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Costly Posturing: Relative Status, Ceremonies and Early Child Development†

Xi Chen Xiaobo Zhang

Abstract

Though social spending facilitates risk-pooling in the impoverished regions, too many resources devoted to social occasions may impose negative externalities and hinder efforts to alleviate poverty for households living close to subsistence. Conducting three waves census-type panel survey in rural western China with well-defined reference groups and detailed information on social occasions, gift exchanges, nutrients intake and health outcomes, we find that the squeeze effect originated from lavish ceremonies is associated with lower height-for-age z-score, higher probability of stunting and underweight in early child development. The lasting impact suggests that "catch up" is limited. The squeeze is stronger for the fetal period and towards the lower tail of the distribution. Specifically, 39.2%, 33.3% and 64.6% of the sampled households suffer from net squeeze effect on stunting, underweight and lower height-for-age z-score, respectively. The squeeze effect is stronger for 1-3 age cohorts and between 2007 and 2009. We provide suggestive evidence on the intermediate pathways linking social events with poor health outcomes, such as share of food expenditure and basic nutrients intake. Our findings suggest more efficient policy interventions that target the households with pregnant women and of lower social rankings.

Keywords: Relative Status, Squeeze Effect, Nutrients Intake, Stunting, Underweight, Gender

JEL Codes: D13, I32, O15

1. Introduction

Life in developing contexts is particularly vulnerable to shocks, such as disease infection, natural disasters and civil conflict. However, one type of shock often neglected in the literature and policy discourse is caused by large household spending in social occasions that competes with basic consumption. The literature on social spending is dominated by its risk-pooling and income generating mechanism in environments that lack formal financial markets (Rosenzweig, 1988; Coate and Ravallion, 1993; Townsend, 1994; Udry, 1994; Fafchamps and Gubert, 2007). Other studies find that social spending helps climb social ladders and embodies a preference for following richer people (Frank, Levine and Dijk, 2010; Brown et al., 2011). As Banerjee and Duflo (2011) put it, lavish spending on weddings, dowries and christenings partially comes out of the fact that the poor do not want to lose face, when the social custom compels them to.

However, a large proportion of resources devoted to social spending may impose negative externalities that hinder efforts to reduce poverty for households living close to subsistence, since money spent on social occasions is not available for basic food, health care, or productive investments. In Brazil and India, the demand for food relative to overall expenditure could be much higher for the poor, but no salient difference between the poorest and the richest is seen in elasticity of food demand (Deaton and Subramanian, 1996; Thomas and Strauss, 1997; Banerjee and Duflo, 2007). In Kenya, large funeral expenses force households to liquidate productive assets and fall into poverty (Mango et al., 2009). Summarizing over these cases, the short term squeeze may lead to a persistent welfare loss. From a public policy perspective, it is crucial to identify shocks that can have long-run effects.

This paper focuses on shocks caused by frequent social events that occur at the very beginning of life. We explore how individual child nutritional status and health outcomes react to the local social environment starting from the fetal period until five years of age. The data requirement is considerable. Though only detailed information on social occasions is needed to identify squeeze effect, information on all other major shocks experienced by individuals is required to isolate the effect. Also required is detailed information on different social networks as well-defined reference groups. Meanwhile, precise measures of health indicators and nutrients intake should be implemented as outcome variables and potential pathways.

Our three waves of survey possess these features. The census-type survey enables us to have complete social status rankings that are utilized to distinguish the distribution of ceremony squeeze effects in the community. The survey focuses on a geographically isolated area in rural China, which enables reference group definition along village boundary. Moreover, while a large proportion of resources are spent on social occasions in many developing countries, China has one of the highest and one that is increasing very fast (Figure 1). In rural China, social spending has increased much faster than income and other consumption (Brown et al., 2011), suggesting resources are being squeezed from basic consumption and productive investment. Funerals are so lavish that an average of five-time annual per capita income is spent on each funeral, and gift competition for fellow villagers is very intense (Chen and Zhang, 2011). The extremely poor context in rural Guizhou makes the squeeze effect very pronounced.

Squeeze effect for children *in utero* and aged 1-5 are evaluated that have advantages over studies focusing on prenatal period (see a review in Almond and Currie, 2011), and peer villagers' funerals during the fetal period and early childhood are utilized to mitigate the endogeneity concern. We find that lavish funerals thrown by peers result in lower height-for-age z-score, higher probability of stunting and underweight. The squeeze effect is stronger towards the lower tail of the income distribution, and is salient in the fetal period but generally not for after-birth funerals. The squeeze effects are much stronger for 1-3 age cohorts and between 2007 and 2009, since the exposures to before-birth events and recover period differ. Meanwhile, squeeze effects are more pronounced for girls after birth. Apart from village boundaries, three alternative peer groups are utilized, i.e., surname network, blood relatives' network and blood & distant relatives' network.

We provide some suggestive evidence on the intermediate pathways linking social events with health outcomes. For instance, it is most plausible that high frequency of social events squeezes out basic food intake, such as protein and calorie intake. Both estimations using short-term nutrients intake data and simultaneous estimations using monthly consumption data suggest that expenditures on social occasions take scarce cash resource away from basic food consumption.

The lasting negative impact of ceremony shocks suggests that "catch up" in the first five years is limited. The results provide evidence for the negative externalities of household social spending and suggest more efficient policy interventions that target pregnant women in households located at the lower tail of the distribution.

Three features distinguish this paper from previous ones. First, the paper examines the relationship between early-life environments and later-life outcomes in a much less extreme way. Specifically, previous studies utilize extreme drought and civil war (Alderman et al., 2006) pandemics (Almond 2006) and twin births (Behrman and Rosenzweig, 2004), which may limit their generalizability. In comparison, lavish events are prevalent all over the world. This typical shock justifies public interventions targeting specific population groups while mitigating negative externalities rather than extreme events only.

Second, we identifies squeeze effect in the fetal period and 1-5 years of age to test the most sensitive and critical period for early life development in the nutrition literature. It is sometimes difficult to know a priori whether prenatal or postnatal exposure is more influential simply because different aspects of early development are often subject to different processes and vulnerable periods in the lifecycle are sometimes strongly correlated. Detailed information on long-term social events enables us to utilize both cross-sectional and time series sources of variation. Contrary to the fetal period, we find that ceremony shocks after birth have little effect on health status. To our knowledge, very few studies (e.g. Almond, 2006; Maccini and Yang, 2009; Mu and Zhang, 2011) set up their empirical models in this way, while Maccini and Yang (2009) find that the period after weaning from breast milk but not the fetal period matters.

Third, our data has three unique key features. The detailed information on daily nutrients intake and monthly food consumption enable us to explore pathways through which ceremony spending lead to negative health outcomes, which has not been studied before. Meanwhile, taking advantage of our data from an isolated region, peers' social events within the village boundary facilitate stronger inferences about causality. Further, the census-type data make sure that heterogeneous squeeze effects accounting for relative status are captured.

The rest of the paper is organized as follows: Part II presents the conceptual framework; Part III lays out empirical strategy and discusses data and key measures; Part IV discusses main results, extensions and robustness checks; Part V seeks to find the mechanism that works; Part VI concludes.

2. Conceptual Framework

Built upon the conceptual framework in Almond (2006) and Mu and Zhang (2011), we show that the potential squeeze effect of household social spending on early childhood development depends on the fetal origins effect combined with benefits from mutual insurance.

Denote a health probability density function as $f(h_i, \mu, \sigma^2)$, where h_i is health status for child i determined by innate attributes, fetal nutritional status and external environment. μ is the average health status of the distribution, and σ^2 denotes variance of the health status distribution. According to the Barker hypothesis (1992), shocks experienced in *utero* or infanthood are partially reflected in later health outcomes. We denote ceremony frequency as c. Frequent ceremonies squeeze out basic nutritional intake and lead to lower average health status, i.e., $d\mu / dc < 0$. Meanwhile, frequent ceremonies reduce variance of health status due to strengthened mutual insurance when faced with shocks, i.e., $d\sigma^2 / dc < 0$. Denote the good health threshold as $\bar{g}$, which is the threshold below which point a child i suffers from stunting. The proportion of adults not in good health status is $F(\bar{g}, \mu, \sigma^2)$, where $F()$ is the health cumulative distribution function.

The health impact of large social expenditure on frequent ceremonies can be derived as the following. The first term denotes fetal origins effect, while the second term represents the benefit from mutual insurance effect due to social network investment. Assuming some preconditions, the proofs for the following propositions will be provided in the Appendix.

$$\underbrace{\frac{dF(\bar{g}, \mu, \sigma^2)}{dc}}_{overall\ effect} = \underbrace{\frac{dF(\bar{g}, \mu, \sigma^2)}{\partial \mu} \frac{d\mu}{dc}}_{fetal\ origins\ effect} + \underbrace{\frac{dF(\bar{g}, \mu, \sigma^2)}{\partial \sigma^2} \frac{d\sigma^2}{dc}}_{mutual\ insurance\ effect} \quad (1)$$

Proposition 1: *The fetal origins effect increases the proportion of children in poor health status among the age cohort experiences frequent ceremonies.* It can be expressed as,

$$\frac{dF(\bar{g}, \mu, \sigma^2)}{\partial \mu} \frac{d\mu}{dc} > 0 \quad (2)$$

Proposition 2: *The mutual insurance effect provides an informal safety net that help decrease the proportion of children in poor health status among the age cohort experiences frequent ceremonies.*[1] It is expressed as,

$$\frac{dF(\bar{g},\mu,\sigma^2)}{\partial\sigma^2}\frac{d\sigma^2}{dc}<0 \qquad (3)$$

Overall, proposition 1 predicts that fetal origins effect negatively affect health outcomes of the children, while Proposition 2 predicts a positive effect of insurance network. If the former effect dominates, then squeeze effect is observed.

If we further assume that the average health status is better for females than for males and that the distribution functions are the same with females located to the right of that for males, given the same good health threshold $\bar{g}$, gender bias can be observed for squeeze effects that treat males and females differently.

Proposition 3: *The fetal origins effect leads to higher proportion of males in poor health status than females among the age cohort that suffers equally from frequent ceremony shocks.* It is expressed as,

$$\frac{dF(\bar{g},\mu_m,\sigma^2)}{\partial\mu}\frac{d\mu}{dc}>\frac{dF(\bar{g},\mu_f,\sigma^2)}{\partial\mu}\frac{d\mu}{dc}>0 \qquad (4)$$

Proposition 4: *With son preference, the resources gained from mutual insurance should lead a greater proportion of males than females out of poor health status among the age cohort that suffers equally from frequent ceremony shocks.* It is expressed as,

$$\frac{dF(\bar{g},\mu_m,\sigma^2)}{\partial\sigma^2}\frac{d\sigma^2}{dc}<\frac{dF(\bar{g},\mu_f,\sigma^2)}{\partial\sigma^2}\frac{d\sigma^2}{dc}<0 \qquad (5)$$

Even if without any external insurance, with son preference one's own available resources are allocated more towards males than females. However, the effect is not transmitted through reduced volatility of resources. Combining Proposition 3 and Proposition 4, even if both boys and girls suffer equally from frequent ceremony shocks, part of the negative impact due to fetal origins effect may gradually disappear for boys while lasting longer for girls, since both one's own resources and resources from insurance network tend to be allocated to males. Whether

[1] However, we cannot rule out the possibility that if the average health status μ is small enough, smaller variance of the health status σ^2 due to mutual insurance could lead to more cases of stunting.

the overall squeeze effect is relatively more favorable to males or females is something we test empirically.

Propositions 1 through 4 do not consider whether ceremony shocks occur before birth or after birth. Squeeze effects should not display gender bias before birth if any of the following two cases applies: (1) Ceremony shocks are not large enough for the fetal origins affect to distinguish gender difference and if no gender selection technology is available to households; (2) gender bias in resources allocation exactly cancels out the fetal origins effect. Otherwise, we should observe an overall effect of gender bias interacting with ceremony shocks before birth.

Considering ceremony shocks after birth, gender bias and fetal origins effects push health outcomes in different directions. If biased resources allocation due to son preference is larger than the fetal origins effect, we should observe a negative impact of ceremony shocks on females. If we further assume that the fetal origins effect is not large enough to show gender bias, the estimated effect of gender bias will exclusively point to son preference.

3. Empirical Strategy

3.1 Reference Group and Relative Status/Deprivation

Relative income affects well-being. [2] The literature has often referred to *keeping up with the Joneses* in high-income groups.[3] However, it is widely documented that poor people also allocate scarce resources to social expenditure.[4] Context-specific, social spending possesses the following two important features: first, it is more visible than other categories of consumption; second, a subset of social spending (namely positional spending) reflects concern for relative

[2] Though put forward in the seminal work of Veblen (1899), economics has been focusing on absolute well-being. Duesenberry (1949) brought forward relative income hypothesis. Since the 1970's, compelling evidence on relative concern has been accumulated (Easterlin, 1974; Sen, 1983; Frank, 1985; Van de Stadt et al., 1985).

[3] For example, Frank (1997) notes that in the US counties with high income inequality, intense competition for social status leads to higher median housing prices, higher personal bankruptcy rates, and a higher incidence of divorce. Bowles and Park (2002) find that total working hours were positively associated with higher inequality in OECD countries over time. Frank, Levine and Dijk (2010) further find that relative concern could well explain the link between inequality and observed disparities in international savings rates.

[4] Evidence from designer-label goods consumption in Bolivia (Kempen, 2003), lavish festivals in India (Banerjee and Duflo, 2007), "splendid" funerals in Ghana (*The Economist*, 2007) and South Africa (Case et al., 2008), relative deprivation and migration in Mexico (Stark et al., 1991), soaring bride-prices and dowries in south Asia and Africa (Rao, 1993; Dekker and Hoogeveen 2002), marriage payments in Bangladesh (Anderson, 2007), and community level consumption in Nepal (Fafchamps and Shilpi, 2008) show strong support for relative concern. Fafchamps and Shilpi (2008) further notice that isolation from market is associated with a significant increase in relative concern.

standing. Two things are essential in capturing relative standing and estimating the effect of positional concern: the definition of reference groups and the measures of relative standing.

Reference group can be defined quite differently depending on the specific context. In a developed society, information flow is fast and efficient, so it is difficult to define reference groups. However, in an impoverished region poor public infrastructure impedes resource flow, and the local norms usually strengthen reciprocity within traditional communities. These differences facilitate a much improved definition of the reference group. Moreover, in our surveyed region the special geographic condition, *Karst* landform, local residents in natural villages are largely isolated from outside in daily connections. In contrast to an administrative village that holds the lowest level bureaucratic entity in China and includes several natural villages, a natural village is spontaneously and naturally evolved over a long time period. Therefore, natural village is adopted as the reference group in our study.

One is deprived if others in the group possess something that one does not have. However, agent-specific relative status/deprivation is not captured by the conventional community-specific inequality measures. In this paper, relative status/deprivation is defined by two indicators: the rank-Gini interaction and the Deaton relative deprivation index. The interaction between relative status and ceremony frequency (and intensity) serves as the key variable that identifies heterogeneous squeeze effect for the distribution. The index is similar in spirit to Frank, Levine and Dijk (2010) and Hopkins and Kornienko (2004).[5]

In the rank-Gini interaction, rank refers to household economic rankings in the local village. The census nature of the survey helps us locate rankings for each household accurately. The interaction between Gini and rank incorporates both overall inequality measures for the community and household-specific locations in the distribution. However, the rank-Gini interaction does not include information on actual income differences, which leads to our usage of another relative status/deprivation index – the Deaton index.

[5] Frank, Levine and Dijk (2010) define "Expenditure Cascade" in an economy where every agent judges own behavior based on others closest above them. 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 their fellow residents triggers a competition for status that extends all the way down to the bottom of the distribution. Moreover, Hopkins and Kornienko (2004) relate positional spending to a measure of income inequality, which pave the way for us to empirically identify status seeking and social influences.

The Deaton relative deprivation index (2001) originated from Yitzhaki (1979) and Wildman (2003). The level of deprivation experienced by an individual i with income y relative to another individual with income z is formulated as,

$$D(i;y) = z - y \quad \text{if } y < z \quad \text{or}$$
$$D(i;y) = 0 \qquad \text{if } y \geq z \tag{6}$$

Based on this form, one would feel more deprived as the number of individuals in society with higher income increases. Thus, an overall measure of deprivation for the individual i is given by summing the differences in income and weighting it with the proportion of people with higher income than the individual i. Deaton (2001) proposes a measure of relative deprivation for an individual *i* with income x at the provincial level and stratifies it by urban and rural regions:

$$(1/\mu)\int_{x}^{x^T}(y-x)dF(y) \quad \text{or} \quad (1/\mu)[1-F(x)][\mu^{+}(x)-x] \tag{7}$$

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 higher than the individual with income x. The Deaton measure is the normalized difference between average income of those with higher income and income x weighted by the proportion of those with income higher than the individual i.

Many relative status/deprivation measures tend to overstate relative status/deprivation of individuals in high-income reference groups. This could be a very important issue when incomes differ substantially across groups or when a panel dataset is used to measure relative status/deprivation over time. The Deaton index takes into account differences in the scale of income distribution across groups. In other words, unlike some other status/deprivation measures such as deprivation of absolute income (RDA) (Li and Zhu, 2006) Deaton index will not automatically double if everyone’s income doubles.

3.2 Health Outcome Measures

Our study is built upon the research on early health development. In research on child nutrition, the idea that environmental conditions in a certain sensitive period of life may have long-run, irreversible effects is known as "critical-period programming". When a fetus suffers malnutrition, the resulting stress can induce irreversible adaptations to the hunger environment that alter its permanent ability in later life to adjust to improved nutritional opportunities. In the long run, the mal-adaptation can lead to negative health outcomes in later stages of life (Barker and Osmond, 1986; Barker et al., 1989; Godfrey and Barker, 2000).

Teasing out the causal impacts of nutritional shocks at different points in the lifecycle is difficult given the strong correlation of deprivation across the vulnerable periods in the lifecycle (Glewwe and King, 2001). Fortunately, studies have argued that the period after weaning from breast milk until age 24-36 months may be critical, as protection from the mother during pregnancy and breast-feeding ends. For example, malnutrition between 1 and 2 years (versus the first year of life) has a stronger relationship with cognitive development in the Philippines (Glewwe and King, 2001). Physical growth falters between one and two years of age (but not for cohorts who were between two and five years old at the time) for cohorts born during a drought in rural Zimbabwe (Hoddinott and Kinsey, 2001). The potential for an individual stunted in the first few years of life to "catch up" is limited (Martorell, 1995).

Moreover, sometimes it is difficult to judge a priori whether prenatal or postnatal exposure is more influential simply because different aspects of early development are subject to different processes. For example, early postnatal exposure to Pandemic influenza apparently had a larger impact on hearing than did prenatal flu exposure (Heider, 1934). Mental health conditions and non-cognitive skills seem to have large and persistent effects independent of those captured by measures of child health at birth (Almond and Currie, 2011). Thus, we emphasize that our study is to evaluate squeeze effects on height-for-age and stunting status.

Underweight and stunting are frequently used to measure malnutrition. However, long-term malnutrition status is better characterized by stunting than underweight, as height-for-age (HAZ) captures long-term impact of malnutrition on general health status of the population, while we cannot easily disentangle short-term impact of malnutrition from long-term impact if weight-for-age (WAZ) is used.

The main health outcomes are measured in both binary and continuous indicators. Height-for-age z-score is used in OLS estimations, while stunting status in both the CDC and the WHO standards are estimated in logit regressions. As a complement, underweight status based on the WHO standard is also estimated in a logit model.

Throughout the evaluation, we define that early childhood ends at age five. This definition offers both advantages and disadvantages over analyses that focus on the prenatal period. Mortality is substantially lower during early childhood than *in utero*, which reduces the scope for selective attrition caused by shocks that affect the composition of survivors. However, it is unlikely that environmental sensitivity during early childhood tapers discontinuously at any precise age (including age five). Therefore, we should keep in mind that we cannot make sharp temporal comparisons of a cohort exposed to social events shocks to a neighboring cohort unexposed by virtue of its being too old to be sensitive (Almond and Currie, 2011).

3.3 Empirical Model

The measure of nutritional status and health outcomes is an argument in the welfare function of a household (Behrman and Deolalikar, 1988; Strauss and Thomas, 1995, 2008). Well-being should be improved as nutritional status improves. Decisions that parents make about resources allocation during early child development are constrained in several ways, such as income, time, food prices, health facilities, genetic make-up, and knowledge and skills. Maximizing the household welfare function subject to these constraints generates first-order conditions that yield a reduced-form child nutritional and health demand function:

$$\begin{aligned} Outcome_{ijt} &= \alpha RD_{j,t=1} * CAB_{j,t=1} + \beta RD_{j,t=0} * CBB_{j,t=0} + \gamma_0 RD_{j,t=1} + + \gamma_1 RD_{j,t=0} \\ &+ \gamma_2 CAB_{j,t=1} + \gamma_3 CBB_{j,t=0} + \alpha_c \cdot C_{ijt} + \alpha_p \cdot PCG_{jt} + \alpha_a \cdot A_{jt} + \alpha_p \cdot p_t + \alpha_h \cdot H_{jt} + \alpha_s \cdot S_{jt} + \varepsilon_{ijt} \end{aligned} \quad (8)$$

where $Outcome_{ijt}$ denotes child i's nutrients intake and health status in household j at time t. RD_{jt} denotes relative status for household j. C_{ijt} is a vector of child i's characteristics, including age, sex and birth order (robustness check). PCG_{jt} is a vector of characteristics of the principal care giver, involving household head sex, education, ethnicity, cadre status, father's height and mother's height, and major shocks. A_{jt} captures household j's predicted wealth. p_t denotes a vector of local food prices. H_{jt} is a vector of local health facility characteristics, such as distance to the closest clinic center. Other household characteristics, including share of youth, share of the elderly, household size, and share of migrants, are controlled. The estimations with village and year fixed effects are clustered at the mother level.

Two time periods are critical in the identification of squeeze effect: the fetal period (t=0) and the period after birth (t=1). $CBB_{j,t=0}$ is household j's peer ceremony frequency before birth. Similarly, $CAB_{j,t=\gamma}$ is household j's peer ceremony frequency after birth. Besides the scenario that incorporating all ceremonies to identify squeeze effect, we also use fellow villagers' funeral ceremonies to mitigate the endogeneity concern. Estimation results under both definitions are presented in the main results.

From the two-year old cohort onwards, children experienced at least two years social events shocks, different weighting strategies are adopted: one way is to use Almon (1965) lag to discount more distant shocks; another way is to only account for shocks one year before and after birth; a third way is to add up all shocks over years without discount. Both $RD_{j,t=0} * CBB_{j,t=0}$ and $RD_{j,t=\gamma} * CAB_{j,t=\gamma}$ measure squeeze intensity.

The hypothesis to be tested is whether both α s and β s are significantly positive (negative) when the outcome variables are stunting / underweight (height-for-age z-score / food diversity / nutrients intake), suggesting ceremony shocks bias towards the lower tail of the distribution. A comparison of the magnitude and significance between α and β informs us whether social events shocks bias towards the fetal period.

An accurate identification of squeeze effects relies on considering one's closeness to fellow villagers. Other than peers' ceremony frequency at the natural village level, three household level idiosyncratic indicators of ceremony intensity are adopted: First, we define it as frequency of peers' ceremonies weighed by whether the family is under the major surname(s) in the local village. It is assumed that fellow villagers belonging to large surname networks experience more pressure in attending ceremonies in the village; second, it is defined as frequency of peers' ceremonies weighed by the ratio of ceremonies organized by one's blood relatives to the maximum blood relatives' ceremonies among all fellow villagers in 2006 and

2009. We assume that the fellow villager with the largest blood relatives' network actively participates in all ceremonies in the natural village, while other villagers proportionally attend fewer ceremonies; third, we define it as frequency of peers' ceremonies weighed by the ratio of ceremonies organized by one's blood & distant relatives to the maximum blood & distant relatives' ceremonies among all fellow villagers in 2006 and 2009. The assumption follows the second ceremony intensity measure but extends to the blood & distant relatives' network.

To explore the relative intensities of squeeze effects for among age cohorts, the status & ceremony interactions for each cohort before and after birth are identified in the main evaluation equation (8) via a series of status-events-cohort triple interactions. The resulting specification takes the following form (9), where $1_{[1,5]}(cohort_\gamma)$ denote a series of indicator functions for age cohorts 1-5. They are equal to one for the relevant age cohorts $cohort_\gamma$. Each α identifies the relative squeeze effect for each age cohort after birth, while each β identifies the relative squeeze effect for each age cohort in the fetal period.

$$Outcome_{ijt} = \sum_{\gamma=1}^{5} \alpha_\gamma 1_{[1,5]}(cohort_\gamma) * RD_{j,t=\gamma} * CAB_{j,t=\gamma} + \sum_{\gamma=1}^{5} \beta_\gamma 1_{[1,5]}(cohort_\gamma) * RD_{j,t=0} * CBB_{j,t=0} + \dots$$
$$+\alpha_c \cdot C_{ijt} + \alpha_p \cdot PCG_{jt} + \alpha_a \cdot A_{jt} + \alpha_p \cdot p_t + \alpha_h \cdot H_{jt} + \alpha_s \cdot S_{jt} + \varepsilon_{ijt} \quad (9)$$

An alternative specification (10) for evaluating relative intensities of squeeze effects is also adopted in the main specification (8) that does not hinge upon how social events are weighted for each age cohort between birth years and the time of the survey.

$$Outcome_{ijt} = \sum_{\gamma=1}^{5} \alpha_\gamma 1_{[2005,2009]}(yr_\gamma) * RD_{j,t=\gamma} * CAB_{j,t=\gamma} + \sum_{\gamma=1}^{5} \beta_\gamma 1'_{[2005,2009]}(yr_\gamma) * RD_{j,t=0} * CBB_{j,t=0} + \dots$$
$$+\alpha_c \cdot C_{ijt} + \alpha_p \cdot PCG_{jt} + \alpha_a \cdot A_{jt} + \alpha_p \cdot p_t + \alpha_h \cdot H_{jt} + \alpha_s \cdot S_{jt} + \varepsilon_{ijt} \quad (10)$$

where $1_{[2005,2009]}(yr_\gamma)$ denote a series of indicator functions for after-birth years, while $1'_{[2005,2009]}(yr_\gamma)$ is a series of indicator functions for before-birth years. They are equal to one for the relevant age cohort(s) in specific years yr_γ. Concerning after-birth events, ceremonies in 2009, for example, affect all five age cohorts. However, ceremonies in 2005 only affect the five-year old age cohort. Considering before-birth events, ceremonies in 2009 only affect the one year old cohort, while ceremonies in 2005 only affect the five-year old cohort. Therefore, each

α identifies yearly relative squeeze effect for relevant age cohort(s) combined, while each β identifies the relative squeeze effect for each cohort in the fetal period.

It is straightforward to see that β s in (9) and (10) identify the same effects, while α s identify different effects. In specifications (9) and (10), the coefficients of the triple interaction terms tells us how each year's squeeze effect and each cohort's squeeze effect differ from other years and cohorts. Specifically, $\alpha > 0$ and/or $\beta > 0$ means that the corresponding cohort/year squeeze effect is significantly larger than other cohorts'/years' squeeze.

3.4 Data

The dataset for this study comes from three waves of census-type rural household survey conducted by ourselves in three administrative villages (including 18 natural villages) in Puding County, Western China (Table 1a).[6] Though a median level county in Guizhou, Puding doubles the national average in poverty rate (Table 1b). It is both geographically and ethnically diversified due to its unique Karst landform separating people from outside and 20 ethnic minorities living in the county, including Han, Miao, Buyi, Gelao, and Yi. In total, ethnic minorities comprise about 20% of population. These features uniquely facilitate natural villages, natural communities that evolved without political command but geographic conditions, to be well-defined reference groups.[7]

The first wave survey included all 801 households at the beginning of 2005. The survey collected detailed information on household demographics, income, consumption, transfers, expenditures and incomes related to gift-giving, weddings, funerals, and blood donation. Most information was collected for each household member, including those who were working outside the county at the time of survey. A follow-up survey of the same households was administered in early 2007 and 833 households was interviewed. In January 2010, the third wave follow-up survey was conducted and 872 households were interviewed.

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[6] This survey was jointly conducted by the International Food Policy Research Institute (IFPRI), Chinese Academy of Agricultural Sciences (CAAS), and Guizhou University.

[7] Because of isolation from outside, people know each other well. On average most residents have some kinship relations within a natural village. For several natural villages of ethnic minority groups there are strong links across them, therefore we combine those natural villages.

During the third wave, information on a three-day food intake for all family members was collected. The work was implemented two month before the major festival in China, purging the influence of public holiday. As a complement, in all three waves data on annual food consumption was also collected. Health indicators, such as height and weight, were also surveyed. However, weight-for-age seems to suffer from more measurement error in our survey data compared with height-for-age, since the third wave took place in harsh winter during which local people wore heavy clothes and this factor is not easily estimated.

Throughout the three-wave survey, it is observed that household spending on gifts and festivals accounts for a large proportion of consumption (Table 1b and Figure 1), while their major nutrients intake is below the minimum official recommended level (Table 1c). The surveyed households could eat more and eat better via spending less on social events, but they did not. Ceremonies contribute (Table 2) to the resources competition between social events and basic consumption. It is suspected that this trend is due to the recent surge in income inequality coupled with a large population in poverty. Shown in Table 1b, the Gini coefficient has been increasing from 0.43 in 2004 to 0.55 in 2009, and at the same time 22.4 percent of the population is below the $0.37/day (equivalent to 892RMB/day) local official poverty line (Table 1b). The former might motivate the rich to spend lavishly in social events and the poor to follow the norm, while the later drags people to below the cut-off line of basic consumption.

The stunting rates for cohorts 1-5 are reported in Table 3. Both WHO standard and CDC standard show severe stunting status. The summary statistics of major long-term health outcomes for 1-60 month children are presented in Appendix A. Table A-1 through Table A-4 show height-for-Age Z-score, stunting and underweight status grouped by ceremony frequency, income group and gender.

4. Empirical Results

4.1 Main Findings

The persistent characteristics of children that could plausibly be thought to be determined are those having to do with their crucial stages in physical development (especially *in utero*) that can have long-lasting consequences. Table 4 presents main results for squeeze effects before and after birth on mid-term and long-term child health outcomes. The odd columns use variation in peers' all ceremonies frequency interacted with relative status to measure squeeze intensity, while the even columns only use peers' funeral frequency to interact with relative status. The coefficient for interactive terms before birth is significant for height-for-age z-score, stunting and underweight status, suggesting that squeeze effects widely exist and bias towards to lower tail of the distribution. Strikingly, 64.6% of the sampled households suffer from net squeeze effect during the fetal period on lower height-for-age z-score. 33.3% and 39.2% of the sampled households suffer from net squeeze effect on underweight and stunting, respectively. The after-birth squeeze is salient for stunting, while it is largely insignificant for height-for-age z-score and underweight.

Other results on Height-for-Age Z score, stunting and underweight include: children from ethnic minority households, households with lower income, male head, lower share of the elderly, shorter mother, and households suffer from other major shocks are more likely to be associated with poor health outcomes.

We then ask the question how the poor health outcomes are distributed among 1-5 age cohorts and during the years 2004-2009. Table 5a (applying specification (9)) and Table 5b (applying specification (10)) attempt to shed some light on the two issues. Table 5a allows non-linear squeeze effect for different age cohorts. The triple interactions among age cohorts, relative status and funeral frequency demonstrate the intensity of squeeze effects relative to other age cohorts. It is shown that age 1-3 demonstrate stronger squeeze effect in the fetal period than age 4-5 on Height-for-Age z-score. The non-linear models in Table 5a have lower AIC values than the corresponding linear model in Table 4, suggesting that the model allowing age difference in squeeze effect fits the data better. Appendix B replaces the continuous dependent variable – Height-for-Age z-score - by a binary variable indicating stunting according to the WHO standard as well as the CDC standard. The results are very similar. Figure 2 plots the probability of stunting on status & ceremony interaction grouped by each age cohort. The slope of the curves is the steepest for cohort 1, suggesting stronger squeeze effect on its stunting status.

Alternatively, Table 5b allows non-linear squeeze effect for different years. Relevant age cohorts are combined in each year. The triple interactions among years, relative status and funeral frequency show the intensity of squeeze effects relative to other years. Years 2006-2008 show stronger squeeze effect in the fetal period than years 2005-2006 on Height-for-Age z-score. However, the corresponding AIC values are much higher than Table 5a under specification (9).

Overall, after controlloing for a full set of double interactions that capture unobserved heterogeneity, the triple interactions in both Table 5a and Table 5b tell us that the squeeze effects are long-lasting but gradually decaying after three years. The results are robust to the definitions of events (all ceremonies or only funerals), the health standard used (WHO or CDC), and relative status indicators (Deaton RD or Rankgini interaction).

4.2 Some Extensions

Is there a gender bias when families are faced with frequent ceremonies that extract scarce resources? The ceremony shocks are hypothezed to bias towards girls for a combination of the two possibilities: one, parents may have preference over boys in food allocation. In this case even if both boys and girls suffer equally from ceremony shocks, the negative impact may gradually disappear for boys while last for girls; two, the fetal origins effect due to ceremony shocks may not be large enough to demonstrate gender bias that might occur in great famines (Mu and Zhang, 2011).

In Table 6, scenarios R1-R3 combine boys and girls aged 1-5 and present results for the interactive effect of peers' funerals and gender on height-for-age Z-score and stunting under both the WHO standard and the CDC standard. Height-for-age Z-score and stunting under the WHO standard show significant after-birth squeeze for girls relative to boys, while the effect is insignificant for the prenatal period. Considering the fact that sex selection technology is not available to most local households, it confirms the reliability of our results. The separate estimations by gender in R4-R5 find weak but significant squeeze for girls but not for boys. Compared to the more salient before-birth squeeze pattern in the main results, we believe the gender bias dominates the potential fetal origins effect. However, the size of children aged 1-5 in our sample is small, therefore we should keep this data limitation in mind when interpreting the result.

To address the concern that funeral frequency in a natural village may not equally press all households, the second extension replaces peers' funerals frequency at the natural village level by three funeral intensity measures. All three weighting strategies aim to capture idiosyncratic pressure from peers' at the household level, since we believe that its actual impact depends on one's "closeness" to fellow villagers. "Closeness" can be defined according to one's affiliation with different groups.

First, specifications R1-R3 use surname network to weigh funeral frequency. Results show that the weighted prenatal squeeze effect significantly determines higher stunting probability, while the effect is not significant for height-for-age z-score. Second, Specifications R4-R6 use blood relatives' network to weigh funeral frequency. The weighted prenatal squeeze effect significantly determines lower height-for-age z-score and higher stunting probability. It is noted that the after-birth squeeze weakly determines stunting status, suggesting that it matters to some degree. Third, specifications R7-R9 use blood and distant relatives' network to weigh funeral frequency. Results suggest that the both prenatal and postnatal squeeze effect determine lower height-for-age z-score and higher stunting probability. These findings stress the crucial role of the fetal origins effect in early child development.

4.3 Robustness

After presenting results on the squeeze effect that shows its causal link with early child malnutrition, extensions have been conducted to check robustness of the main results via allowing for non-linear squeeze effects for different age cohorts and years, using both the WHO and the CDC standards, applying definitions of social events and relative status, and adopting different reference groups. In this section, we consider a series of further concerns that might call robustness into question. These results are available upon request.

One concern is that we do not control for birth order.[8] In the literature, higher order children are more likely to suffer from malnutrition due to competition with siblings for resources, maternal depletion and higher rate of infection, and gender discrimination (Das

[8] The reason that we do not include birth order in main estimations in the first place is that there is self-selection concern for birth order.

Gupta, 1987; Horton, 1988). To check the possibility that birth order drives malnutrition status, we re-estimate the main model with birth order. The squeeze effect increases slightly, while birth order is largely insignificant.

A second concern is that children's growth velocity may slow with age. We address the concern by replacing child age with its logarithmic term in the main settings. The squeeze effect becomes even more significant, while the logarithmic age term is significant. Age and squared age are tested in another setting with similar results. However, this latter setting imposes a curvature that might be too pronounced. Overall, both settings suggest that decreasing growth velocity fits the data.

To address the possibility that boys and girls have significantly different curvatures regarding the relationship between age and z-score, when separately estimating the determinants of health outcomes, the correspondent logarithmic age terms are compared. We find that the height-for-age z-score is weakly increasing in boys' age (at the 10% confidence level) but at a decreasing rate, while it is not significant for girls. This strategy is less restrictive in functional form and improved upon Alderman et al. (2006) that only interacted child age with gender. Our variable of interest - the squeeze effect - is unchanged.

An additional concern is that linearity is imposed in the above estimations, while it is plausible that social events affect nutritional status in a log-linear way. Since height-for-age z-scores are positive and negative, we explore this possibility by transforming the scores into percentiles of international references and take the logarithm of the percentile. The log-linear setting still generates a significant squeeze effect, and the same applies when we use semi-log form where either height-for-age percentile or funeral frequency enters as a level variable.

Our squeeze effect estimations for 1-5 age cohorts may suffer from attrition bias if particularly unhealthy children died prior to 2009, children were absent during our survey, or selective migration existed. To the first potential bias, we believe that social events should not be strong enough to deprive nutrients intake to the extent of differential mortality for 1-5 age cohorts.[9] Evidence shows that even for high mortality populations, the impact of mortality selection is minimal (Pitt and Rosenzweig, 1989). Moreover, if information on those children is

[9] However, we should admit that due to the small sample size restricted to a certain region, we are not able to run a regression on the size of each age cohort and test for potential attrition bias.

missing, our estimates of the squeeze effect based on surviving children will be biased downwards, since higher mortality leads to healthier survivors due to the fact that the *selection effect* overwhelms the *scarring effect* (Pearson, 1912; Bozzoli et al., forthcoming).

Concerning the second potential bias, our survey team managed to visit each household several times and during a major festival when all children were present. The third bias is avoided since very few cases in our sample show parents migrated out to work accompanied by their children, because schooling and living expenses are very expensive in urban area. Grandparents normally take care of the left-behind children. For these reasons, the potential selection bias is not further addressed, and the estimation results can be interpreted as ceremony shocks on malnutrition status of survived children.

Finally, unlike social events, other major shocks are generally not status sensitive. We test a specification in which other major shocks are interacted with relative status, but the squeeze effect still holds.

5. The Mechanism

Poor health outcomes in an impoverished context during early childhood are very likely to be associated with insufficient nutrients intake. In our context, due to the poor market access to nutrients and competition for scarce cash between social events spending and food consumption, several necessary nutrients are observed insufficiently consumed. Among them, protein and calories are especially insufficient. On average, a respective 65.3% and 87.2% of people consume insufficient calories and protein, and the average ratio of their intake to the minimum recommended levels are 93.8% and 72.5%, respectively.

The test for this potential pathway through which social events harm health outcomes is presented in Table 8. In R1-R4 we confirm the squeeze effect on calories and protein intake, especially for the households of lower rankings. Meanwhile, as direct evidence of squeeze effects, in R5-R6 seemingly unrelated regressions (SUR) on the determinants of expenditure shares, including food and social spending, are conducted. The three-wave estimation on food consumption confirms that peers' frequent funerals drag down food expenditure but raise the share of social spending, which is consistent with the three-day short term nutrients data.

In most cases villagers have perfect information on coming social events. Given that, through three potential channels households' food consumption might respond to future events. First, anticipating ceremonies tomorrow, people smooth nutrients intake by eating less and at lower quality before the events. Second, anticipated large gift expenditure in the future may lead to lower food consumption today to save money or engage in health compromising behavior (Brown et al., 2011). Third, much food is often wasted during ceremonies, squeezing out already insufficient local food supply. Therefore, the first two channels work essentially through reallocating nutrients intake at the household level, while the third channel takes effect through aggregate supply.

It is true that gift spending has the reciprocal nature that people spend today but get repaid tomorrow. However, tomorrow often means years later when the gift presenter hosts social events. In the context without financial markets to insure risks and smooth consumption, large expenditure for the poor today will probably leave a gap unfilled unless other basic expenditures are cut. Moreover, the gift price is bidding up over time, leaving a host today notably larger commitments tomorrow.

In the case of prenatal squeeze effect we are exploring so far, two contrasting phenomena are simultaneously observed: lavish social events and insufficient nutrients intake. The resulting impact is severe and in some cases even irreversible. Why do not local residents improve their well-being simply by reallocating resources from social events to food?

The question is essentially similar in Kenya, where children who were given de-worming pills in school went to school longer and later earned much more. In Tanzania, children born to mothers who received sufficient amounts of iodine during pregnancy completed more schooling. If every mother took iodine capsules, there would be a large increase in the total educational attainment of children in Central and Southern Africa. In Indonesia, iron supplements enabled adults to work harder and significantly boosted income. They cost little compared to the wage gain for the self-employed. All these studies conclude that there is a substantial increase in lifetime productivity. However, as Banerjee and Duflo (2011) asked, if the gains are so obvious and the cost is little, why do not the poor eat better?

One possibility is that they do not believe it will matter, but this definitely does not explain every case. Another possibility is that people may not realize the value due to the lack of information. This might explain part of the story. Similar to the effect of de-worming pills, iodine capsules and iron supplements in improving well-being in the far future, prenatal squeeze effect takes much time to be possibly apparent. Effective interventions should be conceived to effectively inform people this consequence.

However, the local norm has been evolving throughout the history. As outsiders, we cannot a priori assume our logic fits the environment better than the insiders without exploring the motives for spending lavishly in social events. Chen and Zhang (2011) find that concern for status plays an important role when the consequence of falling behind is grave. For example, families with unmarried son are more likely to be active in social spending as they need to build bigger houses, bid up bride price, and throw larger wedding banquet in order to improve their sons' likelihood of marriage in the increasingly tightening marriage market. Moreover, large windfall income intensifies status competition, escalating gift giving behavior. Further, the prevalence of peer influence amid a closely connected community compels people to follow. More evidence is needed to understand the motives behind.

6. Conclusions

Poor households in developing countries have devoted a large proportion of resources on social occasions. Due to the competition for scarce resources between social events and basic consumption, lavish social spending leads to long-lasting negative consequences on well-being, such as malnutrition during early child development.

China has one of the highest shares of household social spending and one that is increasing very fast. This paper uses unique data from an impoverished region in rural China to explore the consequences when social events squeeze crucial stages in early physical development (especially *in utero*). Our surveyed villages are isolated from outside due to the unique geographic condition, which enables definition of reference groups along village boundaries.

We find that frequent social events/funerals organized by fellow villagers lead to lower height-for-age z-score, higher probability of stunting and underweight for children aged 1-5.

The squeeze effect is much stronger towards the lower tail of the distribution, and is more salient for prenatal social events but generally not true for after-birth ceremonies. The squeeze effects are much stronger for 1-3 age cohorts than 4-5 age cohorts, since their exposure to before-birth events and recover period differ. They are also more salient for between 2007 and 2009. Gender bias in squeeze effect is more pronounced after birth when child sex is revealed.

An accurate identification of squeeze effect relies on the actual peer group that exerts influence over one's behavior. Apart from village boundaries, three alternative peer groups are utilized, i.e., surname network, blood relatives' network and blood & distant relatives' network. Our main results are confirmed.

Finally, the potential pathways through which squeeze effect affect early child physical development are explored. Estimations using short-term observations on nutrients intake confirm the squeeze effect on calories and protein intake, especially for the households of lower rankings. Meanwhile, simultaneous estimations using subcategories of monthly consumption data confirm that peers' frequent events drag down food expenditure but raise the share of social spending, which is consistent with the three-day short term nutrients data.

These findings provide evidence for the negative externality of household social spending and suggest more efficient policy interventions that target the pregnant in households located at the lower tail of the distribution.

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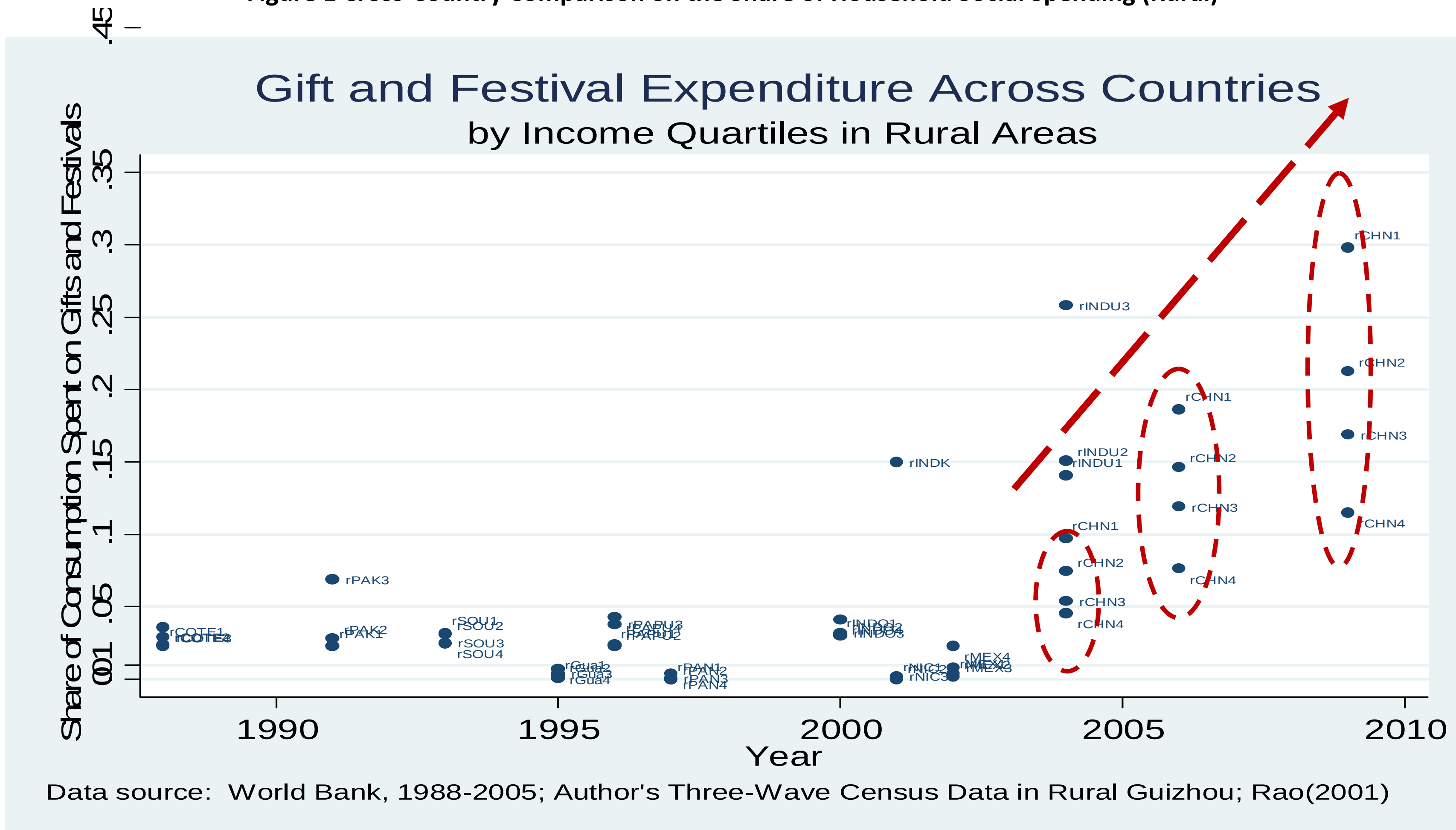
Figure 1 Cross-Country Comparison on the Share of Household Social Spending (Rural)

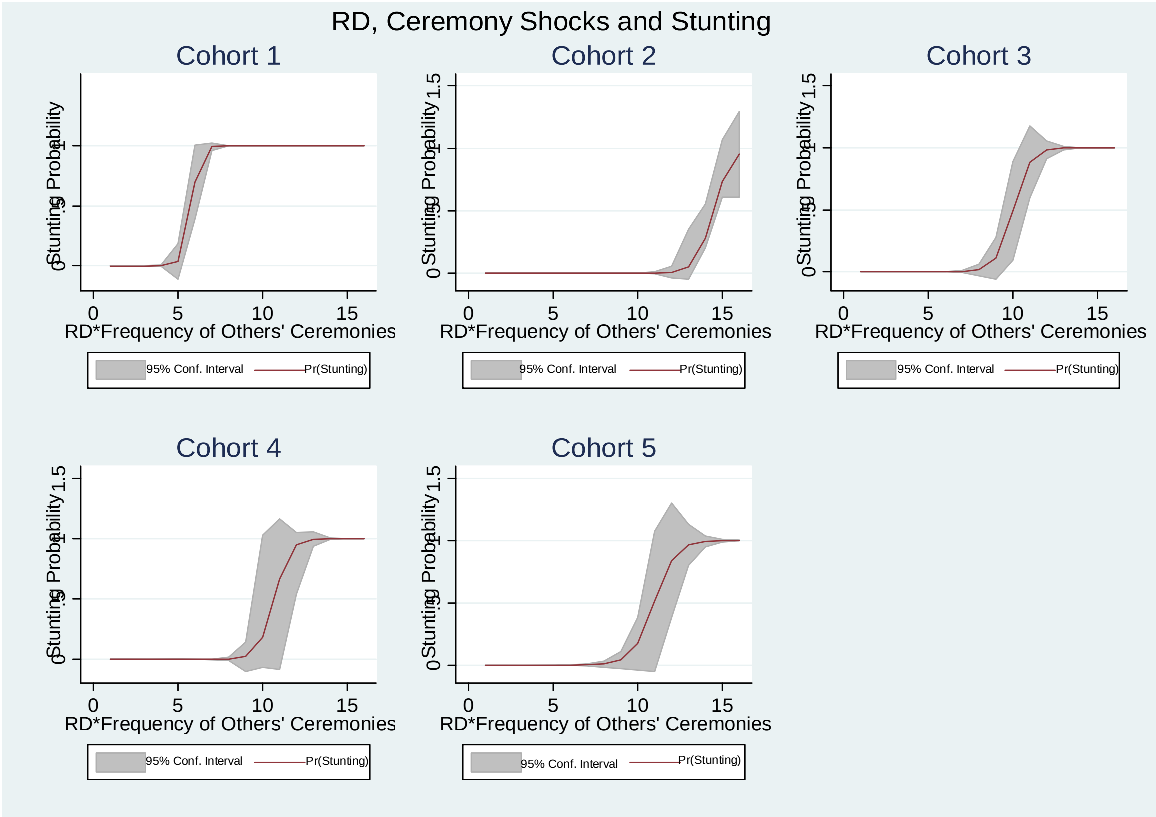


Notes: 1. The categorization for rural China (rCHN1, rCHN2, rCHN3, rCHN4) is based on the same four quartiles as other datasets, i.e. less than $1 per day (denoted as "1"), $1-$2 per day (denoted as "2"), $4-$6 per day (denoted as "3") and $6-$10 per day (denoted as "4"). The poverty lines are adjusted according to 2005 PPP rate from http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp.

2. Notation: CHN: China, Gua: Guatemala, INDU: India-Udaipur, INDO: Indonesia, INDK: India-Karnataka, COTE: Cote d'Ivoire, MEX: Mexico, NIC: Nicaragua, PAK: Pakistan, PAN: Panama, PAPU: Papua New Guinea, SOU: South Africa, INDH: India-Hyderabad. "r" denotes rural area.

3. The dashed circle and the arrow show rapid increase in the share of gift and festival expenditure in our three-wave Guizhou survey.

Figure 2 Squeeze Effect and Probability of Stunting



Notes: The squeeze effect is measured by the interaction between Deaton relative deprivation and funerals frequency.

Table 1a Summary Statistics by Three Administrative Villages

	Village 1	Village 2	Village 3	Total
Number of natural villages	9	5	4	18
Distance to county seat (km)	10	8	2.5	6.8
Number of households	257	151	393	801
Total population	1089	535	1449	3073
Share of minority households (%)	76.6	12.6	6.7	30.8
Share of household members aged 60 and above (%)	14.2	17.9	12.5	14.1
Share of households with migrants (%)	30.7	55	43.3	41.4
Share of household members who migrate (%)	12.3	13.5	12	12.4
Male head of household (%)	93.5	94.8	91.6	92.8
Education of household head (years)	2.87	3.06	3.98	4.44
Household average year of schooling	2.19	2.67	3.67	2.97
Per capita cultivated land (mu)	0.87	0.86	1.1	0.98
Percentage of flat land (%)	40	20.7	80	53.4
Land rental rate (Yuan per mu)	30	50	100	60
Share of households with TV (%)	39.3	39.7	61.6	50.3
Share of households with bicycles or motorcycles (%)	2.3	3.3	19.3	10.9
Share of households with phones (%)	8.9	15.2	23.4	17.2
Having difficulty with access to drinking water	79.4	80.1	39.2	59.9
Share of households with local non-farm jobs (%)	49.5	43.7	66.5	56.6
Share of households with self-employment (%)	7.4	3.3	7.4	6.6
Share of households with blood donations (%)	40.9	29.1	19.6	28.2

Table 1b Summary Statistics: Poverty, Inequality and Consumption by Three Administrative Villages (2004-2009)

	Admin Village 1			Admin Village 2			Admin Village 3			Total		
	2004	2006	2009	2004	2006	2009	2004	2006	2009	2004	2006	2009
Per capita annual income (RMB)	1009	1111	1262	1274	1638	1655	1749	2420	2442	1404	1817	1907
Income inequality (Gini)	42.4	45.3	46.5	42.3	52.0	61.8	40.2	42.8	50.9	43.1	48.2	55.2
Income below high poverty line of 892 RMB (%) (P0)	54.1	52.5	30.7	41.1	44.1	33.3	23.4	21.1	13.1	37.3	36.3	22.4
poverty-gap below high poverty line (P1)	22.4	23.3	13	15.8	17.9	16.1	8.1	7.5	6.1	14.5	15	10.1
squared poverty-gap below high poverty line (P2)	12.2	13.6	7.8	7.7	9.6	10.5	3.9	3.7	4.2	7.5	8.3	6.4
Main consumption (Percent)												
Food	53.8	51.1	48.1	47.1	42.9	36.5	45.4	38.5	34.3	47.8	42.2	35.5
Clothing	4.4	4.4	4.6	3.1	3.7	4.1	4.0	4.9	4.1	4.0	4.6	4.2
Fuel	5.9	6.4	6.7	5.4	6.9	7.3	10.2	9.5	8.0	8.4	8.3	7.5
Telephone	1.1	2.1	5.3	1.3	2.4	3.8	1.5	3.5	6.4	1.4	3.0	5.5
Medical care	14.1	16.7	15.1	24.7	16.8	16.9	15.2	15.2	11.2	16.4	15.8	13.5
Education	9.0	10.0	9.6	7.9	12.2	14.0	8.8	12.3	14.1	8.7	11.7	12.9
Gift and festival spending	**6.4**	**9.2**	**10.1**	**6.8**	**13.9**	**16.1**	**8.9**	**15.9**	**17.5**	**7.9**	**13.9**	**15.2**

Source: Authors' survey data

Table 1c Major Nutrients Intake for the Rich and the Poor

	Share of protein intake	Share of energy intake	Per capita protein intake (gram)	Per capita energy intake (calorie)
Poor (bottom 50%)	0.71	0.92	53.83	2298.25
	(0.27)	(0.37)	(20.44)	(897.41)
Rich (upper 50%)	0.76	0.97	56.71	2326.53
	(0.32)	(0.32)	(23.72)	(771.45)

Notes: share of nutrients intake are relative to the official recommended minimum intake in China. Mean values are separately shown for the rich and the poor, and standard deviations are presented in the parenthesis.

Table 2 Summary Statistics: Peers' Average Ceremony (Funeral) Frequency at the Natural Village Level

	mean	Sd
	The Fetal Period	
Age 1-5 cohort	4.50 (2.85)	3.19 (2.02)
	First Year After Birth	
Age 1-5 cohort	4.90 (2.66)	3.69 (2.15)
	Years: 2004-2009	
Year=2009	5.06 (3.23)	4.95 (2.51)
Year=2008	3.72 (1.91)	2.26 (1.55)
Year=2007	4.90 (3.45)	3.08 (2.19)
Year=2006	6.83 (4.09)	5.45 (2.78)
Year=2005	3.37 (1.77)	2.13 (1.53)
Year=2004	2.64 (1.88)	2.38 (1.61)

Notes: Means and standard deviations in the brackets are statistics for funerals, while means and standard deviations outside the brackets are statistics for all ceremonies.

Table 3 Overall Stunting Rate (%)

Share (%)	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5
Stunting (CDC)	41.7	31.2	29.8	25.9	26.5
Stunting (WHO)	51.7	32.1	46.8	30.8	31.3
Severe Stunting (WHO)	31.7	20.8	19.2	13.5	16.2

Notes: stunting is defined as height-for-age z-score less than -2 standard deviations (SD) of the standard, while severe stunting is defined as height-for-age z-score less than -3 SD of the standard. Refer to the Appendix A for more detailed summary tables on social status, social events frequency and health status.

Table 4 Main Results: Squeeze Effect on Overall Health Outcomes
(Via Ceremony/Funeral Frequency and Relative Status and Their Interaction, Marginal Effect)

	R1-ceremony	R2-funeral	R3-ceremony	R4-funeral	R5-ceremony	R6-funeral
	Height for Age		Stunting		Underweight	
	OLS		*Logit*		*Logit*	
Deaton Rd	-1.85	-1.16	0.38	0.39**	0.44**	0.41***
	(1.97)	(1.31)	(0.25)	(0.16)	(0.20)	(0.14)
# Peers' ceremonies/funerals *after* birth	0.14**	0.11	-0.01	-0.02	0.01	0.01
	(0.08)	(0.15)	(0.01)	(0.03)	(0.01)	(0.01)
# Peers' ceremonies/funerals *before* birth	0.08	0.33	-0.02	-0.04	-0.02**	-0.04
	(0.08)	(0.19)	(0.01)	(0.03)	(0.01)	(0.03)
Rd *# Peers' ceremonies/funerals *after* birth	-0.18	-0.32	0.01*	0.03*	0.01	0.03
	(0.11)	(0.23)	(0.03)	(0.02)	(0.01)	(0.03)
Rd *# Peers' ceremonies/funerals *before* birth	-0.12**	-0.54**	0.03**	0.09**	0.03**	0.06**
	(0.05)	(0.25)	(0.01)	(0.04)	(0.01)	(0.02)
(Pseudo) R2	0.39	0.37	0.21	0.23	0.14	0.12
N	256	256	256	256	256	256
AIC	592	576	188	176	123	115

Notes:

1. R1, R3 and R5 define ceremony as peers' weddings and funerals, while R2, R4 and R6 only include peers' funerals to minimize the concern for endogeneity.
2. Robust standard error in parenthesis. The estimations are clustered at mother level. The symbols *, **, and *** indicate confidence levels of 90%, 95%, and 99%, respectively.
3. Stunting and underweight status are based on the WHO standard.
4. Peers' ceremonies / funerals are confined to the natural village level.
5. Household level characteristics (peers' ceremony frequency before and after child birth, predicted per capita income, head sex, education, cadre status, share of youth, share of the elderly, household size, share of migrants, minority identity, father's height and mother's height, other shocks), child characteristics (age dummy, sex, birth order), village characteristics (distance to the closest clinic center, village dummy) are controlled, and the estimations are clustered at the mother level.

Table 5a Main Results: *Relative* Squeeze Effect on Height-for-Age Z-score
(*All Years Combined for Each Cohort*, Marginal Effect)

	R1-Deaton	R2-Deaton	R3-Deaton	R4-Rankgini
	DV: Height-for-Age (Birth Cohorts:1-5 yrs)			
[years before birth, years after birth]	One bfr/ One Aft [-1,1]	Not Weighted [-1,5]	Weighted [-1,5]	Weighted [-1,5]
*cohort1**Rd* # Peers' funerals *after* birth	-0.20**	-0.29	-0.26	0.19
	(0.09)	(0.85)	(0.77)	(0.52)
*cohort2**Rd* # Peers' funerals *after* birth	-0.36**	-0.15	0.53	-0.10
	(0.16)	(0.82)	(0.45)	(0.39)
*cohort3**Rd* # Peers' funerals *after* birth	0.17	-1.44	-0.69	-0.20
	(0.63)	(1.29)	(0.79)	(0.35)
*cohort4**Rd* # Peers' funerals *after* birth	1.16	1.40	1.48	0.05
	(0.85)	(1.22)	(0.93)	(0.60)
*cohort5**Rd* # Peers' funerals *after* birth	-0.71	-1.40**	-0.76	0.09
	(1.02)	(0.66)	(0.48)	(0.39)
*cohort1**Rd* # Peers' funerals *before* birth	-1.66**	-1.62**	-1.15***	-0.23**
	(0.72)	(0.76)	(0.31)	(0.10)
*cohort2**Rd* # Peers' funerals *before* birth	-0.92**	-0.88**	-0.58**	-0.12*
	(0.39)	(0.42)	(0.27)	(0.06)
*cohort3**Rd* # Peers' funerals *before* birth	-0.74*	-0.93**	-0.69***	-0.17*
	(0.43)	(0.43)	(0.25)	(0.10)
*cohort4**Rd* # Peers' funerals *before* birth	0.64	0.35	0.50**	0.11*
	(0.46)	(0.26)	(0.22)	(0.06)
*cohort5**Rd* # Peers' funerals *before* birth	1.19***	0.78**	0.48**	0.12*
	(0.39)	(0.31)	(0.20)	(0.07)
(Pseudo) R2	0.59	0.60	0.41	0.46
N	256	256	256	256
AIC	435	421	471	463

Notes:
1. This table only includes peers' funerals as ceremony shocks to minimize the concern for endogeneity.
2. Deaton denotes Deaton Relative Deprivation Index (Deaton, 2001). Rankgini denotes the interaction between rank and Gini coefficient. Column R4 replaces Deaton RD by Rankgini and all regressors are scaled down by 100.
3. Other control variables follow Table 4 but not reported here.
4. Robust standard errors in parenthesis. The symbols *, **, and *** indicate confidence levels of 90%, 95%, and 99%, respectively.
5. The weighting strategy over cumulative years of impacts for columns R3-R4 is based on Almon (1965) lag.

Table 5b Main Results: *Relative* Squeeze Effect on Height-for-Age Z-score
(*All Cohorts Combined in Each Year*, Marginal Effect)

	R1-Deaton	R2-Rankgini
	DV: Height-for-Age (Birth Cohorts:1-5 yrs)	
*yr2009**Rd* # Peers' funerals *after* birth for all age cohorts	-0.51	-0.90
	(0.58)	(0.95)
*yr2008**Rd* # Peers' funerals *after* birth for all age cohorts	-0.50	-0.90
	(0.73)	(0.73)
*yr2007**Rd* # Peers' funerals *after* birth for all age cohorts	-1.28	-0.33
	(0.85)	(0.34)
*yr2006**Rd* # Peers' funerals *after* birth for all age cohorts	0.53	0.41
	(1.59)	(0.67)
*yr2005**Rd* # Peers' funerals *after* birth for all age cohorts	0.71	0.81
	(1.38)	(0.53)
*yr2009**Rd* # Peers' funerals *before* birth for all age cohorts	-2.25***	-2.28**
	(0.69)	(1.11)
*yr2008**Rd* # Peers' funerals *before* birth for all age cohorts	-1.87**	-0.61*
	(0.93)	(0.32)
*yr2007**Rd* # Peers' funerals *before* birth for all age cohorts	-1.82*	-0.27*
	(1.04)	(0.15)
*yr2006**Rd* # Peers' funerals *before* birth for all age cohorts	0.62	0.11
	(1.57)	(0.50)
*yr2005**Rd* # Peers' funerals *before* birth for all age cohorts	1.33	0.32
	(1.27)	(0.81)
(Pseudo) R2	0.63	0.46
N	256	256
AIC	1181	1184

Notes:
1. This table only includes peers' funerals as ceremony shocks to minimize the concern for endogeneity.
2. Robust standard errors in parenthesis. The symbols *, **, and *** indicate confidence levels of 90%, 95%, and 99%, respectively.
3. Column R2 replaces Deaton RD by Rankgini and all regressors are scaled down by 100.
4. Other control variables follow Table 4 but not reported here.

Table 6 Extension I: Squeeze Effect and Gender Bias in Health Outcomes (Marginal Effect)

	R1	R2	R3	R4	R5
	Height-for-Age	Stunting (WHO)	Stunting (CDC)	Stunting (Boy)	Stunting (Girl)
	OLS	*Logit*	*Logit*	*Logit*	*Logit*
gender	-0.38	0.10	0.03	-	-
	(0.63)	(0.13)	(0.12)	-	-
# Peers' *funerals* after birth	-0.01	0.01	0.00	-0.00	0.01*
	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)
# Peers' *funerals* before birth	-0.01	0.02	0.01	0.00	0.01
	(0.07)	(0.01)	(0.01)	(0.01)	(0.01)
gender*# Peers' *funerals* after birth	0.04*	-0.01*	-0.01	-	-
	(0.02)	(0.01)	(0.01)	-	-
gender*# Peers' *funerals* before birth	0.10	-0.02	-0.02	-	-
	(0.10)	(0.02)	(0.02)	-	-
(Pseudo) R2	0.28	0.21	0.20	0.25	0.24
N	256	256	256	159	97

Notes:

1. Robust standard error in parenthesis. The estimations are clustered at mother level. The symbols *, **, and *** indicate confidence levels of 90%, 95%, and 99%, respectively.

Table 7 Extension II: Squeeze Effect on Health Outcomes (Alternative Reference Groups, Marginal Effect)

	R1	R2	R3	R4	R5	R6	R7	R8	R9
	surname network			*blood relatives' network*			*blood and distant relatives' network*		
	Height-for-Age Z-Score	Stunting (WHO)	Stunting (CDC)	Height-for-Age Z-Score	Stunting (WHO)	Stunting (CDC)	Height-for-Age Z-Score	Stunting (WHO)	Stunting (CDC)
Deaton rd	-2.01	0.31*	0.33*	-1.15	0.22	0.29	-1.68	0.19**	0.10*
	(1.79)	(0.17)	(0.18)	(2.09)	(0.22)	(0.41)	(1.48)	(0.09)	(0.06)
Peers' *funeral intensity* after birth	0.06	-0.02**	-0.02*	0.10	-0.02	-0.04*	0.12	-0.01	-0.01
	(0.08)	(0.01)	(0.01)	(0.09)	(0.03)	(0.02)	(0.08)	(0.01)	(0.01)
Peers' *funeral intensity* before birth	0.38	-0.10***	-0.06	0.34	-0.11*	-0.08	0.28*	-0.09*	-0.09**
	(0.30)	(0.02)	(0.04)	(0.28)	(0.06)	(0.07)	(0.15)	(0.06)	(0.5)
Rd*Peers' *funeral intensity* after birth	-0.08	0.02*	0.02*	-0.18	0.06*	0.07*	-0.23**	0.03**	0.03**
	(0.18)	(0.02)	(0.02)	(0.12)	(0.03)	(0.04)	(0.11)	(0.01)	(0.02)
Rd*Peers' *funeral intensity* before birth	-0.70	0.14***	0.12**	-0.64*	0.15**	0.13*	-0.54**	0.13**	0.12***
	(0.69)	(0.04)	(0.06)	(0.37)	(0.08)	(0.07)	(0.27)	(0.06)	(0.18)
(Pseudo) R2	0.34	0.20	0.22	0.35	0.20	0.26	0.37	0.23	0.24
N	256	256	256	256	256	256	256	256	256

Notes:

1. Robust standard error in parenthesis. The estimations are clustered at the mother level. The symbols *, **, and *** indicate confidence levels of 90%, 95%, and 99%, respectively.

Table 8 The Potential Channel – Squeeze Effect on Major Nutrients Intake

	R1-Deaton	R2-Rankgini	R3-Deaton	R4-Rankgini	R5-Deaton	R6-Rankgini
	Per capita protein intake(gram, log)		Per capita calorie intake (calorie, log)		share of food exp (SUR estimations)	
Rd	-0.31*	-2.04***	-0.27*	-1.57**	0.02	0.00
	(0.18)	(0.00)	(0.16)	(0.00)	(0.04)	(0.00)
Rd * # Peers' *funerals*	-0.01	-0.08***	-0.01	-0.09**	-0.01**	-0.02**
	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
# Peers' *funerals*	-0.01*	-0.01**	-0.01*	-0.01**	-0.00***	-0.00***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)
Per capita income (log)	-0.05	0.04**	0.03*	0.02**	-0.06***	-0.04***
	(0.04)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)
Married	-0.06	-0.08	0.12*	0.11*	0.15*	0.11*
	(0.44)	(0.29)	(0.08)	(0.06)	(0.08)	(0.06)
Sex	0.03	0.04	-0.07	-0.06	0.04**	0.04**
	(0.09)	(0.09)	(0.08)	(0.08)	(0.02)	(0.02)
Edu	0.01	0.01	0.02***	0.02***	-0.01***	-0.01***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Cadre	0.08	0.07	0.01	0.01	-0.02	-0.02
	(0.08)	(0.08)	(0.07)	(0.07)	(0.02)	(0.02)
Share of youth	-0.03	-0.05	-0.18**	-0.20**	-0.11***	-0.11***
	(0.10)	(0.09)	(0.08)	(0.08)	(0.02)	(0.02)
Share of the elderly	-0.01	-0.01	0.06	0.06	0.06***	0.06***
	(0.08)	(0.07)	(0.07)	(0.07)	(0.02)	(0.02)
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.21)	(0.17)	(0.70)	(0.55)	(0.00)	(0.00)
Share of migrants	0.13	0.10	0.01	0.01	0.21	-0.17
	(0.10)	(0.12)	(0.03)	(0.03)	(0.17)	(0.12)
Minority	0.06	0.07	0.03	0.04	0.04***	0.04***
	(0.08)	(0.08)	(0.07)	(0.07)	(0.01)	(0.01)
Household size	0.01	0.01	0.00	0.00	-0.01***	-0.01***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Household shocks	Y	Y	Y	Y	Y	Y
(Pseudo) R2	0.13	0.14	0.13	0.13	0.18	0.26
N	336	336	336	336	2179	2179

Notes:

[1] Robust standard error in parenthesis. The symbols *, **, and *** indicate confidence levels of 90%, 95%, and 99%, respectively.

[2] Rd denotes Deaton Relative Deprivation Index and Rank & Gini interaction. The former is applied in d1, d3 and d5, while the latter is used in d2, d4, and d6. When Rank & Gini interaction is applied, it is scaled down by 1000 to enlarge the correspondent coefficients.

[3] The SUR estimations in d5 and d6 both include simultaneous regressions for share of food expenditure (cash and in-kind consumption) and share of gift expenditure. The results are quite similar when we add more share equations to the SUR estimation.

Appendix A: Summary Tables for Ceremony Frequency, Income Status and Health Outcomes

Table A-1 Ceremony Frequency, Income Status and Mean Height-for-Age Z-score

Status / Ceremony	Bottom 25%	Middle 50%	Top 25%	All households	Standard Deviation
cohort 1					
Frequent	-3.70	-2.67	-2.11	-2.79	3.45
less frequent	-3.18	-2.83	-1.70	-2.64	1.97
cohort 2					
Frequent	-4.33	-2.42	-1.57	-2.69	6.96
less frequent	-1.76	-1.50	-1.57	-1.58	2.86
cohort 3					
Frequent	-2.30	-1.55	-1.11	-1.63	1.24
less frequent	-1.99	-1.71	-1.03	-1.61	1.22
cohort 4					
Frequent	-2.85	-2.05	-1.79	-2.19	3.27
less frequent	-1.79	-1.41	-0.67	-1.32	1.25
cohort 5					
Frequent	-1.89	-1.85	-1.71	-1.83	1.62
less frequent	-1.87	-1.34	0.68	-0.97	1.71

Notes: "frequent" and "less frequent" are categorized according to whether ceremony frequency exceeds the median level in each category during the fetal period.

Table A-2 Ceremony Frequency, Income Status and Stunting Rate

Status / Ceremony	Bottom 25%	Middle 50%	Top 25%	All households	Standard Deviation	Bottom 25%	Middle 50%	Top 25%	All households	Standard Deviation
	Mean Stunting Rate (WHO Standard)					Mean Stunting Rate (CDC Standard)				
cohort 1										
Frequent	0.57	0.56	0.55	0.56	0.51	0.57	0.46	0.34	0.46	0.51
less frequent	0.53	0.46	0.14	0.40	0.50	0.47	0.40	0.14	0.35	0.50
cohort 2										
Frequent	0.50	0.25	0.25	0.31	0.47	0.50	0.25	0.25	0.31	0.47
less frequent	0.46	0.38	0.17	0.35	0.47	0.37	0.36	0.17	0.32	0.46
cohort 3										
Frequent	0.33	0.00	0.25	0.15	0.44	0.33	0.00	0.10	0.11	0.38
less frequent	0.47	0.73	0.25	0.55	0.50	0.33	0.47	0.15	0.36	0.49
cohort 4										
Frequent	0.67	0.33	0.00	0.33	0.49	0.67	0.11	0.00	0.22	0.42
less frequent	0.33	0.33	0.14	0.28	0.46	0.33	0.33	0.12	0.28	0.46
cohort 5										
Frequent	0.55	0.33	0.00	0.30	0.43	0.35	0.20	0.00	0.19	0.39
less frequent	0.27	0.33	0.38	0.32	0.50	0.27	0.30	0.37	0.31	0.46

Notes: "frequent" and "less frequent" are categorized according to whether ceremony frequency exceeds the median level in each category during the fetal period.

Table A-3 Ceremony Frequency, Income Status and Underweight

Status / Ceremony	Bottom 25%	Middle 50%	Top 25%	All households	Standard Deviation
			cohort 1		
Frequent	0.33	0.30	0.00	0.22	0.42
less frequent	0.11	0.10	0.08	0.10	0.28
			cohort 2		
Frequent	0.45	0.13	0.25	0.22	0.43
less frequent	0.19	0.15	0.00	0.13	0.37
			cohort 3		
Frequent	0.13	0.40	0.00	0.23	0.43
less frequent	0.00	0.00	0.00	0.00	0.00
			cohort 4		
Frequent	0.28	0.15	0.14	0.18	0.39
less frequent	0.00	0.00	0.00	0.00	0.00
			cohort 5		
Frequent	0.14	0.25	0.13	0.18	0.39
less frequent	0	0.08	0.25	0.11	0.32

Notes: "frequent" and "less frequent" are categorized according to whether ceremony frequency exceeds the median level in each category during the fetal period.

Table A-4 Ceremony Frequency and Gender Bias in Health Outcomes

Ceremony \ Gender	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
	Mean Height-for-Age Z-score		Mean Stunting Rate		Mean Underweight		Mean Height-for-Age Z-score		Mean Stunting Rate		Mean Underweight	
	Ceremonies during the Fetal Period						After-birth Ceremonies					
Cohort 1												
Frequent	-2.58	-3.52	0.54	0.64	0.10	0.42	-2.35	-3.38	0.52	0.64	0.20	0.27
less frequent	-2.43	-2.94	0.30	0.47	0.09	0.18	-2.58	-2.77	0.31	0.67	0.06	0.14
Cohort 2												
Frequent	-2.28	-2.82	0.18	0.46	0.18	0.23	-1.91	-2.95	0.25	0.46	0.11	0.40
less frequent	-1.67	-1.29	0.39	0.18	0.16	0.09	-1.05	-1.93	0.20	0.41	0.20	0.12
Cohort 3												
Frequent	-1.51	-1.89	0.50	0.47	0.17	0.26	-1.29	-2.48	0.04	0.30	0.18	0.27
less frequent	-1.22	-1.83	0.47	0.33	0.00	0.00	-1.25	-1.88	0.13	0.65	0.00	0.00
Cohort 4												
Frequent	-2.05	-2.76	0.37	0.33	0.18	0.19	-2.85	-1.87	0.30	0.40	0.20	0.17
less frequent	-1.19	-1.88	0.36	0.18	0.00	0.00	-1.75	-1.11	0.40	0.18	0.00	0.00
Cohort 5												
Frequent	-1.54	-2.58	0.22	0.50	0.17	0.19	-0.66	-2.33	0.13	0.44	0.15	0.22
less frequent	-0.68	-1.17	0.46	0.19	0.11	0.13	-1.21	-0.80	0.20	0.40	0.20	0.00

Notes: "frequent" and "less frequent" are categorized according to whether ceremony frequency exceeds the median level in each category. The stunting rate is based on the WHO standard.

Appendix B: *Relative* Squeeze Effect on Stunting Status

Table B-1 *Relative* Squeeze Effect on Stunting (WHO Standard, Marginal Effect)

	R1-Deaton	R2-Deaton	R3-Deaton	R4-Rankgini
	DV: Stunting or not (Logit) (Birth Cohorts:1-5 yrs)			
[years before birth, years after birth]	One bfr/ One Aft [-1,1]	Not Weighted [-1,5]	Weighted [-1,5]	Weighted [-1,5]
cohort1 *Rd * # Peers' Ceremonies *after* birth	-0.05**	-0.19	-0.15	-0.13
	(0.02)	(0.13)	(0.11)	(0.12)
cohort2 *Rd * # Peers' Ceremonies *after* birth	-0.00	-0.04	-0.04	-0.12
	(0.11)	(0.06)	(0.08)	(0.11)
cohort3 *Rd * # Peers' Ceremonies *after* birth	0.21***	0.35**	0.30**	0.32**
	(0.08)	(0.14)	(0.13)	(0.16)
cohort4 *Rd * # Peers' Ceremonies *after* birth	-0.10	-0.15	0.01	-0.19*
	(0.09)	(0.28)	(0.17)	(0.12)
cohort5 *Rd * # Peers' Ceremonies *after* birth	-0.09	-0.06	-0.16	0.03
	(0.11)	(0.21)	(0.12)	(0.07)
cohort1 *Rd * # Peers' Ceremonies *before* birth	0.32***	0.31**	0.30***	0.07**
	(0.09)	(0.14)	(0.11)	(0.03)
cohort2 *Rd * # Peers' Ceremonies *before* birth	0.15***	0.17**	0.18***	0.04*
	(0.05)	(0.07)	(0.05)	(0.02)
cohort3 *Rd * # Peers' Ceremonies *before* birth	0.14***	0.16**	0.16**	0.04**
	(0.05)	(0.07)	(0.06)	(0.02)
cohort4 *Rd * # Peers' Ceremonies *before* birth	-0.12**	-0.11**	-0.09**	-0.02
	(0.05)	(0.05)	(0.04)	(0.03)
cohort5 *Rd * # Peers' Ceremonies *before* birth	-0.13***	-0.13**	-0.12**	-0.03**
	(0.04)	(0.06)	(0.05)	(0.02)
(Pseudo) R2	0.50	0.63	0.65	0.65
N	256	256	256	256
AIC	162	140	137	137

Notes: Follow Table 5a.

Table B-2 *Relative* Squeeze Effect on Stunting (CDC Standard, Marginal Effect)

	R1-Deaton	R2-Deaton	R3-Deaton	R4-Rankgini
	DV: Stunting or not (Logit) (Birth Cohorts:1-5 yrs)			
[years before birth, years after birth]	One bfr/ One Aft [-1,1]	Not Weighted [-1,5]	Weighted [-1,5]	Weighted [-1,5]
cohort1 *Rd * # Peers' Ceremonies *after* birth	-0.01	0.16	0.26*	0.04
	(0.03)	(0.15)	(0.16)	(0.09)
cohort2 *Rd * # Peers' Ceremonies *after* birth	-0.08	-0.05	-0.07	0.02
	(0.06)	(0.05)	(0.08)	(0.07)
cohort3 *Rd * # Peers' Ceremonies *after* birth	0.08	0.09	-0.04	0.04
	(0.08)	(0.15)	(0.16)	(0.09)
cohort4 *Rd * # Peers' Ceremonies *after* birth	-0.06	-0.08	0.03	0.03
	(0.07)	(0.21)	(0.21)	(0.16)
cohort5 *Rd * # Peers' Ceremonies *after* birth	-0.07	-0.06	-0.09	0.04
	(0.06)	(0.14)	(0.12)	(0.10)
cohort1 *Rd * # Peers' Ceremonies *before* birth	0.33***	0.31**	0.28***	0.12***
	(0.10)	(0.14)	(0.09)	(0.04)
cohort2 *Rd * # Peers' Ceremonies *before* birth	0.23***	0.20**	0.25***	0.09***
	(0.07)	(0.08)	(0.07)	(0.02)
cohort3 *Rd * # Peers' Ceremonies *before* birth	0.21***	0.23***	0.20***	0.07***
	(0.07)	(0.09)	(0.06)	(0.02)
cohort4 *Rd * # Peers' Ceremonies *before* birth	-0.22**	-0.17***	-0.21**	-0.11***
	(0.09)	(0.05)	(0.09)	(0.04)
cohort5 *Rd * # Peers' Ceremonies *before* birth	-0.19***	-0.19**	-0.16***	-0.07***
	(0.07)	(0.08)	(0.05)	(0.02)
(Pseudo) R2	0.48	0.59	0.57	0.55
N	256	256	256	256
AIC	154	138	141	144

Notes: Follow Table 5a.