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The effect of social fathers on the cognitive skills of out-of-wedlock children in the U.S

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ABSTRACT

There are two competing views regarding the presence of social fathers on childrens' cognitive ability: (1) either the social father provides more financial resources which benefit the children or (2) the mother with new partners may shift the focus away from the children. Previous research focused on older children or adolescents and ignored the self-selection problem. We use data from the Fragile Families and Child Wellbeing Study (FFCWS), and a sample of younger children. Using propensity score matching method (nonparametric methods), we find that children with social fathers scored around three points less in a cognitive ability test than children living only with biological mothers (assuming that self-selection is based on observables). The result remains robust when using a control-function analysis (parametric method).

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1. Introduction

Later marriage and declining marriage rates increase the number of women who may be more likely to have non-marital births (Carlson et al., 2004). The proportion of children born to unmarried parents has increased considerably in the past forty years. In 1970, only 12 percent of births occurred outside marriage (Sigle-Rushton and McLanahan, 2002). In 2010, the figure increased to about 40 percent (Hamilton et al., 2011).¹ Around 4.2 million children under age 18 in the United States lived with a biological mother and a social father, according to data from the 2004 Survey of Income and Program Participation (Sweeney, 2010). Non-marital births are usually associated with socioeconomic disadvantages and family instability. This raises the interest of researchers to study non-marital births and other related issues.

Meanwhile, the increasing out-of-wedlock childbearing contributes to the prevalence of social fathers – defined as either the mother marrying to a new partner or the mother cohabiting with a new partner. Estimations in the 1990s showed that a quarter of

children would live with a stepparent at some point during childhood (Bumpass et al., 1995).² The reason behind this trend is that children born to unmarried parents have a higher chance to experience the union dissolution of the biological parents. For example, Bzostek et al. (2012) found that around two-thirds of mothers would end the relationship with the child's biological father within five years following a nonmarital birth. They also found that a majority of those mothers would enter a new relationship. Many single mothers choose to cohabit with the new partner or remarry. Similar results were found by Osborne and McLanahan (2007). Children would have to live with their mothers' new partners following their mothers' decisions.

How the presence of social fathers affects the unrelated children, especially the young children, is not thoroughly studied. Coleman et al. (2000) demonstrate that the presence of social fathers has some degree of negative effect on the biological children of their partners. Children and adolescents living with a social father and the biological mother are more likely to result in lower cognitive skills or lower grade point averages compared to those living with two biological parents (Brown 2004; Hofferth 2006; Manning and Lamb 2003; Thomson et al., 1994), although these results may be due to the benefit of having both biological

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¹ The rate of non-marital births seemed to have stabilized from 2007 to 2010 at around 40 percent.

² The percentage is very likely to be higher because of larger number of non-marital birth at present

parents in the family.³ Nonetheless, [White and Gilbreth \(2001\)](#) found that stepfathers have a positive effect on adolescent outcomes if they have a good relationship.

The present study is different from the current literature in several aspects. The aforementioned research focused more on how social fathers affect older children and adolescents. By focusing on older children or adolescents, those studies failed to separate the impact of family structure from the impact of family instability. Most of the older children and adolescents may have gone through divorce and remarriage of the biological parents. For children born to unmarried parents, the presence of social fathers may occur very early in the children's life. It is less common for those children to experience the divorce of biological parents. According to [Bzostek \(2008\)](#), younger children may show less resistance towards social fathers because they may not be mature enough to understand the difference between biological fathers and social fathers. In contrast, older children and adolescents are mature enough to know the difference. They may show greater resistance towards the existence of social fathers. Because of the different degree of resistance, younger children and older children should show quite different responses to the existence of social fathers. We examine in our study whether social fathers have any beneficial or detrimental effect on the well-being of younger children.

This study examines questions about the impact of social fathers on children's wellbeing: (1) Is the existence of social fathers beneficial to the children because children fare better if a mother and non-biological father dwell together? (2) Is the presence of social fathers associated with lower cognitive ability because the mothers will be distracted and consequently reducing parenting quality? We address these questions using data from the Fragile Families and Child Wellbeing Study (FFCWS). Cognitive ability is measured using the score from the Peabody Picture Vocabulary Test (PPVT) ([Dunn and Dunn, 1997](#)). The PPVT score is widely used to measure verbal ability and receptive hearing in children and adults. It is a very good assessment of children's language development. This study examines only the effect of non-biological fathers on PPVT score of young children. In order to identify the pure effect of social fathers on the children, this study uses out-of-wedlock children in families with only biological mothers as the control group and we then compare the out-of-wedlock children in families with biological mothers and social fathers to the children in the control group.

This study also addresses the self-selection issue. Children are not randomly assigned to have social fathers. It is more likely to be the case of a self-selection of the mothers. The presence of social fathers may be correlated with the characteristics of the mothers, such as education, employment status, and income level. The outcome differences between children with social fathers and children without social fathers may be caused by those characteristics of the mothers regardless of the presence of social fathers. Simple comparison of the well-being of these two groups of children may lead to biased results. To address the selection issue, we use the propensity score matching method (nonparametric)⁴ to estimate the effect of social fathers on children's well-being. This method estimates the average treatment effect by constructing a setting similar to an experiment in which the treatment (the presence of social fathers in this study) is randomly assigned.

It is imperative to investigate how the presence of social fathers affects early cognitive development because the number of young

children growing up in this family setting is increasing over time. Using a selected sample from FFCWS and the propensity score matching method, we find that the presence of social fathers is negatively correlated to children's cognitive ability. Children aged three living in families with social fathers score around three points lower on the PPVT than those living only with their biological mothers. The results may only reflect part of the problems faced by children with social fathers. Due to the widespread nature of non-marital births, social fathers will still be very common in the future. The possible negative effect caused by social fathers will probably affect a large portion of child population.

2. Literature review

Why are researchers interested in children's cognitive ability? Many studies suggest that cognitive ability has a significant impact on adults' socio-economic outcomes.⁵ More recent findings provide evidence that childhood cognitive ability development affects future socio-economic outcomes. In fact, successful transition to formal schooling sets the stage for subsequent development and achievement. For instance, [Childers and Durham \(1994\)](#), and [Smith et al. \(1991\)](#) found significant correlation between PPVT score and scores from other achievement test and intelligence test which eventually would affect future socio-economic outcomes and wage earnings. [Yoshikawa \(1995\)](#) is an extensive review of literature from criminology, psychology and education. The author examined childhood programs aiming to improve the cognitive and social skills of children in the U.S.A. He found evidence that early childhood programs were more cost-effective and efficient in ameliorating and preventing later antisocial and delinquent behavior. [Carneiro et al. \(2007\)](#) used the National Child Development Study (NCDS) – a panel data for all U.K. children born at the same time (a single week in March 1958) – to estimate the impact of cognitive and social skills on various socio-economic outcomes. They found that children with better cognitive skills were more likely to achieve higher education degrees, remain employed at age 42 and less likely to become heavy smokers. [Coneus et al. \(2012\)](#) studied the relationship between parental investments and children's cognitive skills using a longitudinal data. They found that parental investments have significant positive effect on children's cognitive skills, and the formation of cognitive skill during early infancy has a long-lasting effect. It is beneficial for the cognitive development later in childhood. Their paper supported the view that the cognitive development in early childhood is important.

The availability of the Fragile Families and Child Wellbeing Study (FFCWS) boosted a new wave of research on non-marital births. The FFCWS contains detailed information on the developmental and health outcomes of the same cohort of children since they were born. Research using FFCWS mainly focused on examining how factors, such as family structure and family stability, affect the cognitive ability of out-of-wedlock children. For example, [Craigie \(2008\)](#) examined the effect of family structure and family stability on child cognitive development. The PPVT score at age three of the child is the variable of interest. For family

⁵ For instances, [Schmidt et al. \(1986\)](#) used path analysis to examine the impact of cognitive ability on job knowledge, performance capability as measured by job sample tests, and supervisory ratings of job performance. Cognitive ability significantly increased job knowledge acquisition and (indirectly) the effect of ability on job sample performance holding job experience constant. This relationship was found to be stable over time. [Cawley et al. \(2001\)](#) analyzed the relationship between wages and measured cognitive ability. Wage variance across race and gender can be explained by difference in cognitive ability using U.S. data. They found that personality traits were strongly correlated to future earnings.

³ There are studies on other countries (e.g. [Ayllon and Ferreira-Batista, 2015](#); [Bozzoli, 2016](#)) showing the advantage of having both parents in the family.

⁴ See [Rosenbaum and Rubin \(1983\)](#); [Heckman et al. \(1998\)](#); [Imbens \(2004\)](#) for details of propensity score matching method.

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