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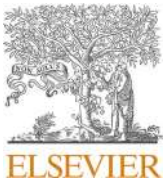

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Can social capital facilitate households' donations in rural China?

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ABSTRACT

Charitable donations by individuals are an important component of the third distribution. This paper examines the causal effect of social capital on donations by households in rural China. To do so, we draw on two waves of nationally representative household survey data collected by the authors themselves on 3295 households from eight provinces in China in 2018 and 2022. Our data show that about 24% of sample households ever donated money in 2019–2021, with the primary purpose of helping poor and sick individuals. We further use an instrumental variable approach to address the potential endogeneity of social networks. Results from two-stage least squares suggest that rural households with more social capital (as indicated by stronger social networks and with CPC family members) not only tend to be more likely to donate, but also donate more frequently and more amount during the study period. Results from mechanism analyses suggest that social capital promotes rural households' donations through the information effect, responsibility effect and reputation effect. The above results are robust to different model specifications and weighting schemes. This paper adds empirical evidence to inform policy-making in promoting charitable donations in China's pursuit of common prosperity.

1. Introduction

China set the lofty goal of pursuing common prosperity after successfully eliminating absolute poverty in 2020. In pursuit of common prosperity, a fair distribution system is needed. Alongside the first distribution driven by market forces and the second distribution by the government, the third distribution is driven by morality forces. According to Li (1994), the third distribution refers to reallocating income through individual income transfers, individual voluntary tax payments and charitable giving. In October 2019, the fourth Plenary Session of the 19th Central Committee of the Communist Party of China (CPC) proposed, for the first time, to attach importance to the role of the third distribution. In October 2020, the fifth Plenary Session clearly stated to "give full play to the role of philanthropy in the third distribution, and improve income distribution system."[1]

China's charitable donations have been growing since the implementation of the Charity Law in 2016, but they still lag behind other countries. In 2019, China's charitable giving was estimated to be about RMB 133 billion, with an increase of 4.72% over the last year.[2] According to the Charities Aid Foundation (CAF), China saw a significant rise in giving in 2020 due to the impact of the COVID-2019 epidemic, ranking eighth worldwide in terms of growth rate in 2021. However, compared with donations in other countries, China still

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[1] *Proposals of the Central Committee of the Communist Party of China on Formulating the Fourteenth Five-Year Plan for National Economic and Social Development and the Long-term Goals for 2035*.

[2] Data source: *The Blue Book on Philanthropy: China Charity Development Report (2020)*, published by the Chinese Academy of Social Sciences.

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falls behind in at least two aspects. The first one is participation, as indicated by the fact that China ranked at the bottom (126/126th) in terms of the World Giving Index (2009–2019) (CAF, 2019). In the face of COVID-2019, the Giving Index of China rose to 95/112th place in 2021. The second aspect is the share of donations in GDP. Donations accounted for 0.1% of the GDP in China in 2019, compared to 2.1% in the US in the same year.

Another feature of donations in China is that they are dominated by corporate donors. According to the China Charity Development Report (2020), 61.89% of donations in China in 2018 were contributed by corporate donors, whereas 25.06% were by individual donors. In contrast, on a world average, 67% of cash donations come from individuals, 28% from foundations, and only 5% from corporations.[3] There seems to be room for individuals in China to participate in donations.

In order to encourage individuals to participate in donations in China, it is necessary to understand its correlates. Studies inside and outside China have identified two broad sets of potential correlates. One is individual characteristics, including demographic characteristics, socioeconomic status and psycho-emotional factors (Bekkers & Wiepking, 2011b; Bryant, Jeon-Slaughter, Kang, & Tax, 2003; F. Liu & Lu, 2013; Wiepking & Bekkers, 2012; Yen, 2002). The other is incentives, such as tax incentives (Auten, Sieg, & Clotfelter, 2002; Chua & Wong, 1999).

In addition to those two broad sets of correlates, social capital has been brought to the attention of some scholars (Anderson, Mellor, & Milyo, 2004; Brown & Ferris, 2007). Social capital is a necessary complement to natural, physical and human capital (Ostrom, 2000). According to Lin (2001), social capital is a resource embedded in social networks that individuals acquire and utilize in their actions. It refers to the aggregation of some valued resources of members in economic, political, cultural, or social aspects at the group level. The main dimensions of social capital include social networks, trust and norms (Putnam et al., 1994).

This paper focuses on two dimensions of social capital at the household level: social network and political status. Social network characterizes the extent to which people relate to others. Previous studies have provided empirical evidence that social capital could narrow the gap between the rich and the poor through the initial distribution by increasing the labor productivity of the poor (Chantarat & Barrett, 2012; Narayan & Pritchett, 1999; Zhou & Ye, 2014). There is also evidence that social networks could help facilitate charitable giving (Brown & Ferris, 2007; Lenzi et al., 2012) as people within denser social networks are more likely to be asked for assistance (Bekkers, 2006). Political status is institutionalized social capital provided by political parties or regimes, which presents identity, power, and consequent deterrence (Lin, 2001). Cadre or party membership is often used as a proxy for political status (Morduch & Sicular, 2000).

A close examination of the literature reveals that few studies have investigated the causal impact of social capital on rural households' donation behaviors in China. Most studies on social capital and donations are conducted in contexts outside of China (Anderson et al., 2004; Brooks, 2005; Brown, 2001; Brown & Ferris, 2007; Glanville, Paxton, & Wang, 2016; Leonard, Croson, & Oliveira, 2010; Unger, Papastamatelou, & Arpagaus, 2022). For instance, Brooks (2005) proposed that some dimensions of social capital, like membership in associations, would increase donation probability, while others, like involvement in politics, would not. Among those limited studies conducted in China, most focused on corporate donations in an urban context (Feng & Cheng, 2010; Nan & Luo, 2013), while few examined individual donations in rural areas (Hu & Shen, 2013). To the best of our knowledge, the only study conducted in the context of rural China so far drew on samples from four counties in three provinces in the central or eastern part of China and thus lacks national representativeness (Hu & Shen, 2013), neither does it takes care of the endogeneity of social capital. Therefore, very little evidence in existing literature can inform policy-making on donations in rural China.

We target this topic for rural households for two reasons. On the one hand, it is necessary to understand whether rural households, as a group with relatively low income, would also donate. On the other hand, social capital may be more salient in the context of rural areas than in urban areas considering the bonding characteristics of society in rural China. Nowadays, urban societies usually consist of strangers from different socio-cultural backgrounds and their behaviors, including donations, are mainly organized by formal institutions (Bi, Jin, Ma, & He, 2010; Greif & Tabellini, 2010), or "*danwei*" in Chinese. In contrast, traditional rural societies in China are bonded by blood and geographical ties of similar ethnic groups (Fei, 1985). People conduct their productive activities and daily life based on informal institutions such as social networks. Such tight networks help to facilitate cooperation among villagers in repeated transactions, provide better public services and prevent free-riding (Narayan & Pritchett, 1999). Thus, it is worthwhile to investigate whether such an informal institution can also promote rural households' donation behaviors.

Therefore, this paper aims to examine the causal impacts of social capital on the donation behaviors of rural households in China. Under this goal, we seek to answer three research questions. First, what is the status of rural households' donations in recent years? More specifically, would rural households donate or not? Among those givers, how often, how much, and for what purpose do they donate? Are there any patterns across regions? Second, what is the causal relationship between social capital and rural households' donations? Finally, what is the mechanism underlying the observed relationship, if any, between social capital and rural households' donations? We believe answering these questions has important policy implications for China's third distribution in its pursuit of the lofty goal of common prosperity.

To answer the above questions, we draw on data from a nationally representative rural household survey conducted by the authors themselves in eight provinces in China in 2018 and 2022 and undertake three sets of analyses. First, we describe rural households' donation behaviors in terms of participation, frequency and amount. Second, we took an instrumental variable approach to examine the effects of social capital on rural households' donation behaviors, with a focus on two dimensions of social capital, namely social networks and political status. Finally, we discuss the underlying mechanisms through which social capital affects donation behaviors

[3] Data Source: *Philanthropy and The Global Economy*, published online by Citi GPS in 2021.

in the context of China.

The rest of the paper is organized as follows. Section 2 presents a review of related literature. Section 3 introduces the data and methods. Section 4 displays the empirical results, followed by an exploration of underlying mechanisms in Section 5. Section 6 concludes with policy implications.

2. Literature review

2.1. Motivation and correlates of charitable giving

Philanthropy, together with charitable giving, donation and volunteering, has long been a question of great interest in a wide range of fields including economics, sociology, political science, brain science, etc. Charitable giving, by sacrificing one's own interests to improve the welfare of others, seems to conflict with the self-interest hypothesis in classical economic theory. Thus the question of why rational individuals would donate has received considerable attention, as manifested in those rich theoretical explanations such as altruism, warm glow effects, peer pressure and social norms (Andreoni, 1989; Becker, 1974; Bernheim, 1994; Sugden, 1984).

An early model of altruism developed by Becker (1974) argued that people's utility depended not only on their own utility but also on others' welfare. Along this line, he introduced pure altruism into the model of individual utility maximization. Andreoni (1989) built on Becker's model by incorporating the "warm glow effect" and developed a non-pure altruism theory, arguing that people could gain utility not only from public provision to society, but also direct satisfaction from the act of giving. Sugden (1984) stated that individuals' charitable giving followed the social norm of reciprocity. Later on, Bernheim (1994) developed a conformity model assuming that individuals care about how they are perceived by others and try to exhibit socially normative behaviors such as giving.

Empirical studies also provide evidence of individuals' motivation to give. For example, Ariely, Bracha, and Meier (2009) tested individuals' motivations to donate through laboratory and field experiments and found that material incentives crowd out pro-social behavior. Bekkers and Wiepking (2011a), on the other hand, reviewed empirical studies on charitable giving in various fields and summarized eight mechanisms driving charitable giving: awareness of need, solicitation, costs and benefits, altruism, reputation, psychological benefits, values, and efficacy.

The persistent public concern about donations gives rise to another important question: Who makes donations? Bekkers and Wiepking characterized donors as being religiously involved, older, with higher levels of education and income, being married with children, and having higher cognitive abilities and pro-social personality traits (Bekkers & Wiepking, 2011b; Wiepking & Bekkers, 2012). In addition to individual characteristics, another strand of literature pointed to the role of external incentives in predicting individual giving behavior, with tax incentives being the focus of analysis (Auten et al., 2002; Chua & Wong, 1999; Feldstein & Taylor, 1976; Harbaugh, Mayr, & Burghart, 2007). However, according to Zhang (2015), tax incentives are not a strong predictor of individuals' donation behaviors in the context of China.

Although the motivations and correlates of individual charitable giving behavior have been widely explored internationally, much less attention has been paid to them in the context of China. This may be partly explained by the fact that charitable giving is dominated by corporates, and thus research has focused more on corporate giving behavior than on individual giving (Feng & Cheng, 2010). The existing evidence about charitable giving in China mainly derives from early survey data collected in major urban cities. For instance, Liu (2004) described urban residents' willingness to donate in Dalian, Shanghai, Hangzhou and Beijing. Drawing on data from urban residents in 20 cities in China, Bi et al. (2010) explored the effect of the *danwei* system and mobilization on urban residents' donations to Project Hope in China. Liu and Lu (2013) used a database of Chinese citizens' philanthropic behavior and found that the socioeconomic status of urban residents significantly positively affected their donations.

2.2. The impact of social capital on charitable giving

Previous literature has demonstrated the importance of exploring the relationship between social capital and individuals' donation behavior. Robert Putnam, a leading scholar of social capital theory, argues that there is a strong link between social ties and altruism, and that people who donate blood, make donations, and engage in volunteerism also have more social ties (Putnam, 2001). Furthermore, the link between social capital and residents' contributions to public goods may be one way social capital influences economic development (Leonard et al., 2010).

Along with the emergence of the social capital theory in the early 21st century, scholars integrated social capital into the analytical framework of charitable giving. For example, Brown (2001) examined the impact of human capital and social capital on charitable giving among 30,000 Americans in 2000. Further, Brown and Ferris (2007) explored the impact of social capital on giving behaviors along two dimensions: personal social network and trust in the community. They found that when social capital variables were introduced into the regression, the direct effects of human capital or religiosity decreased, confirming the importance of social capital in explaining individual generosity. Using the same dataset as Brown (2001), Brooks (2005) found a strong association between social capital and the level of giving. Moreover, Anderson et al. (2004) examined the relationship between social capital and the extent of subjects' contributions in a public goods experiment. Other studies from different regions also found a strong relationship between social capital and charitable contributions (Glanville et al., 2016; Leonard et al., 2010; Unger et al., 2022).

Despite its importance, the effects of social capital on residents' donation behaviors in China have not been closely examined. Among the few existing studies, Nan and Luo (2013) found that the stronger the social network and social trust are, the higher the likelihood that urban residents would make donations. Their findings imply the importance of social capital in explaining the donation behaviors of urban residents in China. In contrast, using survey data of 1600 people in rural areas of four counties in Jiangsu, Fujian

and Jiangxi in 2009, Hu and Shen (2013) concluded that social capital had limited effects on individual donations. More recently, Wang and Wang (2020) found positive impacts of social networks on individuals' donation behaviors on crowdfunding platforms.

A close examination of the literature reveals that little study has been conducted to examine the effect of social capital on the donation behaviors of rural residents in China with the only exception of Hu and Shen (2013). However, more than ten years have passed since Hu and Shen (2013)'s survey and China has changed a lot since then. And more importantly, Hu and Shen (2013) do not take care of the endogeneity of social capital and thus fail to obtain a causal relationship between social capital and donation behaviors of rural households in China.

Compared with previous literature, this empirical work presented here offers three marginal contributions. First, the current paper uses updated nationally representative survey data from rural areas to improve our understanding of the status of rural households' donations in China. Second, we extend the measure of donation behaviors by including the frequency of donation. The donation frequency may be a better indicator of households' preferences for charitable giving than the donation amount since it may be less restrained by the household's socioeconomic status. Last but not least, we explore the causal relationship rather than correlations between social capital and rural households' donation behaviors in China, and discuss the underlying mechanisms.

3. Data and methods

3.1. Data collection

We draw on data from the China Rural Revitalization Strategic Thinktank Survey (CRRSTS) administrated by the New Rural Development Institute, the China Center for Agricultural Policy and the School of Advanced Agricultural Sciences of Peking University. It is a longitudinal study first conducted in 2000 in six provinces: Hubei, Liaoning, Sichuan, Shaanxi, Hebei and Zhejiang. In 2016 and 2018, the sample provinces were expanded to Guangdong Province and Jiangxi Province, respectively.

When selecting the sample households, we employed a standardized multi-stage stratified random sampling process. In the first stage, we randomly selected sample counties within each sample province based on their per capita gross value of industrial outputs (Rozelle, 1996). Following a similar sampling procedure, we randomly selected sample townships and villages within each county in the second stage. Resident households were randomly selected within each village in the final stage.

In this paper, we draw on the recent two waves of CRRSTS, namely the 2018 and 2022 waves. The 2018 wave was conducted in December when the platform launched a large-scale field survey in eight provinces in China (Liaoning, Hebei, Hubei, Shaanxi, Jiangxi, Zhejiang, Sichuan and Guangdong), covering 3468 rural households in 324 villages in 54 counties. The 2022 wave tracked a sample of 3295 households from the 2018 wave.[4] Due to the travel restrictions associated with the outbreak of the COVID-2019 epidemic, the 2022 wave was launched in January but was not completed until August 2022. Both survey waves were conducted by trained enumerators through face-to-face, one-on-one interviews. Each survey wave collected rich information at the individual, household and village levels.

For the purpose of this study, we draw on information from three survey modules. The first module is households' donation behaviors. We first asked the households whether anyone in the household donated in cash or kind during 2019–2021. Based on household responses, we constructed three indicators to measure the donation behaviors of rural households in China: (a) Donation participation, a binary variable which takes 1 if the household donated and 0 otherwise. (b) Donation frequency, the number of donation times made by the household in this study period. (c) Donation amount, the total amount a donated household gave in 2019–2021. In the regression analysis that follows, this variable takes a logarithmic form.

The second module is households' social capital. All sample households were asked a question saying, "If someone in the family is sick and needs 5,000 RMB urgently, how many neighbors are expected to help?" The respondent was requested to respond by choosing one from the five choices that fits their case the best, namely "1=few, 2=20%, 3=50%, 4=80% and 5=all." Based on their responses, we constructed one measure of rural households' social capital called social networks. In the meantime, we constructed another measure of rural households' social capital called "political status," which is a dummy variable indicating whether any household member is a member of the Communist Party of China (CPC).[5]

The last module is a set of covariates at the household level. Specifically, we control for household head characteristics, including age, ethnicity, years of education, self-reported health and whether the household head had off-farm employment in 2018. We also controlled for household characteristics, including land area per capita, household assets per capita (log),[6] number of family members, whether there were children under six years old, and whether there were elderly members over 70 years old.

3.2. Model specification

To explore the relationship between social capital and rural households' donation behaviors, following the literature, we specify the empirical model as follows:

[4] A few household heads have passed away or refused to be visited in 2022, resulting in sample attrition.

[5] The Communist Party of China (CPC) is a century-old governing party in China. According to the organization department of CPC, by the end of 2021, CPC had a total of 96.7 million members and 4.9 million grass-roots organizations.

[6] Household assets were measured by summing up three major items based on their market value: machinery and equipment, durable consumer goods and house property.

Table 1
Descriptive statistics.

Variables	Obs.	Mean	S. D.	Min	Max
A. Dependent variable: donation behaviors					
(1) Any donation in your family in 2019–2021? (1 = yes, 0 = no)	3295	0.24	0.43	0	1
(2) Givers only, number of donation times?	802	2.96	5.25	1	60
(2a) Once (1 = yes, 0 = no)	429	53.49			
(2b) Twice (1 = yes, 0 = no)	123	15.34			
(2c) 3 times (1 = yes, 0 = no)	106	13.22			
(2d) 4 times (1 = yes, 0 = no)	32	3.99			
(2e) 5 times or more (1 = yes, 0 = no)	112	13.97			
(3) Givers only, donation amount (yuan), winsored at (1,99)	802	398.49	490.50	1	2000
B. Independent variable: social capital					
(4) Any CPC member in your family? (1 = yes, 0 = no)	3295	0.26	0.44	0	1
(5) If someone in the family is sick and needs 5000 RMB urgently, how many neighbors are expected to help? (1 = few, 2 = 20%, 3 = 50%, 4 = 80%, 5 = All)	3291	3.45	1.36	1	5
C. Household head characteristics					
(6) Age	3295	57.92	10.30	27	92
(7) Years of schooling	3295	6.89	3.18	0	16
(8) Han ethnicity (1 = Han, 0 = minorities)	3295	0.91	0.29	0	1
(9) Self-reported being in good health (1 = yes, 0 = no)	3295	0.59	0.49	0	1
(10) Any non-agricultural employment in 2018? (1 = yes, 0 = no)	3295	0.39	0.49	0	1
D. Household characteristics					
(11) Number of family members	3295	3.95	1.85	1	13
(12) Any children under 6 in your family? (1 = yes, 0 = no)	3295	0.19	0.40	0	1
(13) Any elderly over 60 in your family? (1 = yes, 0 = no)	3295	0.21	0.40	0	1
(14) Household land contracted per capita (Mu), winsored at (1,99)	3295	2.41	2.70	0	15
(15) Household asset per capita (Yuan), winsored at (1,99)	3295	60,599	82,175	0.5	500,650
E. Channel variables					
(16) Coverage of family WeChat group (0 = none; 1 = nuclear family; 2 = relatives)	3292	0.75	0.83	0	2
(17) Any cadre in your family? (1 = yes, 0 = no)	3295	0.25	0.44	0	1
(18) Any family honors or recognition? (1 = yes, 0 = no)	3295	0.076	0.266	0	1

Source: Authors' survey.

$$Donation_i = \alpha_0 + \beta_0 SC_i + \boldsymbol{\gamma}' \boldsymbol{X}_i + \varepsilon_i \quad (1)$$

where the dependent variable $Donation_i$ indicates rural households' donation behaviors, specifically whether to donate, the number of times to donate, and the amount to donate. The key independent variable SC_i indicates the two measures of social capital: social networks and political status. $\boldsymbol{X}_i$ represents a vector of control variables that include the afore-mentioned individual characteristics of household head and household characteristics. The regressions also control for county fixed effects by adding dummy variables of counties, which mainly reflect the natural resource endowment, infrastructure, cultural traditions and other factors related to rural households' donations at the county level. Furthermore, since there may be a correlation between data from the same village, all the regression models in this paper used clustering robust standard errors at the village level. It should be noted that to minimize the issue of reverse causality, for all right-hand side variables (social capital and other control variables), we use information collected in the 2018 survey wave while we use the donation information from 2019 to 2021 collected in the 2022 wave.[7]

We use different models for the three dependent variables according to their distributions. Specifically, we use a Probit model when examining donation participation. When it comes to donation frequency, we include zero values which represent households without donations. As the mean and standard deviation of the donation frequency vary widely and are overdispersal, we use a negative binomial regression rather than a Poisson regression. For the restricted continuous variable donation amount, we use its logarithmic form and employ a Tobit model.

As mentioned above, social capital could be endogenous due to reverse causality or omitted variables. To overcome the potential endogeneity, we took an instrumental variable (IV) approach by using the presence of a cultural service center in the village as the IV

[7] Using predetermined independent variables is preferable to panel data in this study for two reasons. First, using predetermined independent variables helps mitigate the endogenous issue associated with reverse causality that arises from the way our dependent variables are measured. Specifically, we measure donation indicators by the cumulative donation amount for 2015–2018 (2019–2021) in the 2018 (2022) survey wave whereas social capital by its level in 2018 (2022), respectively. It is unlikely that using panel data will alleviate such reverse causality. Second, as this paper draws on data from 3295 households over two survey waves, using household-level fixed effects by adding a dummy variable for each household would eat up the degrees of freedom, which may bias the estimates.

Table 2
Donation behaviors and social capital of rural households, by province.

Province	Donate or not	Donation frequency	Donation amount (Yuan)		Social networks	CPC membership
	Mean	Mean	Mean	Median	Mean	Mean
Hebei	0.35	1.38	332.49	200	3.56	0.23
Liaoning	0.22	2.31	237.32	100	3.67	0.31
Zhejiang	0.16	5.28	862.80	600	3.63	0.27
Jiangxi	0.21	3.41	469.21	300	3.34	0.24
Hubei	0.28	2.61	506.63	200	3.33	0.18
Guangdong	0.37	4.45	570.07	300	2.86	0.24
Sichuan	0.37	2.92	355.34	200	3.21	0.21
Shaanxi	0.24	3.36	408.57	200	3.55	0.27

Source: Authors' survey.

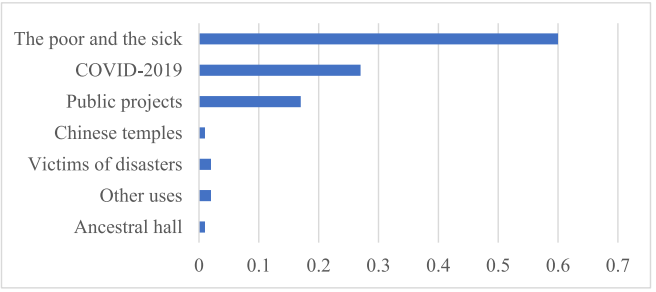

Fig. 1. Purpose of donations.
Source: Authors' survey.

for social networks. For the convenience of calculating the marginal effects and interpreting the results, we employed the two-stage least squares (2SLS) to estimate the causal effects for the three dependent variables, respectively. While Eq. (1) above is the second stage of the 2SLS estimation, the first stage is specified as follows,

$$SC_i = \alpha_1 + \beta_1 Z_i + \boldsymbol{\gamma}' \boldsymbol{X}_i + \varepsilon_i \tag{2}$$

4. Empirical results

4.1. Descriptive results

Summary statistics of variables for all samples are presented in Table 1. Our data show that about 24% of the rural households donated in 2019–2021. Among those givers, the average donation frequency is 2.96 times. About half of the households (53.49%) have donated once, whereas 15.34% have donated twice. The donation amount per household is 398 yuan at the mean level and 200 yuan at the median level.

Our data show there are obvious variations in all the three indicators of rural households' donation behaviors by province. As shown in Table 2, among the eight provinces, Guangdong has the highest proportion of givers in 2019–2021 (37%), while Zhejiang province has the lowest proportion (16%). However, conditional on givers, rural households in Zhejiang donated most frequently (5.28 times), while their peers in Hebei province did the least (1.38 times). Speaking of the donation amount, Zhejiang had the highest amount of donations, with a mean and median of 862.8 and 600 yuan, respectively. In contrast, Liaoning had the lowest amount on average (237 yuan).

Fig. 1 presents the donation purposes of households in rural China in 2019–2021. Most of the donations were for poor or sick individuals (60%), followed by COVID-2019 (27%) and public projects (17%) in turn. The least cited purpose is for Chinese temples or ancestral halls (1%).

When we look at the two indicators of rural households' social capital, our data also show significant variations by province. Table 1 shows that rural households in China have tight social networks, with an average of 3.45.[8] Among the provinces studied, rural households from Liaoning Province had the strongest social network (with a mean of 3.67), whereas those from Guangdong had the least (2.85) (Table 2). In terms of political status, 26% of rural households have any member of CPC on average (Table 1), ranging from 18.09% in Hubei to 30.80% in Liaoning (Table 2).

[8] Specifically, about 13%, 12%, 19%, 26%, and 29% of the sample believe "very few or none," "20%," "50%," "80%," and "all" of their neighbors would lend them money, respectively.

Table 3
The correlations between social capital on rural households' donations.

Variables	Donate or not	Donation frequency	Log Donation Amount
	Probit	Negative binomial	Tobit
	(1)	(2)	(3)
Social capital variables			
Social networks	0.045**	0.045	0.284**
	(0.021)	(0.037)	(0.122)
CPC family members	0.575***	0.707***	3.373***
	(0.064)	(0.102)	(0.354)
Control variables			
Age	−0.019***	−0.042***	−0.111***
	(0.003)	(0.006)	(0.017)
Years of schooling	0.020**	0.042**	0.132***
	(0.008)	(0.017)	(0.050)
Han ethnicity	0.025	−0.011	0.058
	(0.123)	(0.207)	(0.737)
Self-reported in good health	0.157***	0.279***	0.990***
	(0.058)	(0.105)	(0.347)
Non-agri employment in 2018	0.019	−0.069	0.074
	(0.063)	(0.107)	(0.366)
Number of family members	0.015	−0.057	0.086
	(0.020)	(0.037)	(0.118)
Log (land contracted per capita)	−0.006	−0.010	−0.044
	(0.006)	(0.009)	(0.036)
Any children under 6	−0.055	0.165	−0.335
	(0.078)	(0.133)	(0.453)
Any elderly over 70	−0.008	0.185	−0.096
	(0.067)	(0.126)	(0.391)
Log (Household asset per capita)	0.042**	0.054	0.281***
	(0.017)	(0.035)	(0.105)
Constant	0.015	−0.057	0.086
	(0.020)	(0.037)	(0.118)
/lnalpha		1.267***	
		(0.084)	
County fixed effects	Yes	Yes	Yes
Observations	3201	3291	3291
Pseudo R^2	0.137	0.087	0.073

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively.

Finally, we summarized the descriptive analysis of control variables. The average household head was 58 years old, with an average education level of 6.9 years. The proportion of Han ethnicity in our sample is 91%. An average household has four family members and 2.4 *mu* land per capita. The average total household assets per capita were 60,599 yuan. For land and household assets, we divided the total household contracted land area and the total household assets by the number of household members, respectively, before we winsored at (1,99).

4.2. Regression results

Regression results indicate that social capital is significantly and positively related to rural households' donations, being donation participation, frequency or amount (Table 3). Column (1) presents the Probit regression results with whether or not to donate as the dependent variable, suggesting that rural households with higher social capital (as indicated by stronger social networks and with a CPC family member) are more likely to donate. The results of the negative binomial regression in column (2) with donation frequency as the dependent variable show that the coefficients of social capital variables remain positive, despite some decrease in the significance of the social networks. Since the alpha value is significant at the 1% level, the hypothesis of the overdispersion parameter "alpha = 0" could be rejected. In other words, the negative binomial model is more appropriate than the Poisson model in this case. Using the logarithm of the donation amount as the dependent variable, and the Tobit regression results in column (3) show that both social networks and political status have significant positive effects on the donation amount.

Our results from regression analysis also show three control variables matter in explaining households' donation behaviors. At the household head level, the older a household head is, the less likely the household would donate, and the number and amount of donations also decrease significantly. Besides, those who perceived themselves to be in good health were more likely to donate than those who perceived themselves to be in poor health, and they were also more likely to donate more often and in higher amounts. At the household level, households with more assets are significantly more likely to donate, and donate more in amount.

To further understand the coefficients, marginal effects were calculated and reported in Table 4. We find that each unit of increase

Table 4
Marginal effects of social capital on rural households' donation behaviors.

Variables	Donate or not	Donation frequency	Log Donation Amount
	Probit	Negative binomial	Tobit
	(1)	(2)	(3)
Social networks	0.012**	0.034	0.284**
	(0.006)	(0.027)	(0.122)
CPC family members	0.157***	0.525***	3.373***
	(0.017)	(0.086)	(0.354)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

Table 5
The estimated effects of social capital on donation behaviors (2SLS).

	First-Stage	Second-Stage		
Variables		Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)	(4)
Social networks		0.211**	1.111**	1.330**
		(0.089)	(0.489)	(0.523)
CPC family members	0.120**	0.139***	0.289***	0.742***
	(0.054)	(0.026)	(0.130)	(0.147)
Village service center	0.216***			
	(0.057)			
Minimum eigenvalue statistic	18.230			
Observations	3287	3287	3287	3287

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

in social networks would raise the donation probability by 1.2 percentage points, raise the number of donation times by 0.03, and raise the donation amount by 0.28%. Meanwhile, compared with households without any CPC members, those with CPC members would raise the donation probability by 15.7 percentage points, raise the number of donation times by 0.53, and raise the donation amount by 3.37%.

4.3. Dealing with potential endogeneity

4.3.1. Political status

Although most previous studies have treated political status as an exogenous variable as reviewed by Cheng, Shi, Jin, and Gai (2016), we have two reasons to speculate its endogeneity in explaining donation behaviors. One reason is that there may exist reverse causality between political status and donation behaviors. Specifically, giving behaviors may be a manifestation of an individual's compassionate, pro-social preferences, which could be considered as a merit that enables an individual to obtain political status for being admitted to enter the party. In alleviating this concern, we adopt a predetermined variable approach. Specifically, we used the lagged values (namely data from the 2018 survey wave) of political status and other control variables (right-hand variables) to explain rural households' donation behaviors (left-hand variables) in 2019–2021 (namely data from the 2022 wave).

The other reason is that there might exist omitted variable bias when donation behaviors are influenced by unobservable confounders such as household cultures, which are also related to political status. To address this concern, we use CPC members' proportion in the village as its IV following Cheng et al. (2016). However, the result from the Hausman test does not provide any evidence that CPC membership is an endogenous variable. Therefore, political status would be considered an exogenous variable in the following analyses.

4.4. Social networks

Two potential sources of endogeneity would also arise when estimating the effects of social networks on donation behaviors. One is the concern of reverse causality, which means a donation can be made by individuals to gain better social networks. Similar to what we have done with political status, we used the lagged values of social networks. The other concern is omitted variable bias. Specifically, the background of the family members, their ability, personality, or other factors related to their social capital may also influence the household's decisions to donate. In order to alleviate this source of endogeneity, we use the household-level response to the question

about the presence of a cultural service center in the village as an instrumental variable of social networks. The justifications for its appropriateness as a good IV go as follows. In terms of relevance, the presence of a cultural center in the village offers residents an opportunity to make new friends and expand their social circle. As for exclusiveness, the existence or absence of a cultural service center in the village depends heavily on the village development plans and is hardly related to omitted variables at the household level that affect donation behaviors.

Table 5 shows the regression results from the 2SLS. Regression results from the 1st stage suggest the presence of a cultural service center in the village correlates significantly with the social networks of rural households (Column 1). Moreover, the minimum eigenvalue statistic is 18.23, which is higher than the critical value of 10, indicating good relevance of the IV to the endogenous variable. Regression results from the 2nd stage show that social networks significantly positively affect households' donation decisions of whether to donate, how many times to donate, and how much to donate after addressing the endogeneity of social networks (Columns 2–4). Meanwhile, the effects of CPC membership on households' donation behaviors remain significantly positive, regardless of the indicators of donations.

4.5. Robustness checks

We undertake four approaches to assess the robustness of the results. First, we redefine social networks into a dummy variable given the discrete feature (Appendix Table A1). It takes a value of 1 if "80% or more of neighbors" would lend money and 0 if "50% or less" would. Regression results from the 2nd stage show consistency with the benchmark results in Table 5. Compared to households with "50% or less" neighbors who would lend money, households with "80% or 100%" are more likely to donate, and would donate more in frequency and amount.

Second, considering the sample sizes from Jiangxi and Liaoning provinces are much bigger than the other six provinces, we set the weights to ensure consistent inclusion probabilities. Specifically, we weigh each sample household by $W = 1/(8*n)$. Where, n is the number of sample households in the sample province, and W is the inverse of the product of eight times and n. For example, the number of observations in Jiangxi Province is 1071, and the weight of each household in Jiangxi would be 1/ (1071*8). The re-estimated 2nd stage results taking weighting into account almost remain substantially the same (Appendix Table A2).

Third, we use proxy variables in the model to mitigate the potential omitted variable bias associated with some confounding factors that are difficult to observe but relevant to rural households' donation and social capital. For example, a family's giving behavior may also be driven by "soft factors" such as family rules and traditions, since philanthropic behaviors are often family-based, with couples making decisions together (Wiepking & Maas, 2009). In the meantime, the CPC has always attached importance to its members' education, training and criticism, requiring CPC members should uphold high standards not only for themselves but also for their families and children. Therefore, we used "whether your family has family rules" as the proxy for unobserved household cultures. The regression results controlling family rules remain robust (Appendix Table A3).

Finally, although we controlled for county-level fixed effects in the regressions, this may have overlooked some important heterogeneous characteristics at the village level, such as the geographic location of the village and whether the village has organized any donation activity, giving rise to the concerns of omitted variables. In response, we further include village fixed effects to control possible village-level characteristics that do not vary over time but may confound our estimations. The regression results (Appendix Table A4) with the inclusion of village-level fixed effects are generally consistent with benchmark results in Table 5, lending further evidence for the robustness of our research findings.

5. Discussions of the research findings

So far, our results have consistently shown the positive impact of social capital (namely, social networks and political status) on households' donations in rural China. Why is it like this? In this section, we seek to offer some explanations by examining three mechanisms underlying the research findings: information effect, responsibility effect and reputation effect.

5.1. Why would households with stronger social networks donate more?

An important role of social networks is to transmit information, share risks, and eliminate information asymmetry. Such information effect has been shown to help rural households gain more job opportunities (Wang & Zhou, 2013), gain more loans (Ma & Yang, 2011), increase the efficiency in collective action (Cai & Zhu, 2016), and so on. The information effect could also apply to donation decisions. The awareness of need was ranked by Bekkers and Wiepking (2011b) as the top motivation for donations. Giving information flows through social networks, and stronger social networks indicate a higher probability of receiving requests for help. In addition, with the rise of Internet crowdfunding platforms, social networks can act as a kind of authentication, which spreads fundraising projects more widely, and in turn, facilitates donations (Wang & Wang, 2020). Therefore, we propose the information effect as an important mechanism underlying the positive impacts of social networks on rural households' donations in China.

To empirically test the information effect mechanism, we use the household-level response to "the coverage of your family WeChat group" as a proxy for "information channel." This variable takes a value of 0 if a family does not have a WeChat group, a value of 1 if the family WeChat group covers the nuclear family, and 2 if the family WeChat group covers relatives. Descriptive statistics show that about half (50.06%) of the households do not have a WeChat group, a quarter of the households covers the nuclear family, and the remaining quarter covers relatives. This proxy variable is justified by the fact that WeChat is a popular instant communication application used on smart mobile phones in China. People can share information in WeChat groups through text, video, links, etc. We

Table 6
Tests for the mechanisms: 2SLS estimates.

Variables	Information effect	Responsibility effect	Reputation effect
	(1)	(2)	(3)
Social networks	0.662***	0.231***	0.143**
	(0.207)	(0.087)	(0.057)
CPC family members	0.053	0.355***	0.045***
	(0.056)	(0.027)	(0.016)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
County FE	Yes	Yes	Yes
Observations	3285	3287	3287

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

then run the 2SLS model to estimate the information effect, with the coverage of WeChat groups as the dependent variable, and the two dimensions of social capital as the independent variables. Results show that social networks significantly affect the coverage of the family WeChat group, lending evidence in support of the information effect mechanism (Column 1, Table 6).

5.2. *Why would households with CPC members donate more?*

We propose two possible explanations for the estimated positive effects of political status on the donation behaviors of rural households. One of the most straightforward explanations is that party members were asked to do so, especially given that the measure of donation behaviors spans the entire spread period of COVID-2019, which we will discuss in more detail in the later subsection. As the governing party of China, the mission of the CPC is to serve the people. Whenever the society is in need, appeals are made to CPC members to take the lead in making donations.

Another explanation we would like to propose and examine relates to the coupling of the informal and formal institutions, which we call the responsibility effect. This explanation lies in the fact that the assessment of the admission of CPC applicants is comprehensive, all-encompassing, and subject to specific intra-party democratic procedures. Hence, CPC members, as elites in village governance, are more likely to serve as cadres in the village and take the lead in making donations. For this reason, we used "whether anyone in the household is a village cadre" as a possible variable to test the responsibility effect. Results from 2SLS show that households with CPC members are more likely to serve as village cadres, indicating the responsibility effect works (Column 2). At the same time, another variable, social network, also significantly and positively affects whether to serve as a village cadre, implying that the two aspects of social capital can be coupled through formal institutions to achieve an increased likelihood of household donations.

5.3. *Reputation effect?*

In addition to the information effect and responsibility effect, any possibility of the reputation effect? Previous studies have shown that reputation effect is one of the main motivations driving donations as giving is generally seen as a positive behavior and highly valued by others (Bekkers & Wiepking, 2011a; Bereczkei, Birkas, & Kerekes, 2007). There has been evidence that people are more inclined to donate or contribute if their identities are public (Alpizar, Carlsson, & Johansson-Stenman, 2008; Bateson, Nettle, & Roberts, 2006). It is likely that households with strong social networks may donate in order to build up or maintain their reputations. Similar logic may also apply to households with CPC members.

To test such a reputation effect, we use "whether your household has any family honors or recognition" as a mediating variable. By family honors, we mean "star civilized household," "civilized household," and "five-good household." Having such kind of family honors sends a positive signal to others. Households with family honors may be intrinsically motivated to donate in order to maintain their good reputation. Results from the 2SLS regressions show that households with strong social networks and CPC members are more likely to receive family honors, lending evidence in support of the reputation effects (Column 3).

5.4. *Was the effect of political status on donations driven by COVID-2019?*

It is worth noting that to avoid the problem of reverse causality, we used donations from 2019 to 2021 as the dependent variable, which happens to be the period when COVID-2019 was rampant. Since the outbreak of the epidemic in Wuhan at the end of 2019, the Communist Party of China has led all levels of government and called on its members to take responsibility and quickly launch a counter-epidemic war. During this period, the willingness of people to donate has increased significantly, among whom the CPC members were more than obliged to do so because fighting the epidemic has become a top priority in many of their efforts. Therefore, if the impact of CPC membership on donations was attributed to the epidemic, then the positive impact of CPC membership on donations would be overestimated.

For this reason, we excluded the sample where the purpose of donations was epidemic fighting and re-ran the 2SLS models. The 2nd stage results in Table 7 show that family with CPC members still positively contributes to households' donation behaviors after excluding the epidemic purpose.

Table 7
2SLS estimates excluding the purpose for COVID-2019.

Variables	Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)
Social networks	0.161**	0.801**	1.060**
	(0.075)	(0.391)	(0.451)
CPC family members	0.095***	0.126	0.510***
	(0.023)	(0.104)	(0.135)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
County FE	Yes	Yes	Yes
Observations	3072	3072	3072

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

6. Conclusions

Drawing on a nationally representative dataset of 3295 rural households in eight provinces in 2018 and 2022, this paper describes the current status of rural households' donations in China, analyzes the impact of social capital on rural households' donation behaviors, and discusses the underlying mechanisms. The main findings of this paper are as follows. First, around 24% of the rural households in China donated in 2019–2021, with the primary donation purpose of helping the poor and sick individuals. Second, social capital significantly contributed to rural households' donation behaviors. Specifically, the strength of family and neighborhood networks positively affects the likelihood, frequency, and amount of donations. Meanwhile, rural households with CPC members were more likely to make donations, and tend to donate more frequently and in larger amounts than those without CPC members. Finally, we find that social capital works through the information effect, responsibility effect and reputation effect. These findings are robust to different models and weighting schemes.

We can draw three policy implications from those research findings. First, our findings about the positive impact of social capital imply the importance of constructing a harmonious society and promoting amiable social relations among people. Second, party members can continue to serve as role models in facilitating the third income distribution through voluntary donations in cash, kind or even time. Finally, an important finding of this paper is that even though rural residents themselves belong to a relatively low-income group, they are still willing to give. Therefore, another policy implication is to further promote the rural revitalization strategy and raise the income level of rural households.

We acknowledge two limitations of the study. On the one hand, this paper uses data from rural areas mainly based on bonding social networks, thus the findings may not apply to urban areas based on bridging social capital. When data become available, future studies can employ both urban and rural samples to further analyze whether and how the impact of bonding social capital differs from that of bridging social capital on households' donations. On the other hand, although we provide three potential mechanisms (information effect, responsibility effect and reputation effect) by which social capital may affect donation behaviors of rural households, this analysis is not entirely causally based since the three mechanism variables themselves are not necessarily exogenous. Hence, further mechanism analyses (such as employing causal mediation) are necessary for future work.

Data availability

Data will be made available on request.

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Appendix A. Results from robustness checks

Table A1
Robustness check 1: redefine social networks (2SLS).

Variables	Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)
Social networks	0.564**	2.958**	3.543***
	(0.228)	(1.268)	(1.335)
CPC family members	0.144***	0.313**	0.771***

(*continued on next page*)

Table A1 (*continued*)

Variables	Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)
	(0.024)	(0.128)	(0.137)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
County FE	Yes	Yes	Yes
Observations	3287	3287	3287

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

Table A2
Robustness check 2: take weighting into account (2SLS).

Variables	Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)
Social networks	0.251**	1.216	1.582**
	(0.124)	(0.791)	(0.727)
CPC family members	0.128***	0.394*	0.710***
	(0.036)	(0.215)	(0.210)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
County FE	Yes	Yes	Yes
Observations	3287	3287	3287

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

Table A3
Robustness check 3: incorporate confounding variables (2SLS).

Variables	Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)
Social networks	0.245*	1.260	1.565**
	(0.126)	(0.816)	(0.742)
CPC family members	0.125***	0.388*	0.692***
	(0.035)	(0.219)	(0.208)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
County FE	Yes	Yes	Yes
Observations	3286	3286	3286

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

Table A4
Robustness check 4: control village fixed effects (2SLS).

Variables	Donate or not	Donation frequency	Log Donation Amount
	(1)	(2)	(3)
Social networks	0.329**	1.802**	2.142**
	(0.162)	(0.898)	(0.999)
CPC family members	0.141***	0.232	0.751***
	(0.032)	(0.164)	(0.188)
Individual characteristics	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes
Village FE	Yes	Yes	Yes
Observations	3287	3287	3287

Note: Standard errors in brackets are the robust standard errors clustered at the village level; ***, **, and * represented significant levels of 1%, 5%, and 10%, respectively. Control variables are the same as in Table 3, and each regression controls the county fixed effects.

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