

Corporate Power for Poverty Alleviation: Evidence from the Poverty Alleviation Results of Chinese Listed Companies

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Government-led poverty alleviation faces multiple constraints and limitations fighting poverty, and it is urgent to mobilize social forces as many as possible, especially the involvement of corporate forces. To figure out whether corporate participation is effective to poverty alleviation and whether regional differences have an impact on it, this paper probes into results of corporate involvement in poverty alleviation, based on corporate social responsibility report information released by A-share listed companies in 2010–2017. The findings are as follows. (1) Companies in the western region, companies directly contacting consumers and large companies with good business performance are more willing to involve in poverty alleviation. (2) The participation of enterprises in poverty alleviation can increase the per capita income of rural residents, which is even better in underdeveloped areas. This revealed that social forces represented by companies have responded to China's call of targeted poverty alleviation and fulfilled corporate social responsibilities, which will indeed help consolidate the achievements of poverty alleviation and lift underdeveloped areas out of poverty. From the perspective of corporate involvement in poverty alleviation, this paper extends related research on social forces and another participant in poverty alleviation, and enrich the literature on social benefits brought by companies performing social responsibilities.

Keywords: corporate social responsibility, anti-poverty, corporate involvement in poverty alleviation

1. Introduction and Literature Review

The government has been in the leading place throughout the history of poverty alleviation in China (Yan and Yu, 2008). In stages of relief-based poverty alleviation (1978–1985), development-driven poverty alleviation (1986–2000), and diversified

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support-driven poverty alleviation (2001–2012), the Chinese government implemented a series of policies targeted at liberating rural productivity and arousing the enthusiasm of farmers, such as transferring land management rights, raising agricultural produce prices and guiding rural labor into the secondary and tertiary industries, which has facilitated rural economic development and alleviated rural poverty fundamentally (Wang, 2008). As poverty alleviation went deeper, General Secretary Xi Jinping put forward the “targeted poverty alleviation” policy in 2013, and then targeted poverty alleviation kicked off nationwide. The *Implementation Plan for Establishing a Mechanism of Action for Targeted Poverty Alleviation* published that year further applied the idea of targeted poverty alleviation for fighting poverty. Following this guide, poverty alleviation has been going smoothly with exciting results. The proportion of the poor in China has continued to decline, and the incidence of poverty continues the decreasing trend.

Government-led poverty alleviation, however, has constraints and limitations. In the face of shocks, the government’s non-single objective function would lead to waste of resources and loss of efficiency because of policy failure (Meng, 2013; Zhu and Li, 2017). The direct relief to the poor crowded out private assistance resources and induced them to become dependent on relief, thereby weakening results of relief in reducing poverty (Lu and Lu, 2013). Also, it has caused the fact that the results in poorer areas were below the average effect, even though the government’s spending on poverty alleviation has largely grown the per capita income of rural residents (Liu, 2008).

To relax constraints on the government and make up for its weaknesses in poverty alleviation, the World Bank stressed the need to serve the poor by market strength towards the goal of poverty alleviation (World Bank, 2000). Some studies argued that poverty could be eradicated by innovating business models to serve consumers at the bottom of the pyramid. The core idea was that commercial organizations could “make profits by good deeds”, i.e., commercial organizations can gain benefits while engaging in poverty eradication innovatively (Prahalad, 2006; Kramer and Porter, 2011). For one thing, as commercial organizations, financial companies harvested substantial profits at the business level by convenient lending, such as microfinance, and helped local governments alleviate poverty at the social level (Banerjee *et al.*, 2015). For another, non-profit organizations (NGOs) play a role in reducing poverty. Even in the United States, besides fiscal transfers for education, healthcare, employment, pensions and housing security which are State financially responsible for, there is no shortage of social organizations (e.g., NGOs, companies, etc.) offering relief to the poor.

In 2014, the *Opinions on Steadily Pushing Forward Rural Poverty Alleviation and Development with Innovative Mechanisms* and the *Opinions on Mobilizing the Involvement of All Social Forces in Poverty Alleviation and Development* were successively released by the Chinese government, and emphasized that the poverty alleviation mechanism must be innovated and extensive social forces, especially corporate power, should be mobilized into poverty alleviation when advancing

poverty alleviation and development. As poverty alleviation has entered the deep end, it needs the strength of government and the involvement of social forces as the supplement. All forces must be used for a comprehensive setup for poverty alleviation with government-sponsored projects, sector-specific programs, and social assistance supplementing each other to fuel the economy, develop resources and upgrade industries in poverty-stricken areas.

According to the existing literature, it was found that economic growth and income distribution were the primary ways of anti-poverty, and hence it was generally believed the government should be dominant in poverty alleviation. A number of literatures were about the government's role in anti-poverty: development-based poverty alleviation with government-sponsored public investment as the core could improve the efficiency and equity of backward areas (Ravallion and Jalan, 1999; Fan *et al.*, 2002), while the ever-growing education and social expenditures in government poverty alleviation funds have enhanced the effectiveness of government public expenditures in narrowing the income gap between urban and rural areas (Li and Shen, 2007; Lyu and Liu, 2008). Regarding the role of social forces represented by companies in anti-poverty, only a few literatures noted the fulfillment of corporate social responsibility was of positive significance for alleviate poverty in poor countries, but with absence of specific empirical research (Amadi and Abdullah, 2012, Yan and Yu, 2008). In the aspect of corporate social responsibility, most existing research focused on corporate motives of performing social responsibilities and utility on themselves, while few literatures worked on the social results of companies performing social responsibilities and the research results have been controversial (Aakhus and Bzdak, 2012; Reyes *et al.*, 2017; Beschorner and Hajduk, 2017).

In view of the above, with the corporate social responsibility report information released by A-share listed companies in 2010–2017, this paper empirically looks into the results of corporate involvement in poverty alleviation by application of DID (difference-in-differences) technique in the context of targeted poverty alleviation in China. Research findings are as follows. (1) Companies in the western region, companies directly contacting consumers and large companies with good business performance are more willing to involve in poverty alleviation. (2) Corporate involvement in poverty alleviation significantly increases the per capita income of local rural residents. (3) The results of corporate involvement in poverty alleviation are better in the western region, areas with low per capita GDP and areas under national poverty-stricken counties, i.e., there are significant differences among areas with respect to the results of corporate involvement in poverty alleviation, which is good for targeted poverty alleviation. (4) Companies improve the per capita income of rural residents mainly by developing distinctive agriculture locally. The findings reveal that social forces represented by companies have responded to China's call of targeted poverty alleviation and fulfilled corporate social responsibilities, and actually pushed forward poverty alleviation in underdeveloped areas. For guarding against a return to poverty,

corporate efforts for poverty alleviation must be combined with rural revitalization plans so market strength is utilized to consolidate the achievements of poverty alleviation.

Potential contributions of this paper are as follows. (1) In terms of the actors for poverty alleviation, while current research perspectives are focused on poverty reduction results of the government, this paper, from the perspective of corporate involvement in poverty alleviation, probes into the role of companies and extends the research on social forces, another contributors to poverty alleviation. This provides some empirical evidence for reviewing the theory and practice of socialism with Chinese characteristics that feature people who have got prosperous first helping others catch up and refining the theory of poverty alleviation in China. (2) Conventional research targets at the motives of companies bearing social responsibilities and the utility on themselves. This paper, from the perspective of corporate involvement in poverty alleviation, empirically tests the social benefits of companies fulfilling social responsibilities, and concludes that corporate involvement in poverty alleviation effectively helps social poverty reduction, by which the literature on social benefits brought by companies fulfilling social responsibilities is enriched.

2. Theoretical Analysis and Research Assumptions

2.1. Characteristics of Companies Involving in Poverty Alleviation

China has a vast territory, and the regional differences are great. Compared with border effects among different regions within a general country, the situation in China was more similar to the border effects between different countries around the EU (Huang and Wang, 2006). However, as Chinese companies have been influenced by clan culture to varying degrees (Pan *et al.*, 2017), with strong local characteristics, they naturally focused on places of their location when involving in poverty alleviation. Besides, considering most of the poor in China were living in western provinces (Ravallion and Jalan, 1999), poverty alleviation and development were more frequently found in the performance appraisal of the western region (Yang *et al.*, 2015; Zhu and Li, 2017), resulting in companies concerned with poverty alleviation in this political environment involving more in poverty alleviation. Based on this, from the perspective of local feelings and political demands, Assumption 1A is proposed.

Assumption 1A: Companies in the western region are more willing to involve in poverty alleviation.

Some studies have shown that companies involved in public welfare with an economic motive to improve corporate reputation, achieve advertising effects, and then increase their market share of products (Strahilevitz and Myers, 1998). Meanwhile, companies whose consumers directly purchased their products or services were more sensitive to advertising effects and more strongly motivated to raise

corporate reputation through public welfare, and their donations exceeded those of other companies by 50% on average (Shan *et al.*, 2008). Corporate involvement in poverty alleviation, as intensification of public welfare, also creates advertising effects. Compared with other public welfare undertakings, poverty alleviation projects could be better implemented locally, and the advertising effects are clearer and last longer. Therefore, from the view of advertising effects, Assumption 1B is proposed.

Assumption 1B: Companies directly contacting with consumers are more willing to involve in poverty alleviation.

The theory of constraints (TOC) for corporate social responsibility holds that a company often needs to balance its social value demands with operational conditions when performing corporate social responsibilities. First of all, the corporate scale was highly correlated with resource control capabilities (Yu *et al.*, 2015), and large and performant companies were more willing to engage in public welfare (Adams and Hardwick, 1998; Godfrey, 2005). What's more, poverty alleviation projects need long-term and continuous investment. Unlike general charity or philanthropy, poverty alleviation sets higher standards for corporate scale and operational capabilities, and only large companies with good business performance are capable and willing to respond to the governmental call for poverty alleviation. In addition, the motivation theory for corporate social responsibility believes corporate success is not separated from the support of the society. Large companies with good business performance were more likely to work for the vision of realizing social value, and then applied the resources at their disposal for poverty alleviation and development to enlarge overall social welfare (Doni and Ricchiuti, 2013), thereby "giving back" to society (Stewart, 2005). Hence from the point of constraints and motivation, Assumption 1C is proposed.

Assumption 1C: Large companies with good business performance are more willing to involve in poverty alleviation.

2.2. Results of Companies Involving in Poverty Alleviation

China's poverty alleviation starting in 2013 and following the policy of targeted poverty alleviation is a pioneering work of the human society. Mobilizing social forces and properly handling the relationship between the government and the market are essential to government-led advancement of targeted poverty alleviation. In existing research, however, international organizations, NGOs and business associations often mentioned corporate contributions to anti-poverty (Kolk and Tulder, 2006), but poverty as a social issue was not covered by conventional corporate social responsibility (Barkemeyer, 2009; Hahn, 2012; Lobel, 2013), and there was still a debate over whether companies could help with anti-poverty (Banerjee, 2018; Medina-Muñoz and Medina-Muñoz, 2020). With the penetration of anti-poverty, the government needed companies to involve more in sustainable development, including poverty

eradication and should bring into play the potential of multinational and domestic companies in anti-poverty (UNDP, 2004). Also, there has been research suggesting that corporate fulfillment of social responsibilities was a double-edged sword (Swift and Zadek, 2002). On the one hand, companies fulfilling corporate social responsibilities addressed material social and environmental issues, but on the other hand, perhaps companies deviated from the mission of creating profits to distort the market, reduce community welfare, and cause potential harm to society (Banerjee, 2018).

As domestic research has noted, companies could provide capital, human resources, knowledge and organizational supply for rural development by means of investment (Li, 2019). In China, targeted poverty alleviation has been characterized by government leadership, with all forces used for a comprehensive setup for poverty alleviation with government-sponsored projects, sector-specific programs, and social assistance supplementing each other, as a two-way poverty alleviation mechanism has been applied top-down and bottom-up for economic growth, resource development and industrial upgrading in poverty-stricken areas (Jia *et al.*, 2017; Wang and Su, 2020). The coordination between the government, the society and the market helped to improve the quality and efficiency of poverty alleviation (Yan and Yu, 2008), and corporate potential and role in poverty alleviation should be enlarged by the policy synergy. This paper, therefore, proposes the following assumption.

Assumption 2: The per capita income of rural residents increase significantly in areas with corporate involvement in poverty alleviation.

Addressing the weakening of poverty alleviation results after entering the deep end is a major target of targeted poverty alleviation. To probe into whether corporate involvement could help with the policy of targeted poverty alleviation, the regional differences in the results of corporate involvement in poverty alleviation are further analyzed.

Some studies have shown the differences among different economic regions in China were large, with a convergence phenomenon in growth within the same economic region, i.e., economically underdeveloped regions and economically developed regions were conditionally convergent, respectively, revealed as different economic levels of the eastern, central and western regions (Liu, 2001; Pan, 2010). Others suggested regions with lower initial economic level registered higher growth rates of per capita income, i.e., the growth rates of per capita income of different regions were correlated negatively with the initial levels of per capita income; the difference in per capita income between different regions was narrowing over time (Lin and Liu, 2003; Lin *et al.*, 2005). Impacted by external economic trends, it is inferred that the results of corporate involvement in poverty alleviation are better in the western region, and areas with low per capita GDP as well. Based on the above analysis, this paper proposes the following assumptions.

Assumption 3A: The results of corporate involvement in poverty alleviation are better in the western region.

Assumption 3B: The results of corporate involvement in poverty alleviation are

better in areas with low per capita GDP.

As targeted poverty alleviation became a policy orientation, in March 2012, the State Council Leading Group Office for Poverty Alleviation and Development stepped up the policy support for deeply impoverished areas and announced the *List of Prioritized Counties of National Poverty Alleviation and Development*. The *List of Prioritized Counties of National Poverty Alleviation and Development* had a long-term positive impact on poverty alleviation in the corresponding areas, and the longer poverty-stricken areas were registered as prioritized counties, the larger the positive impact would be (Huang, 2018). Research suggested that the implementation of poverty alleviation policies could largely reduce the rural poor in poverty-stricken areas, as the poverty rate of poverty-stricken counties has dropped more than that of non-poor counties after these policies have taken effect (Xu *et al.*, 2020). Companies involving in poverty alleviation projects of national poverty-stricken counties receive policy support in terms of taxation, credit, and land. It is inferred that the results of corporate involvement in poverty alleviation are better in areas under national poverty-stricken counties. Based on the above analysis, the following assumption is proposed.

Assumption 3C: The results of corporate involvement in poverty alleviation are better in areas under national poverty-stricken counties.

3. Research Design

3.1. Sample Selection and Data Sources

A corporate social responsibility (CSR) report is a corporate summary of achievements and weaknesses of direct or indirect operations for the society and people's livelihood, environmental protection, etc., as well as the vision and measures for fulfilling social responsibilities. In the CSR report, a company discloses its efforts for poverty alleviation in the year, including dates, locations, projects and so on. This paper collects corporate social responsibility reports published by all listed companies in 2010–2017 on <http://www.cninfo.com.cn>, extracts the location information of poverty alleviation projects carried out by all listed companies each year by way of text collation, and matches how many listed companies in each county-level area nationwide help with local poverty alleviation each year, so corporate support for poverty alleviation in county-level areas is measured. The more poverty alleviation projects a county-level area receives, the larger the support it receives from companies. The rest of the data are derived from *China County Statistical Yearbook*, *China Statistical Yearbook*, provincial statistical yearbooks, *China City Statistical Yearbook*, *Railway Passenger and Freight Transport Special Issue*, Wind financial database, Qixinbao Database, etc.

Meanwhile, the data is processed according to the following standards. (1) To avoid the influence of outliers, the variables are performed with a 1% winsorization

on the left and right; (2) For area-level data of Assumption 2 and Assumptions 3A , 3B and 3C, the areas without poverty alleviation projects in 2010–2013 are selected as the sample and those with poverty alleviation projects in 2010–2013 are excluded to construct the impact of corporate support on county-level areas, namely 2014 is taken as the first year of policy impact; areas with missing per capita income are excluded from the sample; only those with data of 2010–2013 and 2014–2017 stay to ensure the sample of areas exist before and after policy impact.

3.2. Model Design and Variable Description

For Assumptions 1A, 1B and 1C to be verified, the following equations are constructed:

$$D_POVERTY_{it} = \gamma_0 + \gamma_1 WEST_{it-1} + \gamma_2 INDU_{it-1} + \gamma_3 SIZE_{it-1} + \gamma_4 ROE_{it-1} + \gamma_5 SOE_{it-1} + \gamma_6 INCOME_{it-1} + \gamma_7 LEV_{it-1} + \gamma_8 HOLD_{it-1} + \gamma_9 IHP_{it-1} + \gamma_{10} EPS_{it-1} + \varepsilon_{it-1} \quad (1)$$

where $D_POVERTY$ is the dependent variable, which equals 1 if a listed company involved in poverty alleviation in that year, and 0 otherwise. $WEST$ denotes the geographic location of the listed company, which is 1 if the company is located in the western region, and 0 otherwise; γ_1 shall be significantly positive if Assumption 1A holds. $INDU$ denotes the industrial nature of the listed company, which is 1 if the listed company's products and services has direct contact with consumers, and 0 otherwise. γ_2 shall be significantly positive if Assumption 1B holds.¹ $SIZE$ denotes logarithm of the total assets of the listed company and is used to measure the scale of the listed company and ROE denotes the return on net assets of the listed company; γ_3 and γ_4 shall be significantly positive if Assumption 1C holds. SOE denotes the nature of the listed company, which is 1 if the listed company is a state-owned enterprise, and 0 otherwise; $INCOME$ denotes logarithm of the total operating income of the listed company; LEV denotes the asset-liability ratio of the listed company; $HOLD$ denotes the shareholding ratio of top ten shareholders of the listed company; IHP denotes the shareholding ratio of institutional investors; EPS denotes the earnings per share of the listed company. To alleviate endogeneity issues, all explanatory variables in equation (1) are lagged by one period.

For testing Assumption 2, the DID (difference-in-differences) technique is chosen to

¹ No literature is available for reference on this direct contact with consumers. Shan (2008) made a subjective judgment based on common sense in the paper "An Empirical Study of Chinese Listed Companies' Donations after Wenchuan Earthquake—Corporate Donations and Economic Motivation" published on the 11th issue of *Economic Research Journal (Jingji Yanjiu)* in 2008. This paper draws on the practice and makes judgments based on new industry classification results released by China Securities Regulatory Commission (CSRC).

study the impact of corporate involvement in poverty alleviation on poverty reduction. General Secretary Xi Jinping proposed “targeted poverty alleviation” for the first time in November 2013, emphasizing that poverty alleviation must adapt to local reality. In January 2014, the CPC Central Committee and the General Office of the State Council of the People’s Republic of China jointly released the *Opinions on Steadily Pushing Forward Rural Poverty Alleviation and Development with Innovative Mechanisms* that called for establishing and improving a social involvement mechanism for poverty alleviation and development. In December 2014, the *Opinions on Mobilizing the Involvement of All Social Forces in Poverty Alleviation and Development* was published by the General Office of the State Council to vigorously advocate corporate involvement in poverty alleviation. Given that China’s call for social forces to involve in targeted poverty alleviation started in 2014, this paper regards 2014 as the first year of policy impact. If a county-level area gained poverty alleviation projects of listed companies in 2014 and later, it enters the treatment group. The equation is as follows:

$$PINCOME_{it} = a_0 + \beta \times PT_{it} + \gamma \times X_{it} + C_i + year_t + \varepsilon_{it} \quad (2)$$

where the subscript i denotes the county-level area and t the time. $PINCOME$ represents the per capita income of rural residents. PT is a dummy variable, which is 1 if the county-level area obtained poverty alleviation projects of listed companies, and 0 otherwise. Since each county-level area is impacted by listed companies’ involvement in poverty alleviation at different times, the PT of all samples before 2014 should be 0, and it should be 0 if a county-level area has not obtained poverty alleviation projects of listed companies since 2014; if there are poverty alleviation projects from listed companies in that year, the PT in that year and subsequent years should be 1. β is the coefficient of PT and is used to measure the impact of poverty alleviation projects of listed companies on per capita income of rural residents. The larger β is, the better results of listed companies involving in poverty alleviation. X is a control variable, and γ denotes coefficient of the control variable. The per capita fiscal expenditure is used to measure governmental involvement in poverty alleviation, and per capita GDP, GDP growth rate, per capita industrial output value above designated size, per capita investment in fixed assets, financial development index and per capita value added of the primary industry and the opening of high-speed rail is applied to measure the impact of local economic features on per capita income of rural residents. C denotes the county-level area fixed effects that is constant, and $year$ denotes the time fixed effects.

For Assumptions 3A, 3B and 3C to be verified, the following equation is constructed for heterogeneity analysis:

$$PINCOME_{it} = a_0 + \psi \times PT_{it} \times DUMMY_i + \beta \times PT_{it} + \gamma \times X_{it} + C_i + year_t + \varepsilon_{it} \quad (3)$$

where *DUMMY* denotes dummy variables *WEST*, *PGDP_DUMMY* and *POOR_COUNTY*, respectively. If the county-level area is located in the western region, *WEST* is 1, otherwise it is 0; if the per capita GDP of the county-level area is higher than the median, *PGDP_DUMMY* is 1, otherwise it is 0; if the county-level area is a national-level poverty-stricken county, *POOR_COUNTY* is 1, otherwise it is 0. The coefficients of $PT \times WEST$, $PT \times PGDP_DUMMY$, and $PT \times POOR_COUNTY$, respectively measure the impact of these local characteristics on listed companies' involvement in poverty alleviation to raise the per capita income of rural residents.¹

4. Empirical Results and Analysis

4.1. Assumption 1 Regression Results

Regression results of Assumption 1 are shown in Table 1. Column (1) shows regression results of the Probit model, and *WEST* is significantly positive, revealing

Table 1. Assumption 1 Regression Results

	(1) Probit <i>D_POVERTY</i>	(2) Logit <i>D_POVERTY</i>	(3) Ols <i>D_POVERTY</i>
<i>WEST</i>	0.3130*** (0.0693)	0.5229*** (0.1131)	0.1100*** (0.0250)
<i>INDU</i>	0.1038* (0.0577)	0.1760* (0.0954)	0.0366* (0.0196)
<i>SIZE</i>	0.1963*** (0.0297)	0.3263*** (0.0496)	0.0708*** (0.0101)
<i>ROE</i>	0.5628* (0.2928)	0.9481* (0.4837)	0.1681* (0.0958)
<i>Constant</i>	-1.1880*** (0.1250)	-1.9479*** (0.2088)	0.0735* (0.0429)
Control variable	YES	YES	YES
Time fixed effects	YES	YES	YES
<i>N</i>	5334	5334	5334
<i>R</i> ²	0.0731	0.0733	0.0922

Note: ***, ** and * represent the significance levels of 1%, 5% and 10% respectively, and values in brackets are clustered standard errors at the corporate level.

¹ The names, symbols, specific definitions and descriptive statistics of each variable are not listed for space limitations, and are available on request.

that listed companies in the western region are more willing to involve in poverty alleviation. Assumption 1A holds. *INDU* is significantly positive, which means listed companies whose products and services are in direct contact with consumers are more willing to involve in poverty alleviation. Assumption 1B holds. *SIZE* is significantly positive, and it suggests large listed companies are more willing to involve in poverty alleviation; *ROE* is significantly positive, indicating listed companies with good business performance are more willing to involve in poverty alleviation. Assumption 1C holds. The above results also hold true in Logit regression and OLS regression, which means the results are robust.

While endogeneity issues could be partially alleviated by adopting one-period-lagged independent variables, this model has another potential endogeneity issue—sample selection bias. The percentage of listed companies releasing social responsibility reports in 2017 was approximately 30%, and it suggested the benchmark results could be subject to sample selection bias. The Heckman Model is also applied for testing sample selection bias, and the results are consistent.

4.2. Assumption 2 Regression Results

4.2.1. Benchmark Results

Regression results of Assumption 2 are shown in Table 2. For column (1), only individual fixed effects and time fixed effects are controlled; for column (2), control variables are added; for column (3), “province×time fixed effects” is controlled (“province×time fixed effects” captures policy differences among different provinces to further control the impact of governmental factors on per capita income). The coefficients of *PT* are all significantly positive, as is shown in the Table. It suggests that the impact of listed companies’ involvement in poverty alleviation is significantly positive on the per capita income of rural residents in county-level areas. Assumption 2 holds. The results reveal the significant role of social forces represented by companies in poverty alleviation. Encouraging corporate involvement in poverty alleviation helps with the goal of common prosperity for all. The theory of socialism with Chinese characteristics—people who have got prosperous first help others catch up—works, as is demonstrated.

4.2.2. Parallel Trends Assumption Testing

The DID (difference-in-differences) technique must have parallel trends assumption as the premise. The testing results of parallel trends assumption in this paper are shown in Figure 1. For county-level areas, before being impacted by listed companies’ involvement in poverty alleviation, the estimated coefficient is not significantly different

from 0, i.e., there is no significant difference in the per capita income of rural residents between the treatment group and the control group; the estimated coefficient becomes significantly positive after the impact. The parallel trends assumption testing has passed.

Table 2. Assumption 2 Regression Results

	(1) Complete samples <i>PINCOME</i>	(2) Complete samples <i>PINCOME</i>	(3) Complete samples <i>PINCOME</i>	(4) Samples of central and western regions <i>PINCOME</i>	(5) Samples of central and western regions <i>PINCOME</i>	(6) Samples of poverty- stricken counties <i>PINCOME</i>	(7) Samples of poverty- stricken counties <i>PINCOME</i>
<i>PT</i>	0.0372*** (0.0054)	0.0265*** (0.0052)	0.0175*** (0.0042)	0.0255*** (0.0056)	0.0125*** (0.0046)	0.0159** (0.0073)	0.0104* (0.0059)
<i>Constant</i>	9.0658*** (0.0006)	7.7752*** (0.1517)	8.2750*** (0.1611)	7.8145*** (0.1659)	8.4280*** (0.1738)	7.4077*** (0.2157)	7.9381*** (0.2174)
Control variable	NO	YES	YES	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES	YES	YES	YES
Time fixed effects	YES	YES	NO	YES	NO	YES	NO
Province×time fixed effects	NO	NO	YES	NO	YES	NO	YES
<i>N</i>	6812	6715	6689	4766	4749	2295	2286
<i>R</i> ²	0.9831	0.9841	0.9905	0.9829	0.9890	0.9642	0.9776

Note: ***, ** and * represent significance levels of 1%, 5% and 10% respectively, and values in brackets are clustered standard errors at the level of county-level areas. The same below.

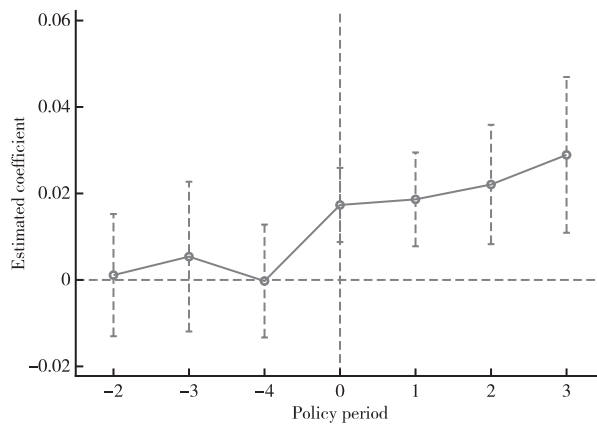


Figure 1. Parallel Trends Assumption Testing

Note: The circles are estimated coefficients, and the upper and lower seals of the dotted lines are 95% confidence intervals.

4.2.3. Endogeneity

The DID (difference-in-differences) technique alleviates endogeneity issues well, but some of the issues are worth noting. First of all, China rolled out a series of poverty alleviation programs since 2013, including “poverty registration” and “targeted poverty alleviation” for poor households. Despite that in benchmark regression, per capita fiscal expenditure and per capita fiscal income as proxy indicators of poverty alleviation efforts at the government level are controlled and “province×time fixed effects” is used to capture the impact on per capita income as a result of policy differences between different provinces, there may still be variables left out to influence the results. Additionally, different regions vary largely in terms of economic development and local characteristics in China. The parallel trends assumption testing of DID (difference-in-differences) technique has passed, though, large regional differences may lead to inconsistent trends between the treatment group and the control group after the impact, which could result in bias in the estimated results. Finally, in the results of this paper, there may be a reverse causality between the progress in listed companies’ poverty alleviation projects and the increase of rural residents’ per capita income. That is to say, high initial per capita income of rural residents attracts corporate projects for poverty alleviation, while the increase of rural residents’ per capita income is more likely to benefit from economic foundations and time trends of high-income areas themselves instead of corporate involvement in poverty alleviation. This paper attempts to address these endogeneity issues in follows.

(1) Samples of Central and Western Regions and Samples of Poverty-Stricken Counties

As the eastern region is far ahead of the central and western regions in economic development, China’s poverty alleviation policies have focused on the central and western regions. In columns (4) and (5) of Table 2, the sample points of the central and western regions are regressed to partially eliminate potential impact of significant regional differences on results of this paper. In columns (6) and (7) of Table 2, the sample range is narrowed to national poverty-stricken counties to eliminate more impact of different regional characteristics.¹ Thanks to the good policy consistency, samples of national poverty-stricken counties would also help to further exclude the impact of government poverty alleviation policies on the per capita income of rural residents. The four columns of results are consistent with the benchmark results.

(2) Instrumental Variables

Companies’ selection of poverty alleviation projects seems to be random from the perspective of geographical distribution. That being said, to exclude the impacts of other potential unobservable factors in the same period on where to carry out poverty

¹ See poverty-stricken counties listed in the *List of Prioritized Counties of National Poverty Alleviation and Development (2012)* for the classification criteria of national poverty-stricken counties.

alleviation projects, the following two instrumental variables are applied for regression to further alleviate endogeneity issues.

One is the branch structure. With the Qixin Bao database, this paper constructs an instrumental variable *BRANCH* based on whether listed companies have established branches locally as they support poverty alleviation (Cai, 2016) to further solve the endogenous issues. For some employees must go to rural areas for the development of poverty alleviation projects and existing branches could make it easier for the work, companies are more likely to start poverty alleviation projects in areas where their branches are located. The branches selected in this paper are located in superior administrative areas of poverty alleviation projects, with no correlation (or weak correlation) with the per capita income of local residents, so *BRANCH* complies with the exogenous requirements for instrumental variables. Another is media coverage. We found the text version of Network News Broadcast (*Xinwen Lianbo*) in 2010–2017 on Tushare, and manually sorted out the number of times each prefecture-level city was covered by Network News Broadcast for poverty alleviation each year (*MEDIA*). A company is probably influenced by Network News Broadcast’s coverage on certain places when choosing where to carry out poverty alleviation projects (any place covered by Network News Broadcast for poverty alleviation-related news could be likely to attract poverty alleviation projects if the company conceives of political motives), and the coverage has no correlation (or weak correlation) with the per capita income of local residents, so *MEDIA* complies with the requirements for instrumental variables.

Regression results of instrumental variables are shown in Table 3. Columns (1) to (4) are regression results of *BRANCH*, where *BRANCH_CITY* and *BRANCH_PROVINCE* respectively denote whether the listed company has set up branches in corresponding

Table 3. Regression Results of Instrumental Variables

	(1) Phase I <i>PT</i>	(2) Phase II <i>PINCOME</i>	(3) Phase I <i>PT</i>	(4) Phase II <i>PINCOME</i>	(5) Phase I <i>PT</i>	(6) Phase II <i>PINCOME</i>
<i>PT</i>		0.0341*** (0.0103)		0.0467*** (0.0107)		0.6871** (0.3083)
<i>BRANCH_CITY</i>	0.4952*** (0.0379)					
<i>BRANCH_PROVINCE</i>			0.3560*** (0.0921)			
<i>MEDIA</i>					0.0115** (0.0051)	
<i>Constant</i>	-3.3076*** (0.4581)	7.3573*** (0.1432)	-2.7756*** (0.4396)	7.4031*** (0.1419)	-3.5274*** (0.4892)	9.7234*** (1.1468)
Control variable	YES	YES	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES	YES	YES
Time fixed effects	YES	YES	YES	YES	YES	YES
<i>N</i>	6715	6715	6715	6715	6715	6715
<i>R</i> ²	0.3385	0.9432	0.3827	0.9429	0.2380	0.5849

prefecture-level cities and corresponding provinces at the involvement in poverty alleviation. Columns (5) and (6) are regression results of *MEDIA*. As is shown, regression results of two instrumental variables are still consistent with benchmark results.

(3) Reversal Causality

In view of the possible reverse causality between the development of listed companies' poverty alleviation projects and the increase of rural residents' per capita income, this paper verifies whether the higher initial rural residents' per capita income attracts listed companies to involve in poverty alleviation. The verification equation is as follows:

$$S_POVERTY_i = \alpha_0 + \beta \times PINCOME_i + \gamma \times X_i + \varepsilon_i \quad (4)$$

where the subscript i denotes county-level areas and $S_POVERTY$ the sum of poverty alleviation projects of all listed companies in each county-level area from 2014 to 2017. X denotes control variables of the basic economic characteristics and government behavior of each county-level area in 2013. $PINCOME$ denotes the per capita income of rural residents in each county-level area in 2013. If the areas with high per capita income of rural residents attract more poverty alleviation projects of listed companies, the per capita income of rural residents in each county-level area in 2013 is given, and β shall be significantly positive. Regression results show that the coefficient of $PINCOME$ is significantly negative, revealing the poverty alleviation projects of listed companies are often carried out in underdeveloped areas, and areas with high per capita income of rural residents do not attract more listed companies to involve in poverty alleviation.¹ It is inferred that the increase in the per capita income of rural residents amid corporate involvement in poverty alleviation is not because of the better economic foundation and time trends of the county-level areas themselves.

(4) Placebo Test

To exclude the impact of other policies and unobservable local characteristics, this paper conducts a Placebo Test by shuffling the impacted time and the impacted areas. By random sampling, 500 simulations are carried out, and the distribution map of estimated coefficients obtained from the 500 simulations is drawn.² The Placebo Test results suggest the increase in the per capita income of rural residents amid corporate involvement in poverty alleviation is unlikely to be driven by other policies and unobservable local characteristics.

Until now, endogeneity issues caused by national policy impacts, regional

¹ The regression results are not presented for space limitations. Readers can request it from the authors if necessary.

² The Placebo Test chart is not presented for space limitations. Readers can request it from the authors if necessary.

differences and reverse causality are dealt with, and the regression results remain stable. It proves that the conclusion that corporate involvement in poverty alleviation contributes significantly to poverty alleviation still holds in the case of further addressing endogenous issues.

4.2.4. Robustness Checks

To examine the robustness of the results of corporate involvement in poverty alleviation, the following robustness checks are conducted. First, the term PT of equation (2) is replaced by the number of poverty alleviation projects $POVERTY$ for regression. As the $POVERTY$ of all sample points in 2010–2013 is 0, it is essentially a difference-in-differences. Since $POVERTY$ is a numerical variable, its coefficient can also measure the impact of the number of poverty alleviation projects on the per capita income of rural residents in county-level areas, i.e., the impact of listed companies' poverty alleviation efforts on the per capita income of rural residents in county-level areas. Furthermore, since the locations of poverty alleviation projects carried out by some listed companies are disclosed to the prefecture-level city level and those of county-level areas are absent, this paper also conducts robustness checks with prefecture-level cities to avoid data leakage. Results of the two robustness checks are also consistent with benchmark results.¹

4.3. Assumption 3 Regression Results

Regression results of Assumption 3 are shown in Table 4. The coefficient of the interaction term $PT \times WEST$ in column (1) is significantly positive, revealing that poverty alleviation results of listed companies in the western region are more effective. Assumption 3A holds.² The coefficients of the interaction term $PT \times PGDP_DUMMY$ in columns (2) and (3) are significantly negative, which suggests poverty alleviation results of listed companies in underdeveloped areas are more effective. Assumption 3B holds. The coefficients of the interaction term $PT \times POOR_COUNTY$ in columns (4) and (5) are significantly positive, indicating poverty alleviation results in national poverty-stricken counties are better. Assumption 3C holds. The above results also indicate that corporate involvement in poverty alleviation is more effective in poverty-stricken areas, facilitating the coordinated development of different economic regions and narrowing the development gap among regions. At the same time, this also shows that the involvement

¹ The robustness check results are not presented for space limitations. Readers can request it from the authors if necessary.

² Since the two variables, $WEST$ and $PROVINCE$, change at the same level, and the frequency of change of $WEST$ is lower than that of $PROVINCE$, the regression of Assumption 3A does not control “province \times time fixed effects”.

of social forces is indeed good for the progress of targeted poverty alleviation, which helps break old development bottlenecks in deeply impoverished areas to walk through the “last-mile” in poverty alleviation towards the common prosperity for all.

Table 4. Assumption 3 Regression Results

	(1) <i>PINCOME</i>	(2) <i>PINCOME</i>	(3) <i>PINCOME</i>	(4) <i>PINCOME</i>	(5) <i>PINCOME</i>
<i>PT</i> × <i>WEST</i>	0.0636*** (0.0095)				
<i>PT</i> × <i>PGDP_DUMMY</i>		-0.0706*** (0.0088)	-0.0333*** (0.0081)		
<i>PT</i> × <i>POOR_COUNTY</i>				0.0740*** (0.0081)	0.0466*** (0.0070)
<i>PT</i>	-0.0007 (0.0056)	0.0503*** (0.0061)	0.0290*** (0.0052)	-0.0173*** (0.0057)	0.0097** (0.0042)
<i>Constant</i>	7.8747*** (0.1476)	7.9088*** (0.1459)	8.3208*** (0.1577)	7.8570*** (0.1453)	8.3216*** (0.1561)
Control variable	YES	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES	YES
Time fixed effects	YES	YES	NO	YES	NO
Province × time fixed effects	NO	NO	YES	NO	YES
<i>N</i>	6715	6715	6689	6715	6689
<i>R</i> ²	0.9844	0.9844	0.9906	0.9845	0.9907

4.4. Analysis of Mechanism of Action

The above results suggest that listed companies’ involvement has been effective for poverty alleviation. The mechanism of action is analyzed as follows. Studies have found government-led poverty alleviation made it to the policy goal of fueling local economy by optimizing local industrial structure and increasing local investment in fixed assets (Huang, 2018). Furthermore, some scholars have found the primary channels provided by poverty alleviation policies to reduce the poor include guiding rural labors to work outside hometown, improving infrastructure construction, and increasing agricultural output (Xu *et al.*, 2020). Besides human resources and land resources, other resource endowments are scarce in poverty-stricken areas. Listed companies, as social forces, generally pair up with areas in need and adopt the approach of developing local distinctive agriculture to raise the agricultural income of the poor based on local reality. For verifying whether this transmission mechanism holds, the regression is conducted as follows:

$$PINCOME_{it} = \alpha_0 + \varphi \times PT_{it} \times FIRST_{it} + \beta \times PT_{it} + \gamma \times X_{it} + C_i + year_t + \varepsilon_{it} \quad (5)$$

where $PT \times FIRST$ represents the interaction term of PT and the value added per capita of the primary industry. The testing logic is as follows. If companies increase the rural per capita income by influencing the development of the primary industry, then for the given impact of corporate involvement in poverty alleviation, the lower the value added per capita of the primary industry, the larger the rise in the per capita income of rural residents should be, i.e., φ is significantly negative in the equation. Empirical results are shown in Table 5. For column (1), only individual fixed effects and time fixed effects are controlled; for column (2) control variables are added; and for column (3), “province×time fixed effects” is further controlled. Each coefficient of the interaction term $PT \times FIRST$ is significantly negative. Regression results reveal that corporate involvement in poverty alleviation is more effective in areas with low value added per capita of the primary industry, and it suggests companies increase the per capita income of rural residents by influencing the development of the primary industry.

Table 5. Regression Results of Mechanism of Action

	(1) <i>PINCOME</i>	(2) <i>PINCOME</i>	(3) <i>PINCOME</i>
<i>PT</i> × <i>FIRST</i>	-0.0418*** (0.0092)	-0.0401*** (0.0088)	-0.0238*** (0.0077)
<i>PT</i>	0.3790*** (0.0774)	0.3611*** (0.0735)	0.2161*** (0.0640)
<i>FIRST</i>	0.0918*** (0.0092)	0.0851*** (0.0095)	0.0417*** (0.0121)
<i>Constant</i>	8.3007*** (0.0767)	7.7326*** (0.1535)	8.2404*** (0.1632)
Control variable	NO	YES	YES
Individual fixed effects	YES	YES	YES
Time fixed effects	YES	YES	NO
Province × time fixed effects	NO	NO	YES
<i>N</i>	6811	6715	6689
<i>R</i> ²	0.9837	0.9842	0.9906

5. Conclusions and Implications

As poverty alleviation has entered the deep end and government-led poverty alleviation is faced with multiple constraints and limitations, there urgently needs social forces, especially companies, to involve in poverty alleviation. Corporate involvement in poverty alleviation helps to make up for the weaknesses of government efforts and to facilitate the development of physical and human resources and the upgrading of industries in underdeveloped areas. With the help of corporate social responsibility reports released by Chinese listed companies, this paper has probed into whether

corporate involvement is really helpful for poverty alleviation, and the principal conclusions are as follows. (1) Companies in the western region, companies directly contacting consumers and large companies with good business performance are more willing to involve in poverty alleviation. (2) Corporate involvement in poverty alleviation significantly increases the per capita income of local rural residents. (3) The results of corporate involvement in poverty alleviation are better in the western region, areas with low per capita GDP and areas under national poverty-stricken counties, i.e., there are significant differences among areas with respect to the results of corporate involvement in poverty alleviation, and it is good for targeted poverty alleviation. (4) Companies increase the per capita income of rural residents by developing distinctive agriculture locally. These reveal that social forces represented by companies have responded to China's call of targeted poverty alleviation and fulfilled corporate social responsibilities, and have indeed pushed forward poverty alleviation in underdeveloped areas.

To enable the poor to help themselves and realize sustained increase of income, government departments need to absorb social forces represented by companies into poverty alleviation. After a moderately prosperous society in all respects was built in 2020, the government should focus on guarding against a return of out-of-poverty areas into poverty. Only by combining corporate involvement in poverty alleviation with rural revitalization plans organically will market forces be better used for poverty alleviation and consolidate existing achievements in China. Specifically, in the second half of poverty alleviation, corporate potential remains to be discovered, while breaking bottlenecks facing companies involving in poverty alleviation need systematic policy support schemes rolled out by government departments. First of all, the infrastructure construction in poverty-stricken areas must be improved and the business environment for companies to involve in poverty alleviation must be optimized. Mobilizing and guiding funds and resources at corporate disposal, based on basic conditions and resource endowments of poverty-stricken areas, so that poverty alleviation projects effectively satisfy local needs, and eradicate poverty from the mechanism. In addition, the orientation of respecting and encouraging common prosperity should be followed to stimulate the enthusiasm of all involved parties, intensify the recognition and improve social reputation incentives for companies involving in poverty alleviation to raise their expectations from poverty alleviation. In this way, an endogenous incentive mechanism featuring “people who have got prosperous first help others catch up” comes into being.

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