Costly Posturing: Ceremonies and Early Child Development in China

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Abstract

Participating in and presenting gifts at funerals, weddings, and other ceremonies held by fellow villagers have been regarded as social norms in many parts of the world for thousands of years. However, it is more burdensome for the poor to take part in these social occasions than for the rich. Because the poor often lack the necessary resources, they are forced to cut back on basic consumption, such as food, in order to afford a gift to attend the social festivals. For pregnant women in poor families, such a reduction in nutrition intake as a result of gift-giving can have a lasting detrimental health impact on their children. Using a primary census-type panel household survey in 26 villages in rural China, this paper first documents the fact that child health status has barely improved in the past decades despite more than double digit of annual per capita income growth. Next, we show that social squeeze plays an important role in explaining this phenomenon. The toll of participating in social events is heavy for the poor — doubling the number of prenatal exposures to social events would decrease children's height-for-age z-score by .6 to 1.1 standard deviations and increase their stunting rate by 23 to 35 percentage points.

Keywords: Economic Status, Squeeze Effects, Food Consumption, Stunting, Malnutrition

JEL Codes: D13, I14, I32, O15, Z13

1. Introduction

It is common wisdom that the best way to cut hunger and malnutrition is through income growth. However, Deaton (2010) uncovers a famous food puzzle: Despite rapid economic growth in the past several decades in India and China, calorie consumption per capita has declined and the rate of improvement in nutritional status, in particular among the poor, has been relatively slow. Surprisingly, when given more resources, the poor tend to eat less basic staple food but consume greater amounts of tastier, albeit less nutritious, food (Jensen and Miller, 2008). Moreover, the poor are more likely to spend their extra income on entertainment and social festivals than on food (Banerjee and Duflo, 2007). A question arises: Why, amid income growth, do the poor prefer to consume less food at the potential high cost of nutritional status?

Of course, there are many potential explanations to the puzzle. For instance, reductions in physical activities and thus the need for calories associated with economic growth is one representative explanation (Deaton, 2010). However, this channel alone cannot explain why the child malnutrition rate in India has barely improved in the past several decades, considering that children's physical activities might not have declined as much as those of adults. In this paper, we offer an alternative explanation: Due to social pressures and concern for status, the poor are forced to cut basic necessities in order to afford gifts for social events in their communities.

In many low income countries, rural people live in closely knit communities. It is a social norm that people are compelled to attend weddings, funerals, and other social festivals in their communities and present a gift. In a recent book (page 35, 2011), Banerjee and Duflo provide the following insightful observation on the phenomenon of *keeping up with the Joneses*:

"Poor people in the developing world spend large amounts on weddings, dowries, and christenings. Part of the reason is probably that they don't want to

lose face, when the social custom is to spend a lot on those occasions. In South Africa, poor families often spend so lavishly on funerals that they skimp on food for months afterward."

Because the poor have limited resources, the fiscal burden of hosting or taking part in these social events is much higher for the poor than for the rich. In order to save money to host the events or prepare a gift, the poor may have to cut back basic necessities such as food. Such a reduction in food consumption may have a lasting detrimental impact on the nutritional and health status of the poor. For example, a child is thought to have achieved rapid bone and tissue growth and brain development before birth. Therefore, the reductions in food consumption and the resulting stagnant improvement in nutritional status, defined as *squeeze effects* in this paper, are likely to be caused by increased social spending.

It is challenging to test the *squeeze effects* of *keeping up with the Joneses* using commonly available household surveys, since they normally sample only a few households in a community, making it impossible to define reference groups and measure relative concerns. In this paper, we use a primarily collected census-type panel household survey in 26 villages in rural China to test the *squeeze effects* of social spending on children's health. The dataset is unique in several ways. First, all households in the villages are interviewed in three waves. Since the villages are in remote mountainous areas, each village forms a natural reference group. We are able to measure the relative deprivation status for each household over several years. Relative income status, rather than absolute income level, is utilized due to the strong evidence that the motives to consume visible goods are context-specific and that attending costly social events are clearly positional consumption in the Chinese custom. Second, all of the children's anthropometric information was collected in the third wave. Third, we collected detailed information on funerals, weddings and all other ceremonies in the past ten years. Moreover, consumption of detailed subcategories of food items was collected from each household member.

Because the number of social events held by *other* households in a village is largely beyond the control of a family, we use it as an identification strategy to examine the impact of fetal exposures to costly social events on children's health outcomes. However, if the health outcome and number of social events are both influenced by some unobserved factors, the above identification strategy will be biased. For example, a village with a higher mortality rate may be inherently less healthy and therefore displays a higher rate of stunting among children. To alleviate this concern, we classify social events into negative and positive shocks. Among all social events, funerals are more likely to be associated with bad economic conditions, while non-funeral ceremonies (e.g. weddings, coming-of-age, and house building celebrations) tend to represent good economic times. We separately examine the impact of fetal exposures to negative and positive shocks on child health outcomes and find the results are robust no matter whether the positive or the negative shock variable is used.

We focus on the impact of frequent social events that occur at the very beginning of life — the fetal period. Our results show that it is the children of the poor who are more vulnerable to the shocks of social events. Those born to mothers who were exposed to frequent social events during their pregnancies are more likely to display higher stunting rate. For the poor, attending social events may yield an unintended negative consequence on their child health. However, avoiding social networking with neighbors may result in social exclusion.

The rest of the paper is organized as follows: Section 2 provides evidence that social spending squeezes food consumption of the poor, section 3 examines the impact of prenatal exposures to social events on child health and projects its impact on human capital and long-term well-being, and Section 4 concludes.

2. Social Spending and Food Consumption

Literature on Social Spending

It has been recognized in the literature people care about relative standing and the concern for status shapes both consumption and savings behavior (Veblen, 1989; Duesenberry, 1949; Esterlin, 1974; Sen, 1983; Frank, 1985; Van de Stardt et al., 1985). The literature on relative concern and conspicuous consumption largely focus on rich people and high-income countries. Recently, an emerging body of literature document that the poor are also subject to relative status concern—the phenomenon of *keeping up with the Joneses* applies to the poor as well. For example, the poor prefer to consume designer-label goods in Bolivia (Kempen, 2003); lavish weddings are ubiquitous in India (Banerjee and Duflo, 2007); funerals in Ghana (The Economist, 2007) and South Africa (Case et al., 2008) cost more than one year's household income; and rural residents' expected adequate level of consumption in Nepal is largely influenced by the average consumption in the same village (Fafchamps and Shilpi, 2008). Powered by relative concern in a manner similar to that of the rich, the poor also tend to spend much of their extra income on status goods and visible social occasions.

Apart from relative status concerns, social norms may also dictate the behavior of social spending. In developing countries, social networks, particularly within villages, can provide informal insurance (Udry, 1994). Gift exchanges play an important role in lubricating social networks. For instance, in the event of a family member's death, the pooled gifts from social networks can help the survivors to defray part of what are quite often costly funeral expenses. Attending and presenting a gift at friends' and neighbors' weddings, funerals, and other social occasions is a social norm in many parts of the world.

Though gift giving is largely reciprocal, it takes time and effort to build and maintain social networks. In China, a family is supposed to pay back previously received gifts later on according to the prevalent market price of a gift of similar size per occasion (Yan, 1996). Unfortunately, gift price has been escalating in recent years due to worsening inequality and particular demographic patterns. Specifically, some people get rich and spend heavily on social events, so others have to follow suit (Chen et al., 2011). The unbalanced sex ratio under China's one child policy also strengthens the fast increasing gift trend because families with an unmarried son tend to throw more lavish wedding banquets and send larger gifts as a marriage market signal (Brown et al., 2011). However, households receive gift back only when they have major ceremonies to hold or suffer from major idiosyncratic shocks, none of which occur regularly. Ceremonies, on average, cost more than twice the income from gifts received and are becoming even more costly (Chen et al., 2011). Therefore, reciprocal gift exchange is not necessarily very effective in smoothing consumption.

It is an open question as to which of the above two channels, i.e., concern for relative standing or social norms, better explains the observed social spending behavior among the poor. Putting that aside, however, both mechanisms predict that the poor tend to spend a larger share of their extra money on more socially visible goods and activities than do the rich.

Patterns of Social Spending in Rural China

The objective of this paper is not to test the mechanisms behind social spending but rather to present empirical evidence, from a unique dataset, that social spending poses a heavy burden on the poor. China is largely a *guanxi* (network) society. Participating in and presenting gifts at funerals, weddings, and other ceremonies held by people around have been regarded as social norms in China for thousands of years. Despite the ubiquity of gift giving in daily life, there is surprisingly little empirical evidence in the economics literature on the patterns of social spending across income groups and over time in Chinese societies, in large due to lack of data.

The dataset for this study comes from a three wave census-type household survey conducted in Puding County in Guizhou Province of China.[1] Puding was randomly selected among median level counties in Guizhou province. Random sampling was used to select three representative areas in Puding County and then nearly all households from 26 representative villages were selected from the three areas. The survey collected detailed information on household demographics, income, consumption and transfers (see Web Table A.1 for summary statistics of key variables used in this study). The first wave survey included 801 households and was conducted in 2005. The second wave was administered in 2007 and 833 households were interviewed. The third wave follow-up survey was conducted in 2009 with 872 households interviewed. The increase in the number of households is largely due to the formation of new families.

The survey area offers an ideal setting to study the relationship between social spending and food intake among the poor for several reasons. First, the poverty rate is quite high in the county. As shown in Table 1, in 2004, more than one-third of people lived below the national poverty line. Using the higher international poverty line of one US dollar per day, the poverty incidence is even higher up to 71%. Second, despite the initial high incidence of poverty, real per capita income has grown rapidly at an annual rate of more than 10% since 2004. Even for the poor households below the $1.25 international poverty line, we still observe annualized income growth rate at 3.7%. However, we do not observe any improvement in most categories of basic food consumption. This provides us with a good opportunity to study Deaton's (2010) food puzzle as to why the improvement in nutritional status has been stagnant among the poor amid rapid income growth. Third, our survey villages are in rather isolated and mountainous

[1] This survey was jointly conducted by the International Food Policy Research Institute (IFPRI), the International Center for Agricultural and Rural Development (ICARD) at the Chinese Academy of Agricultural Sciences (CAAS), and Guizhou University.

areas. In such an isolated environment, villagers naturally interact much more frequently with each other within the same village than with those residing outside their home village. As a result, the villages form clearly defined reference groups.[2] By surveying all the households in the villages, we are able to accurately measure relative income status for each household within a village.

In the second and third wave survey, we asked all households in the 26 villages to report all major events hosted, including weddings, funerals, and coming-of-age ceremonies, during the past ten years, as well as the related expenses and gifts received. Similar to other regions in China, all households in this area spontaneously keep a gift book listing the amount of each gift received and the names of gift givers in self-held ceremonies. In the third wave we used digital cameras to record gift books from all the households in three randomly selected villages, which include gifts sent from twenty two out of twenty six villages in the last few years. The data enable us to examine the patterns of social spending in different social occasions over time and across income groups.

Table 2 presents the average gift size per occasion, number of weddings and funerals, gift size per occasion by income group, and ceremony participation rate in a village, based on the gift record data collected. Three salient features are apparent from the table. First, average gift size per occasion is increasing over time. Second, the difference in gift size between rich and poor is minimal. The poor at the bottom 25% of income distribution on average spend even more on a gift per occasion than their counterparts in the top 25 percent group in the same village across all the years. The finding is consistent with our field observation that there is an implicit "market price" for gift size per occasion that people follow when extending a gift. Third, participation in ceremonies is almost

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[2] Because of the high degree of isolation from the outside, people within a village know each other well. In our sample, three small neighboring villages of ethnic Miao group form a strong bond among themselves. Therefore, we combine them when defining a reference group.

universal within a village. As shown clearly from the last two columns, more than 94% of households attend fellow villagers' ceremonies. Moreover, participation rates between the rich and the poor in social events are very similar. Figure 1 shows that households in the poorest income group participate more widely in ceremonies than do the third- and fourth-highest income groups. This is consistent with the findings by Brown et al. (2011) that participating in ceremonies is largely driven by social norms. The rather standard gift size and nearly universal participation rate in ceremonies indicate that the average gift expenditure per capita in a village should be positively related to the number of ceremonies held in a year. This is apparently the case, as shown by the strong positive correlation between the two variables in Figure 2.

The Squeeze Effects of Social Spending on Food Consumption

Because the poor have limited financial resources, social spending poses a much heavier fiscal burden on the poor than on the rich. To afford a gift in a social festival, they have to make a sacrifice elsewhere. Living on the margin, they have little to cut back. Tightening their financial belt and skimping on purchases of meat, sugar and other food items for a few weeks after the ceremony is often the default option for the poor. Figure 3 plots the share of cash expenditure on gifts and food by relative status, measured by Deaton's (2001) relative deprivation (RD) index.[3] For those with lower relative status (larger value along the horizontal axis), a drop in the share of food expenditure is accompanied by an increase in the share of gift expenditure. In principle, these people could eat more food and suffer less from malnutrition by simply spending less on gifts. But apparently they did not make such a choice. By comparison, for those households with higher status (smaller value along the horizontal axis), both lines barely move.

[3] We will discuss the measure in detail in the next section.

To further test the *squeeze effects* of social spending on the food consumption of people with low status, in Table 3 we run a series of seemingly unrelated regressions (SURs) on cash expenditure spent on food and gifts. Ceremonies held by other families within the same village are largely exogenous shocks to a family. Since the 26 villages are in the same county, they are likely to be subject to the same covariate natural shocks, if any, mitigating some concerns about unobserved idiosyncratic natural shocks. However, one may still argue that the number of ceremonies might capture some unobserved factors that also determine consumption patterns. For example, it is possible that residents in a richer village can afford more wedding[4], house building and coming-of-age[5] ceremonies (positive shocks) than those in a poorer village and they are also likely to consume more food. In contrast, the population in villages with a greater number of funerals (negative shocks) may be generally poorer. Consequently, they may have less money to buy food. Therefore, the positive and negative shocks may bias the estimation of food consumption in different directions. Although it is difficult to find good instruments to ameliorate the concern about the potential endogeneity problem of the social events variable, we run separate regressions using positive and negative shocks to see if the estimates fall in a narrow band. If both positive and negative shocks yield similar results, we can confidently rule out potential bias as a result of endogeneity.

The first set of regressions (R1, R2) include the number of funerals held by fellow villagers,[6] the Deaton RD index, the interaction term between the two, a set

[4] One may argue it is possible that more weddings mean that average age at marriage is lower, which is usually correlated with low investment in children. However, our data doesn't support this negative correlation between the number of weddings and marriage age.
[5] Coming-of-age ceremonies are held for boys aged 13 as a norm, which demonstrate to the local community that the boys are about to entering into the marriage market. These events provide a important way to indicate wealth to the matchmakers and brides' families.
[6] Throughout the estimations in this paper, we use the log number of funerals and log number of other non-funeral ceremonies. The results without log remain robust and are available upon request.

of control variables at the household level, age cohort and village fixed effects. The coefficient for the interaction term in the cash food expenditure equation (R1) is statistically significant and negative. This suggests that those attend more social ceremonies spend less on food consumption than their counterparts, provided that they are of similar economic status. To the contrary, the correspondent interaction term in the cash gift expenditure equation (R2) has a statistically significant and positive coefficient, suggesting that gift spending squeezes basic food consumption. The second set of regressions (R3, R4) on the number of non-funeral social events find similar results, once again suggesting *squeeze effects* of social spending on food consumption among those in the lower social spectrum. The number of funerals in a village has graver consequences on food consumption than other types of events.

Having shown that social events impose squeeze effects on food consumption, next we further investigate their health consequences.

3. Quantifying the Effect of Social Spending on Child Health Outcomes

Fetal Origins Hypothesis

To resolve Deaton's (2010) food puzzle, next we test whether a cut in food intake as a result of social spending compromises nutritional status, in particular that of children. A burgeoning body of literature on the fetal origins hypothesis suggests that the time *in utero* is a critical period for human development. Regardless of whether catch-up growth is ultimately achieved, *in utero* exposures to malnutrition adversely affect health outcomes in later life (Barker and Osmond, 1986; Barker et al., 1989; Victoria et al. 2008).

However, it is impossible to directly test this hypothesis using human subjects in a controlled experiment. The empirical literature largely relies on natural shocks, such as famine and drought, to identify the casual effect of prenatal exposures to malnutrition on long-term health outcomes. For example, studies based on the Dutch Famine (1944-1945) reveal that the famine had negative impacts on various health related outcomes, such as mental disorder in early adulthood, schizophrenia, and lower glucose tolerance in adults (Neugebauer et al., 1999; Brown et al., 2000; Hulshoff Pol et al., 2000; Ravelli et al., 1998). Similar fetal origins effects are found in studies on the 1918 flu (Almond, 2006) and the Chernobyl radioactive fallout (Almond et al., 2009). Children born during a drought in rural Zimbabwe show a higher rate of stunting in the subsequent two years (Hoddinott and Kinsey, 2001). Maccini and Yang (2009) show that high rainfall at the very beginning of life is associated with better health and education outcomes in later life for Indonesian women.

Yet, not all empirical studies based on natural shocks confirm the fetal origins hypothesis. For instance, studies on the survivors of the Leningrad Siege (1941-1944) in general conclude that those exposed to starvation in the fetal stage do not show much difference in health outcomes in the later stages of life from cohorts born outside Leningrad and in other years. One key reason is that in the event of severe shocks like the Leningrad Siege, only the healthier survive and can be observed in later life. Therefore, the presence of mortality selection renders it less likely for researchers to observe the negative health impact on the survivors later on. Mu and Zhang (2011) show that prenatal exposures to the Chinese Great Famine (1959-1961) result in higher disability rates for female survivors but not for males, largely because of much larger excess male mortality rates during the famine. Exposure to milder shocks, however, might facilitate the testing of fetal origin hypothesis, since scarring effects for survivors are much less likely to be offset by selective mortality in extreme fetal exposures.

The studies based on natural shocks have provided tremendous insight on the fetal origins hypothesis in extreme events. However, estimates of the effects of mild exposures may be more relevant to policy than estimates of the effects of disasters. Almond and Currie (2011) argue that the immediate mortality and economic disruption from the 1918 flu or the China famine are sufficient to imply that any reasonable measure to prevent such catastrophes is likely to pass a cost-benefit calculation. Therefore, they argue, showing that there was additional damage to fetal health from these disasters does not make much difference in decision-making.

Moreover, most people, even the poor, do not suffer from natural shocks as severe as famine. Recent studies evaluate more mild shocks *in utero*. Almond et al. (2011) find daytime fasting by pregnant women during the Islamic holy month of Ramadan decreases children's test scores at age 7. Almond and Mazumder (2011) find negative effects of early exposures to Ramadan on male births and positive impact on adult disability rate, especially mental disabilities.

This paper investigates the consequences of exposures to frequent, yet minor shocks — social festivals, such as funerals and wedding that people around the world are obligated to attend. Do children born to mothers exposed to more frequent social shocks have worse health outcomes as predicted by the fetal origins hypothesis? To our knowledge, no studies have examined the impact of prenatal exposures to social shocks on child health outcomes.

Our surveys track nearly 900 households with a 10-year history of all local ceremonies. The third wave survey collected anthropometric information for all the 260 children younger than five years old in our sample. We adopt child height and weight measures under both the World Health Organization (WHO) standard and the China Center for Disease Control and Prevention (CDC) standard. Height-for-age and stunting measure the cumulative long-term nutritional status an individual has obtained over the life course, while weight-for-height and wasting measure more acute changes. A child underweight or with low weight-for-age z-score[7] may suggest short stature or being skinny.

[7] Weight measures might be subject to measurement errors. The survey took place in winter, the coldest time of the year when people wear heavy clothes. It is hard to weigh children's clothes, in

As shown in Table 4, on average nearly 40 percent of children are stunted. Despite impressive annual rates of income growth at more than 10%, the stunting rate had not declined, but rather rose slightly in the sample villages. The problem is more acute among girls, whose stunting rate increased from 31% to 55%. The rate of underweight shows a similar pattern. Overall, the prevalent high stunting and underweight trend is consistent with the results of He and Chen (2004), who found that in impoverished counties in Guizhou and Guangxi the most recent stunting and underweight rates are around 60% and 30%, respectively. As illustrated, the Deaton (2010) food puzzle can be observed in rural China as well.

The observed Deaton (2010) puzzle may have something to do with *in utero* exposures to social shocks. Table 5 reports the average height-for-age z-score for children by low and high income groups in villages with more frequent and less frequent social events. The last column measures the difference-in-differences (DID) of the z-score. All the values are negative, suggesting that it is children of the poor income groups who exhibit lower z-scores when exposed to more frequent social events at the fetal stage. Because of the small sample size for each cohort, we cannot compute the *p*-value of the DIDs. In the last row, we pool together all the children aged 1 to 5. The DID value is significant and negative. While this simple analysis based on two-by-two discrete groups shows some suggestive evidence on the *squeeze effects* of social spending on child health outcomes, it is interesting to further investigate whether there is a linear negative relationship between the continuous variables of z-scores and number of ceremonies. Figure 4 depicts the height-for-age z-score against the number of ceremonies exposed to in the fetal period for the high- and low-income groups. For the low-income group, the greater the number of ceremonies exposed, the

particular those of newborns. Therefore, the measurement for the weight of young babies is likely less accurate than height. Fortunately, the age fixed effects and birth season fixed effects in the regressions should take care of any systematic measurement error of weight.

lower the z-score. In contrast, the figure reveals a flat and insignificant pattern between z-scores and social events for the high-income group.

The DID analysis and bivariate plot provide tentative evidence in support of the *squeeze effects* of fetal exposures to social events. To more rigorously verify the effects, we need to control for more variables in more quantitative analyses.

Measuring Reference Groups and Relative Status

Before going on to the quantitative analyses, we need to first define reference groups and measure relative status. The theoretical models on relative status concerns often take reference groups as given. However, in empirical analyses, defining reference groups is more of an art than a science. People interact with others in different cycles in their work and family life. Identifying reference groups is always a great challenge for empirical research on social interactions.

The challenge might be greater in cities than in rural areas. In rural areas in developing countries, people often live in a rather close community. Two recent studies on China show that rural people often use their home village as a reference group (Knight, Song and Gunatilaka, 2007; Mangyo and Park, 2011). In our surveyed area, the villages are located in an area renowned for its karst landform[8], which presents a barrier to frequent interactions across villages. Therefore, in this paper, we primarily use villages as reference groups in our empirical analyses.[9]

Having defined reference groups, next we need to measure relative status concerns, which are often mentioned in the literature as a key motive behind social spending (e.g. Brown et al., 2011; Chen et al., 2011). In this paper, we adopt the Deaton (2001) RD index widely used in the biochemical and psychological literature, which captures the idea that a person is deprived if others

8 The karst topography in our surveyed region is in a typical form of closely spaced conical hills (cone karst).

9 We also check the robustness of our results using alternative reference groups - surname networks within a village.

in the group possess something that he or she does not have. It closely follows the spirit of Hopkins and Kornienko (2004) and Frank, Levine, and Dijk (2010).[10]

The Deaton RD index originated from Yitzhaki (1979) and Wildman (2003). The level of deprivation experienced by an individual *i* with income *y*[11] relative to another individual with income *z* is formulated as

$$D(i;y) = z - y \quad \text{if } y < z \qquad (1)$$

or

$$D(i;y) = 0 \qquad \text{if } y \geq z \qquad (2)$$

Based on this formula, an individual would feel more deprived as the number of individuals in society with more income than this individual increases. Thus, an overall measure of deprivation for individual *i* is computed by summing the differences in income and weighting the sum with the proportion of people with higher income than individual *i*. The above measures tend to overstate relative deprivation of individuals in high-income reference groups. This could be a very important issue when incomes differ substantially across groups. To make scale invariant, Deaton (2001) proposes a measure of relative deprivation for an individual *i* with income *x*:

$$(1/\mu)\int_{x}^{x^T}(y-x)dF(y) \quad \text{or} \quad (1/\mu)[1-F(x)][\mu^{+}(x)-x] \qquad (3)$$

where μ denotes mean income for those in the reference group, x^T is the highest income in the group. *F(y)* is the cumulative distribution of incomes among individuals in the group, and $\mu^{+}(x)$ is the average income of those with income

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[10] Frank, Levine and Dijk (2010) define an “expenditure cascade” in an economy where every agent judges his own behavior based on that of others closest above him. Hopkins and Kornienko (2004) develop a rank-based theoretical model that captures the status concern motive for lower ranked agents. In the model, rising average income of fellow residents triggers a competition for status that extends all the way down to the bottom of the distribution.

[11] The variable *y* can be defined in the dimension of income, consumption, assets and so on. Here income is utilized, which includes both in-kind and cash income.

higher than the individual with income *x*. The Deaton RD index normalizes the difference between average income of those with higher income and income *x* weighted by the proportion of those with income higher than that of individual *i*. The Deaton RD index takes into account differences in the scale of income distribution across groups. Unlike other deprivation measures, such as deprivation of absolute income (Li and Zhu, 2006), the Deaton RD index is scale invariant. In others words, it will not automatically double as everyone's income doubles. The index ranges from 0 (the richest) to 1 (the poorest) in each reference group.

Quantifying the Effect of Social Shocks on Child Health Outcomes

The standard child nutritional and health demand function, derived from a welfare maximization framework, often includes income, food prices, access to healthcare, genetic makeup, and other individual characteristics (Behrman and Deolalikar, 1988; Strauss and Thomas, 1995, 2008). In this paper, we include the Deaton RD measure as well as its interactions with variables of interest as additional variables. The specification can be written as

$$Outcome_{ijt} = \alpha RD_{j,t=1} * CAB_{j,t=1} + \beta RD_{j,t=0} * CBB_{j,t=0} + \gamma_0 RD_{j,t=1} + \gamma_1 RD_{j,t=0} + \gamma_2 CAB_{j,t=1} + \gamma_3 CBB_{j,t=0} + \alpha_c \cdot C_{ijt} + \alpha_p \cdot PCG_{j,t=1} + \alpha_p \cdot PB_{j,t=0} + \alpha_h \cdot H_{j,t=0} + \upsilon_v + \delta_t + \varphi_{vt} + \varepsilon_{ijt} \quad (4)$$

where $Outcome_{ijt}$ denotes child *i*'s health status in household *j* at survey time (*t*); $RD_{j,t=0}$ and $RD_{j,t=1}$ denote relative status for household j at child birth (*t=0*) and after child birth (*t=1*); C_{ijt} is a vector of child i's characteristics, including age, sex, birth season and birth order in family j; $PCG_{j,t=1}$ is a vector of characteristics of the principal care giver, including household head sex, mother's education, ethnicity, mothers' height[12], presence of grandparents, and presence of mother and father in a household after child birth; $PB_{j,t=0}$ denotes parental health behavior at the time of the child's birth, including smoking and problem drinking alcohol; and $H_{j,t=0}$ is a vector of local health facility characteristics at the time of the child's birth, such as distance to the closest clinic. Other household characteristics, including household size, major shocks (illnesses[13] and natural disasters), self-held ceremonies in a year, and per capita income at the child's birth are controlled for.[14]

υ is a set of village fixed effects that account for any time-invariant differences between villages (such as geography) that may also be correlated with social events and child health outcomes. δ is a set of birth year fixed effects, which account for any year-to-year changes in birth conditions that occur for the surveyed region that potentially correlate with social events (such as business cycles). The baseline model in Panel A of Table 7 includes no covariates, while Panel B incorporates covariates, year fixed effects and village fixed effects. In our preferred specifications in Panel C, as well as all the results followed by, village x year fixed effects φ_{vt} are further added.

To account for the possibility that the stochastic error terms (ε_{ijt}) are correlated within villages over time, the estimations are clustered at the village level. Since there are only 26 villages in the data, standard clustering methods may underestimate standard errors to some extent given the small number of

[12] Fathers' health status is not included, since some of them were migrating out to work during our survey. In most cases, mothers and children were left behind in the villages. Our results are robust to the inclusion of mother's BMI.
[13] Our results without controlling potentially endogenous illness shocks remain.
[14] Here we use (predicted) income as a proxy for wealth and to measure relative deprivation status in our paper. We also compute (predicted) asset index based on livestock and family assets and use it as a proxy and the main results remain largely the same.

clusters. Therefore, in all the estimations the standard errors with the cluster bootstrap procedure used in Cameron, Gelbach and Miller (2008) are reported.

Two time periods are critical in the identification of *squeeze effects*: the fetal period (t=0) and the period after birth (t=1). $CBB_{j,t=0}$ is the number of ceremonies held by other families within the same home village in the year prior to child *i*'s birth. Similarly, $CAB_{j,t=1}$ is the number of ceremonies held by others during child *i*'s birth year. The main coefficients of interest are γ_2, γ_3, α and β. The magnitude and significance level of these coefficients as well as $\gamma_2 + \alpha RD_{jt}$ and $\gamma_3 + \beta RD_{jt}$, show to what extent exposures to social events shocks in the fetal period or after birth matter to child health outcomes.

For each household from each village and each year, the information on all self-held social events and number of events one attended enable us to calculate $CBB_{j,t=0}$ and $CAB_{j,t=1}$. Moreover, in 5 out of 26 randomly selected villages we collect all gift record books with rich information on the exact date of each event, its participants' list and each gift sent. These villages possess similar observable characteristics to others. We therefore infer that the pattern of attendance, gift spent and event timing (Table 2 and Figure 5) applies to all other villages.

Each type of social events is rather standard in terms of ceremony size and gift spent. For each event, people generally follow an implicit market price in sending gifts, no matter rich or poor, and the participation is universal (Table 2). Therefore, the number of social events, $CBB_{j,t=0}$ and $CAB_{j,t=1}$, well captures the frequencies, sizes and luxury of festival shocks.

Since $CBB_{j,t=0}$ and $CAB_{j,t=1}$ exclude number of social events held by oneself from the total number of events in a village, the within-village variations for identification come from the different number of own events hosted. Therefore, we are able to control for possible unobserved confounds (that vary over time or not) at the village level. One obvious factor is income/assets/wealth. In richer villages the number of important ceremonies that require expensive gifts might be higher. Another factor is inequality. Villages where the income gap between the well off and the poor is high and growing (Table 1) might be exactly the villages where such ceremonies are most frequent and costly and also where outcomes of poor children are relatively worse.

As discussed earlier, although the number of all ceremonies held by other families within a village is largely beyond an individual household's control, the number of ceremonies may still reflect a village's other underlying unobserved factors that may potentially influence child health outcomes but are not controllable via including village fixed effects, age cohort fixed effects and village * cohort fixed effects. To address this concern, we distinguish negative shocks (number of funerals) from positive shocks (e.g. weddings, coming-of-age celebrations, and other ceremonies). If positive and negative shocks also represent the underlying unobserved health conditions in a village that are correlated with child health outcomes, then the estimations based on positive and negative shocks will yield biases in opposite directions.[15] Therefore, separate regressions using positive and negative shocks provide us with a lower and upper bound of the effect. If both sets of regressions produce significant results with similar magnitude and the same sign, it suggests that there are indeed *squeeze effects*.

As shown in Figure 5, most ceremonies (except funerals and childbirths) are held at the end of a lunar year or the beginning of another lunar year, i.e., January or early February, when most family members return home to celebrate the Chinese lunar year.[16] The timing of major social events in the lunar calendar

[15] Potential community unobserved factors that may bias both estimations in the same direction, and therefore threaten this identification strategy, should be absorbed by the inclusion of village fixed effects and village * age cohort fixed effects.
[16] Though child birth generally occurs in a good year, the timing of pregnancy also determines the timing of delivery and may demonstrate other seasonal, climate, and weather patterns. Therefore,

combined with dates of birth in the western calendar makes sure that children in the prenatal period are exposed to most social events in the year prior to the birth year (t=0), while most social events in the birth year (t=1) occur after birth.[17] Even if funerals are most often unplanned and held throughout a year, they demonstrate a seasonal pattern in our sample — a disproportionate share of them are between November and the following January (Figure 5) — due to the demographic characteristics that vulnerable people are much more likely to die in severe winter than in other seasons. This fact ensures a clean identification using the number of funerals.

Main Empirical Results on the Squeeze Effects

Before testing *squeeze effects*, we run separate regressions of the number of funerals and non-funeral events on available household and child characteristics[18] to make sure social events held by others in the reference group are random to individual household's characteristics. None of the covariates in the two scenarios demonstrate significant effects. The results are available upon request.

Building upon the findings in Figure 4 and Table 5, we run separate regressions on two child health outcome variables — height-for-age z-score and stunting — in low and high income groups. The specification is the same as in

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in both Figure 5 and all empirical estimations we exclude childbirth ceremonies from the positive shock category. The results are not much affected when childbirth events, are included, probably because childbirth is much less costly than other events. As shown in the gift books, the number of guests and gift sizes for childbirth are smaller than other types of events and only close relatives come to celebrate.

[17] In our survey, dates of birth were recorded based on the official household registration book following the western calendar, while dates of social events were recorded in respondents' gift books adopting the lunar calendar (and spanning from February to the following January).

[18] These variables include household characteristics (ceremony frequency before and after a child's birth, predicted per capita income, head sex, mother's education, parental health behavior at the time of the child's birth including smoking and problem drinking, household size, presence of grandparents, presence of parents, ethnicity, mother's height, other major shocks and so on), child characteristics (age dummy, sex, birth season, birth order), age cohort fixed effects, village fixed effects and age cohort * village fixed effects.

equation (4) except that it excludes the interaction terms of Deaton RD. Table 6 reports the regression results for the key variables of interest, the number of funerals and the number of non-funeral events exposed in the prenatal period. Children born to mothers in low income groups, who are exposed to more funerals or non-funeral ceremonies during their pregnancies, show lower height-for-age z-scores and display higher rates of stunting. In contrast, the health outcomes of children born to richer families do not appear to be vulnerable to social events experienced *in utero*. Unlike *in utero* exposures, social events exposed in the postnatal period have no salient effect on child health.

One might question this arbitrary division of the sample into low and high income groups. In Table 7, we test the two health outcomes on the whole sample by interacting the Deaton RD measure with the incidence of others' funerals or non-funeral ceremonies in the networks in the year prior to and after a child's birth. Panel A presents baseline estimations with no covariates. Panel B include rich covariates. Panel C, our preferred specification, further includes village fixed effects, age cohort fixed effects and village * age cohort fixed effects.

Regardless of whether we use the number of funerals or the number of non-funeral ceremonies, in all the three panels the interaction terms between *in utero* social event exposures and the Deaton RD measure are statistically significant. Considering that a larger value of the RD measure means a lower status, the significant interaction terms suggest that children from poor households prenatally exposed to more social events are more likely to be shorter and develop higher stunting rates than those experience fewer events. As expected, prenatal exposures to funerals have a more detrimental effect than exposures to non-funeral events. Moreover, almost no significant effect is found for the interaction term between the Deaton RD measure and funerals or non-funeral events after birth, suggesting the impact is mainly channeled through fetal exposures.

Interpretation of the Main Findings

Taking the first derivative of equation (4) with respect to the number of funerals and non-funeral events and evaluating at the poorest households, doubling the number of social events exposed by children in the prenatal period would decrease height-for-age z-score by .6 to 1.1 standard deviations and increase stunting rate by 23 to 35 percentage points (Panel C, Table 7). Comparing this magnitude of the effect to shock exposures in the literature, the impact for the poorest households is equivalent to some 120%-220% of the impact of civil conflict and 150%-270% of the impact of crop failure in Rwanda (Akresh et al., 2011). Importantly, the *squeeze effects* may have far-reaching implications in the long term. However, since the children under evaluation are still too young, we resort to the literature to project the potential long-term effects.

First, the *squeeze effects* may predict lower adult height. Based on the pooled multi-country evidence from Brazil, Guatemala, India, Philippines and South Africa that one standard deviation height-for-age z-score reduces adult height by 3.24 centimeters (Victora et al., 2008), doubling the number of social events for households at the bottom of the income spectrum is likely to be associated with a decline of adult height by 2.0–3.6 cm, depending on the types of social events.

Second, the *squeeze effects* may be detrimental to cognitive development and educational achievements (Alderman et al., 2006; Daniels and Adair, 2004; Grantham-McGregor et al., 2007; Engle et al., 2007). Based on the pooled multi-country evidence that per z-score decrease in height-for-age corresponds to a drop of a half year schooling (Victora et al., 2008), for the poorest households a 100% increase in the number of social events exposed may result in .3–.6 fewer years of schooling.

Third, the *squeeze effects* might undermine income and asset accumulation. Based on the evidence that per height-for-age z-score decline is associated with a 8% drop in income in Brazil and Guatemala as well as an decrease of .27 number of household assets in India (Victora et al., 2008), the impact for the poorest households may correspond to 4.8%–8.8% lower income and .2–.3 lower number of household assets.

Fourth, the *squeeze effects* to women may adversely affect birth length and birth weight of their grandchildren. Large evidence suggests that birth weight determines human capital and long-term wellbeing. Based on the pooled multi-country evaluation (Kramer, 1987; Ramakrishnan, 1999; Victora et al., 2008) that per z-score reduce in maternal height-for-age at age two is associated with 78.5g decrease in birth weight of their grandchildren, exposure to doubled social events among the poor may lead to 47–86g lower birth weight of their grandchildren.

Fifth, *squeeze effects* may affect body-mass index (BMI), body composition and obesity. Based on multi-country evidence that both adult BMI and adult fat-free mass are associated with height-for-age (Li et al., 2003; Victora et al., 2008), 100% more social events reduce BMI by .3–.5kg/m2 and decrease adult fat-free mass by .3–.6SD.

Moreover, the *squeeze effects* to the undernourished fetuses and infants may increase the risk of diabetes in later life. Specifically, height-for-age z-score is often inversely associated with insulin resistance and type-2 diabetes in multi-country studies (Victora et al., 2008). One fold increase in social event exposure is associated with .002–.003 log/mmol/L increase in blood glucose concentration.

Finally, *squeeze effects* are positively associated with adult systolic blood pressure. The pooled multi-country analyses find height at 2 years inversely associated with systolic blood pressure and hypertension prevalence in later life (Victora et al., 2008). Specifically, doubling the number of social events increases the systolic blood pressure by to 1–1.8mm Hg.

Robustness Checks

In addition to running separate regressions for negative shocks (funerals) and other types of shocks (non-funeral social events), we further conduct a series of robustness checks.

First, if the channel of impact is mainly through exposures at the fetal stage, then the number of social events in the year before a child is conceived should not matter to the child's health outcome. We run a falsification test on the *squeeze effects* by lagging the number of funerals and non-funeral ceremonies by one year. In other words, rather than in the year prior to birth, in this test the variable labeled "# of social events before birth" actually corresponds to the number of social events held in a village two years ahead of a child's birth, which ought to be unrelated to prenatal health status. If unobserved factors drive the result, we would expect the coefficient to remain significant in the placebo test. Results show that none of the coefficients on the interaction terms in Table 8 is statistically significant. Thus, the number of funerals or non-funeral events in a year other than the year prior to birth does not seem to affect child health.

Second, though the timing of social events in five typical villages informs us of the general pattern of events' distribution towards December and January, we do not know the exact months of ceremonies in the other twenty one villages. Therefore, we cannot match them with the months of mothers' pregnancies. Instead, we simply count the number of all ceremonies held by other families in the home village in the year prior to a child's birth and use it as a measure of fetal exposures to social shocks. This simple procedure may result in measurement errors. For example, if a child is born between October and December of this year, then ceremonies held in the last year won't directly affect the child's *in utero* development. As a robustness check, we restrict our sample to those children born between February and September. Children in this sample are definitely conceived in the lunar year (between February and the following January) prior to their birth, and the feature of social events' clustering towards the end of the lunar year further ensures direct exposures. Table 9 repeats the main regressions in Table 7 on the restricted sample. The coefficients for the interaction terms between the Deaton RD measure and the number of funerals or non-funeral ceremonies prior to birth are statistically significant and have the expected sign. The findings are consistent with those reported in Table 7.

Third, while exposures to social festivals reduce food intake among the pregnant (Table 3), other things associated with social festivals may harm child health status and confound the direct nutritional effect. For instance, exposures to more festivals might induce pregnant women to develop the habit of smoking and drinking, causing further damage to the fetus and child. Fortunately, the multiple wave household survey includes detailed individual information on tobacco and alcohol consumption. The reported weekly expenditure suggests that women of reproductive age generally do not engage in alcohol drinking or tobacco use, which is consistent with the fact of very low rate of smoking and drinking among Chinese women. Second-hand smoking is not an issue in our sample (and in large part of rural China) because social festivals are usually held outdoors. The exposures to outdoor smoking are most likely to be minimal. Nonetheless, we control for parental smoking and alcohol drinking in all regressions.

Fourth, the Deaton RD measure hinges upon the definition of reference groups. Although people are familiar with each other within villages, villagers from the same family clan may interact more frequently among themselves than with people from other clans. If this tendency holds true, then using villages as reference groups would likely bias the regression results. We therefore classify households whose heads share the same surnames as being in the same family clan or network. Households belonging to a larger surname network tend to participate in more social events.

Table 10 presents the regression results of this robustness check. The regressions follow the same specifications as in Table 7 except that we replace villages with surname networks as a reference group. Specifications in Panel A using number of funerals within surname networks, indicate that funerals held in surname networks tend to lower the height-for-age z-score and increase the stunting rate for children from lower-status households. As shown in Panel B, when using the number of non-funeral ceremonies as an indicator of social spending, the *squeeze effects* still show up. It is noted that none of the interaction terms between RD measures and the number of funerals or non-funeral ceremonies after birth is significant. Overall, regressions based on two different reference groups yield consistent results — prenatal (but not postnatal) exposures to social event shocks have a lasting adverse impact on child health outcomes.

Fifth, the literature on the fetal origins hypothesis show that the presence of mortality selection associated with extreme shocks may mask the identification of long-term adverse impact on health (Mu and Zhang, 2011). In the event of severe shocks, the most fragile fraction of the population is more likely to die first. As a result, the survivor population tends to be healthier than the general population in the absence of shocks. The population in the sampled villages was not subject to any major natural shocks. The social events, albeit a heavy fiscal burden for the poor, are unlikely to lead to excess mortality. The presence of excess mortality, if any, will only strengthen our results because the selection effect tends to trump the scarring effect (Pearson, 1912; Bozzoli et al., 2010).

Sixth, some children may have moved to cities with their migrant parents, thereby likely leaving behind an unhealthy group of children in the villages. Although many young people have taken migratory jobs throughout most of the year, they generally leave their children behind with grandparents in their home villages because of the high cost of urban living compared to rural Guizhou and discrimination against migrants' children in urban schools. More importantly, our surveys were conducted right before the Chinese Lunar Year when almost all migrant families return to their villages and children are at home for winter school break. Comparing the respondents' roster from the 2006 survey with that from the 2009 survey, we do not find any attrition.

Seventh, to distinguish the squeeze effect of attending social events from throwing social events, throughout this paper we control for the number of self-held social events in a year. Since only a small proportion of households hold ceremonies per year and their economic behavior may be markedly different from other households, we exclude these households as another robust check. The results are largely the same and are available upon request.

Eighth, the height-for-age z-score and stunting status are computed based on the WHO standard. The Chinese population is on average shorter and lighter in weight than the world average, thereby likely approaching the cutoff value. The China CDC publishes its own cutoff values for the Chinese population. In Web Table A.2, we report the main results with the same specifications as those in Table 7, replacing the WHO standard with the CDC standard. Both the sign and the magnitude of prenatal *squeeze effects* are quite similar to those based on the WHO standard. Once again, we do not find a noticeable effect of exposures to social shocks after birth.

Moreover, due to the marked seasonal profile of most festivals celebrated in December and the following January (Figure 5), better off families might be more likely to avoid pregnancies that fall in (most of) these months. However, Web Table A.3 suggests no systematic evidence of selection bias in terms of the timing of pregnancies relative to December and the following January using socioeconomic characteristics such as per capita income, parental education, parental height, assets, cadre status, ethnicity, presence of grandparents and father to take care of the child, and parental smoking and problem drinking.

Further, it has been widely documented in the human biology literature that boys are more susceptible to adverse nutritional environment in early life than girls. Given unavailable ultrasound technology prevents local parents from prenatal gender biased resource allocation, Web Table A.4 tests via separate regressions on boys and girls. We find that boys from low status households prenatally exposed to more social events display worse, albeit insignificant for non-funeral ceremonies, height-for-age z-score and stunting status than those exposed to fewer events. In contrast, no such impact is found for girls.

Furthermore, if the main driving force of long-term adverse health outcomes is in utero exposure to malnutrition, we should expect the prenatal squeeze effects to impose more chronic restriction on potential growth, such as low height-for-age z-score or stunting that indicates chronic malnutrition, than acute malnutrition, such as low weight-for-height z-score or wasting that indicates acute weight loss (Black et al., 2008). The results, available upon request, confirm this hypothesis that the chronic restriction is statistically much stronger.

Finally, since height-for-age z-scores can be both positive and negative, we cannot directly take a logarithm on them. Instead, in our main regression, we simply use the original z-scores as a dependent variable, although most of the right-hand variables are in logarithmic form. To explore whether this linear-log specification yields drastically different results, following Hoddinott and Kinsey (2001) we transform the z-scores into percentiles according to international standards and then take the logarithm of the percentile. In general, the results on the *squeeze effects* of *in utero* exposures to social shocks remain largely the same as those according to z-scores. To save space, the results under this specification are not reported but available upon request.

4. Conclusion and Discussion

It has been widely noted that improvement in nutritional status among the poor in developing countries lags far behind income growth. Banerjee and Duflo (2007) and Deaton (2010) ask: Why don't the poor eat more with their extra income?

Using a unique census-type household survey collected in remote hilly villages in China, we find that gift spending during social events squeezes out food consumption and compromises nutritional status in poor households, and their children tend to develop shorter and lighter physical stature if their home villages held a greater number of social events in the year prior to their births.

In developing countries, gift exchange is almost a universal phenomenon with reciprocity. It is a social norm to attend neighbors' weddings, funerals, and other major ceremonies. People normally think that social events tend to be redistributive, i.e. ceremonies are paid for disproportionately by wealthier villagers. Such ceremonies serve to redistribute wealth in society according to a cosmic vision of what promotes justice in the circumstances.

However, because of the reciprocal nature of gift exchange and "mandatory" participation, frequent social ceremonies place a much heavier burden on the poor than on the rich. In order to afford a gift, the poor often have to forgo the consumption of basic food items for weeks following a social event. Such a squeeze on food intake can extract an unintended long-term toll on the children of women pregnant at the time. In contrast, because they have financial slack and food consumption accounts for a small share of their budget, the rich do not need to worry about food consumption when engaged in conspicuous spending behavior.

A question thus arises: Given the negative impact of social spending on child health outcomes, why don't the pregnant women avoid attending fellow villagers' social festivals in the first place? There are several possible explanations. First, people may not be aware of the negative health consequence of prenatal exposures to social events. To our knowledge, this paper is one of the first to provide empirical evidence showing the existence of such an effect. It is likely that a more informed mother will be more careful in making a choice between eating adequate and healthy foods and attending a neighbor's social event.

Second, when rewards for higher status are high and punishment for lower status is grave, people, in particular the poor, will intensify their competition in status goods consumption (Hopkins and Kornienko, 2004). In China, sex ratios have become increasingly unbalanced. As a result, the marriage market competition has intensified greatly over the past several decades. Under such a marriage market squeeze, the poor have to vigorously signal their wealth through bigger houses, more generous bride price payments, lavish wedding banquets, and active participation in social events within their community. In fact, the competition in social spending is more intense among the poorer segment of the population in rural China (Brown et al., 2011; Chen et al., 2011).

More generally, most of the poor in developing countries live in a close community where they know each other well. Their consumption decisions are shaped not only by their own preferences and budget constraints, but also by peers in their communities. With prevailing peer pressure and status concern, people tend to consume more visible goods to make impression and gain status at the expense of less basic goods, including food.

In this paper, we mainly focus on child health outcomes. The fetal origins hypothesis predicts that *in utero* exposures to adverse events or malnourished environment may affect adult height, educational achievement, earning potentials in later life, birth length and birth weight of their next generation, body composition and obesity, and develop a series of chronic diseases in adult life, such as heart disease, diabetes and hypertension. Though we project the long term impacts along the above indicators with the help of our empirical findings and the literature, our future research involves following the population in the studied villages over a longer period of time and directly quantifies the impact of *in utero* exposures to social festivals on these broad ranges of later-stage measures.

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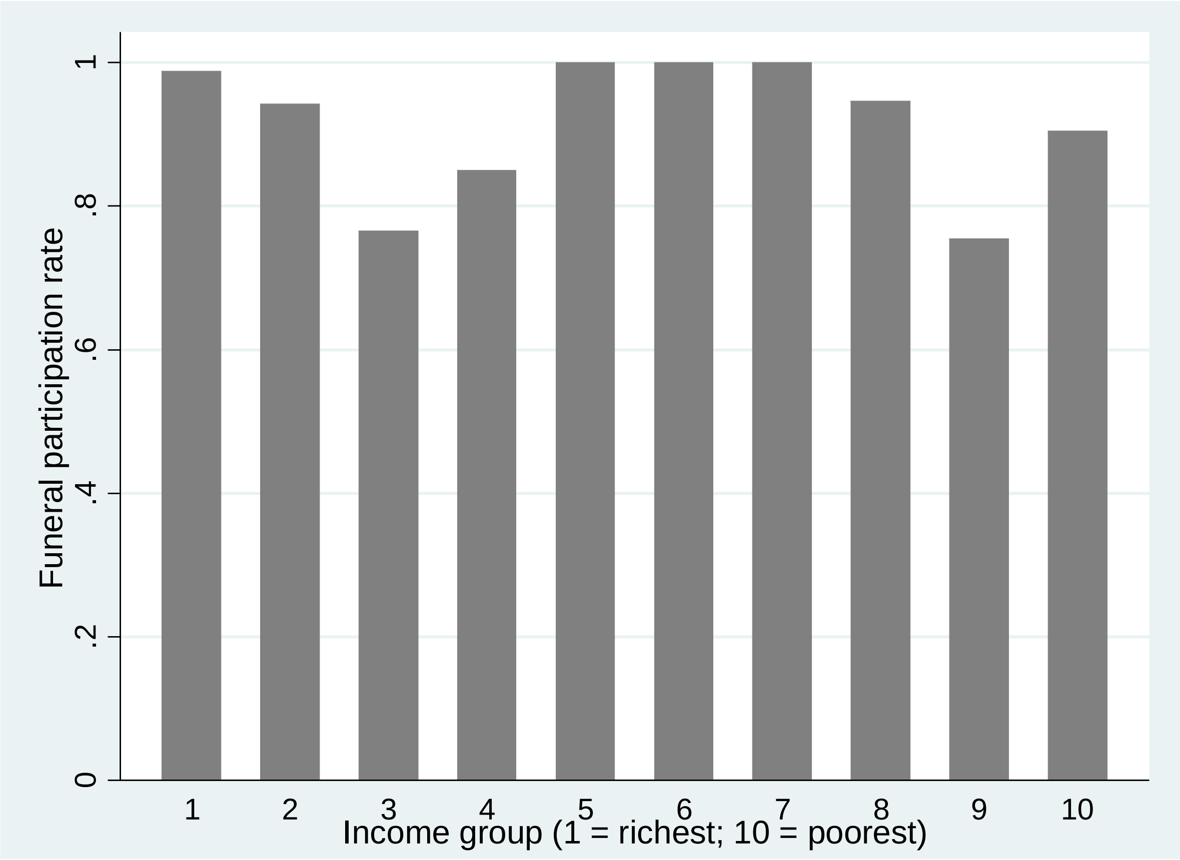
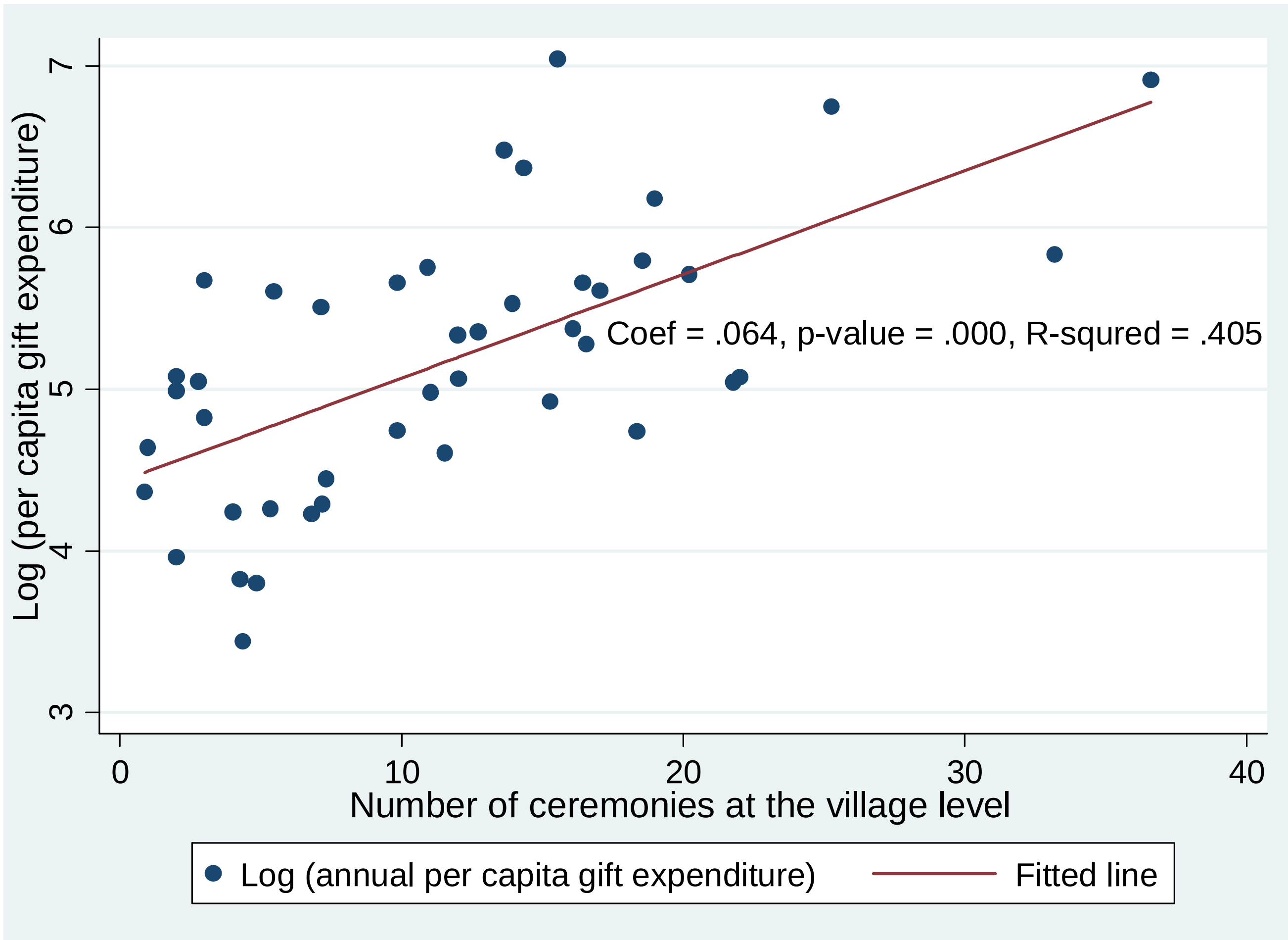
Figure 1—Income levels and ceremony attendance rates



Sources: Authors' gift record data

Notes: By each year and each village, all the households are divided into 10 groups by per capita income. The vertical axis represents ceremony participation rates by income group.

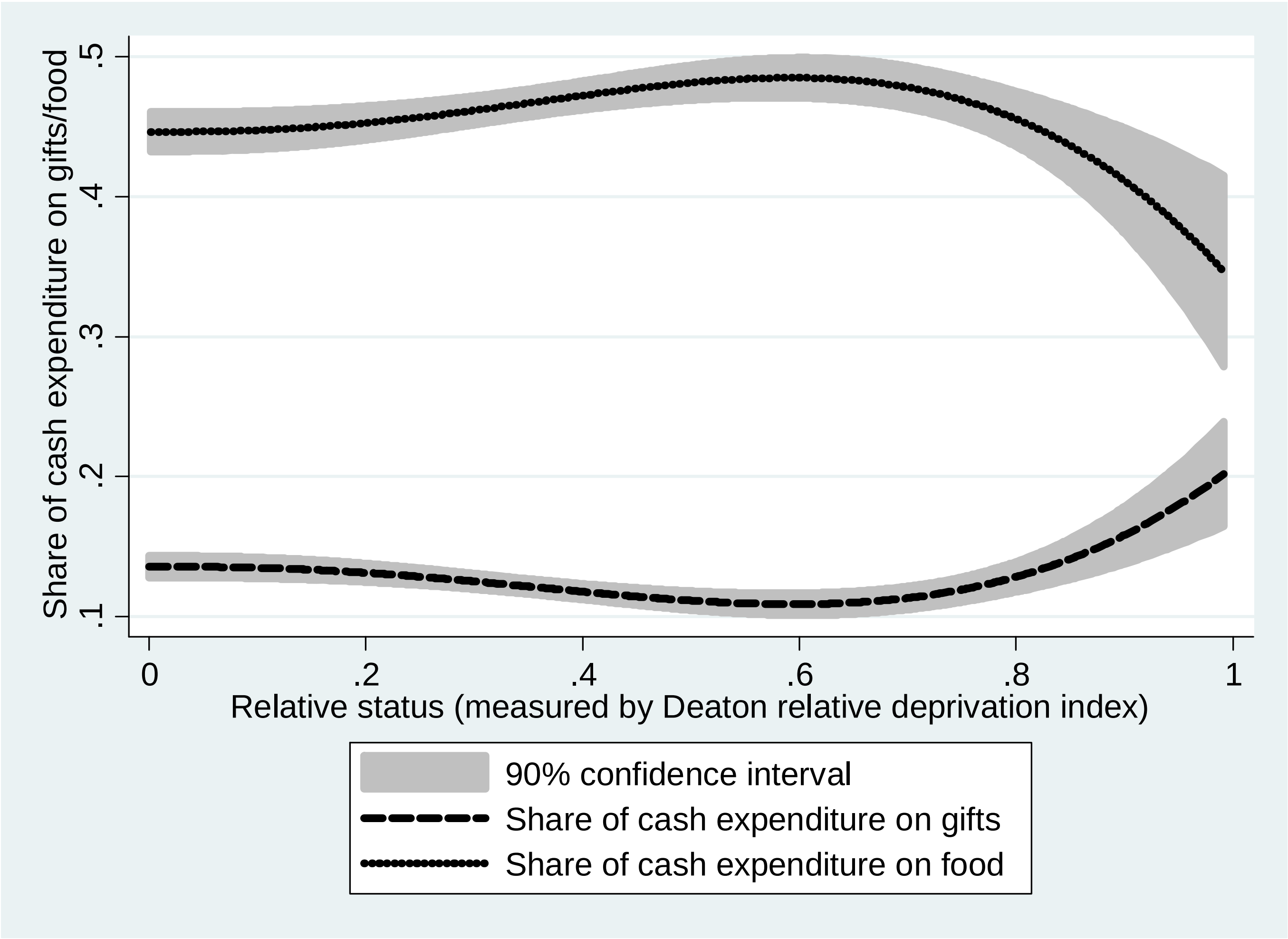
Figure 2—Average per capita gift expenditure and number of ceremonies at the village level



Sources: Authors' survey data

Notes: The figure is computed based on our three-wave household survey data in 2004, 2006 and 2009 in Guizhou province. The horizontal axis stands for the number of ceremonies at the village level in the three years, while the vertical axis represent the average per capita gift expenditure (log) at the village level in the corresponding year.

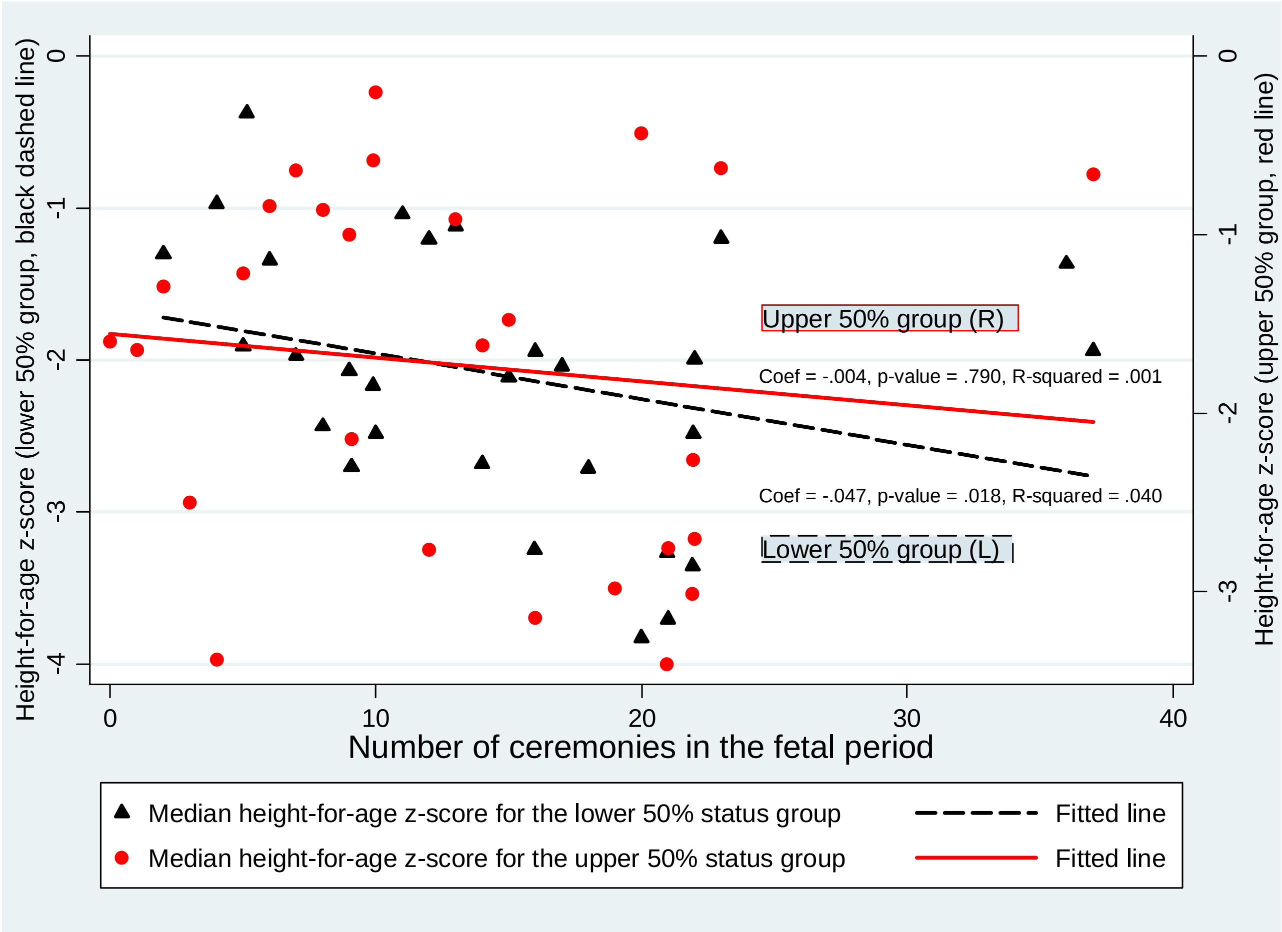
Figure 3—Share of cash expenditure spent on gifts and food



Sources: Authors' survey data

Notes: The Deaton index ranges from 0 to 1 with 1 corresponding to the lowest status and 0 to the highest status. All households surveyed in 2004, 2006 and 2009 are included to generate this figure.

Figure 4—Number of ceremonies and height-for-age z-score by income status

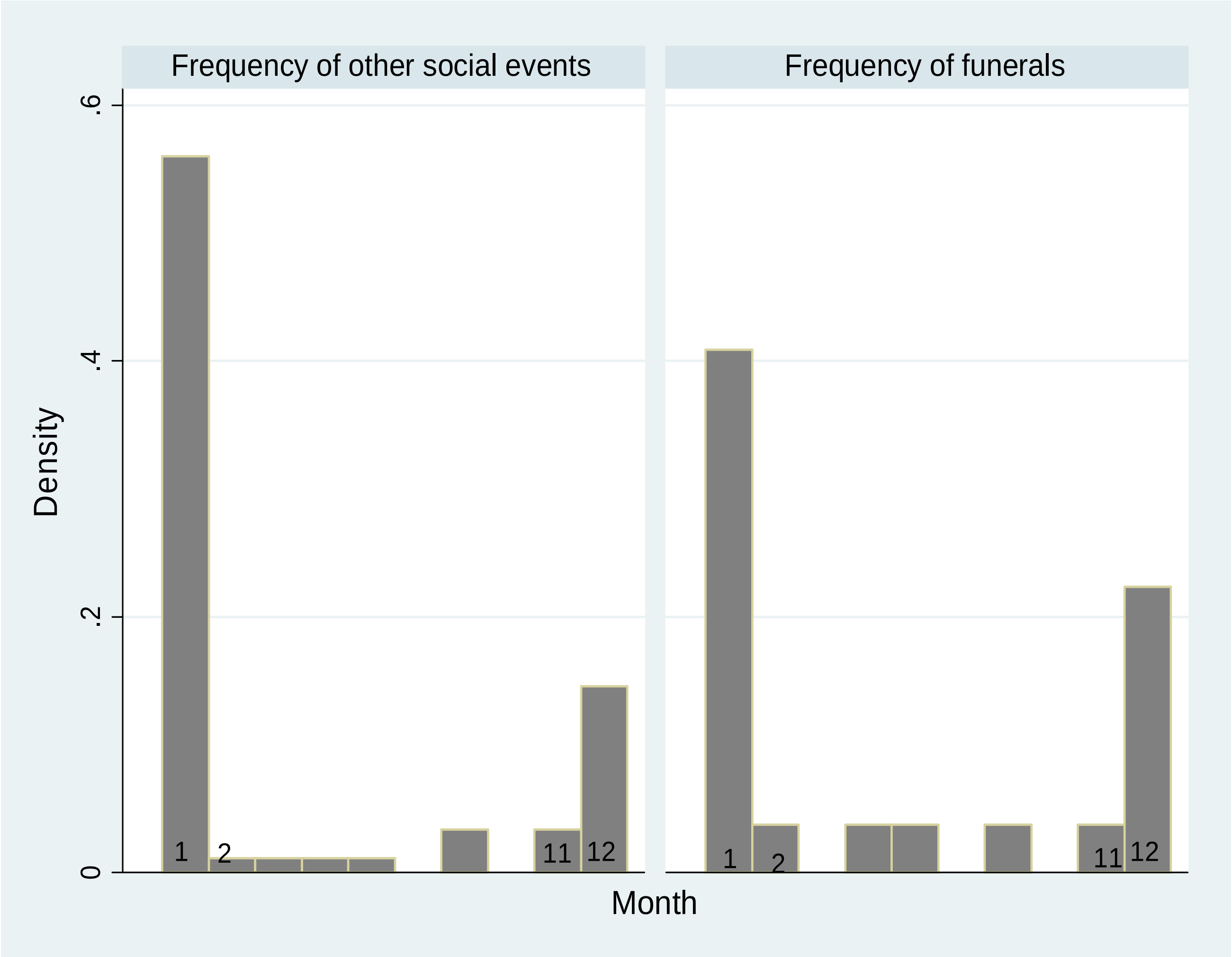


Source: Authors' survey data

Notes: L = left; R = right

The high and low-income groups are divided based on the difference between household average income status and village average income status over the three wave survey (2004 – 2009). The anthropometric information for children born in the period 2004 - 2009 is taken from the most recent 2009 survey. The vertical axis represents the average height-for-age z-score corresponding to each number of ceremonies in the fetal period.

Figure 5—Distribution of ceremonies by month



Sources: Authors' gift record data

Notes: The month information on all ceremonies between 2004 and 2009 was collected from all surveyed households in five out of twenty six villages in rural Guizhou. Childbirths and funerals are excluded from the left figure.

Table 1 Summary statistics on major economic indicators of Guizhou household survey in 2004, 2006 and 2009

	2004	2006	2009
Per capita real annual income (in RMB)	1404	1817	2855
Income below poverty line of US $1.25 per day using 2005 PPP (%) (P0)	71.3	64.1	52.7
Income below official national poverty line of RMB 892 per year (%) (P0)	37.3	36.3	22.4
Poverty-gap below poverty line of RMB 892 (P1)	14.5	15.0	10.1
Squared poverty-gap below poverty line of RMB 892 (P2)	7.5	8.3	6.4
Income inequality (Gini)	43.1	48.2	55.2
(Mean) Deaton relative deprivation index	0.423	0.432	0.495
Share of consumption (%)			
Food	47.8	42.2	35.5
Gift and festival spending	7.9	13.9	15.2
Cash and in-kind food consumption (in RMB)			
Grain	312.9	300.9	273.7
Condiment (salt, vegetable oil and animal oil)	134.9	138.8	115.8
Vegetable, fruit, tea, drink, cigarette and tobacco	134.1	236.1	229.0
Vegetable and fruit	-	126.9	170.8
Tea, drink, cigarette and tobacco	-	109.2	58.2
Meat, egg and dairy product	76.3	94.9	60.0

Source: Authors' survey data

Notes:

[1] RMB = yuan renminbi. PPP = purchasing power parity. P0, P1 and P2 denote the standard Foster-Greer-Thorbecke poverty measures. In particular, P0 measures the headcount ratio, P1 measures the average poverty gap, and P2 measures the squared poverty gap.

[2] The 2005 PPP exchange rate is at the "China-rural" level. See http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp. The Poverty lines for 2004-2009 are adjusted according to the published annual inflation rate in various issues of *China Statistic Year Book,* published by China's National Bureau of Statistics.

[3] The poverty line of RMB 892 per year in terms of PPP equals US $0.61 per day.

[4] Deaton Relative Deprivation Index (Deaton, 2001) measures household-specific relative status in a village. It is valued between 0 and 1. The larger the number, the lower the relative status, and the more relatively deprived a household is.

[4] All items of food consumption adjusted for inflation based on *China Statistical Year Book*. All values are in RMB.

[5] "-" denotes that no information was collected in the category. Compared with the 2004 survey, in the 2006 and 2009 household survey more detailed information was collected on subcategories of food consumption.

Table 2 Summary statistics on major ceremonies

Year	Female wedding		Male wedding		Funeral		All ceremonies		Gift giving per occasion by income group (in RMB)			funeral attendance rate	non-funeral ceremony attendance rate
	Gift size (RMB)	# of ceremonies	Gift size (RMB)	# of ceremonies	Gift size (RMB)	# of ceremonies	Gift size (RMB)	# of ceremonies	bottom 25%	middle 50%	top 25%	% of villagers	% of villagers
2004	41.6	0.77	54.1	1.65	41.5	3.19	45.8	16.24	49.8	44.1	45.5	99.1%	98.1%
2005	59.9	0.77	47.8	1.47	40.4	2.03	50.2	13.22	47.9	53.1	47.1	98.3%	97.4%
2006	71.8	0.94	55.7	0.94	30.7	2.13	43.7	14.21	53.4	38.7	43.2	95.1%	94.3%
2007	59.9	1.13	41.2	2.06	54.7	4.30	57.9	19.04	63.0	50.2	62.6	97.3%	98.7%
2008	60.5	1.31	63.5	1.75	92.5	3.32	71.9	11.35	67.3	75.4	66.1	97.6%	97.5%

Source: Authors' gift record data

Notes:

RMB = yuan renminbi.

[1] The gift spending data were based on gift records kept by all the households in five villages. The gifts were sent by villagers from twenty two out of twenty six villages. The gift books record all the gifts received and the corresponding names of gift givers in different occasions. Based on these names, we can compute the participation rate for major events, such as funerals, within each village.

[2] The gift sizes have been adjusted to constant 2004 price (RMB) using the rural consumer price index published in *China Statistic Yearbook* (China National Bureau of Statistics, various issues). A household's income status is based on its income standing in a village in a given year. Because the income data are available only for three years when surveys were conducted, we use household income surveyed in 2006 to proxy income status in 2005, and income data in 2009 to proxy income status in 2007 and 2008.

Table 3 Squeeze effects of ceremonies on cash expenditure on food and gifts

	R1 ln(cash food expenditure)	R2 Ln(cash gift expenditure)	R3 ln(cash food expenditure)	R4 Ln(cash gift expenditure)
	Panel A: funerals (SUR)		*Panel B: non-funeral ceremonies (SUR)*	
Deaton RD * # of *events*	-0.274**	0.409**	-0.165*	0.254*
	(0.023)	(0.038)	(0.098)	(0.089)
# of *events*	-0.106*	0.331***	0.011	0.105
	(0.076)	(0.009)	(0.867)	(0.136)
Year, village, year x village fixed effects	Yes	Yes	Yes	Yes
(Pseudo) R-square	0.222	0.426	0.221	0.415
N	1927	1927	1927	1927

Source: Authors' survey data

Notes:

SUR = seemingly unrelated regression. RD = relative deprivation index.

"# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

[1] The SUR estimation represents simultaneous regressions on cash expenditure spent on food and gifts.

[2] The number of non-funeral ceremonies refers to all major ceremonies excluding funerals held by other villagers in a village in the year prior to a child's birth. The number of funerals refers to funerals held by other villagers in a village in the year prior to a child's birth.

[3] p-values are in parentheses. The estimations are clustered at the village level. The symbols *, **, and *** indicate confidence levels at 90%, 95%, and 99%, respectively.

Table 4 Height-for-age z-scores, stunting rate (%), and underweight rate (%)

Birth year	Total			Boys			Girls		
	Z-score	Stunting (%)	Underweight (%)	Z-score	Stunting (%)	Underweight (%)	Z-score	Stunting (%)	Underweight (%)
				WHO standard					
2004	-1.41	30.88	16.18	-1.50	30.77	15.39	-1.38	31.04	17.24
2005	-1.59	36.54	13.46	-1.54	30.00	13.33	-2.10	45.46	13.64
2006	-2.23	51.06	17.02	-2.34	56.00	12.00	-1.65	45.36	22.73
2007	-1.69	35.85	16.98	-1.85	41.38	17.24	-1.52	29.17	16.67
2008	-2.29	58.33	16.67	-2.21	59.52	14.29	-2.51	55.56	22.22
				China CDC standard					
2004	-1.93	42.65	23.53	-1.99	43.59	28.21	-1.91	41.38	17.10
2005	-2.01	46.15	13.46	-1.96	46.67	13.33	-2.49	45.46	13.64
2006	-2.50	55.32	19.15	-2.62	60.00	16.00	-1.97	50.00	22.32
2007	-2.11	49.06	16.98	-2.11	55.17	17.24	-2.03	41.67	16.19
2008	-2.44	56.67	13.33	-2.19	57.14	9.52	-2.76	55.56	22.22

Source: Authors' survey data

Notes:

WHO = World Health Organization. CDC = Center for Disease Control.

Children's anthropometric indicators were taken from the 2009 survey. Stunting is defined as height-for-age z-score less than two standard deviations (SD) of the WHO standard or the China CDC standard. Underweight is defined as weight-for-age z-score less than two SD of the WHO standard or the China CDC standard.

Table 5 Ceremony frequency and height-for-age z-scores by income group – simple Difference-in-Difference

Ceremony frequency Income status	Frequent (1)	Less frequent (2)	(1)-(2)	Difference-in-Difference
		Birth year: 2004		
Lower 50%	-2.82	-1.46	-1.36 (3)	
Upper 50%	-1.60	-0.86	-0.74 (4)	(3)-(4)= -0.62
		Birth year: 2005		
Lower 50%	-1.94	-1.62	-0.32 (3)	
Upper 50%	-1.36	-1.22	-0.14 (4)	(3)-(4)= -0.18
		Birth year: 2006		
Lower 50%	-2.54	-1.22	-1.32 (3)	
Upper 50%	-2.48	-2.11	-0.37 (4)	(3)-(4)= -0.95
		Birth year: 2007		
Lower 50%	-2.61	-1.46	-1.15 (3)	
Upper 50%	-1.63	-1.40	-0.23 (4)	(3)-(4)= -0.92
		Birth year: 2008		
Lower 50%	-2.76	-2.47	-0.29 (3)	
Upper 50%	-2.43	-2.18	-0.25 (4)	(3)-(4)= -0.04
		Birth year: 2004-2008		
Lower 50%	-2.52	-1.60	-0.92 (3)	
Upper 50%	-1.62	-1.31	-0.31 (4)	(3)-(4)= ***-0.61* (0.06)***

Source: Authors' survey data

Notes:

The groups of "frequent" and "less frequent" are defined based on whether the number of ceremonies in a village is below or above the median number of ceremonies in our sample for a given year. The "Lower 50%" and "upper 50%" income groups are defined according to a household's average income status compared with the village average income status over the three wave survey between 2004 and 2009. In the last row, all the cohorts born from 2004 through 2008 are combined. The p-values are presented in parentheses.

The symbol * indicates confidence level at 90%.

Table 6 Exposures to ceremonies and child health outcomes by income group

	R1-high	R2-low	R3-high	R4-low	R5-high	R6-low	R7-high	R8-low
	Height-for-age z-score (*OLS*)		Stunting (*Linear probability*)		Height-for-age z-score (*OLS*)		Stunting (*Linear probability*)	
	Panel A: funerals				*Panel B: non-funeral ceremonies*			
# of events *before* birth	-0.016	-1.134**	0.020	0.414**	-0.518	-1.432	0.114	0.329***
	(0.937)	(0.040)	(0.880)	(0.027)	(0.510)	(0.280)	(0.213)	(0.000)
# of events *after* birth	-0.008	-0.072	0.016	0.205	-0.107	-0.242	0.083	0.148
	(0.130)	(0.973)	(0.200)	(0.333)	(0.810)	(0.747)	(0.653)	(0.200)
(Pseudo) R-square	0.630	0.313	0.504	0.387	0.643	0.345	0.492	0.410
N	130	130	130	130	130	130	130	130

Source: Authors' survey data

Notes: OLS = ordinary least squares.

"# of Events" means funerals for the left panel and non-funeral ceremonies for the right panel.

[1] All the regression analyses since Table 6 are conducted at the child level.

[2] Due to the small sample size, we divide the sample into high income group (R1, R3, R5 and R7) and low income group (R2, R4, R6 and R8) according to the difference between a household's income status during prenatal period and the average village income status. Sample size=260/2.

[3] The number of non-funeral ceremonies and number of funerals refer to the total number of ceremonies (excluding funerals) and funerals held by other villagers in a village in the year prior to or after a child's birth. The health outcome measures are based on the World Health Organization standard.

[4] Household level characteristics (ceremony frequency before and after a child's birth, predicted per capita income, head sex, mother's education, parental health behavior at the time of the child's birth including smoking and problem drinking, household size, presence of grandparents, presence of parents, ethnicity, mother's height, other major shocks and so on), child characteristics (age dummy, sex, birth season, birth order), year fixed effects, village fixed effects and year X village fixed effects are also included but not reported here.

[5] The estimations are clustered at the village level. P-values are further adjusted via the Wild Bootstrap Procedure in Cameron, Gelbach, and Miller (2008). The symbols *, **, and *** indicate confidence levels at 90%, 95%, and 99%, respectively.

Table 7 ***Main results:*** **Exposures to ceremonies and child health**

	R1: Height-for-age z-score (*ols*)	R2: Stunting (*linear probability*)	R3: Height-for-age z-score (*ols*)	R4: Stunting (*linear probability*)
	Funerals		*Non-funeral ceremonies*	
	Panel A: no covariates			
Deaton RD * # of events	-1.793**	0.308**	-1.430*	0.494***
before birth	(0.013)	(0.011)	(0.080)	(0.000)
Deaton RD * # of events	-0.253	0.265	-0.818	0.379
after birth	(0.813)	(0.480)	(0.213)	(0.160)
(Pseudo) R-square	0.080	0.086	0.076	0.084
AIC	1171	359	1071	348
N	260	260	260	260
Panel B: all control variables (except FE effects) included				
Deaton RD * # of events	-2.064**	0.472***	-1.266*	0.471**
before birth	(0.027)	(0.000)	(0.093)	(0.013)
Deaton RD * # of events	-0.252	0.327*	-0.417	0.248
after birth	(0.640)	(0.080)	(0.160)	(0.307)
(Pseudo) R-square	0.329	0.342	0.331	0.335
AIC	1026	336	1026	325
N	260	260	260	260
Panel C: all control variables, seasonality, village fixed effects, year cohort fixed effects, village x year cohort fixed effects included				
Deaton RD * # of events	-1.834*	0.463**	-0.931**	0.446**
before birth	(0.078)	(0.039)	(0.034)	(0.037)
Deaton RD * # of events	-0.561	0.147	0.252	-0.199
after birth	(0.115)	(0.269)	(0.537)	(0.340)
# of events *before* birth	0.732	-0.236	0.303	-0.094
	(0.271)	(0.461)	(0.697)	(0.676)
# of events *after* birth	-0.918*	0.115	0.297	-0.093
	(0.060)	(0.309)	(0.330)	(0.428)
(Pseudo) R-square	0.760	0.615	0.736	0.605
AIC	859	147	910	220
N	260	260	260	260

Source: Authors' survey data

Notes: OLS = ordinary least squares. RD = relative deprivation index. AIC = Akaike information criterion. "# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

[1] To save space, Panels A and B do not present results for # of events before and after birth.

[2] Other notes follow Table 6.

Table 8 Falsification test on squeeze effects: non-exposed ceremonies and child health outcomes

	R1	R2	R3	R4
	Height-for-age z-score *(ols)*	Stunting (*linear probability)*	Height-for-age z-score *(ols)*	Stunting (*linear probability)*
	Panel A: funerals		*Panel B: non-funeral ceremonies*	
Deaton RD * # of events *before* birth	-0.136	0.055	-0.222	0.192
	(0.731)	(0.776)	(0.976)	(0.606)
Deaton RD * # of events *after* birth	0.069	-0.058	-0.418	-0.096
	(0.843)	(0.438)	(0.987)	(0.495)
# of events *before* birth	0.255	-0.120	-0.012	-0.053
	(0.584)	(0.257)	(0.511)	(0.550)
# of events *after* birth	-0.123	0.044	-0.130	0.102
	(0.614)	(0.655)	(0.451)	(0.143)
(Pseudo) R-square	0.236	0.229	0.266	0.239
N	260	260	260	260

Source: Authors' survey data

Notes: RD = relative deprivation index.

"# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

The specification is the same as that of Table 7 except that we lag the number of funerals and of non-funeral ceremonies for each age cohort by one year.

Other notes follow Table 6.

Table 9 Robust check: Exposures to ceremonies and health of children born between February and September

	R1	R2	R3	R4
	Height-for-age z-score (ols)	Stunting (linear probability)	Height-for-age z-score (ols)	Stunting (linear probability)
	Panel A: funerals		*Panel B: non-funeral ceremonies*	
Deaton RD * # of events *before* birth	-1.884*	0.380**	-1.042**	0.620***
	(0.078)	(0.032)	(0.039)	(0.000)
Deaton RD * # of events *after* birth	-0.628	0.347**	0.212	-0.170
	(0.540)	(0.020)	(0.696)	(0.410)
# of events *before* birth	-0.500	0.249	0.338	-0.139
	(0.473)	(0.659)	(0.613)	(0.608)
# of events *after* birth	-0.970*	0.103	0.029	0.028
	(0.079)	(0.658)	(0.928)	(0.902)
(Pseudo) R-square	0.762	0.663	0.732	0.627
N	187	187	187	187

Source: Authors' survey data

Notes: RD = relative deprivation index.

"# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

The specification is the same as that of Table 7 except that we restrict our sample to children who were born between February and September.

Other notes follow Table 6.

Table 10 Robust check: Exposures to ceremonies and child health outcomes using alternative reference groups

	R1	R2	R3	R4
	Surname Networks			
	Height-for-age z score (*ols*)	Stunting (*linear probability*)	Height-for-age z score (*ols*)	Stunting (*linear probability*)
	Panel A: funerals		*Panel B: non-funeral ceremonies*	
Deaton RD * # of events *before* birth	-1.815*	0.376*	-0.764**	0.395*
	(0.078)	(0.089)	(0.039)	(0.064)
Deaton RD * # of events *after* birth	0.653	0.157	0.189	-0.174
	(0.327)	(0.260)	(0.664)	(0.334)
# of events *before* birth	0.656	-0.105	0.170	-0.058
	(0.383)	(0.147)	(0.734)	(0.721)
# of events *after* birth	-0.701*	0.065	-0.316	0.116
	(0.067)	(0.682)	(0.389)	(0.341)
(Pseudo) R-square	0.749	0.607	0.735	0.604
N	260	260	260	260

Source: Authors' survey data

Notes:

RD = relative deprivation index.

"# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

The specification is the same as that of Table 7 except that we replace villages with surname networks as reference groups. Surname networks are confined to the boundaries of a village.

Other notes follow Table 6.

Web Appendix: Supplementary Tables

Web Table A.1—Summary statistics of key variables

	Mean	Median	SD
Height-for-age z-score	-1.841	-1.847	1.527
Stunting status	0.421	0	0.495
Underweight status	0.161	0	0.368
Deaton relative income status (during fetal period)	0.521	0.521	0.260
Deaton relative income status (during birth year)	0.505	0.494	0.260
Number of funerals (during fetal period)	3.025	3	2.045
Number of funerals (during birth year)	2.621	2	2.112
Number of non-funeral events (during fetal period)	11.794	11	6.359
Number of non-funeral events (during birth year)	10.423	10.5	5.908
Per capita income (log)	7.397	7.492	1.314
Household head gender	0.960	1	0.196
Household head education	5.215	5	2.863
Birth order	1.421	1	0.629
Household size	4.579	4	1.625
Minority status	0.350	0	0.478
Child gender	0.589	1	0.493
Presence of mother in a family	0.782	1	0.414
Presence of father in a family	0.746	1	0.436
Presence of grandparents in a family	0.318	0	0.467
Whether parents smoke	0.579	1	0.495
Mother’s height	149.603	151	15.980
Mother’s bmi	22.714	21.929	4.143
Birth season	2.602	3	1.129

Source: Authors’ survey data

Notes: Sample includes children who were aged one to five.

Web Table A.2—Exposures to ceremonies and child health outcomes using the China CDC standard

	R1	R2	R3	R4
	Height-for-age z-score (*ols*)	Stunting (*linear probability)*	Height-for-age z-score (*ols)*	Stunting (*linear probability)*
	Panel A: funerals		*Panel B: non-funeral ceremonies*	
Deaton RD * # of events *before* birth	-1.738*	0.396*	-0.880**	0.448*
	(0.078)	(0.095)	(0.039)	(0.077)
Deaton RD * # of events *after* birth	0.644	0.112	0.103	-0.182
	(0.709)	(0.457)	(0.795)	(0.308)
# of events *before* birth	0.521	0.084	0.173	-0.072
	(0.184)	(0.259)	(0.821)	(0.758)
# of events *after* birth	-0.847	-0.074	0.284	0.013
	(0.158)	(0.679)	(0.321)	(0.912)
(Pseudo) R-square	0.755	0.564	0.735	0.561
N	260	260	260	260

Source: Authors' survey data

Notes: "# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

The specification is the same as that of Table 7 except that height-for-age z-score and stunting status are measured based on the China CDC standard. Other notes follow Table 6.

Web Table A.3—Prenatal social events exposure on socioeconomic characteristics

Coefficients on social festival exposure

	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11
Month Events Began	Ln (per capita income)	Year of edu	Maternal height	Paternal height	# cows	Cadre status	Minority status	Grandparent present	Father present	Mother present	Parents smoke & problem drinking
0	-0.013	2.363	-17.491	3.297	0.170	-0.127	-0.014	-0.030	0.202	-0.030	0.462*
(*conceived*)	(0.986)	(0.120)	(0.289)	(0.732)	(0.697)	(0.352)	(0.958)	(0.906)	(0.370)	(0.883)	(0.083)
1	0.416	-0.769	5.055	-3.093	-0.121	0.061	-0.100	-0.029	-0.241	-0.062	-0.326
	(0.539)	(0.591)	(0.745)	(0.736)	(0.769)	(0.633)	(0.683)	(0.904)	(0.258)	(0.750)	(0.194)
2	-0.112	-0.648	9.284	6.260	-0.111	-0.032	-0.121	0.000	0.081	0.058	0.096
	(0.748)	(0.377)	(0.245)	(0.158)	(0.597)	(0.627)	(0.336)	(1.000)	(0.461)	(0.566)	(0.456)
3	0.185	2.924**	-9.858	3.060	0.258	-0.107	0.102	-0.044	0.141	0.128	0.238
	(0.773)	(0.032)	(0.505)	(0.726)	(0.509)	(0.382)	(0.662)	(0.845)	(0.485)	(0.490)	(0.318)
4	0.265	-1.248	0.492	-0.796	-0.191	0.162	-0.175	0.013	-0.186	-0.165	-0.184
	(0.650)	(0.312)	(0.971)	(0.921)	(0.590)	(0.146)	(0.407)	(0.950)	(0.312)	(0.329)	(0.396)
5	-0.264	-0.034	18.823*	6.372	-0.042	-0.153*	-0.117	0.060	0.043	0.175	0.003
	(0.526)	(0.969)	(0.050)	(0.232)	(0.868)	(0.055)	(0.437)	(0.683)	(0.743)	(0.146)	(0.983)
6	0.093	3.021***	-25.139**	3.411	0.098	-0.093	0.084	-0.229	0.029	0.041	0.378*
	(0.866)	(0.010)	(0.048)	(0.645)	(0.770)	(0.378)	(0.673)	(0.239)	(0.869)	(0.795)	(0.065)
7	0.234	-1.595	9.486	-0.912	0.023	0.182**	-0.154	0.036	-0.031	-0.142	-0.128
	(0.618)	(0.109)	(0.381)	(0.888)	(0.937)	(0.042)	(0.366)	(0.829)	(0.832)	(0.297)	(0.464)
8	-0.529	0.607	-8.351	3.021	-0.18	-0.185***	0.004	-0.070	-0.020	0.041	-0.048
	(0.150)	(0.434)	(0.323)	(0.520)	(0.420)	(0.008)	(0.978)	(0.588)	(0.862)	(0.699)	(0.724)
9	0.013	1.233*	9.394	6.407	0.135	0.020	-0.136	-0.086	0.056	0.105	0.135
(born)	(0.970)	(0.093)	(0.238)	(0.137)	(0.521)	(0.758)	(0.279)	(0.479)	(0.608)	(0.293)	(0.292)
R-square	0.038	0.048	0.089	0.043	0.008	0.045	0.026	0.027	0.013	0.039	0.035
N	260	260	260	260	260	260	260	260	260	260	260

Source: Authors' survey data

Notes: Each column is a separate regression that checks whether households with any of these characteristics are more / less able to select the timing of pregnancies. "Month Events Began" indicates the gestation period that overlaps with the intense social events (during December and the following January), which ranges from 0 (conceived) to 9 (born). The default category corresponds to no exposure to intense social events. Other notes follow Table 6.

Web Table A.4—Exposures to ceremonies and child health outcomes by gender

	R1-boy	R2-girl	R3-boy	R4-girl	R5-boy	R6-girl	R7-boy	R8-girl
	Height-for-age z score *(ols)*		Stunting (*linear probability)*		Height-for-age z score *(ols)*		Stunting (*linear probability)*	
	Panel A: funerals				*Panel B: non-funeral ceremonies*			
Deaton RD * # of *events* before birth	-2.019*	-1.442	0.602*	0.053	-1.374	-0.433	0.435	0.281
	(0.078)	(0.157)	(0.078)	(0.824)	(0.118)	(0.196)	(0.117)	(0.275)
Deaton RD * # of *events* after birth	0.639	0.538	-0.061	0.401	0.481	-0.136	-0.232	-0.062
	(0.181)	(0.390)	(0.786)	(0.188)	(0.344)	(0.874)	(0.405)	(0.815)
# of *events* before birth	0.760	0.683	-0.243	-0.033	0.502	-0.083	0.071	-0.085
	(0.241)	(0.361)	(0.156)	(0.906)	(0.305)	(0.943)	(0.795)	(0.624)
# of *events* after birth	-1.251**	-0.579	0.319*	-0.031	0.105	0.029	-0.083	-0.099
	(0.015)	(0.406)	(0.051)	(0.905)	(0.807)	(0.971)	(0.532)	(0.241)
(Pseudo) R-square	0.818	0.792	0.667	0.737	0.777	0.781	0.642	0.730
N	155	105	155	105	155	105	155	105

Source: Authors' survey data

Notes: "# of Events" means funerals in the left panel and non-funeral ceremonies in the right panel.

The specification is the same as that of Table 7.

Other notes follow Table 6.