

Chen, Xi

Conference Paper

Accounting for social spending escalation in rural China

IAMO Forum 2011, Halle (Saale), June 23 - 24, 2011: Will the 'BRICs Decade' continue? – Prospects for trade and growth

Provided in Cooperation with:

Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Halle (Saale)

Suggested Citation: Chen, Xi (2011) : Accounting for social spending escalation in rural China, IAMO Forum 2011, Halle (Saale), June 23 - 24, 2011: Will the 'BRICs Decade' continue? – Prospects for trade and growth, Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO), Halle (Saale)

This Version is available at:

<https://hdl.handle.net/10419/50793>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Accounting for Social Spending Escalation in Rural China †

Xi Chen
Cornell University
xc49@cornell.edu
<http://web.cenet.org.cn/web/ecocxi/>

**“Will the ‘BRICs Decade’ continue? – Prospects for trade and growth”
23-24 June 2011 | Halle (Saale), Germany**

† This paper is based on an ongoing joint work with Ravi Kanbur and Xiaobo Zhang. I am grateful to Ravi Kanbur and Xiaobo Zhang for invaluable comments, guidance and encouragement. For comments and suggestions, please direct correspondence to Xi Chen at xc49@cornell.edu.

Copyright 2011 by [Xi Chen, Ravi Kanbur and Xiaobo Zhang]. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Accounting for Social Spending Escalation in Rural China †

Xi Chen
Cornell University

Abstract

It has been widely recognized that the poor spends a significant proportion of their income on social spending even at the expense of basic consumption. What are the motives behind the observed lavish social spending among the poor? We attempt to test three competing explanations at the social link level, risk-pooling, peer effect, and status concern, via a uniform framework based on a unique primary dataset. The data set include household information from a three-wave census-type household survey as well as a long-term gift record for all households in three villages in a poor region in rural China. Our dyadic estimations confirm the prevalence of peer influence and the status seeking motive in shaping gift spending and its rapid growth, while risk pooling is not a significant explanatory factor. A 1% increase in peers' gift spending per occasion leads to a 0.13%-0.34% increase in one's own gift per occasion, depending on whether household fixed effect or pairwise fixed effect dyadic model is estimated. Status seeking for the bottom 25% and the middle 50% groups significantly pushes up gift expenditure. Moreover, large windfall income and marriage market pressure further intensify status competition, escalating gift giving behavior.

Keywords: Social Network, Peer Effect, Risk-pooling, Status Seeking, Ceremony

JEL Codes: D63 D85 R20

"If friends make gifts, gifts make friends." Marshall Sahlins, 1972

1. Introduction

It is a ubiquitous phenomenon that many of the poor spend a significant portion of their limited cash income on social spending, such as festivals, although they can hardly feed themselves (Banerjee and Duflo, 2007). Why do the poor spend so much on social spending at the expense of their basic consumption? Risk pooling, peer pressures, and status concerns are three notable explanations in the literature.

It has been well established that concern for status affects social behavior and well-being, and the pressure is especially large for the lower tail of the distribution (Deaton, 2001; Brown et al., 2011, thereafter BBZ); meanwhile, peer effect can generate social multiplier, so it is of particular interest to technology adoption, child learning, well-being and productivity improvement and so on (Benabou, 1993; Hoxby, 2000; Glaeser and Scheinkman, 2001; Conley and Udry, 2010). Peer effect also constitutes negative externality, such as committing a crime or triggering social competition (Haynie, 2001). If peer influences are substantial, it may greatly affect efficiency and equity; there is also a large literature on shocks smoothing via risk-sharing mechanism (Rosenzweig, 1988; Coate and Ravallion, 1993; Townsend, 1994).

Therefore, changing patterns of social behavior can be attributed to varying exposures to risks, status seeking, and/or peer effect. Our paper attempts to disentangle the motives behind the escalating social spending among impoverished rural households whose basic consumption and productive investment have been squeezed out due to lavish social spending (BBZ; Chen and Zhang, 2010). While previous studies separately capture its risk-sharing motive (Fafchamps and Gubert, 2007, thereafter FG), status concern and peer effect (BBZ), we believe this is the first time that all three major factors are brought together in a uniform and dynamic framework to better understand network formation and its intensity. The gain from a uniform framework is evident when some effects are intertwined. For instance, if we observe a poor household send a large gift to a rich household, it is difficult to judge *a priori*

whether that is because the poor wants to climb social ladders via engaging with the rich, or whether they attempt to insure against future risks, or even local peer influence compels the poor to do so.

In order to achieve this goal, we combine a three-wave census-type household panel survey with a unique long-term spontaneous gift record for all households in three villages. While the snapshot feature of most network data studied determines that the dynamics of links and networks are not well explored (Jackson, 2007; FG), large variation in peer groups across occasions and over time helps identify peer effect. Detailed household information enables us to quantify potentials for risk-pooling along several dimensions. Census-type survey facilitates a precise measure of relative status. Another significant advantage of our dataset is we managed to collect information on real intensity of pairwise connections from value of gifts people sent to each other, circumventing FG's problem in identifying risk-pooling, especially the level effect.

Our dyadic estimations confirm the prevalence of peer influence and the biased status seeking motive in shaping gift spending and its rapid growth. A 1% increase in peers' gift spending per occasion leads to 0.13%-0.34% increase in one's own gift per occasion, depending on whether the household fixed effect or pairwise fixed effect dyadic regression is estimated. Status seeking is significant for the bottom 25% and the middle 50% groups. A 1-point increase in moments of the income distribution (the kurtosis-skewness interaction) prompts a 1% increase in gift spending.

However, our results suggest incomplete risk-pooling to maximize potential gains from informal networks. Specifically, risk-sharing is observed via cross-village geographic pooling but not evident via occupation diversification, education or income. Meanwhile, risk-pooling is sometimes seen via idiosyncratic demographic structure. For instance, households with unmarried sons tend to link other families. It is hardly surprising when the marriage market is increasingly tightening due to "excess men". The economic pressure for families with unmarried son pushes them to utilize the social function of gift spending, hoping to improve their sons' likelihood of marriage.

Moreover, the capability and motives for gift-giving is further amplified due to massive windfall income and subsidies amid rapid rural development, which also spills over to peers and contributes to the rapid gift expenditure growth.

Overall, large social spending may result in negative externalities and welfare loss, especially for households living close to subsistence.¹ Our findings on insufficient risk-sharing, intense peer influence and status competition is one step towards understanding its mechanism. The fact that gift spending has increased much faster than income and consumption and that reduced share of food expenditure has been accompanied by dramatic increase in share of gift and festival spending in impoverished rural China warn policy makers to more efficiently target the negative externality caused by peer effect and status competition. Moreover, how to promote risk-pooling is another challenge ahead.

This paper is organized as follows. Section 2 review main issues in peer effect identification and its relevance to our paper; section 3 introduces data collection; section 4 documents the patterns of gift growth in rural China; section 5 lays out the empirical strategy and discusses some issues related to the dyadic estimation; section 6 presents main results on the determinants for gift spending and its escalation. Some extended results and robustness checks are also reported; finally, section 7 concludes with further discussion.

2. Peer Effect Identification

Although peer effect has been studied for decades, no consensus has been reached concerning its significance and magnitude due to criticisms on identification (Manski, 1993; Moffitt, 2001; Brock and Durlauf, 2001). Even less is known about the mechanisms through which it operates. Three identification challenges lay in front of peer effect identification: first, correlated effect confounds the identification because people

¹ Some other evidence for the poor documented in the literature include: splendid funerals (*The Economist*, 2007; Mango et al., 2009), roaring bride-prices and dowries (Rao, 1993; Dekker and Hoogeveen, 2002), inflating social spending (Brown et al., 2011), lavish ceremony expenditure squeezing out nutritional outcomes (Chen and Zhang, 2010), low food income elasticity (Deaton and Subramanian, 1996; Strauss and Thomas, 1997) and lavish festivals (Banerjee and Duflo, 2007).

are affected by the same group characteristics and thus behave similarly; second, reflection problem persist as people influence each other in a group. Therefore, identification of endogenous effect from contextual effect is made possible only when strong exclusion assumption is made; third, the real group within which people interact with each other is a priori unknown.

To isolate correlated effect from peer effect, some studies use randomly assigned peers (Sacerdote, 2001; Zimmerman, 2003), some use conditional variance restrictions that disentangle excess variance due to peer effect from that due to group-level sorting (Graham, 2008), and some use composition variations of adjacent cohorts to identify peer effect (Hoxby, 2000; Ammermuller and Pischke, 2009). Our paper applies this strategy to the gift exchange context where one's out-of-township new peers (from a bride's families) in each social occasion account for a great proportion of all participants and vary substantially.

Though endogenous effect is the only effect that can generate social multiplier, most studies do not reliably tackle the reflection problem. Some studies instrument peers' behavior with their lagged behavior (Hanushek et al., 2003). More recent studies utilize network information or partially overlapping groups to circumvent the reflection problem. Our paper defines lagged median behavior in the reference group and utilizes detailed network information to break down the reflective influences and thus mitigate the concern.

Most studies do not know real reference groups a priori but arbitrarily define peer effect based on average intra-group externality that affect group members identically. Due to the usual data limitation that leads to too large reference groups, some recent studies utilize rich information on social networks to construct individual-specific reference groups (Calvó-Armengol et al., 2009; Lin, 2010). Our paper adopts the strategy of household-specific reference groups to identify peer effect.

Our peer effect identification strategy utilizes variations in the size and composition of cohorts. It is similar in spirit to the literature on utilizing variations in adjacent cohorts' composition within schools to identify peer effect (Hoxby, 2000; Gibbons and

Telhaj, 2008). The large variations in ceremony size facilitate a reliable identification of peer influences. The long-term gift record by occasion allows us to track each household's old and new peers. On the one hand, only a small part of one's previous peer group overlap with new peer group in each occasion, while most of the new peers come from brides' out-of-township blood relatives. This fact circumvents the endogeneity that confounds the identification of peer effect due to the common unobserved factors, such as transitory common shocks and local norms. External ceremony guests often share little common unobserved factors with local households, due to the long distance and that in a patrilineal community fellow villagers attending male side ceremonies have little connection with brides' relatives. On the other hand, new peers' median gift per occasion is highly correlated with that of all peers by construction.

Lagged all peers' median gift per occasion in the reference groups is instrumented with median gift per occasion from new external peers. Only external blood relatives among these new peer, whether they sent gifts or not, are used as the instrument to mitigate concern for self-selection into gift sending activities.

Due further to the isolated geographic condition and relatives relations that lead to close connections, we know all who sent gift as well as people who could but did not. In other words, we are able to construct well-defined reference groups with people who attended ceremonies and potential but non-participants.

Every effort was made to construct exogenously determined new peer group during the gift record collection. The Chinese land allocation system determines that males stay in birth villages, while females migrate out upon marriage. Brides' blood relatives are usually invited to attend major occasions. Normally, they only differ in the amount of gift spent but not in whether to participate. Therefore, the work was much easier than imagined, and 98% of the out-of-township new peers in our sample are blood relatives of brides. With the help of written gift books each household kept, respondents easily recalled the very few cases when a blood relative did not send gift. Similar to the robustness check in Dercon and Broeck (2007), group characteristics are

controlled to further test the possibility that individuals endogenously sort themselves into groups due to certain unobservable characteristics or abilities.

3. Data Collection

3.1 Three-Wave Census Survey

The household information for this study comes from three waves of census-type household survey conducted by us in 18 randomly selected villages in rural Guizhou, China.² They are both geographically and ethnically diversified. Due to its isolation from outside, local residents know each other well. Most residents' kinship networks are confined in these natural villages. More than 20 ethnic groups are living in the area, including Han, Miao, Buyi, Gelao, and Yi. In total, ethnic minorities comprise about 20% of population.

801, 833 and 872 households were surveyed in 2005, 2007 and 2010, respectively. The census type survey guarantees that same households are surveyed each time. The differences in sample size largely reflect demographic changes. All three waves include detailed information on villages, household demographics, income, consumption, transfers, expenditures and incomes related to gift-giving, ceremony organizations and blood donation. Most information was collected for each household member, including those who were working outside the county at the time of survey.

3.2 Gift-Exchange Record Collection

Gift-receiving records are usually kept for a long time in order to pay back accordingly when celebrations in other families are held (Yan, 1996).³ Upon verifying the availability of gift record books during our pilot survey in August 2009, during 2010 survey gift-receiving records for major social occasions (i.e. male members' wedding,

² This survey was jointly conducted by the International Food Policy Research Institute (IFPRI), Chinese Academy of Agricultural Sciences (CAAS) and Guizhou University.

³ Yan (1996) writes, "Ritualized gift giving is also associated with the custom of making and preserving gift lists. Gift lists are homemade books on red paper (funeral gift lists are made on yellow paper) inscribed with a traditional Chinese calligraphy brush. They serve as a formal record of all gifts received by the host of a family ceremony."

female members' wedding, funeral, coming-of-age ceremony, child birth ceremony, and house-moving ceremony) occurred in the last decade were collected from all households in three out of eighteen villages that we conducted the three-wave census survey (Table 1). The three villages are selected because it is geographically located at the center of the other fifteen villages, which facilitate us to collect as many cross-village gift links as possible.

The unique Karst landform keeps the three villages isolated from the outside society. Among them, village 1 is the most remote (10 kilometers away from the county seat with poor road access), and the local custom is well preserved. To the contrary, village 3 is only 2.5 kilometers away from the county seat. It is the most vulnerable to external changes, such as the recent social spending inflation. In between, village 2 is populated with Buyi ethnic minority, who preserve the Catholic culture and ceremony tradition different from the major Han villages (e.g. village 1 and village 3). In major public ceremonies in village 2 people generally participate in the events (e.g. Halloween and Christmas) without bearing huge burden on gift exchange.⁴ Since the surveyed villages are populated with Han group and ethnic minorities, we are able to explore social connections between ethnic groups.

In the gift record books 335 households are identified, which is composed of 160 households from the three villages and 175 households from the other fifteen villages covered by our large scale household survey. Once joining gift exchanges, most people remain active. A great proportion of previously inactive households become active at the end of each period.

Figure 1 shows a map of gift network in one of the three villages. In total, 8074 gift links during 2000-2009 are identified among 9820 potential links. These potential links include all households in the hosts' local villages and the identified links between local villages and other fifteen surveyed villages, whether there was a gift given. The assumption is that all households in the same village know each other and the dates of ceremonies. Given the geographic and local social environment, it is exactly the case.

⁴ A major difference in this aspect between public celebrations in India and household ceremonies in China can be found in Rao (2001) and Chen (2009).

Meanwhile, 4611 cross-county/township gift links among 4924 potential links were recorded. These potential cross-township/county links include all the recorded cross-township/county links and zero-gift-flow links between the hosts and their brides' side blood relatives recalled by each household. Every effort was made to identify these potential but nonexistent gifts to circumvent sample attrition and sorting problem during our record collection process. Nearly all households' gift-receiving records for the ceremonies were included in this study, since less than 5 percent households reported gift book loss or damage.⁵

If all family members are illiterate, a group of two or three educated relatives usually help record gift-giving on the celebration days. However, names on the records are usually nicknames which might not be precisely identified. To solve this problem, we brought a name list to help each household identify the names on the records.⁶ We also joined local public gatherings to identify some nicknames.

Information on kinship and relatedness among villagers was also collected and matched to each gift link. The information was verified under the help of village leaders, the elderly as well as local people with high community prestige. As many other rural communities, the three surveyed villages are organized by long-term coordination of major clans. Taking village 3 in Figure 1 as an example, households in the same clan usually live closer to each other due to the land owned by their common predecessor. Gift-exchanges have been intense among them.

4. Gift Growth in Rural China

Gift exchange, a major component of resources transfer in an informal network, is widely seen in ceremonies linking households but rarely documented in the literature. In the Chinese culture, it is well-known that relationship (*Guanxi*) is more important than Heaven (*Ren Qing Bi Tian Da*). Many literature documents that people even get deeply

⁵ We consulted major ceremonies with village leader and local residents to verify before going to individual families. Meanwhile, this prior information helped households recall and find gift books for us.

⁶ Meanwhile, the name list made it easier to identify people who did not send gift to each family I visited and their relationships with the families, which are very important to the understanding of network formation.

into debt to strengthen social connections. For instance, upon receiving assistance from fellow residents when faced with shocks, such as livestock and family member death, the cumulated large *Guanxi debt* forces one to actively engage in social occasions and present gifts. However, neither social norms nor reciprocity itself could explain the growth pattern of gift exchange.

Instead, the booming social spending might be induced by income disparity and unequal market opportunities (BBZ; Chen, 2011). Table 1 presents worsening inequality condition in surveyed villages. The last five years have witnessed enlarging income gap largely due to remittance and windfall income. Households with these opportunities trigger more social spending, while households without these income sources tend to conform to the local norms, and the risk-pooling function of informal network is very important for them to invest ahead. Meanwhile, social spending promotes relative ranking, which helps mobilize resources.

Table 2 presents inflating gift expenditure per occasion and sizes of major ceremonies in terms of number of households participate. Though striking, the number is greatly underestimated since guests usually join every meal during ceremonies. From organizers' perspective, total expenditures in major ceremonies amount to several times of their per capita income, especially weddings for grooms' families (Table 3).

Figure 2 presents share of gift expenditure categorized by four income quartiles for our three-wave survey and other countries. The three dashed circles highlight our three-wave survey. Overtime, share of gift and festival expenditure increases very fast. Comparing share of gift and festival expenditure among four income quartiles in each wave, the quartiles spread more and more widely. The poorer a household, the higher share of consumption is devoted to social spending, and the higher increase in the share of gift and festival expenditure is observed between 2004 and 2009.

Figure 3 shows that annualized growth of gift spending far exceeds that of other consumption and income in recent years. Annual gift growth rates range from 18% to 45% in three villages. However, per capita consumption between 2004 and 2009 has grown by 10 percent per year. While the share of expenditures allocated to food

dropped from 48 to 42 percent, the share of spending on gifts and festivals soared from 8 to 17 percent.

5. Empirical Strategy

5.1 Basic Relationships

In the literature, most studies estimating network formation define the dependent variable to be the existence of a link (L_{ij}) between two nodes of distance d_{ij} (De Weerdt, 2004; Udry and Conley, 2005; FG, 2007). A link is established when the benefit from a link ($B(d_{ij}, 1) - B(d_{ij}, 0)$) exceeds its maintenance cost $C(d_{ij})$. Since distance does not explain all aspects of link formation, a residual e_{ij} exists. Specifically,

$$L_{ij} = 1 \text{ if } [B(d_{ij}, L_{ij} = 1) - B(d_{ij}, L_{ij} = 0)] - C(d_{ij}) + e_{ij} > 0 \quad (1)$$

Social distance d_{ij} involves indicators of multiple dimensions: spatial distance, family characteristics and relatedness, shared activities and so on. The larger the social distance, the less homogeneous shocks there are, and the more monitoring and enforcement difficulties there might exist. Therefore, both the benefit and cost of link formation should increase with social distance d_{ij} , leading to a trade-off between the scope and ability to mutual insurance in the networks. Consequently, the effect of multi-dimensional social distance on link formation is subject to empirical investigation.

First, income pooling should be more effective between households engaging in different activities/occupations, such as between farmers and non-farm migrant workers in our context. The former is determined by weather conditions and pest infestation, while the latter depends on economic prosperity and is expected to be uncorrelated with the former. However, households with different occupations usually have less common ground to socialize with each other.

Second, taking care of kids and elderly is another form of risk-sharing than income pooling. Young households with children are faced with different health risks from the elderly and more capable of helping each other. Therefore, households with large

difference in age structure have the potential to insure each other. However, their social interactions might be limited due to differences in lifestyle.

Third, due to the potential inter-household externalities to education, links between the better educated and the less educated are more attractive to poor households than to their rich counterpart. Similarly, the poor usually have stronger motivation to link the rich. Since, link formation is directional and the incentives behind are asymmetrical, social distance should capture this trend.

Kinship may strengthen link formation as it reflects history, norms and trust in a community. Given certain geographic closeness, blood relations facilitate punishing uncooperative behavior. From a Darwinist's perspective, helping family members is a way to expand the gene pool.

Level effect should also be included in the framework (1) to explore whether households with certain common characteristics tend to link. For instance, it is expected that wealthier and higher educated people tend to link each other, and households with higher share of the elderly/kids are less likely to link. The wealth effect is captured by per capita income. Because networks affect the ability to generate income, income is endogenous to the network and is thus instrumented in the first stage estimation.⁷

The framework to this point ignores peer influence in shaping one's link formation decisions, which works in the same direction as the risk-pooling motive and may blur the identification. In a traditional rural society, peer influence matters as communities are isolated and people have close relations. A greater proportion of fellow residents participate in gift-giving. During gift preparation, discussions and consultations are

⁷ Since social network affects the capability of income generation, income is potentially endogenous to network formation process. Households with better networks may earn higher income. Therefore, we instrument per capita income with variables predate the formation of gift links, including education of the head, size of the head's lineal family, major family productive assets (e.g. cow, horse and farming machines), inherited land size, number of working members in a household, gender of the head, whether the head is a cadre, and shocks suffered during the year. Since income enters the dyadic regressions in difference and sum, we separately instrument the difference and sum in per capita income (Appendix II). Most instruments have strong predictive power, especially land, cow, relative network size, education and shocks.. Predicted sum and difference in per capita income are used in lieu of actual income in the estimations that follow. Predicted per capita income rather than predicted wealth is used, because it is believed to be more precise than an index of wealth evaluated at subjective prices, especially in the context that a great proportion of family assets are composed of housing.

frequently observed among guests. On the day of a ceremony, literate assistants at the entrance help keep a record of how much gift each guest sends. Therefore, information on peers' gifts is spreading out throughout the process.

Furthermore, the framework does not consider the role of status concern. Unlike information networks, gift networks in social occasions help people climbing social ladders and mobilizing resources in the future. The fact that status seeking works in the same direction as risk-pooling and peer influence makes its identification important.

5.2 Empirical Specification

Our main empirical estimations are dyadic regressions. Dyadic data contains two types of information: link attributes w_{ij} between nodes i and j and node attributes z_i and z_j for nodes i and j respectively. Therefore, the data is normally transformed into level effect ($z_i + z_j$), social distance ($z_i - z_j$) and link attributes w_{ij} to best preserve information. Since gift exchanges are directional, i.e. the outcome variable y need not satisfy $y_{ij} = y_{ji}$ for any i and j . Follow FG identification, let

$$y_{i,j,c,t} = \alpha_0 + \alpha_1 \text{median}[y_{-i,j,c,t-1}] + \alpha_2(z_{i,t} - z_{j,t}) + \alpha_3(z_{i,t} + z_{j,t}) + \psi w_{i,j,c,t} + \gamma_i + \phi_t + \varepsilon_{i,j,c,t} \quad (2)$$

$-i$ denotes peers. $y_{i,j,c,t}$ is gift presented from a guest i to the host j in an occasion c at time t . $w_{i,j,c,t}$ denotes link attributes between i and j at ceremony c and time t , such as ceremony type, cross village or not, and blood relations. $z_{i,t}$ and $z_{j,t}$ respectively denote attributes of household i and j at time t . α_1 identifies peer influence imposed on guests presenting gifts per occasion. α_2 and α_3 are combined to test the risk-pooling motive: α_2 identifies social distance effect, while α_3 identifies level effect.

The two effects are controlled to eliminate the concern that apparent assorting on gift exchange could only be due to the similarities in preferences being associated with closeness. A set of household factors are included to construct social distance and level effect indicators, including head characteristics (gender, marital status, education, age

and ethnicity), family characteristics (share of youth and the elderly, cadre, household size, land size, family assets, number of farm workers and non-farm worker), and major household shocks (natural disaster, livestock death and family member death).

However, the FG framework of link formation (1=link exists; 0=link does not exist) conveys no information on how the intensity of a link is determined. The strength of links in many contexts is what really matters to an individual's well-being. It shows to what extent one can rely on networks when needed, rather than the mere existence of links could do.

From the econometric identification perspective, FG estimations could not reliably identify level effect as the maximum number for a link from i to j is set to be 1. In other words, the degree for a directional link from i to j is either 0 or 1. FG illustrates that small degree variation hinders the effort to identify determinants of more links, i.e. the level effect α_3 . Due to the dependence of dyadic observations combined with low degree variation, the technical issue behind is that joint likelihood of the sample cannot be decomposed into a product of single observation likelihoods. Only social differences in attributes between observations can be identified (FG, 2007).

To resolve this issue, link intensity based on gifts amount is adopted as the dependent variable, and much larger variation is observed. As a result, linear dyadic model can be estimated to circumvent the issue of indecomposable dependent dyadic observation likelihoods.

The peer effect identification strategy is similar in spirit to the literature on utilizing variations in adjacent cohorts' composition within schools to identify peer effect (Hoxby, 2000; Gibbons and Telhaj, 2008). The Lagged median gift per occasion from new external peers instruments the lagged median gift from all peers. On the one hand, only a small part of one's previous peer group overlap with new peer group in each occasion, while most of the new peers come from brides' out-of-township blood relatives. This fact circumvents the endogeneity that confounds the identification of peer effect α_1 due to the common unobserved factors, such as transitory common shocks and local norms. External ceremony guests often share little common unobserved factors with

local households, due to the long distance and that in a patrilineal community fellow villagers attending male side ceremonies have little connection with brides' relatives. On the other hand, new peers' median gift per occasion is highly correlated with that of all peers by construction.

During the gift data collection, every effort was made to collect information on whether there were any brides' blood relatives that did not present gift. In this way, all households in the same village who did not send gift as well as external blood relatives are included in the estimations to circumvent the sorting problem. Moreover, the large variations in group size facilitate a reliable identification of peer influences. Further, the longitudinal structure of the data allows us to track each household's previous peers and distinguish between new peers and old peers.

To test FG's predictions on risk-sharing, throughout the dyadic estimations we construct social distances and level effects as FG's setting. We improve upon FG via disentangling peer effect and status seeking from risk-pooling motive. Moreover, we directly explore determinants of link intensity using long-term complete real gift networks. To the contrary, FG explores determinants of nominated informal insurance groups followed by estimating whether it predicts a small number of short-term transfers and loans in the real world.

The status seeking motive in BBZ's setting is adopted in our uniform framework, and we improve upon BBZ via isolating peer effect and the risk-sharing motive. While BBZ restricts peer groups at the village boundary and with no overtime variation in their compositions, our long-term detailed information on peer groups in each social event helps us more rigorously identify peer effect. We instrument peer influence that can be confounded by unobserved factors, while BBZ does not.

The main specification (2), however, does not directly explain the recent escalating gift spending. Reorganizing the dyadic link data to include two observations for each pair of households,⁸ the pairwise fixed effect model (3) is equivalent to the first difference model (3'). Therefore, it provides a direct way to investigate how the

⁸ To do that, we have to restrict our dyadic links to (potential) links between households who once held social occasions.

incremental gift spending can be interpreted by changes in three major factors, i.e., risk-sharing, status seeking and peer influence. We re-run the dyadic regression (2) but with pairwise-specific fixed effects $\mu_{i,j}$ that get rid of the potential unobserved pairwise heterogeneity. In the following dyadic regression model (3) and (3'), Let

$$y_{i,j,t} = \alpha_0 + \alpha_1 \text{median}[y_{-i,j,t-1}] + \alpha_2(z_{i,t} - z_{j,t}) + \alpha_3(z_{i,t} + z_{j,t}) + \psi w_{i,j,t} + \mu_{i,j} + \varepsilon_{i,j,t} \quad (3)$$

$$\Delta y_{i,j,t} = \alpha_1 \Delta \text{median}[y_{-i,j,t-1}] + \alpha_2 \Delta(z_{i,t} - z_{j,t}) + \alpha_3 \Delta(z_{i,t} + z_{j,t}) + \Delta \varepsilon_{i,j,t} \quad (3')$$

Gift escalation might be strengthened by rapid increase in windfall (w) and non-earned (v) income, we test this hypothesis by including social distance and level effect of windfall and non-earned income in the specification (3). Moreover, the grain subsidy has been implemented since 2005, and it does not rely on farming decisions but land size. The subsidy is believed to be spent on gifts. A DID estimator β_2 identifies its impact on gift spending. $grain_i$ is the treatment dummy equals 1 for grain growers. $p04_t$ denotes period dummy equals 1 for the post 2004 regime.

$$y_{ijt} = \dots + \alpha_2(w_{it} - w_{jt}) + \alpha_2'(v_{it} - v_{jt}) + \alpha_3(w_{it} + w_{jt}) + \alpha_3'(v_{it} + v_{jt}) + \beta_0 grain_i + \beta_1 p04_t + \beta_2 (grain * p04)_{it} \dots (4)$$

$$\text{where } \hat{\beta}_2 = (\bar{y}_{grain=1, post 2004} - \bar{y}_{grain=1, pre 2004}) - (\bar{y}_{grain=0, post 2004} - \bar{y}_{grain=0, pre 2004}) \quad (5)$$

Our conditional pairwise fixed effect model assumes conditional independence for consistency, which means that dyadic gift-giving decisions are independent from each other conditional on all explanatory variables and pair-specific unobserved factor $\mu_{i,j}$.

Given that the identification assumption of parallel trends holds, the DID estimator β_2 would not be confounded by any permanent differences in treatment and control groups that existed prior to the policy shift. Any other policy shifts or changes in socioeconomic variables in the same period that affected the gift-giving decisions of grain and non-grain farmers differentially would change the causal interpretation of the DID results. One possibility is the difference in price change in grain and non-grain produce. However, it is ruled out due to the fact that the price index for corn and other

minor competing products with no subsidy show similar growth pattern between 2004 and 2009,⁹ and only one farmer market exists locally.

5.3 Dependence of Dyadic Observations

Due to the presence of node-specific characteristics common to all links containing that node, dyadic links are not independent. The non-independence feature can be expressed as $E(\varepsilon_{i,j}, \varepsilon_{i,k}) \neq 0$, $E(\varepsilon_{i,j}, \varepsilon_{k,i}) \neq 0$, $E(\varepsilon_{i,j}, \varepsilon_{k,j}) \neq 0$ and $E(\varepsilon_{i,j}, \varepsilon_{j,k}) \neq 0$ for all k . Conventional OLS estimation generates consistent coefficient but inconsistent standard errors. Monte Carlo simulations show that the corrected standard errors can be much larger, especially for the average links for nodes is large (FG, 2007).

There have been three major methods to correct the dyadic standard errors. One is called Quadratic Assignment Procedure (QAP) that uses permutation methods to correct p-values (Santos and Barrett, 2008). However, it relies on bootstrapping. The second method adopted by FG (2007) corrects standard errors due to the cross-observation correlation in error terms involving certain individuals. The third method uses node fixed effect to purge out the unobserved attributes (De Weerdt, 2004). Though all the three methods are effective in their own ways, there still is an assumption that the error terms of two dyads containing no mutual members are assumed uncorrelated. We will release this assumption later by clustering the observations according to time periods. In this paper, we analyze main results from the second method while reporting results from the third method and other related robust checks in Appendix I.

To implement the second strategy, we introduce a set of dummy variables, one for each household in the sample indicating whether a household is involved in a pair. This means that every row of the data contains two dummies equal to one. Combined with the observable attribute variables, the set of dummies control the unobserved

⁹ The three villages surveyed have had little crop land, because of land acquisition near the county seat and the dam building. Corn is the major subsidized product and also the local staple food.

attributes left in the error term. The long term network record and frequent gift exchanges within each year allow us to identify the effects with a large set of dummies.

The third approach uses the following formula to correct covariance matrix for the coefficient estimates β , a vector. N denotes number of dyadic observations, and K is the number of regressors. X is the matrix of all regressors, X_{ij} is the vector of regressors for dyadic observation ij . We have $m_{ijkl} = 1$ if $i = k, j = l, i = l$ or $j = k$, and 0 otherwise.

$$Var(\hat{\beta}) = \frac{1}{N - K} (X'X)^{-1} \left(\sum_{i=1}^N \sum_{j=1}^N \sum_{k=1}^N \sum_{l=1}^N \frac{m_{ijkl}}{2N} X_{ij} u_{ij} u_{kl}' X_{kl} \right) (X'X)^{-1}$$

The absence of some dyadic observations is perfectly predicted by never holding any ceremonies in the past few years and/or not knowing each other across villages. Therefore, there is no point including those pairs in the dyadic regression. This strategy is consistent with other network formation studies. For instance, both FG (2007) and De Weerd (2004) identify a list of other households on which one could rely in case of need or to whom one gives help when called upon to do so.

6. Empirical Results

6.1 Determinants for Gift Spending Per Occasion

In Table 4, R1 and R2 present results from dyadic regressions on determinants for gift spending per occasion. We adjust for standard errors according to FG. R1 is a pooled cross-sectional estimation, while R2 estimate household Fixed-Effects model in the FG framework. We find incomplete risk-pooling: households do not purposefully insure each other against shocks, but younger households send more gifts to older families. Ordinary villagers send more gifts to cadre. Level effects show more intense gifts among the better educated families and families with higher share of unmarried son. Peer influence is salient, with a 1% increase in peers' gift spending per occasion leading to 0.33% growth in gift-giving per occasion. Consistent with BBZ, the interaction between skewness and kurtosis for the bottom 25% sample suggests that status seeking is more intense for the lower tail of the distribution.

To check the results, in Appendix I we report the dyadic estimations using De Weerdt (2004) standard error correction. R1 finds that poorer and lower educated households are motivated to present gift to richer and higher educated families, while the reverse is not true. Families with senior member or unmarried son send more gifts to households with no such members.¹⁰ Gift-giving is more intense between lineal relatives. Given lineal relative relationship, more gifts are cross-village, meaning that monitoring and enforcement difficulties are overcome by concern for risk-pooling.^{11 12} A 1% increase in peers' median gift spending per occasion leads to 0.2% growth in own gift spending.

Further to R1, specification R2 controls key time-varying characteristics of the group that may drive the formation and intensity of the network as well as individual gift spent, including kinship, education, assets and ceremony sizes that are believed to correlate with informal insurance group formation (De Weerdt, 2004; Broeck and Dercon, 2007). Further to R1, specification R3 controls for number of farmers and non-farm workers. Contrary to our expectation that potential for risk-sharing to be large for different occupations, farmers and non-farm workers do not significantly link each other.

6.2 Determinants for Gift Spending Growth per Occasion

Having presenting our results on the determinants for gift spending in an occasion, however, driving forces for the recent escalating gift spending are still left unexplored. In this subsection, we attempt to tackle this issue and compare it with determinants of gift spending.

Specification R3 in Table 4 shows that determinants for gift growth per occasion

¹⁰ Unlike other studies using household head age, our family demographic structure indicator in terms of share of the elderly and share of the unmarried son is controlled. The latter more directly captures potential complements in taking care of the elderly and insuring against lump-sum wedding expenditure for unmarried son.

¹¹ Our estimation of geographic proximity might be more reliable, since variations in geographic distance is larger in our dataset capturing numbers of cross-village links, while this type of link is absent in FG.

¹² The lower intra-village gifts eliminate the concern that households may self-select into a neighborhood with whom they prefer to pool risks. The historically evolved locality of farm land in rural China also prevents endogenous household placement. See Figure 1 for this pattern of geographic clustering based on inherited farm land.

are similar to determinants for gift spending reported earlier. A 1% growth in peers' gift spending increases own gift expenditure per occasion by 0.13%, smaller but very significant. Status seeking is significant for the bottom 25% group and the middle 50% group, while the magnitude for the middle 50% group is smaller. A 1-point increase in moments of the income distribution prompts a 1% increase in gift spending. Risk-pooling still seems to be imperfect. For instance, poorer households do not purposefully connect richer counterparts with growing gifts. There is no evidence of risk-sharing responding to major health and weather shocks. However, we do find risk-sharing based on age and, more importantly, geographic diversification. Results suggest that inter-village links are more important for income smoothing than intra-village links (e.g. Rosenzweig and Stark, 1989).

What role does windfall & non-earned income play in shaping the growth of gift spending? All estimations in Table 4 with income excluding windfall & non-earned sources show insignificant effect on gift growth, while we observe significant income effect on gift spending when all income sources, including windfall & non-earned income, are incorporated in the income measure (Appendix I). Does windfall & non-earned income play a role different from regular income in determining gift growth? To examine this possibility, we extend dyadic estimations in Table 4 via controlling for different sources of income.¹³

In Table 5, both social distance and level effect of windfall & non-earned income are identified in scenario R1. We find that pairs of households with 1% increase in total windfall income experience 0.32% increase in gift spending, while families with higher windfall income growth tend not to send more gifts to families with lower growth in

¹³ Windfall income in our context includes two exogenous sources: resettlement subsidy (targeting dilapidated houses and vulnerable habitats) and land acquisitions subsidy (due to urbanized projects near the local county seat). Before testing their impact on gift spending, the correlation between windfall income and family characteristics is tested in Appendix III and no significant result is found. The results suggest that these two categories are largely random to household characteristics. Meanwhile, non-earned income in our context involves two items: remittance and grain subsidy. To mitigate endogeneity issue that drives the effect of remittance on gift-giving, we define it to be sent from household members migrated for at least two years.

windfall income. Windfall income in our context is supposed to fulfill specific objectives. However, the wealth effect has triggered its usage in gift spending.

To identify the spillover effect of windfall income, Specification R2 only includes links for which the gift presenters do not have any windfall income and remittance from family members migrated for at least two years. The result shows that a 1% increase in gift receivers' windfall income spills over to gift presenters by a 0.56% increase in gift spending from the latter.¹⁴

Specification R3 refines the identification of windfall & non-earned income through including a DID estimator for grain subsidy. Previous results are confirmed, and the wealth effect of windfall income still exists though smaller. The grain subsidy since 2005 significantly drives rice farmers to spend 63% more on gift per occasion. Overall, the large marginal effects of both windfall income and subsidies suggest that gift spending is very responsive to these income sources, which is treated differently from regular income.

This subsection confirms that intensified peer effect, status seeking and windfall income are important factors in understanding escalating gift spending per occasion, while the risk-pooling motive is weak.

6.3 More Findings

Are peer influence and the status seeking motive stronger for social occasions of larger scale? R1 and R2 in Table 6 compare ceremonies of large versus small scales.¹⁵ Three major findings emerge for the two dyadic regressions. First, peer effect is rather weak for small ceremonies, possibly due to the fact that gift competition is often lower among blood relatives and during smaller ceremonies; second, the insufficient risk-pooling for households of different profiles follows previous results; third, status seeking is biased towards the lower 25% of the sample, no matter in larger-size or smaller-size

¹⁴ There is no windfall & non-earned income sharing mechanism in the eighteen villages. Therefore, the hypothesized impact of others' windfall & non-earned income could only affect one's gift expenditure through relative concern.

¹⁵ The local male wedding, funeral and come-of-age are widely regarded as large ceremonies, while female wedding, childbirth, house moving, joining army, college entrance are of smaller scale.

ceremonies. It is additionally biased towards the middle 50% of the sample for larger scale ceremonies.

Are peer influence and the status seeking motive more evidently reflected by gift spending in cash compared to in-kind gift? This might be an interesting issue. Evidence from the west show stigma associated with sending cash to friends (e.g. Waldfogel, 2002), while our observation in the field is the opposite, people tend to measure closeness according cash gift. R3 and R4 in Table 6 compare determinants for cash gift and in-kind gift.¹⁶ First, peer influence takes effect for cash gift but not for in-kind gift; second, risk-pooling is again incomplete. Pairs of richer households exchange more cash gift, while they send significantly less cash gift to poor households; further, status seeking is once again biased towards the lower 25% of the sample.

6.4 Robustness

We have examined how gift spending and its growth per occasion are affected by peer influence, status concern and the risk-pooling motive. We find evidence for intense peer influence and status seeking as well as imperfect risk-pooling among villagers of different profiles. We next test how robust the evidence is.

Link Dependence and Year Clustering

The correction of standard errors due to dependent dyadic observations might be insufficient, if we cannot rule out the possibility that the amount of gift i sends to j depends on the gift k sends to l , especially in the poor context that cash is binding. For instance, i could not send as much gift to j because k could not finance i after sending gift to l . To investigate this possibility, we re-estimate the dyadic model clustering standard errors at years. Only standard errors are affected, while it does not change

¹⁶ Exchanging in-kind gifts during ceremonies has been a long-term tradition. In wedding ceremonies, apart from the usual large expenses on cash gift, people send dumplings, pork, wool, woolen blankets, bed sheets, quilts, kitchen supplies, candles, wine, basins and pillows to the new couple to symbolize a sweet life or to help purchase necessities. During funeral ceremonies, people send less cash but more in-kind gifts and non-cash help. The in-kind gifts include corn, lamb, pork, woolen blankets, quilts, edible oil, wine as well as other sacrificial offerings. In celebrating come-of-age occasion, people send rice and children's wear, while in child birth ceremonies people additionally give wool, eggs and fruits. When friends and relatives move their houses, furniture, stoves and curtain are usually sent as gifts.

inference. The results are presented in R4 of Table 4.

Alternative Reference Groups

The main dyadic estimations assume households attending each ceremony as a reference group. Next we check peer effect via changing reference groups. Now suppose each household has an annual gift expenditure budget and allocates resources accordingly to each occasion. The annual budget is influenced by peers attending any of the same ceremony during a year. Therefore, individual gift links per year are grouped to reflect this change in reference groups. The grouping process g of own annual gift and peers' annual gift is expressed as $y_{i,t} = g_{j,c}(y_{i,j,c,t})$ and $y_{-i,t-1} = g_{j,c}(y_{-i,j,c,t-1})$.

Following the same rule, other variables can be grouped at the household level per year. The median of the left hand side variable and the right hand side variables are taken after grouping, which minimize over-influence of a certain ceremony in determining peers' gift spending. The dyadic equation (2) and the aggregated household equation are essentially equivalent, except the reference groups.

The resulting dataset has one observation for each household per year. Household panel data model is estimated that regresses median own gift per occasion within each year on median peers' gift spending per occasion. Both the two-way fixed effect (FE) model and the first-difference (FD) model are estimated to get rid of the household unobserved factor γ_i that may result in inconsistent estimation of peer effect α_1 .¹⁷

$$median[y_{i,t}] = \alpha_0 + \alpha_1 median[y_{-i,t-1}] + \tau_1 w_{i,t} + \tau_2 w_{-i,t} + \tau_3 v_{i,t} + \tau_4 v_{-i,t} + \gamma_i + \phi_t + \varepsilon_{i,t} \quad (6)$$

where $-i$ denotes all peers in a year. τ_2 and τ_4 identify peers' windfall & non-earned income that may spill over to household i .

Appendix IV presents the results. In the simplest setting R1, FE panel model is estimated with peer effect and predicted income only. It confirms significant income effect and peer effect in shaping gift spending. However, it is noted that the magnitude of peer effect is much larger than dyadic estimations. Scenario R2 further includes own

¹⁷ The most important assumption is that $\Delta \varepsilon_i$ is uncorrelated with the differenced explanatory variables. This assumption holds if the idiosyncratic error $\varepsilon_{i,t}$ is not correlated with the explanatory variable in both time periods.

windfall income. To explore potential spillover effect, specification R3 restricts to households with no windfall income and non-earned income. Peers' higher average windfall income significantly increases one's own gift spending. The same results follow in R4 when we do not restrict the sample but control for one's own windfall income and non-earned income as well as those from peers.

Specifications R5-R6 add in a DID estimator for the grain subsidy. R5 checks previous results on the determinants for gift spending, while R6 checks the driving forces for increase in gift spending. A 1% increase in peer influence leads to 0.79% growth in gift spending, much larger than dyadic regression defining each ceremony as a reference group. 1% increase in peers' windfall income brings a spillover effect by 0.05%. The marginal effect of the grain subsidy on gift growth is much larger.

7. Concluding Remarks

While lavish household social spending has been widely observed all over the world, special attention should be paid to the impoverished context where basic consumption and productive investment have been squeezed out due to this frivolous expenditure. Complementary to the literature which studies the determinants of total household social spending, in our analysis we stick to the micro foundation of the behavior –how a household's gift spending in an occasion responds to its relative status, peer influence and potentials to pool risks.

To the best of our knowledge, this was the first time that peer effect, risk-sharing and status seeking were brought together in a uniform framework to better understand network formation and its intensity. Meanwhile, little published study uses this framework to explore the determinants for escalating gift spending. In order to disentangle the three factors, we utilize a unique long-term gift exchange record from all households in rural communities matched with a census-type household panel data. Large variation in peer groups in each occasion helps to identify peer effect, the census-type survey facilitates a precise measure of relative status, and detailed household information enables us to quantify potentials for risk-pooling along several dimensions.

Our results confirm the prevalence of peer influence and the biased status seeking motive in shaping gift spending and its rapid growth. A 1% increase in peers' gift spending per occasion leads to 0.13%-0.34% increase in one's own gift per occasion, depending on whether the household fixed effect or pairwise fixed effect dyadic regression is estimated. If we adopt alternative reference groups based on ceremony participants per year, rather than participants per occasion, a 1% increase in peers' gift spending per occasion brings a 0.7% increase in one's own gift expenditure in each event. Status seeking is found significant for the bottom 25% group and the middle 50% group, while the magnitude for the middle 50% group is smaller. A 1-point increase in moments of the income distribution (the interaction between skewness and kurtosis) prompts a 1% increase in gift spending.

However, our results suggest imperfect risk-pooling. Specifically, risk-sharing is only observed via geographic pooling between households across villages and sometimes via idiosyncratic demographic structure, but it is not evident via occupation diversification, education or income.

These findings show incomplete risk-sharing to maximize potential gains from informal networks. Why is it the case? One standard interpretation is that network maintenance cost in dimensions other than geographic distance is too high to sustain. Another more plausible reason is that gift spending during social events is mainly utilized to manifest its social function. Therefore, we observe insignificant risk-sharing but salient peer influence and status seeking motive.

Moreover, we do find that households with unmarried sons tend to link similar families. Meanwhile, in some cases these families link other families without unmarried sons, but the reverse is not true. It is hardly surprising when we think about the reality of a tightening marriage market due to "excess men". The pressure to build bigger houses, bid up bride price, and throw larger wedding banquet to improve their sons' likelihood of marriage drives them to take full advantage of the social function of gift spending and prepare for the future raining day.

Our results suggest that the escalating gift spending might initiate among the richer pairs of households (due to the significant level effects) and then been transmitted to push up gift spending from the poor through three channels: first, the estimations on the impact of social distances find an asymmetrically higher motive for the poor to link richer people; second, the higher motive for the poor is coupled with intense peer influence; third, the status pressure is biased towards the lower tail.

The capability and motives for gift-giving is amplified due to massive windfall income and other opportunities amid the rapid development in China. Though received by some households, they spill over to peers and contribute to the rapid gift expenditure growth. For instance, the inflating cost for ceremonies coincides with the research finding that China passed the Lewis turning point of unlimited labor supply after 2003 (Zhang et. al., 2010). The passage of the turning point means significant rising wages in the labor market. Meanwhile, official subsidies have been more and more widely seen over the past five years. Direct grain subsidy was implemented since 2005, and the urbanization process in rural China started to accelerate recently, bringing lumpy land acquisitions subsidy to affected households.

Given our findings on insufficient risk-sharing, intense peer influence and status competition, the challenge ahead for public policy is to figure out how best to minimize the negative externalities caused by peer effect and status seeking and to promote more efficient risk-pooling for the poor.

References

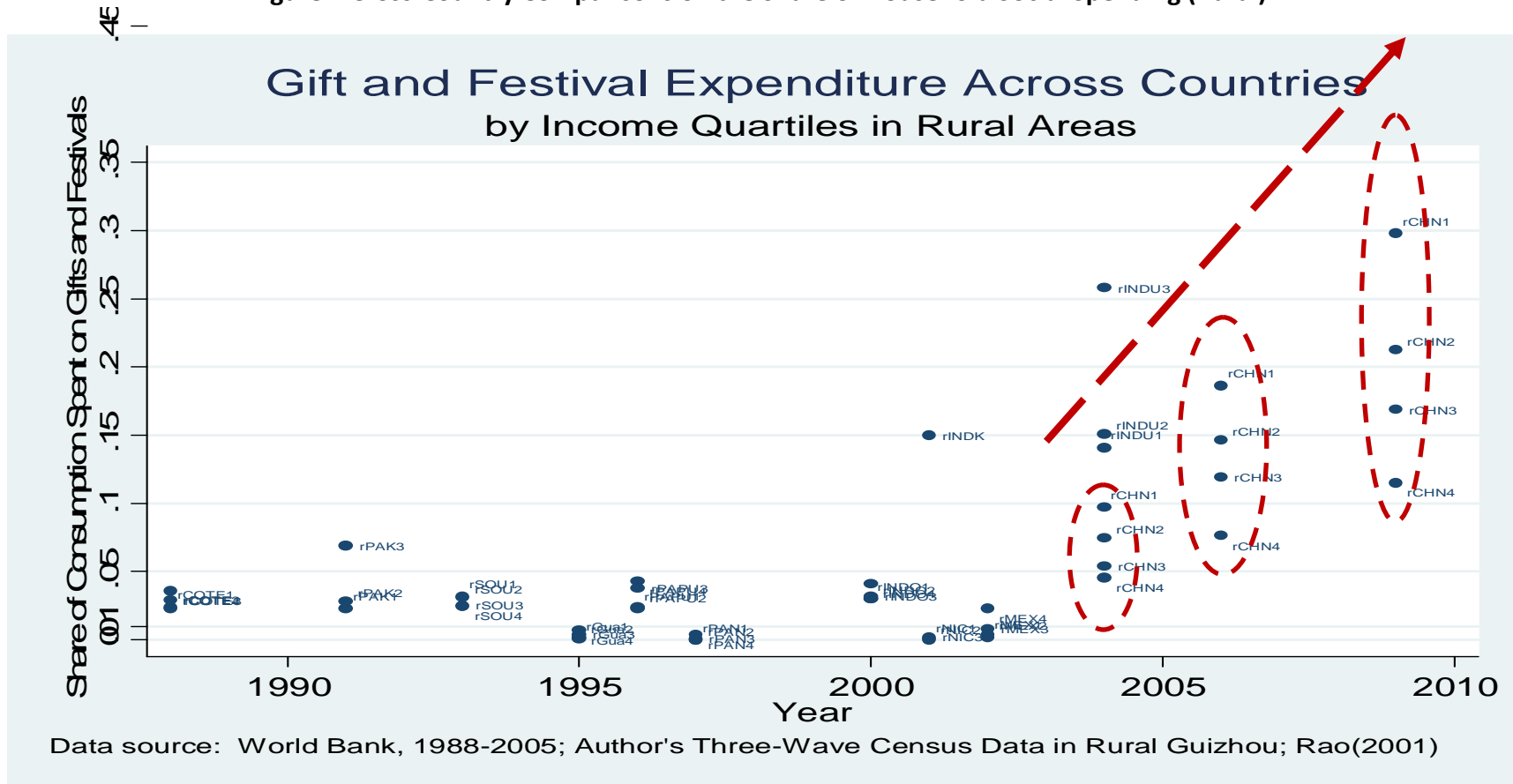
- Akerlof, G. 1976. "The Economics of Caste and of the Rat Race and Other Woeful Tales," *Quarterly Journal of Economics*, vol. 90(4), 599-617.
- Ammermueller, A. and J. Pischke. 2009. "Peer Effects in European Primary Schools: Evidence from the Progress in International Reading Literacy Study," *Journal of Labor Economics*, 27(3): 315-348.
- Banerjee, A. V. and E. Duflo. 2007. "The Economic Lives of the Poor," *Journal of Economic Perspectives* 21(1): 141-167.
- Basu, K. 1986. "One Kind of Power," *Oxford Economic Papers*, Volume 38 (2): 259-282.
- Benabou, R. 1993. "Workings of a City: Location, Education and Production", *Quarterly Journal of Economics*, 108(3): 619-652.
- Brock, W. and S. Durlauf. 2007. "Identification of binary choice models with social interactions," *Journal of Econometrics* 140(1), 52-75.
- Brock, W. and S. Durlauf. 2001. "Interactions-Based Models", in *Handbook of Econometrics*, Heckman and Leamer (Eds), Elsevier Science B.V.
- Broeck, K. and S. Dercon. 2007. "Social Interactions in Growing Bananas: Evidence from a Tanzanian Village," Discussion Papers 07-08, University of Copenhagen. Department of Economics.
- Brown, Philip H., Erwin Bulte, and Xiaobo Zhang. 2011. "Positional Spending and Status. Seeking in Rural China." Forthcoming, *Journal of Development Economics*.
- Calvó-Armengol, A., Patacchini, E. and Y. Zenou. 2009. "Peer Effects and Social Networks in Education," *Review of Economic Studies*, 76 (4): 1239-1267.
- Chen, X. 2009. "Network for All? Understanding Private Returns to Social Spending on Household Ceremonies," revise and resubmit.
- Chen, X. and X. Zhang. 2010. "Costly Posturing: Relative Status, Ceremonies and Early Child Development," working paper, Cornell University.
- Chen, X. 2011. "The Distribution of Income and Well-Being in Rural China: A Survey of Panel Data Sets, Studies and New Directions" Liming Wang (ed.), *Rising China in the Changing World Economy*, Routledge.
- Conley, T. and C. Udry. 2010. "Learning about a New Technology: Pineapple in Ghana." *American Economic Review*, 100(1): 35-69.
- Deaton, A. 2001. "Relative Deprivation, Inequality, and Mortality," *NBER Working Paper* #8099.
- Dekker, M. 2004. "Risk Sharing in Rural Zimbabwe: An Empirical Analysis of Endogenous Network Formation." Unpublished, paper presented at the CSAE Conference on Growth, Poverty Reduction and Human Development.
- Dekker, M. and H. Hoogeveen. 2002. "Bridewealth and Household Security in Rural Zimbabwe," *Journal of African Economies* 11(1): 114-145.
- De Weerd, J. 2004. "Risk Sharing and Endogenous Network Formation." In S. Dercon, ed. *Insurance against Poverty*. Oxford: Oxford University Press.
- Durlauf, S., and M. Fafchamps. 2005. "Social Capital." In P. Aghion and S. Durlauf, eds. *Handbook of Economic Growth*. Amsterdam: Elsevier.
- Evans, W., W. Oates, and R. Schwab. 1992. "Measuring Peer Group Effects: A Study of Teenage Behavior," *The Journal of Political Economy*, Vol. 100, No. 5, 966-991.

- Fafchamps, M. 1992. "Solidarity Networks in Preindustrial Societies: Rational Peasants with a Moral Economy", *Economic Development and Cultural Change*, 41: 147–74.
- Fafchamps, M., and F. Gubert. 2007. "The Formation of Risk Sharing Networks." *Journal of Development Economics* 83: 326-350.
- Frank, R. 1997. "The Frame of Reference as a Public Good," *Economic Journal*, 107: 1832-1847.
- Freeman, L. 1979. "Centrality in social networks: Conceptual clarification." *Social Networks*, Vol. 1, 215-239.
- Genicot, G. and Ray, D. 2000. "Endogenous Group Formation in Risk-Sharing Arrangements." mimeo, University of California and New York University.
- Ghiglino, Christian and Goyal, S. 2010. "Keeping Up with the Neighbors: Social Interaction in a Market Economy." *Journal of European Economic Association*, Vol. 8, No. 1, Pages 90-119.
- Glaeser, E. and Scheinkman, J. 2001. "Measuring Social Interactions." in *Social Economics* (Durlauf and Young, eds.), Cambridge: MIT Press, 83-102.
- Goldstein, M., and C. Udry. 1999. "Agricultural Innovation and Risk Management in Ghana." Unpublished, final report to IFPRI.
- Goyal, S. 2009. "Connections: An Introduction to the Economics of Networks." Princeton University Press.
- Graham, B. 2008. "Identifying Social Interactions through Conditional Variance Restrictions." *Econometrica* 76: 643-660.
- Hanushek, E., J. Kain., J. Markman. and S. Rivkin. 2003. "Does Peer Ability Affect Student Achievement?" *Journal of Applied Econometrics*, 18(5): 527-544.
- Heckathorn, D. 2002. "Respondent-Driven Sampling II: Deriving Valid Population Estimates from Chain-Referral Samples of Hidden Populations" *Social Problems* 49:11-34.
- Hoxby, C. 2000. "Peer Effects in the Classroom: Learning from Gender and Race Variation," *NBER working paper #7867*.
- Jackson, M. 2007. "The Study of Social Networks in Economics." In James E. Rauch, eds. *The Missing Links: Formation and Decay of Economic Networks*. Baker & Taylor Books.
- Krishnan, P., and E. Sciubba. 2005. "Links and Architecture in Village Networks." Unpublished working paper CWPE 0462, University of Cambridge.
- Lin, X. 2010. "Identifying Peer Effects in Student Academic Achievement by Spatial Autoregressive Models with Group Unobservables." *Journal of Labor Economics*, 28(4): 825-860.
- Mango N, Kristjanson P, Krishna A, Radeny M, Omolo A and Arunga M. 2009. "Why is it some households fall into poverty at the same time others are escaping poverty? Evidence from Kenya," DP No. 16. ILRI (International Livestock Research Institute), Nairobi, Kenya.
- Manski, C.F. 1993. "Identification of Endogenous Social Effects: The Reflection Problem." *Review of Economic Studies* 531-542.
- Moffitt, R. 2001. "Policy Interventions, Low-Level Equilibria, and Social Interactions", *Social Dynamics*, eds. S. Durlauf and P. Young. MIT Press.
- Murgai, R., Winters, P., Sadoulet, E. and de Janvry, A. 2000. "Localized and Incomplete Mutual Insurance." mimeo, World Bank and University of New England and University of California.
- Narayan, D., and L. Pritchett. 1999. "Cents and Sociability: Household Income and Social Capital in Rural Tanzania." *Economic Development and Cultural Change* 47: 871-898.

- Rao, V. 1993. "The Rising Price of Husbands: a Hedonic Analysis of Dowry Increases in Rural India," *Journal of Political Economy*, 101: 666-677.
- Rao, V. 2001. "Celebrations as Social Investments: Festival Expenditures, Unit Price Variation and Social Status in Rural India," *Journal of Development Studies*, 38: 71-97.
- Rosenzweig, M. and O. Stark, 1989 "Consumption Smoothing, Migration, and Marriage: Evidence from Rural India," *Journal of Political Economy*, 97: 905-926.
- Sacerdote, B. 2001. "Peer Effects with Random Assignment: Results for Dartmouth Roommates." *Quarterly Journal of Economics*, 116(2): 681-704.
- Santos, P. and Barrett, C. 2008. "Identity, Interest and Information Search in a Dynamic Rural Economy," working paper.
- The Economist. 2007. "Can Ghanaians afford such splendid funerals?" May 24.
- Udry, C., and T. Conley. 2005. "Social Networks in Ghana" In C. Barrett, ed. *The Social Economics of Poverty: Identities, Groups, Communities and Networks*. London: Routledge, Chapter 10.
- Waldfogel, J. 2002. "Gifts, Cash, and Stigma," *Economic Inquiry*, Oxford University Press, 40(3), 415-427.
- Yan, Y. 1996. "The Flow of Gifts: Reciprocity and Social Networks in a Chinese Village," Stanford: Stanford University Press.
- Zhang, Y. 2009. "Interpersonal Trust and Social Interaction between People of Different Regions Sizes." Working paper, The Chinese University of Hong Kong.
- Hoxby, C. 2000. "Peer effects in the classroom: Learning from gender and race variation," *NBER Working Papers No. 7867*.
- Gibbons, S and S. Telhaj. 2006. "Peer effects and pupil attainment: Evidence from secondary school transition," *CEE Discussion Papers 0063*, Centre for the Economics of Education, LSE.
- Zimmerman, D. 2003. "Peer Effects in Academic Outcomes: Evidence from a Natural Experiment", *Review of Economics and Statistics*, 85(1): 9-23.

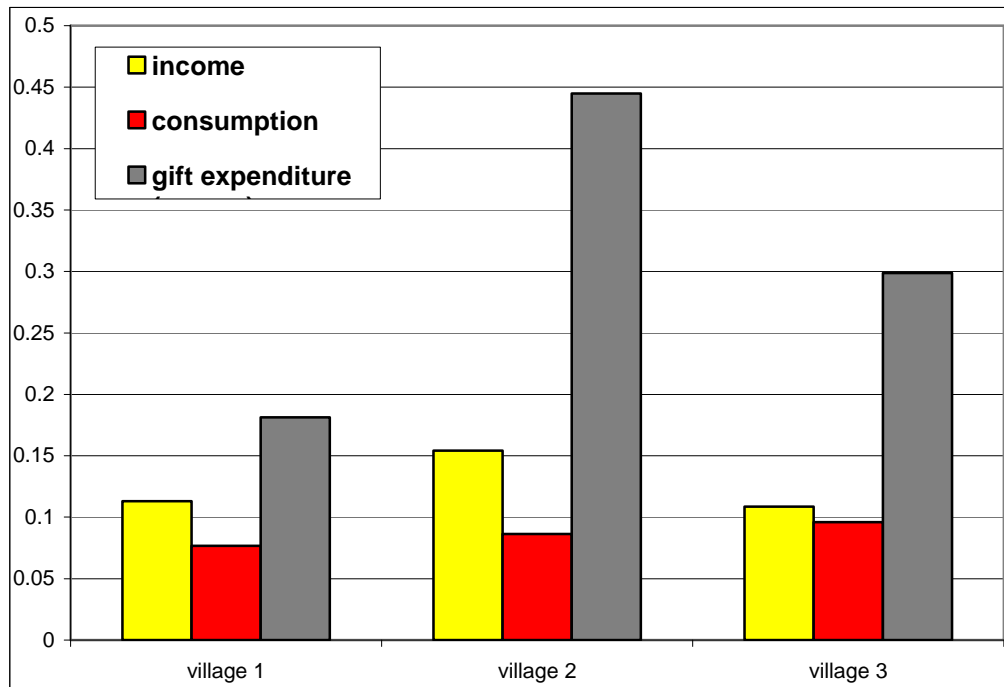
Note: Those bigger dots of the same color show households in the same clan. Dots to the boundaries show households from other villages.

Figure 2 Cross-Country Comparisons 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 3 Annualized Growths of (Per Capita) Income, Consumption and Gift Spending



Source: Gift record data (2005-2009) and three wave survey data.

Notes: Annualized growth rates have adjusted for inflation based on recent years' *China Statistics Year Book* issued by NBS.

Table 1 Summary Statistics by Natural Village (2009)

| | Village 1 | Village 2 | Village 3 | Total |
|--|-----------|-----------|-----------|-------|
| Total number of households | 48 | 27 | 80 | 155 |
| Total population | 203 | 96 | 295 | 594 |
| Distance to the county seat (km) | 10.0 | 11.0 | 2.5 | 7.8 |
| Per capita cultivated land (mu) | 0.87 | 0.16 | 1.10 | 0.71 |
| Share of flat land (%) | 40.0 | 20.7 | 80.0 | 53.4 |
| Male head of household (dummy) | 93.5 | 94.8 | 91.6 | 92.8 |
| Education of household head (years) | 2.87 | 3.06 | 3.98 | 3.44 |
| Minority head of household (dummy) | 2.9 | 90.1 | 5.9 | 18.9 |
| Share of household members aged 11-29, unmarried (%) | 15.9 | 15.7 | 14.7 | 16.6 |
| Share of household members aged 60 and above (%) | 14.2 | 17.9 | 12.5 | 14.1 |
| Income inequality in 2004 (Gini) | 43.7 | 41.9 | 41.6 | 44.2 |
| Income inequality in 2006 (Gini) | 46.3 | 52.9 | 42.7 | 48.9 |
| Income inequality in 2009 (Gini) | 46.5 | 61.7 | 50.9 | 55.2 |

Source: Authors' survey data for three out eighteen villages where we collected gift records.

Table 2 Gift Spending and Sizes of Ceremonies (2000-2009, per Occasion)

| Year | Come-of-age | | | Male Wedding | | | Female Wedding | | | Funeral | | |
|-----------|-----------------|---------|---------------|-----------------|---------|---------------|-----------------|---------|---------------|-----------------|---------|---------------|
| | Mean gift (RMB) | Gift SD | Mean # guests | Mean gift (RMB) | Gift SD | Mean # guests | Mean gift (RMB) | Gift SD | Mean # guests | Mean gift (RMB) | Gift SD | Mean # guests |
| 2000-2004 | 28.8 | 18.1 | 35.5 | 41.7 | 31.1 | 31 | 41.6 | 31.1 | 22 | 23.5 | 17.2 | 31 |
| 2005 | 25.1 | 12.3 | 34 | 45.9 | 36.1 | 38 | - | - | - | 28.7 | 17.4 | 49 |
| 2006 | 27.6 | 8.0 | 41 | 55.4 | 49.2 | 34.3 | 58.1 | 24.7 | 31 | 21.8 | 13.3 | 61.9 |
| 2007 | 46.6 | 27.8 | 46 | 50.5 | 25.9 | 40 | 53.3 | 44.1 | 26.3 | - | - | - |
| 2008 | - | - | - | 53.6 | 34.8 | 35.5 | 59.7 | 29.2 | 36 | 85.4 | 80.7 | 56 |
| 2009 | 73.3 | 51.6 | 51.5 | 90.6 | 61.3 | 37.3 | 68.4 | 39.7 | 45 | 37.9 | 33.2 | 75.5 |

Source: Authors' gift exchange data from three natural villages.

Notes: All gifts spent have been adjusted for inflation based on China Statistic Year Book published by NBS. "-" means no ceremony occurred during that year.

Table 3 Median Expenditures (RMB) in Organizing Major Ceremonies (1996 – 2009)

| Year | Come-of-age | Wedding (Groom's Family) | Wedding (Bride's Family) | Funeral Expenditure |
|------|--------------------|--------------------------|--------------------------|---------------------|
| 1996 | - | 4500 (3.00) | 3157 (2.10) | 2688 (1.79) |
| 1997 | - | 3852 (2.84) | 3100 (2.29) | 3471 (2.56) |
| 1998 | - | 5211 (3.85) | 3025 (2.23) | 3170 (2.34) |
| 1999 | - | 3634 (2.64) | 3829 (2.79) | 4328 (3.15) |
| 2000 | - | 6250 (4.85) | 2929 (2.27) | 4393 (3.41) |
| 2001 | - | 7371 (5.81) | 5644 (4.45) | 3388 (2.67) |
| 2002 | - | 7347 (5.20) | 4536 (3.21) | 3402 (2.41) |
| 2003 | - | 7891 (6.22) | 5143 (4.05) | 4655 (3.67) |
| 2004 | - | 10423 (8.24) | 4243 (3.35) | 6150 (4.86) |
| 2005 | 3208 (1.95) | 9486 (5.76) | 7633 (4.63) | 5156 (3.13) |
| 2006 | 3387 (2.62) | 11805 (9.14) | 7502 (5.81) | 6175 (4.78) |
| 2007 | 4284 (2.75) | 8569 (5.50) | 4927 (3.16) | 8096 (5.20) |
| 2008 | 8046 (5.50) | 13983 (9.56) | 5833 (3.99) | 7561 (5.17) |
| 2009 | 8154 (5.51) | 15066 (10.18) | 7766 (5.25) | 7151 (4.83) |

Source: Authors' survey data.

Notes: [1] All spending have been adjusted for inflation based on *China Statistic Year Book* published by NBS. All values are in RMB. [2] Recall data on organizing come-of-age ceremony were only collected since 2005. [3] Numbers in brackets denote expenditure as times of average per capita income in the 18 villages.

**Table 4 Main Results: Dyadic Regression on (Changes of) Gift Expenditure per Occasion
(with FG (2007) Standard Error Correction)**

| | R1 | | R2 | | R3 | | R4 | |
|---|-------------------------------|--------|----------|--------|----------------------------------|--------|--------------------------|--------|
| | Gift Expenditure per Occasion | | | | Changes of Gift Exp per Occasion | | | |
| | Cross-sectional | | HH FE | | Pairwise FE | | Pairwise FE+Year Cluster | |
| Changes in Social Distances (def(Zi , Zj)) | | | | | | | | |
| Cumulated shocks | -0.12* | (0.07) | 0.01 | (0.10) | -0.01 | (0.04) | -0.01 | (0.01) |
| Head minority status | -0.02 | (0.14) | 0.07 | (0.32) | 0.07 | (0.10) | 0.07 | (0.16) |
| Household size | 0.04* | (0.02) | 0.03 | (0.02) | 0.03*** | (0.01) | 0.03 | (0.02) |
| Number of farm workers | 0.05 | (0.04) | 0.04 | (0.04) | 0.01 | (0.01) | 0.01 | (0.02) |
| Number of non-farm workers | 0.01 | (0.03) | -0.04 | (0.05) | -0.02 | (0.02) | -0.02 | (0.01) |
| Head education | -0.02 | (0.01) | 0.00 | (0.02) | 0.00 | (0.01) | 0.00 | (0.01) |
| Head gender | -0.04 | (0.19) | -0.83** | (0.33) | -0.29*** | (0.10) | -0.29** | (0.14) |
| Cadre | 0.13 | (0.16) | -0.35* | (0.19) | -0.12** | (0.06) | -0.12 | (0.16) |
| Head marital status | 0.01 | (0.13) | -0.21 | (0.21) | -0.06 | (0.07) | -0.06 | (0.15) |
| Head age | -0.01 | (0.02) | -0.03** | (0.02) | -0.04* | (0.02) | -0.04** | (0.02) |
| Share of the elderly | -0.07 | (0.15) | -0.50** | (0.20) | -0.17** | (0.07) | -0.17 | (0.11) |
| Share of unmarried son | -0.17 | (0.14) | 0.11 | (0.17) | 0.05 | (0.06) | 0.05 | (0.10) |
| Per capita income (predicted, log) | 0.21 | (0.16) | 0.12 | (0.24) | 0.06 | (0.08) | 0.06 | (0.09) |
| Changes in Level Effect (sum(Zi , Zj)) | | | | | | | | |
| Cumulated shocks | 0.03 | (0.04) | 0.13*** | (0.05) | 0.04** | (0.02) | 0.04** | (0.01) |
| Head minority status | -0.07 | (0.06) | 0.02 | (0.33) | 0.05 | (0.10) | 0.05 | (0.19) |
| Household size | 0.04 | (0.03) | 0.01 | (0.03) | 0.01 | (0.04) | 0.01 | (0.02) |
| Number of farm workers | 0.09** | (0.04) | 0.09** | (0.04) | 0.03* | (0.01) | 0.03* | (0.02) |
| Number of non-farm workers | 0.04* | (0.02) | 0.02 | (0.05) | -0.01 | (0.02) | -0.01 | (0.01) |
| Head education | 0.01 | (0.01) | 0.03 | (0.02) | 0.01** | (0.01) | 0.01** | (0.01) |
| Head gender | -0.16*** | (0.05) | -0.96*** | (0.34) | -0.31*** | (0.11) | -0.31** | (0.14) |
| Cadre | 0.29** | (0.14) | 0.16 | (0.17) | -0.08 | (0.06) | -0.08*** | (0.02) |
| Head marital status | -0.08 | (0.07) | -0.28 | (0.21) | -0.09 | (0.07) | -0.09 | (0.10) |
| Head age | 0.01 | (0.01) | 0.02* | (0.01) | 0.03** | (0.01) | 0.03 | (0.02) |
| Share of the elderly | 0.38** | (0.18) | -0.04 | (0.20) | -0.01 | (0.07) | -0.01 | (0.05) |
| Share of unmarried son | 0.28*** | (0.10) | 0.61*** | (0.17) | 0.22*** | (0.06) | 0.22*** | (0.03) |
| Per capita income (predicted, log) | 0.02 | (0.18) | 0.02 | (0.08) | -0.02 | (0.03) | -0.02 | (0.03) |
| Change in Peer Influence | | | | | | | | |
| Peers’ median gift (per occasion, diff, lag, log) | 0.34*** | (0.10) | 0.33*** | (0.12) | 0.13*** | (0.04) | 0.13** | (0.06) |
| Status Seeking | | | | | | | | |
| Bottom 25% | 0.24 | (0.17) | 1.14*** | (0.29) | 0.40*** | (0.09) | 0.40*** | (0.09) |
| Top 75% | 0.40*** | (0.12) | 1.03*** | (0.24) | 0.33*** | (0.08) | 0.33*** | (0.06) |
| Bottom 25% * skkt | 0.01 | (0.01) | 0.02** | (0.01) | 0.01** | (0.00) | 0.01** | (0.00) |
| Top 75% * skkt | -0.00* | (0.00) | -0.02** | (0.01) | -0.01*** | (0.00) | -0.01*** | (0.00) |
| Middle 50% * skkt | 0.02* | (0.01) | 0.02 | (0.01) | 0.00** | (0.00) | 0.00** | (0.00) |
| N | 3136 | | 3136 | | 3136 | | 3136 | |

Notes: Dyadic standard errors are reported. * significant at 10%; ** significant at 5%; *** significant at 1%.

Windfall income is excluded in all scenarios. Village and year fixed effects are controlled.

Table 5 Extension I: Windfall & Non-earned Income and Gift Giving

| | R1 | R2 | R3 |
|---|--------------------|-------------------|--------------------|
| Peers' median gift (per occasion, diff, lag, log) | 0.20*** (0.08) | 0.19** (0.09) | 0.20*** (0.08) |
| After 2004 (dummy) | - - | - - | 0.00 (0.00) |
| Rice farmer (dummy) | - - | - - | -0.29 (0.25) |
| After 2004*Rice farmer | - - | - - | 0.63** (0.26) |
| Windfall income (diff, log) | -0.33*** (0.09) | - - | -0.28*** (0.09) |
| remittance (diff, log) | -0.02 (0.02) | - - | -0.02 (0.02) |
| Windfall income (sum, log) | 0.32*** (0.09) | 0.56*** (0.22) | 0.26*** (0.09) |
| remittance (sum, log) | 0.04 (0.02) | 0.04 (0.05) | 0.04* (0.02) |
| r2 | 0.40 | 0.42 | 0.41 |
| N | 7138 | 5238 | 7138 |

Notes: Dyadic standard errors are reported. * significant at 10%; ** significant at 5%; *** significant at 1%. Other variables follow exactly the Pairwise Fixed Effect estimation R3 in Table 4.

Table 6 Extensions II: Ceremony Scale, Gift Type and Gift Spending

| | R1 | R2 | R3 | R4 |
|---|------------------------|------------------------|-------------------|------------------|
| | Large Scale Ceremonies | Small Scale Ceremonies | Cash Gift | In-kind Gift |
| Peers' median gift (per occasion, lag, log) | 0.26*** (0.10) | 0.06 (0.34) | 0.26*** (0.07) | 0.03 (0.03) |
| Bottom 25% | 0.13 (0.12) | 0.04 (0.03) | 0.10 (0.08) | 0.05 (0.09) |
| Top 75% | 0.34** (0.14) | 0.15 (0.14) | 0.26 (0.20) | 0.06** (0.03) |
| Bottom 25% * skkt | 0.01** (0.00) | 0.00* (0.00) | 0.01** (0.00) | 0.01** (0.00) |
| Top 75% * skkt | -0.00 (0.01) | -0.00 (0.00) | -0.00 (0.00) | -0.00 (0.00) |
| Middle 50% * skkt | 0.00* (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) |
| r2 | 0.43 | 0.45 | 0.39 | 0.19 |
| N | 4814 | 2324 | 7138 | 7138 |

Notes: Large scale ceremonies include male wedding, funeral and come-of-age, while small scale ceremonies involve female wedding, childbirth, house-moving, joining army and college entrance. Other variables follow exactly R6 in Appendix I.

**Appendix I Household Fixed-Effect Dyadic Regressions on Gift Expenditure per Occasion
(with De Weerd (2004) Standard Error Correction)**

| | R1 | | R2 | | R3 | |
|---|----------|--------|-----------|--------|----------|--------|
| <i>Social Distances (def(Zi , Zj))</i> | | | | | | |
| Cumulated shocks | -0.02 | (0.05) | 0.08 | (0.07) | -0.08 | (0.05) |
| Head minority status | -1.07*** | (0.34) | -10.28*** | (3.45) | -0.93*** | (0.27) |
| Household size | 0.02 | (0.06) | 1.50*** | (0.51) | 0.01 | (0.06) |
| Number of farm workers | - | - | - | - | 0.08 | (0.17) |
| Number of non-farm workers | - | - | - | - | 0.08 | (0.10) |
| Head education | -0.11*** | (0.04) | -1.85*** | (0.54) | -0.10*** | (0.03) |
| Head gender | 2.67*** | (0.99) | -2.53 | (3.60) | 0.16 | (0.37) |
| Cadre | -0.76** | (0.36) | 5.43 | (4.66) | 0.03 | (0.19) |
| Head marital status | -0.06 | (0.13) | -5.93*** | (1.79) | -0.43 | (0.39) |
| Head age | -0.03*** | (0.01) | -0.29*** | (0.08) | -0.04*** | (0.01) |
| Share of the elderly | -0.49** | (0.21) | -0.97 | (2.29) | -0.41** | (0.23) |
| Share of unmarried son | 1.66** | (0.70) | 5.97*** | (1.92) | 0.48** | (0.24) |
| Per capita income (predicted, log) | -0.51*** | (0.18) | -0.51*** | (0.18) | -0.48** | (0.19) |
| <i>Level Effect (sum(Zi , Zj))</i> | | | | | | |
| Cumulated shocks | -0.07 | (0.05) | -0.18*** | (0.07) | -0.05 | (0.05) |
| Head minority status | -1.05*** | (0.34) | -10.31*** | (3.45) | -0.92*** | (0.26) |
| Household size | 0.01 | (0.04) | -1.51*** | (0.51) | 0.02 | (0.04) |
| Number of farm workers | - | - | - | - | 0.02 | (0.06) |
| Number of non-farm workers | - | - | - | - | -0.05 | (0.10) |
| Head education | 0.08** | (0.03) | 1.82*** | (0.54) | 0.06** | (0.03) |
| Head gender | -0.24 | (0.17) | 5.32** | (2.27) | 0.05 | (0.35) |
| Cadre | -0.33** | (0.16) | -18.51*** | (5.49) | -0.35* | (0.20) |
| Head marital status | 0.10 | (0.13) | 5.97*** | (1.79) | 0.29 | (0.40) |
| Head age | 0.04*** | (0.01) | 0.29*** | (0.08) | 0.04*** | (0.01) |
| Share of the elderly | -0.11 | (0.18) | -0.56 | (0.36) | -0.27 | (0.21) |
| Share of unmarried son | 0.41** | (0.16) | 6.08*** | (1.92) | 0.60* | (0.34) |
| Per capita income (predicted, log) | 0.62*** | (0.22) | 0.62*** | (0.22) | 0.66*** | (0.23) |
| <i>Peer Effect</i> | | | | | | |
| Peers' median gift (per occasion, lag, log) | 0.20*** | (0.08) | 0.19** | (0.08) | 0.29*** | (0.08) |
| <i>Link Attributes</i> | | | | | | |
| Lineal relatives or not | 1.63*** | (0.09) | 1.64*** | (0.09) | 1.63*** | (0.09) |
| Across villages or not | 1.34*** | (0.18) | 1.26*** | (0.18) | 1.39*** | (0.18) |
| <i>Status Seeking</i> | | | | | | |
| Bottom 25%* Skewness*kurtosis | 0.00* | (0.00) | 0.00 | (0.00) | 0.00* | (0.00) |
| Middle 50% * skkt | 0.01* | (0.01) | 0.02 | (0.01) | 0.00* | (0.00) |
| <i>Group Characteristics</i> | | | | | | |
| | No | | Yes | | No | |
| r2 | 0.40 | | 0.40 | | 0.42 | |
| N | 7138 | | 7138 | | 7138 | |

Notes: Dyadic standard errors are reported. * significant at 10%; ** significant at 5%; *** significant at 1%. Group dummies for bottom 25%, middle 50%, top 75% and its interactive terms with skewness * kurtosis are controlled but not reported here to save space. Group characteristics include Ceremony guest size, mean education, mean income and mean land size.

Appendix II Instrumenting Income

| | sum of per capita income | difference in per capita income |
|--|--------------------------|---------------------------------|
| | All regressors as sums | All regressors as differences |
| land (<i>mu</i>) | 0.02*** (0.00) | 0.02** (0.01) |
| machine (<i>dummy</i>) | -0.23*** (0.06) | 0.09 (0.18) |
| cow (#) | 0.05*** (0.01) | 0.11*** (0.03) |
| horse (#) | -0.06 (0.04) | 0.06 (0.13) |
| Hhsize (# <i>members</i>) | -0.07*** (0.01) | -0.15*** (0.02) |
| network size (# <i>lineal relatives, log</i>) | 1.22*** (0.20) | 0.13 (0.61) |
| edu (<i>years</i>) | 0.01** (0.01) | 0.08*** (0.02) |
| sex (<i>dummy</i>) | -0.16*** (0.05) | 0.31** (0.15) |
| cadre (<i>dummy</i>) | -0.04 (0.04) | -0.49*** (0.12) |
| shocks (# <i>times</i>) | -0.19*** (0.01) | -0.14*** (0.04) |
| Year dummies | Y | Y |
| Village dummies | Y | Y |
| r2 | 0.83 | 0.45 |
| N | 7239 | 7239 |

Note: Dyadic standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix III-1 Summary Statistics for Windfall Income & Non-earned Income

| Year | Mean* | Median* | Sd* | N* | Gini |
|---|----------|---------|----------|-----|------|
| Direct grain subsidy (targeting grain growing area) | | | | | |
| 2004 | - | - | - | - | |
| 2006 | 24.67857 | 20.5 | 19.83548 | 14 | |
| 2009 | 120.5333 | 90 | 122.5895 | 105 | |
| Remittance (from hh members migrated for at least 2 years) | | | | | |
| 2004 | 1385.588 | 980 | 1276.347 | 34 | |
| 2006 | 3357.313 | 2000 | 3685.253 | 67 | |
| 2009 | 3635.147 | 3000 | 3686.676 | 68 | |
| Resettlement subsidy (targeting dilapidated houses and vulnerable habitats) | | | | | |
| 2004 | - | - | - | - | |
| 2006 | 441.1692 | 396 | 521.9811 | 13 | |
| 2009 | 902.5333 | 600 | 758.0315 | 15 | |
| Land acquisitions subsidy (targeting hhs involved in projects near county seat) | | | | | |
| 2004 | - | - | - | - | |
| 2006 | 8896 | 10000 | 1548.574 | 5 | |
| 2009 | 60147.5 | 55000 | 55341.32 | 18 | |
| <i>All windfall & non-earned income (the above four categories)</i> | | | | | |
| 2004 | 1385.588 | 980 | 1276.347 | 34 | .899 |
| 2006 | 3130.69 | 1450 | 3742.577 | 88 | .878 |
| 2009 | 4629.227 | 500 | 17441.16 | 163 | .918 |

Source: Authors' survey data.

Notes: [1] This Table presents basic statistics on windfall income and major non-earned incomes collected from the three-wave survey.

[2] *households who received the specific subsidies/remittances. "-" denotes no occurrence.

Appendix III-2 Windfall Income and Family Characteristics

| | I | II | III | IV |
|--------------------------|------------------------------|------------------|-----------------------------------|-----------------|
| | resettlement subsidy (Logit) | | land acquisitions subsidy (Logit) | |
| lrmrelatives_normcenvill | 0.00 (1.00) | 0.01 (0.77) | -0.09 (0.54) | -0.07 (0.50) |
| hhsz | 0.02 (0.93) | 0.02 (0.90) | 0.40 (0.45) | 0.40 (0.31) |
| shrmigr | -1.08 (0.45) | -0.76 (0.58) | 1.81 (0.52) | 3.62 (0.24) |
| sex | -1.00 (0.18) | -0.91 (0.21) | -0.72 (0.49) | -0.65 (0.23) |
| minority | -0.54 (0.46) | -0.21 (0.67) | -1.21 (0.35) | 0.73 (0.41) |
| edu | -0.02 (0.84) | 0.00 (0.95) | -0.07 (0.82) | 0.26 (0.17) |
| cadre | 0.69 (0.26) | 0.62 (0.30) | 0.31 (0.22) | 0.42 (0.24) |
| age | 0.04 (0.11) | 0.03 (0.26) | 0.22 (0.12) | 0.15* (0.06) |
| shelder | -1.75 (0.19) | -0.50 (0.67) | -5.24 (0.36) | 0.26 (0.93) |
| shyouth | 0.54 (0.61) | 2.22** (0.02) | -0.03 (0.99) | 0.76 (0.81) |
| land | -0.01 (0.85) | -0.04 (0.56) | 0.28 (0.24) | -0.01 (0.96) |
| cow | 0.02 (0.95) | 0.16 (0.55) | -1.66 (0.19) | -0.02 (0.98) |
| horse | -0.01 (0.99) | -0.14 (0.88) | -0.21 (0.36) | -0.32 (0.71) |
| shocks | -0.40 (0.54) | -0.25 (0.70) | -0.01 (0.99) | -0.01 (1.00) |
| Year Fixed Effect | Y | N | Y | N |
| Village Fixed Effect | Y | N | Y | N |
| Pseudo R2 | 0.157 | 0.077 | 0.379 | 0.245 |
| N | 616 | 616 | 607 | 609 |

Notes: Resettlement subsidy targets dilapidated houses and vulnerable habitats due to natural disaster. Land acquisitions subsidy targets households affected by public construction projects near the local county seat.

Appendix IV Estimations with Alternative Reference Groups (2004 – 2009, Reference Group per Year, Household Panel Data)

| | R1 (FE) Basics | R2 (FE) Wind | R3 (FE) Pure Spillover | R4 (FE) Wind+Spillover | R5 (FE+DID) Wind+Spillover | R6 (FD+DID) Wind+Spillover |
|---|-------------------------------------|-------------------|---------------------------|---------------------------|-------------------------------|-------------------------------|
| | gift expenditure per occasion (log) | | | | | |
| Peers' median gift (per occasion in each year, lag, log) | 0.76*** (0.25) | 0.80*** (0.25) | 0.74*** (0.23) | 0.72*** (0.26) | 0.79*** (0.27) | 0.76*** (0.22) |
| Per capita income (log, predicted) | 0.60** (0.27) | 0.63** (0.28) | 0.86** (0.39) | 0.63** (0.29) | 0.44 (0.24) | 0.24 (0.26) |
| Windfall income (log) | - | 0.02 (0.03) | - | 0.06* (0.03) | 0.04 (0.03) | 0.06** (0.03) |
| Remittance (from members migrated >=2 yrs) (log) | - | 0.03* (0.02) | - | 0.03 (0.02) | 0.02 (0.02) | 0.02 (0.02) |
| Peers' median windfall income (log) | - | - | 0.05*** (0.04) | 0.07** (0.03) | 0.06** (0.03) | 0.05* (0.03) |
| Peers' median remittance (members migrated >=2 yrs) (log) | - | - | 0.03 (0.02) | 0.02 (0.02) | 0.02 (0.02) | 0.01 (0.02) |
| Post 2004*rice farmer (DID estimator) | - | - | - | - | 0.90*** (0.28) | 0.93*** (0.25) |
| Head characteristics, family characteristics and shocks | Y | Y | Y | Y | Y | Y |
| Distributional Indicators | Y | Y | Y | Y | Y | Y |
| Observations | 624 | 624 | 379 | 624 | 624 | 336 |
| Adj/(pseudo) R-square within | 0.22 | 0.23 | 0.30 | 0.24 | 0.26 | 0.15 |

Notes: [1] Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Estimations are clustered at the household level. [2] The same characteristics as in dyadic regressions are controlled, specifically, family characteristics (share of youth, share of the elderly, cadre, household size, land size, income per capita), head characteristics (gender, marital status, education, age, cadre, and ethnicity), and household shocks (death, livestock death, and large disease), and year and village fixed effects. [3] Reference groups defining peers' windfall income and remittance are based on gift records in the past 10 years. [4] The sample in scenarios R3 is restricted to households with no windfall income and remittance to identify pure spillover effect. [6] The first-difference estimation in scenario R6 only incorporates households in the three-wave balanced panel.