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China Family Panel Studies

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Working Paper Series： WP13-001

The Consequence of Parental Labor Migration in China for Children's Emotional Well-being

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2013.10.08

The Consequences of Parental Labor Migration in China for Children's Emotional Well-being

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Revised version of papers prepared for presentation at the
annual meeting of the Population Association of America
New Orleans, 11-13 April 2013
and the spring
meeting of
The Research Committee on Social Stratification and Mobility of the
International Sociological Association (RC 28),
Trento, Italy, 16-18 May 2013.

Last revised 16 Aug. 2013
Word count (includes tables): 13,505

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ABSTRACT

Using data from the 2010 wave of the *China Family Panel Studies* (CFPS), we study the effects of internal migration in China on the emotional well-being of children age 10-15. The 2010 CFPS, a national probability sample survey of the Chinese population, includes 3,464 children within this age range. We compare five groups: rural children with local registration living with both parents; urban children with local registration living with both parents; children accompanying their migrant parent(s); children left behind with one parent when the other parent goes out to work; and children left behind or sent to live with others when both parents go out to work. We expected the last three groups to be at risk of increased emotional difficulties compared to children living with both parents. We tested these expectations using both conventional regression models and community fixed-effects models. The evidence supporting our expectations is very weak and inconsistent, leading us to conclude that in the Chinese context family arrangements have little impact on the emotional well-being of children. We finish by offering some conjectures as to why this is so.

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HIGHLIGHTS

- We study the effects of internal migration in China on children's emotional well-being.
- Our data are from a 2010 national probability sample of Chinese households.
- We find few negative consequences, for either migrant children or children left-behind.
- This is in contrast to findings from the U.S.
- Our conjecture: Chinese migrant families remain socially intact even when physically separated.

KEYWORDS

China, children, migration, left-behind, well-being, national

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1 INTRODUCTION

Over the past 30 years, China has experienced massive internal migration, mostly by rural migrants moving to cities or to industrial areas near cities in search of work. The result is that as of 2010 about 260 million people—approximately 20% of the population—were living in places other than where they were registered ([Chinese] National Bureau of Statistics, 2012, Table 7-2). Unlike the U.S., where residence more or less automatically confers local rights for U.S. citizens, albeit sometimes after a waiting period, in China local registration, and concomitant rights and privileges, are not easy to obtain.

Labor migrants tend to be young and also disproportionately male. But many are married and have children. Because many social benefits require local registration, and because of the consequent difficulty of arranging permanent employment, adequate child care, housing, schooling, and health care, married migrants often leave their families behind when they "go out for work." It also is increasingly the case that married couples migrate together, taking their children with them or starting families in their new work locale (Duan, Lü, and Zou (2013) estimate that as of 2010 44% of migrants lived in 2- or 3-generation families). But because they often live in difficult circumstances—rented rooms, very small apartments, and sometimes even dormitories—and work very long hours, and also suffer the same institutional constraints as those migrating without their families, many migrant couples find it difficult to care for their children. For these reasons, many either leave their children behind or send them to live with other relatives. The most recent data, from 2010, reveal that about 70 million children, about 25% of all Chinese children, have been left behind by one or both parents; 88% of these are from

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rural areas (Duan et al., 2013).[1] As of 2005 18 million children below age 15 had accompanied their migrant parents (Duan and Yang, 2008; Duan and Huang, 2012) and as of 2010 38 million children below age 18 had accompanied their migrant parents (Duan, 2012); clearly, part of the increase is due to the wider age range reported for 2010, but it also is probable that the proportion of Chinese children accompanying migrant parents increased over the 5-year period. In our data, about 30% of children age 10-15, the children we study, fall into these vulnerable groups.

The question we address in this paper is whether children affected by migration—both migrant children and children left behind—suffer emotional deficits relative to children living with both parents in non-migrant families. There is little firm evidence for China. Research to date has focused mainly on adult migrants. With the exception of the present study, and a parallel study using somewhat different methods and investigating different outcomes but based on the same data (Xu and Xie, 2013), there has been almost no research on the consequences of migration for children's emotional well-being using national-level data. The existing work on this topic is based on studies restricted to specific locales. Moreover, often these studies have collected data only on migrant children or children left behind, failing to sample a comparison group of non-migrant children, thus making it impossible to assess the effect of migration on children's lives (e.g. Li, 2004; Liang, 2004; Women's Federation of Meishan Municipality, 2004; Zhao, 2004; Liu, Li, and Ge, 2009; Wong, Chang, and He, 2009). Many of the studies of children left behind are summarized by Xiang (2007), who points out that in a systematic comparison of left-behind and other children in a middle school in Fujian Province, Huang (2004)

[1] Chan (2009, p. 8) reports data from the 2005 1% sample census showing that of left-behind children 47% lived with one parent, usually the mother; 26% with one or both grandparents; and 27% with others or alone.

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found that the emotional health of left-behind children was only marginally worse than that of other children. Similarly, Fan et al. (2010) in a study of rural children in Hunan Province observed more behavioral problems among left-behind children but the effect of left-behind status entirely disappeared once SES and other controls were introduced. And Wen and Lin (2012, p. 129) in a separate study of rural Hunan children found no effect of left-behind status on satisfaction with life and studies, with or without controls. On the other hand, Chan (2009, p.16) cites four studies (Zhou et al., 2005; China Youth Research Center, 2008, p. 241; Lu, 2006; and Wang, Zhang, and Sun, 2006) that found "that left-behind children were more likely than other rural children to feel depressed, emotional, anxious, fearful, become easily irritated and intransigent, and have lower self-esteem."

Most of the research on emotional well-being has focused on left-behind children; research on migrant children has focused mainly on educational attainment and access to health care. There are few studies of the emotional well-being of migrant children, which in general suffer from the same shortcomings as studies of children left behind—local and often unrepresentative samples and the lack of comparison groups of non-migrants. Chan (2009, p. 29) summarizes the existing research on migrant children as showing that even when "long-term residents in the city, these children are treated as outsiders. Their rights to medical care, education and social participation are limited, leading to a higher incidence of physical and psychological problems, and a greater vulnerability to crime." Mao and Zhao (2012) in a comparison of local and migrant middle school students living in Pudong, Shanghai, show that migrant children experience lower self-esteem, with and without controls for socioeconomic status and other factors, and also experience greater observed depression but that the depression effect becomes non-significant when controls are introduced. Finally, a systematic comparison of 20 studies of the mental

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health of international migrant children with that of native children in (mainly European) receiving nations reveals no consistent results; in some studies migrants show mental health deficits, in others superior mental health, and in still others no significant difference from native-born children (Stevens and Vollebergh, 2008).

Despite the paucity of research, and the inconsistency in findings from what research there is, there are several reasons for suspecting that both migrant children and children left behind may be at greater risk of experiencing emotional difficulties than are children in intact families.

1.1 Left-behind children

It is well established in U.S. studies that the quality of parenting is one of the strongest predictors of children's emotional well-being. But the quality of parenting tends to be degraded in single-parent families relative to intact families. Single parents tend to be "less emotionally supportive of their children, have fewer rules, dispense harsher discipline, are more inconsistent in dispensing discipline, provide less supervision, and engage in more conflict with their children" (Amato, 2005, p. 83; see especially the references cited in note 46). Poorer parenting by single parents has been linked to a variety of negative outcomes among children, including emotional problems, conduct problems, low self-esteem, and problems forming and maintaining social relationships (Amato, 2005, p. 83, and the references cited in note 47). Single parenting also may lead to a greater risk of parental emotional difficulties and parental difficulties may in turn lead to a higher risk of child emotional difficulties. It follows from these points that the absence of one parent, and even more so the absence of both parents, is likely to be emotionally damaging to children. McLanahan and Sandefur (1994, p. 1), in a well-known U.S. study, summarize the existing evidence as "quite clear: *Children who grow up in a household with*

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only one biological parent are worse off, on average, than children who grow up in a household with both of their biological parents, regardless of the parents' race or educational background, regardless of whether the parents are married when the child is born, and regardless of whether the resident parent remarries" (emphasis in the original).

To be sure, the Chinese context is rather different from the U.S. context because most single parent households in the U.S. result from divorce or non-marital childbearing, neither of which is common in China, while almost all—97%—children in single-parent (or neither-parent) households in China are due to the labor migration of one or both parents. However, the fundamental point holds—that single parents face greater stress, have more difficulty providing high quality parenting, and experience greater likelihood of depression (Lu, Hu, and Treiman, 2012), which should increase the risk of depression among their children. Moreover, living with neither parent likely results in a reduction in emotional support (Graham and Jordan, 2011), which can be devastating for children. There is very little evidence on these questions for China—although much lamenting in journalistic accounts.

A final reason for expecting greater risk of emotional difficulties among those left behind in China is that the absence of a parent is likely to increase the burden of daily life for the remaining parent in single-person households, especially when there are no remittances, reducing the time spent caring for children and the quality of childcare and increasing the stress felt by the left-behind parent. Moreover, left-behind children may face increased demands to contribute to the well-being of the household and increased difficulty in coping with everyday life (Chang, Dong, and MacPhail, 2011).

These points lead us to hypothesize that

1. Children left behind should be at greater risk for emotional difficulties than children in

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intact families.

2. Emotional difficulties are particularly likely if left-behind children live with neither parent.

1.2 Migrant children

Migrant children who live with a single parent are likely to experience greater emotional difficulties than migrant children living with both parents, for the reasons we have outlined above. In addition, regardless of whether they live with one or both parents, migrant children may face special difficulties in adapting to new environments, securing suitable education, enjoying adequate parental attention, and living in adequate housing.

Moving to a new place is known to be stressful (for a review and additional references see Stevens and Vollebergh, 2008, p. 276). One must establish new routines and learn the ins-and-outs of new environments, cope with the destruction of old friendship networks, and make new friends. Although there is limited evidence for China, some Chinese studies—cited above—have come to similar conclusions regarding heightened stress, greater emotional difficulties, and difficulties in establishing friendship networks. Of course, the difficulties associated with moving would be expected to diminish over time. Unfortunately, we have no information on how long children have been living at their current residence and how long they have been attending their current school. The best we can do is to distinguish between migrants and non-migrants. The lack of available data also means that we are unable to distinguish between children left behind with neither parent and children sent to live with others.

In China, migrant children attending public schools in their destination locales sometimes suffer discrimination from teachers and local-resident classmates, leading to emotional difficulties. Although most claims of discrimination are journalistic, there is some scholarly

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evidence based on local studies (Lei, 2004; Pan, 2006; Chan, 2009, pp. 38-42). When large scale migration began in the 1980s, migrant children—that is, children lacking local registration—usually were denied admission to urban public schools. Later, under pressure from the central government, it became possible to gain admission by paying very high non-resident fees. Still later the central government mandated that all children be accepted by local public schools. However, this was met with large-scale resistence by local authorities since school funding is based on the number of locally *registered* children, not the number of locally *resident* children (Xiang, 2007, p. 181; Chan, 2009, pp. 34-38). As one device to discourage enrollment by migrant children, many primary schools imposed substantial special fees on migrants, e.g., a "temporary education fee," as well as miscellaneous fees paid by all students—uniform fees, extra-curricular activity fees, etc.—that were difficult for poor migrant parents to pay (Chan, 2009, p. 34). The result is that some migrant children eschew local public schools in favor of schools organized by migrants, which tend to be academically inferior although socially more comfortable. The proportion attending migrant schools is actually rather small[2] and includes almost no cases in our sample. Thus, we are restricted to investigating whether migrant children suffer an increased risk of emotional difficulties without regard to the type of school they attend. The educational difficulties facing migrant children are exacerbated by the fact that one can only take the university entrance examination (*gaokao*) in the locale where one is registered. Thus, children of migrants seeking tertiary education must return to their "home" villages—which they may never have seen if they were born in urban areas to long-term migrant parents.

Because their parents tend to work very long hours, often including involuntary or coerced

[2] For example, in Beijing migrant schools are not officially recognized and often are closed down by the authorities. In principle, the central government requires all public schools to accept migrant children, although, as noted, many public schools find ways to minimize the proportion of migrant pupils.

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overtime, migrant children may face reduced supervision relative to non-migrant children, which likely has deleterious consequences for migrant children. On the other hand, being left to fend for themselves might have the opposite effect, increasing self-reliance, self-confidence, and initiative. Thus, here we have two competing hypotheses.

Finally, migrant children often experience difficult housing circumstances. Indeed, this is one of the reasons migrant couples leave their children behind or send them to live with other relatives. Often, migrant laborers have no place to live except for dormitories, which are almost always gender-segregated and are inappropriate for children—albeit children do sometimes live in such places (Yang, Duan, and Wang, 2011). When parents do live together, it often is in single rooms or very small apartments. Living in cramped or unpleasant quarters where privacy and study space are limited is bound to increase stress and thus result in various emotional difficulties.

These points lead us to hypothesize that

3. Migrant children may or may not be at greater risk for emotional difficulties, since the disruptive aspects of migration may be offset by greater self-efficacy acquired because of the need and opportunity for greater independence.

Many of the U.S. studies that show a negative association between living in intact families and emotional difficulties are vulnerable to endogeneity problems—the fact that many of the factors that increase the likelihood of living with a single parent (primarily divorce and non–marital childbearing) or no parent (primarily extreme incompetence in parenting resulting from drug abuse and similar factors) also increase the risk of children's emotional difficulties independent of living arrangements. This is less of an issue in China where living with a single or neither parent is mainly the result of labor migration and secondarily of the death of a parent.

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Thus, it is more likely in China that whatever association we observe between living arrangements and the emotional health of children is due to intrinsic effect of living with only one or neither parent. Nonetheless, insofar as possible we will control for factors known to be associated with both living arrangements and children's emotional well-being in other nations.

2 DATA, VARIABLES, AND ANALYTIC STRATEGY

2.1 Data

The data used in this analysis are from the 2010 wave of the *China Family Panel Studies*, a (nearly) national probability sample of Chinese families.[3] In the 2010 wave, 14,960 households were included in the sample and interviews were conducted with all family members age 10 or older, with information on younger children provided by the primary caregiver, resulting in a total sample of 57,115.

Details of the sample design are given in Xie, Qiu, and Lü (2012). Here it suffices to note that six strata were initially specified: four provinces (Gansu, Guangdong, Henan, and Liaoning) and a provincial-level city (Shanghai) were each treated as separate strata and a sixth stratum consisted of the remaining 20 provinces sampled. Within each of the four single-province strata, 16 counties were chosen at random but with probability proportional to size (PPS); however, in Shanghai 32 townships or streets (*jiedao*) were chosen PPS as the first stage. Within the 20-province stratum, 80 counties were chosen PPS. Within each county four villages or neighborhoods were chosen PPS; for Shanghai, two villages or neighborhoods were chosen PPS within each township/*jiedao*. Within each village/neighborhood, 25 households were chosen at

[3] Tibet, Qinghai, Xinjiang, Ningxia, Inner Mongolia, and Hainan were excluded from the sample to reduce costs, but together they make up only 5% of the population (Xie, 2012, p. 14).

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random. Because of the multistage design, it is necessary to take account of the resulting clustering of the sample; we specified the village/neighborhood as the cluster variable. In addition, we weight the data using "post-stratification adjustment weights" for the child sample, which take account of the differential sampling rates implied by the sample design, a correction for differential non-response rates, and a final adjustment to replicate the age-by-sex distribution of the 2010 census (Lü and Xie, 2012).

Our sample is restricted to 3,354 children age 10-15 who either were living with both parents or who were living with one or neither parent because one or both parents had "gone out" for work. We excluded 110 children who were in non-intact families because their parents had divorced or were separated for personal reasons or because one or both parents had died. For all but three variables we had complete data. We used multiple imputation procedures, as implemented in Stata 12, carrying out 10 imputations to impute values for the log of per capita family income (227 values were imputed) and the average of mother's and father's years of schooling (52 values were imputed for father's schooling and 47 for mother's schooling).[4]

Certain questions analyzed here were asked only of subsets of children, with the subsets defined by age. Specifically, questions from which we constructed low and high self-esteem scales were asked only of children age 10 in 2010 and questions from which we constructed self-

[4] The legitimacy of multiple imputation turns on the plausibility of the assumption that missing values for the variables to be imputed are "missing at random" (Rubin, 1987; Little and Rubin, 2002)—that is, that net of predictors of these variables there is no correlation between the true value of the variable and the likelihood that the value is missing in the data set. This is a completely reasonable assumption regarding parental years of schooling, which usually is reported by the respondent or by another knowledgeable adult in the household. It is a bit less plausible with respect to family income since those in high income families might be concerned about information being shared with the tax authorities. But since the variable refers to family rather than individual income, this is unlikely to be an important concern on the part of respondents. Moreover, despite vivid newspaper accounts about the Chinese *nouveau riche*, they represent only a tiny fraction of China's population and are known to be resistant to being interviewed and hence are unlikely to be found in survey samples.

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motivation and resignation scales were asked only of children age 13 or 15 in 2010. In both cases, we considered pooling data from the 2010 and 2011 waves in order to essentially double the sample sizes for these scales, e.g., adding the 2011 responses for those age nine in 2010 to the 2010 responses for those age 10 in 2010, and similarly for 13 and 15 year olds in 2010. However, it turns out that our attempt to match children in 2010 and 2011 produced many discrepancies. Given that when we conducted our analysis the 2011 data had not been completely cleaned, we decided that it was more prudent to stick to the 2010 data. See Table 1 for a description of the various subsets of data used in the analysis.

2.2 Dependent variables

We study the determinants of nine aspects of emotional well-being, to determine whether residence type affects emotional well-being in the ways we have hypothesized. Descriptive statistics are shown in Table 2. The variables we study include:

Depression. We constructed a scale consisting of six items adapted from the widely used CES-D scale (Radloff, 1991), which has been validated in for studies of Chinese adolescents (Chen, Yang, and Li, 2009). For each item, respondents were asked how often they felt this way during the past month: almost every day, two or three times a week, two or three times a month, once a month, or never. The response categories were scored from 1 ("never") to 5 ("almost every day"). Here are the six items, with the variable numbers in the section of the questionnaire for children age 10-15 shown in square brackets; this and the remaining items are translated from the Chinese and are shown in English in Institute of Social Science Survey (2010):

1. Feel depressed and cannot cheer up no matter what you were doing [N401]
2. Feel nervous [N402]
3. Feel upset and cannot remain calm [N403]

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4. Feel hopeless about the future [N404]
5. Feel that everything is difficult [N405]
6. Think life is meaningless [N406]

The scale was constructed by standardizing each item, computing the mean[5] scale score for each child, and then linearly transforming the resulting distribution to have a range from 0-1, with 1 indicating the highest level of depression. The resulting scale is highly reliable, with Cronbach's Alpha = .79.

We constructed two scales, for low and high self-esteem, by factor analyzing 14 items ([M101] - [M114]). These questions were asked only of 10 year olds. The stimulus for each item was a four point scale: "Totally agree," "Agree," "Disagree," and "Totally disagree." Volunteered responses "Neither agree nor disagree" were coded between "Agree" and "Disagree" as were "Do not know" responses.

Low Self-esteem. This scale was constructed from the five items with the highest rotated factor loadings on factor 1. The items are:

1. After all, I consider myself a loser [M103]
2. I indeed often feel I am useless [M109]
3. I often think I am good for nothing [M110]
4. I don't think I can solve the difficulties I am now facing by myself [M111]
5. Sometimes I think I am forced to do things due to my hard life [M112]

This scale, for which Chronbach's Alpha = .70, was constructed in the same way as the depression scale, by standardizing the five items, averaging their scores, and transforming the

[5] Means were computed for each child for whom we had non-missing data on at least three of the six items.

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resulting scale to a 0-1 range, with 1 indicating the lowest self-esteem.

High Self-esteem. The seven items that had the highest rotated loadings on factor 2 (only the first two factors had Eignvalues > 1.0) were used to construct a High Self-Esteem scale; this scale, constructed in the same way as the Low Self-esteem Scale, except that 1 indicates the highest self-esteem, has an Alpha of .62. The items are:

1. I feel I'm valuable, at least not worse than others [M101]
2. I feel that I have many valuable qualities [M102]
3. I can do things well like most people [M104]
4. I am positive about myself [M106]
5. Generally speaking, I am satisfied with myself [M107]
6. I hope to gain more respect for myself [M108]
7. I can control things that happen to me [M113]

Self-motivation and **Resignation**. These are two factor-based scales derived from a factor analysis of 11 items concerned with self-motivation, resignation, fatalism, etc., which were asked of 13 and 15 year olds. The stimulus for each item was the same as for the previous two scales. Two factors emerged with eigenvalues greater than 1.0. Three items had high loadings on the first factor:

1. I pursue my own goals rather than following others [N502]
2. I decide my own life goals [N504]
3. If I decide to do something, I will complete it no matter what [N505]

We constructed a Self-motivation scale from these three items in the same way as we constructed the depression scale, with 1 indicating the highest self-motivation. The resulting scale has Chronbach's Alpha = .64.

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Two items had high loadings on the second factor:

1. Don't spend too much time striving since it will never prove effective [N507]
2. It is nearly impossible to correct a mistake once you make one [N508]

We constructed a Resignation scale in the same way as we constructed the depression scale, with 1 indicating the greatest resignation. The resulting scale has Chronbach's Alpha = .61.

In addition, we analyzed four single item outcome variables: "Are you happy?" [M302], with response categories ranging from 1 (very unhappy) to 5 (very happy); "Is it easy for you to get on well with others?" [M304], with response categories ranging from 1 (very hard) to 5 (very easy); "Do you have [any] good friends?" [K3], with response categories "yes" and "no"; and "Last month, how many times did you quarrel with your parents?"[6] Since this variable [N2] has an extremely skewed distribution, with 76% reporting that they never quarreled with their parents in the previous month and small numbers of children reporting many quarrels, we dichotomized the variable into two categories: never (0) vs. ever (1) quarreled with parents in the past month to avoid undue influence of high leverage points; the mean of the untransformed variable was 1.01 and the standard deviation was 4.45.

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2.3 Independent variables

Residential type. Our key independent variable is the living circumstances of the child, which we label "residential type." We distinguish five categories of children, based on where they live, with whom they live, and their registration status. To ease interpretation, we represent the coefficients associated with this variable, and each of the other sets of categorical variables, including dichotomies, as deviations from the grand mean—a parameterization sometimes

[6] An explanatory note was provided interviewers: "A 'quarrel' means yelling at each other without making any concession due to disagreement."

known as Multiple Classification Analysis (MCA) (Andrews et al., 1973; Treiman, 2009, pp.164-166).

1. *Rural children living with both parents* (hereafter, children living in intact rural families) are children who reside in rural areas, have local *hukou*, and live with both parents. We do not distinguish between those with agricultural and non-agricultural *hukou* on the ground that it is the place of residence rather than the place of registration that affects children's emotional well-being. Rural residents with non-agricultural *hukou* are relatively rare, consisting mainly of technical workers in power plants, health workers, etc. (Hu, 2001).
2. *Urban children living with both parents* (hereafter, children living in intact urban families) are children who reside in urban areas, have local *hukou*, and live with both parents. As with rural children living with both parents, we do not distinguish between those with agricultural and non-agricultural *hukou* on the ground that it is the place of residence rather than the type of registration that affects their emotional well-being even though the life chances of urban residents with local agricultural *hukou* are known to be intermediate between those of rural residents with local agricultural *hukou* and urban residents with local non-agricultural *hukou* (Treiman, 2012).
3. *Migrant children* are children who live with one or both parents who have gone out for work but who lack local registration (*hukou*). Children who lack local *hukou* are not eligible for various benefits such as health care and, in some places still, free schooling and are likely to be marginalized in other ways discussed earlier. We explored the possibility of distinguishing between migrant children living with both parents and migrant children living with one parent, but the number living with only one parent is too small to sustain such a

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distinction, for some analyses resulting in fewer than 10 cases in the "migrant, living with one parent" category.

4. *Left-behind children* are those who live with neither parent and those with local *hukou* living with only one parent, where one or both parents have gone out for work. The first criterion is intended to identify children sent to live with other caregivers than their parents, typically their grandmothers but sometimes other relatives or even non-relatives. The second criterion is intended to identify children living in families where one parent (typically the father) has gone out for work. For reasons we have suggested above, the vulnerabilities faced by left-behind children living with neither parent are likely to be greater than those faced by left-behind children living with one parent. Thus, we distinguished the two groups.

Control variables. We estimated the effect of residential type on each of the nine outcomes without and with controls for covariates. For the models with covariates, we included several variables possibly associated with both living arrangements and our measures of emotional well-being.

The child's socioeconomic circumstances, which should have a positive effect on emotional well-being, are represented by

- The mean years of schooling of the child's parents.
- The natural log of the per capita annual family income (rmb).
- Substandard housing. The stimulus was "Does your family have any of the following difficulties in housing?" [D8 of Part 2 of the Family Questionnaire]:
    1. Children over age 12 live in the same room with the parents.
    2. Family members of three generations live in the same room.
    3. Children of different genders over age 12 live in the same room.

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4. Beds are laid out at night and folded up during the daytime.
5. Beds are laid out in the living room.

The respondent was allowed to mention up to three difficulties. Those mentioning three difficulties were scored 1; those mentioning fewer difficulties were scored 0.

- Whether any family member was "out for work" and remittances were received [U7 of Work Outside the Home module]. This question was asked only in the case that a family member was out for work. The assumption is that the receipt of remittances mitigates the negative effects of having parents away. But this a weak variable since it combines having at least one family member out for work, which often but not always was the parent, and whether remittances were received.

Demographic covariates include:

- Gender, scored 1 for males and 0 for females.
- The child's age, represented by a set of dummy variables, one per year of age.
- The number of children in the household, represented by a set of dummy variables distinguishing households with one, two, three, and four or more children.

2.4 Analytic strategy

We first estimate two models predicting the scores of each of the nine dependent variables: Model 1 without controls and Model 2 with controls, introduced on the ground that differences associated with residential type may be at least partly spurious due to the presence of other correlated factors. For seven of the outcomes, we report OLS estimates. However, as noted, we transformed the number of quarrels with parents into a dichotomy, never vs. ever quarreled with parents in the past month, which is appropriately modeled using binomial logistic regression as

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is whether the child has any good friends, also a dichotomous variable. All these models can be thought of as descriptive of the association between living arrangements and measures of emotional well-being (Model 1) and of this association net of possibly correlated covariates (Model 2).

The limitation of OLS and allied estimates is that even with controls they do not take account of differential distributions of the covariates across the residential type categories[7] and, in particular, do not contrast children in different living circumstances who live in the same communities. But the nature of the community may be an important determinant of emotional well-being. Indeed, by now there is a burgeoning literature in the U.S. showing the importance of "neighborhood effects" on a number of measures of emotional well-being. For example, Luttmer (2005) shows that self-reported happiness decreases as average neighborhood income increases, net of one's own income, which suggests a negative envy effect that might also operate for children left behind relative to children in intact families. Sampson, Morenoff, and Gannon-Rowley (2002, p. 459) summarize a number of studies showing that "concentrated poverty, disorder, and low neighborhood cohesion are linked to greater mental distress ... among adolescents." See in particular Ross, Reynolds, and Geis (2000), who show that psychological distress is strongly related to neighborhood disorder, net of individual characteristics. Given this evidence, it is important to control for community differences in assessing the effect of living arrangements on emotional well-being. We thus repeat the analysis, separately for rural and urban children (defined by their residence at the time of the survey), estimating community fixed-effects models. Here we do not transform the coefficients to deviations from the mean but rather contrast them to children living in intact families with local *hukou*.

[7] See Xu and Xie (2013), cited above, which addresses this issue using propensity score matching procedures.

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For left-behind children, community fixed-effects models bring us closer to an estimate of the causal effect of living arrangements. Consider first rural children left behind by one parent. These children are defined as those living with one parent and having local *hukou*. Thus, it is reasonable to assume that almost all such children previously lived in intact families in the same villages. By purging the analysis of all differences between villages, as well as of measured characteristics of families and individuals, we may plausibly infer that any observed differences in emotional well-being between children living in intact families and children in the same villages living with a single parent are likely to be in large part true effects of differences in living arrangements. Of course, there is still the possibility that children left behind with a single parent differ in unmeasured ways from children in the same village who live in intact families, and that such differences could account for differences in outcomes; unfortunately, there is no way to determine this. The same arguments regarding the contrast between children in intact and non-intact families hold with respect to children left behind for both parents, since fewer than 4% of such children lack local *hukou*.

With respect to migrant children living in villages, no causal inference is warranted since these children must in general have come from other villages (because they lack local *hukou*) and their emotional well-being might well have been influenced by their experiences in their home villages. Hence, this last contrast must be regarded as simply descriptive.

Exactly the same considerations pertain to urban residents. In addition to those living in intact families and migrant children, there also are non-trivial fractions of urban children living with one or neither parent because their parents have gone to work in other cities. The strongest inferences can be made for those left behind by one parent, since they have local *hukou* and hence are likely to have been born in the place they are living. But this is nearly as true of

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children left behind by both parents since only 11% of such children lack local *hukou*. Thus, the validity of causal inferences for children residing in urban areas varies with living arrangements in the same way as for children residing in rural areas.

What community fixed-effects models do operationally is to compare individuals within communities by subtracting the community mean from each observation. Given our data, we define rural communities by the administrative village in which the respondent resides. This is not entirely optimal since, although it might be argued that in rural areas "villages" are natural communities, this is not always the case because an administrative village may consist of several natural villages. Still, this definition of community clearly is superior to using the next highest geographical unit, townships, which are too large and too diverse to permit comparisons of children living in close proximity and therefore exposed to substantially similar environments. The same reasoning applies to children living in urban areas. Here we define communities as the "neighborhood" (*jü*) in which the child resides. It may be that here we are understating the extent of the local community, since neighborhoods are not natural units, any more than are census tracts in the U.S., and children may attend schools located in different neighborhoods. Still, we thought it better to err on the side of increased homogeneity by utilizing the smallest geographic unit available to define communities.

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3 RESULTS

We first consider conventional regression models for the entire population of Chinese children (Tables 3.a and 3.b) and then turn to the fixed-effects analysis (Tables 4.a through 5.b). We consider each outcome, in the order shown across the columns of Tables 3.a and 3.b.

3.1 Regression estimates for the entire sample

As noted earlier, the coefficients in Tables 3.a and 3.b associated with the dummy variables are all expressed as deviations from the means of the dependent variables, which are shown as the intercepts in the first line of each table. While for five of the nine outcomes the coefficients associated with living arrangements are jointly significant at beyond the .05 level,[8] the pattern of the coefficients and the significance of the difference between pairs of coefficients (shown in the panel labeled "Significance of contrasts") are not very orderly. Let us consider these separately for each outcome. While for the sake of completeness we show contrasts between each pair of living arrangements, the contrasts of major interest are those between children in intact rural families (Category 1) and, respectively, children in migrant families (Category 3), left-behind children in living with one parent (Category 4), and left-behind children living with neither parent (Category 5). Also of interest are contrasts among the three vulnerable groups.

Consider **happiness** first. Overall, Chinese children are quite happy, with an average score of 4.2 on a scale ranging from 1 to 5. Those left behind with neither parent are significantly less happy than children living in intact rural families—the difference is .22 points, about a quarter of a standard deviation (see Table 2). They are also significantly less happy than those left behind with one parent, who are in fact slightly happier than children living in intact rural families. In general, these differences continue to hold when adjusting for the covariates. Finally, migrant children do not differ significantly from rural children living in intact families.

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[8] Although we highlight coefficients at or beyond the .05 level, we show the p-values for all coefficients. The argument could be made that by interpreting levels of significance for individual variables we are vulnerable to the multiple comparison problem—with many coefficients, some will be significant just by chance. However, the Bonferroni test and similar tests that adjust for multiple comparisons are known to be overly conservative when one's hypotheses (expected outcomes) are collinear, as they are in the present case. So we have foregone such adjustments. A countervailing argument is that for small samples it is desirable to relax the criterion for rejecting the null hypothesis, by setting the significance level at .1 or some such, in order to reduce the probability of type II errors—accepting the null hypothesis when it is false. Balancing the multiple comparison problem against the fact that for some of our analyses we have quite small samples, we settled on the conventional .05 2-tailed level of significance.

Depression. In general, Chinese children are not very likely to exhibit depressive symptoms, with a mean of .12 on a scale ranging from 0 to 1. But children left behind with neither parent are likely to exhibit significantly more depressive symptoms than children living in intact rural families and also, in the absence of controls, migrant children. These effects are not large.

Quarrels with parents. Here the pattern is quite different from what we saw for the happiness and depression measures. Migrant children are significantly more likely to quarrel with their parents than are children living in intact rural families. It also is the case that urban children in intact families are significantly more likely to quarrel than are rural children in intact families. Thus, it may be that urban life, rather than migrant status, provokes conflicts over such issues as the degree of independence permitted by parents. On the other hand, children left behind with neither parent are the least likely to quarrel with their parents, presumably because of the limited contact they have with them.

Any good friends. With one exception, living arrangements have no impact on the likelihood of having any good friends. The only significant effect is the substantially greater likelihood that migrant children—who are mostly urban—have no good friends than do those of children in intact urban families. This is not particularly surprising given that it is probable that a substantial fraction of migrant children were recent migrants to their current place of residence, in contrast to urban children in intact families.[9]

Finds it easy to get along well with others. Here the only significant contrast is between urban children from intact families and children left behind with neither parent, who find it

[9] Computations from the 2008 survey of "Internal Migration and Health in China" (see http://www.ccpr.ucla.edu/IM-China) reveal that of those out to work at the time of the survey, the average length of residence at their current locale was about 2.4 months).

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significantly more difficult to get along well with others, and this contrast becomes non-significant once covariates are introduced.

Remaining coefficients: low self-esteem, high self-esteem, self-motivation, and resignation. Although 9 of the 40 coefficients that pertain to living arrangements for Model 1 (without controls) and 3 of the 40 coefficients for Model 2 (with covariate controls) are significant at the .05 level, their pattern is hardly coherent with respect to either sign or magnitude, leading us to conclude that living arrangements have no serious impact on these four outcomes.

3.2 Fixed-effect regressions for the rural sample

Tables 4.a and 4.b show results from fixed-effect models of the nine outcomes for children residing in rural areas, estimated using Stata 12's -mi estimate: xtreg- and -mi estimate: xtlogit- commands. In each case we contrast children living in intact rural families with migrant and left-behind children living in the same villages. As noted above, the contrasts of greatest interest are between children from intact rural families and children left behind. In general, as we will see, the effects of living arrangements within communities are quite weak. Specifically, none of the nine comparisons between children living in intact families and children left behind with one parent is significant; but only one of the contrasts between children in rural intact families and children left behind with one parent was significant in Tables 3a and 3b—the greater propensity for self-motivation among those left behind with one parent. In sum, being left behind with one parent does not appear to affect emotional well-being.

Consider now those left behind with neither parent, almost all of whom continue to live in their communities of origin. In the overall analysis—Tables 3a and 3b—such children were less happy and more depressed than children living in intact rural families. But in the fixed-effects

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analysis these differences disappear, which suggests that the differences observed in Tables 3a and 3b should be attributed to community differences rather than to differences in the living arrangements of children living in the same communities.

Finally, consider the small number of migrant children living in villages; there are only 71 such children. These children quarrel with their parents significantly more than do rural children living in the same villages but in intact families. This suggests that our previous interpretation of quarreling as an urban phenomenon is not correct. Rather, it appears that the fact of migration itself increases the propensity to quarrel with parents. Migrant children also have significantly greater self-motivation than do rural children living in intact families in the same villages. Interestingly, this difference is not revealed in the overall analysis reported in Table 3b, but only in the fixed-effects analysis. It could well be the case that self-motivation clashes with parental expectations, generating the conflicts that lead to quarrels.

3.3 Fixed-effect regressions for the urban sample

Here the contrasts, shown in Tables 5a and 5b, are with urban children living in intact families. With only one exception, there are no significant effects of being left behind; the exception is that children left behind by one or both parents have less self-motivation than do those in intact urban families. Thus, we conclude that in general being left behind does no emotional damage to urban children, just as it does no emotional damage to rural children.

There are, however, differences between migrant children, most of whom have come from rural villages, and children in intact urban families. Migrant children are more likely to quarrel with their parents than are urban children from intact families living in the same neighborhoods who in turn, as we saw in Table 3a, are more likely overall to quarrel with their parents than are children from intact rural families. So perhaps there is an urban effect exacerbated by a

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migration effect. Urban migrant children are also less likely than their neighbors in intact families to have any good friends, although this effect is much reduced and becomes insignificant when controls are introduced. Such children also are less likely to have high self-esteem. Given the fact that we have only cross-sectional data and not cross-temporal data, we cannot adjudicate between the effect of previous rural vs. urban experiences and the effect of migration *per se*.

In contrast to the comparisons just reviewed, which show migrant children at greater risk than the urban children in the places to which they have moved, migrant children are significantly *less likely* to be depressed than are their neighbors living in intact families. Why this is so is unclear, but it may reflect either (or both) the resilience of migrants or the improvement in their material circumstances—note from Table 2 that the mean (logged) income of migrant families is equal to that urban intact families and higher than that of any other group.

The results of all three sets of analysis are summarized in Table 6. As is evident from inspection of the table, the conventional regression analysis and the fixed-effects analysis yield somewhat different results. This suggests that part of the effect of living arrangements revealed by the conventional regression analysis reflects differences in the emotional well-being of children living in different communities. The fixed-effects analysis controls for all community characteristics and thus in this sense provides a better estimate of the true effect of living arrangements on our outcome indicators. However, from a descriptive point of view the conventional equations give a better picture of differences in emotional well-being associated with living arrangements of Chinese children taken as an entire population.

3.4 The effects of covariates

Thus far we have said little about the effects of covariates. Here our summary can be fairly

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brief. First, net of all else parental education has positive effects in the conventional regression analysis on happiness, the likelihood of having at least one good friend, and the ease of getting along with others; in the rural fixed-effects analysis parental education has a positive effect on the likelihood of having at least one good friend; and in the urban fixed-effects analysis parental education has a positive effect on happiness. These results are consistent with the worldwide finding that education is either neutral or has positive effects on almost all subjective outcome measures as well, of course, on almost all objective measures. Education consistently has been shown to be a stronger predictor of positive subjective and objective outcomes than most other measures of socioeconomic status. However, these results must be regarded as quite weak because there is little consistency across the three analyses.

Second, per capita family income has no net impact on our outcome measures and neither does our other measure of material well-being, living in substandard housing. This is in contrast to the negative effects of poverty in the U.S. referred to earlier. The receipt of remittances is significant in only 3 of 27 coefficients and the effects are inconsistent in sign. These we are inclined to discount these.

The demographic variables, age and sex, have effects that are only occasionally significant and are not very coherent. The same is true of the number of children in the household, with one exception—there is some evidence suggesting that the likelihood of having any good friends declines as the number of children in the household increases. Specifically, this is true of the overall analysis (Table 3a), although only the effect of having four or more children in the household is strong; and it also is true of the rural fixed-effects analysis (Table 4a) but not the urban fixed-effects analysis, probably because very few urban families include as many as four children. More generally, households with many children are quite uncommon in China given

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that the 1 1/2 child policy has been in effect since the early 1980s (in only 4% of rural households and less than 1% of urban households are there four children or more) and such households may be unusually poor or unusually isolated. It also is the case that children not living with other children have a greater incentive to acquire friends.

4 SUMMARY AND CONCLUSIONS

We started with a set of hypotheses largely derived from the U.S. literature regarding the effects of single parenthood on children's emotional well-being. Our analytic review led us to hypothesize that children left behind by a parent or parents who have gone out for work suffer emotionally relative to children living in intact families. Expectations regarding the experience of children who migrate with their family were less clear because of the possibility that life disruptions are offset by life experiences that lead to a stronger sense of self-esteem.

Our primary comparison was with children living in intact rural families, since it is from such families that most migrant children and children left behind originate. We carried out the analysis by comparing all Chinese children using conventional OLS and logistic regression models. In addition, to take account of the possibility that emotional outcomes vary across locales due to factors not included among our covariates, we estimated community fixed-effects models, separately for rural villages and urban neighborhoods.

If we had to summarize our overall conclusion in a single sentence, it would be that being left behind by one or both parents or migrating with one or both parents has little effect on emotional health. The evidence for emotional vulnerabilities among migrant and left-behind children is equivocal at best. The findings are not very consistent and the effect sizes generally are small.

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The strongest evidence pertains to the effects of being left behind with neither parent (or being sent to live with someone other than at least one parent). From the conventional analysis we can conclude that such children are less happy and more depressed. But neither happiness nor depression is significant in the fixed-effects models, which suggests that it is something about the village or neighborhood environment, and not a child's living circumstances within a community, that creates variability in happiness and depression.

The other consistent finding is that migrant children are more prone to quarrel with their parents than are other children. We suspect that this is due to the stress on family life that stems from tying to cope with a new environment—which, of course, assumes that migration is a relatively recent event in the life of the child, an assumption justified by the relatively short length of migration stints (see note 9).

Regarding the hypothesis that migrant children have higher self-esteem there is no support. Indeed, the urban fixed-effects comparison suggests that migrant children are less likely to have high self-esteem than are locally registered children living in intact families. However, the rural fixed effects analysis shows that rural migrant children higher self-motivation than do rural children from the same villages who live in intact families.

Why are our effects for left-behind children so small and so inconsistent? This may well be the consequence of the circumstances under which Chinese families are separated, which are quite different from the circumstances prevalent in the U.S. Whereas in the U.S. family disruption is largely the consequence of divorce and one-parent families often are the result of non-marital childbearing, both such determinants are still rare in China. As we noted at the outset, the overwhelming majority of children who do not live with both parents do so because one or both of their parents are out to work—and, indeed, we restricted our analysis to such

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children, excluding the 3% (= 110/3,464) who lived in non-intact families for other reasons. Thus, although they are deprived of the immediate emotional support provided by parents, they nonetheless typically have socially intact families, are secure regarding the long term commitment of their parents to the children and to each other, and know that the fact that their parents are away working indicates stronger rather than weaker commitment to the welfare of their children. This simple fact may go a long way toward mitigating the impact of physical separation. Moreover, when many children share the experience of being left behind—which in some villages may be a majority (Zhou, 2006)—or of having migrated from elsewhere, they may find ways of adapting and providing mutual support, thus minimizing the emotional trauma of their circumstances.

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Table 1. Distribution by residence type, Chinese children age 10-15 in 2010.

Residence type	Children age 10-15		Children age 10		Children age 13 or 15	
	% (wtd)	N (unwtd)	% (wtd)	N (unwtd)	% (wtd)	N (unwtd)
Rural intact family	40.9	1,471	40.7	230	40.5	512
Urban intact family	32.2	931	28.3	156	32.4	313
Migrant child	7.3	227	8.5	47	5.8	68
Left-behind child, one parent	11.1	389	11.2	62	11.1	140
Left-behind child, neither parent	8.4	336	10.3	57	10.2	123
Total	99.9	3,354	100.0	552	100.0	1,156

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Table 2. Means for variables in the analysis, by residence type.

	Rural intact	Urban intact	Mig. child	Left, one parent	Left, no parent	Total mean	Total s.d.	Wtd. N
Outcome variables								
Happiness (1-5)	4.2	4.3	4.1	4.3	3.9	4.2	.87	3,354
Depression (0-1)	.11	.12	.11	.13	.15	.12	.15	3,354
Quarreled with parents in past month	.19	.28	.41	.22	.16	.24	.42	3,354
Has any good friends (0-1)	.89	.95	.82	.90	.90	.90	.29	3,354
Easy to get on w/ others (1-5)	4.0	4.1	3.9	4.0	3.9	4.0	.85	3,354
Low self-esteem (0-1)	.35	.29	.30	.38	.39	.33	.15	552
High self-esteem (0-1)	.57	.65	.60	.55	.59	.60	.15	552
Self-motivation (0-1)	.39	.41	.37	.32	.43	.39	.22	1,156
Resignation (0-1)	.39	.41	.37	.36	.44	.40	.23	1,156
Control variables								
Parents' mean yrs of schooling (0-20)	5.8	8.9	8.4	6.8	7.1	7.2[a]	3.8[b]	3,354
ln(per capita household income)	8.1	8.8	8.8	8.4	8.0	8.4[a]	1.1[b]	3,354
Received remittances in past yr (0-1)	.19	.08	.14	.57	.33	.20	.40	3,354
Num. of children in household (1-4+)	2.0	1.5	1.5	1.9	1.9	1.8	.75	3,354
Age (10-15)	12.3	12.3	12.0	12.1	12.3	12.2	1.70	3,354
Male (0-1)	.54	.54	.43	.50	.57	.53	.50	3,354
Substandard housing (0-1)	.26	.21	.19	.19	.25	.23	.42	3,354
Urban residence at time of survey	0	1.00	.71	.28	.29	.43	.50	3,354
Num. of people in household	4.4	3.9	3.7	4.2	5.2	4.2	1.3	3,354

[a] Imputed value.

[b] From non-missing values of variable, since no standard deviation is computed for imputed data in Stata's mi commands.

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Table 3a. Coefficients of Models of Emotional Outcomes (1), by Type of Living Arrangement, Children Age 10-15 in 2010 (p-values in parentheses).[a]

Outcome variable	Happiness		Depression		Quarrels with parents		Has good friend(s)		Easy to get on well with others	
Model	1	2	1	2	1	2	1	2	1	2
Intercept	4.219		.119		-1.203[b]	-1.218[b]	2.356[b]	2.562[b]	4.026	
Child's living arrangements										
1. Intact rural family	-.010	.046	-.009	-.012	-.270	-.192	-.258	-.065	-.032	.027
2. Intact urban family	.095	.039	.002	.008	.273	.184	.585	.367	.091	.006
3. Migrant family	-.093	-.156	-.010	-.003	.853	.761	-.835	-.943	-.109	-.176
4. Left-behind, 1 par.	.064	.038	.009	.004	-.044	-.023	-.110	-.170	.013	.053
5. Left-behind, no par.	-.318	-.288	.030	.024	-.417	-.401	-.109	-.		.073
Joint significance	**(.003)**	**(.005)**	(.221)	(.213)	**(.002)**	**(.014)**	**(.014)**	(.178)	(.211)	(.515)
Significance of contrasts (p-values)										

Table 3a. (continued)

Outcome variable	Happiness		Depression		Quarrels with parents[b]		Has good friend(s)[b]		Gets on well with others	
Model	1	2	1	2	1	2	1	2	1	2
Number of children in the household										
1	.035		.001		.070		.002		.072	
2	-.000		-.004		-.068		.109		-.028	
3	-.065		.009		.049		-.203		-.081	
4+	-.252		.013		-.062		-1.057		-.259	
Joint significance	(.096)		(.714)		(.862)		**(.012)**		**(.010)**	
Child's age										
10	.054		-.020		.089		-.700		-.050	
11	.135		-.013		-.253		.155		.066	
12	-.060		.008		.025		.190		-.041	
13	.016		-.011		-.010		.255		.017	
14	-.133		.021		-.071		.384		-.009	
15	-.067		.028		.258		-.075		.030	
Joint significance	**(.008)**		**(.002)**		(.280)		**(.001)**		(.507)	
Female	.071		-.001		.045		-.145		.047	
Male	-.063		.001		-.040		.128		-.041	
Significance	**(.015)**		(.867)		(.519)		(.378)		(.074)	
Poor housing: no	.014		-.004		.027		-.092		.013	
Poor housing: yes	-.045		.014		-.092		.307		-.042	
Significance	(.313)		(.070)		(.476)		(.102)		(.314)	
N	3,354		3,354		3,354		3,354		3,354	

[a] P-values < .05 are highlighted and shown in bold.

[b] The mean of the logits estimated using Stata 12's -mi estimate: xtlogit- command. The coefficients shown are logits centered around the mean logits.

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Table 3b. Coefficients of Models of Emotional Outcomes (2), by Type of Living Arrangement, Children Age 10-15 in 2010 (p-values in parentheses).

Outcome variable	Low self-esteem[a]		High self-esteem[a]		Self-motivation[b]		Resignation[b]	
Model	1	2	1	2	1	2	1	2
Intercept	.332		.598		.392		.396	
Child's living arrangements								
1. Intact rural family	.014	-.007	-.030	-.017	.002	-.006	-.011	-.017
2. Intact urban family	-.038	-.005	.055	.038	.014	.023	.017	.016
3. Migrant family	-.030	-.008	.001	-.010	-.020	-.011	-.031	-.025
4. Left-behind, 1 par.	.048	.023	-.044	-.036	-.078	-.071	-.032	-.017
5. Left-behind, no par.	.056	.035	-.011	-.006	.041	.035	.041	
Joint significance	**(.020)**	(.486)	(.155)	(.436)	**(.014)**	**(.020)**	(.504)	(.367)
Significance of contrasts (p-values)								
2 vs. 1	**(.037)**	(.944)	**(.020)**	(.082)	(.675)	(.291)	(.341)	(.267)
3 vs. 1	(.183)	(.959)	(.133)	(.777)	(.687)	(.931)	(.689)	(.885)
4 vs. 1	(.280)	(.342)	(.634)	(.540)	**(.008)**	**(.024)**	(.546)	(.979)
5 vs. 1	(.180)	(.118)	(.330)	(.593)	(.271)	(.281)	(.152)	(.057)
3 vs. 2	(.779)	(.915)	(.104)	(.176)	(.544)	(.533)	(.379)	(.455)
4 vs. 2	**(.012)**	(.415)	**(.026)**	(.085)	**(.012)**	**(.008)**	(.246)	(.468)
5 vs. 2	**(.004)**	(.182)	(.087)	(.219)	(.517)	(.791)	(.545)	(.378)
4 vs. 3	(.060)	(.432)	(.167)	(.497)	(.228)	(.214)	(.985)	(.888)
5 vs. 3	**(.031)**	(.239)	(.630)	(.887)	(.320)	(.462)	(.216)	(.197)
5 vs. 4	(.828)	(.762)	(.304)	(.356)	**(.003)**	**(.007)**	(.121)	(.154)
Parental yrs. of school		-.002 (.577)		.002 (.421)		-.005 (.130)		-.003 (.350)
ln(per capita hh inc.)		-.012 (.283)		.007 (.651)		-.003 (.835)		.008 (.558)
Remittances? No		-.004		-.001		.002		.014
Remittances? Yes		.022		.005		-.006		-.044
Joint significance		(.195)		(.783)		(.745)		**(.025)**

(continued)

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Table 3b. (continued)

Outcome variable	Low self-esteem[a]		High self-esteem[a]		Self-motivation[b]		Resignation[b]	
Model	1	2	1	2	1	2	1	2
Number of children in the household								
1		-.046		.024		-.003		-.019
2		.039		-.022		.003		-.000
3		-.003		.004		.003		-.000
4		.110		-.044		-.011		.075
Joint significance		**(.000)**		(.147)		(.979)		(.132)
Child's age								
10		-		-		-		-
11		-		-		-		-
12		-		-		-		-
13		-		-		.025		.002
14		-		-		-		-
15		-		-		-.028		-.002
Joint significance		-		-		**(.010)**		(.150)
Female		.013		-.011		-.013		.015
Male		-.013		.011		.013		-.017
Significance		(.135)		(.296)		(.165)		(.840)
Poor housing: no		.000		.008		.003		.007
Poor housing: yes		-.001		-.031		-.010		-.026
Significance		(.965)		(.106)		(.547)		(.155)
N	552		552		1,156		1,156	

[a] 10 year olds.
[b] 13 and 15 year olds.

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Table 4a. Coefficients of Community Fixed-effects Models of Emotional Outcomes (1), by Type of Living Arrangement, Rural Children Age 10-15 in 2010 (p-values in parentheses).

Outcome variable	Happiness	Depression	Quarrels with parents	Has good friend(s)	Easy to get on well with others

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Table 4a. (continued)

Outcome variable	Happiness		Depression		Quarrels with parents		Has good friend(s)		Easy to get on well with others	
Model	1	2	1	2	1	2	1	2	1	2
Child's age (10 is the omitted category for Depression, 13 for Self-motivation and Resignation)										
11	.046		-.010		-.356		**.742**		**.236**	
	(.593)		(.459)		(.133)		**(.025)**		**(.032)**	
12	-.096		.011		-.085		.488		.074	
	(.363)		(.486)		(.719)		(.147)		(.479)	
13	-.014		-.014		-.286		.673		**.211**	
	(.898)		(.368)		(.251)		(.051)		**(.040)**	
14	**-.216**		.013		.328		**.958**		.119	
	(.016)		(.402)		(.156)		**(.007)**		(.196)	
15	-.159		.016		.123		**1.146**		-.005	
	(.064)		(.251)		(.583)		**(.001)**		(.962)	
Joint significance	**(.031)**		(.109)		(.062)		**(.020)**		**(.040)**	
Child's gender (male)	**-.134**		.007		-.254		-.307		-.042	
	(.025)		(.473)		(.081)		(.180)		(.412)	
Substandard housing	-.137		.009		-.155		-.027		-.003	
	(.086)		(.420)		(.417)		(.928)		(.967)	
N	2,100		2,100		1,442[a]		830[a]		2,100	

[a] The N's are reduced because communities with no variance in the dependent variable were dropped by Stata, i.e., communities in which no child reported quarreling with his/her parents in the month prior to the survey and communities in which no child lacked even a single good friend.

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Table 4b. Coefficients of Community Fixed-effects Models of Emotional Outcomes (2), by Type of Living Arrangement, Rural Children Age 10-15 in 2010 (p-values in parentheses).

Outcome variable	Low self-esteem[a]		High self-esteem[a]		Self-motivation[b]		Resignation[b]	
Model	1	2	1	2	1	2	1	2
Intercept	.361	.314	.572	.468	.390	.629	.396	.607
Child's living arrangements (intact rural family is the omitted category)								
3. Migrant family	.044	.017	-.001	.015	**.287**	**.273**	.072	.035
	(.182)	(.708)	(.978)	(.711)	**(.021)**	**(.023)**	(.379)	(.596)
4. Left-behind, 1 par.	-.018	-.031	-.006	-.006	-.039	-.038	-.025	-.009
	(.759)	(.448)	(.836)	(.827)	(.079)	(.148)	(.482)	(.779)
5. Left-behind, no par.	.035	.032	.015	.034	.033	.039	-.022	-.004
	(.670)	(.564)	(.650)	(.334)	(.359)	(.293)	(.510)	(.907)
Joint significance	(.481)	(.537)	(.961)	(.750)	**(.007)**	**(.018)**	(.592)	(.941)
Parental yrs. of school		-.008		-.004		-.001		.001
		(.135)		(.421)		(.743)		(.792)
ln(per capita hh inc.)		.012		.019		-.028		-.022
		(.446)		(.259)		(.068)		(.132)
Remittances? Yes		.028		-.028		-.003		-.039
		(.395)		(.461)		(.896)		(.219)
Number of children in the household (1 is the omitted category)								
2		.044		-.004		.035		-.006
		(.076)		(.932)		(.237)		(.827)
3		-.075		-.014		-.014		-.072
		(.196)		(.755)		(.738)		(.175)
4+		.031		-.035		-.039		-.034
		(.662)		(.562)		(.544)		(.540)
Joint significance		**(.042)**		(.903)		(.350)		(.522)

(continued)

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Table 4b. (continued)

Outcome variable	Low self-esteem[a]		High self-esteem[a]		Self-motivation[b]		Resignation[b]	
Model	1	2	1	2	1	2	1	2
Child's age (13 is the omitted category)								
11		-		-		-		-
12		-		-		-		-
13		-		-		-		-
14		-		-		-		-
15		-		-		-.022		.006
						(.240)		(.766)
Joint significance		-		-		-		-
Child's gender (male)		**-.079**		-.015		.004		-.015
		(.015)		(.511)		(.861)		(.578)
Substandard housing		.074		-.026		-.046		-.016
		(.078)		(.324)		(.071)		(.611)
N	342		342		744		744	

[a] 10 year olds.
[b] 13 and 15 year olds.

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Table 5a. Coefficients of Community Fixed-effects Models of Emotional Outcomes (1), by Type of Living Arrangement, Urban Children Age 10-15 in 2010 (p-values in parentheses).

Outcome variable	Happiness	Depression	Quarrels with parents	Has good friend(s)	Easy to get on well with others

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Table 5a. (continued)

Outcome variable	Happiness		Depression		Quarrels with parents		Has good friend(s)		Easy to get on well with others	
Model	1	2	1	2	1	2	1	2	1	2
Child's age (10 is the omitted category for Depression)										
11	.173		.026		.101		.643		.007	
	(.118)		(.272)		(.692)		(.219)		(.950)	
12	-.035		.028		.220		.401		-.032	
	(.766)		(.150)		(.348)		(.441)		(.808)	
13	.069		.020		.178		.706		-.072	
	(.571)		(.358)		(.503)		(.222)		(.586)	
14	-.061		**.051**		**-.558**		.820		-.025	
	(.636)		**(.035)**		**(.046)**		(.161)		(.812)	
15	.038		**.105**		-.053		-266		.214	
	(.759)		**(.039)**		(.831)		(.570)		(.057)	
Joint significance	(.301)		(.068)		(.080)		(.459)		**(.021)**	
Child's gender (male)	.003		-.016		-.228		**1.306**		.000	
	(.982)		(.429)		(.114)		**(.000)**		(.998)	
Substandard housing	.038		.023		.126		.053		-.071	
	(.707)		(.128)		(.543)		(.918)		(.461)	
N	1,254		1,254		924		258		1,254	

[a] The N's are reduced because communities with no variance in the dependent variable were dropped by Stata, i.e., communities in which no child reported quarreling with his/her parents in the month prior to the survey and communities in which no child lacked even a single good friend.

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Table 5b. Coefficients of Community Fixed-effects Models of Emotional Outcomes (2), by Type of Living Arrangement, Urban Children Age 10-15 in 2010 (p-values in parentheses).

Outcome variable	Low self-esteem[a]		High self-esteem[a]		Self-motivation[b]		Resignation[b]	
Model	1	2	1	2	1	2	1	2
Intercept	.281	.228	.684	.115	.417	.277	.432	.018
Child's living arrangements (intact rural family is the omitted category)								
3. Migrant family	.044	.013	**-.300**	**-.280**	-.054	-.046	-.098	-.112
	(.395)	(.784)	**(.000)**	**(.000)**	(.348)	(.343)	(.428)	(.414)
4. Left-behind, 1 par.	.189	.213	.014	.016	**-.160**	**-.115**	-.102	-.122
	(.239)	(.221)	(.882)	(.888)	**(.002)**	**(.029)**	(.222)	(.182)
5. Left-behind, no par.	**.107**	**.116**	-.056	-.079	**-.298**	**-.243**	-.064	-.077
	(.022)	**(.012)**	(.140)	(.144)	**(.000)**	**(.000)**	(.221)	(.247)
Joint significance	(.070)	**(.012)**	**(.001)**	**(.000)**	**(.000)**	**(.000)**	(.330)	(.322)
Parental yrs. of school		.010		-.004		.004		-.010
		(.278)		(.767)		(.488)		(.134)
ln(per capita hh inc.)		-.002		.065		.018		.055
		(.930)		(.061)		(.505)		(.060)
Remittances? Yes		-.049		-.062		.013		.047
		(.343)		(.412)		(.693)		(.344)
Number of children in the household (1 is the omitted category)								
2		.085		.031		-.055		.049
		(.226)		(.650)		(.216)		(.409)
3		.092		.025		-.106		.055
		(.128)		(.805)		(.062)		(.547)
4+		**.264**		.124		-.070		.218
		(.000)		(.245)		(.294)		(.079)
Joint significance		**(.000)**		(.675)		(.278)		(.335)

(continued)

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Table 5b. (continued)

Outcome variable	Low self-esteem[a]		High self-esteem[a]		Self-motivation[b]		Resignation[b]	
Model	1	2	1	2	1	2	1	2
Child's age (13 is the omitted category)								
11		-		-		-		-
12		-		-		-		-
13		-		-		-		-
14		-		-		-		-
15		-		-		**-.091**		-.027
						(.003)		(.572)
Joint significance		-		-		-		-
Child's gender (male)		-.060		.047		.024		-.019
		(.128)		(.297)		(.415)		(.651)
Substandard housing		.-.047		.042		.027		-.010
		(.235)		(.672)		(.497)		(.786)
N	210		210		412		412	

[a] 10 year olds.
[b] 13 and 15 year olds.

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Table 6. Summary of Findings from Tables 3a-5b.

Contrast	Child in intact rural family vs.					
	Migrant child		Left behind, 1 parent		Left behind, no parent	
Model	1	2	1	2	1	2
<u>Regression models for all children</u>						
Happiness					-	-
Depression					+	+
Quarrels w/ parents	+	+				
Good friends						
Gets on with others						
Low self-esteem						
High self-esteem						
Self-motivation			-	-		
Resignation						
<u>Fixed-effects models for rural children</u>; contrast is with rural children living in intact families						
Happiness						
Depression						
Quarrels w/ parents	+	+				
Good friends						
Gets on with others						
Low self-esteem						
High self-esteem						
Self-motivation	+	+				
Resignation						
<u>Fixed-effects models for urban children</u>; contrast is with urban children living in intact families						
Happiness						
Depression	-	-				
Quarrels w/ parents	+	+				
Good friends	-					
Gets on with others						
Low self-esteem						
High self-esteem	-	-				
Self-motivation			-	-	-	-
Resignation						

+ = significantly greater than reference group; - = significantly more negative than reference group.

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ACKNOWLEDGMENTS

The data used in this paper are from the *China Family Panel Studies,* funded by the 985 Program of Peking University and carried out by the Institute for Social Science Survey of Peking University. The first author's participation was supported by a grant from the Chinese Ministry of Education to Peking University (12YJA840019). The paper was prepared in part using facilities provided to the second author by the California Center for Population Research, UCLA, which is supported by funding from infrastructure grant R24HD041022 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. Earlier versions were presented at the annual meeting of the Population Association of America, New Orleans, 11-13 April 2013, and at the spring meeting of The Research Committee on Social Stratification and Mobility of the International Sociological Association (RC 28), Trento, Italy, 16-18 May 2013.

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