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HEDS Discussion Paper

No.12.13

How much does teenage parenthood affect long term outcomes? A
systematic review.

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TITLE PAGE

Title: How much does teenage parenthood affect long term outcomes? A systematic review.

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ABSTRACT

Background

The rates of teenage pregnancy in the UK are relatively high. Although early entry to parenthood can be a positive experience, most studies find large adverse effects on long term outcomes for the mother, child and father, in addition to being costly for the NHS. This is why the government launched its Teenage Pregnancy Strategy in 1999. However, there is growing evidence that teenage pregnancy might be mainly an indicator of disadvantage which is the underlying cause of the negative outcomes.

Methods

A systematic literature review was undertaken of studies which used a UK dataset to quantify any long term outcomes of a teenage birth upon the mother, father or child. Studies were included if they used appropriate methods to isolate the causal effect of early parenthood. The databases searched included Medline, Cochrane, EconLit and Web of Science.

Results

Six studies were identified by the review; five studies considered the mother's socioeconomic outcomes, one study reported the child's outcomes, and no studies met the inclusion criteria for the father's outcomes. The studies suggested that early motherhood accounts for relatively few of the negative long term socioeconomic outcomes and it is predominantly an indicator of a disadvantaged family background.

Conclusion

Limited evidence is available to understand the long term outcomes associated with teenage birth within the UK for the mother, father and child. Current econometric studies suggest that effective interventions to prevent teenage pregnancies will not eradicate the poorer long term socioeconomic outcomes often associated with early motherhood. Thus policy should focus on reducing initial disadvantage in addition to preventing teenage pregnancy. Additional econometric analyses around the mothers', fathers' and children's long term socioeconomic and health-related outcomes would be valuable.

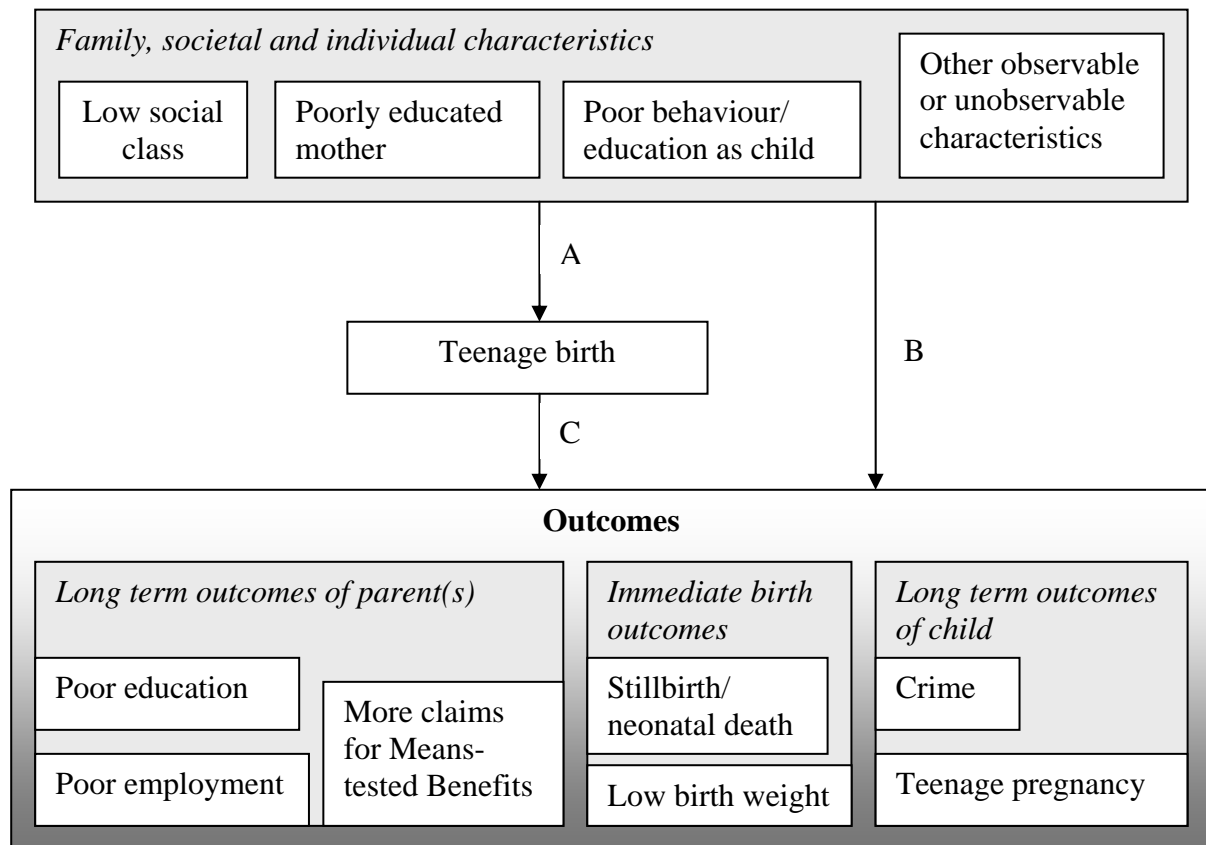
KEY WORDS: Pregnancy in adolescence, Models, econometric, Review, Socioeconomic factors, Pregnancy outcome

RATIONALE

The rates of teenage pregnancy in the UK are high compared to other western European countries.¹ Although for some young people parenthood might be a positive experience, most studies tend to find that early parenthood results in poor long term outcomes not only for the mother but also for the child and to a lesser extent the father. This prompted the UK government to launch its Teenage Pregnancy Strategy in 1999 with the aim of halving the under 18 pregnancy rate by the year 2010.² The Teenage Pregnancy Strategy report published in 2010 confirmed that the reduction up until 2008 was 13.3 per cent taking the under 18 pregnancy rate to the lowest level for over 20 years.³ However, the report also stated that the trend in the reduction was not sufficient to achieve the target by the year 2010.

The two key reasons for reducing the teenage pregnancy rates highlighted in the report were to avoid abortions and to reduce poor outcomes for both the teenage parent and the child. It is unequivocally a good thing to reduce the number of abortions by reducing the number of unintended pregnancies. The debate however centres on whether reducing the number of teenage pregnancies also reduces the poor outcomes of those involved (as the Teenage Pregnancy Strategy report suggests). In other words, is early parenthood a pathway to future disadvantage or is it predominantly an indicator of a prior disadvantaged family background? Figure 1 shows some of the possible causes and consequences associated with a teenage birth. There are family, societal and individual characteristics which may predispose a person to a teenage birth (arrow A – causes of teenage birth). Some of the negative outcomes which occur in people who have a teenage birth are independent of the age at birth and may be explained by their initial family, societal and individual characteristics (arrow B – indicator of prior disadvantage). However, there may also be negative consequences associated with a teenage birth itself (arrow C –causal effect of teenage birth).

Figure 1: Possible causes and consequences of a teenage birth



It is important to estimate the size and significance of both arrows B and C to be able to design effective policy interventions. If early parenthood is mainly an indicator of prior disadvantage, reducing the number of teenage pregnancies will reduce the number of abortions but will do little to improve the long term outcomes of both the parents and the children. Policies designed to reduce prior disadvantage must also be employed in this case.

Separating the effects of B and C is however challenging. Randomised controlled trials are neither feasible nor ethical, and estimates of the effects rely on observational data. Many existing studies assessing the long term outcomes associated with teenage pregnancy compare the long term outcomes of older mothers or fathers with those of younger parents, without adjusting for factors which may influence both entry into teenage parenthood and poorer long term outcomes. These studies tend to find large negative effects. However, studies have shown that older mothers and fathers are more often highly educated and in the case of mothers are more likely to have pursued their career before starting a family,^{4,5} whilst teenage parents are more frequently from a lower socioeconomic background.⁴ Comparing the outcomes of these two very different populations will not provide an estimate of the consequences of a teenage birth, since many of the poorer outcomes associated with

those people who have had a teenage birth may have occurred to some extent anyway. It is important, therefore, that the method used allows for a separate effect of prior disadvantage.

This paper aims to systematically review the literature which utilises appropriate methodology to estimate the causal effect (arrow C) of early parenthood on long term outcomes within the UK.

METHODS

A targeted, emergent systematic literature search was undertaken in four databases; Medline, the Cochrane Library, EconLit and Web of Science. The search strategy included terms relating to pregnancy and its consequences and was not restricted to specific outcomes of teenage pregnancy. The only restrictions that were applied to this search were in terms of date (limited to 1990-2012), limiting the search to humans and to English language. No restrictions were placed in terms of study type or place of publication; however at the data extraction stage studies were excluded if they had not been undertaken using a UK dataset. This was a decision which was made following title and abstract sifting due to the differences in the UK education, work and benefits system compared with other countries such as the USA.

Additional methods to identify evidence included searching the reference list of included papers, searching for the authors of included papers and cited reference searches on all of the included studies in Google Scholar and Web of Science Cited Reference Search. No date, study type or language restrictions were placed on these searches. In addition, searches of references within formal government documents (such as the Teenage Pregnancy Research Programme research briefing, number 8⁶) were undertaken, as well as informal searches using Google to identify relevant working papers.

Studies were included if they considered any long term outcomes of a teenage birth using a population dataset and attempted to control for unobserved characteristics as well as observed characteristics influencing selection into teenage parenthood. Papers which controlled for only observable characteristics without the use of an econometric technique to attempt to control for the unobservable characteristics were excluded. Working papers were included if they met these criteria and if the analysis had not been published as a peer-reviewed journal article.

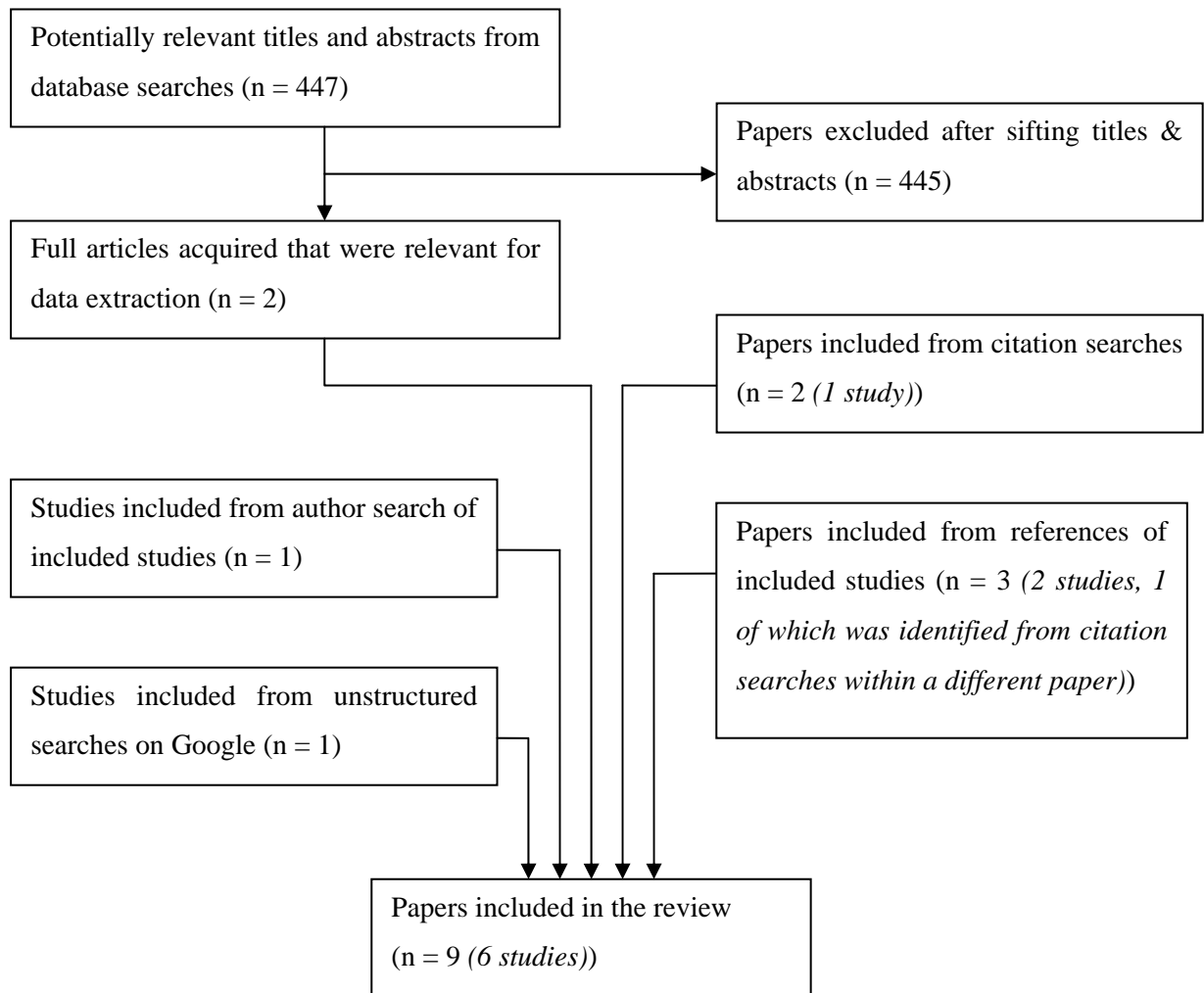
Data relating to study design, outcomes, and quality were extracted by one reviewer (HS) and each extraction was independently checked for accuracy by a second reviewer (MHA) (see Supplementary Material for study extractions). Disagreements were resolved by consensus.

RESULTS

Quantity of papers identified

A total of 601 references were identified through the targeted literature search. Nine of these papers (six studies) met the inclusion criteria.⁷⁻¹⁵ Figure 2 shows the PRISMA diagram for the search.

Figure 2: PRISMA diagram



Eight papers (five studies) were identified which assess the consequences of a teenage birth upon the mother's outcomes at around age 30 years, controlling for observable and unobservable characteristics of the mother.^{7-11;13-15} No similar studies were identified reporting the father's long term outcomes which met the inclusion criteria for the review. One study was identified which considers the impact of teenage birth upon the child's long term socioeconomic outcomes.¹²

Quality of studies identified

Any methodologies used to estimate the impact of teenage birth upon long term outcomes have weaknesses due to the feasibility of controlling for unobservable factors (see below). In addition, the studies are constrained by the observational data collected (i.e. variables collected and frequency of collection). Furthermore, assessing long term outcomes inevitably requires the use of data on older generations of parents. The results may not be completely generalisable to today's generation of teenage mothers due to the differences in the education system, the Benefits system, and working lifestyles and partnerships of women associated with the changing role of women in society; however, using an extensive range of controls limits this problem to some extent. Finally, the long term outcomes are only assessed at one time point in the mother's/child's lifetime (usually at around 30 years for the mother) for all of the included studies. It may be that any negative outcomes associated with teenage pregnancy have plateaued out by then or that they become greater over time.

There are two key methods in the econometrics literature which have been used to tease out the causal effect of teenage motherhood on long term outcomes: the family fixed effects approach and the instrumental variable approach. Family fixed effects models involve comparing the outcomes of siblings or twins, where one has given birth as a teen and one has not. This method assumes that all unobserved heterogeneity varies only at the family level and thus any remaining difference between siblings could be attributed to teenage parenthood. Two of the included studies use a family fixed effects model.^{11;12} Models using twins and to a lesser extent siblings unavoidably rely on small sample sizes. Genetic factors will differ if the twins are non-identical as in the study by Hawkes,¹¹ or if using siblings as in the study by Francesconi,¹² and these might be important unobservables affecting selection into parenthood. In addition siblings and half-siblings may grow up in different circumstances and controlling for observables might not be enough. In all cases there may be within family differences such as personality which are not controlled for using this approach.

The instrumental variable approach aims to disentangle the effects of teenage motherhood from the effect of the unobservable characteristics by using an additional variable within the analysis. The additional (instrumental) variable must be correlated with experiencing a teenage birth, but must not be correlated with the long term outcome. This makes it possible to isolate the effect of teenage parenthood through changes in the instrumental variable. However, it is difficult to find an appropriate, measurable instrumental variable in this context which satisfies the above criteria. If the instrumental variable does not fully satisfy this, it is said to be weak and there will be larger error associated with the results. Four of the included studies have used instrumental variables.⁷⁻¹⁰

Miscarriage is used as an instrumental variable (i.e. comparing outcomes of teenage mothers with outcomes of mothers who had had a miscarriage as a teenager) within two studies (Ermisch and Pevalin⁷ and Goodman *et al.*⁸). This is a reasonably good instrument; however, it is well recognised

that miscarriages are a combination of random and non-random events. A proportion of miscarriages are a result of behaviour such as smoking and drinking alcohol, which are likely to be correlated with socioeconomic outcomes. The studies did try and allow for the non-random aspect of miscarriage by estimating bounds around the estimated parameters which take into account the sensibility of the results to different assumptions about the proportion of miscarriages that are random events. These studies are based upon a relatively small sample (Miscarriage group: N=74 within the study by Ermisch and Pevalin and N=123 within the study by Goodman *et al.*).

The Raising of School Leaving Age (RoSLA) policy and the time of year of birth (spring/summer versus autumn/winter) are used as as instrumental variables within the study by Walker and Zhu.⁹ In England and Wales, those born before September 1958 could leave school at age 15; however, after this date, pupils had to remain in school until age 16. This change in legislation created a higher opportunity cost to early motherhood, and hence girls became less likely to become teenage mothers. This variable is therefore correlated with teenage motherhood. The choice of the second instrumental variable is justified on the basis that the younger children within a school year will be more likely to become teenage mothers than the older children within the same school year. This is because they will be subject to peer pressure from their older peers, but at the same time are less likely to access advice, support, contraception and abortion than their older peers. Both variables are shown to be significantly associated with teenage motherhood for a sample of females who are 17 years and under. Only RoSLA is significantly associated with teenage motherhood in the group of all teenagers. The variables are combined within the econometric analysis to strengthen this causal relationship.

Age at menarche is employed as an instrumental variable (i.e. assumes a relationship between age at menarche and age at first birth) within the study by Chevalier and Viitanen.¹⁰ This is a weak instrument since, whilst the aforementioned relationship may exist, the decision to give birth following a conception is unlikely to be dependent upon age at menarche. This means that the instrumental variable will not be adequate and the results will not control for all variables leading to teenage motherhood.

Due to the heterogeneity and the differences in quality between the studies, it is not possible to quantitatively combine the results, and hence a narrative synthesis is reported.

Employment and income outcomes of the mother

All five studies considering the mother's long term outcomes report employment or income outcomes.⁷⁻¹¹ The three studies which were able to control more appropriately for variables which might lead to both teenage motherhood and poorer long term outcomes (by Ermisch and Pevlin, Goodman *et al.* and Walker and Zhu) conclude that age at first birth does not significantly affect long

term employment or income outcomes.⁷⁻⁹ The two remaining studies suggest that teenage motherhood has a small negative average impact upon long term employment and income. Chevalier and Viitanen conclude that teenage motherhood reduces the length of employment by an average of around 3 years, and reduces salary by between 5 – 10% at age 33 years.¹⁰ Hawkes indicates that teenage motherhood reduces the long term probability of being employed and decreases household income.¹¹

Educational outcomes of the mother

Three studies consider long term educational outcomes of the mother.^{7;10;11} As for the employment outcomes, Ermisch and Pevalin suggest that there is no significant difference between the long term outcomes for women who enter motherhood in their teens compared with those who enter motherhood at an older age.⁷ Chevalier and Viitanen conclude that teenage motherhood on average reduces the chances of post-compulsory schooling by 12-23%,¹⁰ and Hawkes suggests that teenage motherhood may result in lower qualifications.¹¹

Other outcomes of the mother

Two of the studies include long term outcomes of the mother other than employment and education.^{7;11} Ermisch and Pevalin consider outcomes including social class, partner status, partner's employment, house ownership and Income Support receipt,⁷ whilst Hawkes reports partner status in addition to the employment and education outcomes.¹¹ Ermisch and Pevalin indicate that teenage motherhood *per se* is unlikely to affect social class of the mother at age 30 years; however, the authors suggest that women having a child as a teenager are more likely to partner men who suffer from unemployment and are less likely to own a home at age 30 years. Hawkes concludes that women having a teenage birth are less likely to have a partner in the household.

Child's long term outcomes

One study by Francesconi considers the long term outcomes of children born to teenage mothers compared with children born to older mothers.¹² The results of the analysis suggest that, after adjustment for family effects, children of teenage mothers have a significantly lower probability of high educational attainment, a greater risk of economic inactivity and a greater risk of teenage childbearing. The study also predicts that children of teenage mothers will be less likely to be in the top decile of the income distribution and more likely to be in the bottom decile. In addition, the study suggests that family structure plays a more important role on these outcomes than family poverty during childhood. Finally, the study indicates that children of mothers who give birth in their early twenties may also experience negative outcomes compared with children of older mothers. Insufficient information is provided within the paper to quantify the magnitude of these effects.

DISCUSSION

Main findings of this study

Six UK studies were identified within this review; five of these studies assess the long term socioeconomic outcomes associated with teenage motherhood upon the mother, controlling for both observable and unobservable characteristics which might predispose a young woman to teenage motherhood. All of these studies suggest that, if these characteristics are controlled for, teenage motherhood is associated with smaller long term negative outcomes than previous literature which does not control for these characteristics has suggested.^{2;16;17} The studies indicate that there is very little or no difference between long term employment and education outcomes of the mother; however, women reaching motherhood in their teens may be more likely to partner men who suffer from unemployment. One UK paper has been identified which assesses the long term socioeconomic impacts of teenage birth upon the child which suggests that there may be some negative outcomes for the child of a teenage birth; however, there are limitations around the methodology of this study. No similar studies have been identified associated with the father's outcomes. This study highlights the dearth of evidence available in this area and there is a clear need for further research.

Limitations of this study

The extent of any negative long term socioeconomic outcomes associated with a teenage birth is highly uncertain. In the case of assessing the outcomes associated with the mother, this is due to the difficulty of creating an adequate control to compare with teenage mothers to adjust for any underlying characteristics (both observable and unobservable) which may predispose the young woman to motherhood. If these factors are not adequately controlled for, the analyses are likely to overestimate the negative outcomes associated with a teenage birth. The findings of this review are not dissimilar to findings from similar studies within other countries such as the USA and Australia.^{18;19} However, more UK studies in this area would be valuable.

All of the analyses around the mothers' outcomes are undertaken when the mothers are around 30 years old. It would be difficult to compare outcomes before this age due to the time taken from leaving school to partaking in higher education and beginning a career. Therefore, although the data sets within the analysis may not seem recent, it would not be possible to use data sets where the mothers were born beyond around 1980. Conversely, if mothers' outcomes were assessed at older ages, the results would be less generalisable to teenage mothers today. However, whilst this review suggests that the mother's age at first birth has minimal to no impact upon the mother's outcomes at age 30, there may be greater initial negative impacts of age at first birth upon the parents. It should be noted that all of the studies within this review provide an analysis of the population average, rather than individual outcomes. Individual outcomes are clearly highly variable due to different individual circumstances and personal characteristics.

One study which was considered for inclusion within the review by Berrington *et al.* (2005) attempts to assess the socioeconomic outcomes of the father at age 30 years, but the study controls only for some of the observable characteristics of the father and does not attempt to control for unobservable characteristics.⁵ The authors conclude that the age of entering fatherhood does not substantially affect socioeconomic outcomes of the father at age 30, thus controlling for additional factors would only minimise these effects further. It would be useful for further econometric analyses to be undertaken around the impact of a teenage birth upon the father's long term outcomes. It would also be useful to assess the impact of a teenage birth upon long term health-related outcomes within an econometric analysis.

CONCLUSIONS

Limited evidence is available to understand the long term outcomes associated with teenage birth within the UK. Current econometric evidence suggests that mother's age at first birth *per se* accounts for relatively few of the negative long term socioeconomic outcomes experienced by people who are born with disadvantage. It is thus important that future policy should focus upon reducing initial disadvantage in addition to considering interventions to avoid unintended teenage pregnancy. It remains important that unintended teenage pregnancies are prevented due to the relatively high abortion rate within this age group. Additional econometric analyses around the mothers', fathers' and children's long term socioeconomic and health-related outcomes would be valuable.

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CONFLICTS OF INTEREST

None declared

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SUPPLEMENTARY DATA

Table 1: Studies reporting outcomes of the mother

Author, year	Data set used	Methodology	Control variables	Outcomes assessed	Results	Study strengths	Key limitations
Chevalier & Viitanen. 2003 ¹⁰	National Child Development Study (NCDS) (British women born during the first week of March 1958)	Instrumental variables & propensity score matching ¹ are used to determine the causal effect of teenage motherhood on outcomes at age 33. The comparator is women who were not teenage mothers. Age at menarche is the main instrumental variable (they report that age at menarche has been shown to be associated with teenage motherhood due to the longer duration of potential sexual activity, but at the same time it	Differ for the 3 outcomes assessed but include: Parental education; Location of birth; Number of siblings; Type of household; Use of library; Ability test in Maths & English at age 7; Type of school; Social class of father; Social class of peers' fathers; Dummy for financial trouble at age 16;	Post compulsory schooling; Work experience; Salary	Teenage motherhood: Reduces the chances of post-compulsory schooling by 12 – 23% at age 33 years; Reduces the length of employment by around 3 years at age 33 years; Reduces salary by between 5 – 10% at age 33 years.	Relatively large sample (504) of teenage mothers	Age at menarche is a weak instrument which means that the results will not adequately control for the unobservable characteristics. Based upon a cohort born in 1958 who were teenagers in the 1970s, which means that it may not be generalisable to becoming a teenage parent now.

¹ Propensity score matching is a technique used to select individuals to form a control group (non teenage mothers) with similar pre-teenage pregnancy observable characteristics to those of the treatment group (teenage mothers). It is not able to control for unobservable differences between the two groups.

		does not directly affect schooling). Birth order is also used together with age at menarche when estimating the model of work experience.	Highest qualification by age 33; Number of children; Work experience as a teenager & as an adult; Firm size; Dummy for part-time work				
Ermisch and Pevalin, 2003 ⁷	1970 British Cohort Study (British women born 5th-11th April 1970)	Compares the outcomes of women who have had a baby as a teenager with three different control groups; (1) older mothers (2) women who conceived as teens but had an abortion or a miscarriage, and (3) women who had a miscarriage as a teen. Also estimated the proportion of miscarriages that are random & obtained lower and upper bounds around the outcomes of interest.	Age of the woman's mother in 1970; Household social class at age 10; Her mother's education; A summary scale of her teacher's ratings at age 10.	Educational attainment; Income Support receipt; Employment status & salary; Whether in top 2 social classes; Partner status, and their qualifications & employment	Teenage birth per se is unlikely to affect qualifications, employment, earnings and social class of the mother at age 30 years. Women having a teenage birth are more likely to partner men who suffer from unemployment & are less likely to own a home at age 30 years. Teenage pregnancy	The instrumental variable 'miscarriage' provides a way of controlling for unobservable factors affecting both teenage birth and socioeconomic outcomes	Only 74 women within the sample had a miscarriage i.e. analysis is based on small sample size. Assumes that all miscarriages are known.

				status; House ownership.	may also lead to a small increase in Income Support receipt.		
Goodman et al, 2004 ⁸ / Kaplan et al, 2004 ¹³ (Working papers)	1970 British Cohort Study (British women born 5th-11th April 1970)	(1) Simple ordinary least squares analysis, (2) miscarriage as an instrumental variable (similar to analysis by Ermisch and Pevalin (2003)), and (3) using propensity score matching (analogous to Chevalier and Viitanen (2003)). Also calculate a lower bound for their estimates to examine the implications of non- random miscarriages and misreporting of miscarriages upon the results. Considers outcomes for teenager mothers <18 years & 18-20 years compared with	Age mother & father left full-time education; Maths, reading & ability test scores at age 10; Mother's age at birth; Father's social class; Banded family income at age 10 and age 16; Indicators at age 16 for whether the family had experienced financial hardship in the last year; Whether the girl's mother thinks sex education is important, Whether her daughter will do A-levels; Whether her daughter	Equivalised family income (comprises real net weekly income of the mother & partner, real benefits received per week & real net weekly income from other sources, adjusted to take account of household composition and size)	The impact of teenage motherhood is greater in the 18-20 years age group than in the < 18 years age group at age 29 or 30 years. Within the UK, it appears that benefit income does a good job of compensating for any negative effects on labour market outcomes and partners' incomes.	The instrumental variable 'miscarriage' provides a way of controlling for unobservable factors affecting both teenage birth and socioeconomic outcomes	Propensity score matching cannot control for unobservable factors that influence the decision to not terminate a pregnancy and the outcome of interest. Miscarriage sample is small (46 reported for people < 18 years & 77 miscarriages reported for people <20 years). Unclear how sensitive the results are to the assumption that the proportion of reported

		women who did not give birth as a teenager.	will continue in full time education past age 18; Whether the teenager has had a longstanding illness or disability.				miscarriages that occur non-randomly is 15%.
Walker and Zhu, 2009 ⁹ (Working paper)	UK Quarterly Labour Force Survey (women in England & Wales aged between 25 & 35 years who had their first birth by the age of 25, pooled from 1984 to 2007)	Instrumental variables: the Raising of School Leaving Age (RoSLA) policy & the time of year of birth (spring/summer versus autumn/winter). Considers outcomes for teenagers <19 years and <17 years. Uses those whose first birth was at age 20-25 years as a control group.	Age of the mother; Location; Year dummies & a polynomial of a continuous measure of birth cohort in months to control for smooth changes in tastes & technology over the time span considered in the analysis.	Worklessness (defined as a household where no adults are in paid employment)	Teenage motherhood does not have a significant impact upon worklessness between age 25 – 30 years.	Much larger sample of teenage mothers than other studies (>20,000 teenage mothers). Considers outcomes for 2 age groups	The authors only have access to a limited number of control variables given the cross sectional nature of the dataset.
Hawkes, 2004 ¹¹ (Prelim-	Data from St Thomas' Twin Research Unit (sample of	Family fixed effects model using twins (both identical and non-identical), controlling for the differences in their first	London dummy; Current smoker dummy; Number of children;	Household income; Highest qualification;	Family fixed effects model suggests that waiting an extra year before entering	Family fixed effects model is able to control for family	It is not able to completely control for genetic factors which may predispose a

inary paper)	twins who have given birth at some point in their lifetime, unclear whether British/English)	<p>pregnancy.</p> <p>Between-twin estimates were also estimated (treating each twin as an individual observation in the sample).</p> <p>Estimates from a model used in behavioural genetics were also presented, which is similar to the between-twin estimates but controls directly for the environment and genetics</p> <p>Socioeconomic outcomes are measured for each mother at different ages, with a mean age of 48.4 and a standard deviation of 7.5.</p>	<p>Highest qualification; Partner in household.</p> <p>The behavioural genetics method also includes: Age; Number of siblings excluding co twin; The twins mother's age at first birth; Whether they grew up in a single parent family.</p>	<p>Whether the mother is employed; Whether there is a partner in the household.</p>	<p>motherhood increases the natural logarithm of household income by 0.017, increases the highest qualification by 0.039 (on a 7 point scale ranging from 10 for basic education to 17 for degree), increases the probability of a partner in the household & increases the probability of being employed.</p> <p>These estimates are much smaller than those estimated with the between-twin models which do not control for family background.</p>	background	<p>woman to teenage motherhood because the majority of the twins within the sample are non-identical.</p> <p>The socioeconomic outcomes are observed at different times in the mothers' lifetimes.</p>
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Table 2: Studies reporting outcomes of the child

Author, year	Data set used	Methodology	Control variables	Outcomes assessed	Results	Study strengths	Key limitations
Francesconi, 2008 ¹²	Sample of young adults from the first nine waves of the British Household Panel Survey who were born between 1970 and 1983 (and hence 16 years & over at the time of the study)	Young adults matched to at least one of their parents (biological or adoptive) & to their siblings, where one child was born when the mother was a teenager & one was born when the mother was older (family fixed effects model).	Gender; Age (sister differences are taken at the same age in the case of a teenage birth); Age of father & mother at birth of child; Childhood family structure & parental joblessness; Dummy variable indicating first born.	% completing A-levels or higher qualifications; % experiencing economic inactivity ² ; Probability of being in the upper or lower decile for monthly real labour income; Real hourly pay & total individual (labour & non labour) income; Probability of female children having a teenage pregnancy	Children of teenage mothers have a significantly lower probability of high educational attainment, a greater risk of economic inactivity & a greater risk of teenage childbearing than children of non-teenage mothers. Children of teenage mothers will be less likely to be in the top decile of the income distribution & more likely to be in the bottom decile of the income distribution.	Attempts to account for unobservable characteristics by comparing outcomes of siblings.	Siblings & half-siblings may be very different in terms of their personality & other unobservable factors which might influence outcomes such as the event of a teenage pregnancy. Includes siblings who are adopted which will further accentuate the potential differences between the siblings. Siblings may influence each other based on the other's actions (eg. if 1

² Economic inactivity is defined as not employed and not being in full time education, looking after children, or taking part in a government training programme.

				<p>themselves; Likelihood of child smoking; Likelihood of experiencing psychological distress as measured by a score of 4+ in the General Health Questionnaire.</p>	<p>Family structure plays a more important role on these outcomes than family poverty during childhood.</p> <p>Children of mothers who give birth in their early twenties may also experience negative outcomes compared with children of older mothers.</p>		<p>sibling has a teenage pregnancy, the other may endeavour to avoid this happening to her).</p> <p>Insufficient information is provided within the paper to quantify the magnitude of the effects.</p>
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