

**Are children from divorced single-parent families more
disadvantaged? New evidence from the China Family Panel Studies**

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Abstract

Since the beginning of the twenty-first century, the stability of marriage and the family in China has been challenged by climbing divorce rates. Divorced single parenthood has become more prevalent. Nevertheless, divorced single parenthood and its impact on child outcomes have not been studied as much in China as in the West. Most studies in Western societies have reported disadvantaged child outcomes associated with parents' divorce and single parenthood. This has been attributed in part to the prevalence of divorce among low socioeconomic parents and lack of child monitoring when one parent has left. In China, however, there are buffering mechanisms that may reduce the negative impact of parents' divorce on children. One is positive selection in socioeconomic status among divorced parents. Another is the high involvement of grandparents in childcare. Using data from the 2010, 2012, 2014, and 2016 waves of the China Family Panel Studies, this study examines the effect on a child's well-being of parental divorce versus marital conflict between parents who remain married. More than 30 indicators from five dimensions of child well-being were evaluated. The results showed that children living with divorced single mothers did not perform worse than children from intact families in most respects, whereas children living with divorced single fathers were more disadvantaged in academic performance, subjective well-being, and interpersonal relationships. Children from intact families witnessed frequent quarrels between their parents who remained married, resulting in negative impacts on most of the above outcomes.

Introduction

The divorce rate in China has been on the rise over the past three decades. Between 1980 and 2016, the crude divorce rate (CDR) increased from 0.35 per thousand people to 3.00 per thousand. Between the late 1980s and 1999, the rate grew rapidly; however, the most dramatic growth did not appear until 2003. The annual CDR between 2003 and 2013 was as high as 9.4%, much higher than the 6.8% found between 1986 and 1996. More recently, the divorce level in China, measured by CDR, has exceeded that in many Western and other Asian societies. For example, it has become higher than the divorce levels in the United Kingdom, France, Germany, Korea, Japan, and Hong Kong, all of which used to have much higher CDRs than China. China's CDR is still lower than that of the United States; however, the gap is closing.

[Figure 1 is here]

The rising divorce level has inevitably changed the child-rearing environment in China because marriage, the basis of the family, has become less stable. Traditionally, the primary function of marriage in China was to generate offspring. Children were supposed to be raised by two biological parents, unless one had passed away. Single parenthood was mainly the result of widowhood rather than parental divorce or non-marital birth. However, as divorce has become more prevalent, the number of divorced single-parent families has also increased. As shown in Figure 2, the relative share of children under age 18 from divorced single-parent families has been on the rise, whereas the share of children from single-parent families in which there has been a death of a parent has declined dramatically over the decades. Despite the rising number of divorced single-parent families, very little is known about the effect of this on child rearing and the reproduction of intergenerational inequality in China.

[Figure 2 is here]

A large body of research in Western societies has documented the negative association between parental divorce and child outcomes. Compared with children uninterruptedly living with two married parents, children living with divorced single parents have been viewed as disadvantaged in academic performance, cognitive and

non-cognitive development, and psychosocial development (Amato 2000; Amato and Anthony 2014; Amato and Cheadle 2008; Anthony et al. 2014; Havermans et al. 2014; Kim 2011; Sigle-Rushton et al. 2005; Steele et al. 2009). Further, a wide variation in the achievement gap of children from single- and two-parent families has been found between Western and non-Western societies (Park 2007).

Previous research has documented the relationship between single parenthood and children's academic performance in some Asian societies and how it has varied from the United States and other Western societies. These studies have pointed to the different demographic characteristics of Western style single-parent families versus the strong family system that acts as a safety net for vulnerable family members in Asia (Park 2007, 2008). However, mainland China has not been included in the existing literature. Thus, empirical knowledge on the conditions of single-parent families and their children in mainland China remains very limited.

This study addresses two questions. The first is to what extent and in what ways children from divorced families in mainland China are disadvantaged when compared to children with two married biological parents. In past studies conducted in other societies, economic deprivation and lack of child monitoring when one parent leaves have been two major mechanisms mediating the effect of parental divorce or single parenthood on children's well-being. In China, however, positive selection in socioeconomic status is found among divorced parents, particularly among single mothers. Thus, children in divorced single-parent families may not have a poor standard of living. Moreover, grandparents in China remain highly involved in childcare and provide additional resources to divorced single parents and grandchildren. As a result, the negative impact of parental divorce on children in China may be reduced by these buffering mechanisms.

Despite the climbing divorce rate, cultural norms in Chinese society still favor traditional two-parent families for child rearing. Parental divorce is not as socially accepted as it is in some Western societies (Cheung and Park 2016). Many people continue to agree that parents should remain in an unhappy marriage when there are children involved. Nonetheless, it remains unknown whether children are better off in intact families with conflict-ridden marriages than living with parental divorce (Dong et

al. 2002). Thus, the second question in this study is how a child's well-being is affected when parents remain in a marriage with severe marital discord.

This study proceeds as follows. First, the existing literature on children with divorced or single parents in Western and Asian societies is briefly reviewed from a comparative perspective. The different socio-demographic characteristics of divorced single-parent families in China and the cultural norms opposing parental divorce are then described, and their implications for the well-being of children from divorced parents are discussed. Thereafter, data from the China Family Panel Studies of 2010, 2012, 2014, and 2016 are introduced, and the effects of both single parenthood due to divorce and marital conflict on the outcomes of children's well-being are examined. These outcomes include family investment, education and school performance, subjective well-being and non-cognitive traits, deviant behaviors, and interpersonal relationships. The results on how children become disadvantaged when they are in single-mother/single-father families or stepparent families compared with intact two-parent families are reported next, together with the effects of inter-parental discord on the same set of child outcomes in a subsample of intact two-parent families. The final section incorporates the discussion and conclusion.

Parental divorce and single parenthood from a comparative perspective

From the last quarter of the 20th century, many societies have experienced the Second Demographic Transition, characterized by changes to families. Such changes have included delayed marriage, higher divorce rates, the prevalence of cohabitation, and an increasing number of non-marital childbirths (Bumpass 1990). Consequently, the family structure and childbearing environment have become more diversified. Compared with the past, nowadays more children are raised in single-parent families and stepparent families. Divorce has become a major source of single parenthood in many societies, even though non-marital childbearing also explains the large number of single mothers in some Western countries. In the United States, for instance, half of the young people are expected to experience parental divorce at some point in their childhood (Lansford,

2009).

Along with the prevalence of divorce, researchers in Western societies have extensively investigated the consequences of parental divorce for the well-being of children. In recent years, this research interest has expanded to include family structure as an important mechanism in the reproduction of inequalities (McLanahan and Percheski 2008). The existing literature has left no doubt that children from divorced families exhibit more emotional and behavioral problems and do worse in school than children from intact two-parent families (e.g. Amato 2000; Amato and Anthony 2014; Amato and Cheadle 2008; Anthony et al. 2014; Havermans et al. 2014; Kim 2011; Sigle-Rushton et al. 2005; Steele et al. 2009). Researchers have also found evidence of long-term negative consequences associated with parental divorce in the United States and other Western societies, including lower educational attainment, more likely to receive welfare benefits, poor mental health or psychological well-being, early intimate relation formation, early transition to parenthood, and non-marital fertility (Bhrolcháin et al. 2000; Sigle-Rushton 2005).

Prior research has identified three major mechanisms that link parental divorce to adverse child outcomes. The first is economic deprivation following parental divorce, which substantially lowers the child's living standard and restricts family investment in the child's education. In the United States and some Asian societies, divorce has become more concentrated in couples of lower socioeconomic status. Further, divorce often entails a financial cost to the partners going through it. Women, in particular, suffer from lost income following a divorce (Andreß et al. 2006; Duncan and Hoffman 1985; Smock et al. 1999; Weitzman 1985). Children of divorced parents more often live with a single mother and therefore are especially vulnerable to economic deprivation and poverty.

The second major mechanism disadvantaging children in single-parent families is the absence of one parent. Parental involvement is very important to children's education and development. However, single parents tend to spend less time with their children and are less able to become involved in their children's education or to supervise their behavior.

The third mechanism is the stress caused by unresolved marital discord between two

parents that ends in divorce. Divorce is stressful for both the parents and their children (Amato 2000). Moreover, stress from parental conflict emerges even before a divorce. A family in which there has been frequent inter-parental conflict usually has fewer psychosocial resources to devote to a child's development. Research has shown that inter-parental discord prior to or during a parental divorce has a detrimental effect on the child's psychological adjustment to the divorce, increasing his or her risk for anxiety and behavioral problems (Amato and Cheadle 2008; Strohschein 2005). Exposure to parents' marital conflict partly explains why children in divorced single-parent families are often more disadvantaged than children in single-parent families where a parent has died (Park 2008; Steele et al. 2009). A reunion of separated parents or post-divorce parental remarriage does not help the child's recovery (Bhrolcháin et al. 2000; Steele et al. 2009).

Having said that, not all children subjected to parental divorce, homogeneously suffer from the event. This has been widely acknowledged in previous research exploring variations in post-divorce child outcomes across social classes and life stages (e.g. Amato 2000; Brand et al. 2017; Pan 2014). Much less is known about how the heterogeneous disadvantages of children living with divorced single parents vary across social contexts or ethnic and cultural backgrounds.

More recent studies have begun to explore cross-country variations in the extent to which children from single-parent families are more disadvantaged than children in two-parent families. The focus of these studies has been on the role of the family structure on the reproduction of inequalities within different social contexts. Divorce has been viewed as one possible cause of family disruption. Its consequences for a child's achievement have usually been examined together with or in contrast to other types of single parenthood, such as widowhood or non-marital birth parents. A comparative study of eleven Western countries showed that the academic achievement gap between children from single-parent families and two-parent families was smaller in countries with more generous and supportive family welfare policies. Allowances for families and children and the parental leave provided in these welfare countries has effectively relieved children's economic deprivation and increased the time parents spend on children in single-parent families. In contrast, children from single-parent families in non-welfare

countries have fewer welfare resources with which to overcome these difficulties (Pong et al. 2003).

Cross-country variations in the academic disadvantages of single-parent children appear to have been more pronounced in Western than in Asian countries, although the research effort devoted to changes in family structure and their consequences in non-Western societies has remained inadequate (Park 2007). Park's comparative study showed that differences in reading scores for students from single-parent families compared to two-parent families were not found in Indonesia and Thailand, were negligible in Hong Kong and Korea, and were smaller in Japan than in the United States. Park attributed the weaker effect he observed in Asia to strong family and kin networks, which, within these societies, serve as safety nets for vulnerable family members. However, support and protection from the extended family system was less likely to be available for divorced single-parent families than for widowed single-parent families (Park 2007). As shown in another study of Park (2008), in Korea, parental divorce had a more detrimental effect on children's educational aspirations and disengagement than the death of a parent.

Another distinct feature of single parenthood in Asia has related to the role gender plays in single parent families. In some Western societies, living with a single mother is accompanied by more disadvantage than living with a single father. Single mothers are often more disadvantaged in the labor market. Thus, the selection of which parent children are to live with matters. Living with a single mother has been more predominant and normative than living with a single father in these societies. Single fathers as a group may be selected for their higher level of commitment to parenting or relatively better socioeconomic status. However, in some Asian countries, this is reversed. In Korea, where custodial mothers are selected more often, children living with divorced single mothers are less disadvantaged than children living with divorced single fathers (Park 2008). The differences between single-father and single-mother families can be explained by the gendered division of labor in terms of child-rearing responsibilities. A recent study by Cheung and Park (2016) found that the disadvantages of students from single-parent families in Hong Kong were observed only among single-father families, not

single-mother families, even though sole custody by single mothers has been more prevalent in Hong Kong. The authors further found that single mothers had better verbal communication with their children than single fathers.

The findings from these comparative studies highlight the demographic, cultural, and institutional circumstances that have produced the varying effects of family structure on intergenerational mobility across countries. In some societies, single parenthood has been less determined by social class, or there have been better family policies or stronger family systems that have reduced the negative impact of breakups on vulnerable family members. However, many studies have also experienced data limitations because they have been unable to separate the effects of single parenthood by type. In Western societies, for example, non-marital births account for a substantial number of single parents (McLanahan and Percheski 2008), whereas in Asian societies, single parenthood is sometimes ascribed to widowhood (Park 2007). Due to this, less is known about how much cross-country variations in a child's condition can be attributed to divorced single parenthood.

Previous comparative studies have not included China, the largest country in Asia, even though China shares many features with other East Asian societies such as Japan, South Korea, Hong Kong and Taiwan, in terms of its demographic transitions and family culture. These shared features include stronger family ties and kinship networks, the low prevalence of non-marital birth, and the centrality of children to marriage (Raymo et al. 2015). However, China differs in other aspects of its demographic and social context. In the next section, some of China's distinct demographic and sociocultural features relevant to the condition of children of divorced parents are compared to selected Western and East Asian societies.

The distinct feature of single parenthood in China

In this section, the demographic and sociocultural features that may mitigate or exacerbate the effects of parental divorce or single parenthood following a divorce on the well-being of children in China are examined. Because demographic information on

single parenthood has not been included in China's official statistics, 1% of the Chinese Census data from IPUMS for 1982, 1990, and 2000 is relied on to produce descriptive statistics.

1. Positive educational gradient among divorced parents.

In many Western societies, poverty and economic hardship have contributed to the adverse living conditions of single-parent families because divorce has been more prevalent among the lower social classes. A negative educational gradient of divorce has also been found in East Asian societies, such as Japan, Korea, and Taiwan (Chen 2012; Park and Raymo 2013). The educational gradient of divorce has not been examined in Hong Kong, but single-parent families in Hong Kong have been found to be poorer than two parent families (Cheung and Park 2016). Additionally, following a divorce, women have been more likely to suffer from a decline in their living standard than men. Thus, divorced single-parent families have tended to be poorer than two-parent families, and single-mother families particularly have been much poorer.

In China, however, the educational gradient of divorce has remained positive, even though divorce has been on the rise. Studies have shown that divorce in China has been more prevalent among the economically developed provinces and urban areas and among wives with higher educational attainment, and less prevalent among peasants (Wang and Zhou 2010; Xu et al. 2015; Zeng and Wu 2000). Moreover, due to different patterns of selectivity for men and women in post-divorce remarriage, divorced women of higher socioeconomic status and divorced men of lower socioeconomic status have been more likely to remain unmarried following a divorce. Therefore, we can infer that divorced single parents, and particularly divorced single mothers, are not necessarily more disadvantaged in their socioeconomic resources than married parents. Based on the 1% Census sample, Table 1 shows the percentages among parents with a college education as opposed to no schooling by gender and marital status. Divorced single mothers were more educated, on average, than married mothers, and divorced single fathers were slightly less educated than married fathers, but were more educated than widowed single fathers. Given that divorce in China has been less concentrated among parents of lower socioeconomic status, one can imagine that fewer children have fallen into financial

difficulties or poverty after parental divorce. The constraints on monetary investments in children's education and other aspects of divorced single-parent families (at least from divorced single-mother families) in China may not be as strong as the United States or other societies where single-parent families have tended to be poorer.

[Table 1 is here]

2. Prevalence of paternal custody

Post-divorce living arrangements of children in China are dominated by paternal custody, which is similar to Korea. However, the prevalence of paternal custody in China has mainly resulted from its patriarchal culture rather than the law as it has been in Korea. In this study, the proportion of children living with divorced single fathers and mothers was computed using the 1% Census samples for 1982, 1990 and 2000. The study considered the co-residence arrangements of children living with either divorced parent to be a proxy measure of post-divorce custody. From Table 2, one can see that paternal custody was still more common than maternal custody in China, although maternal custody increased over time. There was also a son preference in paternal custody. Sons were more likely to live with their fathers after divorce than daughters were. Unlike the United States and many other countries where single-mother families have been more prevalent, the demographic composition of the post-divorce family structure in China has been dominated by single-father families. Past research on other East Asian societies has documented better educational outcomes among children in single-mother families than in single-father families, either due to selectivity or gender differences in parenting (Cheung and Park 2016; Park 2008). It is possible that similar parental gender differences exist in mainland China with regard to children's outcomes in divorced single-parent families.

[Table 2 is here]

3. Childcare support from grandparents

Intergenerational co-residence and the intrafamilial exchange of resources and support between adult children and their elderly parents are still very common in China, although they appear to have declined in other East Asian societies (Raymo et al. 2015).

Approximately one-third of the Chinese population still live in multigenerational households (Xu et al. 2014). Intergenerational transfers of monetary resources and

childcare support from elderly parents to adult children have actually strengthened in recent years. Over one fifth of adult children have received financial support from their parents to purchase an apartment or build a house, and childcare support from elderly parents has become even more prevalent than financial support. Among children under age 16, about half are cared for by their grandparents (Xu 2017). Further, among younger couples born after 1980 under the “one-child policy,” the bond they have with their elderly parents is much stronger than it was in previous generations. There is heavy parental involvement in the married lives of young Chinese couples, not only because they may be the only children in each of their natal families, but also because public assistance is very limited and few childcare resources are available to families. As a result, married couples born after 1980 are heavily dependent on their parents for financial and childcare support. In some cases, Chinese grandparents on both sides of a young couple have even fought over custody of a grandchild for the sake of their divorced children (Yan 2013). Therefore, the negative effect of parental divorce on a child’s well-being in China may be buffered by a higher level of financial or childcare support from grandparents.

4. The centrality of children to marriage

Social values and attitudes toward divorce play a part in the outcomes of children of divorced parents. Chinese parents generally have high expectations for their children, feel a strong sense of responsibility toward childrearing, and tend to put their children’s interests at the forefront of their marriage. They are less likely to divorce if they have a child, especially a son, or if their child is young (Xu et al. 2015). Chinese parents also tend to tolerate unhappy marriages for the well-being of their children. In the China Family Panel Studies, 85.6% of the parent respondents agreed that “divorce is always harmful to children.” Around 60% concurred that “parents should not divorce for the sake of their children, even if their marriage is unhappy.” This may imply strong endogeneity between a parent’s decision to divorce and the child’s well-being: the decision to divorce or to delay a divorce may partly depend on how a parent evaluates the resilience of his or her child. If the parent senses that divorce will be very detrimental to the child’s future or that the child is not ready to endure a divorce, the idea of divorce may be abandoned or delayed until the child is grown.

5. Social sanctions against divorce

There are also social sanctions against divorce in China that bring excessive stress to divorcees and their children. China used to be a society with a very low divorce rate. Divorce was stigmatized and condemned (Liao and Heaton 1992; Liu et al. 2000). The rise of divorce in China has come about so dramatically that family norms and public attitudes towards it may not have changed as rapidly as changes to marriage and the family structure. Even though divorce has become more prevalent, the mainstream of Chinese society still holds a negative attitude towards it and a preference for two-parent families for child rearing. Further, many people grew up when divorce rates were low and may never have experienced or observed one. These individuals may lack the knowledge or understanding to cope with marital conflict related to their own divorce. As a result, their marriage could very likely end with long-lasting violent conflict and hostility.

In one study, divorced parents from 110 families in Shanghai were interviewed and only seven couples said that during marital conflicts they avoided fighting or quarrelling in front of their children. The parents who did fight simply said that their children were too young to be influenced by inter-parental conflict (Xu and Ye 2001). Given these observations, divorced parents and children in China may be more likely to experience higher levels of distress than parents and children in Western societies, where divorce is more commonly accepted. More importantly, the adverse home environment resulting from frequent disruptive, conflict-ridden marital discord, could be more detrimental to a child's development than divorce per se. Ironically, many Chinese parents seem to be unaware of or underestimate the harmful influence of their marital conflicts on their child's psychological well-being.

Sociologists in China began to be concerned about divorce around 1990. However, the focus of the early studies was limited to the trends and reasons for the rising divorce rates or the protection of women's rights in divorce (e.g., Liao and Heaton 1992; Wu 1999; Xu 1997; Zeng 1995). The consequences of parental divorce for children were usually assumed to be negative, and scholars mainly referred to findings from the United States. Little empirical research evaluated the impact of parental divorce on a child's well-being at home.

The demographic and social context of China and its implications for children of divorced parents has not received enough attention in the existing literature. Only a handful of studies have empirically investigated the effects of parental divorce on child outcomes in China. Most of these have used small convenience samples, samples of juvenile delinquents, or child samples drawn from divorced families, but that lack a reference group of two-parent families. The findings from these biased samples have reinforced the negative image of children from divorced parents and the social stigma attached to these children. Only a few studies have followed a proper research design. For example, Liu et al. (2000), for the first time examined the behavioral and emotional outcomes of 58 children from divorced families and compared them with 116 children matched from intact families. They found that children from the divorced families had more aggressive behavior, were more withdrawn, and had more social problems than children from the intact families. However, they did not find any significant differences in teacher-reported academic achievement between the two groups. Dong et al. (2002) compared psychological adjustment outcomes among 174 children from divorced families and 174 matched children from intact families. Their study found that children from divorced families reported a higher level of anxiety and more internalizing and externalizing behavioral problems. However, the studies of both Liu (2000) and Dong had data limitations. For example, the data from these studies were obtained from regional samples and were very small. The matched sample of children from intact families was too small to reflect the large variations in family background among most of them. These studies also failed to consider post-divorce family structures and living arrangements. Both studies emphasized the stigma and pressure related to children from divorced parents and hypothesized that the effect of parental divorce was becoming more detrimental to children in China than in the United States. Nonetheless, they overlooked some of the demographic features of divorced single-parent families that might have served as buffering mechanisms. Moreover, the surveys supporting these studies were conducted in the 1990s. With time advancing and divorce becoming more prevalent, we need more up-to-date evidence on the condition of children with divorced parents.

Data and methods

The data used in this study were taken from the baseline wave of the CFPS in 2010 and the full-scale follow-up waves from 2012, 2014 and 2016. The CFPS, launched by the Institute of Social Science Survey at Peking University, is a nearly nationwide, comprehensive, longitudinal social survey conducted in mainland China. It used multistage probability proportion to size sampling with implicit stratification to draw a baseline sample of 19,986 households from 25 provinces (excluding Tibet, Qinghai, Ningxia, Inner Mongolia and Hainan). 14,960 households were interviewed and 57,155 eligible family members were defined as gene members to be tracked throughout their lives. Among the 57,155 gene members, 33,600 adults and 8,990 children were interviewed in person in 2010. In 2012 and 2014, the CFPS followed up with all of the family members from the baseline sample. Overall, 33,956 gene members in 13,459 households, including 34,447 adults and 8,523 children, were successively interviewed in 2012 (Xie and Hu 2014). In 2014, the CFPS successively interviewed 37,147 adults and 8,617 children in 13,946 households. In 2016, over 47,000 individuals in 14,819 households were successfully interviewed. The response rates at the individual level in the four waves were above 80%.

The CFPS has collected rich data related to family structure, marriage history and change, in addition to children's development and education. This gave it an unparalleled advantage over other large data projects in China in serving our research purpose. First, for the baseline interviews, CFPS designed a special module for the adults to collect the marriage histories of each ever-married respondent and information on changes to his or her marriage between successive waves. From this, information was obtained on the respondents' first marriage, present marriage and last marriage, and whether he or she was divorced or widowed and had not remarried at the time of the interview. For each marriage, the CFPS collected details such as the cause and timing of marital disruptions. The reporting accuracy was checked with the respondents' answers from all waves and from the spouses' answers, and the best values for variables such as marital status and the timing of divorce were obtained. In this study, divorce was defined as one's self-reported

divorce status. Although divorce is generally a legal status, it can also be a de facto status. There is no such status as legal separation in China.

Second, the CFPS collected a full structure of family relationships, from which information on the parents could be matched to their children to construct the various types of family structures. The CFPS defined family as all immediate relatives who were economically interdependent, and non-immediate relatives who were economically related and continuously living in the same household for three months or longer. For each family member, the baseline CFPS collected information on all of his or her immediate relatives, including his/her spouse, father, mother, and all children. For each relative, regardless of whether they were living together, his/her social demographic information was collected through a proxy report. In the follow-up surveys, newborns and newly married spouses were added to update the baseline family relations. With the information on each parent's marital status (i.e. divorced or remained married) and co-residence status (i.e. co-resided with the child or not), three types of families were constructed: the two-parent family, the single-mother family, and the single-father family. In addition, using information on previous experience with divorce and the biological parent-child relationship for ever-divorced and remarried members, the stepparent family, consisting of a step parent and an ever-divorced biological parent, was distinguished as a separate type of family from the intact two-parent family.

Third, this study examined the outcomes of dependent children. The CFPS collected rich data from children aged 0 to 15, including school education, private tutoring, learning habits, daily behavior, personality, and physical and psychological health. Information for children under the age of 10 was collected from their primary caretakers. Children above age 10 were interviewed directly, alone, with proxy answers from their primary caretakers. However, some measures on child outcomes were only available in alternate year surveys or for children at specific ages, or enrolled in school. Given this limitation, the available answers from the four waves had to be pooled to obtain a cross-sectional sample. The sample of children aged 10 to 15 and enrolled in school, was further restricted because children below the age of ten or who were not enrolled in school were not relevant to many questions.

The dependent variables in this study consisted of a series of outcomes related to children's well-being. They were summarized as five dimensions. The first dimension was the family investment in a child's education, including the expenditure on education, saving for the child's education, allowance, overseas education plan, and participation in and spending on private tutoring. The second dimension was the child's school education and performance. This dimension included the child's academic performance self-rated by the child and by the child's primary caregiver, the child's own perception of academic pressure and excellence, whether the child was admitted to a key school, his or her satisfaction with the school and its teachers, whether the child served as a student cadre/student leader, and two assessments designed by CFPS to test the child's Chinese vocabulary and Math knowledge. The third dimension pertained to the child's personality, learning habits, and subjective well-being, including depression, social control, self-esteem, and positive behavior. The fourth dimension related to deviant behaviors, such as smoking or drinking, playing Internet games, involvement in romantic relationships and absence from school. The fifth dimension pertained to the child's interpersonal relationships. The interpersonal trust scale and self-rating on how well he/she got along with others were measures of the child's general interpersonal relationships. The level of trust in parents and talk to parents first when the child had worries and troubles measured the quality of the parent-child relationship. Table 3 presents more details on the dependent variables used in this study.

[Table 3 is here]

The key independent variable in this study was the type of family structure. As aforementioned, children's families were classified into four types: the intact two-biological-parent family; the divorced single-mother family; the divorced single-father family; and stepfamily consisting of a step parent and a remarried biological parent following a divorce. Because children from the last three types experienced parental divorce, the intact family was used as a reference group to measure the difference in outcomes between children with and without divorced parents. There were other types of families in the data, such as widowed single-parent families, but they were few in number for children of these ages. Other types of families were simply excluded from the

analysis.

Another key independent variable was the frequency of inter-parental discord. The CFPS asked children about the frequency of quarrels between their parents within the past month. The reports were more reasonable for intact two-parent families. Therefore, analysis of the association between parental discord and children's outcomes was only applied to a subsample of children living in intact two-parent families.

Regression analysis was used to examine the outcome differences between children in different types of families and to examine the effects of parental discord on children's outcomes for children in intact families. The outcome variables listed in Table 1 were measured at different measurement levels. OLS regression models were applied to interval measures, and the logistic regression models were applied to the binary measures. For the outcome variables in interval measures, the values were standardized to a score with a mean of 0 and a standard deviation of 1 to adjust the mean differences across waves.

To account for families' demographic features in China, family socioeconomic background and co-residency with grandparents were controlled. Family socioeconomic background was measured by parental education, household income per capita, migrant statuses of parents and child, and rural-urban residency. For parental education, education in percentile, a continuous variable ranging from 0 to 100 was used to measure an individual's relative position in the ranking of educational attainment among the population. Education in percentile was computed for each birth-year cohort and for men and women separately to adjust for the upward trends in educational attainment due to educational expansion and gender inequality. The information used to construct the variable came from the Chinese Census of 1982, 2000, and 2010, and the 2015 1% mini-census survey. For two-parent families, the average of education in percentile from both sets of parents was used. For single-parent families, the value of the variable was solely based on the information of the single parent living with the child. The household economic status was measured by logged household income per capita. Following the sampled pooled children being chosen from four waves, the level of income in the subsequent wave was adjusted to baseline level in 2010 by rural and urban provincial

CPIs. There are a substantial portion of left-behind children in two-parent families due to internal migration. That is, one or both parents migrated for urban employment, leaving the children and other family members (usually wives and elderly parents) at their place of origin. A binary variable was used to measure the split household living arrangement due to parental migration. It was coded 1 if either set of parents migrated, and coded 0 if both parents were living with the child or if it was a single-parent family. The migrant status of children was also controlled. It was coded 1 if the child was a migrant child and coded 0 if the child was a local child. Co-residency with grandparents was measured by whether any paternal or maternal grandparents were living with the family (1=yes, 0=no).

Other control variables in the models included the child's sex (male=1, female=0), age, and the grade level the child was attending. Grade was measured according to the level of education and the grade of that level. Because the education system in China usually consists of six years of primary school, three years of junior high school, and three years of senior high school, grade was measured as an interval variable ranging from 1 to 12.

Results

1. A description of single-parent families in the CFPS sample

Before the outcome variation across children from different types of families is reported, let us first glance at the distribution and characteristics of each type of family in the CFPS sample. Table 4 presents the distribution of children aged 10 to 15 from the four types of families in each wave of the CFPS. It shows that children in single-parent families and stepparent families accounted for only a small portion of the sample. Consistent with what has been found in the Census, however, there were more children in the CFPS sample living with a divorced single father than with a divorced single mother.

[Table 4 is here]

Table 5 presents the demographic and socioeconomic background of the children in different types of families. Children in single-mother, single-father or stepparent families were those who lived or ever lived in that type of family in any of the four waves.

Children in two-parent families were those whose family remained intact for all four waves. As Table 5 shows, children whose parents divorced, either living in single-mother or stepparent families, were more likely to live in urban areas, have a more educated parent, and enjoy a higher level of household income than children from intact families. Specifically, children living with single mothers had the highest parental education, the highest proportion of urban residency, and the highest household income per capita. The single-father families and stepparent families share similar socioeconomic characteristics with intact families regarding urban residency, parental education, and household income. The rates of living with grandparents also varied across family type. Co-residency with grandparents was more prevalent among divorced single-parent families than among intact families and stepparent families. Particularly, over 70% of the children living with divorced single fathers had grandparents living with them.

[Table 5 is here]

The above description of the gender of single parents and the parental educational gradient of the single-parent family in the CFPS sample is very similar to what has been observed in the Census sample. Children with divorced parents were not more disadvantaged than children from intact families in terms of family social background. Additionally, children with single mothers were better off than children in other types of families. This also shows that single parents with dependent children were more likely to receive support from the child's grandparents. The relative advantage of social background and the availability of intergenerational support enjoyed by divorced single parents in China have not been observed in many other societies.

2. Child outcomes across family types

Next, differences in the children's outcomes between the four types of families were compared and reported. First, the regression models for each outcome variable on family type were controlled for the child's sex, age, and grade level. Variables related to a family's socioeconomic background and availability of grandparent support were not included in this step. In the next step, parental education, the absence of married parents, the migrant status of the child, logged household income per capita, and co-residency with grandparents were added to the models in the first step, to see if these variables

explained any variation in the children's outcomes in different types of families. The OLS estimates for the effect of family type on continuous outcomes are reported in Table 6 and the MLE estimates for the effect of family type on binary outcomes are reported in Table 7. For simplicity, the regression estimates for the control variables in the models are not presented in Tables 6 and 7.

[Table 6 and Table 7 are here]

The first three columns in Tables 6 and 7 report the outcome gaps between each type of family, (resulting from divorced parents or intact two-parent families), controlling for the child's sex, age, and grade. The estimates consist of the outcome gaps across family types regardless of the families' background differences. In general, the results show the disadvantages for children from divorced single-father families in a few indicators. The negative outcomes were significantly associated with single-father families (at a level of 0.05) and included self-rated excellence and academic performance, time spent on study, the level of self-control, happiness, playing Internet games in Internet café, the level of trust in parents and perceived general interpersonal relationship. Unlike children living with single fathers, children from single-mother families were better off in many of the well-being indicators than children from intact families. They perceived less academic pressure, spent more time studying, and performed better on the vocabulary test, compared with children from intact families. Consistent with the description of divorced parents, that they were higher in social status, the children from divorced single-parent families were not deprived of monetary resources or family investment in their education. Single-mother families tend to spend more on their child's school education and private tutoring than intact families. Children from single-father families received more pocket money and single fathers were likely to save more money for the child's future education, although single fathers seemed less likely to spend on their child's private tutoring. In these outcomes, children in stepparent families showed almost no differences from children in intact families except that they spent fewer hours on study, had lower self-esteem, and had lower levels of interpersonal trust and trust in parents.

When socioeconomic background and co-residency with grandparents were controlled for, the positive effect of single motherhood on some outcomes disappeared

and more outcomes were negatively associated with single fatherhood, as reported in the fourth to sixth columns of Tables 6 and 7. Among families with similar social backgrounds and multigenerational living arrangements, children living with divorced single mothers were still found to perceive less academic pressure and spend more time studying. However, their premium became less prominent. Their advantages in higher scores in vocabulary assessment and family investment in education were no longer significant when compared to children in intact families with similar family backgrounds and living arrangements. Compared with children from intact families, children living with divorced single fathers showed significantly lower self-rated excellence levels, poorer school performances, lower scores in vocabulary assessments, lower self-control, poorer perceived interpersonal relationships, and less trust in their parents. They were less happy and less confident, but were more likely to play Internet games in an Internet Café. Children in stepparent families were still found to have no significant differences from children in intact families for these outcomes, except for their higher perceived academic pressure and less time spent on study.

In summary, in this study the well-being of children from divorced single-parent families in China depended on the gender of the single parent. Children in single-mother families tended to perform better in academics and did not significantly differ from children in intact families in material or subjective well-being or social relationships. In contrast, children from single-father families were disadvantaged in education, subjective well-being, and interpersonal relationships when compared with children from intact families. Better family background and the availability of intergenerational support among single parents partly explained both the positive outcomes associated with single motherhood and the less negative outcomes associated with single fatherhood. Thus, parental divorce should continue to be viewed as detrimental to a child's well-being in some, if not all aspects. We can imagine that these children would have achieved better outcomes if their biological parents had not divorced.

The results also show that the detrimental effects of parental divorce were mainly related to non-cognitive development. Children living with a single father were associated with weaker social controls, lower levels of happiness and lower confidence. The children

with divorced fathers also exhibited some deviant behaviors. Playing Internet games was more prevalent among children in single-father families.

Another question asked was why single motherhood was associated with some positive outcomes while single fatherhood was associated with some negative outcomes, even when variations in the single parent's social status and co-residency with grandparents were controlled in the models. Parental involvement might be one explanation. A supplementary analysis using information on childcare arrangements is provided in Table 8. It shows the involvement rate of any set of parents and any set of grandparents with childcare. We can see that the involvement rate of single mothers was no lower than married parents and the childcare involvement rate of grandparents in single-mother families was also high. Conversely, in single-father families the involvement rate of grandparents was the highest, but the involvement of the parent (father) in childcare was the lowest among the four types of families. The finding that children from single-father families reported significantly lower levels of trust towards their parent(s) was also evidence of poorer child-parent relationships in this type of family. Further, children living with single fathers tended to have more pocket money than children in other types of families. It is possible that single fathers used money as a substitute for time spent in childcare or to show they were fulfilling their fatherhood responsibilities.

[Table 8 is here]

3. Child outcomes in conflict-ridden intact families

From a subsample of children in intact two-parent families, the effect of inter-parental conflict on children's outcomes was examined. The estimated effects of the frequency of parental quarrels on a child's outcomes are presented in the last column of Tables 6 and 7. Included in these models was the same set of control variables used in the earlier analysis. The estimated effects of the control variables are not presented in the tables.

We can see that the frequency of quarrels between parents, as reported by their children, was negatively associated with many outcomes. Children whose parents quarreled more often tended to have lower levels of self-control and conscientiousness. They spent less time studying, were absent from school more often, and exhibited fewer

positive behaviors. As a result, they tended to report more academic pressure, rated themselves as doing less well academically, were more likely to be rated as “poor” in Chinese language and math by their caregiver, and professed less satisfaction with the schools they attended and their teachers. The more often the parents quarreled, the less happy or confident the children were, and the more they were depressed. These children also showed more deviant behaviors, such as smoking cigarette or drinking alcohol, playing Internet games, absence from school, and starting a romantic relationship, which in China has generally been viewed as too early for their age. Parental conflict was also associated with poor parent-child relationships. In families with more parental conflict, the children showed lower levels of trust in their parents and were less willing to talk to their parents first when they had worries and troubles.

Discussion and Conclusions

China provides a different social context than the West for understanding the impact of family structure on inequality in child rearing. On the one hand, positive selection based on the socioeconomic status of the divorced parents, the prevalence of grandparent involvement with childcare, and the centrality of children to marriage are possible buffering mechanisms that mitigate the negative impact of parental divorce on a child’s well-being. On the other hand, the social stigma related to divorce, the particularly stressful and conflict-ridden process of divorce, and the lack of public assistance available to single-parent families may exacerbate the suffering of children with divorced parents.

Empirical evidence on the impact of parental divorce on a child’s well-being remains limited in China. Past studies on single parenthood in Asian societies have documented the smaller academic gap between children in single-parent and two-parent families in some Asian societies and the United States or other Western societies (Park 2007). The change to family organization and behavior in mainland China shares many features with other Asian societies (Raymo et al. 2015). However, it still differs from them in its positive educational gradient in divorce and post-divorce custody arrangements. The evidence from China contributes to the literature on the consequences of divorce on

children of divorced single parents.

This study was the first to examine the effect of parental divorce and divorced single parenthood on the comprehensive outcomes of children, using a nationally representative sample from mainland China. By examining more than 30 well-being outcomes from children aged 10 to 15 living in households with different family structures, this study found that parental divorce had some detrimental effects on a child's well-being, despite positive selection in parental socioeconomic background and the availability of childcare support from grandparents. In other words, children in divorced single-parent families did not necessarily lag behind the overall child population, but they were more disadvantaged when compared with peers who were also well-off but from two-parent families. Given the limited negative findings on the child outcomes from divorced single-parent families and stepfamilies, we can infer that parental divorce and divorced single parenthood are less detrimental to a child's achievements in China than in the United States and other Western societies.

A large variation in child outcomes between divorced single-mother families and divorced single-father families was found in this study. Children living with divorced single mothers hardly displayed any disadvantages when compared to children from intact families, and they seemed to have some advantages in academics. Children living with divorced single fathers, in contrast, were negatively associated with educational performance, subjective well-being, and social relationships. The findings of this study are consistent with Cheung and Park's (2016) earlier study in Hong Kong, in which they found a significant negative effect of single parenthood on students' educational outcomes associated with single fatherhood but not with single motherhood. The authors argued that the differential effects of single motherhood and single fatherhood should be partly attributed to poorer parent-child interactions in single-father families. Further, they offered direct evidence on parental involvement, showing that single fathers had less verbal communication with their children than parents in two-parent families, whereas single mothers showed no difference from parents in two-parent families in these aspects. This study has tended to support Cheung and Park's hypothesis on the role of parental involvement, although mainland China is very different from Hong Kong in terms of its

gender selection for custody arrangements and its selection based on the socioeconomic characteristics of divorced single parents. The supplementary analysis on childcare arrangements also showed that divorced single fathers have tended to leave the responsibility for childcare to the child's grandparents. Conversely, the absence of a spouse and the presence of the child's grandparents did not necessarily reduce the involvement of divorced single mothers in childcare.

Another important finding of this study was the detrimental effect of inter-parental discord in intact two-parent families. More child outcomes were found to be negatively associated with the frequency of parental quarreling than living in divorced single-parent families or stepparent families. It is still very common for people in China to think that maintaining an unhappy marriage is in the best interests of children. However, as was found in the CFPS data, exposure to frequent parental discord can be more damaging to a child's well-being than parental divorce per se. This finding may be informative for some Chinese parents.

This study had several data limitations. First, the sample size of divorced single-parent and stepparent families was small, which could have resulted in larger standard errors for the estimated effects of family structure. It is possible that the absence of any negative effect for single motherhood or step parenthood in the CFPS data was due to the small sample of children from divorced single-parent and stepparent families and the large standard errors for the estimates. However, it can be argued that the direction of the estimated effects of single parenthood on many outcome variables was positive, rather than negative.

Second, the measures of education outcomes used in the CFPS were collected either from the self-reports of children or the proxy reports of their primary caregivers. Social desirability bias could affect the accuracy of such reports because children or their caregivers might have wanted to leave a good impression with the interviewers. In this situation, a school-based assessment through a test or an exam, or by teachers could serve as a more accurate measure of a child's educational performance. Previous studies in China have achieved very different findings on the inconsistency between parental and teacher reports. For example, Liu et al. (2000) speculated that divorced parents tended to

over-report the behavioral problems of their children because they also suffered stress from the divorce.

Third, this study lacked adequate measures for types of inter-parental quarrels and family violence, or physical conflicts between parents. Quarrels between parents are common, but they are almost always harmless. Nonetheless, this limitation did not affect the findings of this study on the negative impact of inter-parental quarrels on a child's well-being.

Finally, given that only a few children experienced parental divorce over the four waves and not all child outcomes were collected with every wave and for every respondent, this study was unable to answer how a transition from an intact two-parent family to a divorced single-parent or stepparent family affected the within-individual changes of well-being outcomes. This study only examined whether children with divorced parents were more disadvantaged than others. It did not answer the question of whether children became worse after a parental divorce.

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Acknowledgement

The study received funding support from the China National Social Scientific Fund, "The

Trend of Single Parenthood in China and Its Consequence on Child Development"

(15CRK021). The author thanks Cindy Glovinsky for her editorial assistance.

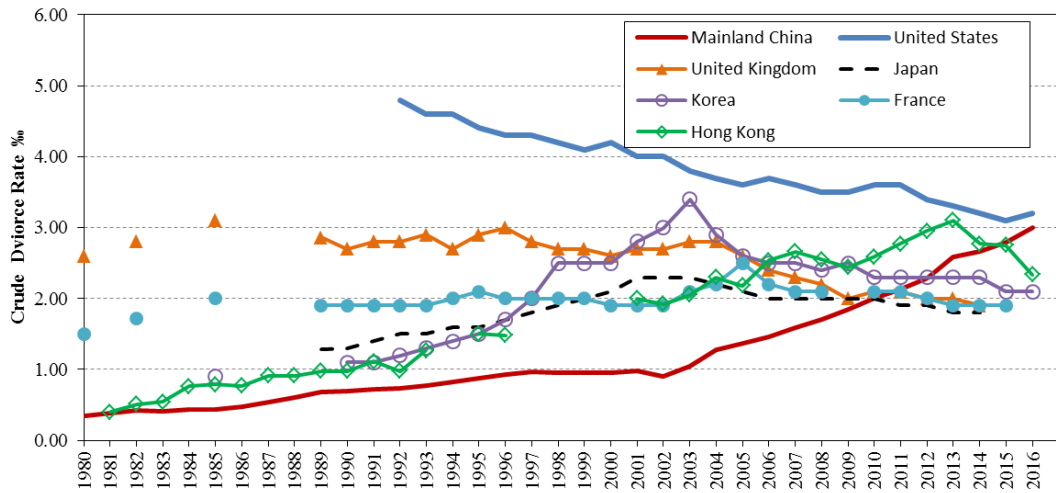


Figure 1. Crude divorce rates in selected countries/region

Data sources: 1. United Nations, Department of Economic and Social Affairs, Population Division (2009). World Marriage Data 2008 (POP/DB/Marr/Rev2008); 2. Social Protection and Wellbeing (Family Database), Organization for Economic Co-operation and Development (<http://stats.oecd.org/>); 3. Ministry of Civil Affairs of the People's Republic of China (www.mca.gov.cn); 4. Marriage and Divorce Trends in Hong Kong, 1991 to 2016, Census and Statistics Department, The Government of the Hong Kong Special Administrative Region.

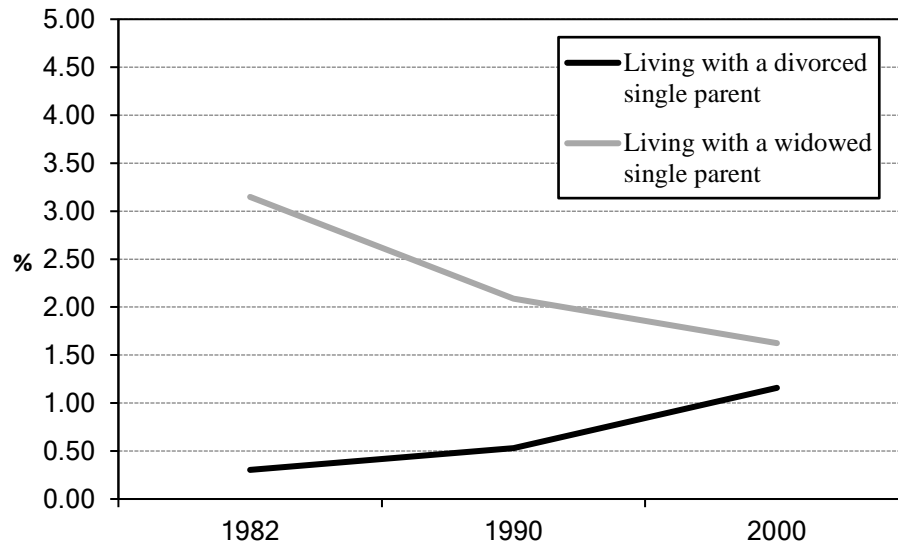


Figure 2. The percentage of children under age 18 living with a divorced single parent or a widowed single parent (%)

Data sources: 1% Chinese Census in 1982, 1990 and 2000, IPUMS

Table 1. The percentage of parents with college education and no schooling (Illiteracy) by gender and marital status (%), 1% Chinese Census in 1982, 1990, and 2000, IPUMS

	1982		1990		2000	
	College	Illiteracy	College	Illiteracy	College	Illiteracy
Married mothers	0.4	55.5	0.9	26.0	3.4	7.4
Divorced single mothers	1.5	32.8	2.4	14.0	10.1	5.1
Widowed single mothers	0.2	78.9	0.5	55.5	1.4	21.8
Married fathers	1.2	22.5	2.4	9.1	5.6	2.1
Divorced single fathers	1.0	30.3	1.3	16.0	2.9	4.1
Widowed single fathers	0.3	45.2	0.4	27.8	0.8	8.9

Table 2. The distribution of post-divorce living arrangements by the gender of parent and child (%), 1% Chinese Census in 1982, 1990, and 2000, IPUMS

Post-divorce living arrangement	1982	1990	2000
Sons with single mother	13.9	15.9	16.4
Daughters with single mother	15.3	17.7	19.0
Sons with single father	41.0	37.5	35.8
Daughters with single father	29.8	29.0	28.8
Total	100.0	100.0	100.0
(N)	(12,372)	(20,962)	(37,911)

Table 3. A list of dependent variables on a child's well-being

Indicators	Content	Waves / Ages / Enrollment	Measurement Level
<u>Family Investment</u>			Interval
Educational expenses	The amount of money spent on the child's education in the past year.	2010/2012/2014, in-school	Interval
Saving for a child's education	The amount of money your family saved specifically for your child's education in the past year	2012/2014 ; ages 0-15	Interval
Oversea education plan	Have you thought about sending your child to study abroad?	2010/2014 ; ages 0-15	1=Yes; 0=No
Allowance/Pocket money	Average allowance/pocket money per month	2010/2012/2014, ages 10-15, in-school	Interval
Time spent on private tutoring	How much time per week on average the child spends on private tutoring?	2010(ages 1-15)/2012/2014, in-school	Interval
Expense of private tutoring	The amount of money spent on private tutoring throughout the past 12 months	2010(ages 1-15)/2012/2014, in-school	Interval
Arts/sports-based private tutoring	Did the child ever participate or is he/she currently participating in any extracurricular classes in arts or sports?	2010 (ages 1-15)/2012/2014, in-school	1=Yes; 0=No
Curricular-based private tutoring	Did the child ever participate or is he/she currently participating in any curricular-based private tutoring?	2010 (ages 1-15)/2012/2014, in-school	1=Yes; 0=No
<u>Education and School Performance</u>			Interval
Educational aspiration	What is the minimum level of education you think you should attain?	2010(ages 10-39)/2012(ages 10-25)/2014(ages 10-39)	Interval

Indicators	Content	Waves / Ages / Enrollment	Measurement Level
Admitted to a key school	Attends key school through selection from examination	2012/2014, in-school	1=Yes; 0=No
Satisfaction with school	Are you satisfied with your school?	2010/2012/2014, ages 10 +, in-school	Interval
Satisfaction with teachers	Are you satisfied with your class advisor, Chinese language teacher, math teacher, and foreign language teacher?	2010/2012/2014, ages 10 +, in-school	Interval
Time spent on study	How many hours do you spend on study from Monday to Friday?	2010/2014, ages 10 +, in-school	Interval
Student cadre/leader	Are you currently serving as a student cadre in your class or school or serving as a leader of any of school organization?	2010/2012/2014, ages 10 +, in-school	1=Yes; 0=No
Academic performance	How would you rate your academic performance (from extremely unsatisfied to extremely satisfied) (Self-rating)	2010/2012/2014, ages 10 +, in-school	Interval
Academic pressure	How much academic pressure do you put on yourself? (from no pressure to a lot of pressure)	2010/2012/2014, ages 10 +, in-school	Interval
Excellence	How good a student do you think you are? From Very bad to Excellent	2010/2012/2014, ages 10 +, in-school	Interval
Excellent in Chinese language	Average grade in Chinese language = Excellent (Rated by the primary caregiver)	2010(ages 6-15)/2012/2014, ages 15-, in-school	1=Yes; 0=No
Poor in Chinese language	Average grade in Chinese language = Poor (Rated by the primary caregiver)	2010(ages 6-15)/2012/2014, ages 15-, in-school	1=Yes; 0=No
Excellent in math	Average grade in Math = Excellent (Rated by the primary caregiver)	2010(ages 6-15)/2012/2014, ages 15-, in-school	Interval
Poor in math	Average grade in in Math = Poor (Rated by the primary caregiver)	2010(ages 6-15)/2012/2014, ages 15-, in-school	1=Yes; 0=No

Indicators	Content	Waves / Ages / Enrollment	Measurement Level
Vocabulary test	CFPS vocabulary test	2010/2014, ages 10 +	Interval
Math test	CFPS math test	2010/2014, ages 10 +	Interval
<u>Psychological and Subjective Well-being</u>			
Self-esteem level	Rosenberg Self Esteem Scale	2010(age 10)/2012(ages 10, 12, 14)/2014(ages 10-21 never answered this question)	Interval
Self-control level	The Cross-cultural Personality Inventory-Adolescent Version (CPAI-A)	2012 (ages 12, 14)/2014 (ages 10-15 or never answered this question)	Interval
Positive behavior	Positive Behavior Scale	2010(ages 3, 7, 11, 15)/2012(ages 3, 7, 11, 15)/2014(ages 3-15 never answered this question)	Interval
Conscientiousness	Conscientiousness subscale from the "Big Five"	2010/2012/2014, in-school	Interval
Depression level	Kessler 6 Rating Scale	2010/2012/2014, ages 10 +	Interval
Happiness	Are you happy? 0-10	2010(ages 10+)/2012(ages 10-15)/2014(ages 10-15)	Interval
Confidence level	Are you confident about your future?	2010(ages 10+)/2012(ages 10-15)/2014(ages 10-15)	Interval

Deviant behaviors

Smoking or Drinking	Have you ever participated in cigarette smoking or drinking alcohol?	2010/2012/2014, ages 10+	1=Yes; 0=No
Play Internet games	Have you ever participated in and how often do you play games at an Internet café?	2010/2012/2014, ages 10-15	1=Yes; 0=No
Absence from school	In the most recent month when you were not on vacation, did you take a leave of absence or cut a class?	2010/2012/2014, ages 10+, in-school	1=Yes; 0=No
Intimate relationship	Do you ever have a boyfriend/girlfriend?	2010/2012/2014, ages 10-15	1=Yes; 0=No

Interpersonal relationships

Have parents to talk to	Who would you usually talk to when you have worries and troubles? (= Parents)	2010/2012/2014, ages 10-15	1=Yes; 0=No
Have nobody to talk to	Who would you usually talk to when you have worries and troubles? (= Nobody)	2010/2012/2014, ages 10-15	1=Yes; 0=No
Self-rated interpersonal relationships	Is it easy for you to get along well with others? 0-10	2010/2012/2014, ages 10-15	Interval
Interpersonal trust scale	Inter-personal trust scale (Rate the degree of trust for six groups of people)	2012/2014, ages 10-15	Interval
Level of trust in parents	How much do you trust your parents 0-10	2012/2014, ages 10-15	Interval

Table 4. Distribution of children aged 10-15 from four types of families (%), CFPS 2010-2014

Family structure	2010	2012	2014
Intact two-parent families	96.84	95.86	94.57
Single-mother families	0.47	0.51	0.44
Single-father families	0.93	1.30	1.61
Stepparent families	1.77	2.32	3.38
Total	100.00	100.00	100.00
(N)	(4,077)	(3,700)	(3,667)

Notes: Stepparent families refer to families with a stepparent and a post-divorced remarried biological parent.

Table 5. Demographic and social characteristics of children aged 10-15 who live or have ever lived in each type of family, a pooled CFPS sample

Family structure		Child's sex(male=1)	Urban(=1)	Parental education in percentile	Logged Household income per capita	Coresidence of grandparent(s)
Intact two-parent families	MEAN	0.53	0.41	41.00	8.73	0.32
	S.D	0.50	0.49	23.50	1.10	0.47
Single-mother families	MEAN	0.49	0.77	64.80	9.42	0.46
	S.D	0.51	0.43	28.30	0.84	0.51
Single-father families	MEAN	0.54	0.46	45.48	8.90	0.70
	S.D	0.50	0.50	26.94	1.23	0.46
Stepparent families	MEAN	0.51	0.51	44.90	8.85	0.35
	S.D	0.50	0.50	21.85	1.04	0.48

Notes: Children in single-mother, single-father or stepparent families are those who lived or have ever lived in that type of family in any of the four waves from 2010 to 2016. Children in two-parent families are those whose families remained intact for all four waves. For intact two-parent families and stepparent families, parents' education is the average of the father's and mother's education in percentile.

Table 6. OLS regression estimates of family types on child outcomes, CFPS

Control variables	All families (Reference group = intact families)							N	Intact families only Child + Family Frequency of inter-parental quarrels
	Child			Child + Family					
	Single-mother	Single-father	Step	Single-mother	Single-father	Step	ΔR^2		
Educational expenses	0.294* (0.146)	-0.071 (0.095)	0.071 (0.065)	0.067 (0.140)	-0.130 (0.092)	0.049 (0.063)	0.08	5,806	0.016** (0.006)
Saving for the child's education	-0.095 (0.234)	0.529** (0.140)	-0.049 (0.091)	-0.223 (0.233)	0.488** (0.140)	-0.059 (0.092)	0.02	4,551	-0.004 (0.007)
Allowance/Pocket money	0.240 (0.195)	0.463** (0.126)	0.067 (0.087)	0.144 (0.195)	0.421** (0.126)	0.052 (0.088)	0.01	5,871	-0.008 (0.007)
Hours on private tutoring	0.352+ (0.190)	-0.233+ (0.130)	-0.024 (0.085)	0.116 (0.187)	-0.296* (0.129)	-0.015 (0.085)	0.04	5,947	0.005 (0.008)
Expense of private tutoring	0.574* (0.249)	-0.090 (0.164)	-0.041 (0.111)	0.126 (0.238)	-0.229 (0.158)	-0.060 (0.107)	0.09	5,762	0.037** (0.010)
Educational aspiration	0.143 (0.159)	-0.112 (0.105)	-0.038 (0.071)	-0.053 (0.156)	0.173+ (0.104)	-0.055 (0.071)	0.043	5,897	-0.011+ (0.006)
Excellence	0.259 (0.182)	-0.349** (0.121)	-0.125 (0.082)	0.193 (0.182)	-0.381** (0.121)	-0.096 (0.083)	0.006	5,879	-0.018* (0.007)
Academic performance	0.030 (0.181)	-0.290* (0.121)	-0.059 (0.082)	-0.002 (0.182)	-0.307* (0.121)	-0.034 (0.083)	0.003	5,880	-0.018* (0.007)
Academic pressure	-0.378* (0.176)	-0.172 (0.117)	0.134+ (0.079)	-0.348* (0.177)	-0.170 (0.118)	0.168* (0.081)	0.003	5,877	0.031** (0.007)
Time spent on study	0.808** (0.278)	-0.342* (0.171)	-0.320** (0.115)	0.805** (0.272)	-0.291+ (0.168)	-0.250* (0.114)	0.043	5,706	-0.057** (0.010)
Satisfaction with the school	0.124 (0.177)	-0.105 (0.118)	-0.005 (0.079)	0.085 (0.177)	-0.125 (0.118)	-0.001 (0.080)	0.001	5,885	-0.023** (0.007)

Control variables	All families (Reference group = intact families)								Intact families only	
	Child			Child + Family				ΔR^2	N	Child + Family Frequency of inter-parental quarrels
	Single-mother	Single-father	Step	Single-mother	Single-father	Step				
Satisfaction with teachers	0.134 (0.133)	-0.105 (0.088)	0.005 (0.060)	0.104 (0.133)	-0.118 (0.089)	0.007 (0.061)	0.004	5,885	-0.021** (0.005)	
Self-esteem level	-0.000 (0.143)	-0.055 (0.080)	-0.119* (0.060)	-0.079 (0.142)	-0.087 (0.080)	-0.114+ (0.060)	0.023	3,626	-0.009+ (0.005)	
Self-control level	-0.278 (0.250)	-0.405** (0.145)	-0.025 (0.107)	-0.130 (0.248)	-0.363* (0.144)	-0.043 (0.107)	0.02	3,426	-0.026** (0.008)	
Positive behaviors	0.244 (0.350)	0.082 (0.179)	-0.003 (0.120)	0.286 (0.351)	0.104 (0.181)	-0.007 (0.122)	0.002	2,589	-0.027* (0.011)	
Conscientiousness	0.019 (0.150)	-0.001 (0.103)	-0.062 (0.067)	0.038 (0.150)	-0.007 (0.103)	-0.081 (0.068)	0.002	5,985	-0.028** (0.006)	
Happiness	-0.097 (0.163)	-0.323** (0.110)	-0.148+ (0.078)	-0.188 (0.163)	-0.346** (0.110)	-0.138+ (0.079)	0.009	5,847	-0.035** (0.006)	
Confidence	-0.183 (0.176)	-0.241+ (0.123)	0.087 (0.091)	-0.274 (0.176)	-0.279* (0.123)	0.101 (0.091)	0.009	4,850	-0.027** (0.007)	
Depression	-0.085 (0.196)	0.029 (0.127)	-0.151 (0.094)	0.006 (0.197)	0.073 (0.128)	-0.164+ (0.094)	0.008	4,562	0.073** (0.008)	
Inter-personal trust	0.097 (0.261)	-0.252+ (0.135)	-0.205* (0.088)	0.068 (0.262)	-0.280* (0.136)	-0.205* (0.090)	0.003	3,968	-0.011 (0.007)	
Level of trust in parents	0.222 (0.243)	-0.365** (0.125)	-0.215** (0.082)	0.225 (0.243)	-0.363** (0.126)	-0.182* (0.084)	0.001	3,967	-0.034** (0.007)	
Interpersonal relationships	-0.155 (0.173)	-0.239* (0.117)	0.091 (0.083)	-0.231 (0.173)	-0.245* (0.117)	0.093 (0.084)	0.009	5,852	-0.018** (0.007)	
CFPS vocabulary test	3.411**	-1.632+	0.244	1.673	-2.026*	-0.078	0.036	4,536	-0.027	

Control variables	All families (Reference group = intact families)							ΔR^2	N	Intact families only
	Child			Child + Family			Child + Family			
	Single-mother	Single-father	Step	Single-mother	Single-father	Step	Frequency of inter-parental quarrels			
	(1.275)	(0.843)	(0.602)	(1.251)	(0.826)	(0.594)			(0.050)	
CFPS math test	1.430+	-0.469	0.229	0.463	-0.731	0.129	0.03	4,537	-0.036	
	(0.743)	(0.491)	(0.351)	(0.729)	(0.482)	(0.346)			(0.029)	

Notes: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$. Control variables for “Child” include the child’s sex, birth year, and grade he/she is attending. Control variables for “Family” include parental education in percentile, logged household income per capita, migration statuses of parents and the child, rural-urban residency, and co-residence with grandparents. The estimates for the control variables are not present in the table.

Table 7. Logistic regression estimates of family types on child outcomes, CFPS

	All families (Reference group = intact families)						Δ LR	N	Intact families only
	Child			Child + Family					Child + Family
	Single-mother	Single-father	Step	Single-mother	Single-father	Step			Frequency of inter-parental quarrels
Overseas education plan	-0.080 (0.554)	0.163 (0.306)	-0.220 (0.222)	-0.263 (0.557)	0.090 (0.309)	-0.261 (0.227)	26.1	4,610	0.024 (0.018)
Arts/sports-based private tutoring	0.867 (0.542)	0.065 (0.522)	0.030 (0.335)	0.020 (0.568)	-0.199 (0.544)	0.023 (0.363)	319.9	5,947	0.027 (0.023)
Curricular-based private tutoring	0.769+ (0.396)	-0.555 (0.433)	-0.188 (0.244)	-0.042 (0.415)	-0.896* (0.448)	-0.224 (0.259)	459.1	5,947	0.003 (0.019)
Admitted to a key school	0.899+ (0.509)	0.067 (0.492)	-0.387 (0.399)	0.685 (0.524)	0.036 (0.499)	-0.655 (0.406)	35.2	5,936	0.027 (0.025)
Student cadre/leader	0.378 (0.355)	-0.035 (0.251)	0.102 (0.166)	0.078 (0.362)	-0.137 (0.256)	0.038 (0.170)	121	5,819	0.017 (0.014)
Excellent in Chinese language	0.149 (0.397)	0.028 (0.284)	-0.054 (0.189)	-0.153 (0.403)	-0.015 (0.289)	-0.124 (0.194)	117.3	5,878	-0.007 (0.017)
Poor in Chinese language	-1.165 (1.020)	0.331 (0.365)	0.369 (0.237)	-0.867 (1.032)	0.387 (0.373)	0.386 (0.245)	91.9	5,878	0.059** (0.018)
Excellent in math	-0.282 (0.427)	-0.104 (0.281)	-0.229 (0.190)	-0.652 (0.433)	-0.168 (0.287)	-0.324+ (0.196)	171.56	5,875	-0.008 (0.016)
Poor in math	-0.618 (0.607)	0.379 (0.295)	0.311 (0.199)	-0.283 (0.613)	0.467 (0.300)	0.338+ (0.204)	81.11	5,875	0.050** (0.016)
Smoking or drinking	0.559	0.721+	0.106	0.335	0.666+	0.063	39.7	5,944	0.083**

	(0.617)	(0.385)	(0.335)	(0.624)	(0.392)	(0.343)			(0.019)
Play Internet games	0.805	0.874*	-0.171	0.747	0.957*	-0.188	7.9	5,925	0.060**
	(0.564)	(0.367)	(0.377)	(0.570)	(0.372)	(0.383)			(0.023)
Absence from school	-0.067	0.198	0.365+	-0.001	0.198	0.359+	5.48	5,785	0.044**
	(0.536)	(0.318)	(0.210)	(0.538)	(0.320)	(0.214)			(0.017)
Intimate relationships	0.223	-0.081	0.253	0.092	-0.145	0.255	11.2	5,921	0.054**
	(0.619)	(0.474)	(0.291)	(0.623)	(0.477)	(0.297)			(0.020)
Talk to parents	0.115	-0.015	-0.341+	0.000	-0.093	-0.185	34.5	5,935	-0.069**
	(0.384)	(0.257)	(0.187)	(0.385)	(0.258)	(0.190)			(0.020)
Talk to nobody	-0.542	0.223	-0.064	-0.605	0.223	-0.152	20.58	5,935	0.002
	(0.610)	(0.300)	(0.225)	(0.612)	(0.303)	(0.230)			(0.019)

Notes: ** p<0.01, * p<0.05, + p<0.1. Control variables for “Child” include the child’s sex, birth year, and grade he/she is attending. Control variables for “Family” include parental education in percentile, logged household income per capita, migration statuses of parents and the child, rural-urban residency, and co-residence with grandparents. The estimates for the control variables are not present in the table.

Table 8. Major caregivers for children during the day or night by family type, CFPS

Family structure	Parents as major caregivers %	Grandparents as major caregivers %
Intact two-parent families	49.6	14.8
Single-mother families	54.3	28.6
Single-father families	31.3	45.0
Stepparent families	41.5	30.3