods (Benjamin et al., 2016).

Ethnic identity is an area of particular interest, since it relates to the social and economic integration of minority groups, and therefore to the functioning of society as a whole. It is also a domain in which individuals may hold more than one identity: minority group members can identify with the majority group, the minority group, or some combination of the two (Berry, 1997; Phinney et al., 2001). Several studies have examined the determinants of minority identity (Campbell, 2018; Casey and Dustmann, 2010; Constant, Gataullina and Zimmermann, 2009; Constant and Zimmermann, 2008; Depetris-Chauvin et al., 2018; Dustmann, 1996; Georgiadis and Manning, 2013; Manning and Roy, 2010; Masella, 2013; Zimmermann et al., 2007, 2008), while others have considered the role of these identities in shaping labour market outcomes (Battu and Zenou, 2010; Bisin et al., 2011*a*; Constant and Zimmermann, 2009; Constant et al., 2006; Drydakis, 2013; Islam and Raschky, 2015; Mason, 2004; Nekby and Rödin, 2010; Pendakur and Pendakur, 2005). In general, this work on labour market outcomes suggests that a strong minority identity can have negative consequences for minority individuals, while a strong majority identity usually has positive implications.

Our innovation is to introduce parental ethnic identity to the analysis of child development. The expected sign of the relationships we are studying is uncertain. The quality of parental investments and access to social resources could plausibly be improved by a strong parental minority identity, if affiliation with the minority group improves self-esteem by affirming heritage, or allows access to informal parenting support by signalling minority group commitment. Two papers in economics show

that both personal and parental minority identity are linked with positive educational outcomes for older minority children and young adults (Nekby et al., 2009; Schüller, 2015), and a broader literature in developmental psychology gives comparable results for personal minority identity in adolescents (see Miller-Cotto and Byrnes, 2016, for a recent review). However, it is also possible that a strong minority identity could lead to over-investment in ethnicity-specific human and social capital, leaving parents and children isolated from the resources of the majority society, and therefore harming the cognitive outcomes of minority children.

Parental investments and access to social resources could also be improved by a strong parental majority identity, if majority affiliation is linked with stronger majority-group language skills, better knowledge of majority-group institutions, or a higher degree of cultural integration (Schüller, 2015). However, a parental majority identity could equally be harmful for minority children, if it causes family resources to be spread more thinly across investments in minority and majority human or social capital. Increasing returns to scale may create incentives for minority families to specialise in minority human and social capital investments when raising children. Minority parents who adopt the majority identity could miss out on the gains from such specialisation.

The investigation of parental ethnic identity and child development is important for three reasons. First, as we note above, the early years are crucial for later development trajectories, and different experiences in the early years are often thought to be responsible for ethnic disparities later in life. It is therefore critical to understand the role of ethnic identity in outcomes at this age. Second, many developed countries have seen an increase in the size of ethnic minority populations in recent years, and the demographic profile of these populations is often young compared to that of the ethnic majority. For example, although only around 15% of the overall population of England is from an ethnic minority background, minority children make up nearly a third of the current primary school population.[1] Close to half of the school-age population in the USA is from a minority background, compared to around 40% of the country overall (Musu-Gillette et al., 2017). The future economies of such diverse societies will therefore be substantially shaped by the current educational performance of minority as well as majority children. A final reason for the importance of this topic relates directly to public policy. Several countries have responded to increased ethnic diversity by introducing education and citizenship policies that actively promote the majority identity,[2] while generally discouraging the maintenance of separate identities in ethnic minority communities (Berry, 1974; Uberoi and McLean, 2007). The role of parental ethnic identity in child development is therefore an active policy concern.

Using an ethnic minority sample drawn from a detailed UK cohort study, we examine the

[1]These figures come from the 2016 Annual Population Survey (www.nomisweb.co.uk) and the 2016 School Census (www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2016, accessed on 20 January 2019).

[2]For example, Manning and Roy (2010) cite language requirements, 'citizenship' classes in schools, citizenship ceremonies, and tests of cultural knowledge for those seeking citizenship as measures intended to promote the majority identity.

relationship between parental ethnic identity and children's cognitive development. We employ separate measures of parental minority and majority identity, alongside tests of children's cognitive functioning in three key domains. We find a negative association between maternal majority identity and children's test scores in maths and reading. This association is driven by poor households, by those without recourse to local family support networks, and by those who speak a foreign language at home. We suggest that differential access to social resources is the most persuasive explanation of this result. Parental minority identity shows only a weak association with children's cognitive outcomes.

2 Related literature

An expanding literature assesses the importance of ethnic identity in the economic lives of immigrants and ethnic minority individuals. The empirical side of this literature is guided by a body of theoretical work established over the last two decades in economics, much of which builds on the framework provided by Akerlof and Kranton (2000) (Akerlof, 1997; Akerlof and Kranton, 2002, 2005; Battu et al., 2007; Bénabou and Tirole, 2011; Bisin et al., 2011*b*, 2016; Kranton, 2016). Earlier contributions in sociology and social psychology have also been influential (for example: Berry, 1997; Merton and Merton, 1968; Tajfel and Turner, 1979; Wetherell, 1996).[3]

The central empirical question for economists working on this topic concerns how minority and majority identity shape labour market outcomes for immigrants and ethnic minority individuals.[4] There is evidence both from North America and from several European countries that a strong minority identity harms labour market prospects (Battu and Zenou, 2010; Bisin et al., 2011*a*; Mason, 2004; Pendakur and Pendakur, 2005), while there are also some indications that a strong majority identity can be beneficial in this regard, even when it is combined with a strong minority identity (Constant et al., 2006; Constant and Zimmermann, 2009; Drydakis, 2013; Nekby and Rödin, 2010). However, strong labour market implications have not been detected in every setting. Islam and Raschky (2015) find only weak effects of ethnic identity on labour market outcomes in Canada, while Casey and Dustmann (2010) find only weak associations in Germany.

We link this literature on ethnic identity to the large and well-established body of work examining parental investments and the formation of cognitive skills in early childhood (for example, Becker, 1981; Becker and Tomes, 1976; Conti and Heckman, 2014; Cunha et al., 2006; Knudsen et al., 2006). The fundamental insight from this work is that parental investments and other experiences in the early years are particularly important for cognitive development, since skills acquired at this stage not only persist into later periods, but also affect the productivity of later learning. Carneiro et al. (2005) emphasise that differences in the experiences of ethnic minority children in this age group

[3] Akerlof and Kranton (2002) provide a review of the earlier social scientific literature with a focus on education.

[4] Other areas explored include the influence of minority and majority identity on housing tenure (Constant, Roberts and Zimmermann, 2009) and political violence (Depetris-Chauvin et al., 2018). Chiang et al. (2018) consider the role of economic integration in forming a national identity.

are crucial for understanding ethnic wage gaps in adulthood. The distinct experiences of minority and majority children may partly reflect language difficulties (Bleakley and Chin, 2008; Casey and Dustmann, 2008; Schnepf, 2007), average differences in parental human capital endowments more generally (Algan et al., 2010; Belzil and Poinas, 2010; Cobb-Clark and Nguyen, 2012; Colding, 2006; Djajić, 2003; Nielsen et al., 2003; Van Ours and Veenman, 2003), family or neighbourhood poverty levels (Aber et al., 1997; Bradley et al., 2001; Brooks-Gunn et al., 1996), or ethnic discrimination (Bécares et al., 2015; Ford et al., 2013).

Two papers address the influence of ethnic identity on the outcomes of older children in an educational context. Nekby et al. (2009) examine tertiary education among young adults with immigrant backgrounds in Sweden. They find that men in their early twenties who report both minority and majority identities are more likely to complete tertiary education than others, although they find no such association for women. Schüller (2015) introduces an intergenerational perspective, and finds that immigrant children in Germany are more likely to be placed in the middle or upper tier of secondary education if their father reports a strong minority identity, or if their mother reports a strong majority identity. Children are aged 10-14 years at the point that this placement decision is made.

Our study is the first to examine the relationship between parental ethnic identity and cognitive outcomes in children of primary school age, a developmental stage where parental behaviour and the social environment are particularly influential. Our data contain direct measures of cognitive ability, and we can therefore examine a precise mechanism that links ethnic identity with the broader educational outcomes explored in previous studies.[5] These early and detailed measures of cognitive ability allow us to combine insights from previous work on child development with the growing literature on ethnic identity, and to further illuminate the factors driving differences in development within the minority population.

3 Data

Our data come from the Millennium Cohort Study (MCS). The MCS follows around 19,000 children born in the UK between 2000 and 2001; of these around 3,000 are from ethnic minority families.[6] The initial survey design oversamples families living in high poverty areas, as well as areas with large ethnic minority populations.[7] Detailed information is collected on each cohort member, their families, and the home environment. We use only cohort members born in Great Britain (England,

[5]While cognitive skills are a key driver of educational outcomes, other factors, such as familiarity with the educational system, are also relevant and may also be influenced by parental identity. Earlier results are likely to reflect a confluence of several factors.

[6]The vast majority of cohort members are singletons, and, while the MCS does contain twins and triplets, we exclude these children from our sample.

[7]Oversampling of high poverty areas occurs throughout the UK, whereas oversampling of areas with large ethnic communities is confined to England, where ethnic minorities are disproportionately concentrated. Hence, our sample is mostly drawn from England and our results should be extrapolated to the rest of Great Britain with caution.

Scotland, and Wales), since questions about ethnic identity are not asked in Northern Ireland.

Cohort members and their families are interviewed when the child is 9 months old, and then again when the child is aged 3, 5, 7, 11, and 14 years. Data are collected through face-to-face interviews for generic information, and by self-completion for more sensitive topics. The main carer of each cohort member (the mother in 98% of cases) provides information on the child and family setting, while both the main carer and father figure (if resident) provide more sensitive information via self-completion. Questions on ethnic identity are in the parents' self-completion questionnaire in the age 5 survey. We take the outcome and control variables from the age 7 survey, in order to remove any influence of contemporaneous child cognitive outcomes on parental identity. We restrict the sample to families that are present in both waves.

In our estimation sample, 20% of cohort members do not live with their father, and among those that do, just 63% have the necessary information supplied by fathers to carry out our analyses of paternal ethnic identity. We therefore use two samples: the first comprises the children of all ethnic minority mothers, which we use to analyse maternal identity, and the second comprises the children of ethnic minority mothers in couples with complete partner information, which we use to analyse both paternal and maternal ethnic identity. After excluding those with missing information on the outcome and family variables, our main sample is composed of 1249 children, of whom 629 have two parents with complete information on the father.

Outcomes of interest

At age 7, cohort members are tested in three key domains of cognitive functioning: maths, spatial problem solving, and reading skills. Proficiency in maths is determined using a shortened version of the 'National Foundation for Educational Research Progress in Maths' test, in which children perform calculations on a range of topics including numbers, shapes, measurement, and data handling. Spatial problem solving and reading skills are measured using the second edition of the 'British Ability Scales', through a pattern construction test (where children must replicate a design using patterned squares) and a word reading test (where children read words presented on a card).[8]

We consider these three test scores as separate outcomes. Parents may provide different inputs across the three areas. For example, some parents may privilege play with puzzles, blocks and board games, which have been linked to higher levels of spatial ability (Jirout and Newcombe, 2015), while others may privilege reading with their children (Hofferth, 2009). The three domains of cognitive functioning also have distinct implications for subsequent educational and occupational choices. For example, students with high ability in maths and spatial problem solving are more likely to take 'STEM' (Science, Technology, Engineering, or Mathematics) subjects at degree level and beyond, while students with higher verbal ability are concentrated within the arts and humanities (Uttal and Cohen, 2012; Wai et al., 2009). While maths and spatial problem solving abilities are highly

[8]Connelly (2013) provides a useful discussion of tests available in the MCS.

correlated, spatial ability appears to play a role independently of maths in driving achievement in STEM subjects (Wai et al., 2009).

We use the age-standardised versions of test scores available in the MCS, which take into account the extra time that older children within the cohort have had to develop their skills. For ease of interpretation and comparability, we standardise test scores in maths, spatial ability and reading by subtracting the mean and dividing by the standard deviation of test scores observed in the entire sample of MCS children. Figure 1 shows the distribution of these standardised test scores for our sample of ethnic minority children. The distributions suggest that ethnic minority children perform slightly better than majority children in reading tests, and slightly worse in maths and spatial problem solving tests.

Measures of Parental Ethnic Identity

We capture parental ethnic identity using two questions from the self-completion module of the MCS. Parents who indicate they belong to any non-white ethnic minority group are asked to what extent they agree with the following statements: *In many ways I think of myself as British* and *In many ways I think of myself as [name of ethnic group]*.[9] Respondents may choose any one of six responses: (1) Strongly agree, (2) Agree, (3) Neither agree nor disagree, (4) Disagree, (5) Strongly disagree, or (6) Can't say. Battu and Zenou (2010) interpret these questions as addressing identification with a country, with a place, and its way of living.[10] Similar questions, which focus on the degree to which an individual values their ethnic origin and their sense of belonging to the adopted country, are used to measure ethnic identity in Islam and Raschky (2015) and Schüller (2015).

Figure 2 presents the distribution of responses to the minority and majority identity questions in the MCS, where the size of each circle represents the frequency of responses in each combination of identities (and 'Can't say' has been combined with 'Neither agree nor disagree'). It is clear from this figure that majority and minority identities are not mutually exclusive, since many responses are located in the top right quadrant, indicating either agreement or strong agreement with both statements. Using these responses, we construct minority and majority identity indicator variables equal to one if individuals agree or strongly agree with each statement.[11] By this definition, just under two thirds (63%) of ethnic minority mothers have a majority identity, while an even greater

[9]Respondents have usually indicated their ethnic group in an earlier wave of the MCS. They may choose from 16 ethnic categories if they live in England, 17 categories if they live in Wales, and 14 categories if they live in Scotland. The categories are based on the 2001 census. For England, the categories are: 'White - British'; 'White - Irish'; 'Any other White background'; 'Mixed - White and Black Caribbean'; 'Mixed - White and Black African'; 'Mixed - White and Asian'; 'Any other mixed background'; 'Asian/Asian British - Indian'; 'Asian/Asian British - Pakistani'; 'Asian/Asian British - Bangladeshi'; 'Any other Asian background'; 'Black/Black British - Caribbean'; 'Black/Black British - African'; 'Any other Black background'; 'Chinese'; 'Any other'.

[10]Battu and Zenou (2010) use a different survey (the Fourth National Survey of Ethnic Minorities) where the same question appears.

[11]'Can't say' responses therefore feature in the reference category. Results are robust to dropping these 86 individuals from the sample.

proportion (72%) have a minority identity (see Table 1). Almost half of mothers have a majority as well as minority identity, with 40% reporting either a majority or minority identity but not both, and just over 10% reporting no particular attachment to either the majority or minority group.

Other controls

A key concern when introducing control variables in this type of analysis is that parental ethnic identity could determine many of the household characteristics observed. For example, although parental employment status and educational attainment may be important in shaping parental inputs and the quality of the learning environment at home (Bettinger et al., 2014; Ruhm, 2004; Todd and Wolpin, 2007), several studies cited above suggest that education and employment may be influenced by ethnic identity. We therefore start with a conservative specification that controls only for the gender of the child and the ethnicity of the mother.[12] These variables are plausibly exogenous to parental ethnic identity, and may partly explain differences in cognitive test scores. Gender and ethnic differences in attainment emerge as early as the foundation stage of primary education (Mensah and Kiernan, 2010; Wilson et al., 2011).

We next introduce controls that may partially be influenced by parental ethnic identity but are also important for children's cognitive development. We label these variables our 'main controls'. These include whether the mother is foreign born, whether she is a single parent, a quadratic term for her age at the time the child was born, and a linear term in the number of siblings in the household. Mothers who are born abroad often have different formative experiences, which may in turn influence their own parenting styles. Children of young mothers and those in single parent households typically fare worse than other children in both cognitive and behavioural development (Dunifon and Kowaleski-Jones, 2002; Hawkes and Joshi, 2012). Siblings may negatively affect child development as a result of increased competition for material resources and parental attention (Black et al., 2005) but may also have a positive influence on social, emotional and cognitive development (de La Rochebrochard and Joshi, 2013). In this expanded specification, we also control for cases where the child lives in a two parent household, but the father did not respond to the identity questions in the MCS, and cases where the father responded as the main parent.

Finally, in Table A.1 in the Appendix, we control for the household socio-economic circumstances most likely to be influenced by parental ethnic identity. We label these 'additional controls'. These include parental education and employment status, household and neighbourhood deprivation, access to family and friendship networks in the local area, and whether a foreign language is the main language spoken at home. While these variables do not appear in our baseline estimates, we do explore heterogeneity in the impact of parental ethnic identity across several of these dimensions below.

[12]We present results from models interacting identity with each ethnic group separately in Table A.2 in the Appendix. The estimates do vary across ethnic groups, but are generally imprecise, since they are based on smaller samples.

Table 1 presents summary statistics for the outcome variables, the 'main controls', and the 'additional controls' for the two samples used in our analysis: the 'All mothers' sample and the 'Mothers in couples with father information' sample. These samples differ in ethnic composition, and in the economic situation of households. The sample restricted to mothers in couples with complete partner information has a higher proportion reporting their ethnicity as Indian, and a higher proportion born abroad. Families in this sample are also less likely to be deprived or to live in deprived neighbourhoods. There is no difference across the two samples in mothers' age at the birth of the child, whether or not a foreign language is the main language spoken at home, or in the number of siblings. In terms of our key variables of interest, both samples report very similar levels of majority identity, but mothers in couples with father information are slightly more likely to report a minority identity. Mothers and fathers report similar levels of minority identity, but fathers are slightly more likely to report a majority identity.

4 Empirical model and results

Empirical model

To examine the relationship between parental ethnic identity and cognitive development in ethnic minority children, we estimate the following equation using ordinary least squares (OLS):

$$Y_{it} = \beta_0 + \beta_1 \text{Mother majority identity}_{it-1} + \beta_2 \text{Mother minority identity}_{it-1} + \delta X_{it} + \varepsilon_{it} \qquad (1)$$

where Y_{it} denotes the relevant test score (maths, spatial problem solving, or reading) of child i at time t (age 7), Mother majority identity$_{it-1}$ and Mother minority identity$_{it-1}$ measure maternal ethnic identity at $t-1$ (age 5), X_{it} is the vector of control variables discussed above, and ε_{it} is a random, normally distributed error term. Hence, β_1 represents average differences in performance on each test (in standard deviations) between children whose mothers report a majority identity relative to children whose mothers do not, while β_2 represents the same for children whose mothers report a minority identity. We extend this specification to include the father's majority and minority identity for our sample of couples.

Main results

Table 2 presents our baseline results. The top, middle and bottom panels report the association between parental ethnic identity and child test scores in maths, spatial problem solving, and reading respectively. Results in columns (1) and (2) are based on the sample of all mothers while columns (3) and (4) are based on the sample of couples with complete information on the father. Odd-numbered columns include only controls for the gender of the child and ethnicity of the mother, while even-numbered columns also include other demographic controls as discussed above and listed

as 'main controls' in Table 1.

Focussing on the sample including all mothers, our results indicate that children of mothers with a majority identity perform worse than others in maths and reading. Test scores in these two subjects are 0.124 and 0.122 standard deviations lower in this group respectively. This association is of a similar size to that of living in material deprivation or in housing poverty (results showing the estimates for these and other control variables are presented in Table A.1 in the Appendix). The result for maths is robust to the inclusion of our main control variables (column 2) and additional control variables (see Table A.1 in the Appendix), but the estimated effect on reading scores diminishes in size and is no longer statistically significant once further control variables are included. There are no clear differences in scores by parental majority or minority identity for spatial problem solving.

In columns (3) and (4) we present results based on the sample of couples with complete information on the father. These estimates are similar to those reported for the entire sample of mothers, although the magnitude of the estimates for maternal majority identity is somewhat diminished, and some precision is lost due to the smaller sample size. In columns (5) and (6), we augment this specification with measures of paternal ethnic identity. This allows us to see if the ethnic identities of mothers and fathers have different implications, or if the influence of maternal ethnic identity is simply a reflection of the ethnic identity of the father. This does not appear to be the case, as the coefficients for paternal ethnic identity are small and imprecisely estimated. Maternal majority identity continues to have a negative association with test scores in maths, though the estimates are no longer statistically significant. In subsequent analysis we focus on the larger sample containing all mothers.

The distinct cultures and immigration histories of different ethnic minority groups may affect the relationship between parental ethnic identity and children's cognitive development. We address this possibility with the results in Table A.2 in the Appendix. The direction and magnitude of the negative association between maternal majority identity and maths test scores is similar across all ethnic groups, although the estimates are generally less precise compared to baseline. The associations between maternal minority identity and child test scores are more varied in sign and magnitude, and also mostly imprecise, though there is a positive association between minority identity and maths test scores for those mothers who report their ethnicity as Indian.

One alternative method of operationalising ethnic identity is based on the acculturation framework (see Berry, 1997; Constant et al., 2006; Constant and Zimmermann, 2008; Drydakis, 2013; Nekby and Rödin, 2010; Nekby et al., 2009). In this approach, minority individuals are classified as 'Assimilated' if they hold only the majority identity, 'Integrated' if they hold both the majority and minority identity, 'Separated' if they hold only the minority identity, and 'Marginalised' if they hold neither a majority nor a minority identity. We present results using dummies for each of these combinations of minority and majority identity in Table A.3 in the Appendix. The negative association in maths is strongest among those who are 'Assimilated' in these terms. This association is

also negative among those whose are 'Integrated', though the estimate is less precise in this case.

Our baseline results are worth emphasising in the light of policy efforts designed to encourage ethnic minority individuals to adopt the identity of the majority group, in the UK and elsewhere (Berry, 1974; Uberoi and McLean, 2007). The existence of such policies reflects a belief that adoption of the majority identity among minority individuals promotes positive societal outcomes such as social cohesion. Our findings suggest that any positive societal impact of wider uptake of the majority identity could coincide with negative implications in child development for some minority familiess. We explore possible channels linking parental ethnic identity with children's cognitive outcomes in the next section.

5 Potential channels

The role of parental investments

One reason for the negative association we observe between maternal majority identity and child test scores could be that minority mothers who identify with the majority group differ in their access to or use of productive inputs. We examine this possibility by estimating a latent factor score based on parental investments made in children at age 5, two years prior to the cognitive tests we use as outcomes (Dickerson and Popli, 2016, take a similar approach). This latent factor score combines information on how often parents help their children with reading, writing, maths, or painting, how often they read to their children or take trips to the library, and whether they impose regular bedtimes or monitor television watching. It also includes information on the frequency with which parents smack, 'tell off', or shout at their children. We treat these final three actions as parental disinvestment and code accordingly. We standardised our latent factor score to have a mean of zero and standard deviation of 1, and regress it on our measures of identity and main control variables.

Results in column (1) of Table 3 provide little evidence to suggest that ethnic identity influences parental investment. If anything, minority mothers who hold a majority identity appear to make more of these types of parental investments on average. It therefore seems unlikely that direct parental provision of inputs is a mechanism linking maternal majority identity with lower child test scores.

When we include this parental investment latent factor score as a control in our analysis of cognitive test scores (columns (2) to (4)), the association with each outcome is positive but both small and imprecise. The estimated association with test scores in maths is around half the size of that found in Dickerson and Popli (2016), who use MCS data with both ethnic minority and majority children. While we cannot rule out the possibility that parental ethnic identity has an influence on parental investment, these results suggest it is not a decisive mechanism.

The role of poverty

If identity affects parental access to social resources, the relationship between maternal identity and children's cognitive outcomes could be mediated by the economic circumstances of the household. Access to such resources could compensate for financial constraints in the production of human capital, or the absence of such resources could amplify the effect of financial constraints. We therefore investigate the association between maternal ethnic identity and child test scores by income poverty.

Households are classified as income poor if their household equivalised income is below 60% of contemporaneous median household equivalised income before housing costs, according to the most widely-used definition in the UK (from the Child Poverty Act, 2010). Ethnic minority households are much more likely to be below the poverty line than majority households, and just over 50% of our sample are classified as income poor. There is also substantial variation across ethnic minority groups. For example, 75% of Pakistani or Bangladeshi households are classified as income poor, compared to 30% of Indian households.

We present results for families above and below the poverty line in Panel A of Table 4. These results show that the negative association between maternal majority identity and child test scores is largely driven by children in poor families. For example, in maths, children in poor families where the mother reports a British identity score 0.233 standard deviations below other children in poor families. This difference is statistically significant. Among non-poor families, the equivalent coefficient is also negative, but much smaller in magnitude, and imprecisely estimated. Although we cannot reject the null of no difference in test score gaps across the two types of families, these results are at least indicative of an interrelationship between parental ethnic identity and income poverty. We observe a similar pattern of results for reading test scores. The concentration of these negative associations among children who are already facing economic disadvantage may be particularly concerning in the context of integration policies which actively encourage the adoption of the majority identity.

Since households with income below the poverty line also tend to live in poor areas, it is possible that the heterogeneity we observe in our results by family poverty reflects the impact of peers and neighbourhoods. Living in a poor neighbourhood may mean attending a lower quality school or interacting with a lower socio-economic status peer group, and has been linked to later educational attainment independent of family characteristics (Chetty et al., 2016). Such differences in the local environment could interact with parental ethnic identity, if identity mediates access to social and cultural resources in the area. We capture neighbourhood poverty using the 2004/2005 Index of Multiple Deprivation (IMD), and define poor neighbourhoods as those in most deprived 20 percent of areas in England and Wales. Just under 50% of our sample live in such neighbourhoods. While there is some overlap between living in poverty and living in a deprived neighbourhood, the two are not perfectly correlated. 32% Of income-poor families live in non-deprived neighbourhoods, and 29% of non-poor families living in deprived neighbourhoods.

In Panel B of Table 4 we present results distinguishing households by neighbourhood deprivation. These results do not suggest a large role for neighbourhood deprivation in shaping the influence of maternal ethnic identity on child development. For example, children living in the most deprived neighbourhoods whose mothers report a British identity have maths test scores 0.164 standard deviations below those of other children living in deprived neighbourhoods. The equivalent gap in the least deprived neighbourhoods is 0.124 standard deviations. Although the former difference is statistically significant while the latter is not, the similarity in the magnitude of these gaps suggests that the maternal majority identity does not have a substantially different impact on children living in the most and least deprived areas. While we cannot rule out the possibility that our measure of neighbourhood poverty is too coarse to capture the social and cultural resources available in the neighbourhood, these results indicate that the neighbourhood context is less important than household-specific circumstances.

The role of family networks

Our results so far suggest that household poverty is important in shaping the association between parental ethnic identity and child development. The absence or availability of local family networks may also be linked to resource constraints. Such networks can provide various resources to parents, including direct provision of financial resources (Angelucci et al., 2010), or emotional and social support (Bradley and Corwyn, 2002; Burchinal et al., 1996; Green et al., 2007; Haller et al., 2011; Serrano-Villar et al., 2017; Stepick and Dutton Stepick, 2010). Families may share useful information, such as how to navigate the health, welfare, or education system, or provide a springboard for accessing wider community networks. Such networks may also enable parents to diversify limited resources between different types of investments. Without access to local family networks, parents are excluded from any such additional resources and the opportunity to diversify. As in the context of household poverty, parental ethnic identity could amplify or compensate for differences in this domain.

We investigate the role of family networks using responses to the question 'Do you have other friends and family in the area?'.[13] Parents may respond 'Yes, friends', 'Yes, family', 'Yes, both', or 'No'. We use those that indicate 'Yes, family' and 'Yes, both' to represent family networks. According to this definition, just over 50% of households in the sample have family who live locally. This varies by ethnicity, with two thirds of Pakistani or Bangladeshi households living close to family, compared to 40% of Black or Mixed heritage households.

We present results by access to local family networks in Panel C of Table 4. These results suggest that the negative association between maternal majority identity and child test scores is largely driven by households who do not have access to local family networks. Within this group,

[13]Parents are first asked 'Are you friends with other parents in the area?' followed by the question about family and friends. We have also examined the role of friendship networks but find little evidence that this matters for shaping the effect of parental ethnic identity.

children of mothers with a majority identity score 0.221 standard deviations lower in maths. In contrast, among children of mothers who do have access to family networks, a maternal majority identity makes little difference. A similar pattern is observed for reading test scores. Since almost half of mothers without family networks are not income poor, this finding is not simply a reflection of material poverty, and may reflect the broader constraints that having family in the local area can help to alleviate. Interestingly, access to family networks appears to have little independent association with test scores, operating only by modulating the association with maternal majority identity (see Table A.1).

The role of language

Our results on poverty and family networks indicate an interaction between parental ethnic identity and household constraints. However, it is difficult to establish whether this interplay reflects processes at the household-level, or in the wider community. For example, we cannot rule out that income constraints influence the level of contact with the majority community, or that family networks facilitate access to wider social networks and publicly provided services. One characteristic that is likely to operate predominantly through interaction with the majority community and access to public services is proficiency in the majority language.

Schüller (2015) shows that proficiency in the host country language may be a channel that links maternal ethnic identity with children's educational outcomes. Although we do not observe the language proficiency of parents in our sample directly, respondents do provide information on the frequency with which English or a foreign language is spoken at home. While this is an imperfect measure of language proficiency, there is likely to be an overlap between English language proficiency and the degree to which English is spoken at home. We define foreign language households as those where a foreign language is spoken at least 50% of the time. This covers 40% of ethnic minority households overall, but there is substantial variation across ethnic groups. 60% Of Pakistani or Bangladeshi households speak mostly a foreign language at home, compared to less than 20% of Black or Mixed heritage households.

We present results by language spoken at home in Panel D of Table 4. These results suggest that the negative association between maternal majority identity and child test scores in maths is largely driven by children in foreign language households. These children have maths test scores 0.27 standard deviations lower than those from other foreign language households where the mother does not hold a majority identity. For children speaking predominantly English at home, a maternal majority identity is associated with maths test scores which are lower by 0.069 standard deviations. The difference in these test score deficits across households speaking different languages is statistically significant at the 10% level. Note that since approximately 40% of foreign language households (25% of Bangladeshi or Pakistani households) have an income above the poverty line, these results do not simply reflect income poverty. They suggest that adopting a majority identity

could be problematic in cases where individuals may have more limited capacity to engage with the majority community and publicly provided services.

6 Discussion

We examine the relationship between parental ethnic identity and cognitive development in ethnic minority children. We note that both the parenting behaviour of ethnic minority individuals and their access to social resources could be influenced by ethnic identity, and that this aspect of identity may therefore have an important influence on children's cognitive outcomes in the early years. Our results show a negative association between maternal majority identity and child test scores at age 7. Compared to other minority children with similar observed characteristics, the average test scores of those whose mother reports a majority identity are approximately 0.124 standard deviations lower in maths and 0.122 standard deviations lower in reading. This deficit is largely driven by poorer households, by those who lack access to family support networks, and by those who speak a foreign language at home. Differences in parental investment behaviour do not seem to play an important role in this relationship. We find only weak associations between parental minority identity and children's cognitive test scores.

We suggest that differential access to social resources is the most persuasive explanation for this result. For minority families, identifying with the majority group may cause resources to be spread more thinly across investments in minority and majority human or social capital. In other words, integrating with the majority group is costly in several dimensions, and minority families may face a trade-off between fully investing in this integration process and maintaining access to resources in the minority community. As we see no difference in the observed parental investment behaviour of minority parents who identify with the majority, a potential underinvestment in social capital seems the more likely channel. This would explain why the negative association between maternal majority identity and child test scores is driven by those facing other material constraints. Since we cannot observe the precise mechanisms directly, our conclusions are necessarily tentative in this regard.

Our study expands the large existing literature on the formation of cognitive skills in early childhood, particularly in relation to ethnic minority children. Our findings suggest that parental ethnic identity may usefully be introduced to the analysis of early outcomes, where it appears to interact with established factors in early disadvantage. In contrast to Schüller (2015), who presents the most recent comparable evidence, we do not find positive associations between paternal minority identity or maternal majority identity and children's outcomes. In the case of maternal identity, our key estimate is in the opposite direction. We see two possible reasons for this difference. First, our sample is composed of younger children, and our outcomes relate directly to cognitive test scores rather than to placement in different levels of secondary education. Second, Schüller's data are from Germany, while ours are from the UK, and it is possible that the nature of ethnic identity

varies in these different national settings. For example, identity assimilation could be more or less strongly linked to broader cultural and economic assimilation in different countries, in which case the impact of parental ethnic identity on children's outcomes could also vary.

In regards to the broader existing literature on ethnic identity, our contribution is part of a small body of work suggesting that the impact of minority and majority identities is more varied than the original studies focusing on labour market outcomes would suggest. These earlier studies generally find the majority identity to be beneficial to outcomes for immigrants and ethnic minority individuals, while the minority identity is often found to be detrimental. Alongside the findings of Nekby et al. (2009) and Schüller (2015), however, our results suggest that this is not necessarily the case for all outcomes, and the impact of identity may vary at different ages and in different areas of economic life. It is plausible, for example, that adopting a majority identity could have beneficial effects for minority individuals in the labour market, while at the same time having a negative influence on children's cognitive development.

Finally, we noted in the introduction that the governments of several countries have responded to increased ethnic diversity by introducing policies which actively promote the majority identity, while discouraging the maintenance of separate minority identities. While we have not presented causal estimates in this paper, our results do suggest that there may be circumstances in which policies to encourage a majority identity among ethnic minority individuals and families conflict with policies to raise minority educational achievement. A better understanding of the causal mechanisms through which parental ethnic identity shapes childhood outcomes is necessary to fully comprehend the impact of such integration policies, and presents a challenge for future research.

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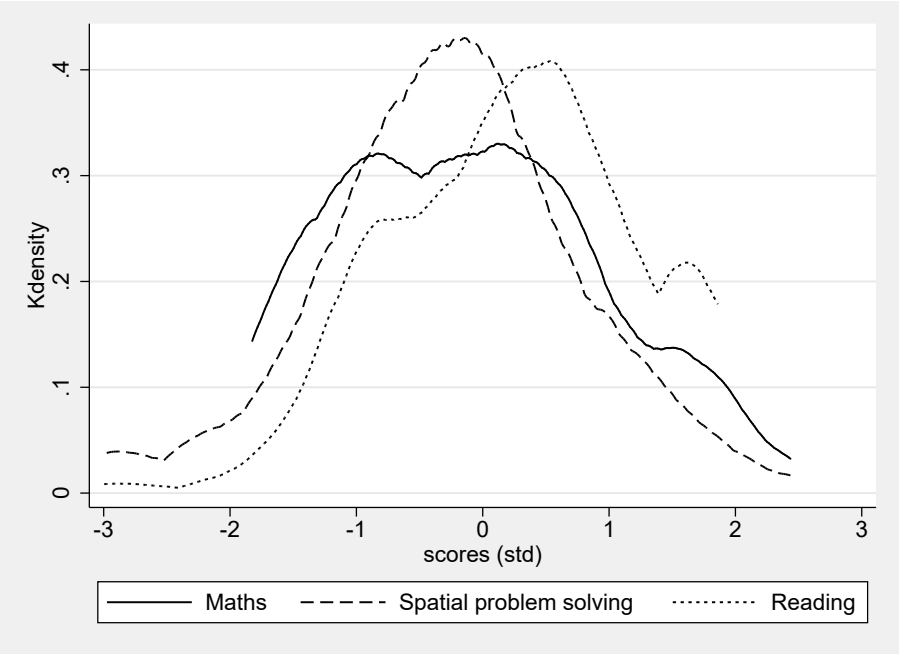
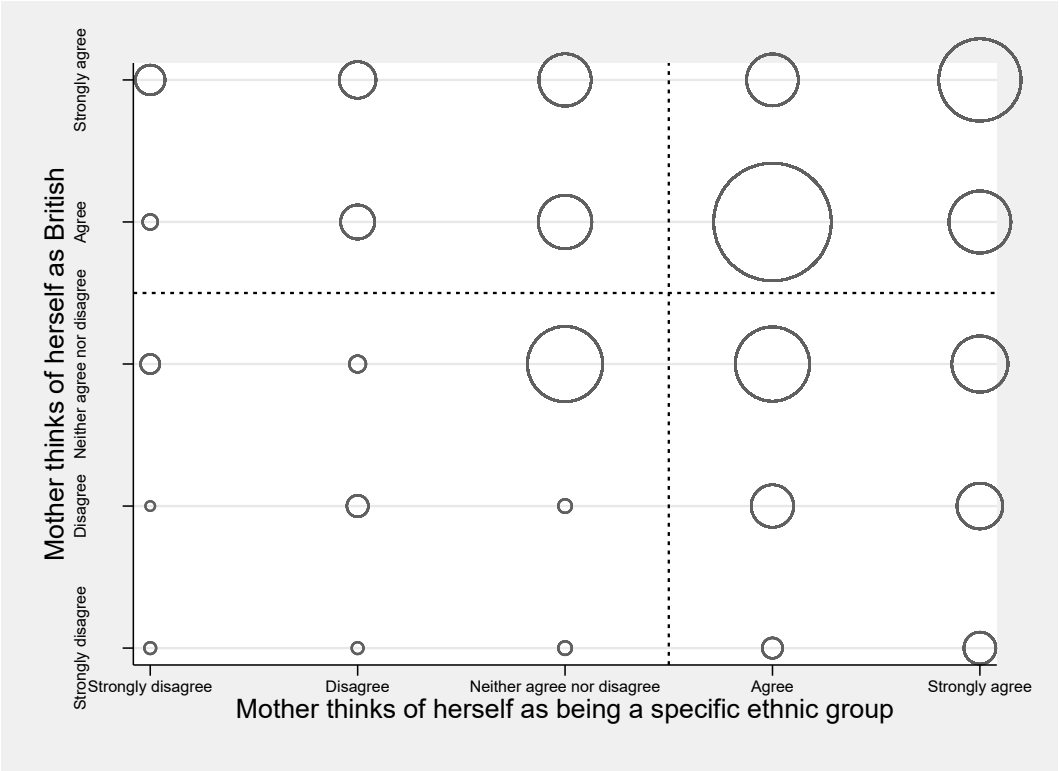
Tables and figures

Figure 1: Outcome distribution by test



Note: Standardized score distributions by test type. Note that the scores have been standardized with respect to the entire sample (ethnic minority and majority children) at age 7.

Figure 2: British and Ethnic identity (Likert scale)



Note: Circle sizes are proportional to the number of mothers reporting both categories for British and ethnic minority identity. Frequencies range from 298 mothers agreeing to thinking of themselves as British and being a specific ethnic group to only 3 mothers disagreeing to thinking of themselves as British and strongly disagreeing to thinking of themselves as part of a specific ethnic group. The horizontal dashed line divides our sample between women having a British identity or not, with the vertical dashed line represents our classification of having a specific ethnic minority identity.

Table 1: Descriptive statistics

	All mothers (1)	Mothers in couples with father information (2)
Dependent variables:		
Maths score	-0.10	0.04
	(1.05)	(1.04)
Spatial problem solving score	-0.26	-0.16
	(1.02)	(0.96)
Reading score	0.25	0.42
	(0.97)	(0.93)
Key variables of interest:		
Mother British identity	0.63	0.62
	(0.48)	(0.48)
Mother minority identity	0.71	0.76
	(0.45)	(0.43)
Father British identity		0.69
		(0.46)
Father minority identity		0.75
		(0.43)
Gender & ethnicity:		
Girl	0.51	0.51
	(0.50)	(0.50)
Mother Indian	0.22	0.33
	(0.42)	(0.47)
Mother Pakistani or Bangladeshi	0.35	0.34
	(0.48)	(0.47)
Mother black African or black Caribbean	0.24	0.17
	(0.43)	(0.38)
Main controls:		
Mother age at birth	28.28	28.51
	(5.76)	(5.42)
Single mother household	0.20	0.00
	(0.40)	(0.00)
Couple with incomplete father information	0.29	0.00
	(0.46)	(0.00)
Father main respondent	0.03	0.06
	(0.17)	(0.23)
Number of siblings	1.55	1.56
	(1.12)	(1.03)
Foreign-born mother	0.45	0.50
	(0.50)	(0.50)
Foreign-born mother missing	0.16	0.14
	(0.37)	(0.35)
Additional controls:		
Mother low qualification	0.39	0.36
	(0.49)	(0.48)
Mother qualification from abroad	0.08	0.09
	(0.27)	(0.29)
Father low qualification	0.20	0.24
	(0.40)	(0.43)
Father qualification from abroad	0.09	0.14
	(0.29)	(0.35)
Non-working mother	0.58	0.54
	(0.49)	(0.50)
Non-working father	0.09	0.10
	(0.29)	(0.30)
Family faces financial constraints	0.26	0.18
	(0.44)	(0.39)
Family materially deprived	0.46	0.38
	(0.50)	(0.49)
Family in housing poverty	0.55	0.46
	(0.50)	(0.50)
Family below poverty line	0.51	0.39
	(0.50)	(0.49)
Family living in deprived area	0.49	0.40
	(0.50)	(0.49)
Mother has family networks	0.51	0.52
	(0.50)	(0.50)
Mother has friendship networks	0.70	0.72
	(0.46)	(0.45)
Foreign language spoken at home	0.42	0.46
	(0.49)	(0.50)
N	1249	629

Notes: Sample means and standard deviations (in parentheses). Outcome variables are standardized to have mean 0 and standard deviation of 1 within the main (i.e. majority and minority) MCS sample.

Table 2: Association between parental identity and child test scores: baseline results (OLS)

	All mothers		Mothers in couples with father info			
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Maths						
Mother British identity	-0.124**	-0.139**	-0.104	-0.115	-0.107	-0.119
	(0.062)	(0.062)	(0.088)	(0.089)	(0.090)	(0.092)
Mother minority identity	0.031	0.029	0.075	0.079	0.067	0.071
	(0.064)	(0.065)	(0.095)	(0.096)	(0.096)	(0.096)
Father British identity					-0.003	0.008
					(0.094)	(0.093)
Father minority identity					0.075	0.077
					(0.098)	(0.097)
Panel B: Spatial problem solving						
Mother British identity	0.003	-0.000	-0.003	-0.017	-0.023	-0.036
	(0.061)	(0.062)	(0.080)	(0.083)	(0.084)	(0.087)
Mother minority identity	-0.028	-0.029	-0.029	-0.025	-0.047	-0.044
	(0.063)	(0.062)	(0.088)	(0.088)	(0.087)	(0.087)
Father British identity					0.049	0.060
					(0.088)	(0.090)
Father minority identity					0.178*	0.180*
					(0.094)	(0.095)
Panel C: Reading						
Mother British identity	-0.122**	-0.090	-0.086	-0.058	-0.078	-0.052
	(0.056)	(0.056)	(0.077)	(0.077)	(0.080)	(0.080)
Mother minority identity	0.026	-0.004	-0.050	-0.063	-0.057	-0.070
	(0.060)	(0.060)	(0.086)	(0.085)	(0.086)	(0.085)
Father British identity					-0.049	-0.037
					(0.085)	(0.084)
Father minority identity					0.058	0.058
					(0.089)	(0.088)
Gender & ethnicity:	yes	yes	yes	yes	yes	yes
Main controls:	no	yes	no	yes	no	yes
N	1249	1249	629	629	629	629

Notes: See Section 4 for details of empirical model. Standard errors are robust to heteroscedasticity. Significance levels are shown as *p<0.1, **p<0.05, ***p<0.01. See Section 3 and Table 1 for details of main control variables.

Table 3: Association between parental identity and parental investments, and association between parental identity and child test scores

	Parental investments	Maths	Spatial	Reading
	(1)	(2)	(3)	(4)
Mother British identity	0.074	-0.141**	-0.001	-0.092*
	(0.072)	(0.062)	(0.062)	(0.055)
Mother minority identity	-0.120	0.033	-0.028	-0.001
	(0.074)	(0.064)	(0.062)	(0.059)
Parental investments		0.041	0.013	0.043
		(0.034)	(0.031)	(0.033)
Gender & ethnicity:	yes	yes	yes	yes
Main controls:	yes	yes	yes	yes
N	1249	1249	1249	1249

Notes: Parental investments treated as a latent factor, with mean zero and standard deviation of 1, and all models estimated using simultaneous equation modelling with robust standard errors. Significance levels are shown as *p<0.1, **p<0.05, ***p<0.01. See Section 3 and Table 1 for details of main control variables.

Table 4: Association between parental identity and child test scores: by income poverty, neighbourhood deprivation, social networks and language at home (OLS)

	(1) Maths	(2) Spatial	(3) Reading
Panel A: Household income above/below poverty line			
Mother British identity × poor family	-0.233***	-0.056	-0.137*
	(0.084)	(0.086)	(0.079)
Mother British identity × non-poor family	-0.068	0.032	-0.061
	(0.089)	(0.085)	(0.076)
Mother minority identity × poor family	0.007	-0.011	-0.066
	(0.090)	(0.089)	(0.086)
Mother minority identity × non-poor family	0.087	-0.019	0.083
	(0.090)	(0.085)	(0.080)
Panel B: Neighbourhood deprivation			
Mother British identity × poor area	-0.164*	-0.022	-0.095
	(0.092)	(0.090)	(0.080)
Mother British identity × non-poor area	-0.124	0.012	-0.088
	(0.082)	(0.083)	(0.077)
Mother minority identity × poor area	0.032	0.026	-0.018
	(0.096)	(0.090)	(0.086)
Mother minority identity × non-poor area	0.040	-0.071	0.013
	(0.086)	(0.086)	(0.083)
Panel C: Access to family networks			
Mother British identity × lacks family networks	-0.221**	0.004	-0.173**
	(0.086)	(0.085)	(0.081)
Mother British identity × has family networks	-0.049	-0.005	-0.004
	(0.089)	(0.088)	(0.076)
Mother minority identity × lacks family networks	0.074	-0.042	-0.003
	(0.093)	(0.089)	(0.090)
Mother minority identity × has family networks	-0.029	-0.022	-0.023
	(0.090)	(0.089)	(0.079)
Panel D: Language at home			
Mother British identity × foreign language spoken at home	-0.270***	-0.050	-0.062
	(0.093)	(0.093)	(0.084)
Mother British identity × English spoken at home	-0.069	0.029	-0.113
	(0.082)	(0.082)	(0.074)
Mother minority identity × foreign language spoken at home	-0.032	-0.033	-0.042
	(0.103)	(0.096)	(0.095)
Mother minority identity × English spoken at home	0.099	-0.018	0.020
	(0.082)	(0.081)	(0.076)
Gender & ethnicity:	yes	yes	yes
Main controls:	yes	yes	yes
N	1249	1249	1249

Notes: A family is income poor if household equivalised income is below 60% of contemporaneous median household equivalised income before housing costs, according to the most widely used definition in the UK (from the Child Poverty Act, 2010). A family lives in a poor area if the area falls into the most deprived 20 percent of areas in England and Wales according to the 2004/2005 Index of Multiple Deprivation. A mother has family networks if the main respondent reports family living in the area. Foreign language spoken at home is defined as speaking a foreign language in the home at least 50% of the time. See also notes to Table 2.

A Appendix

Table A.1: Association between parental identity and child test scores in maths, showing full set of estimates: (OLS)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mother British identity	-0.124**	-0.139**	-0.129**	-0.148**	-0.139**	-0.159**	-0.161***
	(0.062)	(0.062)	(0.063)	(0.061)	(0.062)	(0.062)	(0.062)
Mother minority identity	0.031	0.029	0.036	0.038	0.030	0.045	0.055
	(0.064)	(0.065)	(0.065)	(0.063)	(0.065)	(0.064)	(0.064)
Girl	-0.093	-0.088	-0.086	-0.086	-0.085	-0.078	-0.081
	(0.058)	(0.057)	(0.057)	(0.056)	(0.057)	(0.057)	(0.057)
Mother Indian	0.104	0.018	0.004	-0.019	0.018	0.044	0.008
	(0.092)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)
Mother Pakistani or Bangladeshi	-0.426***	-0.341***	-0.312***	-0.219**	-0.336***	-0.284***	-0.190**
	(0.079)	(0.084)	(0.086)	(0.087)	(0.085)	(0.085)	(0.089)
Mother black African or black Caribbean	-0.202**	-0.175*	-0.173*	-0.097	-0.177*	-0.210**	-0.122
	(0.087)	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)	(0.092)
Mother age at birth		0.124***	0.109**	0.071	0.123***	0.111**	0.062
		(0.045)	(0.046)	(0.046)	(0.045)	(0.045)	(0.047)
Mother age at birth squared		-0.002**	-0.002**	-0.001	-0.002**	-0.002**	-0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Single mother household		-0.304***	-0.344***	-0.090	-0.307***	-0.321***	-0.135
		(0.083)	(0.087)	(0.086)	(0.083)	(0.082)	(0.093)
Couple with incomplete father information		-0.155**	-0.157**	-0.116*	-0.156**	-0.157**	-0.120*
		(0.067)	(0.067)	(0.066)	(0.067)	(0.066)	(0.067)
Father main respondent		-0.070	-0.068	-0.061	-0.067	-0.040	-0.066
		(0.202)	(0.203)	(0.191)	(0.203)	(0.201)	(0.195)
Number of siblings		-0.083***	-0.070**	-0.022	-0.083***	-0.075***	-0.026
		(0.027)	(0.029)	(0.028)	(0.027)	(0.027)	(0.028)
Foreign-born mother		-0.106*	-0.107	-0.073	-0.107*	-0.049	-0.046
		(0.064)	(0.065)	(0.063)	(0.064)	(0.064)	(0.065)
Foreign-born mother missing		-0.038	-0.043	-0.000	-0.044	0.008	0.014
		(0.095)	(0.095)	(0.095)	(0.096)	(0.096)	(0.096)
Mother low qualification			-0.049				-0.031
			(0.064)				(0.063)
Mother qualification from abroad			-0.036				0.043
			(0.118)				(0.117)
Father low qualification			0.008				0.035
			(0.078)				(0.078)
Father qualification from abroad			-0.143				-0.038
			(0.096)				(0.096)
Non-working mother			-0.026				0.124*
			(0.065)				(0.069)
Non-working father			-0.296***				-0.077
			(0.094)				(0.104)
Family faces financial constraints				-0.056			-0.055
				(0.070)			(0.071)
Family materially deprived				-0.141**			-0.143**
				(0.063)			(0.064)
Family in housing poverty				-0.122*			-0.114*
				(0.065)			(0.065)
Family below poverty line				-0.251***			-0.269***
				(0.071)			(0.078)
Family living in deprived area				-0.162**			-0.131**
				(0.065)			(0.065)
Mother has family networks					-0.013		-0.004
					(0.060)		(0.060)
Mother has friendship networks					-0.043		-0.071
					(0.065)		(0.064)
Foreign language spoken at home						-0.258***	-0.198***
						(0.063)	(0.065)
N	1249	1249	1249	1249	1249	1249	1249

See notes to Table 2 and 4. Low qualification is defined as having at most Level 3 in the UK National Qualification Framework (equivalent to high school diploma) while foreign qualification refers to any qualification obtained outside of UK education system. Poverty indicators (based on Dickerson and Popli, 2018, include (1) Financial constraints: whether the household is behind on paying bills (2) Child-specific material deprivation: whether child has all weather shoes, a weatherproof coat, or goes on family holidays (3) Housing situation: capturing housing tenure, overcrowding issues, problems with condensation, and smoking near the child and (4) Income poverty: Household equivalised income below 60% of contemporaneous median household equivalised income before housing costs (definition from Child Poverty Act, 2010).

Table A.2: Association between parental identity and child test scores: by ethnicity (OLS)

	(1) Maths	(2) Spatial	(3) Reading
Mother British identity × Indian	-0.198	0.056	0.027
	(0.138)	(0.124)	(0.120)
Mother British identity × Pakistani/Bangladeshi	-0.021	-0.063	-0.034
	(0.107)	(0.109)	(0.095)
Mother British identity × Black	-0.226*	0.154	-0.262**
	(0.120)	(0.117)	(0.110)
Mother British identity × Mixed/Other	-0.197	-0.219	-0.057
	(0.133)	(0.147)	(0.127)
Mother minority identity × Indian	0.277*	-0.038	-0.068
	(0.149)	(0.136)	(0.140)
Mother minority identity × Pakistani/Bangladeshi	-0.075	0.164	-0.104
	(0.109)	(0.106)	(0.096)
Mother minority identity × Black	0.050	-0.200	0.104
	(0.132)	(0.124)	(0.123)
Mother minority identity × Mixed/Other	-0.068	-0.184	0.082
	(0.129)	(0.145)	(0.129)
Gender & ethnicity:	yes	yes	yes
Main controls:	yes	yes	yes
N	1249	1249	1249

Notes: See notes to Table 2.

Table A.3: Association between parental identity and child test scores: acculturation categories

	(1) Maths	(2) Spatial	(3) Reading
Assimilated	-0.176*	0.028	-0.079
	(0.092)	(0.093)	(0.086)
Integrated	-0.117	0.000	-0.109
	(0.074)	(0.076)	(0.067)
Marginalised	0.012	0.030	-0.031
	(0.108)	(0.101)	(0.094)
Gender & ethnicity:	yes	yes	yes
Main controls:	yes	yes	yes
N	1249	1249	1249

Notes: 'Assimilated' is equal to one where the mother holds only a British identity and is zero otherwise, 'Integrated' is equal to one where a mother holds both a British and a minority identity, 'Marginalised' is equal to one where a mother holds neither a British nor a minority identity. The reference group is 'Separated' where a mother holds only a minority identity. See also notes to Table 2.