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Research on the Implementation Deviation and Correction Mechanism of Local Government Green Energy Promotion Policies

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ABSTRACT: Green energy promotion policies designed by China's central government are carried out mainly by local governments, whose choices determine whether national targets for renewable energy deployment are converted into approved projects, installed capacity, and actual consumption. In practice, local implementation frequently departs from central intentions: targets are diluted, execution lags behind plans, and commitments remain symbolic. Drawing on principal–agent theory, the target responsibility system, and the literature on policy implementation gaps, this study examines whether correction mechanisms, represented by the central environmental protection inspection, reduce the implementation deviation of local green energy promotion policies. An implementation deviation index is constructed from target dilution, execution shortfall, and symbolic implementation, and a difference-in-differences model is estimated on a simulated panel of 281 prefecture-level cities from 2013 to 2022. The results show that being named in the central inspection feedback lowers the deviation index by about 0.057, or roughly 39% of one standard deviation, and the finding survives parallel-trend, propensity score matching, alternative index, sample exclusion, heterogeneity-robust, and placebo tests. Mechanism tests indicate that the correction operates through stronger political accountability, larger fiscal support, heightened public supervision, and a greater weight of green targets in cadre evaluation. The effect is stronger in eastern cities, in non-resource-based cities, and in cities with higher fiscal autonomy and administrative capacity. The study offers implications for designing a coordinated and incentivecompatible correction system for local green energy governance.

KEYWORDS: Green Energy Policy; Implementation Deviation; Correction Mechanism; Central Environmental Inspection

I. INTRODUCTION

Promoting renewable and other green energy has become a core component of China's strategy to peak carbon emissions before 2030 and achieve carbon neutrality before 2060. The central government sets national targets and issues a series of promotion policies, including the Renewable Energy Law, renewable energy consumption responsibility weights, and approval and subsidy arrangements for wind, solar, and other clean power projects. However, these policies are carried out by provincial, municipal, and county governments, which face multiple and sometimes conflicting objectives, such as economic growth, fiscal revenue, employment, and environmental protection. Because local officials are evaluated and promoted on a mix of indicators and have better information than the central government about local conditions, implementation often deviates from central intentions. Local targets may be set below the levels assigned from above, project approval and grid connection may lag behind plans, and policy documents may repeat national slogans without concrete measures. Such implementation deviation weakens the effectiveness of green energy promotion and raises the cost of the energy transition. To narrow the gap, the central government has adopted correction mechanisms, the most prominent of which is the central environmental protection inspection formally rolled out from 2016, which sends inspection teams to provinces and cities, publishes feedback reports, and holds local officials accountable. Does such a correction mechanism genuinely reduce the deviation in local implementation of green energy promotion policies? Through which channels does it work, and for which local governments is it most effective? These are the questions addressed in this paper. Theoretical significance: Existing studies have mainly documented implementation gaps in environmental governance or evaluated the effects of inspection on pollution, while much less attention has been paid to measuring deviation in green energy promotion and to identifying the channels through which corrective measures narrow it. This paper constructs a multidimensional deviation index and places accountability, fiscal support, public supervision, and performance evaluation in a single analytical framework, thereby contributing to research on local policy implementation. Practical significance:

The findings can provide empirical evidence for designing supervision, fiscal, and evaluation instruments that make local governments' incentives compatible with central objectives. This paper uses a simulated panel of 281 prefecture-level cities during 2013–2022 and treats the naming of a city in the central inspection feedback reports as a quasi-natural experiment. A difference-in-differences (DID) method is used to examine the impact of correction on implementation deviation, while mechanism tests examine four transmission channels. Heterogeneity is further examined by region, resource dependence, fiscal autonomy, and administrative capacity.

II. LITERATURE REVIEW

A. Local Policy Implementation Deviation and Its Causes

Research on implementation deviation starts from the observation that policies agreed at the top are rarely carried out as designed. Pressman and Wildavsky (1973) show that the long chain of actors and clearances between decision and delivery makes distortion likely, and Lipsky (1980) argues that frontline officials exercise considerable discretion in turning rules into practice. In the Chinese context, O'Brien and Li (1999) describe selective policy implementation, whereby local cadres emphasize measures that are easy to observe or that serve their own interests and downplay the rest. Kostka and Mol (2013) summarize the challenges of implementation and participation in local environmental politics, and Ran (2013) attributes the implementation gap to a perverse incentive structure in which growth targets outweigh environmental ones. Lo (2014) finds that the target responsibility system has clear limits when applied to low-carbon city initiatives, and Kostka (2016) characterizes environmental target setting as command without control, because targets cascade downward while monitoring remains weak. Eaton and Kostka (2014) show that the time horizons of local leaders shape how seriously they implement environmental policy. Related work on measurement problems, such as Ghanem and Zhang (2014), who examine whether Chinese cities manipulate air pollution data, suggests that deviation may also be hidden in the information that local governments report upward. A second strand explains deviation through promotion and fiscal incentives. Li and Zhou (2005) show that personnel control makes local officials respond to the performance criteria set above them, and Chen, Li and Lu (2018) find that target-based evaluation induces multitasking distortions among local bureaucrats. Kahn, Li and Zhao (2015) and Zheng, Kahn, Sun and Luo (2014) document that the incentives of local leaders, together with central pressure and public concern, affect their handling of pollution externalities. Liang and Langbein (2015) examine how performance management and high-powered incentives shape environmental policies. From the fiscal side, the literature on fiscal federalism emphasizes that decentralization gives local governments both autonomy and an incentive to compete for revenue and growth (Qian and Weingast, 1997; Oates, 1999; Cai and Treisman, 2006). Regarding energy and climate policy specifically, Qi et al. (2008) study how local governments translate a global issue into local priorities, Cheng et al. (2019) evaluate low-carbon city pilots, and Rogge and Reichardt (2016) stress that the effects of a policy mix depend on its consistency and implementation. Hupe and Hill (2016) remind researchers that implementation should be studied as a process rather than a residual. Nevertheless, most of these studies either describe deviation qualitatively or measure only one dimension of it. A systematic and quantifiable measure of deviation in the promotion of green energy remains scarce.

B. Correction Mechanisms and the Implementation of Green Energy Policies

Correction mechanisms are the instruments through which higher-level governments and society try to bring local behavior back toward policy objectives. They can be grouped into four types: hierarchical supervision and accountability, such as inspection and the investigation of officials; incentive reform, such as changing the weight of green targets in performance evaluation; fiscal instruments, such as earmarked transfers and expenditure support; and social supervision, such as public participation and information disclosure. Zhang, Chen and Guo (2018) ask whether central supervision enhances local environmental enforcement and provide quasi-experimental evidence on the question, while Jia and Chen (2019) study whether campaign-style enforcement improves environmental performance in the case of the central environmental protection inspection. Greenstone and Hanna (2014) show that the effectiveness of environmental regulation depends on public demand and enforcement capacity. Wang (2013) points out that the bureaucratic incentives built into environmental law shape how it is applied, and Lo (2015) discusses how far environmental governance in China is hierarchical rather than participatory. Mol and Carter (2006) describe the transition of Chinese environmental governance from administrative commands toward a broader mix of instruments. These studies mainly examine pollution control, and the inspection of green energy promotion has received little direct attention. Methodologically, correction mechanisms that are introduced at different times in different places are commonly evaluated by difference-in-differences designs. Recent work has shown that two-way fixed effects estimators can be biased when treatment timing is staggered and effects are heterogeneous (Goodman-Bacon, 2021), and several heterogeneityrobust estimators have been proposed (Callaway and Sant'Anna, 2021; Sun and Abraham, 2021). Mediation analysis in the tradition of Baron and Kenny (1986)

is then used to separate direct effects from transmission channels. Building on this literature, correction may influence implementation through several channels. First, inspection and accountability raise the expected cost of non-compliance for local officials. Second, correction may be accompanied by larger fiscal support, which reduces the conflict between green energy projects and local budget constraints. Third, publicized feedback reports increase public attention and make deviation more visible to society. Fourth, correction may push local governments to raise the weight of green targets in the evaluation of their own cadres. However, the effects may differ across places. Cities with stronger fiscal and administrative capacity can translate pressure into action, whereas cities that depend heavily on resource extraction may resist the transition. Whether correction mechanisms genuinely narrow the deviation, and through which channels, remains an empirical question. Examining it can provide further insight into how central–local relations shape the energy transition.

III. RESEARCH HYPOTHESES

A. The Effect of Correction Mechanisms on Implementation Deviation

Green energy promotion is a typical multi-level policy task. The central government defines the targets and the instruments, while local governments decide how fast and how faithfully they are implemented. Under the principal–agent framework, local governments have private information about local conditions and pursue their own objectives, such as short-term growth, fiscal revenue, and employment. When the central government cannot observe effort perfectly, local agents may dilute targets, delay approvals and grid connection, or issue policy documents that remain symbolic. These deviations are especially likely in green energy promotion, because the benefits of cleaner energy are diffuse and long term, whereas the costs of land, grid access, and displaced local industries are concentrated and immediate. Correction mechanisms can change this calculation. The central environmental protection inspection sends teams to local governments, collects evidence from field visits and complaints, publishes feedback reports that name the problems found, and requires local governments to submit rectification plans. Being named raises the probability that local officials will be held accountable, creates reputational costs, and reduces the information advantage of the agent. In addition, rectification requirements translate vague national commitments into specific tasks with deadlines, which narrows the space for target dilution and symbolic implementation. Consequently, once a city is named in the inspection feedback, local officials have stronger incentives to align their implementation with central objectives. Therefore, this study proposes the following hypothesis: **H1: Correction mechanisms, represented by central environmental inspection, significantly reduce the implementation deviation of local green energy promotion policies.**

B. The Transmission Mechanisms

Correction does not change implementation by itself; it works by changing the incentives, resources, and monitoring conditions faced by local governments. Four transmission channels can be expected. First, political accountability: inspection increases the intensity of supervision and the likelihood that officials who fail to implement green energy policies are summoned or disciplined, which raises the expected cost of deviation. Second, fiscal support: correction is often accompanied by earmarked funds, subsidies for grid and storage facilities, and greater budget allocations to green energy, which reduce the conflict between central targets and local financial constraints. Third, public supervision: publicized feedback reports raise public attention to local energy and environmental performance and make non-compliance more visible, so that citizens, media, and firms become additional monitors. Fourth, performance evaluation: under pressure from above, local governments tend to raise the weight of green energy and environmental targets in the evaluation of their own cadres, which aligns the promotion incentives of officials with central objectives. As these channels strengthen, local governments are less likely to dilute targets, delay execution, or implement policies symbolically. The following hypothesis is proposed: **H2: Correction mechanisms reduce the implementation deviation of local green energy promotion policies by strengthening political accountability, increasing fiscal support, enhancing public supervision, and raising the weight of green targets in cadre evaluation.**

C. Heterogeneous Effects of Correction Mechanisms

The effect of correction may vary with regional development, resource dependence, and local capacity. These differences reflect variations in the strength of local incentives to resist the policy, in the cost of compliance, and in the ability to convert pressure into action. First, eastern China has a more developed economy, a more diversified industrial structure, and more active media and public participation, which strengthen both the monitoring of local governments and their capacity to implement green energy projects. By contrast, central and western cities generally face weaker market and social supervision, so that pressure from above is more easily absorbed. Therefore, the correction effect may be more pronounced in eastern cities. Second, resource-based cities depend heavily on coal, oil, or metal extraction for output, employment, and fiscal revenue, so that the promotion of green energy directly threatens local interests and invites passive resistance. Non-resource-based cities face lower adjustment costs and

may respond more fully to correction. Third, fiscal autonomy and administrative capacity affect whether local governments can finance and organize the tasks required by rectification. Cities with greater fiscal autonomy have more discretion over budget allocations, and cities with stronger administrative capacity can plan, approve, and monitor projects more effectively. Accordingly, the correction effect may be stronger in such cities. Based on these arguments, this study proposes the following hypotheses: **H3a: The effect of correction mechanisms on reducing implementation deviation is stronger in eastern cities than in central and western cities. H3b: The effect is stronger in non-resource-based cities than in resource-based cities. H3c: The effect is stronger in cities with higher fiscal autonomy and stronger administrative capacity.**

IV. RESULT ANALYSIS

A. Descriptive Statistics and Correlation Analysis

This section reports the empirical results. The sample consists of prefecture-level cities in China observed from 2013 to 2022, with deviation measured from municipal green energy policy documents, target and completion records, and official statistics, and matched with the central environmental inspection feedback reports and look-back records. The panel used in this section is simulated: it follows the structure and plausible ranges of official statistical yearbooks and policy documents, and the estimates are illustrative. After excluding cities with missing key variables and cities observed for fewer than six years, an unbalanced panel of 2,716 city-year observations covering 281 cities is obtained. Cities named in the central inspection feedback reports for problems related to green energy promotion, such as renewable energy curtailment, delayed project approval, and unfulfilled capacity targets, form the treatment group (135 cities), and the other 146 cities form the control group. The explained variable is the implementation deviation index (DEV), which takes values between 0 and 1, with larger values indicating greater deviation. It is constructed by the entropy method from three components: target dilution (TD), the shortfall of local green energy targets relative to those assigned from above; execution shortfall (ES), the gap between planned and realized additions of renewable capacity; and symbolic implementation (SI), the share of vague and non-quantified commitments in municipal policy documents. The entropy weights are 0.415, 0.310, and 0.275, respectively. The core explanatory variable is the DID term (Treat × Post), which equals one for treated cities in and after the year in which the city was first named. The controls are the log of per capita GDP (lnPGDP), the share of secondary industry (IND), the urbanization rate (URB), and foreign direct investment as a percentage of GDP (FDI); the channel variables and the moderators are defined in the corresponding subsections.

Table 1. Descriptive Statistics of Main Variables

Variable Name	Obs	Mean	Std. Dev.	Min	Max
DEV	2716	0.485	0.145	0.000	1.000
DID	2716	0.240	0.427	0.000	1.000
lnPGDP	2716	11.156	0.563	9.408	12.960
IND	2716	43.744	8.657	22.575	68.568
URB	2716	0.625	0.124	0.234	0.980
FDI (%)	2716	1.966	1.287	0.000	7.645
SUP	2716	0.212	0.106	0.000	0.593
FIS (%)	2716	1.503	0.453	0.190	3.386
PUB	2716	0.321	0.116	0.000	0.715
EVAL	2716	0.177	0.086	0.000	0.515
FISA	2716	0.530	0.187	0.080	0.980
ADMC	2716	0.531	0.129	0.134	0.923

Cities differ considerably in implementation: DEV has a mean of 0.485 and ranges from 0.000 to 1.000, indicating substantial room for narrowing deviation. The mean of DID is 0.240, so about 24% of city-year observations are exposed to correction. FISA and ADMC vary widely, reflecting the gap in fiscal and administrative capacity among cities. DID is negatively correlated with DEV ($r = -0.115$, $p < 0.01$), and the largest variance inflation factor is 1.53, so multicollinearity is not a concern.

B. Baseline Regression Results

To test H1, this paper estimates the following two-way fixed effects DID model:

$$DEV_{it} = \alpha + \beta \cdot DID_{it} + \gamma \cdot Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it} \qquad (1)$$

where i and t denote city and year, DEV_{it} is the implementation deviation index, DID_{it} is the treatment-by-post interaction, and $Controls_{it}$ is the vector of control variables. μ_i and λ_t are city and year fixed effects, which absorb time-invariant city characteristics and common shocks, and ε_{it} is the error term; standard errors are clustered at the city level. H1 is supported if β is significantly negative. Table 2 reports the results.

Table 2. Baseline Regression Results

Variable	(1) DEV	(2) DEV	(3) DEV
DID	-0.058***	-0.058***	-0.057***
	(0.006)	(0.006)	(0.007)
lnPGDP	-	-0.055*	-0.079**
		(0.031)	(0.032)
IND	-	0.002*	0.002
		(0.001)	(0.001)
City and Year FE	Yes	Yes	Yes
Province × Year FE	No	No	Yes
Obs	2716	2716	2716
Adj. R^2	0.729	0.729	0.724

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Column (1) controls only for city and year fixed effects, and the DID coefficient is −0.058 ($p < 0.01$). After adding controls in column (2), it is −0.058 and remains significant at the 1% level. Column (3) further includes province-by-year fixed effects, and the coefficient is −0.057 ($p < 0.01$): after being named in the central inspection feedback, the deviation index of treated cities falls by about 11.7% of the sample mean relative to the control group, equivalent to 39.1% of one standard deviation of DEV. Cities with higher per capita income show smaller deviation, as expected (lnPGDP = −0.079, $p < 0.05$ in column 3). These results support H1.

C. Mechanism Test of Transmission Channels

Four channel variables are constructed. SUP is the intensity of supervision and accountability, measured by the number of officials summoned or disciplined for green energy and environmental problems per 10,000 public employees and normalized to the 0–1 range. FIS is the share of green energy expenditure in general public budget expenditure (%). PUB is the normalized search index of green energy and environmental keywords, a proxy for public attention. EVAL is the weight of green energy and environmental targets in the performance evaluation of municipal cadres (0–1). Following the mediation logic of Baron and Kenny (1986), each channel variable is first regressed on DID (columns 1–4) and then included jointly in the baseline model for DEV (column 5) (Table 3).

Table 3. Test of Transmission Channels

Variable	(1) SUP	(2) FIS	(3) PUB	(4) EVAL	(5) DEV
DID	0.079***	0.356***	0.077***	0.063***	-0.015**
	(0.007)	(0.027)	(0.006)	(0.005)	(0.006)
SUP	-	-	-	-	-0.144***
					(0.022)
FIS	-	-	-	-	-0.025***
					(0.005)
PUB	-	-	-	-	-0.137***
					(0.018)
EVAL	-	-	-	-	-0.189***

(0.027)

Variable	(1) SUP	(2) FIS	(3) PUB	(4) EVAL	(5) DEV
Controls & FE	Yes	Yes	Yes	Yes	Yes
Obs	2716	2716	2716	2716	2716
Adj. R2	0.571	0.584	0.519	0.540	0.750

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered at the city level are reported in parentheses. Controls & FE: control variables and city and year fixed effects are included.

DID raises SUP by 0.079 ($p < 0.01$), FIS by 0.356 percentage points ($p < 0.01$), PUB by 0.077 ($p < 0.01$), and EVAL by 0.063 ($p < 0.01$), so correction strengthens all four channels. When the four channels enter together in column (5), SUP (−0.144), FIS (−0.025), PUB (−0.137), and EVAL (−0.189) are all significantly negative at the 1% level, while the direct effect of DID falls to −0.015 ($p < 0.05$) but remains significant, indicating partial mediation. Measured by the product of the first-stage and secondstage coefficients, the four channels together account for 0.043 of the baseline effect of 0.058, or 73.7%. The performance evaluation channel contributes 27.7% of the combined indirect effect, followed by political accountability (26.7%), public supervision (24.8%), and fiscal support (20.8%). This pattern suggests that correction works mainly by changing the incentives and monitoring conditions of local officials, while fiscal support plays a complementary role. H2 is supported.

D. Heterogeneity Test by Region and Resource Dependence

The sample is divided by region into eastern cities (104 cities, 1,009 observations) and central and western cities (177 cities, 1,707 observations), and by resource dependence into resource-based cities (73 cities, 705 observations) and non-resourcebased cities (208 cities, 2,011 observations). Measured by the product of the first-stage and second-stage coefficients, the four channels together account. Interaction terms DID × East and DID × Resource are then added to the pooled sample (Table 4).

Table 4. Regional and Resource-Dependence Heterogeneity Test

Variable	(1) East	(2) Central & West	(3) Resource-based	(4) Non-resource	(5) Pooled
DID	-0.099*** (0.011)	-0.037*** (0.007)	-0.027*** (0.010)	-0.071*** (0.008)	-0.049*** (0.008)
DID × East	-	-	-	-	-0.051*** (0.011)
DID × Resource	-	-	-	-	0.022** (0.010)
Controls & FE	Yes	Yes	Yes	Yes	Yes
Obs	1009	1707	705	2011	2716
Adj. R^2	0.685	0.731	0.769	0.684	0.734

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered at the city level are reported in parentheses. Controls & FE: control variables and city and year fixed effects are included.

The DID coefficient is −0.099 ($p < 0.01$) in eastern cities but only −0.037 ($p < 0.01$) in central and western cities. A Fisher permutation test with 500 replications confirms that the difference is significant ($p = 0.002$), and the interaction term DID × East in column (5) is −0.051 ($p < 0.01$). Channel regressions by region show that the effect of DID on SUP is 0.119 in eastern cities versus 0.060 in central and western cities, so stronger supervision and more active public monitoring explain part of the regional gap. By resource dependence, the coefficient is −0.071 ($p < 0.01$) in non-resource-based cities and −0.027 ($p < 0.01$) in resourcebased cities, and the interaction DID × Resource is 0.022 ($p < 0.05$), implying that dependence on extractive industries weakens the correction effect. H3a and H3b are supported, which suggests that correction should be complemented by transition support for resource-based and less developed regions.

E. Moderating Effect of Fiscal Autonomy and Administrative Capacity

To test H3c, fiscal autonomy (FISA, the ratio of general public budget revenue to expenditure) and administrative capacity (ADMC, an index of e-government development, staffing, and approval efficiency built by the entropy method) are standardized and interacted with DID, so each interaction coefficient is the change in the correction effect per one-standard-deviation increase in the moderator. Columns (4) and (5) re-estimate the baseline model for cities with fiscal autonomy above and below the sample median (Table 5).

Table 5. Moderating Effect of Fiscal Autonomy and Administrative Capacity

Variable	(1) FISA	(2) ADMC	(3) Both	(4) High FISA	(5) Low FISA
DID	-0.060*** (0.006)	-0.056*** (0.006)	-0.059*** (0.006)	-0.085*** (0.009)	-0.032*** (0.008)
FISA	0.012 (0.010)	-	0.012 (0.010)	-	-
DID × FISA	-0.026*** (0.005)	-	-0.026*** (0.004)	-	-
ADMC	-	0.008 (0.009)	0.008 (0.009)	-	-
DID × ADMC	-	-0.010** (0.005)	-0.009* (0.005)	-	-
Controls & FE	Yes	Yes	Yes	Yes	Yes
Obs	2716	2716	2716	1364	1352
Adj. R^2	0.733	0.730	0.734	0.732	0.730

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered at the city level are reported in parentheses. Controls & FE: control variables and city and year fixed effects are included.

DID × FISA (−0.026, $p < 0.01$) and DID × ADMC (−0.010, $p < 0.05$) are both significantly negative. A one-standard-deviation increase in fiscal autonomy raises the correction effect by about 44% of its baseline level (0.026/0.060), and the figure for administrative capacity is about 18% (0.010/0.056). With both moderators in column (3), DID × FISA (−0.026, $p < 0.01$) remains robust while DID × ADMC (−0.009, $p < 0.10$) is weaker, suggesting that fiscal autonomy is the more important of the two. The sample split agrees: the DID coefficient is −0.085 ($p < 0.01$) in high-autonomy cities but only −0.032 ($p < 0.01$) in low-autonomy cities, and the difference is significant ($p < 0.01$). Without sufficient fiscal discretion and administrative capacity, local governments cannot convert pressure from above into implementation. H3c is supported.

F. Robustness Tests

Several robustness tests support the baseline results. First, combining propensity score matching (1:3 nearest neighbor, caliper 0.05, based on 2013 city characteristics; 130 treated cities matched) with DID, to mitigate selection bias from the central government's attention to cities with poor implementation, gives a coefficient of −0.054 ($p < 0.01$). Second, re-measuring the deviation index with equal weights gives −0.056 ($p < 0.01$). With both moderators in column (3), DID × FISA (−0.026, $p < 0.01$) remains robust while DID × ADMC (−0.009, $p < 0.10$) is weaker, suggesting that fiscal autonomy is the more important of the two. The sample split agrees: the DID coefficient is −0.085 ($p < 0.01$) in high-autonomy cities but only −0.032 ($p < 0.01$) in lowautonomy cities, and the difference is significant ($p < 0.01$). Third, excluding the pandemic years 2020 and 2021 gives −0.058 ($p < 0.01$), and excluding municipalities and provincial capitals gives −0.059 ($p < 0.01$). Fourth, using one-year lagged controls gives −0.057 ($p < 0.01$). Fifth, the heterogeneity-robust estimator of Callaway and Sant'Anna (2021), which accounts for staggered naming, yields an average treatment effect on the treated of −0.060 ($p < 0.01$). In the event-study specification, the coefficients before naming are small and statistically insignificant (joint test $p = 0.231$), while the effect appears in the year of naming (−0.055) and persists afterward (−0.062 three years later), supporting the parallel trend assumption. Finally, in 500 placebo tests with randomly assigned treatment, coefficients center at −0.0003 and none is as negative as the actual estimate of −0.057, and moving the naming year three years earlier gives an insignificant coefficient of 0.004 (standard error 0.008).

CONCLUSIONS

Using a simulated panel of 281 prefecture-level cities from 2013 to 2022 and the central environmental inspection as a correction mechanism, this paper applies the difference-in-differences method to examine how correction affects the implementation deviation of local government green energy promotion policies. The main findings are as follows. First, correction significantly reduces implementation deviation, lowering the deviation index by about 0.054 to 0.060, and the result survives parallel trend, PSM-DID, alternative index, sample exclusion, heterogeneity-robust, and placebo tests. Second, political accountability, fiscal support, public supervision, and performance evaluation jointly account for about 74% of the effect, with performance evaluation and accountability being the leading channels. Third, the effect is stronger in eastern cities than in central and western cities, and stronger in non-resource-based cities than in resource-based cities. Fourth, fiscal autonomy and administrative capacity positively moderate the effect. The central government should therefore combine inspection with continuous, normalized supervision, make green energy targets explicit and quantifiable in cadre evaluation, provide stable fiscal and grid-related support, and strengthen information disclosure so that society can take part in monitoring. Differentiated arrangements are needed for central and western regions and resource-based cities, including transition funds and longer adjustment periods. Local governments should build the administrative capacity required to approve, connect, and monitor green energy projects. The deviation index is a proxy built from policy texts and statistics, and the panel analyzed here is simulated, so the estimates are illustrative. Future research could use project-level approval and grid-connection records, fulltext analysis of policy documents, county data to identify the channels more precisely and extend the analysis to other countries.

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