The Effect and Mechanism of New Energy Demonstration City Policy on Corporate Green Technology Innovation in China

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Abstract. With the growing environmental challenges worldwide, nations are implementing policies to help adopt new energy technologies and develop green technologies. China's New Energy Demonstration City Policy (NEDCP) has demonstrated notable effectiveness in achieving its dual objectives of energy structure optimization and fostering green development. This study uses a dual differential model (DID) to analyze a comprehensive sample of China's A-share listed companies (2008–2023) in order to examine the effects of NEDCP on corporate green technological innovation (GTI) and its fundamental mechanisms. The results show that NEDCP significantly enhances corporate GTI, with this effect remaining robust across multiple robustness tests, including parallel trend analyses and placebo tests. Mechanism analysis reveals that NEDCP promotes corporate GTI by increasing green subsidies from municipal governments in pilot cities. According to heterogeneity testing, the policy has a greater impact on GTI in small businesses, the manufacturing sector, and the central area of China. These results suggest that strategic expansion of NEDCP pilot cities could accelerate the nationwide promotion of new energy, thereby fostering corporate GTI and supporting the achievement of China's "dual carbon" targets.

Keywords: New Energy Demonstration City Policy (NEDCP), corporate green technological innovation (GTI), DID model.

1   Introduction

The world economy has grown rapidly in recent decades due to an over-reliance on fossil fuels, which has resulted in serious ecological problems like environmental pollution and global warming [1]. According to the "2024 World Energy Statistics Yearbook," global primary energy consumption increased from 607 exajoules (EJ) in 2022 to a record high of 620 EJ in 2023 for the second year in a row. China, having rapidly achieved industrialization through extensive development models, now faces challenges including as exhaustion of resources and environmental degradation [2]. To

address energy shortages effectively, an increasing number of countries have turned to renewable energy, making green transformation a global consensus.

To encourage the use of clean energy and hasten the development of a modern energy system, the Chinese government has put several regulations into effect over time, such as the "Double Carbon" goal and the "Fourteenth Five-year Plan (14th FYP) for Renewable Energy Development". The 14th FYP explicitly highlights the strategic importance of corporate green innovation [3]. Since corporations are China's main source of carbon emissions, they are essential to promoting technical innovation and green development. Enhancing corporate green technological innovation (GTI) and facilitating green transformation are critical to achieving the "Double Carbon" goals. However, the vast majority of Chinese companies remain heavily reliant on coal, while the high costs of wind, solar and other renewable energies discourage their adoption. Therefore, analyzing the policy-driven mechanisms for corporate GTI and identifying key factors enabling green transformation to be of significant importance.

In order to encourage the adoption of new energy technologies, the Chinese government launched the New Energy Demonstration City Policy (NEDCP) in 2014, designating 81 cities as the first batch of pilot zones. The NEDCP promotes enterprises to incorporate new energy-related technology into their everyday operations and make use of local renewable resources [4]. Assessing this policy's impact on corporate green innovation is strategically vital for China's green and low-carbon transformation. Against this backdrop, this study examines A-share listed companies in China (2008–2023) as research samples, using the dual differential model (DID) model to evaluate the NEDCP's effect on corporate GTI and its transmission mechanisms. Robustness tests—including parallel trend and placebo tests—are conducted, and mediating mechanisms are examined, along with analyses of heterogeneity across regions and industries.

The study aims to reveal how the NEDCP promotes GTI in micro-level enterprises, thereby contributing to macro-level green development goals. The research findings will help assess the effectiveness of the policy, provide a scientific basis for policy optimization, and offer references for enterprises in aligning their green transformation strategies.

2   Literature Review

Green technology encompasses emerging technologies that reduce energy consumption and advance ecological civilization [1]. At the corporate level, GTI is critical for fostering green productivity among market participants and enabling high-quality economic development [5]. Existing studies demonstrate that policies such as government environmental regulations, green financial reforms, EPA mandates, and compulsory environmental disclosure all positively influence corporate GTI [6-9].

Cheng et al. identify new energy as pivotal for balancing economic growth and environmental sustainability [10]. Sun and Geng highlight the production of new energy in optimizing energy structures, ensuring energy security, and strengthening national competitiveness [11]. Moreover, advancements in the new energy industry have cata-

lyzed global technological innovation and reshaped international political relations [12-13]. In line with these trends, the Chinese government issued the NEDC policy in 2014 to accelerate renewable energy technology adoption. This paper investigates the NEDCP's impact on corporate GTI, building on literature that falls into two main categories.

The first category examines the macro-level effects of the NEDCP. Research by Chen et al. and Cheng et al. confirms that new energy development drives China's green economic growth [4][10]. Additionally, they attest that the NEDCP promotes the low-carbon and environmentally friendly growth of Chinese cities. Lin et al. add that the policy's carbon reduction effects are more pronounced in cities along the Yangtze River Economic Belt and less economically developed regions [14]. Yang et al. further highlight that the NEDCP significantly reduces environmental pollution in Chinese cities [15].

In addition, more studies have expanded the scope of analysis beyond carbon intensity to broader green metrics. Yang et al. employ green total factor productivity (GTFP) and PSM-DID model to validate NEDCP's positive impact on urban green development [16]. Wang et al. reveal that the NEDCP enhances land use efficiency (ULUE) in pilot areas and neighboring areas via spatial spillover effects [17], while Li et al. argue from a macro perspective that the NEDCP boosts urban green innovation [18]. These findings not only provide supportive evidence for this study's premise but also suggest the possibility of the policy driving corporate green innovation.

The second category of literature emphasizes the micro-level effects of the NEDCP on corporate environmental sustainability. Fan et al. demonstrate the policy's vital role in advancing green transformation among energy-intensive industries [2]. Similarly, Zhou and Wang and Zhang et al. both corroborate positive effects of the NEDCP green innovation in new energy firms [3][19].

In conclusion, despite the breadth of existing research, the critical gaps endure. First, studies overwhelmingly emphasize the macro-level outcomes of the NEDCP, while neglecting its micro-level implications for firms. Second, although some research examines the heterogeneous effects of the NEDCP on different types of firms, the underlying mechanisms driving corporate green innovation remain short. Based on that, the contributions of this paper are threefold: First, it fills the research gap on the micro-level implementation of the NEDCP by focusing on corporate GTI. Second, it employs a DID model to reveal the transmission mechanisms of the NEDCP on corporate green innovation. Third, it combines heterogeneity analysis to further explore the policy's differentiated impacts across industries and regions, providing more targeted suggestions for policy optimization and promotion.

3   Hypothesis

3.1   The Impact of NEDCP on Corporate GTI

Compared to conventional energy sources, the expenses of research and development for new energy and related technologies are still significantly greater [3]. Compounded by diminishing innovation incentives and intensifying market competition in the re-

newable energy sector, examining the NEDCP's impact on corporate adoption of new energy technologies becomes critically important. The primary goal of NEDCP is to promote urban sustainable development by fully developing and utilizing renewable energy and relative technologies in pilot cities and parks. This provides favorable policy support for the promotion of corporate GTI.

In addition, the NEDCP also supports financial institutions such as banks in establishing local investment and financing platforms, providing innovative financial services and credit support for the environmental industry construction of enterprises in pilot areas. This promotes corporate investment in the green industry and innovation in green technology from a financial perspective. Given these mechanisms, this paper posit that the NEDCP significantly promotes corporate GTI. The following hypothesis is so put forth:

H1: The NEDCP promotes the progress of corporate GTI.

3.2 Fiscal Support Effect

Enterprises are economic entities that pursue profit maximization. Facing increasingly intense competition, they must continuously enhance their competitive advantages and social influence to fulfill the long-term strategic objective of profit maximization. Although improving green development can generate significant positive externalities, adopting renewable energy and new energy technologies in production and manufacturing processes requires additional financial investment costs and specialized talent. This results in insufficient intrinsic motivation for enterprises to develop green innovation. Therefore, the implementation of the NEDCP provides favorable policy support for corporate green development from the perspective of the pilot area government.

For example, tax exemptions for renewable energy usage and financial subsidies for green invention patents serve as tangible financial supports. These measures significantly reduce the costs for enterprises to develop new energy technologies and enhance their enthusiasm for green innovation. Under the support of government green subsidies, enterprises are more inclined to conduct green technology research in order to attain sustainable growth and boost market competitiveness. Consequently, they can reap the benefits of social reputation for green development and technological upgrading at a lower cost. In summary, the following hypothesis is proposed:

H2: The NEDCP promotes corporate GTI by increasing government green subsidies.

4 Research Design

4.1 DID Model Specification

This paper uses a DID model to examine the effects of the NEDCP on corporate GTI, using the 2014 adoption of the NEDCP as a quasi-natural experiment. Companies in the NEDCP pilot cities are the experimental group, while others are the control group. The specific equation is as follows. (Equation (1))

$$GTI_{it} = \beta_0 + \beta_1 Treat_j \times Post_t + \beta_2 X_{it} + \mu_j + \delta_t + \varepsilon_{it} \qquad (1)$$

Among these, GTI_{it} represents the GTI level of firm i in year t. $Treat_j$ is a policy dummy variable that is equal to 0 otherwise and 1 if firm i is situated in a city j that has been designated as a NEDC. $Post_t$ is a time dummy variable, which has a value of 1 if year t is 2014 or later, and 0 otherwise. X_{it} is a set of control variables that may have an impact on corporate GTI. β_0 is the constant term. β_1 and β_2 are the parameters to be estimated. μ_j represents the region fixed effects, and δ_t represents the time fixed effects. ε_{it} is a term for random errors.

4.2   Mediation Effect Model

To investigate the mechanism through which the NEDCP influences corporate GTI, this paper adopts the approach of Zhou Anhua et al. [3], using corporate green investment and government environmental subsidies as mediating variables, constructing the following models. (Equation (2) to Equation (4))

$$GTI_{it} = \alpha_0 + \beta_1 Treat_j \times Post_t + \alpha_1 X_{it} + \mu_j + \delta_t + \varepsilon_{it} \qquad (2)$$

$$M_{it} = \alpha_0 + \beta_2 Treat_j \times Post_t + \alpha_1 X_{it} + \mu_j + \delta_t + \varepsilon_{it} \qquad (3)$$

$$GTI_{it} = \alpha_0 + \beta_3 Treat_j \times Post_t + \beta_4 M_{it} + \alpha_1 X_{it} + \mu_j + \delta_t + \varepsilon_{it} \qquad (4)$$

Among these, M_{it} represents the mediating variable of environmental subsidies. β_1 is the total effect of the NEDCP on corporate GTI. β_2 is the impact of the NEDCP on the mediating variable. β_3 is the direct impact of the NEDCP on corporate GTI. β_4 is the effect of the mediating variables on corporate GTI. The mediation effect is established if β_1, β_2 and β_4 are all significant. If β_3 is not significant, a full mediation effect exists. If β_3 is significant, a partial mediation effect exists.

4.3   Variables and Data

Variable Setting. The dependent variable is the level of corporate GTI, which is equal to the natural logarithm of green patent applications plus one for the year. For robustness analysis, this study additionally employ alternative indicators, including green invention patent applications (GIP), green utility model patent applications (GUP), and green patent grants (Total).

The key explanatory variable is the NEDCP, measured by a dummy variable named Treat×Post. The policy dummy variable Treat is constructed based on the official list of 81 NEDCs released by China's National Energy Administration. Following established practices [1-2], this paper excluded samples of 26 county-level cities, districts, resulting in a final set of 55 experimental group cities.

To enhance the validity of the findings, control variables at both the firm and city levels are included in the DID model, consistent with prior research [1-3][19]. The firm-level variables are:

Firm size (Size), determined by the total assets' natural logarithm; debt-to-asset ratio (Lev), which is measured by dividing total assets by liabilities; return on total assets (ROA), which is a measure of profitability; cash flow ratio (Cashflow), which is calculated by the ratio of net cash flow from operating operations to total assets; loss status (Loss), meaning 0 otherwise and 1 if the company's net profit is negative for the year; board size (Board), which is calculated by the board members' natural logarithm; proportion of independent directors (Indep), determined by the ratio of independent directors to all directors; dual role of CEO and chairman (Dual), which is equivalent to 0 if the CEO and chairman are not the same person and to 1 otherwise; Years since listing (ListAge), which is calculated by taking the natural logarithm of the years since the company was founded plus one; Tobin's Q (TobinQ).

The city-level variables are:Economic development level (lnGDPP), calculated by the natural logarithm of per capita GDP in the city; Environmental governance level (lnEG), measured by the natural logarithm of sulfur dioxide removal; Industrial structure (IS), measured by the ratio of the value added of the tertiary industry to that of the secondary industry.

Table 1 shows the descriptive statistics of each indicator.

Table 1. Descriptive Statistics of Variables.

Variable	Symbol	Sample Size	Mean	Standard Deviation	Min	Max
Dependent	GTI	38538	0.36	0.762	0	3.584
Variable	GIP	38538	0.253	0.654	0	6.328
	GUP	38538	0.21	0.567	0	5.948
	Total	25364	0.071	0.17	0	1
Core Explanatory Variable	Treat×Post	38538	0.161	0.367	0	1
Control	Size	38237	22.156	1.292	19.985	26.33
Variables	Lev	38237	0.394	0.197	0.048	0.839
	ROA	38237	0.048	0.059	-0.171	0.224
	Cashflow	38237	0.051	0.067	-0.143	0.239
	loss	38237	0.095	0.293	0	1
	lnBoard	38237	2.119	0.2	1.609	2.708
	Indep	38237	37.575	5.322	30	57.14
	Dual	38237	0.308	0.461	0	1
	TobinQ	38237	1.943	1.103	0.842	7.067
	ListAge	38237	1.875	0.953	0	3.367
	lnGDPP	34946	11.498	0.525	9.915	12.207
	lnEG	34938	11.85	1.508	7.223	16.088
	IS	34953	56.575	13.388	28.46	84.85
Mediating Variable	Fin	38538	0.029	0.191	-0.055	8.951

Data Sources. This study examines A-share listed companies during the 2008-2023 period. The data are sourced from multiple sources, including the CSMAR database (Guotaian) and statistical yearbooks of various cities. In terms of sample selection, this paper excludes samples of companies labeled as ST, ST*, PT, and financial sector companies from the sample.

5   Empirical Analysis

5.1   Benchmark Regression

Table 2 provides the results of Equation (1). In column (1), only the fixed effects for city and year are controlled for. All control variables are included in Column (2), while the two-way fixed effects are preserved. Column (3) further accounts for potential industry-specific variations in GTI by adding industry fixed effects.

   The results of the estimation show that the interaction term of the NEDCP is both positive and significant at a level of 1%. This significance persists at the 5% level even after controlling for industry fixed effects, suggesting that firms in treatment-group cities experienced a significant increase in GTI following the NEDCP's implementation compared to the control group. In other words, the NEDCP effectively promotes corporate GTI advancement. Therefore, H1 is supported.

Table 2. Benchmark Regression Results.

	(1)	(2)	(3)
Treat×Post	0.0709***	0.0474***	0.0242**
	(5.574)	(3.622)	(1.965)
Control Variable	No	Yes	Yes
City Fixation	Yes	Yes	Yes
Year Fixation	Yes	Yes	Yes
Industry Fixation	No	No	Yes
N	38515	34619	34619
R^2	0.025	0.070	0.200
F	31.066	83.543	97.663

5.2   Robustness Tests

Parallel Trend Test. The validity of the DID method results hinges on the parallel trend assumption—i.e. prior to the implementation of the NEDCP, the GTI trends of firms in the treatment group and the control group must exhibit no significant divergence. Figure 1 plots the interaction term's coefficients along with their 95% confidence intervals before and after the policy enactment. As shown, the pre-2014 (pre-NEDCP) confidence intervals of the interaction term largely encompass zero, implying statistically insignificant differences in GTI between the two groups. This demonstrates that the treatment and control group firms' GTIs do not differ systematically, passing the parallel trend test. Post-implementation, however, the estimated

coefficients become statistically significant, demonstrating that the NEDCP effectively helps to enhance corporate GTI.
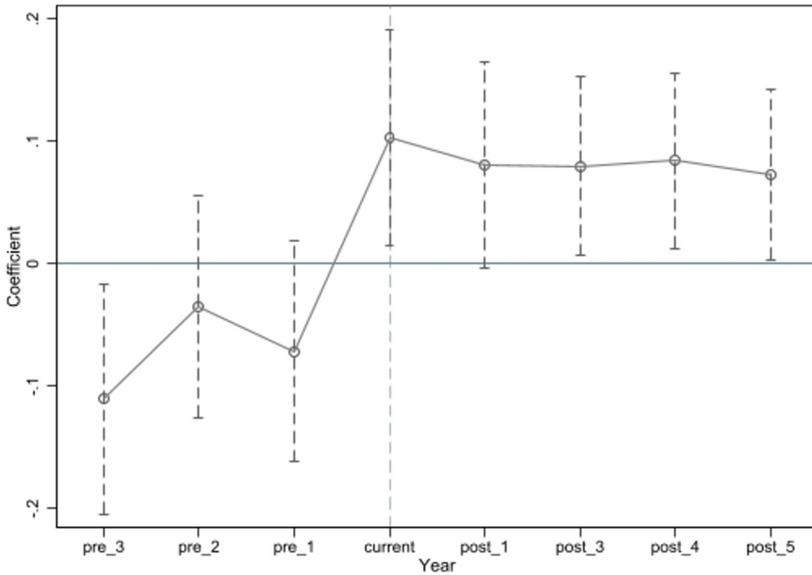

Fig. 1. Results of the Parallel Trend Test.

Placebo Test. The purpose of the placebo test is to confirm that the treatment effect—also known as the policy effect—is robust. To address potential omitted variable bias that might compromise the estimation results in the model, this study conduct the following procedure: First, the paper randomly select a pseudo-treatment group in the given year from the overall sample, matching the size of the actual treatment group each year for regression analysis. This approach helps verify that the changes in corporate GTI are influenced by the NEDCP rather than by other unobserved confounding factors. To prevent low-probability events from interfering with the estimation results, the paper repeat this random sampling process 1,000 times, generating a distribution of the estimated coefficients and p-values for the pseudo-policy, thereby generating a kernel density plot (Figure 2). As shown in Figure 2, the vast majority of the estimated coefficients cluster around zero, with a relatively symmetrical distribution showing no significant skewness. Additionally, most p-values exceed 0.1. These findings suggest that the NEDCP's effect on corporate GTI is not confounded by unconsidered factors, or such confounding effects are negligible at best. Consequently, the study conclude that the estimated treatment effect is robust.
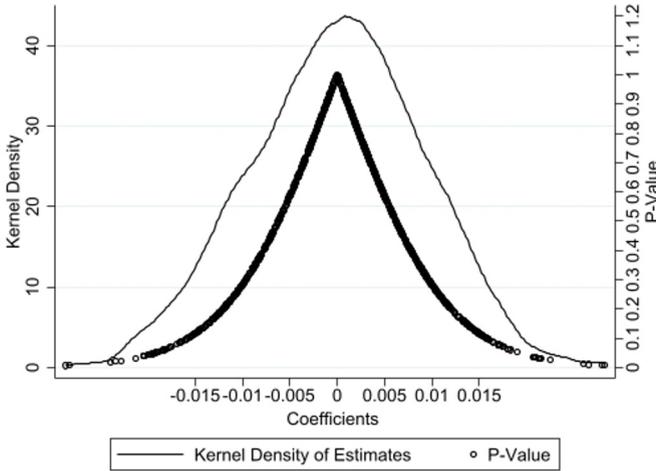
Fig. 2. Results of the Placebo Test.

Replacement of the Dependent Variable. To further validate the robustness of our finding that the NEDCP enhances corporate GTI, the study conduct additional analysis by substituting alternative measures for the dependent variable in Equation (1). GIP, GUP, and Total are the three alternative indicators used in this study, which are based on Zhou Anhua's research [3]. Table 3 displays the regression findings. It is evident that the calculated coefficients remain statistically significant even when the dependent variable is changed. These repeated outcomes demonstrate the robustness of the NEDCP's beneficial effects on corporate GTI.

Table 3. Estimation Results with Alternative Variables.

	(1) GTI	(2) GIP	(3) GUP	(4) Total
Treat×Post	0.047***	0.028**	0.024**	0.012***
	(3.622)	(2.442)	(2.476)	(3.737)
Control Variable	Yes	Yes	Yes	Yes
City Fixation	Yes	Yes	Yes	Yes
Year Fixation	Yes	Yes	Yes	Yes
N	34619	34619	34619	22586
adj. R^2	0.068	0.066	0.060	0.027

5.3   Mechanism Analysis

This study uses a stepwise regression approach to confirm the fiscal support effect of H2 based on the equations (2)–(4) previously established. This paper manually extracted the amount of government subsidies for environmental protection and energy

conservation from the detailed government grant items in the financial statements' notes, based on Yu Zhimai's research [20]. The formula (GreenSubsidy*100/Operating Revenue) was used to determine the environmental subsidy variable for each year (Fin). The mechanism regression results of the NEDCP's fiscal assistance effect on corporate GTI are shown in Table 4.

According to Column (2) of Table 4, the estimated coefficient of the interaction term is positive at the 10% confidence level. This indicates that the NEDCP is conducive to increasing government environmental subsidies to enterprises in pilot areas. Local governments actively respond to the NEDCP, which promotes the use of new energy, by establishing the concept of energy saving and environmental protection through fiscal subsidies. Meanwhile, Column (3) shows that both the interaction term and the coefficient estimate of green subsidies are positive at the 1% confidence level. This not only indicates that company GTI may be improved through government green subsidies, but it also establishes the mechanism impact. Therefore, the NEDCP promotes corporate GTI development by increasing government environmental subsidies in pilot cities, thus verifying the previous H1 and H2.

Table 4. Results of Mechanism Analysis.

	(1) GTI	(2) Fin	(2) GTI
Treat×Post	0.0474***	0.0047*	0.0470***
	(3.622)	(1.661)	(3.598)
Fin			0.0680***
			(3.236)
Control Variable	Yes	Yes	Yes
City Fixation	Yes	Yes	Yes
Year Fixation	Yes	Yes	Yes
N	34619	34619	34619
R^2	0.070	0.017	0.070
F	83.543	5.537	78.665

5.4   Heterogeneity Analysis

Regional Heterogeneity. Considering the differences in economic and technological development levels among Chinese cities, this paper further examine the heterogeneous policy effects across regions on corporate GTI by stratifying our sample into eastern, central, and western provinces. The regression results in Table 5 reveal significant regional variations in the NEDCP's impact on corporate GTI:

Central Region. The NEDCP demonstrates strongest positive effect, with the largest estimated coefficient that passes the 1% significance test. The central region has a higher proportion of traditional industries and faces greater pressure for industrial transformation. As a result, the NEDCP's introduction offers companies in the central region efficient policy support and direction, motivating them to invest in green tech-

nology research and use more new energy sources with government assistance, thus better meeting the demands of industrial upgrading.

Eastern Region. The impact is intermediate, with an interaction term coefficient of 0.037 that passes the 5% significance test. The region's advanced economic development and mature market may explain this attenuated effect, as enterprises exhibit lower policy dependence, resulting in a relatively smaller marginal impact of the NEDCP on corporate GTI.

Western Region. The impact of the NEDCP on corporate GTI is statistically insignificant, with an interaction term coefficient of only 0.03. This is because the western region has relatively underdeveloped economy and less perfect policy implementation capabilities compared with the eastern and central regions. Meanwhile, the western region's industrial structure is mainly resource-based, with relatively smaller demand and market space for corporate GTI. The effect of the NEDCP in promoting GTI is constrained by industrial structure and market demand.

Table 5. Heterogeneity test of location.

	(1)	(2)	(3)
	Central	East	West
Treat×Post	0.120***	0.037**	0.030
	(3.872)	(2.386)	(0.746)
Control Variable	Yes	Yes	Yes
City Fixation	Yes	Yes	Yes
Year Fixation	Yes	Yes	Yes
N	5302	25404	3801
adj. R^2	0.098	0.063	0.090

Firm Size Heterogeneity. Firm size plays a crucial role in shaping long-term strategic orientation and sustainable development of enterprises. Different firm sizes determine systematically different innovation capacities and development directions [3]. Therefore, to examine the heterogeneous effects of NEDCP on corporate GTI across firm sizes, this paper classifies firms into two groups based on the sample mean size: large firms (above-average size) and small firms (below-average size). According to Table 6, the promoting effect of the NEDCP on corporate GTI is more substantial in small enterprises. Small companies are more capable of responding promptly to policy changes and find it easier to adjust their medium- and long-term strategies. Thus, small firms are more likely to seize the positive support of the NEDCP, increase their green innovation investment, and thereby significantly enhance their GTI.

Table 6. Heterogeneity test of firm size.

	(1) Large	(2) Small
Treat×Post	0.036*	0.056***
	(1.700)	(3.627)
Control Variable	Yes	Yes
City Fixation	Yes	Yes
Year Fixation	Yes	Yes
N	17458	17161
adj. R^2	0.067	0.061

Industry Heterogeneity. One of the main goals of the NEDCP is to encourage the strategic transition of traditional manufacturing industries towards green development. Local governments have demonstrated the effectiveness of this goal by offering financial subsidies, tax incentives, technical advice, and project support. Since the manufacturing sector is the largest source of energy consumption and carbon emissions, it is under far more pressure than other sectors to reduce emissions and conserve energy, which makes industrial transformation more urgently needed. Therefore, encouraging manufacturing companies to lessen their dependency on conventional energy sources and to improve the use of innovative energy and green technologies is one of the main objectives of the NEDCP. Local governments in pilot cities implement these measures by providing financial subsidies, tax exemptions, as well as technical guidance and project support -policy instruments that prove particularly effective in accelerating GTI advancement in manufacturing firms.

Conversely, non-manufacturing sectors (e.g., service industries) exhibit relatively lower energy consumption and consequently demonstrate less less immediate need for green innovation compared to manufacturing. Moreover, the direction of technological innovation in non-manufacturing industries is more focused on service models and the application of information technology, leaving comparatively narrower scope for green research and development. Therefore, as table 7 shows, the promotional effect of the NEDCP on GTI is more significant in manufacturing enterprises.

Table 7. Industry classification heterogeneity test.

	(1) Manufacturing	(2) Non-manufacturing
Treat×Post	0.053***	0.040
	(3.535)	(1.616)
Control Variable	Yes	Yes
City Fixation	Yes	Yes
Year Fixation	Yes	Yes
N	22810	11809
adj. R^2	0.122	0.069

6   Conclusion

This study employs a DID model to investigate the impact of the NEDCP on corporate GTI using publicly accessible data from A-share listed companies from 2008 to 2023. The following are the primary research findings. First, a number of robustness studies, such as parallel trend and placebo tests, show that the NEDCP greatly encourages the GTI development of businesses in pilot towns. Second, mechanism analysis shows that by boosting environmental subsidies from local governments in pilot cities, the NEDCP can further advance corporate GTI. Third, the NEDCP has a greater beneficial impact on GTI among large industrial enterprises in central China, according to heterogeneity analysis. Regional heterogeneity indicates that the promotional policy impact follows a descending order from central to eastern and western regions, suggesting the need for region-specific adaptation measures.

The following policy suggestions are put out in light of the preceding research findings. First, the NEDCP implementation should be further advanced by the Chinese government. The advancement of corporate GTI, energy structure optimization, and industry green transformation are all made possible by the NEDCP. Therefore, the Chinese government should actively summarize the effective experiences brought by the NEDCP and continue to expand the pilot scope to promote green innovation and transformation of enterprises in various cities across China. Second, enhance fiscal support mechanisms. Under the impetus of the NEDCP, local governments' increased financial subsidies for green and environmental protection in enterprises have effectively promoted corporate GTI. This suggests that financial assistance can efficiently stimulate corporate GTI, lower the price of developing green technologies, and promote the green transformation and modernization of the whole supply chain.Third, provide tailored subsidies or tax incentives based on firm size. The promoting effect of the NEDCP on corporate GTI varies due to differences in region, firm size, and industry. Therefore, local governments should tailor policies according to industry differences to more effectively ensure the implementation of policy support.

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