

# Do College Graduates Serving as Village Officials Help Rural China?

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## Abstract

This study estimates the effect of improved bureaucrat quality on poverty alleviation by exploring a unique human capital reallocation policy in China -- the "College Graduate Village Officials" (CGVOs) program. We find that introducing CGVOs into the village governance system improves the targeting and implementation of central government's social assistance programs. CGVOs help eligible poor households understand and apply for relevant subsidies, thus increase the number of pro-poor program beneficiaries. Further analysis suggests that CGVOs improve the quality rather than the quantity of village bureaucrats, and their presence reduces elite capture of pro-poor programs.

**Keywords:** college graduate village officials, pro-poor program, rural development, rural governance

**JEL:** O18, O20, J24

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## I. Introduction

Does bureaucrat quality matter for development? At the macro level, research finds that political leaders play important roles in shaping the growth of nations (Jones and Olken, 2005; Besley et al. 2011). At the micro level, evidence suggests that the quality of local government officials is critical for the implementation of policies and the delivery of public services (Martinez-Bravo, 2014; Bloom et al., 2015 a,b; Munshi and Rosenzweig, 2015; Rasul and Rogger, 2015; Yao and Zhang, 2015).

This paper provides new empirical evidence on the effect of improved bureaucrat quality on policy implementation by evaluating a unique human capital reallocation program in China - the “Selecting College Graduates to Work as Village Officials” program. Under this program, the Chinese government hires a large number of college graduates each year, and assigns them to rural villages where they serve as assistants to the elected village chairpersons or the appointed village party secretaries. These young village leaders are often referred to as “College Graduate Village Officials (CGVOs)”. The central government hopes that these CGVOs, who are more educated and independent from local interest groups, can help improve village governance and alleviate poverty.

The CGVO program fits into a village governance system that is both “democratic” and “autocratic”. In this system, a village has two self-governing bodies: a village committee that usually consists of three to seven members, and a village party branch consists of several Chinese Communist Party (CCP) members. The village chairperson, who is democratically elected since village elections were introduced in the mid-1980s, leads the village committee. The village party secretary, however, is usually appointed by the township-level government, and leads the village party branch. Studies have shown that China’s introduction of village elections has led to increased political accountability and public goods provision (Zhang et al., 2004; Martinez-Bravo et al., 2011; Martinez-Bravo et al, 2014). However, at the same time, since the village chairpersons often come from the largest village clans, and these dominant family clans are able to exercise considerable influence over electoral outcomes and public

resource allocation (O'Brien and Han, 2009; Xu and Yao, 2014), poor villagers, especially the poorest among the poor, may be under-represented in the existing village governance system.

The concern that rural governance is less accountable to the poor is not unique to the Chinese context. Due to asymmetric information and high monitoring costs, it is often difficult for upper level governments to precisely target the poor population in local villages. As a consequence, upper level governments have to rely on local “insiders”, who are supposedly better informed, to implement pro-poor programs. Previous research confirms that such decentralization can reduce the monitoring costs and improve the targeting of pro-poor programs (Klugram, 1997; Alderman, 1998; Coudouel et al. 1998; Bird and Rodrigues, 1999; Ravallion, 1998; Alderman, 2000). However, due to the lack of political accountability, empowering local administrators also increases the risk of corruption (Seabright 1996; World Bank, 2004; Olken and Pande, 2011; Ferraz and Finan, 2012). In addition, since there is often no self-targeting mechanism embedded into these pro-poor programs, the non-poor households also have strong incentives to capture the program benefits (see, for examples, Besley, Pande and Rao, 2012; Caeyers and Dercon, 2012; Alatas et al., 2013; Niehaus et al., 2013). In the end, the lion's share of the benefits from these programs may be captured by local administrators and non-poor households, while the neediest poor households gain little from them.

Given the existence of the trade-off between local information and accountability in rural governance, the introduction of CGVOs into villages may provide a unique opportunity for a more pro-poor development. On the one hand, CGVOs live and work in the villages and have to deal with village affairs every day. They are better informed than the outsiders, and can therefore improve policy targeting for the social assistance programs. On the other hand, CGVOs are educated in urban areas and have no *ex ante* political ties to the local interest groups, so they are likely to be more accountable than local officials. In fact, the majority of them hope to work as civil servants in upper-level governments after they finish their terms in the villages. This career incentive makes CGVOs less inclined to commit corruption. In addition, although CGVOs serve as assistants to the local village chairpersons or village party secretaries, their performances are evaluated by the upper-level (township) governments. This

provides incentives for CGVOs to represent the villagers' interests (or the upper-level governments' interests), which may or may not be aligned with local village leaders' interests.

The CGVO program is ambitious in scale and has been expanding rapidly. In 2012, CGVOs were assigned to more than 30% of Chinese villages; and ultimately, the central government would hire roughly 700,000 CGVOs, so that every village in China would have at least one CGVO. As the program expands, increasing controversies emerge. For example, people are concerned that this program might have misallocated human capital: since most CGVOs are not trained to work in the rural areas, their knowledge and experience about local governance and poverty alleviation can be extremely limited. Meanwhile, despite the tremendous costs of running the CGVO program, no rigorous impact evaluation or cost-effectiveness analysis has been conducted. Maintaining the CGVO program at its current level, or expanding it to an even larger scale, might lead to significant efficiency losses.

In this paper, we combine several unique sources of information and provide a rich set of qualitative and quantitative evidence on the impacts of the CGVO program. To understand the roles that CGVOs play in rural governance, we conducted a case study in Yuncheng city. We interviewed 56 CGVOs in 12 townships, obtained access to rich administrative documents related to the CGVO program, and conducted an online survey answered by 513 CGVOs. The case study informed us that CGVOs were heavily involved in the implementation process of various existing social assistance programs. Specifically, they helped target the most vulnerable households and provided assistance in their applications to various government subsidies. They could also reduce elite capture by ensuring that the assignment process of these subsidies strictly followed the administrative rules.

In addition to the case study, we participated in the design and implementation of a large cross-sectional survey covering 1489 nationally representative villages in China. Examining the survey data, we find that all the stakeholders (poor households, regular villagers, and CGVOs themselves) agree that CGVOs can better implement the existing pro-poor policies to help the poor households, confirming our findings in the case study.

To credibly estimate the causal impacts of the CGVO program, we obtained 12-year panel data (2000-2011) for 255 representative Chinese rural villages, and matched them to a retrospective CGVO survey that we conducted in 2012. We exploit the staggered timing of the assignment of CGVOs to different villages and estimate the impacts of the CGVO program using a Difference-in-Differences (DiD) model. Motivated by the findings in the case study and the cross-sectional survey, we focus on the impacts of CGVOs on the implementation of existing pro-poor policies. Our analysis shows that, in villages with CGVOs, more households are registered as “poor households” and more villagers are registered as “having disabilities” in the administrative files, which can help them become potential beneficiaries for relevant social assistance programs. More importantly, we find that poor households indeed benefit from these policies. In villages with CGVOs, more poor households receive poverty subsidies, and more dilapidated houses are renovated with government aids. These findings confirm our qualitative observation that CGVOs help more rural residents benefit from various social assistance programs by improving policy promotion and targeting.

We investigate the underlying mechanisms of the CGVO impacts by analyzing several other outcome variables. First, we rule out the possibility that CGVOs worsen the rural economy and thus make more households poorer and qualified for the social assistance programs. We find that per capita rural net income and per capita village business revenue are not affected by the CGVO program. There is also no evidence that CGVOs can help the rural residents develop more or less diversified income sources. We also rule out the possibility that CGVOs make the village council richer so that more poor households can be internally subsidized. In fact, village fiscal revenue, village fiscal expenditure, and village collective business revenue are not affected by the CGVO program.

Second, we test whether the CGVO effects are simply driven by introducing an additional official to the village governance system. It turns out that in villages with CGVOs, the village council size remains unchanged, but the average education level of village officials increases. These results imply that a CGVO crowds out an existing village official with lower level of

education. Therefore, it is more appealing to interpret the CGVO impacts as consequences of an improvement in bureaucrat quality rather than quantity.

Third, we investigate how CGVOs affect elite capture. Our analysis shows that not only do more people get subsidized in villages with CGVOs (extensive margin), but they also on average receive larger amounts of subsidies (intensive margin) in villages with CGVOs. This finding suggests that the presence of CGVOs reduces elite capture of pro-poor programs.

The remainder of this paper is organized as follows. Section II reviews the development of the CGVO program, the benefits of being a CGVO, and the recruitment and assignment processes. Section III discusses the details of our data collection efforts, which include a case study, a large cross-sectional village governance survey, and a longitudinal village socio-economic condition survey matched with our retrospective CGVO survey. This section also discusses two national pro-poor policies that are used for subsequent analysis. In Section IV, we summarize our qualitative and descriptive findings from the case study and the cross-sectional survey. Section V estimates the causal effects of the CGVO program on the targeting and implementation of pro-poor policies, and provides a variety of robustness checks. Section VI discusses the underlying mechanisms of the results found in the previous section. Section VII concludes.

## **II. Background**

### *A. Development of the CGVO Program*

The origin of the CGVO program in China can be traced back to the “Chuying Project” launched in 1995. Thirteen local college graduates, selected from over 200 applicants, were hired as assistants to the village heads in 13 villages in Jiangsu province. Later in 1998 and 1999, several other cities, such as Yancheng city, Anding city, Linggao city and Dongfang city, also launched similar programs. In 2000, Ningbo city in Zhejiang province initiated a larger program called “One Village One College Graduate” and hired more than 500 local college graduates as village officials. The 1995-2000 period is usually considered as the pilot stage of

the CGVO program, as these early explorations were mostly made by the county- or city-level governments in an informal and localized fashion.

In March 2000, Tianhe district in Guangdong province started to hire college graduates to work as village officials. A noteworthy feature of this recruitment was that the positions were open to all the college graduates in China. The recruitment aroused an enthusiastic response: more than 3,000 college students from different provinces went to Guangzhou to apply for these positions. The popularity of the program encouraged more cities and counties to launch similar CGVO programs, and the scale of hiring gradually increased. For example, Xingtai City in Hebei province hired roughly 1,000 CGVOs in 2004 and assigned at least one CGVO to each of its 5,200 villages in the following years.

After observing the development of local CGVO programs for a few years, the central government decided to promote the program nationally. In June 2005, the General Office of the Central Party Committee of China and the General Office of the Council of China jointly issued “*The Guideline on Encouraging College Graduates to Work at the Grassroots Level*”, which officially stated that the government would hire a large number of outstanding college graduates each year to work in the rural areas. Six provinces, namely Beijing, Sichuan, Jiangxi, Fujian, Qingha, and Liaoning, immediately followed this policy and started to recruit college graduates in 2006. Other provinces joined in the program later in 2007 or 2008. The long-term plan is to assign CGVOs to all the villages in China, and there are three primary motives behind this ambitious plan: (1) CGVOs can contribute to rural development and help reduce poverty; (2) the CGVO program can help reduce unemployment among college graduates; (3) CGVOs constitute an ideal pool of candidates who are well-educated and familiar with rural affairs, from which the government can select prominent long-term state employees.

Table 1 shows the evolvement of the CGVO program since 1999. The number of CGVOs was around 14,000 in 2001, which means only about 2% of villages had officials with college degrees. By the end of 2011 this number had grown by 14 times and reach to more than 210,000.



### *B. Benefits of Being a CGVO*

Due to enormous socioeconomic differences between rural and urban areas in China, living and working in rural villages is not an appealing option for many young college graduates, especially those who grew up in big cities. To compensate for the lower quality of life and attract better applicants, the central government provides an attractive package of benefits: (1) CGVOs are guaranteed to receive have salaries, pension, medical insurance, and other standard compensations directly from upper-level governments during their term of office (typically three years) (2) their contracts are renewable with all the benefits attached as long as their' performances meet some minimum requirements ; (3) governmental agencies will assist CGVOs in finding jobs if they choose to leave the villages after their term; (4) CGVOs are given priority in working and getting promoted in the government system, holding other factors equal ; (5) for those who take the National Civil Service Exam after the term, the admission requirements are lower, holding other conditions equal; (6) for those who want to attend graduate school after the term, bonus points will be added to their graduate entrance examination score;<sup>1</sup> (7) for those who want to start their own business after the appointment, the government will provide them with training programs, small loans, information consulting, tax and fees reductions, etc.

Governments at different levels jointly share the costs of this program. The central government provides basic compensations for CGVOs, then the provincial and lower-level governments offer some top-up benefits. Rich regions usually offer better packages. For example, Beijing provides CGVOs with a monthly wage of 2,000 yuan (\$317) in the first year, 2,500 yuan (\$396) in the second year, and 3,000 yuan (\$475) in the third year.<sup>2</sup> After serving as village officials for two years, CGVOs are eligible to obtain a Beijing Registered Residence (Hukou).<sup>3</sup> In Shanghai, a base wage of 2,000 yuan (\$317) per month is provided to the

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<sup>1</sup> They usually receive 10 bonus points, while the full score is usually 350.

<sup>2</sup> We use the exchange rate in 2012 (1:6.31) to convert Chinese yuan to US dollars.

<sup>3</sup> The Hukou System (Household Registration System) in China not only distinguishes people in rural areas from people in urban areas, but also distinguishes people from one place to another. The residence registration status is typically associated with a variety of benefits, such as education, housing and medical care. Beijing and other

CGVOs; by the end of each year, a lump sum compensation of 21,760 yuan (\$3448) will be given to those who passed the evaluations. In Chongqing, CGVOs have the same wage and benefits packages as entry-level civil servants. In Jiangsu and Shanxi provinces, their wages match those of other public institutions. In Hubei province, a CGVO receives a compensation of 15,000 yuan (\$2,377) per year, and a lump sum re-allocation compensation of 2,000 yuan (\$317). In less developed places, the wage is lower. Sichuan offers 900 yuan (\$143), 1,100 yuan (\$174), and 1,500 yuan (\$238) per month, to 3-year college graduates, 4-year college graduates, and master's degree holders, respectively. Guizhou province provides CGVOs with a monthly wage of 600 yuan (\$95). Henan provides 3-year college graduates, 4-year college graduates, and master's degree holders with monthly wages of 500 yuan (\$79), 600 yuan (\$95), and 800 yuan (\$127), respectively.

Each year, the township and county governments evaluate the performance of their CGVOs. If a CGVO is rated as “disqualified”, the government can terminate his appointment. A CGVO may be disqualified for several reasons. For example, if a CGVO is found committing crimes or violating the law, the appointment will be terminated immediately; if a CGVO participates in gambling, fighting, superstitious activities, and acts of indecency, or if he does not comply with the work-leave system (absent from work for more than 10 consecutive days, or more than 20 accumulated days in a year), the appointment can be terminated, too.<sup>4</sup> The evaluation results not only affect a CGVO's employment status, but are also linked to his/her future career development. In many cities, CGVO evaluation results are used to determine the level of priority they can have when applying for long-term state employee positions.

On the supply side, China's magnificent expansion of higher education in the 1990s makes it increasingly difficult for fresh college graduates to find jobs in the big cities. For example, in 2008 over 1.5 million college graduates were unemployed (CASS, 2008). It turns out serving as CGVOs is an appealing option for many fresh graduates and the admission of the CGVO

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major metropolitan cities impose very strict restrictions on Hukou registration. In the black market, a Beijing Hukou can fetch about 500,000 yuan (source: <http://news.qq.com/newspedia/101.htm>).

<sup>4</sup> On September 19th 2007, a CGVO in Fengyang county became the first CGVO to be laid off for being absent from work for more than 20 days in a year.

program has been very competitive. For example, Beijing planned to hire 3,000 college graduates in 2007, and more than 19,000 students applied. Among these applicants, roughly 1,800 held a master's degree. Shanxi province aimed to hire 9,030 village officials in 2009 and more than 181,300 applications were received. The admission rate was below 5%.

### *C. Recruitment and Assignment of CGVOs*

The CGVO recruitment process typically involves several rounds. After the government decides how many college graduates they will hire, all the applicants need to take a comprehensive examination, which is similar to the Administrative Aptitude Test and Essay Writing Test used in the National Civil Service Exam. Applicants with higher grades enter the second round and will be interviewed. The government typically selects twice as many candidates as it will eventually hire for the second round. Then, the recruiting team interviews all the candidates and grades their performances based on a variety of characteristics, such as communication skills, political ideology, and moralities. The recruiting team is also interested in whether the candidates are mentally prepared for working and living in the rural villages, whether they are familiar with rural development, and their future career plans. The total score of a candidate is the sum of the written exam score and the interview score, and the interview score usually accounts for 20% to 40%. Applicants with higher total scores will be asked to attend physical examinations. Once they pass the examinations, the government will hold CGVO training sessions to familiarize them with the rural affairs before assigning them to the villages.

The assignment of CGVOs is determined by upper-level governments (county level or city level). In practice, local governments use different rules to match CGVOs to villages, but the dominant rule is based on a CGVO's hometown. Most governments encourage CGVOs to go to villages that are closer to their hometowns so that the CGVOs are more familiar with the local conditions. Given that there are many dialects in China, matching by "hometown" significantly reduces the costs of communication. However, a CGVO cannot be assigned back to his hometown village, to ensure his/her independence from the existing village interest

groups. For other rules of assignment, some local governments may have incentives to assign CGVOs to larger and richer villages to boost economic development, while others may have the opposite incentives because they expect CGVOs to better alleviate poverty in poorer villages.

Since the assignment process is not entirely transparent to the researchers, we explore the potential determinants of CGVO assignments in the appendix.<sup>5</sup> We examine whether CGVO assignments depend on pre-determined village characteristics (such as village size and income level before the CGVO program) or time-variant shocks (such as change in income prior to the introduction of CGVO program) to the villages. However, after carefully analyzing these relationships, we find no evidence that the CGVO assignments are correlated with any of the observed factors. It seems that whether and when to assign a CGVO to a village is a rather idiosyncratic decision.

### **III. Qualitative and Quantitative Materials**

We collect qualitative and quantitative materials from three different sources. In Section A, we introduce a case study that we conducted in Yuncheng City. In Section B, we introduce a cross-sectional survey in 2015 that covers 1489 nationally representative villages. In Section C, we discuss the main data set for identification, which combines a 12-year panel survey covering 255 nationally representative villages, and a retrospective CGVO survey on these 255 villages that we conducted in 2012.

#### *A. Case Study in Yuncheng City*

Yuncheng City in Shanxi province has a population of 5.1 million, of which 4.5 million are agricultural. The CGVO program started in Yuncheng city in 2006, and roughly 1000 villages (out of 3000) had CGVOs in 2015. We gathered three sets of materials from Yuncheng city: (1) in-depth interviews with 56 CGVOs and 20 local village officials, (2) a rich collection of

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<sup>5</sup> Details on the assignment tests are discussed in Appendix A and the regression results are reported in Appendix Tables A1 and A2. More details about the data set are discussed in section III (C).

local CGVO administrative records, and (3) an online follow-up survey answered by 513 CGVOs in the city.

### **Field Interviews**

From July to August in 2015, we conducted in-depth interviews with local officials and CGVOs in Yuncheng City. We first interviewed the city government's chief official who was in charge of the CGVO affairs, and learnt from him that promoting government policy and poverty reduction were the two major tasks they assigned to CGVOs when hiring them. Then we visited four counties in Yuncheng city. In each county we first interviewed the local official in charge of the CGVO affairs, then interviewed CGVOs and sometimes local village leaders. In total we conducted in-depth interviews with 56 CGVOs and 20 village leaders.

### **Administrative Documents**

In addition to field interviews, we got access to local administrative records of CGVO affairs, which include rich information on the evaluations of CGVO performance.

The first type of document we collected was the "CGVO Self-Evaluation Form". The form was used by CGVOs to report their most significant contributions to the villages in each year, and was referenced by the upper-level officials for year-end evaluations. The reports were supplemented with specific examples and elaborated with details, thus informed us various types of works that CGVOs typically got involved in.

The second type of document we examined was the "Village Condition Notebook". The notebook was provided by the county government to CGVOs, and was used to record the needs and conditions of the village households when CGVOs visited them. In Yuncheng city, CGVOs were required (but not strictly enforced) to visit all the households in the village he/she worked in. After all the visits, the notebook was returned to the county government. This policy was intended to help CGVOs become more familiar with and get actively involved in village affairs, while also collect first-hand village information for the county government.

### **Online CGVO Survey**

Finally, to understand whether our findings from the field interviews and administrative documents are general in the city, we designed a short online survey and invited all the CGVOs

in Yuncheng City to participate in December 2015. Among the about 1000 CGVOs currently working in Yuncheng City, 513 completed the survey.

### *B. Cross-Sectional Village Governance Survey*

In 2015, the Policy Research Center of the Ministry of Civil Affairs of China launched a large cross-sectional survey on rural governance and public good provision in China. Collaborating with the survey team at the Policy Research Center, we designed a set of questions related to CGVOs. The sample of this survey consists of 1489 villages from 28 provinces, which were randomly chosen using a multi-stage stratified sampling method with probability proportional to population size. The survey includes three sub-surveys: a village survey, a poor-household survey, and a villager survey.

In the village survey, the Village Party Secretary (VPS) was asked about the general information of the village, including demographic information, agricultural production, economic development, public good provision, village governance and elections, etc. If the village had a CGVO currently assigned and the CGVO was available at the time of survey, he/she was also asked to fill out a short questionnaire about his/her basic information, experience as a CGVO, and a self-evaluation of contribution to the village. In total, 185 CGVOs were surveyed.

In 472 villages randomly chosen from the sample, a poor-household survey was conducted. The poor households in each village were randomly chosen from the pool of applicants who ever applied for the “poor households subsidy” provided by the government. The number of poor households surveyed in each village ranged from 1 to 13 depending on the village size, and the total number of surveyed poor households is 3079. In the poor-household survey, in addition to general socio-economic information, the respondents were asked to give their evaluations on various social assistance programs, and detailed records on whether they applied for (received) these benefits. In the end of the questionnaire, we asked the respondents to evaluate the performances of CGVOs on many different dimensions.

In addition to the poor-household survey, a random sample of 2808 villagers were also selected to fill out a villager survey. The villager survey collected detailed information on the respondent's family conditions, interactions with CGVOs, and their evaluation of CGVOs' contributions.

The combination of the three sub-surveys provides an informative description of the CGVO program and CGVOs' roles in village governance.

### *C. NFS Panel Data and Retrospective CGVO Survey*

The main data set for identification combines the National Fixed-Point Survey (NFS) from 2000 to 2011 with our retrospective CGVO survey conducted in 2012. The NFS is a longitudinal survey conducted by the Research Center for Rural Economy (RCRE) in the Ministry of Agriculture in China. The NFS was initiated in 1986, and covers about 24,000 households in 350 villages across 31 provinces in China. The survey used a multi-stage cluster population probability sampling method, and the sampling process included three strata. The first stratus was based on geographic topology dividing a province into three regions: plain, hilly, and mountainous. The second stratus was based on the county characteristics. Counties were divided into three groups by per capita income: low, middle, and high. Representative counties were chosen according to their per capita income. The last stratus was based on village characteristics. Within a county, one representative village was chosen in the sample. Then the households were randomly sampled in this village. There are about 2600 counties in China; the NFS sample covers 13.5% of them. The number of households surveyed in each village ranged from 50 to more than 100, depending on the size of the village. The NFS records a detailed set of household and village data for a relatively long period.

By agreement, we obtained access to the NFS village-level data for 255 villages in 19 provinces from 2000 to 2011. These provinces are Anhui, Fujian, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shandong, Shaanxi, Shanxi, Sichuan, and Zhejiang. The NFS data set includes detailed information on village income, population, employment, household composition, enterprise information, local

government, land, agricultural production, village business, subsidies and public good provision.<sup>6</sup>

In 2012, with the support of officials from the Organization Department of the Central Committee of the Communist Party of China (which is responsible for the administration of all state employees in China, including CGVOs), we conducted a retrospective survey on CGVOs in the 255 villages covered by our NFS sample. The questionnaire was sent by our partner officials to the Organization Department branches at the county level, for every county with a village included in the NFS sample. The county level officials were required to fill out the survey for the corresponding villages according to the local CGVO administrative files. Upon agreement of our partner officials, we asked in the short questionnaire whether a village has a CGVO, when the first CGVO was appointed, whether a CGVO was ever sacked, and how many CGVOs ever worked in the village in the past years. If available, CGVOs' characteristics were also collected.<sup>7</sup>

Figure 1 illustrates the share of villages with CGVOs in our sample. The share started to increase dramatically in 2007, one year after the central government's nationwide promotion of the CGVO program. Between 2000 and 2006, only about 1% of the villages had CGVOs, but the share rose to 30% in 2010. The trends are very similar to the national statistics reported in Table 1, suggesting that the NFS sample is indeed representative, and our retrospective survey is accurate.

#### *D. Key Variables and Summary Statistics*

When analyzing the NFS data set, we focus on two national pro-poor policies: the “Subsidizing Poor Households” program and the “Renovating Dilapidated Rural Houses” program.

##### **“Subsidizing Poor Households” Program**

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<sup>6</sup> Several previous studies have used part of the NFS data, such as Benjamin et al. (2005), Giles and Yoo (2007), Shen and Yao (2008), Padro-i-Miquel et al. (2012), Martinez-Bravo et al. (2011), and Martinez-Bravo et al. (2014). More details of the data can be found in those papers.

<sup>7</sup> Since many local administrative files did not record detailed information on CGVO characteristics, we have more than 50% of missing values for these questions. Therefore, we will not use these variables in our analysis.



The Chinese government subsidizes households living in poverty. A household is eligible for subsidy if its per capita net income falls below the poverty line.<sup>8</sup> A subsidized poor household usually receives around 500 to 5000 yuan (about \$80-800) per capita annually from the government, depending on the specific conditions of the household and the local CPI.

Many poor households are not subsidized because they are not aware of the relevant social assistance programs, or they are not able to complete the applications for the subsidies. A valid application requires not only filling out an application form, but also attaching a proof of low income certified by the village officials, a proof that the sons and daughters are unable to support the parents, a household registration book, a proof of diseases or disabilities if relevant, and sometimes a family photo. Some poor households, especially the illiterates, often find it difficult to gather all the evidence.

Besides the regular subsidies from the national “Subsidizing Poor Households” policy, poor people may receive subsidies from other poverty subsidy programs as well, including the “Five Guarantees” (“*wubaohu*”) program and the “Special Government Allowance and Care” (“*youfuduixiang*”) program. The “Five Guarantees” program include five State guarantees on proper food, clothing, medical care, housing and funeral expenses for eligible residents. The elderly, disabled, and children under 16 in rural areas who do not have adequate support from family, can receive financial aid from the government under these five categories. If the recipients are under age 16, they will receive allowances and other types of assistances to complete the nine-year compulsory education. The “Special Government Allowance and Care” program is entitled to eligible military-related residents, including discharged military service members with disabilities, demobilized service members, discharged service members, surviving family members of martyrs, surviving family members of the military members who were killed on duty or died of disease, and family members of service members on active duty.

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<sup>8</sup> The poverty line in China has changed over time. For example, in 1990, the poverty line was 300 yuan (\$47.54) per month, and it increased to 530 yuan (\$84) per capita in 1995. In 2000, the poverty line was set at 625 yuan (\$99), and it further increased to 683 yuan (\$108) in 2005. Based on local economic conditions, local governments can also set their own subsidy standards.

The recipients of “Special Government Allowance and Care” program are provided with pensions and other preferential treatments by the central government.

In the NFS data, we have information on the number of residents who receive subsidies from all three pro-poor programs in each village. We add them up and use the total number of subsidized population (normalized by village population) as an outcome measure.<sup>9</sup>

### **“Renovating Dilapidated Rural Houses” Policy**

Another centrally mandated policy aiming to help the poor households in China is the “Renovating Dilapidated Rural Houses” policy. Dilapidated houses refer to houses with damaged main structure, which has high probability of collapse. Dilapidated houses have lost their stability and carrying capacity, but many people, especially the poor, still live in these houses. Natural disasters, such as earthquakes, floods and typhoons, can easily bring down these houses and cause severe injuries or even death.

In 2008, the central government launched the “Renovating Dilapidated Rural Houses” program, which provides poor households with subsidies to renovate their dilapidated houses. The subsidy is provided by the central and provincial governments. Typically, the central government provides a fixed amount (for example, 5,000 yuan (\$800) per household in 2009), then the provincial government adds at least the same amount.

The dilapidated houses are classified into different levels based on the potential risks of collapse. Poorer households who live in high-risk houses are given priority for the renovation subsidy. The application for the housing renovation subsidy is rather complicated and involves multiple rounds of screenings and evaluations. First, the applicant needs to fill out a long application form and provide the household registration book, personal ID, and a proof of poverty obtained from the Department of Civil Affairs. Then, the application is screened by neighborhood villagers, village officials, township officials and county officials. Different

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<sup>9</sup> The findings remain the same if we just use the number of subsidized residents under the “Subsidizing Poor Households” policy. In fact, since the variable indicating the subsidized population under the “Subsidizing Poor Households” policy has less missing values than the variable indicating the subsidized population from all three programs, the results are slightly stronger, in terms of statistically significant and robustness, if we use the number of subsidized residents under the “Subsidizing Poor Households” policy as the main outcome variable.

levels of officials will evaluate whether the house is indeed dilapidated, whether the applicant can afford the renovation, and whether the applicant will spend the money solely on renovating the house and not on other issues.

In the NFS data, we have information on two types of houses: houses built with reinforced concrete and steel, and houses built with bricks, stones and woods. The latter ones are less stable and more dangerous than the former ones. In the sample, roughly 57% households live in houses built with bricks, stones and woods. Even though the exact number of dilapidated houses is not reported in the NFS data, we know that the dilapidated houses should be a subset of the houses built with bricks, stones and woods. So we investigate whether the share of houses built with bricks, stones and woods decreased after the CGVOs were assigned. Hereafter, we call the share of houses built with bricks, stones and woods “the share of poor housing” in the rest of this paper.

### **Summary Statistics**

In Table 2, we summarize the descriptive statistics of relevant variables that will be used in subsequent analysis. On average a village has about 1,756 residents with per capita net income 3,946 yuan (\$625). The subsidy rate is about 30 per 1000 rural residents. More than half of the households (57%) live in poor-quality houses built with bricks, stones and woods. Seven out of 100 households are registered as poor households, and the disability rate is about 1%.

In the village government council, the average number of village officials is 6, and roughly 42% of them received “high school or above” education. Per capita village government fiscal revenue and spending are respectively 504 yuan (\$80) and 319 yuan (\$51).

Besides, we also collected weather data (rainfall and temperature) from China’s national weather stations because weather conditions are important determinants of agriculture production, rural labor supply and income, etc.

#### IV. Qualitative and Associational Evidence on the Impacts of CGVOs

A CGVO's work can potentially involve almost every aspect of local governance. As administrative officers, they are supposed to deal with regular administrative affairs such as promoting national policies, documenting and classifying materials, collecting village statistics, and writing reports. As members of the village committees or of the local Communist Party branches, some of them could also be involved in the village policy-making process.<sup>10</sup> Some CGVOs also deliver training programs to villagers, for example, teaching villagers how to use computers and how to adopt new agricultural technologies. They could also help collect and distribute information on products, markets and new policies. In the event of a conflict, CGVOs may serve as mediators as well.

Given the potential multifaceted roles that CGVOs can play, it is important to get an overall understanding on which of these potential roles are particularly relevant and prevalent in reality. In this section, we first discuss the qualitative findings on CGVOs' responsibilities based on our Yuncheng case study, and then corroborate these findings by analyzing the cross-sectional village governance survey. These qualitative and anecdotal findings will be used to guide our DiD analysis in Section V.

##### *A. Yuncheng Case Study*

In the Yuncheng case study, we interviewed CGVOs, obtained access to administrative files, and conducted a short online CGVO survey. The information we got from these three different sources seemed to be highly consistent, forming a detailed and coherent description of CGVO responsibilities in rural governance.

##### **Field Interviews**

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<sup>10</sup> Although CGVOs typically serve as assistants to village chair or village party secretary, many of them have become direct decision makers in the villages in recent years. By the end of 2012, more than 67,000 CGVOs became members of village committees and communist party branches. Among those 67,000 CGVOs, over 4,200 became the secretaries of party branches and over 1,500 were elected as the chairpersons of village committees (CGVO Development Report, 2013).

When we asked CGVOs about their main responsibilities and obligations, “improving the targeting and implementation of national programs to help alleviate poverty” was the most frequent answer. More specifically, three channels were mentioned repetitively: (1) strictly enforcing the procedures of national policies to make policy implementation more transparent and less exposed to elite influence; (2) providing information to villagers, especially by answering their questions regarding the rules and application processes of various social assistance programs, and assisting them throughout the whole application process; (3) adopting the E-governance systems, which can be used to formally register the poor households, making them potential beneficiaries for future social assistance programs.

### **Administrative Files**

In the “CGVO Self-Evaluation Forms”, which required CGVOs to list their most important contributions in the past year and provided specific examples, “poverty reduction” was listed as a major achievement by almost every CGVO. Specifically, many CGVOs mentioned that they helped promote and implement the “Subsidizing Poor Households” program and the “Renovating Dilapidated Rural Houses” program, which significantly improved the welfare of the poor villagers. In Appendix B, we provide several sample copies of these “CGVO Self-Evaluation Forms” with English translations.

In the “Village Condition Notebooks”, CGVOs documented the main contents of their conversations with the village households during the required household visits, with the contents verified by the signatures of the involved villagers. After carefully reading these notebooks, we found a common phenomenon: many poor households were unfamiliar with the eligibilities of different types of social assistance programs, so were not sure whether they should apply or which program they should apply for. As a result, many poor households were not properly subsidized despite being qualified for certain programs. In the documented conversations, the poor households often explained to CGVOs about the difficulties their families were facing, and consulted CGVOs whether they could apply for certain subsidies. Then, CGVOs were able to help them by finding suitable programs, providing suggestions on the application process, or bringing this information to upper-level officials who were in charge

of these social assistance programs. Sample copies of these conversation records are provided in Appendix C with English translations.

### **Online Survey**

In the short online survey in Yuncheng City, we asked a series of questions related to the responsibilities and performances of CGVOs. We first asked them “do you think your presence in the village has made the procedure of policy implementation and decision making more formal and transparent?” Almost all CGVOs (510 out of 513) responded that they believe there was a positive impact. Then we asked them “what are your main responsibilities in the village”, in a multiple choices question with 11 options, the most frequently mentioned 5 answers were: (1) helping villagers apply for subsidies to renovate their dilapidated houses (37%), (2) promoting various government programs (33%), (3) providing suggestions to needed villagers (29%), (4) helping assign poverty subsidies to needed villagers (26%), and (5) works related to computers and internet (26%), respectively.

We then asked: “at which stages do you contribute to the implementation of pro-poor programs?” Roughly 40% of them mentioned that they conducted home visits to evaluate the needs of relevant households and gave them advices; about 30% of them mentioned that they helped the poor households prepare their application materials; also about 30% mentioned that they helped strictly enforce the group decision-making process of choosing beneficiaries, as required by the Ministry of Civil Affairs.

Finally, to better understand the incentives of CGVOs, we asked them: “what are the criteria you think your performance evaluation is based on”. The top three answers are (1) “effectiveness of policy promotion” (43%), (2) “effectiveness of preventing conflicts between villagers” (42%) and (3) “effectiveness of poverty reduction” (36%), respectively.<sup>11</sup>

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<sup>11</sup> A large share of conflicts between villagers is caused by dissatisfactions with the allocation of the pro-poor subsidies.

### *B. Evidence from the Village Governance Cross-Sectional Survey*

In the 2015 Village Governance Cross-Sectional Survey covering 1489 nationally representative villages, we designed a series of questions related to CGVOs. We surveyed three different groups of stakeholders: poor households, random villagers and CGVOs themselves and asked the same set of questions related to their awareness, attitudes and evaluations of CGVOs.

The results are summarized in Table 3. In Panel A, we asked the poor households and random villagers whether they had ever heard of the CGVO program. If their answers were yes, we asked them whether there were any CGVOs currently working in their villages. If they said there were CGVOs in the villages, we further asked them whether they had received any assistance from these CGVOs.

Their answers reveal several interesting patterns. First, a larger share of random villagers had heard of the CGVO program than the poor households. This may reflect the fact that the poor households are generally less-informed about national policies, and live in a relatively more disadvantageous position. Second, for those who had heard of the CGVO program, a larger share (24%) of poor households reported that there were CGVOs in their villages. In stark contrast, only 4% of the villagers who heard of the CGVO policy said that there were CGVOs in their villages. Since roughly one third of the villages had CGVOs in our village survey, the results indicate that many villagers were not aware of the existence of CGVOs in their villages. This striking difference in the awareness of CGVO presence between the poor households and random villagers implies that CGVOs work more closely with the poor households than the general population. Third, for those who reported that there were CGVOs in the villages, more than one third of them (both poor households and non-poor households) had received assistance from CGVOs.

In Panel B, we further asked those who reported that they had received assistance from CGVOs, in which specific aspects CGVOs assisted them: (1) agricultural technology and production advising, (2) rural-urban migration advising, (3) policy consulting, (4) application for subsidies, (5) filling in forms or writing letters, (6) child education consulting, (7) IT and

computer consulting, (8) products marketing, (9) investment consulting and application for loans. Among all these nine aspects, three were most relevant to pro-poor policy promotion: (3) policy consulting, (4) application for subsidies and (5) filling in forms or writing letters. In columns (1) and (2), we find that 58% (the highest) of the poor households reported that CGVOs provided policy-consulting services to them. Roughly 37% (the second highest) of them told us that CGVOs helped them apply for subsidies. Besides, about 33% (the fourth highest) of the assisted poor households said CGVOs helped them to fill in forms or write letters.

In the sample of randomly selected villagers who received assistance from CGVOs, more than 50% of them reported that CGVOs helped with policy consulting, subsidy application and filling forms or writing letters (columns (3) and (4)), which are highly consistent with the answers of the poor households. Interestingly, while less than 10% of the poor households reported that they received help from CGVOs on “marketing for agricultural product” and “investment consulting”, more than 30% of the random villagers report to have received help on these aspects, which is consistent with the fact that they are on average richer and more entrepreneurial than the poor villagers.

We asked CGVOs the same set of questions. CGVOs also told us that most of their work involved policy consulting and subsidy application (columns (5) and (6)). These statistics are remarkably consistent across the three sets of respondents.

Another interesting observation is that, despite a relatively large share of surveyed villagers (37% of the assisted poor households and 56% of the assisted random villagers) reported that CGVOs provided them advices on agricultural production, CGVOs generally did not recognize their contribution on this issue. This inconsistency may reflect that CGVOs themselves doubted their abilities to help the farmers with agricultural production, possibly due to their lack of relevant training in college.

To summarize, the field interviews, administrative files, internet survey, and national cross-sectional survey all consistently suggest that CGVOs mainly work on policy promotion and poverty alleviation, and their major contribution is to help poor households benefit from



existing social assistance programs by getting them informed and registered, and reduce elite capture by strictly enforcing the administrative procedure of subsidy assignment.

## V. Impacts of the CGVO program

We estimate the impacts of the CGVO program on poverty alleviation by applying a DiD approach to our NFS-CGVO panel data set. In Sections A and B, we discuss our identification strategy and summarize the main findings. In Section C, we examine the parallel pre-treatment trends assumption; in Section D, we check the robustness of the main findings.

### A. Econometric Model

We estimate the impacts of the CGVO program using a generalized DiD (two-way fixed-effects) approach:

$$y_{it} = \alpha * CGVO_{it} + X'_{it} * \beta + \rho_t + \mu_i + \varepsilon_{it} \quad (1)$$

where  $y_{it}$  is a outcome of interest for village  $i$  in year  $t$ ,  $CGVO_{it}$  is a dummy indicator which equals 1 if village  $i$  in year  $t$  has a CGVO, and 0 otherwise.  $X_{it}$  is a set of time-varying control variables including precipitation and temperature in each village-year pair.  $\rho_t$  is a time effect common to all villages in period  $t$ ,  $\mu_i$  is a time-invariant effect unique to village  $i$ , and  $\varepsilon_{it}$  is a village time-varying error distributed independently of  $\mu_i$  and  $\rho_t$ .

We focus on four main outcome variables: (1) the number of formally registered poor households in a village (per 100 households); (2) the number of formally registered residents with disabilities in a village (per 1,000 residents); (3) the number of subsidized residents in a village (per 1,000 residents), which measures the effectiveness of the “Subsidizing Poor Households” policy; and (4) the number of poor-quality rural houses (per 100 households), which measures the effectiveness of the “Renovating Dilapidated Rural Houses” policy. We use the logarithm of the outcomes in the regressions so the estimated coefficient of  $\alpha$  should be interpreted as semi-elasticity.<sup>12</sup>

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<sup>12</sup> The estimates using levels of the outcomes as the dependent variables are qualitatively unchanged.

College students typically graduate from school in June of each year, and assume their duties as CGVOs in the same month or the one after. Using current year's treatment status may fail to capture the full impacts of CGVOs, thus we also use one-year lagged values of CGVOs as the independent variable.

### *B. Main Results*

We first examine the “registration effect”, which is motivated by our qualitative observation that CGVOs can help more rural families get registered as poor households in the government systems. Registered poor households are those who applied for the government subsidies and have their application materials kept in government agencies.<sup>13</sup> Once registered poor households pass the required screenings, they will receive subsidies from the government. In some cases they will also automatically become the potential targets of future government pro-poor programs.

The results for registered poor households are reported in columns (1) to (4) of Table 4. Since the timing of CGVO assignment was largely decided at the province level, we cluster the standard errors at the province level in our preferred specifications. These standard errors are reported below the estimated coefficients. As we only have 19 provinces, we address the issue of small sample bias in the clustered standard errors by calculating p-values derived from wild bootstraps, as recommended by Cameron et al. (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values. We probe the robustness of the estimates accuracy by presenting another two sets of standard errors: standard errors clustered at the village level, and standard errors clustered at the village and province-year level (multi-way clustering suggested by Cameron et al. (2011)).

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<sup>13</sup> Note that the number of registered poor households is not necessarily larger than the number of subsidized poor households. In fact, when we interviewed the village officials, we found that some villages subsidized more poor households than the registered number. For instance, richer villages sometimes have their own anti-poverty programs that subsidize the poor households. It is also common for the village government to split the subsidies from the upper-level government, then distribute to all the poor households, regardless of whether they have registered or not.

The regression results in columns (1) to (4) show that both current CGVO and lagged CGVO are positively associated with a higher number of registered poor households, and the relationship is statistically significant at the 5% level.

In columns (5) to (8), we complement this analysis by providing results for a relevant variable: the number of residents with disabilities in a village. Once a villager's disability is registered in the government system, he/she will automatically become a potential beneficiary for relevant social assistance programs.

We see that the number of residents with disabilities increases in villages with CGVOs and this effect is statistically significant at the 10% level for the one-year lagged CGVO indicator. Since CGVOs are unlikely to cause more villagers to become disabled, the only reasonable channel that generates this pattern is through CGVOs' "registration" of existing disabled villagers.

Having confirmed that CGVOs help register more poor households for the social assistance programs, we test whether poor households indeed benefit from these programs in Table 5. The outcome variables are the subsidy rate (subsidies population per 1,000) and share of poor housing (per 100 households). In columns (1) to (4), we find that CGVOs have a positive impact on the number of subsidized population. The estimated coefficients range from 19% to 21% and are statistically significant. The magnitude of the estimated coefficient of the lagged CGVO dummy is slightly larger than that of the current CGVO dummy. Columns (5) to (8) show that, compared with villages without CGVOs, the number of poor-quality houses in villages with CGVOs significantly decreased one year after the CGVO program was introduced. The estimated reductions range from 8% to 14% and the effect of lagged CGVO dummy is larger and statistically significant. This is reasonable, because the application for the renovation subsidy and the process of actual renovation usually take longer time than the application for the poverty subsidy. We include weather conditions as control variables as they are important determinants of agricultural production. For both outcomes, the estimated impacts are highly robust to the inclusion of these time-varying control variables, suggesting

that time-varying factors are not correlated with CGVO assignment, and our DiD approach is likely to be valid.

### C. Tests for the Parallel Trends Assumption

Since both village fixed effects and year fixed effects are included in the regressions, Equation (1) is essentially a generalized DiD model. The underlying assumption for an unbiased estimate of  $\alpha$  is that the trends in the outcomes for both control and treatment groups prior to the introduction of the CGVO program are parallel. The CGVO program is introduced into villages in a staggered fashion, so we examine the parallel pre-treatment trends assumption for all the outcome variables in Tables 4 and 5 using an event study approach. Following Jacobson et al. (1993), we estimate the following equation:

$$y_{it} = \sum_{k \geq -4, k \neq -1}^{k=3} D_{it}^k \cdot \delta_k + \mu_i + \rho_t + \varepsilon_{it} \quad (2)$$

where  $y_{it}$  represents the main outcomes of interests in village  $i$  in year  $t$ . The dummy variables  $D_{it}^k$  jointly represent the CGVO assignment event. We define  $s_i$  as the year when village  $i$  was assigned its first CGVO. We define  $D_{it}^{-4} = 1$  if  $t - s_i \leq -4$ , and 0 otherwise;  $D_{it}^k = 1$  if  $t - s_i = k$ , and 0 otherwise, where  $k = -3, -2, 0, 1, 2$ ; and  $D_{it}^3 = 1$  if  $t - s_i \geq 3$ , and 0 otherwise.  $\mu_i$  is a village fixed effect,  $\rho_t$  is a year fixed effect.

Note that the dummy for  $k = -1$  is omitted in Equation (2), so that the post-treatment effects are relative to the period immediately prior to the start of the program. The parameter of interest  $\delta_k$  estimates the effect of CGVOs  $k$  years following its occurrence. We include leads of the CGVO assignment dummy in the equation, testing whether the treatment has any impacts on the outcomes (for up to 4 years) before CGVOs were assigned to the village. A test of the parallel trends assumption is that the leads of the treatments have no impact on the outcomes, i.e.  $\delta_k = 0$  for all  $k \leq -2$ .

Table 6 reports the regression results. To help visualize the dynamic effect, Figure 2 displays the point estimates of the four outcomes along with their 90% confidence intervals. Each dot is an estimated coefficient of the treatment dummy variable corresponding to a different number of years prior to or after the actual treatment. The upper-left panel shows the

estimates for registered poor households subsidized population and the upper-right panel shows the estimates for poor housing. The bottom-left and bottom-right panels respectively show the estimates for registered poor households and people with disabilities. In all four panels, the estimated coefficients of the leads of treatments, i.e.  $\delta_k$  for all  $k \leq -2$ , are statistically indifferent from zero. Thus we conclude that the pre-treatment trends in the outcomes in both groups of villages are similar, and villages without CGVOs can serve as a good control group for villages with CGVOs in the treatment period.

#### *D. Robustness Checks*

We first check the robustness of the results by exploiting the variation in CGVO treatment across villages within the same province:

$$y_{ipt} = \alpha * CGVO_{ipt} + X'_{ipt} * \beta + \rho_{pt} + \mu_i + \varepsilon_{ipt} \quad (3)$$

where  $y_{ipt}$  is the outcome of interest in village  $i$ , province  $p$ , in year  $t$ ,  $\mu_i$  is a village fixed effect,  $\rho_{pt}$  is a province-by-year fixed effect, and  $\varepsilon_{ipt}$  is a village-year specific error term. Village fixed effects control for time-invariant characteristics that affect the likelihood that a CGVO will be assigned in the village. Province-year fixed effects account for annual shocks that are common to all villages in the same province.

The province-year fixed effects absorb all the province-level variation in both the time-series and cross-sectional dimensions, thus can flexibly control for confounding factors such as business cycles, differential trends and policies across provinces, etc. Coefficient  $\alpha$  is identified by within-province comparisons of outcomes of interest. That is, the effect of the CGVO program is estimated by comparing the outcomes of two villages in the same province in the same year. The estimated effects are robust and similar to these in Tables 4 and 5, and are reported in Appendix Tables D1 and D2.

Another concern is that a few villages were in those pilot cities or districts for the CGVO program (as discussed in Section II) and they had CGVOs long before the central government started to promote this program. To address the concern that our main results might be driven

by these pilot villages, in Appendix Tables E1 and E2, we drop all the villages that received a CGVO before 2007, and re-estimate equation (1). All the findings remain the same.

We also check the robustness of the results using an alternative treatment indicator. In Equation (1), the  $CGVO_{it}$  variable indicates whether a village has a CGVO in a given year. If a CGVO left a village during the sample period, the variable would become zero. An alternative way to define the treatment status is to treat all the years after the introduction of CGVOs as the treated period, regardless whether a CGVO left or not. Conceptually, this alternative definition of treatment would make sense if the CGVO impacts are permanent. However, in our sample, only a handful of villages witnessed a CGVO's leave, so the results using the alternative treatment indicator remain unchanged. These results are reported in Appendix Tables F1 and F2.

Finally, as discussed in Appendix A, neither pre-CGVO levels nor pre-CGVO shocks are correlated with the assignment of CGVOs. Therefore, it is very unlikely that our results can be confounded by some form of dynamic underlying differences between those villages that receive CGVOs and those that do not.

## **VI. Mechanisms**

Our explanation for the main results is that CGVOs can help more poor households benefit from existing social assistance programs by improving the promotion and implementation of these programs. In this section, we examine alternative explanations and discuss the underlying mechanisms.

### *A. Alternative Explanation: CGVO on Income and the Village Economy*

We explore two alternative explanations: (1) CGVOs may decrease the income level of rural households, resulting in an actual increase in the number of poor households eligible for social assistance programs; (2) CGVOs may improve village councils' business and financial conditions, making internally-supported subsidies more available to the villagers.

To test the first hypothesis, we focus on three income-related outcomes: rural household net income, per capita village business revenue, and the share of households who earn their livings primarily from agricultural production. The regression results are summarized in Panel A of Table 7. We find that CGVOs do not affect rural households' net income, nor village business revenue. They also cannot help the households to develop more diversified income sources. These results suggest that the first hypothesis is unlikely to be true.<sup>14</sup>

For the second hypothesis, we test whether CGVOs affect village fiscal revenue and expenditure, and village collective business revenue. The results are reported in Panel B of Table 7. Again, all the estimated coefficients are small and statistically insignificant.<sup>15</sup> We conclude that village councils with CGVOs are not getting richer or spending more to help the poor. Therefore, it is also unlikely that the increased number of subsidized residents and more renovated rural houses are internally supported.

### *B. CGVO on Village Council Size and Composition*

To better understand the channels through which CGVOs can help improve the promotion and implementation of pro-poor policies, we examine how CGVOs affect rural governance in this section. We estimate the effects of CGVOs on four outcomes: (1) village council size (total number of village officials),<sup>16</sup> (2) the share of village officials with low-levels of education ("primary school or below"), (3) the share of village officials with medium-levels of education (middle school), and (4) the share of village officials with high-levels of education ("high school and above").

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<sup>14</sup> Note that the finding that CGVOs do not affect per capita income does not contradict with the finding that more poor households get subsidized. NBS only surveyed 50-100 households in each village to calculate the village-level average income. The likelihood that poor households get surveyed is small, given that only 7% households are registered as poor. Even though some poor households might be surveyed, this marginal change is unlikely to have a substantial impact on the overall income levels in a village.

<sup>15</sup> Note that the subsidies received by poor households from upper-level governments are not part of village fiscal revenue and expenditure.

<sup>16</sup> Village Council refers to all the officials in the village, both those from the Village Committee, and those from the Village Party Branch.

The results are shown in Table 8. First, in column (1), we find that being assigned a CGVO has no significant impact on the total number of village officials. The coefficient is small and precisely estimated, suggesting that a CGVO substitutes an existing official in the village council. Second, columns (2) to (4) show that CGVO occurrence increases the share of village officials with high-level education (statistically significant at 10 % level), decreases the share of village officials with medium-level education (statistically significant at 10 % level), and has no impact on the share of village officials with low-level education. In other words, local village officials with middle school education are most likely to be replaced by CGVOs. Interestingly, the most poorly educated officials are not crowded out by CGVOs, which may indicate that their skill set is complementary to that of CGVOs’.

The results in Table 8 suggest that our main findings should not be interpreted as the mechanical effect of introducing an additional village official into the village council. Instead, holding village council size constant, the introduction of CGVOs increases the average education level of the governance team. In other words, the CGVO program represents an improvement in bureaucrat quality, rather than quantity, for the rural governance system.

### *C. CGVOs on Elite Capture*

Another concern is that CGVOs may collude with local village elites. By getting more poor households registered for subsidies, they can create a larger room for elite capture and corruption. Specifically, it is possible that even though more poor households are registered and receive subsidies (increase in the extensive margin), a significant amount of these subsidies can be appropriated by CGVOs and the existing elites, rather actually being transferred to the poor households (decrease in the intensive margin).

This hypothesis is unlikely to hold because it contradicts our qualitative findings in the case study. Empirically, we test this possibility by analyzing data from the Village Governance Cross-Sectional Survey. In the sub-survey answered by the poor households, we have detailed information on various social assistance programs, including the amounts of subsidies that poor households received from the government in 2014. If the collusion story is true, we should



expect subsidized households in villages with CGVOs receiving smaller amounts of subsidies; if the CGVOs are relatively independent from local elites, we should expect those households receiving larger amounts of subsidies.

We match the poor household survey with village survey and estimate the associations between the total amount of subsidies and CGVO treatment using a linear regression model:

$$y_{ijp} = \alpha \cdot CGVO_j + x_i' \cdot \beta + z_j' \cdot \gamma + \mu_p + \epsilon_{ijp} \quad (4)$$

where  $y_{ijp}$  is the total amount of subsidies (log) received in 2014 by poor household  $i$  in village  $j$  in province  $p$ .  $CGVO_j$  is a dummy variable that equals one if there was a CGVO working in the village, and zero otherwise.  $x_i$  is a vector of household level control variables,  $z_j$  is a vector of village level control variables,  $\mu_p$  is province fixed-effect, and  $\epsilon_{ijp}$  is the error term.

The regression results are summarized in Table 9. We find that poor households receive larger amounts of subsidies in villages with CGVOs. We use six different specifications to check the robustness of the results. In column (1), we run a simple regression of subsidy amount on CGVO dummy, with no control variables included. In columns (2) to (5), different sets of control variables are added into the regressions. In column (6), all the control variables are included. We have four sets of control variables. Household members' basic characteristics include the number of family members, the number of laborers, the number of family members with disabilities, and the number of family members without self-care abilities in a household. Household financial conditions include total household income (excluding government transfers), arable land area, total family savings and debts. The information on a household's ownership of different properties is also included: the size of their living house, the year when the house was built, and whether a household owns a TV, a laundry machine, a refrigerator, an air conditioner, a computer, an electric bicycle, a motorcycle, a smart phone, an automobile, and other expensive properties (jewelry, piano, antique collection, etc.). Village characteristics include village population, type of village (natural village, community village or town village), terrain of a village (plain, hilly, or mountainous), share of minority, share of local population and per capita arable land area.

In columns (2) to (6), provincial dummies are also included, so the identification uses only within-province variation in CGVO assignment. Because these social assistance programs are jointly funded by the central government and provincial governments, poor households living in the same province should receive roughly the same amount of subsidies, conditional on their assets and socio-economic conditions.

The estimated coefficients are highly robust to the inclusion of different sets of control variables, suggesting that CGVO assignment is independent of poor households' characteristics and village characteristics. In the most restrictive specification, column (6), we find that a poor household living in a village with CGVOs on average could receive 33% more subsidies than one in a village without CGVOs.

These results imply that CGVOs do not collude with the traditional village officials, instead, their presence in the village governance system reduces elite capture of pro-poor programs.

## **VII. Conclusion**

The CGVO program is a novel policy aiming to help the poor in rural China. Each year, the Chinese government sends thousands of college graduates to rural villages where they work as assistants to the village leaders. Since CGVOs are better educated than the traditional village leaders and are relatively independent from the local interest groups, the government hopes that they can help improve village governance and alleviate poverty.

Our study investigates whether this improvement in rural bureaucrat quality indeed leads to a more pro-poor development. We first present a rich set of qualitative evidence showing that CGVOs' primary role is to help the poor households benefit from various social assistance programs, and then quantify these findings in a DiD setting. Our empirical analysis shows that CGVOs help qualified villagers register for pro-poor programs, and increase the number of beneficiaries. In villages with CGVOs, the number of subsidized population increases by 20%, and the share of poor-quality houses decreases by 14%.

We examine several other outcomes to understand the underlying mechanisms. First, we find that the CGVO program does not affect household income, village council revenue, and

village council spending. That means, CGVO occurrence does not make the villagers and village councils poorer or richer, suggesting that the increased amount of beneficiaries is an effect of improved pro-poor policy implementation, rather than real income shocks to the villagers or village councils. Second, we present evidence that a CGVO substitutes an existing village official, thus improves the average education level of the village governance team without changing its size. These results suggest that the CGVO impacts are not simply driven by introducing an additional village official. Third, we find that not only do more households receive subsidies, but they also on average receive a larger amount of subsidies. Since CGVOs are relatively independent from local interest groups, their presence in the village governance system reduces elite capture of the pro-poor programs.

Our study provides the first quantitative evaluation of the CGVO program, which has important policy implications given its ambitious scale, and the enormous cost of running this program.<sup>17</sup> More generally, since our results suggest that CGVOs can significantly improve the implementation of various government pro-poor policies, the government's choice set of effective social assistance programs is expanded by the presence of CGVOs in tens of thousands of villages, which may lead to substantial impacts on China's rural development and poverty alleviation in the long run.

We conclude by pointing out the related questions that are beyond the scope of this paper. First, despite the positive findings in this study, one should be aware that our results cannot answer the bigger question of whether the program misallocates human capital or whether it is a cost-effective way to achieve a pro-poor development. Second, it is not clear what characteristics determine CGVOs' success in better implementing central policies. It may depend on a CGVO's major, education quality, age, experience, or motivation. Third, CGVOs

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<sup>17</sup> Official statistics on the total spending of the CGVO program is not publicized. In 2012, the central government of China spent 20,000 yuan (\$3170), 15,000 yuan (\$2377) and 8000 yuan (\$1268) respectively to support a CGVO working in the eastern, central and western parts of China. If we assume there are 76,600 CGVOs in each region, a back-of-envelop calculation shows that the central government paid at least 3 billion yuan (\$500 million) to support the program in 2012.

play multifaceted roles in village governance, how to best utilize their human capital and how to design proper mechanisms to maximize their contribution remain under-researched. Future studies that explore these issues are warranted.

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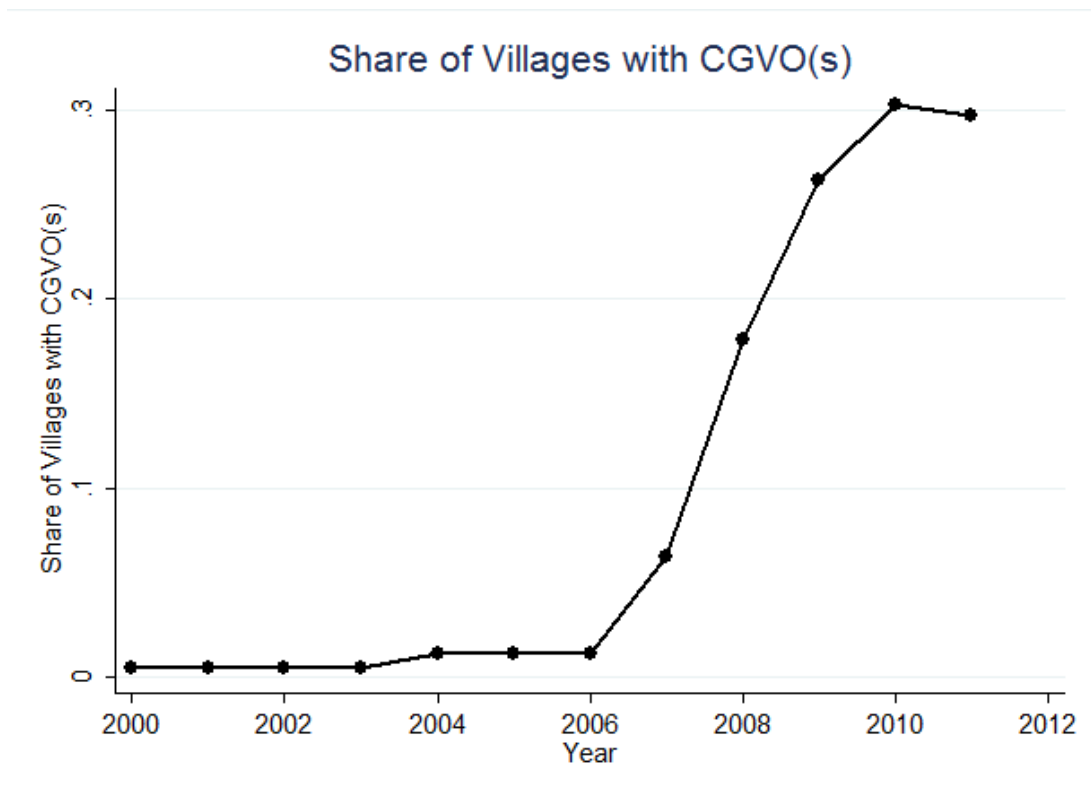
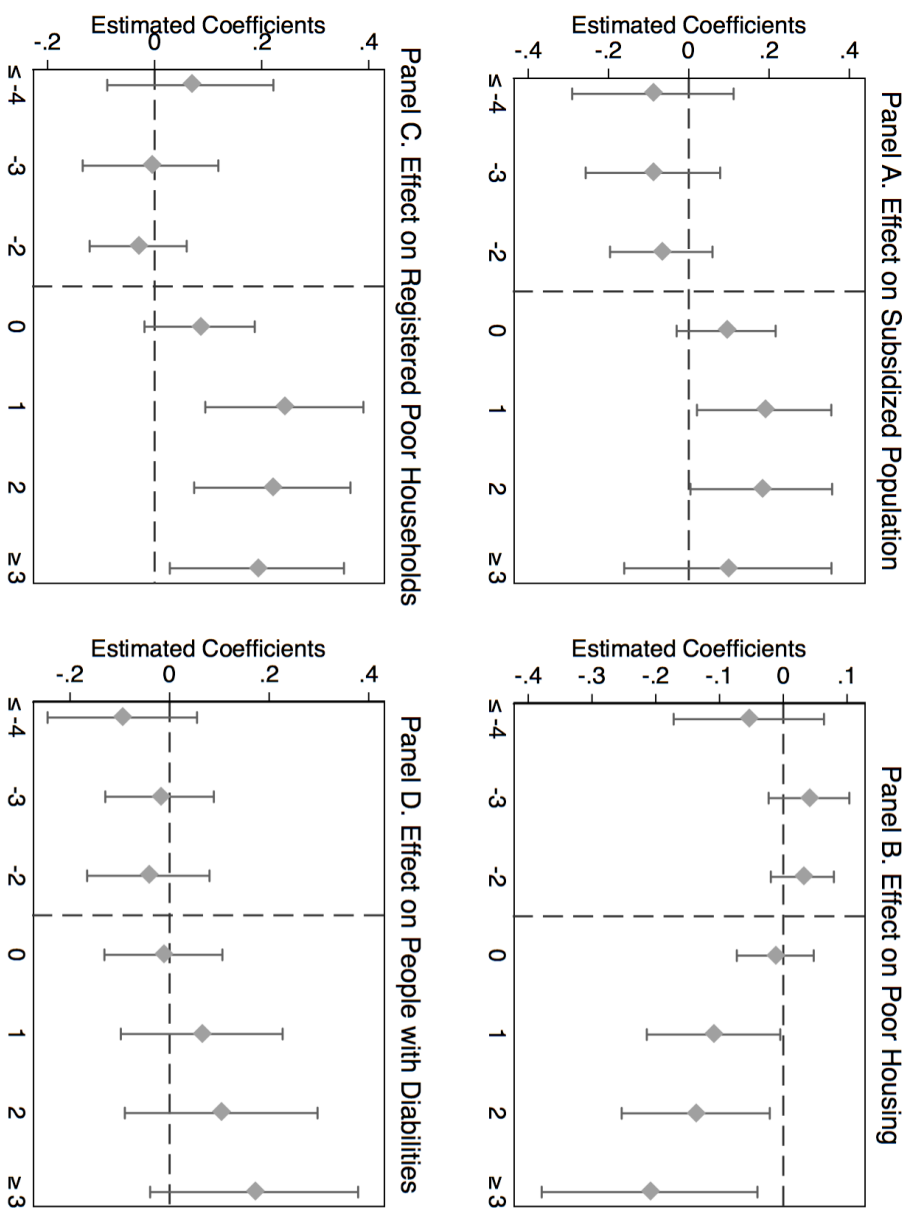


Figure 1. Share of Villages with CGVO





**Figure 2. Estimated Effect of Implied CGVO Treatment for Years Before and After Actual Treatment**

**Table 1. Number of CGVOs in China**

Year	1999	2001	2003	2007	2011
Number	2,200	14,000	21,000	58,000	210,000
Share	0.32%	2.03%	3.04%	8.41%	30.43%

**Source:** Lv (2008) and CGVO Development Report (2013). The share is calculated using 690,000 villages.

**Table 2: Summary Statistics of NFS Villages**

Variable	Obs	Mean	Std. Dev.
Village Population	2,773	1756	1324
Rural per capita Net Income (Yuan)	2,661	3946	2718
Subsidy Rate (per 1,000)	2,102	30	43
Poor Housing (per 100 HHs)	2,417	57	31
Registered Poor Households (per 100 HHs)	2,654	7	10
Disability Rate (per 1,000)	1,826	11	11
Number of Village Officials	2,801	6	3
Village Officials with "High School and Above" Education (%)	2,801	42	27
Village Officials with Middle School Education (%)	2,801	50	27
Village Officials with "Primary School and Below" Education (%)	2,801	8	15
Agricultural Households (per 100 Households)	2,621	74	24
Per capita Business Revenue (Yuan)	2,747	178	1233
Village Government Fiscal Revenue per capita (Yuan)	1,974	504	2798
Village Government Fiscal Expenditure per capita (Yuan)	1,584	319	1759
Government Collective Revenue (Yuan)	2,162	792	6735
Trained Laborers (per 100)	2,607	19	22
HHs with Tap Water Access (per 100 HHs)	1,408	80	33
HHS with Computers (per 100 HHs)	1,471	7	13
HHs with Rural Cooperative Medical Insurance (100 HHs)	1,320	83	28
School Enrollment Rate for Children Aged 7-13 (%)	2,369	98	7

**Source:** National Fixed-Point Survey (NFS) from 2000-2011 in 19 provinces.

**Table 3. CGVOs Help the Rural Households**

	Poor HHs		Random Villagers		CGVOs	
	(1)	(2)	(3)	(4)	(5)	(6)
	Y(%)	N(%)	Y(%)	N(%)	Y(%)	N(%)
<i>Panel A. General Knowledge</i>						
Have you heard of CGVOs?	19.6	80.4	40.5	59.5	/	/
Any CGVOs in the village?	24.2	75.8	4.4	95.6	/	/
Assistance from CGVOs?	34.9	65.1	38.0	62.0	/	/
Observations	3079		2808		/	
<i>Panel B. Assistance from CGVOs on the Following Aspects</i>						
Agricultural production advising	36.5	63.5	56.3	43.8	23.3	76.7
Rural-urban migration advising	15.4	84.6	18.8	81.3	23.9	76.1
<b>Policy Consulting</b>	<b>57.7</b>	42.3	<b>56.3</b>	43.8	<b>67.8</b>	32.2
<b>Application for subsidies</b>	<b>36.5</b>	63.5	<b>56.3</b>	43.8	<b>49.4</b>	50.6
<b>Filling in forms or writing letters</b>	<b>32.7</b>	67.3	<b>50.0</b>	50.0	<b>62.8</b>	37.2
Kids' education consulting	25.0	75.0	25.0	75.0	33.9	66.1
IT and computer consulting	13.5	86.5	12.5	87.5	38.3	61.7
Marketing for agricultural products	9.6	90.4	31.3	68.8	17.8	82.2
Investment consulting	7.7	92.3	31.3	68.8	5.0	95.0
Observations	146		50		185	

*Notes:* Data were collected by the Policy Research Center in the Ministry of Civil Affairs in China in 2015. The research team first selected 1489 villages in 28 provinces in China in 2015 to participate the village survey. These villages were chosen using a multi-stage stratified sampling method with probability proportional to population size. Then random sample of poor households (3079) and villagers (2808) were chosen from a random sample of the villages (472) to participate the poor household survey and villager survey. In the sampled villages, if a CGVO was available at the time of the survey, he/she was invited to fill out a short survey on their duties and experiences in the villages. In Panel A, we asked poor households and villagers whether they had heard of the CGVO program. If the answer was yes, we asked them whether there were any CGVOs in the village. If the answer was yes again, we asked them whether they received any assistances from the CGVOs. Panel B summarizes different types of assistances provided by CGVOs.

**Table 4. CGVO and Pro-Poor Policies: Registration Effect**

	Registered Poor Households (per 100, log)				People with Disabilities (per 1000, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.13* (0.06) (0.07) (0.08)	0.13** (0.06) (0.07) (0.08)			0.09 (0.07) (0.07) (0.08)	0.08 (0.07) (0.07) (0.08)		
L.CGVO			0.18** (0.07) (0.08) (0.08)	0.18** (0.07) (0.08) (0.08)			0.15* (0.08) (0.08) (0.09)	0.14* (0.08) (0.08) (0.09)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,654	2,654	2,654	2,654	1,826	1,826	1,826	1,826
R <sup>2</sup>	0.65	0.65	0.65	0.65	0.73	0.73	0.73	0.73

*Notes:* This table estimates the impacts of CGVO on registered poor households and people with disabilities. We probe the robustness of estimates accuracy by clustering the standard errors at three different levels: province level, village level, and village and province-year level (multi-way clustering suggested by Cameron, Gelbach, and Miller (2011)). These standard errors are respectively reported in the parentheses below the estimated coefficients. Our preferred specification clusters standard errors at the province level. As we only have 19 provinces, we address the small sample bias in the clustered standard errors using wild bootstrapping, a method recommended by Cameron, Gelbach and Miller (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values, which are similar to the simple significance levels using standard errors clustered at the province level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 5. CGVO and Subsidies**

	Subsidized Population (per 1000, log)				Poor Housing (per 100 households, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.19*	0.19*			-0.08	-0.08		
	(0.11)	(0.11)			(0.05)	(0.05)		
	(0.09)	(0.09)			(0.06)	(0.06)		
	(0.11)	(0.10)			(0.07)	(0.07)		
L.CGVO			0.21**	0.21**			-0.14**	-0.13**
			(0.10)	(0.10)			(0.06)	(0.06)
			(0.10)	(0.10)			(0.07)	(0.07)
			(0.10)	(0.10)			(0.08)	(0.08)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,102	2,102	2,102	2,102	2,417	2,417	2,417	2,417
R <sup>2</sup>	0.61	0.61	0.61	0.61	0.76	0.76	0.76	0.76

**Notes:** This table estimates the impacts of CGVO on poverty subsidy and poor housing. We probe the robustness of estimates accuracy by clustering the standard errors at three different levels: province level, village level, and village and province-year level (multi-way clustering suggested by Cameron, Gelbach, and Miller (2011)). These standard errors are respectively reported in the parentheses below the estimated coefficients. Our preferred specification clusters standard errors at the province level. As we only have 19 provinces, we address the small sample bias in the clustered standard errors using wild bootstrapping, a method recommended by Cameron, Gelbach and Miller (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values, which are similar to the simple significance levels using standard errors clustered at the province level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 6. Tests for the Parallel Trends Assumption**

	Subsidized Population (per 1000, log)	Poor Housing (per 100 households, log)	Registered Poor Households (per 100, log)	People with Disabilities (per 1000, log)
	(1)	(2)	(3)	(4)
>= 4 Years Before	-0.09 (0.12)	-0.05 (0.07)	0.07 (0.09)	-0.10 (0.09)
3 Years Before	-0.09 (0.10)	0.04 (0.04)	-0.01 (0.08)	-0.02 (0.07)
2 Years Before	-0.07 (0.08)	0.03 (0.03)	-0.03 (0.06)	-0.04 (0.07)
Year of CGVO Assigned	0.09 (0.07)	-0.01 (0.04)	0.08 (0.06)	-0.01 (0.07)
1 Year Later	0.19* (0.10)	-0.11* (0.06)	0.24*** (0.09)	0.06 (0.10)
2 Years Later	0.18* (0.11)	-0.14* (0.07)	0.22** (0.09)	0.10 (0.12)
>=3 Years Later	0.10 (0.16)	-0.21** (0.10)	0.19* (0.10)	0.17 (0.13)
Village FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Obs.	2,102	2,417	2,654	1,826
R <sup>2</sup>	0.62	0.76	0.65	0.73

**Notes:** We conduct an event study by including leads and lags of the first CGVO assignment dummy in the regressions. The dummy indicating one-year prior treatment status is omitted from the regression. Standard errors are clustered at the province level and reported in the parentheses. Alternative clustering methods (such as clustering at village level and village and province-year level) do not affect the results, so are not reported. \*\* p<0.01, \* p<0.05, \* p<0.1.

**Table 7. CGVO and Income-Related Measures**

<i>Panel A: Households Income-Related</i>						
	Net Income (pc, log)		Village Business Revenue (pc, log)		Share of Ag. HHs. (%)	
	(1)	(2)	(3)	(4)	(5)	(6)
CGVO	0.00 (0.04)		0.04 (0.04)		0.03 (0.08)	
L.CGVO		-0.01 (0.04)		0.04 (0.05)		-0.02 (0.09)
Observations	2,661	2,661	2,621	2,621	2,747	2,747
R <sup>2</sup>	0.91	0.91	0.81	0.81	0.76	0.76
<i>Panel B: Village Government Financial Conditions</i>						
	Gov. Fiscal Revenue (pc, log)		Gov. Fiscal Expenditure (pc, log)		Gov. Collective Business Revenue (pc, log)	
	(1)	(2)	(3)	(4)	(5)	(6)
CGVO	0.13 (0.08)		0.03 (0.10)		0.09 (0.09)	
L.CGVO		0.09 (0.08)		-0.06 (0.08)		0.11 (0.09)
Observations	1,974	1,974	1,584	1,584	2,162	2,162
R <sup>2</sup>	0.70	0.69	0.70	0.70	0.61	0.61

*Notes:* All regressions include village fixed effects, year fixed effects and control variables as in Table 5. Standard Errors in parentheses are clustered at the province level. Alternative clustering methods (such as clustering at village level and village and province-year level) do not affect the results, so are not reported. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



**Table 8. CGVO and Rural Governance**

	Number of Village Council Members	Share of High- School Council Members (%)	Share of Middle- School Council Members (%)	Share of Primary-School Council Members (%)
	(1)	(2)	(3)	(4)
CGVO	0.16 (0.16)	4.35* (2.22)	-4.24* (2.32)	-0.11 (1.08)
Observations	2,801	2,801	2,801	2,801
R <sup>2</sup>	0.79	0.67	0.61	0.61

**Notes:** All regressions include village fixed effects, year fixed effects and control variables as in Table 5. Standard Errors in parentheses are clustered at the province level. Alternative clustering methods (such as clustering at village level and village and province-year level) do not affect the results, so are not reported. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 9. CGVOs and Subsidies Received by Poor Households**

	(1)	(2)	(3)	(4)	(5)	(6)
CGVO	0.33** (0.16)	0.42*** (0.16)	0.44*** (0.16)	0.48*** (0.16)	0.40** (0.16)	0.33** (0.16)
HHs Members' Characteristics	N	Y	N	N	N	Y
Financial Conditions	N	N	Y	N	N	Y
Ownership of Properties	N	N	N	Y	N	Y
Village Characteristics	N	N	N	N	Y	Y
Province Dummies	N	Y	Y	Y	Y	Y
Obs.	3,079	3,079	3,072	3,079	3,079	3,072
R <sup>2</sup>	0.00	0.14	0.12	0.12	0.11	0.16

**Notes:** This table reports the associations between CGVO assignment and the amount of subsidies received by the poor households using data from the cross-sectional village governance survey. In total we are able to match 3079 poor households with 472 villages. The outcome variable is the total amount of subsidies (log) received by the poor households in 2014. Household members' characteristics include: number of family members, number of laborers, number of family members with disabilities, and number of family members without self-care abilities in a household. Household financial conditions include the following variables: total household income (excluding government transfers, log), arable land area, total family savings (log) and debts (log). The information on a household's ownership of different properties is also included: the size of their living house, the year when the house was built, and whether a household owns a TV, a laundry machine, a refrigerator, an air conditioner, a computer, an electric bicycle, a motorcycle, a smart phone, an automobile, and other expensive properties (jewelry, piano, antique collection, etc.). Village characteristics include village population, type of a village (natural village, community village or town village), terrain of a village (plain, hilly, or mountainous), share of minority, share of local population and per capita arable land area. Heteroskedastic-consistent standard errors are reported in the parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## **Appendix A. CGVO Assignment**

In most places, the assignment of CGVOs is determined by upper-level governments, and the villages and CGVOs are not allowed to choose each other. However, since the assignment rule is not entirely transparent to the researchers, understanding the determinants of CGVO assignment is important for its own sake.

There are mainly two potential hypotheses regarding the assignment choices. The first hypothesis is that upper-level governments choose villages based on time-invariant characteristics. For example, governments may prioritize richer and/or larger villages, where they expect CGVOs' knowledge would help boost the economic development. The second hypothesis is that upper-level governments assign CGVOs in response to local economic shocks. For example, if a village experiences a negative income shock, upper-level governments may send a CGVO to help the village, which increases the village's probability of getting a CGVO.

We first test whether the eventually treated villages are systematically different from the control villages before the CGVO program was launched along a variety of socio-economic variables in a cross-sectional setting. We estimate a logit model in which the dependent variable is whether a village has CGVO during our sample period and the independent variables are the socio-economic conditions in 2006, a year before the CGVO program started to expand.

The regression results in columns (1) to (4) of Appendix Table 1. First, village population and per capita net income are included to test whether the assignment depends on village size or income. We find that the assignment does not depend on village size or income. Second, we add the outcomes of interests in the regressions, i.e. subsidized population (number of subsidized residents per 1,000 people), poor housing (number of poor houses per 100 households), and registered poor households (number of poor households per 100 households). Again, none of them are statistically significant. Third, we include the local government size (number of governmental officials in the village council) and government quality (share of government officials with "high-school and above" education) in the regression. The results show that the assignment is not correlated with village government

size or quality. Finally, a set of time-invariant basic characteristics are also included, including the terrain of the village (plain, or hilly/mountainous), the pillar industry of the village (agriculture, or forestry/livestock/ fishery), whether it is located in the suburb of a city or not, whether it is a town center, and whether it is a designated poor village. None of them are statistically significant.

An alternative way to test these relationships is to fully exploit the longitudinal structure of the data and estimate the association between CGVO assignment and village-level socio-economic variables using a logit model with duration dependence. Specifically, the probability that a village receives a CGVO at time  $t$  is modeled as:<sup>1</sup>

$$P(CGVO_{it} = 1|X_{it}) = \frac{e^{X_{it}\beta+f(t)}}{1+e^{X_{it}\beta+f(t)}} \quad (1)$$

where  $CGVO_{it}$  is a dummy variable, which equals 1 if village  $i$  has a CGVO in year  $t$ , and 0 otherwise,  $P(CGVO_{it} = 1|X_{it}) = h(t, X_{it})$  is the probability of receiving a CGVO conditional on a set of variables, and  $f(t)$  is a flexible function of time  $t$ .

When the dependent variables are all set to zero, the baseline hazard rate can be written as a function of time duration  $t$ ,  $h_0(t) = \frac{e^{f(t)}}{1+e^{f(t)}}$ .  $f(t)$  allows the baseline hazard rate of receiving a CGVO to vary over time  $t$ . In effect, the logit model has the following form:

$$\log\left(\frac{P_{it}}{1-P_{it}}\right) = \beta_0 + \beta_1 * X_{i,2006} + \beta_2 * Z_i + f(t) + \varepsilon_{it} \quad (2)$$

where  $P_{it}$  is the probability of receiving a CGVO for village  $i$  at time  $t$ ,  $X_{i,2006}$  are the time-invariant welfare measures in 2006 (one year before the CGVO program),  $Z_i$  are the time-invariant basic village characteristics. Time duration  $f(t)$  is approximated by a 4th order polynomial function of  $t$ .<sup>2</sup>

The term of a typical CGVO appointment is at least three years. Once assigned, the CGVO variable is 1 for at least three consecutive years. However, the ongoing CGVO appointment is not our interest. We are more interested in the first CGVO assignment. As suggested by

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<sup>1</sup> Traditional logit or probit models assume duration independence, i.e. the probability of being treated at any point in time is always the same. This is not a valid assumption here because the probability of getting a CGVO increases over time. Without taking into account duration dependence, the standard errors estimated from a traditional logit or probit model would be wrong (Poirier and Ruud, 1988).

<sup>2</sup> Approximating the time duration using non-parametric method generate similar findings. The results are available upon request.

Beck, Katz, and Tucker (1998), we drop the second and subsequent years of CGVO appointment from the data, and only investigate how various socio-economic variables affect the first CGVO assignment.

In columns (5) to (8) of Appendix Table 1, we include the same set of variables as in columns (1) to (4). The findings remain the same: none of these pre-determined village conditions matters, reassuring that the assignment of CGVOs are likely to be exogenous to the village.<sup>3</sup>

In this longitudinal setting, we can also test the second hypothesis: whether CGVO assignment depends on village-level economic shocks, by including time-varying covariates in the regressions. Appendix Table 2 summarizes the results. The independent variables become the changes in village population, income, poor housing, subsidized population, registered poor households, government size and government quality before the introduction of the CGVO problem. None of these variables are statistically significant at conventional level, indicating that economic shocks before the CGVO program do not affect CGVO assignments.

In fact, whether the assignment decision is driven by the time-varying shocks is critical to subsequent impact analysis. To identify a causal effect, our main econometric model relies on the variations in CGVO assignments across time and space in a difference-in-differences (DiD) setting. The results in Appendix Table 2 confirm that the CGVO assignments are not correlated with observed time-varying factors, suggesting that DiD is likely to be a valid approach to estimate the impacts of the CGVO program.

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<sup>3</sup> The conclusions are the same if we use other year's data before 2006.

## Appendix B. CGVO Self-Evaluation Forms

### Appendix B1: Sample 1

山西省大学生村官年度考核登记表  
(2013 年度)

填表日期: 2016年1月6日

姓名	[Redacted]	性别	男	出生年月	1982.08
选聘时间	2008.09	学历	本科	政治面貌	群众
任职单位及职务	[Redacted]				
本年度受表彰情况					
年度工作总结	<p>一、加强学习,提高自身素质 认真学习党的十八大和十八届三中全会精神,关注国际国内时事新闻,参加SYB创业培训班。通过学习,不断提高理论素养,更好地服务农村。</p> <p>二、所在村的各项工作</p> <p>1. 环境卫生整治和村容村貌补植补栽工作。一年来,我们村加大了对村环境卫生的整治力度,确定专人负责定期清扫和检查,对村中的一条主干道保持长期保洁,对道路两侧乱堆乱建进行清理,对花池死角进行补植补栽,通过整改,使村容村貌比以前有了很大的改善。</p> <p>2. 低保的评议和复核。4月份,我们组织村低保户进行评议和复核,通过民主公开的原则进行评选,并对结果进行公示。</p> <p>3. 新型农村养老保险和新型农村合作医疗的征收工作。通过宣传发动,顺利完成了这两项工作任务。</p> <p>4. 天眼工程的安装。按照镇党委安排,我们进行了天眼工程安装中心设在村部会议室,共安装五个摄像头,分别安装在进出村的路口,此项工作对村治安起到保护作用。</p> <p>5. 计划生育常规工作。对村计生户进行查访和征收,已完成了三户的计划征收工作。</p>				

#### Interpretation:

*Point 2 (Contribution to the Village): Select and Double-check the Poverty Subsidy Applications. "In (2013) April, I helped select and double-check the eligibilities of the poverty-subsidy applicants. The beneficiaries were democratically determined by group voting, and the results were publicized to the entire village."*

**Notes:** This form is used by Shanxi Province to evaluate the CGVOs' performances in the year of 2013.

Appendix B2. Sample 2

**山西省大学生村官年度考核登记表**  
(二〇一三 年度)

填表日期: 2014年 1月 6日

姓名	[REDACTED]	性别	女	出生年月	1988.09
选聘时间	2009.09	学历	专科	政治面貌	党员
任职单位及职务	[REDACTED]				
本年度受表彰情况	“六个一”活动评为优秀				
年度工作总结	<p>这一年来,我积极深入农村,协助村委开展了一些日常工作,取得了一定的成绩,学习了不少农村基础知识和工作经验,现将我这一年来的工作思想情况汇报如下:</p> <p>1. 在这一年的工作时间里,最大的收获就是通过“六个一”活动使我与村民工作,熟悉农户的过程中,做听了农户的心声,了解村中的实际现状,并力所能及的对一些困难群众进行了帮扶为他们在信件中提供了一些方便;</p> <p>2. 积极参加村两委召开的各项工作,认真做会议记录,协助村两委做好我村的各项工作;</p> <p>3. 通过在网上收集一些致富信息及科学种植书籍资料,再通过观看远程教育让他们多了解一些科学种植方法;</p> <p>4. 低保户名单的评定工作,在此次工作中我们认真走访了每个写低保申请的农户,切实了解他们的实际困难,确保在源之上把如类,经过我村两委班子开会研究,综合各方面的实际情况考虑后最终确定了该村新的低保人员名单;</p> <p>5. 在村绿化工作中,与村两委干部一起商讨村绿化苗木的品种以及多次去苗木地实地考察价格,按照村级实际对村中的主街道和柏村南通仁义路段进行了绿化;</p> <p>6. 在新型农村养老保险和新农村保险的代缴工作中,我同其他村干部积极宣传鼓励村民进行参与,保证每一家都能正确了解国家政策,得以享受政策实惠,并圆满完成了村中的收缴工作。</p>				

**Interpretation:**

Point 1. “In the past year I became more familiar with the conditions of the villagers, and better understood their needs through deep conversations with them. For those who really have difficulties in life, I tried to offer them some help.”

Point 4. “When deciding the beneficiaries of the poverty subsidy, I visited every applicant’s home and collected detailed information of their living conditions. We held a village committee meeting and finalized the list of beneficiaries.”

**Notes:** This form is used by Shanxi Province to evaluate the CGVOs’ performances in the year of 2013.

**山西省大学生村官年度考核登记表**  
(2014年度)

填表日期: 2015年1月16日

姓名	[REDACTED]	性别	女	出生年月	1985.10
选聘时间	2009.9	学历	本科	政治面貌	党员
任职单位及职务	[REDACTED]				
年度受表彰情况					
年度工作总结	<p>一. 思想学习方面: 一年来积极学习党的十八大及十八届三中全会、四中全会精神, 中央省市县“两会”精神, 党的群众路线教育实践活动会议精神, 和习近平系列讲话精神, 学习党章, 学习焦裕禄、段爱平等先进典型, 使学有榜样, 赶有目标, 提高了自身的认识水平和思想觉悟。</p> <p>二. 工作方面: 1. 扎实开展了群众路线教育实践活动, 切实转变工作作风, 成立了活动组织, 收集民意查摆问题, 召开专题组织生活会及民主评议党员会, 树立了群众观点, 增进群众感情。 2. 顺利地进行了社区两委班子的换届选举工作。 3. 完善服务功能, 热心服务居民, 在社区党委办事处的有力支持下, 投资14万元建立了中城社区日间照料中心和便民服务站, 树立了中城社区党组织形象, 真正以实际行动践行了党的群众路线。 4. 为丰富社区居民的文化生活, 构建学习型文化社区, 积极与县文化局联系, 为中城社区图书室捐书500余册, 给居民再学习提供了一个平台。 5. 城镇低保工作是一项惠民工程, 对今年申请的低保对象都做到了材料审核, 入户调查, 开展民主评议并及时向社会公示, 做到公平、公正、公开, 并接受居民监督。 6. 严把审核关, 对初审上报的廉租房货币申请人员情况进行审核, 走访调查, 每一户申报家庭组成、住房情况、家庭经济收入等基本情况, 真正使困难群体享受到国家的惠民政策。</p>				

**Interpretation:**

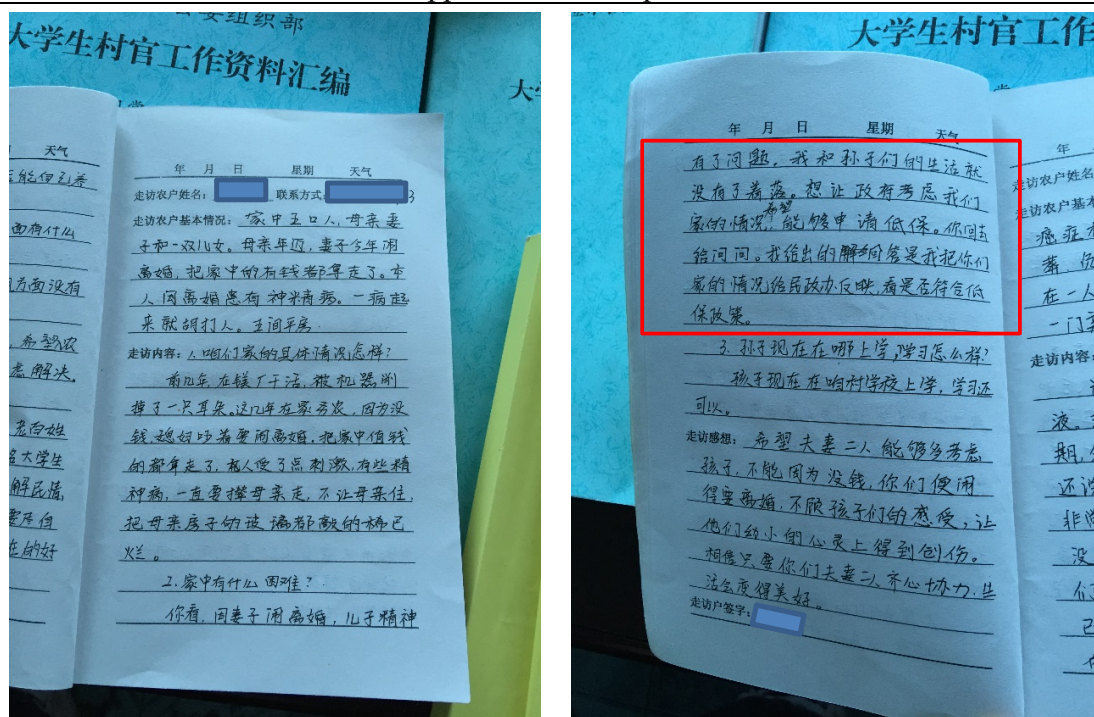
Point 5. “For every applicant of poverty subsidy, I strictly followed the procedure of screening application materials, conducting household surveys, organizing group evaluations, and publicizing results.”

Point 6. “For all the applicants of the government’s subsidized housing program, I screened their materials, conducted household surveys, I especially focused on checking the conditions of their current housing, the demographic compositions, and financial situations.”

Notes: This form is used by Shanxi Province to evaluate the CGVOs’ performances in the year of 2014.



Appendix C. Village Condition Notebooks  
Appendix C1. Sample 1



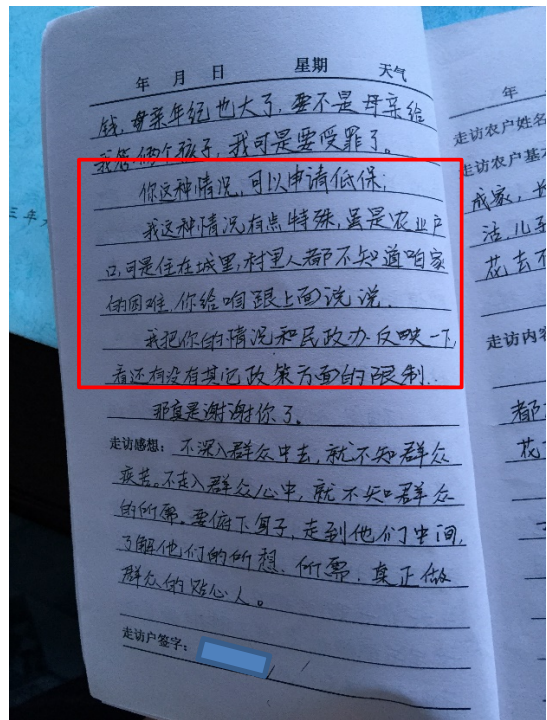
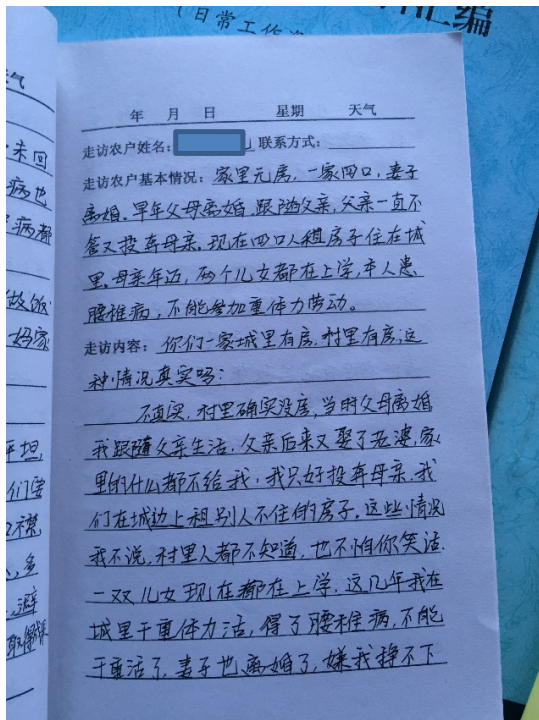
**Interpretation:**

The villager said: "please help us reflect the actual conditions of our family to the government, and ask them whether we could be qualified for subsidies."

The CGVO responded: "I will inform the local Bureau of Civil Affairs about your conditions, and see whether you can be qualified for the subsidy programs."

**Notes:** The village condition notebooks were used by CGVOs to record the villagers' living conditions and CGVOs' daily work. These documents are archived by the Organization Department of the Central Committee of the Communist Party of China.

Appendix C2. Sample 2



**Interpretation:**

The CGVO advised the villager: "Given your conditions, you should consider applying for poverty subsidy."

The Villager responded: "My case is a special one. Although I am a rural resident, but my house is in the suburban areas close to the city. So the villagers are not familiar with my real conditions and don't really understand my difficulties. Please help reflect my information to the government."

The CGVO responded: "I will talk to the local Bureau of Civil Affairs and see what they can do."

**Notes:** The village condition notebooks were used by CGVOs to record the villagers' living conditions and CGVOs' daily work. These documents are archived by the Organization Department of the Central Committee of the Communist Party of China.

**Appendix Table A1. Probability of CGVO Assignment: Pre-CGVO Levels**

	CGVO Assignment							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Population	0.18 (0.23)	0.20 (0.31)	0.07 (0.36)	0.17 (0.37)	0.18 (0.20)	0.22 (0.28)	0.12 (0.28)	0.26 (0.30)
Per capita Income	-0.05 (0.28)	-0.32 (0.43)	-0.40 (0.45)	-0.32 (0.50)	-0.03 (0.27)	-0.32 (0.43)	-0.43 (0.45)	-0.41 (0.47)
Poor Housing		0.04 (0.20)	0.02 (0.20)	0.09 (0.22)		-0.01 (0.18)	0.00 (0.18)	0.04 (0.19)
Subsidized Population		-0.21 (0.40)	-0.22 (0.40)	-0.15 (0.42)		-0.21 (0.34)	-0.21 (0.35)	-0.11 (0.37)
Registered Poor HHs		-0.05 (0.32)	-0.05 (0.32)	-0.13 (0.33)		-0.11 (0.26)	-0.11 (0.26)	-0.21 (0.28)
Government Size			0.07 (0.10)	0.05 (0.09)			0.05 (0.04)	0.04 (0.04)
Government Quality			-0.00 (0.01)	-0.01 (0.01)			0.00 (0.01)	-0.00 (0.01)
Terrain				0.38 (0.41)				0.29 (0.35)
Pillar Industry				0.25 (0.79)				0.59 (0.69)
Suburb				0.24 (0.50)				0.23 (0.39)
Town Center				-0.30 (0.43)				-0.16 (0.34)
Designated Poor Village				0.04 (0.78)				-0.08 (0.62)
Precipitation				-59.17 (112.64)				-98.75 (108.80)
Temperature				0.01 (0.02)				0.01 (0.02)
Time Duration			-		4th Order Polynomial			
Pseudo R <sup>2</sup>	0.00	0.01	0.02	0.03	0.19	0.21	0.21	0.22
Observations	233	143	143	143	2,421	1,479	1,476	1,476

**Notes** : The probability of CGVO assignment is estimated by logit models. In columns (1) - (4), we estimate cross-sectional regressions in which the dependent variable is the eventual treatment status and the independent variables are village characteristics in 2006. Robust standard errors are reported in the parentheses. In columns (5)-(8), we estimate the associations using a logit model with duration dependence with the panel data. We include a fourth order polynomial function to approximate the time duration. Standard errors are clustered at village level and reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table A2. Probability of CGVO Assignment: Pre-CGVO Shocks**

	CGVO Assignment					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta$ in Village Population (by 1000)	0.30 (0.27)	0.37 (0.29)	0.31 (0.27)	0.31 (0.28)	0.27 (0.27)	0.30 (0.27)
$\Delta$ in per capita Income (by 1000 yuan)	0.19 (0.15)	0.13 (0.16)	0.37* (0.19)	0.15 (0.16)	0.19 (0.15)	0.20 (0.14)
$\Delta$ in the Share of Poor Housing (by 100)		-0.93 (0.59)				
$\Delta$ in Subsidy Rate (by 100)			0.33 (0.24)			
$\Delta$ in the Share of Registered Poor HHs (by 100)				0.21 (1.03)		
$\Delta$ in Government Size (by 100)					-0.65 (0.98)	
$\Delta$ in Government Quality (by 100)						0.04 (0.92)
Time Duration	4th Order Polynomial					
Pseudo R <sup>2</sup>	0.15	0.15	0.18	0.15	0.15	0.15
Observations	1,803	1,463	1,184	1,660	1,799	1,799

**Notes:** The probability of CGVO assignment is estimated by logit models with duration dependence. We include a fourth order polynomial function to approximate the time duration. The independent variables are changes in the socio-economic conditions before the CGVO program. Standard errors are clustered at village level and reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table D1. Robustness Checks: CGVO and Subsidies**

	Subsidized Population (per 1000, log)				Poor Housing (per 100 households, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.18** (0.07) (0.12) (0.10)	0.18** (0.07) (0.12) (0.10)			-0.07 (0.05) (0.05) (0.07)	-0.07 (0.05) (0.05) (0.07)		
L.CGVO			0.20*** (0.07) (0.12) (0.11)	0.20*** (0.07) (0.12) (0.11)			-0.15*** (0.05) (0.08) (0.10)	-0.15*** (0.06) (0.10) (0.10)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
P-Y FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,102	2,102	2,102	2,102	2,417	2,417	2,417	2,417
R <sup>2</sup>	0.67	0.67	0.67	0.67	0.78	0.78	0.78	0.78

*Notes:* This table estimates the impacts of CGVO on poverty subsidy and poor housing using within province variation in CGVO assignment. We include village fixed effects and province-year fixed effects in all regressions. Below the estimated coefficients are standard errors clustered at province-year level, province level and village level, respectively. The asterisks indicate significance levels corresponding to standard errors clustered at the province-year level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1., \*\* p<0.05, \* p<0.1.

**Appendix Table D2. Robustness Checks: Registration Effect**

	Registered Poor Households (per 100, log)				People with Disabilities (per 1000, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.16*** (0.05) (0.05) (0.08)	0.16*** (0.05) (0.05) (0.08)			0.08 (0.07) (0.08) (0.07)	0.08 (0.07) (0.08) (0.08)		
L.CGVO			0.20*** (0.06) (0.07) (0.08)	0.20*** (0.06) (0.07) (0.08)			0.12* (0.07) (0.10) (0.10)	0.13* (0.07) (0.10) (0.10)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
P-Y FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,654	2,654	2,654	2,654	1,826	1,826	1,826	1,826
R <sup>2</sup>	0.69	0.69	0.69	0.69	0.75	0.75	0.75	0.75

*Notes:* This table estimates the impacts of CGVO on registered poor households and people with disabilities using within province variation in CGVO assignment. We include village fixed effects and province-year fixed effects in all regressions. Below the estimated coefficients are standard errors clustered at province-year level, province level and village level, respectively. The asterisks indicate significance levels corresponding to standard errors clustered at the province-year level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1., \*\* p<0.05, \* p<0.1.

**Appendix Table E1. Robustness Checks: Dropping Villages with CGVOs before 2007**

	Subsidized Population (per 1000, log)				Poor Housing (per 100 households, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.20*	0.19			-0.07	-0.07		
	(0.11)	(0.11)			(0.05)	(0.05)		
	(0.10)	(0.10)			(0.07)	(0.07)		
	(0.11)	(0.11)			(0.07)	(0.07)		
L.CGVO			0.23**	0.22**			-0.13*	-0.13*
			(0.10)	(0.10)			(0.07)	(0.07)
			(0.11)	(0.11)			(0.08)	(0.08)
			(0.11)	(0.11)			(0.08)	(0.08)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,067	2,067	2,067	2,067	2,376	2,376	2,376	2,376
R <sup>2</sup>	0.62	0.62	0.62	0.62	0.75	0.75	0.76	0.76

**Notes:** This table estimates the impacts of CGVO on poverty subsidy and poor housing. We exclude villages which received CGVOs before 2007 from the sample. We probe the robustness of estimates accuracy by clustering the standard errors at three different levels: province level, village level, and village and province-year level (multi-way clustering suggested by Cameron, Gelbach, and Miller (2011)). These standard errors are respectively reported in the parentheses below the estimated coefficients. Our preferred specification clusters standard errors at the province level. As we only have 19 provinces, we address the small sample bias in the clustered standard errors using wild bootstrapping, a method recommended by Cameron, Gelbach and Miller (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values, which are similar to the simple significance levels using standard errors clustered at the province level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table E2. Robustness Checks: Dropping Villages with CGVOs before 2007**

	Registered Poor Households (per 100, log)				People with Disabilities (per 1000, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.09 (0.06) (0.07) (0.08)	0.09 (0.06) (0.07) (0.08)			0.09 (0.07) (0.07) (0.08)	0.09 (0.07) (0.07) (0.08)		
L.CGVO			0.15** (0.07) (0.08) (0.09)	0.15** (0.07) (0.08) (0.09)			0.16* (0.09) (0.09) (0.10)	0.16* (0.09) (0.09) (0.09)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,608	2,608	2,608	2,608	1,792	1,792	1,792	1,792
R <sup>2</sup>	0.65	0.65	0.65	0.65	0.73	0.73	0.73	0.73

**Notes:** This table estimates the impacts of CGVO on registered poor households and people with disabilities. We exclude villages which received CGVOs before 2007 from the sample. We probe the robustness of estimates accuracy by clustering the standard errors at three different levels: province level, village level, and village and province-year level (multi-way clustering suggested by Cameron, Gelbach, and Miller (2011)). These standard errors are respectively reported in the parentheses below the estimated coefficients. Our preferred specification clusters standard errors at the province level. As we only have 19 provinces, we address the small sample bias in the clustered standard errors using wild bootstrapping, a method recommended by Cameron, Gelbach and Miller (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values, which are similar to the simple significance levels using standard errors clustered at the province level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



**Appendix Table F1. Robustness Checks: Using Alternative CGVO Dummy**

	Subsidized Population (per 1000, log)				Poor Housing (per 100 households, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.20*	0.20*			-0.09*	-0.09**		
	(0.11)	(0.11)			(0.04)	(0.04)		
	(0.10)	(0.10)			(0.07)	(0.07)		
	(0.11)	(0.11)			(0.07)	(0.07)		
L.CGVO			0.20*	0.20*			-0.14**	-0.14**
			(0.10)	(0.10)			(0.06)	(0.06)
			(0.10)	(0.10)			(0.08)	(0.08)
			(0.10)	(0.11)			(0.08)	(0.08)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,102	2,102	2,102	2,102	2,417	2,417	2,417	2,417
R <sup>2</sup>	0.61	0.61	0.61	0.61	0.76	0.76	0.76	0.76

**Notes:** This table estimates the impacts of CGVO on poverty subsidy and poor housing using alternative CGVO treatment dummy. In these regressions, a village is considered to be treated starting from the first year when it received a CGVO, and the treatment status lasted to the end of our study period, year 2011, regardless whether a CGVO left a village or not before 2011. We probe the robustness of estimates accuracy by clustering the standard errors at three different levels: province level, village level, and village and province-year level (multi-way clustering suggested by Cameron, Gelbach, and Miller (2011)). These standard errors are respectively reported in the parentheses below the estimated coefficients. Our preferred specification clusters standard errors at the province level. As we only have 19 provinces, we address the small sample bias in the clustered standard errors using wild bootstrapping, a method recommended by Cameron, Gelbach and Miller (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values, which are similar to the simple significance levels using standard errors clustered at the province level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table F2. Robustness Checks: Using Alternative CGVO Dummy**

	Registered Poor Households (per 100, log)				People with Disabilities (per 1000, log)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CGVO	0.10*	0.10*			0.12	0.11		
	(0.06)	(0.06)			(0.07)	(0.07)		
	(0.07)	(0.07)			(0.07)	(0.07)		
	(0.08)	(0.08)			(0.08)	(0.08)		
L.CGVO			0.14**	0.14**			0.16*	0.16*
			(0.06)	(0.06)			(0.09)	(0.09)
			(0.08)	(0.08)			(0.09)	(0.08)
			(0.09)	(0.09)			(0.09)	(0.09)
Controls	N	Y	N	Y	N	Y	N	Y
Village FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	2,654	2,654	2,654	2,654	1,826	1,826	1,826	1,826
R <sup>2</sup>	0.65	0.65	0.65	0.65	0.73	0.73	0.73	0.73

**Notes:** This table estimates the impacts of CGVO on registered poor households and people with disabilities using alternative CGVO treatment dummy. In these regressions, a village is considered to be treated starting from the first year when it received a CGVO, and the treatment status lasted to the end of our study period, year 2011, regardless whether a CGVO left a village or not before 2011. We probe the robustness of estimates accuracy by clustering the standard errors at three different levels: province level, village level, and village and province-year level (multi-way clustering suggested by Cameron, Gelbach, and Miller (2011)). These standard errors are respectively reported in the parentheses below the estimated coefficients. Our preferred specification clusters standard errors at the province level. As we only have 19 provinces, we address the small sample bias in the clustered standard errors using wild bootstrapping, a method recommended by Cameron, Gelbach and Miller (2008). The significance levels indicated by asterisks are based on wild bootstrapped p-values, which are similar to the simple significance levels using standard errors clustered at the province level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.