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Do corporate social responsibility practices alleviate poverty? Evidence from Firms' targeted pairing assistance with counties

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Author contributions

Fellow researchers and authors contributed as follows: Author A: conceptualization; formal analysis; methodology; writing - original draft, writing - review & editing. Author B: conceptualization; data curation; formal analysis; methodology; writing - original draft, writing - review & editing. Author C: conceptualization; project administration; supervision, validation, writing - review & editing. Author D: validation; writing - original draft; writing - review & editing.

Competing interests

The authors declare no competing interests.

Ethical approval

This paper does not contain any studies with human participants performed by any of the authors.

Informed consent

This paper does not contain any studies with human participants performed by any of the authors.

Data availability

The publicly available CFPS dataset provides address data only at the provincial level, whereas this study requires finer-grained county-level analysis. To supplement this, we incorporate publicly available county-level statistics where applicable. Due to confidentiality agreements and ethical protections for human-subjects research, the empirical data derived from CFPS are stored securely and cannot be publicly shared. The CFPS project adheres to strict ethical guidelines, including approval by Peking University's Biomedical Ethics Committee (IRB00001052-14010).

Researchers may request access to aggregated datasets, code, and documentation via the official CFPS platform or the Peking University Open Research Data Platform, which supports DOI assignment for shared materials. For details, see: https://www.isss.pku.edu.cn/cfps/en/faq/PublishwithCFPSData/index.htm?CSRFT=2L4S-OLLZ-G2E2-O0CY-HYA8-YBZ9-OZZR-2D0N.

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Abstract

This study examines the social impact of firms' Targeted Pairing Assistance (TPA) practices in China, an important yet underexplored aspect of Corporate Social Responsibility (CSR). Leveraging a quasi-natural experiment based on China's 2016 disclosure mandate for poverty alleviation engagement, this study finds that TPA increase individual income and reduces poverty rates in paired counties, with results robust to endogeneity concerns. Mechanism tests reveal that TPA alleviates poverty through financial empowerment and industrial development, while heterogeneity analyses show stronger effects in counties with greater economic complexity and formal poverty designation under national policies. Moreover, we document a positive spillover effect of TPA on local entrepreneurship. This study addresses the gap in CSR literature by evaluating whether corporate poverty alleviation programs generate measurable social impacts, providing a more granular perspective on the social dimension of CSR.

Introduction

Despite significant global progress in reducing extreme poverty, approximately 719 million people still lived on less than $2.15 per day by the end of 2020 (United Nations, 2023). This persistent challenge, particularly in rural and underdeveloped regions, underscores the critical need for innovative solutions that effectively translate economic resources into measurable improvements in household welfare. Traditional government-led poverty alleviation programs, while essential, have demonstrated limitations in achieving sustainable impact at the community level, especially in reaching the most marginalized populations.

Corporate Social Responsibility (CSR) has been widely regarded as a useful lens for understanding how private sector engagement can complement public efforts in addressing societal challenges. The CSR literature posits that corporations can play a transformative role in social development, particularly through initiatives aligned with the United Nations' Sustainable Development Goals (SDGs), especially Goal 1 to "end poverty in all its forms everywhere". However, extant research has predominantly focused on assessing CSR performance through standardized third-party ratings (Gillan et al. 2021) or firm-level financial outcomes (Gibson et al. 2021), rather than examining the actual societal value generated for intended beneficiaries. This measurement gap has been further complicated by rising concerns about superficial corporate practices such as "greenwashing" (Baker et al., 2024; Chen et al., 2024), highlighting the need for empirical evidence on CSR's real-world impact. This leads to our central inquiry: Do corporate poverty reduction initiatives translate into measurable improvements in income levels and socioeconomic well-being for targeted communities?

China's Targeted Pairing Assistance (TPA) program offers a unique institutional context for examining this question—a hybrid public-private development model that creates a quasi-natural experimental setting. Under TPA, listed firms are formally mandated to partner directly with designated underdeveloped counties, establishing an institutional mechanism that integrates corporate social responsibility with national poverty alleviation objectives. This systematic approach transforms CSR from voluntary corporate philanthropy into a

structured component of development policy, creating variation in corporate engagement that can be empirically analyzed. The program's institutional design—strengthened by CSRC guidelines in 2016 that encouraged firm participation alongside enhanced disclosure requirements—provides an ideal framework for causal inference regarding corporate social impact. China's remarkable poverty reduction achievement—accounting for over 70% of global poverty reduction under the World Bank standard and meeting the UN's 2030 SDG poverty target a decade early (United Nations, 2023)—further underscores the potential of this institutional innovation.

However, existing TPA literature reveals a critical gap in understanding the program's actual social impact. While current research focuses on corporate participation drivers and firm-level financial outcomes (Wu et al., 2023; Jing et al., 2023; Yue et al., 2025a, 2025b) or examines governmental mechanisms like financial inclusion (López-Cabarcos et al., 2025; Wang et al., 2024; Xu and Zheng, 2024; Zhou et al., 2025), the direct effects of firm-level TPA initiatives on household-level socioeconomic outcomes remain unexplored. This study addresses this gap by comprehensively evaluating how corporate actions through TPA translate into tangible improvements in beneficiary communities. Utilizing a multi-source dataset—including corporate reports, the China Family Panel Studies (CFPS), and county-level statistics—we examine TPA's impact on household income and poverty reduction, identifying underlying mechanisms and heterogeneous effects.

Our findings reveal that TPA interventions significantly elevate household income levels and attenuate income poverty in paired counties, with these effects robust to various endogeneity checks and alternative model specifications. Mechanism tests reveal that TPA alleviates income poverty primarily through financial empowerment and industrial development. Furthermore, heterogeneity analyses further show amplified effects in counties with greater economic complexity and formal poverty designation. Additionally, TPA induces spillover effects stimulating local entrepreneurship, demonstrating its role in alleviating short-term poverty while fostering sustainable socioeconomic resilience.

This study makes three contributions to the literature on corporate social impact and CSR effectiveness. First, it addresses a critical gap by empirically examining the direct impact of corporate targeted assistance programs on household-level poverty reduction (Gurun et al., 2023). By shifting the analytical lens from firm-level outcomes (Wu et al., 2023; Jing et al., 2023) or specific mechanisms (Zhou et al., 2025) to quantifiable household socioeconomic outcomes (Wang et al., 2024; Xu and Zheng, 2024), this research provides concrete micro-level evidence of corporate impact beyond disclosure claims (Chen et al., 2024).

Second, the research advances nascent work evaluating the social dimension of CSR by examining corporate poverty reduction programs—an underexplored aspect of CSR activities (Chang et al., 2021; Zheng et al., 2024). Unlike prior studies reliant on generic CSR disclosures or third-party ratings (Chen et al., 2023; Zhou et al., 2024), our analysis provides novel empirical evidence on the consequences of this specific social component of CSR practice.

Third, by positioning TPA as a hybrid public-private institutional model, this study contributes to broader debates in development economics, industrial policy, and institutional economics. While existing research predominantly examines government-led poverty alleviation (Li et al., 2025; Wang et al., 2024; Xu and Zheng, 2024), this study expands the discourse by showing how institutional design can effectively integrate corporate actors into development strategies. By empirically establishing how business actors contribute to poverty reduction, we offer valuable insights for policymakers in emerging economies who are exploring models for tackling social issues through public-private partnerships.

The remainder of the paper is organized as follows: Section 'Literature review and hypothesis development'

reviews relevant literature and develops the hypotheses; Section 'Data and methodology' describes the data and methodological approach; Section 'Results' presents the empirical results and robustness checks; Section 'Further analysis' conducts further analysis; and Section 'Discussion' concludes this study, suggesting directions for future research.

Literature review and hypothesis development

Research background. China's institutionalized poverty alleviation strategy has undergone evolution since 1949, accelerating notably after establishing a dedicated administrative system in 1986. Despite progress, persistent extreme poverty prompted renewed policy focus, culminating in the 19th National Congress's emphasis on leveraging financial markets for targeted interventions. A pivotal advancement occurred in 2016 when the CSRC and major stock exchanges issued guidelines mandating and standardizing TPA participation by listed firms. This built upon earlier initiatives like the 1990s "Glory Project," and formed a formal pairing assistance framework whereby firms are institutionally matched with specific impoverished counties.

The core operational mechanism involves these structured partnerships: listed firms leverage their resources and market access to implement tailored development projects within their paired counties. These range from industrial investment and skills training to infrastructure support and direct consumption linkages, aiming for sustainable poverty reduction. Initial challenges—like fragmented projects, inconsistent reporting, and variable corporate engagement—were addressed through standardized disclosure reforms. Listed firms are now required to provide detailed, quantitative disclosures on their TPA initiatives. This includes specific metrics on resource allocation, descriptions of partnership mechanisms, documented plans, and empirical outcomes, fostering accountability and enabling impact assessment.

Driven by this policy-guided, market-based approach, TPA has yielded significant results (Chang et al., 2021; Zhou et al., 2025). The scope of these corporate disclosures and partnerships has subsequently expanded, naturally extending beyond core poverty-stricken regions to encompass the broader national strategy of rural revitalization. China's success in poverty reduction underscores the efficacy of coordinated multi-sector efforts, with listed firms playing a crucial role through this institutionalized, transparent, and quantifiable TPA framework.

Literature review

The Economic Consequences of CSR. CSR encompasses corporate behavior that goes beyond conventional business activities to meet or exceed the expectations of stakeholders (Gillan et al. 2021). Existing research primarily focuses on CSR's direct effects on corporate performance, utilizing metrics such as CSR disclosures, charitable donations, environmental protection investments, and ratings from third-party agencies (Chen et al. 2023). While research on CSR's impact has traditionally emphasized linear mechanisms linking CSR activities to corporate performance and firm-specific outcomes (Gillan et al., 2021), recent studies underscore the prevalence of non-linear relationships, such as diminishing returns on ESG investments beyond optimal thresholds (Bagh et al., 2024a; Bagh et al., 2024b), suggesting that CSR's efficacy depends on specific mechanisms. On the one hand, engaging in CSR can meet the expectations of various stakeholders, allowing companies to gain critical strategic resources from these stakeholders and enhance corporate performance (Jing et al. 2023). On the other hand, CSR performance can serve as reputation insurance, buffering the negative impact of adverse events on financial performance and reducing financial volatility (Jing et al. 2023; Bae et al.

2021; Naseer et al., 2024). In China, CSR has evolved into a novel form of TPA under the Sustainable SDGs, where firms contribute to "No Poverty" through several forms (Chang et al., 2021; Zheng et al., 2024). Recent work shows that TPA participation reduces corporate risk, eases financing constraints, and improves long-term profitability (Wu et al., 2022; Jing et al., 2023).

Despite these insights, the social impact of CSR remains underexplored, particularly in terms of potential mechanism. While Gurun (2023) and Fioretti (2022) question whether CSR generates real social benefits, the literature often assumes rather than empirically demonstrates how such benefits materialize. For instance, studies frequently attribute community development to CSR activities without disentangling underlying pathways (Wang and Zander, 2020). This assumption is problematic given the mixed evidence from international contexts: while some studies in developed economies show positive correlations between CSR spending and local development outcomes (Smith et al., 2021; Johnson & Lee, 2020), others find negligible or even negative effects when accounting for displacement of government responsibilities (Brown et al., 2019).

This oversight stems from methodological limitations: many studies rely on cross-sectional data or corporate self-reports, which struggle to isolate CSR's effects from confounding variables like concurrent policy changes or macroeconomic trends (Chen et al., 2018). Furthermore, the focus on easily quantifiable metrics (e.g., donation amounts) obscures nuanced mechanisms that drive long-term social value (Gurun, 2023). These gaps highlight the need for longitudinal, cross-level research to map causal pathways and validate assumptions about CSR's role in societal transformation.

The Societal Impact of CSR. Burgeoning literature on CSR increasingly reveals its potential impact on societal welfare and environmental sustainability, presenting CSR as a transformative force across various social dimensions (Gurun et al. 2023). This growing focus reveals the profound effects of corporate CSR initiatives on community development, environmental conservation, and the pursuit of social equity (Fioretti, 2022).

Corporate initiatives, such as investments in education, healthcare, and sustainable infrastructure, frequently leverage firms' technical expertise to enhance local livelihoods—exemplified by programs that pair vocational training with employment opportunities in underserved regions. Porter and Kramer's (2002) 'Creating Shared Value' framework suggests that when companies align CSR with their core business activities, they can drive both economic and social progress, creating a mutually beneficial relationship between corporate success and community well-being (Gurun et al. 2023). The environmental aspect of CSR has also gained prominence, with companies increasingly adopting sustainable practices to minimize their ecological footprints. Actions such as reducing carbon emissions, managing resources sustainably, and investing in renewable energy are becoming standard practices. Hart (1995) argues that focusing on sustainability can lead to innovation and provide a competitive edge by turning environmental challenges into opportunities (Chen et al. 2018). By aligning CSR efforts with global challenges like climate change and social inequality, companies position themselves as key players in promoting sustainability. By integrating CSR with global agendas like the SDGs, firms increasingly position themselves as collaborators in addressing systemic challenges, with Sachs (2012) emphasizing the private sector's capacity to amplify progress through resource mobilization and technological innovation (Distelhorst and Shin, 2023).

Despite these advancements, empirical research on CSR's societal outcomes remains sparse, often prioritizing firm-centric metrics—such as financial performance—over community-level impacts (Fioretti, 2022). This gap is particularly pronounced in poverty alleviation, where the interplay between corporate-led and

government-led approaches warrants nuanced scrutiny. While both strategies share a common goal of poverty reduction, their pathways diverge significantly: corporate-led projects often emphasize innovation and agility, targeting specific gaps (e.g., digital exclusion) through market-driven solutions, whereas government-led initiatives, prioritize systemic, large-scale interventions to ensure equitable access (Zhou et al., 2025). Critically, corporate efforts may struggle to achieve the scalability of state programs, raising questions about whether CSR complements or fragments broader poverty alleviation ecosystems. Similarly, while governments focus on structural reforms (e.g., land rights, public education), corporate CSR frequently aligns with business interests, risking prioritization of measurable, short-term outcomes over deeper societal transformation. These methodological and conceptual inconsistencies in prior research—particularly the failure to establish clear counterfactuals and the conflation of correlation with causation—underscore the need for more rigorous empirical examination of how CSR's societal impact interfaces with state-driven development paradigms.

Hypothesis development. Corporate TPA programs in China offer an innovative approach to poverty alleviation through targeted projects led by social actors (Chang et al. 2021; Jing et al. 2023; Zheng et al. 2024). These programs facilitate tailored investments that align with local resource endowments and economic potential, fostering sustainable, long-term development. The involvement of the private sector in poverty alleviation is well-documented in economic literature, with TPA programs serving as a contemporary manifestation of this phenomenon (Besley and Coate, 1992; Lewis, 1954). Specifically, corporate interventions under TPA can mitigate income-based poverty in partnered counties through two primary mechanisms: financial empowerment and industrial upgrading.

TPA also focuses on empowering local communities financially by enhancing access to credit and financial inclusion services. By collaborating with local financial institutions, corporations help improve credit availability, allowing households and small businesses to invest in income-generating activities (Song et al. 2024). This financial empowerment provides a safety net, enabling families to withstand economic shocks and contributing to long-term poverty reduction (Tissaoui et al. 2024). Moreover, corporate programs often include training initiatives that equip local populations with essential financial literacy skills, ensuring that they can make informed decisions about savings, investments, and credit usage. These initiatives foster a culture of financial self-sufficiency, further supporting sustainable poverty reduction (Afjal, 2023).

Another key component of TPA programs is the establishment of industrial projects, such as factories and processing plants, which make use of local natural and human resources (Bossuroy et al. 2022; Lan et al. 2024). These projects stimulate economic development by creating demand for both skilled and unskilled labor. The expansion of modern industries absorbs surplus agricultural labor, leading to higher wages and reduced poverty (Lewis, 1954). As employment rises, household incomes grow, directly reducing poverty (Besley and Coate, 1992). Collectively, we propose the following hypothesis:

H1: Corporate TPA significantly reduces income-based poverty.

The financial development mechanism of TPA operates by mitigating credit constraints and broadening financial access for marginalized groups. By facilitating financial inclusion, TPA enables individuals and small businesses in partnered counties to secure capital for entrepreneurial and productive investments. This expansion of financial services stimulates local economic activity, generates employment, and elevates household incomes, thereby reducing poverty (Afjal, 2023).

Firms engaged in TPA can drive financial inclusion by expanding access to financial services for marginalized customers—individuals and small businesses that are often excluded from traditional credit markets due to limited assets or lack of collateral. By fostering financial development, TPA reduces household income poverty. Through TPA, firms with expertise in CSR and financial markets can help ease credit constraints for these underserved groups, enabling them to enter the financial system and access financial resources more readily (Tissaoui et al. 2024). By improving access to credit for small businesses and local suppliers, firms can extend the reach of inclusive finance (Hsieh et al. 2011), thereby fostering financial development and reducing household income poverty (Song et al. 2024).

Additionally, firms involved in TPA can restructure local businesses into more interconnected networks, thereby enhancing the environment for providing credit and guarantee services within an inclusive financial system. This restructuring, which fosters financial development, reduces reliance on collateral-based lending, mitigates information asymmetries, and expands financial opportunities for underserved populations (Tissaoui et al. 2024). Specifically, TPA can provide expertise, reduce information barriers, and establish stronger local networks, all of which make financial services more inclusive and effective in supporting disadvantaged populations. Such efforts are vital for integrating these 'long-tail' customers into formal financial networks, ultimately promoting financial inclusion, economic stability, and reducing household income poverty in these regions (Song et al. 2024).

H2: TPA reduces income-based poverty through financial development.

TPA initiatives help to reduce income-based poverty by upgrading local industrial structures. TPA extend local industrial chains and promote industrial development in the paired counties. By leveraging the resource endowments and industrial plans of the paired regions, companies are able to identify and support industries with broad population coverage, significant local resource availability, and strong wealth-generating potential. Such support not only contributes to the growth of these industries but also creates opportunities for local residents to participate, thus boosting their income and reducing income poverty (Romer, 1990; Acemoglu, 2008).

Through TPA, companies offer targeted industrial assistance that allows local residents to engage more deeply in industries with distinctive regional characteristics. This approach not only helps enhance the productivity of existing industries but also fosters the growth of new, locally appropriate industries that have a significant wealth-creating impact (Donaldson, 2018). In particular, by providing technological support and improving the efficiency of these industries, companies facilitate a transition from primary industries, such as agriculture, to more diverse activities, thereby enhancing economic resilience at the local level. This broad participation in industries characterized by strong growth potential is a key strategy in reducing household poverty (Bossuroy et al. 2022).

Furthermore, TPA initiatives encourage the extension of industrial development into secondary and tertiary industries. Assisting companies introduce advanced development concepts, management practices, and technologies, enabling local industries to upgrade their processes and expand their scope (Aghion and Howitt, 2008). By fostering industrial upgrading and extending the value chain, local regions can attract investment and develop sectors like manufacturing and services (Besley and Coate, 1992). This structural transformation enhances productivity, creates higher-value jobs, and strengthens the overall economic capacity of the county (Lan et al. 2024). Consequently, the improved industrial structure becomes a direct driver of county-level economic growth, ultimately reducing poverty by generating sustainable income opportunities for households.

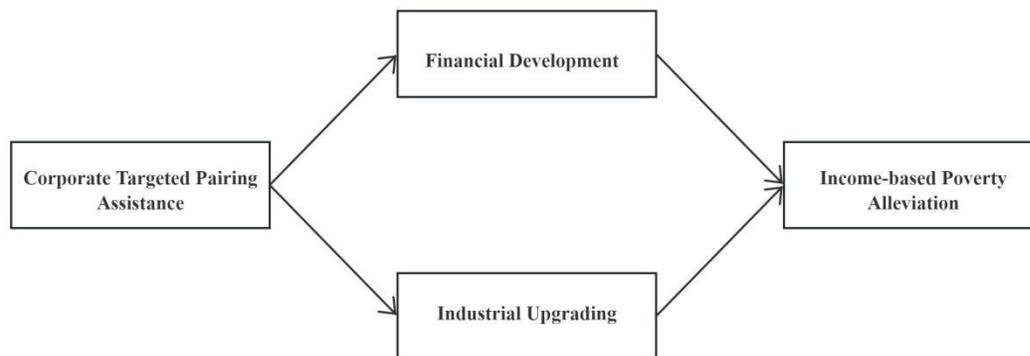H3: TPA reduces income-based poverty through upgrading industrial structure.

Fig. 1 Theoretical Framework

Data and methodology

Data. Our sample is mainly obtained from two sources. First, detailed information on corporate engagement in targeted assistance initiatives—including assistance location and project name—was manually collected from the annual reports of publicly listed companies spanning 2016 to 2018. In 2016, the CSRC and the Shanghai and Shenzhen stock exchanges issued documents encouraging and supporting listed companies to participate in pairing initiatives to aid the national poverty alleviation strategy, detailing disclosure requirements for such investment. Specifically, the CSRC released detailed guidance in September 2016 on leveraging the capital market to echo on the national poverty alleviation strategy. Later in December, the stock exchanges refined the disclosure requirements for listed companies' poverty alleviation-related social responsibilities, providing a more comprehensive framework for information disclosure. To meet the requirements of the DID (difference-in-differences) approach, this study carefully compiled a dataset of corporate-county paired assistance from 2014 to 2018, ensuring that observations are available both before and after the policy intervention. We identified and recorded the counties receiving investment by pinpointing each location from the reports, and our county-level sample includes 7,102 county-year observations. Fig. 2 outlines a data processing workflow for analyzing the relationship between firms and their paired counties.
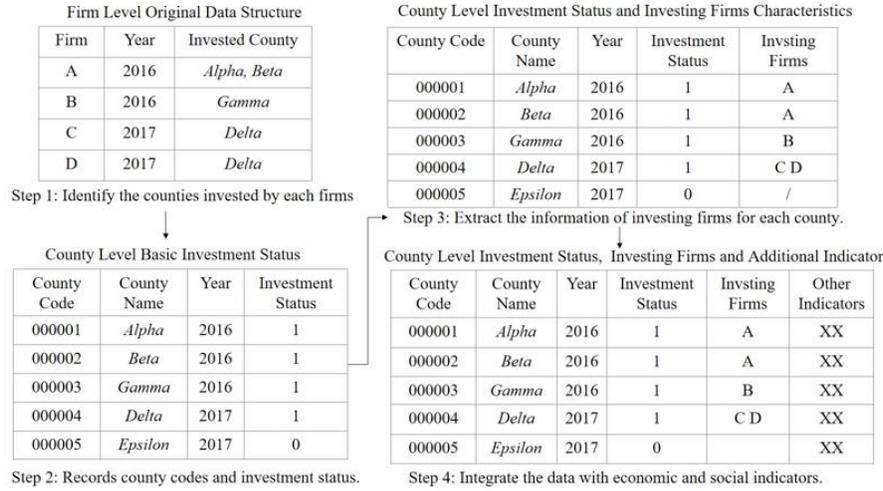
Fig. 2 Data transfer process from firm to county

Second, county-level income and other economic indicators were extracted on a yearly basis from the *China County Statistical Yearbook*, providing a comprehensive dataset for empirical analysis of local economic conditions. Meanwhile, household income data and various demographic variables were obtained from CFPS, a nationally representative longitudinal survey conducted biennially since 2010. CFPS offers comprehensive micro-level household data on a range of factors, including household economic conditions, population demographics, and labor market dynamics, covering individuals, households, and communities across 162 counties in 25 provinces, municipalities, and autonomous regions. Our final sample includes household-year observations from the 2014, 2016, and 2018 waves of CFPS. This dataset, with a sample size of 16,000 households, is important in analyzing the effects of corporate engagement on household income levels by merging household data with corporate assistance metrics.

Empirical model.

We first employ the staggered DID model to study the impact of the corporate targeted poverty assistance on income and poverty reduction at the county level. The 2016 policy issued by the China Securities Regulatory Commission, along with the Shanghai and Shenzhen Stock Exchanges—accompanied by strengthened disclosure requirements—constitutes a well-defined and exogenous policy shock. This setting facilitates the application of a DID framework, enabling credible before-and-after comparisons and yielding more precise estimates of causal effects than conventional correlational analyses[1]. Regression model is shown below:

$$Y_{c,t} = \alpha + \beta \times TPA\_DID_{c,t} + \gamma_1 \times County\ Control_{c,t} + \mu_c + \tau_t + \varepsilon_{c,t} \tag{1}$$

where c denotes the county, and t refers to the year. $TPA\_DID_{c,t}$ indicates whether county c received firm pairing assistance in year t. $Y_{c,t}$ captures individual income and poverty at the county level. $County\ Control_{c,t}$ includes GDP, population, area, education level, fiscal expenditure, welfare provision, savings level, urbanization level, following Xu and Zheng (2024) and Zhou et al (2025). μ_c represents county fixed effects and τ_t represents year fixed effects to control for other potential factors that could impact the

results. Standard errors are clustered at the county level.

Furthermore, we explore the effect of corporate TPA on poverty rate based on the responses at the surveyed household level[2]. The empirical model is as follows:

$$Y_{f,c,t} = \alpha + \beta \times TPA\_DID_{c,t} + \gamma_1 \times County\ Control_{c,t} + \gamma_2 \times Family\ Control_{f,t} + \mu_f + \tau_t + \varepsilon_{f,c,t}$$
(2)

Herein, f represents households. $Y_{f,c,t}$ is the dummy variable equal to 1 if individual income is lower than poverty line in household f, county c, year t. $TPA\_DID_{c,t}$ indicates whether county c received firm pairing assistance in year t. To control for other potential factors that could impact the results, the model includes household fixed effects and year fixed effects, and standard errors are clustered at the household level.

We also control for other factors affecting income poverty, specifically considering variables at the county, household, and household head levels following Wang et al. (2024). At the household level, we control for the number of household members, total household assets, household social spending, the proportion of elderly members, and the proportion of children. At the household head level (individual level), we control for age, party membership status, rural household registration status, gender, and marital status. At the county level, this study controls for GDP, fiscal expenditure, financial development level, degree of foreign capital utilization, social security level. Detailed definitions of the variables are provided in Table 1.

Table 1 Definitions of main variables.

Category	Variable	Definition
Dependent variable	Income	The logarithm of the individual income in the county
	Poverty	Dummy variable equal to 1 if income per person is lower than poverty line.
Independent variable	TPA_DID	Dummy variable equal to 1 if a county received corporate targeted pairing assistance in a given year, and 0 otherwise.
Control variable	GDP	The logarithm of the total county GDP
	Population	The logarithm of the total population size in the county
	Area	The logarithm of administrative land area in the county
	Education level	The logarithm of secondary school enrollment in the county
	Fiscal expenditure	The logarithm of local fiscal expenditure in the county
	Welfare provision	The number of social welfare institutions in the county
	Savings level	Household deposit-to-GDP ratio in the county
	Urbanization level	The proportion of the non-agricultural population to the total population in the county
Mechanism variable	Industrial development	The logarithm of the total output of the secondary and tertiary industries

| Digital finance | The digital inclusive finance development index in the county |

Results

Summary statistics. Table 2 presents the descriptive statistics for the key variables. The mean of the DID variable is 0.202, suggesting that approximately 20.2% of the counties in the sample have received corporate assistance during the sample period. Among the control variables, county GDP exhibits a mean value of 13.996 with a standard deviation of 0.924, and the county-level population shows a mean of 3.705 with a standard deviation of 0.747. These are broadly consistent with current research on county-level economic characteristics, supporting the reliability of the sample used in this study.

Table 2 Descriptive statistics.

Variable	N	Mean	SD	Min	p50	Max
Income	7,102	9.296	0.369	8.397	9.310	10.246
Poverty	7,102	0.116	0.321	0.000	0.000	1.000
TPA_DID	7,102	0.202	0.402	0.000	0.000	1.000
GDP	7,102	13.996	0.924	11.746	13.998	16.179
Population	7,102	3.705	0.747	0.693	3.746	5.142
Area	7,102	7.591	0.790	3.470	7.576	10.720
Education	7,102	9.746	0.858	6.646	9.824	11.417
Fiscal expenditure	7,102	12.548	0.534	10.939	12.525	13.911
Welfare	7,102	2.522	0.920	0.549	2.639	4.875
Saving	7,102	0.803	0.370	0.165	0.744	2.040
Urbanization	7,102	0.277	0.142	0.039	0.268	0.804

Baseline regression results. Table 3 presents the baseline regression results and reports the estimated effects of corporate targeted paired assistance on county-level income and poverty indicators. Column (1) examines the impact of TPA using individual income at the county level as the dependent variable. After controlling for both county and year fixed effects, the coefficient on the key explanatory variable, TPA_DID, is positive and statistically significant at the 1% level, suggesting that TPA initiatives can increase the average individual income in recipient counties. Column (2) incorporates county-level control variables to account for observed time-variant factors across counties. The estimated coefficient on TPA_DID remains statistically significant at the 1% level, with a magnitude of 0.012. In terms of economic significance, this implies that corporate targeted poverty alleviation raises county-level income by about 1.2%. It reinforces the empirical evidence of the income-enhancing effect of corporate assistance.

Columns (3) and (4) focus on the impact of TPA on poverty outcomes, using the county-level poverty status as the dependent variable. Column (3) includes county and year fixed effects, while Column (4) further

introduces a set of county-level control variables to address potential confounding factors. Across both models, the coefficient on TPA_DID is negative and highly significant at the 1% level, indicating that corporate paired assistance contributes to poverty alleviation[3].

Table 3 Regression results at the county level.

Variables	(1) Income	(2) Income	(3) Poverty	(4) Poverty
TPA_DID	0.015***	0.012***	-0.105***	-0.093***
	(0.002)	(0.002)	(0.011)	(0.011)
GDP		0.081***		-0.293***
		(0.009)		(0.044)
Population		-0.012		-0.037
		(0.028)		(0.129)
Area		-0.021		0.033
		(0.013)		(0.067)
Education		0.021***		0.019
		(0.005)		(0.028)
Fiscal expenditure		0.016***		-0.062***
		(0.006)		(0.023)
Welfare		-0.001		-0.005
		(0.002)		(0.009)
Saving		0.057***		-0.222***
		(0.010)		(0.050)
Urbanization		-0.001		0.046
		(0.009)		(0.056)
Constant	9.125***	7.763***	0.253***	4.952***
	(0.001)	(0.146)	(0.007)	(0.676)
County Fixed Effect	Y	Y	Y	Y
Year Fixed Effect	Y	Y	Y	Y
Observations	7,102	7,102	7,102	7,102
R^2	0.923	0.926	0.175	0.190
Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.				

To further validate and enrich the baseline findings, this study incorporates household-level survey data to examine the micro-level impacts of corporate TPA. Columns (1) to (3) display the results of regressions using income poverty, calculated by three different poverty measurements, as the dependent variable. Poverty1, Poverty2, and Poverty3 are binary indicators that capture whether an individual's per capita income falls below poverty thresholds. Specifically, Poverty1 identifies individuals living below the poverty line defined by the United Nations' 1985 one-dollar-per-day standard, adjusted for inflation using the Consumer Price Index (CPI) and exchange rate conversions. Poverty2 applies a slightly higher threshold based on the 1.5-dollar-per-day

standard from 1985, similarly adjusted for CPI and currency exchange. Poverty3 uses one-dollar-per-day threshold but applies CPI adjustments using 2010 as the base year, along with exchange rate conversions. The models include household-level, household head-level, and regional-level control variables, as well as household and year fixed effects. The regression results in Table 4 indicate that the coefficient of the key explanatory variable, TPA_DID, is statistically significant and negative at the 1% level in columns (1) to (3). This suggests that corporate assistance significantly reduces household income poverty. In terms of economic significance, the estimates indicate that corporate targeted poverty alleviation lowers the household poverty rate by approximately 2.4%, 1.9%, and 2.1%, respectively, across the three poverty-line thresholds considered. Among the control variables, an increase in the proportion of elderly members and children in a household raises the likelihood of income poverty, whereas household size, total family assets, and social expenditure are associated with a reduction in the income poverty rate.

Table 4 Regression results at the household level.

Variables	(1) Poverty1	(2) Poverty2	(3) Poverty3
TPA_DID	-0.024***	-0.019***	-0.021***
	(0.007)	(0.006)	(0.008)
Male	-0.003	-0.001	-0.008
	(0.005)	(0.004)	(0.006)
Age	0.000*	0.000*	0.000
	(0.000)	(0.000)	(0.000)
Marriage	0.008	0.009	0.015*
	(0.007)	(0.006)	(0.008)
Rural	-0.069***	-0.068***	-0.041***
	(0.005)	(0.004)	(0.006)
Party	-0.001	-0.005	-0.003
	(0.009)	(0.007)	(0.010)
Old_people	0.028***	0.027***	0.025**
	(0.009)	(0.008)	(0.010)
Children	0.070***	0.060***	0.098***
	(0.019)	(0.017)	(0.021)
Familysize	-0.005**	-0.004**	-0.010***
	(0.002)	(0.002)	(0.002)
Social_spending	-0.002**	-0.001	-0.003***
	(0.001)	(0.001)	(0.001)
Asset	-0.020***	-0.013***	-0.020***
	(0.002)	(0.002)	(0.002)
GDP	-0.004	-0.012**	-0.012
	(0.007)	(0.006)	(0.008)
Deposit	0.006	0.017***	0.018**
	(0.007)	(0.006)	(0.008)
Healthcare	0.007***	0.006***	0.001
	(0.002)	(0.002)	(0.003)
Fiscal_expenditure	-0.008*	-0.010***	-0.009*

	(0.004)	(0.004)	(0.005)
Constant	0.409***	0.294***	0.511***
	(0.032)	(0.028)	(0.041)
Household Fixed Effect	Y	Y	Y
Year Fixed Effect	Y	Y	Y
Observations	47,203	47,203	47,203
R^2	0.055	0.060	0.035

This table is based on household-level data from the CFPS and includes 47,203 household-year observations. Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.

Endogeneity concerns and identification

Parallel trend test. A fundamental assumption underlying the DID methodology is that the treatment and control groups follow parallel trends in the outcome variables prior to the policy intervention. To empirically assess the validity of this assumption, we conduct a parallel trends test by constructing a set of leads and lags of the treatment indicator based on whether counties received targeted paired assistance. Columns (1) and (2) of Table 5 report the results using county-level personal income and poverty status as dependent variables, respectively. The coefficients on the lead terms (i.e., Pre1 and Pre2) are statistically insignificant, indicating that prior to corporate TPA, there were no systematic differences in trends between the treatment and control counties. In contrast, the post-treatment indicators hold statistically significant coefficients in the expected directions—positive for income and negative for poverty status—suggesting that the observed policy effects are not driven by pre-existing trends. Figure 3 shows that the results remain robust after visualizing the parallel trend test, confirming the validity of the parallel trend assumption.
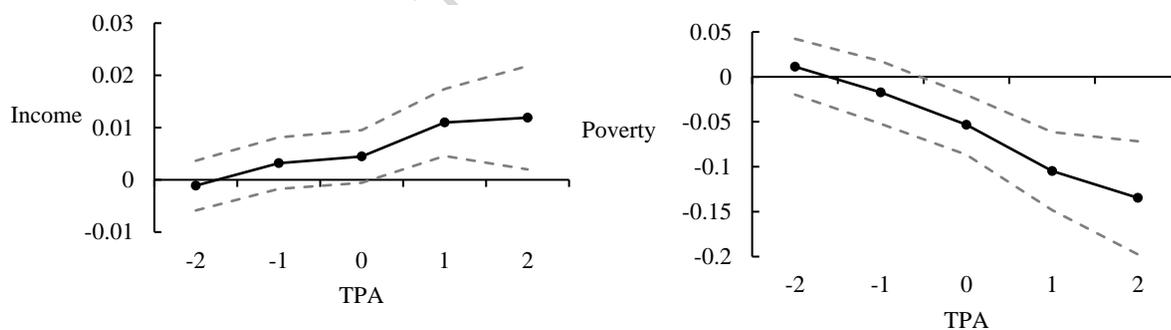

Fig 3

Parallel trend test

Sample selection bias. To mitigate concerns regarding potential systematic differences between counties that received corporate TPA those that did not, this study employs a propensity score matching (PSM) approach to construct a more comparable control group. Recognizing that corporate involvement in paired assistance may be influenced by strategic considerations—such as local development potential, existing poverty alleviation initiatives, or regional resource endowments—we implement PSM within provincial boundaries to ensure institutional and policy comparability. Specifically, a radius matching algorithm is applied to match treated counties with untreated counterparts exhibiting similar observable characteristics.

Following the matching procedure, we re-estimate the DID regressions on the matched sample. As presented in Table 5, the post-matching regression results show that the estimated effects of TPA on county-level income and poverty outcomes remain statistically significant and directionally consistent with the baseline results. This provides further evidence that the observed effects are not driven by sample selection bias and underscores the robustness.

Table 5 Result of parallel trend test and PSM results

Variables	Parallel trend		PSM	
	(1)	(2)	(3)	(4)
	Income	Poverty	Income	Poverty
Pre2	-0.001	0.011		
	(0.002)	(0.016)		
Pre1	0.003	-0.017		
	(0.003)	(0.018)		
Current	0.004*	-0.053***		
	(0.003)	(0.017)		
Post1	0.011***	-0.105***		
	(0.003)	(0.022)		
Post2	0.012**	-0.135***		
	(0.005)	(0.032)		
TPA_DID			0.010***	-0.075***
			(0.002)	(0.011)
Constant	7.741***	5.424***	7.801***	4.554***
	(0.148)	(0.749)	(0.155)	(0.782)
Control Variables	Y	Y	Y	Y
County Fixed Effect	Y	Y	Y	Y
Year Fixed Effect	Y	Y	Y	Y
Observations	7,102	7,102	6,157	6,157
R^2	0.926	0.207	0.923	0.167
Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.				

Mitigation of TWFE bias. De Chaisemartin and d'Haultfoeuille (2020) highlight a critical identification issue in multi-period DID models estimated using two-way fixed effects (TWFE). Specifically, they show that treatment effect estimates in such models are derived from a weighted average of two-group, two-period comparisons, which can be categorized into four distinct groups based on the relative timing of treatment adoption. A key concern arises when using observations from early-treated groups as controls for later-treated groups. Because early-treated units are no longer untreated at the time of comparison, this may introduce bias into the estimated average treatment effects.

To address this concern, the present study adopts the decomposition framework developed by Goodman-Bacon (2021), which disaggregates the overall TWFE estimator into its constituent comparison components.

This decomposition enables the identification of specific sources of bias. The decomposition results indicate that the weight assigned to comparisons between early-treated and late-treated counties is relatively small. This suggests that the potentially biased comparisons do not exert a meaningful influence on the overall TWFE estimates, thereby reinforcing the validity of the main findings.

Table 6 TWFE decomposition.

Group Comparison	Weight	Income ATE	Poverty ATE
Earlier Treatment vs Later Control	0.134	0.000	-0.042
Later Treatment vs. Earlier Control	0.064	0.001	-0.019
Treatment vs. Never Treated	0.792	0.017	-0.131
Treatment vs. Already Treated	0.010	0.014	-0.125

Instrumental variable. To address potential reverse causality, we construct a shifting-share instrumental variable following Bartik (1991). We use the product of the one-period lagged average probability of counties receiving corporate assistance at the provincial level (Share) and the growth rate of the total number of counties receiving corporate assistance (Shift) as an instrumental variable for whether a county receives assistance.

However, there may be concerns that while this IV meets the correlation requirement, it may not fully satisfy the exogeneity requirement. Therefore, we also use the implementation of provincial government policies that support corporate assistance activities as an additional instrumental variable (Support). To incentivize companies to engage in poverty alleviation efforts, some provincial governments have enacted support measures, such as tax incentives. These policy interventions are plausibly exogenous to the poverty conditions in the paired (recipient) counties, as they originate from the provincial administrations of the assisting firms rather than the regions receiving aid. However, they are expected to have a direct and significant effect on the likelihood of firms engaging in poverty assistance activities, thus satisfying the relevance condition for an instrumental variable. Since 2016, eight provinces in China have introduced such supportive policies, including Guizhou province, Shanxi province, Gansu province, Hunan province, Guangxi autonomous region, Shandong province, Anhui province and Sichuan province.

Table 7 presents the two-stage least squares regression results. Columns (1) and (4) show the first-stage regression outcomes, indicating that the instrumental variables are significantly positively correlated with a county receiving corporate assistance at the 1% level. The F-values for the weak instrument test are 125.27 and 984.10, respectively, allowing us to reject the null hypothesis of weak instruments, thus confirming that the instruments employed in this study are sufficiently strong. In addition to the standard F-tests, we report the Kleibergen-Paap rk Wald F statistics. The values of 97.269 and 2423.935 further corroborate the strength of the instruments. Columns (2) and (3), (5) and (6) show that, after applying the instrumental variables, the coefficient on TPA_DID remains statistically significance at the 1% level, confirming the robustness of our findings.

Table 7 Results of instrumental variables.						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
	TPA_DID	Income	Poverty	Support	Income	Poverty
Bartik	9.654***					
	(1.087)					
TPA_DID		0.109***	-0.423***		0.018***	-0.146***
		(0.016)	(0.090)		(0.005)	(0.029)
Support				0.676***		
				(0.015)		
F-value	125.27			984.10		
Kleibergen-Paap rk Wald F statistic		97.269	97.269		2423.935	2423.935
Control Variables	Y	Y	Y	Y	Y	Y
County Fixed Effect	Y	Y	Y	Y	Y	Y
Year Fixed Effect	Y	Y	Y	Y	Y	Y
R^2	0.328			0.448		

| Observations | 7,102 | 7,102 | 7,102 | 7,102 | 7,102 | 7,102 |

Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.

Interactive fixed effects. In the baseline regression, we already controlled for county and year fixed effects. However, factors such as province-level policies and economic conditions that change over time could also influence the impact of corporate assistance. Therefore, we further controlled for the interaction between province and year fixed effects. The results in Table 8 show that even after controlling for the interaction between province and year fixed effects, corporate assistance still significantly increase individual income and reduces the poverty rate, indicating that the findings of this study remain robust.

Table 8. Results of interactive fixed effect.

Variables	(1)	(2)
	Income	Poverty
TPA_DID	0.009***	-0.084***
	(0.001)	(0.010)
GDP	0.048***	-0.201***
	(0.009)	(0.052)
Population	-0.038*	0.122
	(0.021)	(0.114)
Area	0.014	-0.039
	(0.010)	(0.060)
Education	0.005	0.005
	(0.003)	(0.025)
Fiscal expenditure	0.009*	-0.047**
	(0.005)	(0.023)
Welfare	-0.000	-0.002
	(0.001)	(0.009)
Saving	0.030***	-0.160***
	(0.007)	(0.054)
Urbanization	-0.010*	0.052
	(0.006)	(0.050)
Constant	8.475***	3.443***
	(0.137)	(0.805)
County Fixed Effect	Y	Y
Year Fixed Effect	Y	Y
Province*Year Fixed effect	Y	Y
Observations	7,102	7,102
R^2	0.996	0.719

Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.

Further analysis

Mechanism analysis. To examine the underlying mechanism, we empirically tested whether corporate assistance influences financial finance and industrial development in the targeted counties.

First, H2 posits that TPA reduces household income poverty by fostering financial development and addressing financial exclusion in paired counties. By easing credit constraints and expanding access to financial services for marginalized individuals and small businesses, TPA stimulates economic activity, creates jobs, and raises household income. Therefore, we use *Digital finance* (measured as the digital inclusive finance development index in the county) as dependent variable to run regressions. Column (1) uses digital financial inclusion index as dependent variable and shows that TPA can increase digital financial inclusion level at the paired county by 2.3%, supporting H2.

Second, TPA initiatives reduce household income poverty by upgrading local industrial structures through extending local industrial chains and promoting development. By leveraging regional resource endowments and providing targeted support, TPA helps identify and develop industries with significant wealth-generating potential, allowing local residents to participate and increase their income. Furthermore, TPA encourages the transition to secondary and tertiary industries, facilitating structural transformation, improving productivity, and creating sustainable income opportunities for households. To test H3, we conduct regressions using the log values of the total output of the secondary and tertiary industries as dependent variables. The results, presented in Column (2) of Table 9, show that TPA significantly increased the industrial development — that is the total output of the secondary and tertiary industries in the paired counties — by 3.3%, with statistical significance at the 1% level. This provides empirical support for the mechanism analysis of industrial development.

Columns (3) and (4) of Table 9 use county-level individual income and poverty status as dependent variables and include key mechanism variables—namely, digital finance and industrial development—as core explanatory factors. The regression results indicate that both financial and industrial development are positively associated with improvements in income levels and reductions in poverty rates. These effects are statistically significant at the 1% levels, providing empirical support for the hypothesized mechanisms.

Table 9 Mechanism analysis.				
Variables	(1)	(2)	(3)	(4)
	Digital finance	Industrial Development	Income	Poverty
TPA_DID	1.929***	0.033***		
	(0.268)	(0.005)		
Digital finance			0.001***	-0.008***
			(0.000)	(0.001)
Industrial Development			0.054***	-0.173***
			(0.007)	(0.032)
Population	2.854	0.113*	-0.001	0.007
	(2.165)	(0.062)	(0.027)	(0.129)
Area	-3.381***	-0.004	-0.017	0.005

	(1.297)	(0.013)	(0.012)	(0.080)
Education	0.523	0.016	0.021***	0.020
	(0.560)	(0.012)	(0.005)	(0.028)
Fiscal expenditure	2.555***	0.130***	0.014**	-0.056**
	(0.683)	(0.017)	(0.006)	(0.022)
Welfare	0.131	0.002	-0.001	-0.005
	(0.231)	(0.004)	(0.002)	(0.009)
Saving	3.466***	-0.682***	0.039***	-0.129***
	(0.754)	(0.047)	(0.008)	(0.043)
Urbanization	-2.596	0.053	0.005	0.012
	(1.614)	(0.043)	(0.009)	(0.053)
Constant	24.023*	11.876***	8.050***	3.516***
	(12.638)	(0.270)	(0.115)	(0.583)
County Fixed Effect	Y	Y	Y	Y
Year Fixed Effect	Y	Y	Y	Y
Observations	8,820	9,259	6,690	6,690
R^2	0.933	0.607	0.928	0.203
Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.				

Heterogeneity analysis. Heterogeneity analyses reveal corporate TPA achieves its strongest impacts in two distinct contexts: counties with greater economic complexity (measured by secondary/tertiary industry concentration) and those carrying formal poverty designations under national policies.

Regression results reported in Columns (1) and (2) of Table 10 reveal that the income-enhancing effects of TPA are significantly stronger in counties with high level of economic complexity. This suggests that counties with higher level of economic complexity are better positioned to translate external assistance into productive economic activities, likely due to stimulating productive capacity where economic ecosystems exist.

Concurrently, Columns (3) and (4) of Table 10 presents that the poverty-reducing effects of TPA are more pronounced in counties officially designated as national-level poverty-stricken. The larger magnitude and statistical significance of the coefficients in these counties indicate that TPA interventions are especially effective where poverty is most severe, possibly due to greater policy attention and more institutional support.

Table 10 Heterogeneity analysis				
Variables	Low Level of Economic Complexity	High Level of Economic Complexity	Poverty Counties	Non-poverty Counties
	(1)	(2)	(3)	(4)
	Income	Income	Poverty	Poverty
TPA_DID	0.004*	0.010***	-0.039**	0.002
	(0.003)	(0.002)	(0.020)	(0.004)

GDP	0.073***	0.070***	-0.298***	-0.016
	(0.011)	(0.013)	(0.090)	(0.019)
Population	0.045	-0.028	-0.040	-0.049
	(0.035)	(0.040)	(0.278)	(0.089)
Area	-0.033**	-0.024	0.071	0.052
	(0.015)	(0.023)	(0.119)	(0.055)
Education	0.025***	0.025***	-0.018	-0.016
	(0.008)	(0.007)	(0.044)	(0.019)
Fiscal expenditure	0.006	0.026***	-0.068	0.002
	(0.007)	(0.006)	(0.042)	(0.011)
Welfare	-0.002	-0.001	-0.011	0.007*
	(0.002)	(0.002)	(0.019)	(0.004)
Saving	0.026**	0.058***	-0.091	0.022
	(0.010)	(0.012)	(0.067)	(0.041)
Urbanization	-0.013	0.006	-0.007	0.033
	(0.015)	(0.011)	(0.147)	(0.036)
Constant	7.766***	7.950***	5.241***	0.147
	(0.183)	(0.213)	(1.369)	(0.344)
County Fixed Effect	Y	Y	Y	Y
Year Fixed Effect	Y	Y	Y	Y
Observations	3,467	3,635	2,754	4,348
R^2	0.931	0.923	0.376	0.024

Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.

Impact on entrepreneurship. Beyond immediate benefits, TPA also helps establish new industrial projects and modernize local industries, which creates economic opportunities and raises entrepreneurial activities. By providing advanced technology and management practices, TPA promotes productivity and innovation, laying the groundwork for new business ventures. TPA also enhances financial development by easing credit constraints and expanding access to financial services for marginalized communities, enabling aspiring entrepreneurs to invest in new ventures.

Thus, it's likely that TPA also generates spillover effect to local entrepreneurial activities. In alignment with the extant literature, this section operationalizes county-level entrepreneurial activities based on the responses at the surveyed household level. Given that entrepreneurial pursuits are typically a collective family decision, and attributing specific financial data to individual family members proves challenging, entrepreneurship is defined at the household level. To quantify household entrepreneurship, this study leverages a pivotal question from the family survey: "In the past 12 months, has any member of your household been engaged in individual entrepreneurial ventures or initiated a private enterprise?", and conceptualizes it as a binary variable. Furthermore, the analysis considers the number of entrepreneurial endeavors undertaken by a household, rooted in the query, "In the past 12 months, how many entrepreneurial activities or private enterprises have been initiated

by members of your household?", and treats it as a continuous variable. Additionally, entrepreneurial profits at the household level are analyzed, based on the prompt, "After accounting for operational costs, what has been the after-tax net profit for all individual entrepreneurial ventures/private enterprises within your household over the past 12 months?".

Table 11 presents the estimation results of the influence of TPA on entrepreneurial activities among households in the county. In Column (1), considering the dummy variable of whether the household is involved in entrepreneurship and after controlling for household and year fixed effects, TPA significantly promotes household entrepreneurial activities, increasing the household entrepreneurship probability by roughly 2%. The regression results in Columns (2) and (3) also indicate that TPA significantly boosts both the quantity and profits of household entrepreneurial activities. This study's hypotheses are further supported by micro-level household data.

Table 11 Results of TPA on entrepreneurship.			
Variables	(1)	(2)	(3)
	Family_Entre	Entre_Num	Entre_Performance
TPA_DID	0.020***	0.019**	0.160***
	(0.006)	(0.008)	(0.061)
Household Control	Y	Y	Y
County Control	Y	Y	Y
Fixed Effect	Household Year	Household Year	Household Year
Obs	21,868	21,868	21,868
R^2	0.014	0.015	0.014
Standard error is reported in parentheses. ***, **, and * respectively indicate significance levels of 1%, 5%, and 10%.			

Discussion

This study directly addresses the critical gap in understanding CSR's tangible societal impact by empirically demonstrating that TPA initiatives significantly elevate household income and reduce poverty rates in beneficiary communities (Gillan et al., 2021; Gibson et al., 2021). We resolve the central question of how CSR translates into measurable social outcomes, identifying financial empowerment and industrial upgrading as the core mechanisms. These findings advance beyond prior research in three key dimensions: (1) Whereas existing work establishes theoretical CSR-outcome links (Besley and Coate, 1992; Wang and Zander, 2020) or examines mechanisms like financial inclusion at aggregate levels (Zhou et al., 2025), we provide direct micro-level evidence of corporate impact—shifting focus from firm-level metrics (Wu et al., 2023; Jing et al., 2023; Xu and Zheng, 2024) or county-level aggregates to quantifiable household welfare gains; (2) We uniquely validate corporate-driven pathways, moving beyond studies centered on governmental poverty alleviation (Wang et al., 2024; Xu and Zheng, 2024) to demonstrate how firms enable contextually embedded development; and (3) Our discovery of spillover effects (e.g., entrepreneurship stimulation) and amplified impacts in high-need contexts delivers actionable design principles, countering symbolic CSR critiques (Baker et al., 2024; Chen et al., 2024) and positioning corporate action as pivotal for SDG 1-aligned inclusive development.

In terms of policy implications, our findings suggest that successful CSR initiatives like TPA are not merely a matter of corporate goodwill but require strategic alignment with local economic conditions and institutional capacities. In the Chinese context, the state's strong capacity for coordination, coupled with political incentives tied to poverty reduction targets, plays a crucial role in enabling such programs. This implies the need of integrating CSR with national development agendas, where government and business can act as complementary actors. For instance, the success of TPA may hinge on the ability of local governments to identify and prioritize regions with both high poverty concentration and emerging economic potential—a criterion that aligns with our empirical results showing greater impact in such areas.

Policymakers, therefore, can amplify corporate impact by creating enabling ecosystems. Evidence-based TPA models warrant tangible incentives, such as tax benefits, preferential procurement terms, or ESG scoring advantages. Public-private infrastructure—like platforms matching firms with high-need regions and co-investment in digital connectivity or logistics—can extend reach into marginalized areas. Mandating standardized reporting on beneficiary-level socioeconomic indicators will foster accountability, while targeting policy support to counties with high poverty concentration and emerging economic complexity aligns with our findings of amplified effects in these contexts. Such measures bridge global SDG frameworks with local development gaps.

For corporate managers, these insights underscore that TPA's effectiveness hinges on strategic integration beyond philanthropy. Firms could align initiatives with core operations—such as sourcing from TPA regions, investing in local supplier capabilities, or developing skills pipelines—to simultaneously drive social impact and long-term resilience. Interventions might prioritize financial empowerment and industrial upgrading tailored to local economic complexity. Moreover, co-designing programs with communities and local governments ensures cultural relevance and scalability while addressing systemic barriers. This approach resonates with the Chinese model of "state-corporate collaboration," where public and private actors jointly shape development outcomes.

While grounded in China, our identified mechanisms suggest broader applicability in emerging economies with comparable institutional structures, such as state-corporate collaboration. However, generalizability may be limited in contexts with weaker governance or infrastructure, necessitating further research. Future studies could test these results in diverse settings—such as Sub-Saharan Africa or South Asia—and examine long-term effects, including spillovers into health, education, or gender equality. Methodological innovations, such as quasi-experimental designs or cross-country comparisons, could further validate causality and contextual boundaries. Meanwhile, our identification therefore relies on an implicit assumption of uniform intra-county treatment effects—i.e., that county-level implementation of TPA shifts household outcomes in a broadly similar way within treated counties. Future research requires designs and estimators that model—and, where possible, identify—within-county heterogeneity.

Comparing China's TPA with similar CSR initiatives in other countries—such as India's Corporate Social Responsibility Act or Brazil's social enterprises—would enrich the international debate on CSR and poverty alleviation. These comparisons would help determine whether the success of TPA in China is contingent on its unique institutional environment or if its core mechanisms—such as community co-design and localized industrial upgrading—can be adapted elsewhere. This comparative lens would also shed light on the broader applicability of our findings, particularly in emerging economies with similar state-corporate dynamics.

The institutional features of the Chinese context—particularly the state's capacity for large-scale coordination and its alignment of corporate actions with national poverty reduction goals—appear to be critical

preconditions for the success of TPA. This highlights the need for policymakers in other countries to consider their own institutional landscapes when designing CSR policies. For instance, in countries with less centralized control, alternative mechanisms such as regulatory mandates or public-private partnerships may be more effective in catalyzing corporate engagement in poverty alleviation.

Despite these avenues, our conclusions remain clear: strategically designed corporate initiatives like TPA—grounded in localized economic empowerment—are potent catalysts for reducing poverty. By shifting focus from corporate performance to beneficiary well-being, this study provides a blueprint for transforming CSR into a force for inclusive growth. As the 2030 SDG deadline approaches, aligning profit motives with societal progress through evidence-based investments in disadvantaged communities emerges not just as an ethical imperative, but as the cornerstone of sustainable development.

Notes

1 The empirical results remain robust when the model is re-estimated using Probit and Logit specifications. Furthermore, the results continue to hold after applying first-difference transformations to the variables. Thank the reviewer's suggestion.

2 Household-level data complements county-level data by providing a more detailed view of the economic behaviors and living conditions within families.

3 Since Poverty is a binary variable, the R^2 values in Columns (3) and (4) are relatively low, though the model still retains explanatory power.

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