

Can Government Attention to Fintech Enhance Inclusive Green Growth? Empirical Evidence from 284 Cities in China

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ABSTRACT Advancing Chinese-style modernization and narrowing developmental gaps call for inclusive green growth (IGG), a paradigm that jointly pursues economic advancement, social fairness, and ecological sustainability. As a cognitive resource, the degree to which governments prioritize Fintech can propel IGG by pooling information, guiding expectations, and rewarding innovation. Drawing on a balanced sample of 283 Chinese prefecture-level cities observed over 2011–2023, this study quantifies governmental Fintech priority through textual analysis of policy documents and gauges IGG with an entropy-weighted indicator system. A two-way fixed-effects panel specification is then estimated to trace how such priority shapes urban IGG. The estimates show that a heightened governmental focus on Fintech substantially lifts urban IGG, a conclusion that withstands a battery of endogeneity corrections and robustness diagnostics. Channel tests reveal green technological innovation and digital inclusive finance as two parallel transmission routes, whereas the regional stock of human capital reinforces the baseline relationship. The benefit is unevenly distributed, registering more strongly across eastern and central cities, larger urban agglomerations, and financially mature localities. Spatial econometric evidence further indicates that IGG is markedly clustered in geographic space, yet the gains from governmental Fintech focus remain chiefly confined to the originating city, diffusing only weakly to adjacent areas. On this basis, the paper advocates reinforcing governmental attention to Fintech, nurturing green innovation alongside digital financial inclusion, calibrating measures to local conditions, and deepening cross-regional collaboration to advance IGG.

INDEX TERMS Inclusive green growth; Government attention to Fintech; Green technology innovation; Inclusive finance.

I. INTRODUCTION

AS a developmental paradigm, inclusive green growth (IGG) fuses economic expansion with ecological stewardship and social equity [1]. It charts a course toward balanced, high-quality progress while answering rising public aspirations for better lives [2]. By reconciling economic vitality, equitable social outcomes, and environmental protection, IGG furnishes a coherent route for narrowing developmental gaps and advancing durable well-being [3]. Its value lies in the capacity to ease imbalances and steer societies toward a more resilient and fair future [4]. Yet a closer look at China's growth experience exposes lingering deficiencies in the conventional model, whose structural features sit uneasily with the IGG vision [5]. To begin with, the friction between economic expansion and the limits of resources and the environment keeps intensifying [6]. In a number of localities, the dependence on energy-intensive,

high-emission growth pathways has scarcely shifted [7]. Furthermore, the inclusiveness of development still requires reinforcement [8]. Disadvantaged populations together with micro, small, and medium-sized enterprises (MSMEs) continue to struggle to tap financial tools and share in the rewards of sustainable growth, a difficulty compounded by pronounced urban-rural and inter-regional gaps [9]. Beneath these issues lie the structural weaknesses of the conventional financial system in serving inclusive groups, pricing environmental risk, and steering funds toward green projects [10]. Such a functional shortfall signals the pressing need for fresh momentum to remedy these systemic deficiencies.

Within this setting, Fintech—an innovation propelled by the fusion of finance and technology—supplies a fresh remedy for the difficulties noted above thanks to its inclusiveness, efficiency, and adaptability to varied scenarios [11]. Although the bulk of earlier research has examined

the economic ramifications of Fintech progress, a crucial antecedent has frequently been neglected: how intently governments attend to Fintech. From the standpoint of the attention-based view, shifts in cognition and behaviour are triggered by directed attention [12]. Being a scarce cognitive resource, city-level Fintech attention can pool information, mould expectations, and spur innovation, thereby acting as a kind of “soft” infrastructure that underpins regional IGG. Accordingly, this paper raises three central questions: first, how governmental attention to Fintech and IGG can be conceptualized and measured; second, whether and through what means Fintech attention shapes urban IGG; and third, whether the influence of Fintech attention on urban IGG carries spatial spillover effects. Addressing these questions is vital for grasping and harnessing the potential of Fintech attention to elevate IGG.

The connotation of IGG began to be studied earlier. IGG has become a whole development paradigm that combines economic development with social justice and environmental protection [13]. IGG has gone beyond the previous notions of ‘green growth’ and ‘inclusive growth’ and is now being widely recognized as a multidimensional concept, which seeks to reconcile the three dimensions [6], [7]. Economically, it focuses on deepening its business with the integration of green innovations and digitalization, rather than just expanding its business [14], [15]. Socially, it aims for equity in outcomes through a fairer, less unequal distribution of regional benefits and a just transition which safeguards the interests of vulnerable groups [16], [17]. As an environmental target, its main focus is to reduce the ecological footprint of economic activities by transitioning to new energy sources, engaging in circularity and implementing climate policy [18]–[20].

In terms of the evaluation approach of IGG, there are some detailed studies by academics. In the mainstream approach, a multi-layered indicator system is built that integrates economic, social and environmental indicators, typically combined by objective weighting methods such as entropy weighting [17], [21] or CRITIC [22]. Recent developments have been directed towards the capture of IGG’s dynamic evolution. For example, Functional Data Analysis has been employed to model IGG as a continuous trajectory, allowing for analysis of the rate of change [8], [23], while other studies integrate production efficiency and coupling coordination models [17]. Data sources are also becoming more diverse, and nighttime light data are being used in studies to analyze regional data [24]. However, the spatial interdependence of IGG has been increasingly recognized, and researchers are now increasingly using a spatial econometric and a coupling coordination model to calculate important spillover effects, which highlights the importance of interregional links [16], [25].

The research findings of Fintech and IGG reveal that Fintech plays the vital role in the implementation of IGG by facilitating green innovation, resource efficiency and social inclusivity. Empirical evidence has consistently shown that

the development of Fintech in the regions can significantly encourage corporate eco-innovation by alleviating capital constraints and enhancing information symmetry [26], [27]. This effect is enhanced by its synergy with environmental policies, such as the green finance policy, bringing about better urban green total factor energy efficiency and showing positive spatial spillover effects [28]. In addition to innovation, Fintech directly encourages green growth by improving the allocation of resources. It improves the utilization efficiency of green mineral resources through the innovation of technology, and is a “DE-cursing agent” in the resource-dependent economy to reduce the distortionary impact of natural resource rents on green growth [29], [30]. At the same time, Fintech contributes to the inclusive aspect of IGG. It drives more widespread economic engagement through new entrepreneurship and better human capital investment and financial inclusion, so the benefits of green growth are shared widely [31]–[33]. The effects of Fintech are, however, not uniform, and are more pronounced in financially developed regions, eastern Chinese cities, and non-state-owned enterprises, and are often subject to threshold effects and specific policy environments [28], [33]. This highlights its need to act as an enabler for IGG for regional and institutional contexts to be supportive.

Some important preliminary work has been done, but a few questions remain. One of the first things that come to mind is that much of the literature has been devoted to an analysis of the determinants of IGG from a single perspective – economic, social or environmental. But, it has not yet systematically explained the impact mechanism of Fintech attention from the government cognitive resources point of view. Second, there is a lack of literature that addresses Fintech as a whole technological factor, focusing on its immediate positive growth impacts. However, it does not provide a detailed analysis of the multiple channels of transmission, including financial inclusion and green technology innovation, that Fintech can trigger at the same time, by diverting the attention of the government. Third, in existing studies, the policy impacts of Fintech are generally tested with standard panel models that do not adequately reflect the spatial spillovers features of Fintech. In this paper, using a sample of 284 Chinese cities between 2011 and 2023, we create quantitative measures of government Fintech attention and of IGG. In addition to assessing direct effects, the inquiry looks into the mechanisms by which the effects of green innovation and financial inclusion are conveyed. In addition, this analysis incorporates the regulatory dimension of human capital and is expanded to a spatial dimension to uncover the geographic spillover dynamics between policy attention and sustainable development.

From a research perspective, the marginal contribution of this paper is: First, based on text analysis of government work reports, it builds a measurable variable of “government Fintech attention”, providing insights of cognitive level on the drivers of policies. Second, as for the research content, it shows that there is a parallel dual-mediation mechanism:

green technology innovation and digital financial inclusion. The study builds an integrated framework to understand the attention effect of Fintech that contributes to the economic aspect of greening and social aspect of inclusion at the same time. Third, from a methodological perspective, the study illuminates the geographical processes by which governmental attention promotes IGG by analyzing the spatial spillover effects.

Following this, in Part 2, the theoretical framework is set up and the central hypotheses of this study are formulated. In Part 3, the empirical methodology and the specific research design that was used are explained. The key empirical results are discussed in Part 4. The extended and in-depth analyses are discussed in Part 5. Part 6 provides a summary of the main findings and offers policy guidance.

II. THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

A. THE DIRECT EFFECT OF GOVERNMENT ATTENTION TO FINTECH ON IGG

Government Fintech attention can help IGG directly through multiple dimensions, mainly by influencing reallocation of resources, and by changing market behaviour [34]. Based on the attention-based view, attention is the starting point of cognition and action [35]. Government attention is an important “soft” infrastructure that enables regional development by energizing informational resources, shaping expectations, and inspiring innovation [36]. Specifically, it works in three major ways.

Firstly, the prioritisation of Fintech by the government helps to improve the quality of economic growth by adjusting the way factors are allocated. Government work reports that are often used and cited include terms such as “blockchain” and “digital payment”, which is a strong signal [37]. This sets the expectations of market actors to green innovation. This intensive focus is usually accompanied by tangible policy support and provision of resources, including fiscal subsidies, tax incentives, or regulatory sandboxes. As a result, it can directly lower the cost of implementing green technology and financial inclusion projects [37]. The government’s strong signal of its priority for Fintech development will enable the smooth allocation of administration and investment resources to the development of green industries and technology innovation. This contributes to further upgrading of industry, improvements in total factor productivity, and to increasing the sustainability of economic expansion [38].

Second, Fintech attention improves the financial services’ accessibility, thereby increasing the social equity. Policy incentives raise policy prioritisation and encourage financial intermediaries and tech companies to create equitable products, while lowering the barriers to entry for all but-served segments. This makes it easier for SMEs, low income groups and the rural population to get credit, insurance and investment avenues [39]. The use of Fintech applications, such as big data and artificial intelligence, contributes to

social inclusion, by providing safe and inexpensive access to green finance, while improving the risk pricing. This helps to empower the vulnerable groups economically and to ensure that development benefits are more widely shared [40].

Thirdly, the attention of Fintech improves environmental quality by directing investments to green projects and promoting eco-friendly actions. Through policy intervention, government has been stimulating the green activities of the corporate and financial sector, and digital Fintech tools have contributed to a more efficient environmental risk assessment and accurate allocation of capital to promoting sustainable projects [41]. At the same time, increased attention leads to an increase in public awareness of green development. In addition, it provides the ground for new financial tools, such as green credit facilities and carbon accounting systems, that can effectively foster sustainable consumer behavior [42]. The result of this process is a virtuous “government guidance-market response-public participation” cycle for green development [43]. As a consequence, the following research hypotheses are put forward.

Hypothesis 1. Government attention to Fintech can significantly promote IGG.

B. THE MEDIATING ROLE OF GREEN TECHNOLOGY INNOVATION AND DIGITAL INCLUSIVE FINANCE

1) Green Technology Innovation

Fintech attention catalyses the development of green technology innovation through multiple direct channels [34]. First, because the attention of government creates a signalling effect that directs investment of innovation resources to converge in the field of green technology [20]. The policy signal from the government’s communication of the activities of Fintech also helps to direct enterprises and research institutions towards investing their R&D resources in green technological innovations [44]. Second, such attention is often followed by tangible institutional protection and support [45]. Governments reduce the inherent uncertainties and financial barriers to green innovation by implementing measures such as special R&D funds and tax breaks, and green tech trading platforms [46]. Third, Fintech attention facilitates knowledge spillovers and technology diffusion [47]. A strong digital financial infrastructure enables the quick sharing of knowledge in green tech and makes it easier for SMEs to access cutting-edge information, driving further innovation [48].

Green technology innovation is one of the important factors to boost productivity and reduce environmental pollution, providing a new impetus to IGG. First, green technology innovation is a key engine of IGG, improving the overall factor productivity and creating new economic dynamism [49]. In particular, it boosts productivity directly by means of applications aimed at improving production processes, reducing energy consumption and improving the efficiency of resources at the level of the firm and industry. Moreover, it indirectly fosters growth by creating new and

completely new industrial areas such as renewable energy, environmental equipment, and businesses related to the circular economy [50]. These are the sectors that are going to give impetus to economic growth and creating huge employment opportunities. Thus, the growth generated by green technology innovation has not only a strong scaling but also a high quality, providing a strong economic foundation for an inclusive green growth [51]. Secondly, green technology innovation improves the ecological sustainability through minimizing environmental pollution. Pollution control technologies, such as advanced wastewater treatment, exhaust purification and solid waste recycling, have a very positive impact on the environmental impact of industrial production and the ecological quality of the region [52]. In resource conservation, the innovative technologies, including energy cascading utilization and material recycling, improve the efficiency of resources, thus reducing the strain of economic development on natural resources. Moreover, such innovation is of critical importance for a basic change in production and consumption patterns [53]. The introduction of clean production technologies plays a role in the transition to a green structure of industries, and green product innovation can influence consumer behavior towards adopting green practices [54]. All the changes foster a synergistic relationship between economic prosperity and ecological protection. Hence, the following hypothesis is suggested in this paper.

Hypothesis 2a. Government attention to Fintech promotes urban IGG by fostering green technology innovation.

2) Digital Inclusive Finance

Fintech attention is of particular importance for the development of inclusive finance as it works in two directions: Policy guidance and market coordination [55]. First, government attention creates the steering effect that leads to further development of the inclusive financial services system. This is experienced when the government makes a commitment to Fintech in its policy agendas, which encourages financial institutions and tech firms to create products geared toward small businesses, rural populations and low-income groups [56]. Second, this focus often comes with a more rapid pace of digital financial infrastructure development. Administrative bodies effectively tackle transaction friction and entry barriers in inclusive financing through optimizing the credit information infrastructure, expanding access to digital payment systems and strengthening Fintech hubs [57].

Inclusive finance plays a part in the urban IGG through greater economic vitality and social equity. First, inclusive finance provides better allocation of resources and creates new momentum for economic growth. On the other hand, inclusive finance catalyzes the productive and innovative potential of small and micro enterprises as well as low income groups by easing credit constraints against it [58]. Access to formal financial services helps these market participants to acquire better technology, equipment and machinery, thereby becoming more productive and com-

petitive in the market [59]. Consumption upgrading and investment growth, however, is encouraged by inclusive finance. It allows households to smooth their consumption and invest in human capital, which increases the demand for domestic products [60]. Digital inclusive finance also reduces geographical barriers to financial services and helps to integrate economically marginalized communities. This process is one of the most important pillars of regional convergence and one of the most important means of reducing disparities in spatial development [61]. Secondly, inclusive finance fosters social equity by improving the economic empowerment of the vulnerable groups. This is achieved by three major mechanisms. On the one hand it reduces income disparities. These programmes not only help mobilize seed capital and micro-financing, but they help unlock entrepreneurship potential in the marginalized groups, leading to a reduction in wealth gaps. On the other hand, it contributes to financial resilience [62]. Insurance and saving products enable vulnerable households to absorb unforeseen economic shocks, without triggering a fall into or back into poverty because of a disaster or illness. Additionally, it helps to promote social mobility [62]. Access to services such as education financing, education loans and skills training help to move people out of poverty and to break the intergenerational poverty cycle and promote wider social inclusion [63]. Based on the above, this paper proposes the following hypothesis.

Hypothesis 2b. Government attention to Fintech promotes urban IGG by enhancing the level of inclusive finance.

C. THE MODERATING ROLE OF HUMAN CAPITAL LEVEL

Human capital, an essential part of regional development, is a key moderating factor to amplify the positive impacts of Fintech attention on IGG. The high quality of the human capital environment supports the positive role of Fintech attention on regional IGG in two ways; first, it helps to improve the efficiency of technology absorption and transformation and second, it optimizes financial services allocation [64]. A high level of human capital will enable firms to properly understand and effectively utilize Fintech knowledge and technologies, in terms of technological absorption and transformation efficiency [59]. Having a well-qualified R&D and managerial staff helps companies to accurately pinpoint the technology opportunities in a government's policy directions. This ability enables them to efficiently overcome the knowledge barrier and skill mismatch in the technology transformation process, and thus rationally allocate the innovation resources of green technology and generate higher technological output efficiency [5]. In terms of the allocation of financial services, a good HCE helps create a rational and mature ecosystem for inclusive finance [18]. A well-qualified labour force serves as an important channel that drives the better allocation of inclusive finance [65]. It provides the client-side financial literacy to lower service costs and financial risk for financial institutions,

which enhances their effectiveness and dedication to providing services, thereby maximizing the use of resources for enhanced regional IGG [66].

To summarise, regional human capital is a key multiplier. Together with the role of Fintech attention on green innovation, these two together have a strengthening effect on IGG outcomes [67]. Based on these, the hypothesis is set as below.

Hypothesis 3. Human capital level positively moderates the promotive effect of government attention to Fintech on urban IGG.

D. THE SPATIAL EFFECTS OF GOVERNMENT ATTENTION TO FINTECH ON IGG

Geographic space contains complex interdependent relationships of economic activities. The First Law of Geography, developed by Tobler, implies that geographic regions that are closer together have greater inter-dependencies between each other, and therefore there is a greater correlation between them than between geographically distant regions. The attention effects of the Fintech also have a spatial dimension for IGG [68]. This research combines three theoretical frameworks on the spatial effect: that of spatial externalities, policy diffusion and knowledge spillovers. Firstly, there are obvious spatial externalities within IGG. Green technology innovation is also one of the significant geographic boundaries in knowledge spillovers as a key mediator [69]. New technologies like green patents in one city spread to other cities that are geographically close, mostly via the movement of technical staff, and supply chain partnerships [70]. Second, governments at the local level are strategically interdependent in the process of formulating their Fintech policy [71]. This creates “yardstick competition” or mimicry between nearby cities that generates a ‘spatial clustering’ of policy attention [72]. Thirdly, there is a distance-decay effect in the spread of Fintech attention, similar to information flow. Spatially correlated attention in cities is likely to be generated as a regional hot-spot, embedded in an informational milieu shared by the cities [73].

But the unique institutional setting in China has a strong influence on these spatial effects [74]. Despite the current “political tournament” based on economic growth performance and “administrative regional economy”, some “local protectionism” and “market segmentation” remain to be observed. The administrative obstacles are likely to significantly affect the free movement of Fintech factors and slow down the diffusion of green knowledge and technology in different regions [75]. Thus, the positive effect of the attention of Fintech can mainly be seen in the form of strong local effects, whereas the spatial spillover effects can be made weak or even insignificant by the barrier created by the administrative boundary [9]. In the light of the above facts, this paper proposes the following hypothesis.

Hypothesis 4. Government attention to Fintech exhibits spatial effects on urban IGG.

The theoretical framework in this paper is a combination of these mechanisms as illustrated in Figure 1.

III. RESEARCH DESIGN

A. MODEL CONSTRUCTION

1) Benchmark Model

The benchmark model is as follows.

$$IGG_{i,t} = \alpha + \beta Attention_{i,t} + \gamma Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

Here, the subscripts i and t correspond to the city and the year, respectively. $IGG_{i,t}$ captures inclusive green growth; $Attention_{i,t}$ gauges the priority local governments assign to Fintech; $Controls_{i,t}$ is a vector of city-level covariates; μ_i and δ_t absorb city-specific and year-specific fixed effects, respectively; and $\varepsilon_{i,t}$ denotes the stochastic disturbance term.

2) Instrumental Variable Regression

The two-stage least squares (2SLS) method is used to deal with endogeneity, consistent with Drukker, Prucha and Raciborski [76]. This estimation is an IV-based estimation which is an effective method of purifying the endogenous variable by separating its exogenous part in the first stage. The econometric model is as follows.

$$Attention_{i,t} = \alpha_0 + \beta_0 IV_{i,t} + \gamma_0 Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

In this specification, $IV_{i,t}$ stands for the chosen instrument, while the remaining terms carry the same meaning as in Equation (1).

Using the estimates obtained from Equation (2), this paper derives the fitted values of $\widehat{Attention}_{i,t}$. These predicted proxies are then substituted into Equation (3) in the second stage of the regression to ensure unbiased results.

$$IGG_{i,t} = \alpha_1 + \beta_1 \widehat{Attention}_{i,t} + \gamma_2 Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (3)$$

Here, β_1 gives the unbiased estimate of how governmental attention bears on IGG, and all other terms are defined as in Equation (1).

3) Mediating Effect Model

The mediating effect models are as follows.

$$M_{i,t} = \alpha_1 + \beta_1 Attention_{i,t} + \gamma_1 Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (4)$$

$$IGG_{i,t} = \alpha_2 + \beta_2 Attention_{i,t} + \rho M_{i,t} + \gamma_2 Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (5)$$

In these equations, $M_{i,t}$ represents the mediator under study. Green technological innovation and digital inclusive finance are adopted as the two mediators, while the rest of the notation follows Equation (1).

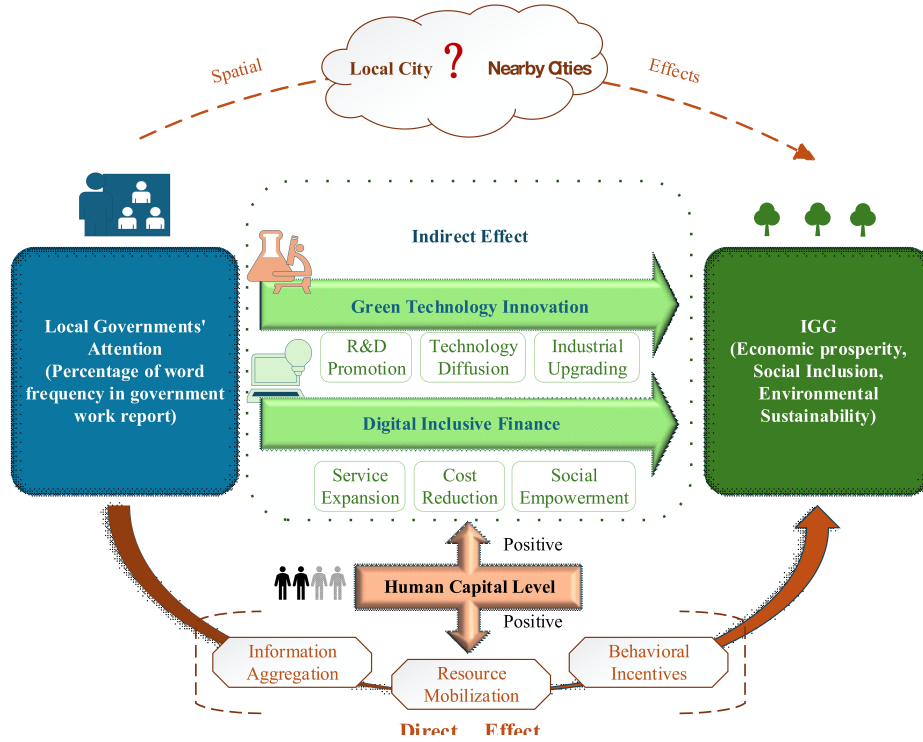


FIGURE 1. Theoretical mechanism diagram

4) Moderating Effect Model

The moderating effect model is shown as follows.

$$IGG_{i,t} = \alpha_3 + \beta_3 Attention_{i,t} + \rho_1 HC_{i,t} + \rho_2 (Attention_{i,t} \times HC_{i,t}) + \gamma_3 Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (6)$$

In this model, $HC_{i,t}$ proxies the level of human capital, and $Attention_{i,t} \times HC_{i,t}$ constitutes the key interaction through which the moderating influence is identified; the remaining symbols follow Equation (1).

5) Spatial Econometric Model

To trace how policy attention spills over geographically onto IGG, this study adopts a Spatial Durbin Model (SDM). LM, LR, and Wald diagnostics jointly favour the SDM over competing spatial formulations, justifying this choice. The model takes the following form.

$$IGG_{i,t} = \rho_3 IGG_{i,t} + \beta_4 Attention_{i,t} + \gamma_4 Controls_{i,t} + \eta_1 W Attention_{i,t} + \eta_2 W Controls_{i,t} + \mu_i + \delta_t + \varepsilon_{i,t} \quad (7)$$

Here, ρ_3 captures the spatial autoregressive parameter and W is the spatial weighting matrix, with the remaining notation as defined in Equation (1).

B. VARIABLE SELECTION

1) Explained Variable

IGG denotes a growth model that seeks to align economic advancement, social inclusion, and environmental protection

in a mutually reinforcing manner [51]. The IGG index is obtained through entropy weighting applied to a framework spanning three dimensions, detailed in Table I. To probe the spatial features across the 284 cities, ArcMap is employed to generate distribution maps, and Figure 2 contrasts IGG levels between 2011 and 2023.

2) Core Explanatory Variable

Government attention to Fintech captures the degree of political commitment and resource allocation focus directed by municipal administrations toward fostering digital financial innovations. The paper is based on the text analysis method to gauge the government's focus on Fintech through government work reports. Government work reports are officially and formally prepared reports, which are at strict preparation, review and release process, summarizing the work of the governments from the previous year and outlining the plans of the upcoming year. Their content is authoritative, and they can express official government strategies and perspectives, making them more policy-relevant to measure attention to Fintech.

The calculation process consists of two steps: Firstly, construct a keyword lexicon for Fintech. Following the method of building keyword lexicon based on specific text corpus, this paper constructs the keyword lexicon of Fintech development attention from four aspects: core concepts, key technologies, business formats, institutions and markets. Secondly, the frequency ratio of the keywords to the total number of words in the government work reports will be computed statistically using Python software, which is the

TABLE I. INDEX SYSTEM AND WEIGHT OF IGG IN CHINA

Primary Indicator	Secondary Indicator	Tertiary Indicator	Attribute	Weight
Economic prosperity (0.10392)	Economic output	GDP per capita	+	0.03995
		GDP growth rate	+	0.00015
	Income level	Urban per capita disposable income	+	0.06259
		Rural per capita disposable income	+	0.00068
		Urban-rural per capita disposable income ratio	—	0.00055
Social Inclusion (0.82625)	Social security equity	Number of urban employees participating in basic endowment insurance	+	0.03176
		Number of urban basic medical insurance participants	+	0.10542
		Number of unemployed insured	+	0.14963
	Employment equity	Registered population	+	0.10528
		Employment rate of secondary and tertiary industries	+	0.00369
		Registered urban unemployment rate	—	0.00057
	Educational equity	Fiscal education expenditure / fiscal budget expenditure	+	0.01314
		Number of educational resources per ten thousand people	+	0.08856
		Public library collections per ten thousand people	+	0.05537
	Medical equity	Number of hospitals	+	0.16479
		Number of beds in hospitals	+	0.10803
Environmental Sustainability (0.06983)	Three wastes discharge	Industrial sulfur dioxide emissions	—	0.00067
		Industrial wastewater discharge	—	0.00146
		Industrial smoke and dust emissions	—	0.00020
	Pollution control	Centralized treatment rate of sewage treatment plant	+	0.06576
		Comprehensive utilization rate of general industrial solid waste	+	0.00096
		Harmless treatment ratio for house refuse	+	0.00078

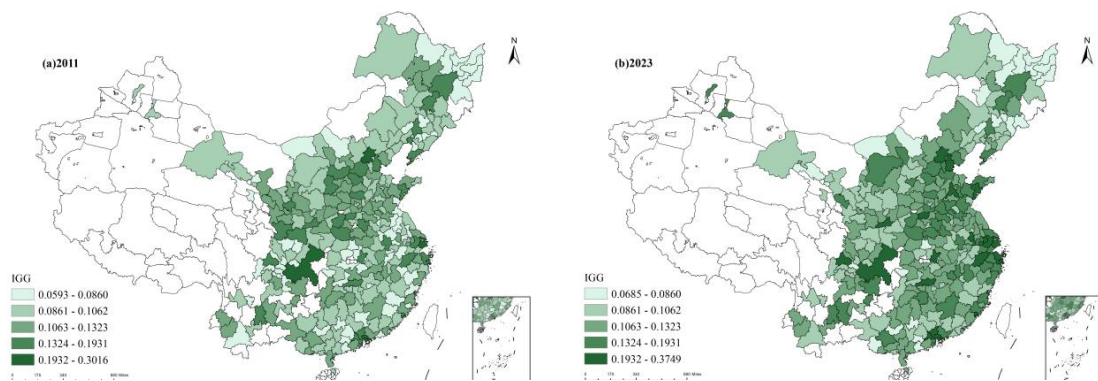


FIGURE 2. IGG level

ratio of the number of times Fintech keywords appear in the government work reports and the total number of words in the government work reports. This paper has added 1 to the total number of word frequencies and calculated the value of the log based on that total number as an indicator for the governments to pay attention to Fintech.

We use ArcMap to create spatial distribution maps for the Government Attention to Fintech values of these 284 cities. In Figure 3, the spatial distribution of government attention to Fintech in 2011 and 2023 is identified.

3) Control Variables

To sharpen the precision of the estimated effect that governmental Fintech attention exerts on IGG, a battery of control variables enters the model. The chosen covariates comprise: (1) population scale, captured by the log of registered residents; (2) urban economic density, given by GDP per unit of administrative land; (3) financial depth, expressed as the year-end ratio of bank deposits plus loans to GDP; (4) external openness, indexed by the intensity of realized

foreign direct investment; (5) the urbanization level, gauged by the proportion of non-agricultural residents; (6) industrial composition, taken as the tertiary sector's share of GDP; and (7) consumption dynamism, measured by retail sales relative to regional GDP.

4) Mechanism Variables

This study sets out to unpack the transmission roles played by green technological progress and digital financial inclusion. Concretely, green innovation output is captured by the log of granted green patents (incremented by one), whereas the reach of digital financial inclusion draws on Peking University's Digital Inclusive Finance Index.

Human capital level is the moderating variable of this study. The natural log of college student enrolment is used as a proxy for regional human capital levels.

C. DATA SOURCES

The empirical work rests on a balanced panel covering 284 cities from 2011 to 2023, amounting to 3,692 city-year

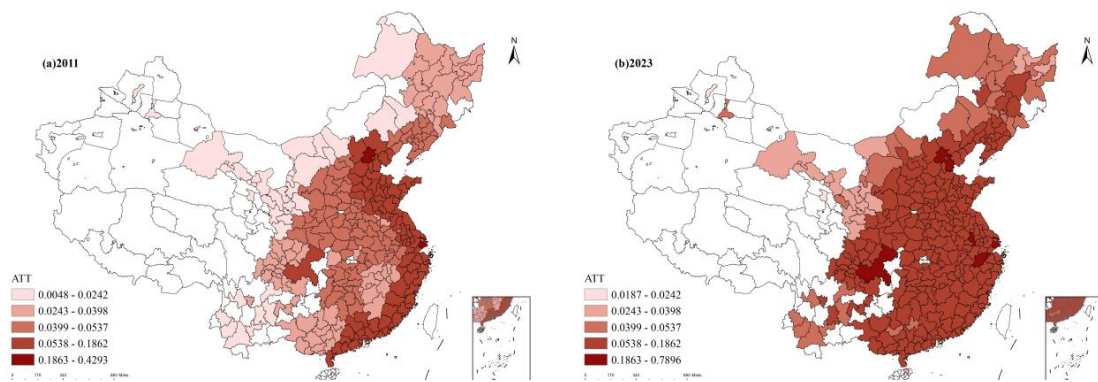


FIGURE 3. Government Attention level

TABLE II. DESCRIPTIVE STATISTICAL RESULTS OF MAIN VARIABLES

Variable	Mean	Sd	Min	Max	Obs
IGG	0.1143	0.0419	0.0552	0.3920	3692
Attention	0.1175	0.1022	0.0048	1.8035	3692
Population size	5.8947	0.6992	2.9704	8.1362	3692
Economic density	7.3352	1.2785	3.2119	12.0627	3692
Financial development	2.6350	1.2562	0.5879	21.3015	3692
Opening-up	0.0024	0.0026	0.0000	0.0294	3692
Urbanization rate	0.3996	0.2148	0.0750	1.0000	3692
Industrial structure	0.4336	0.1017	0.1015	0.8485	3692
Consumption	0.3814	0.1088	0.0544	1.0126	3692

observations. Information is compiled from credible official and third-party outlets, including the China City Statistical Yearbook, the China Environmental Statistical Yearbook, municipal government gazettes, and the CNRDS and EPS databases. A small number of gaps in the series were filled by interpolation to guard against bias. Descriptive statistics for the full set of variables appear in Table II.

IV. EMPIRICAL RESULT AND DISCUSSION

A. BENCHMARK REGRESSION RESULTS

Table III is the Benchmark regression results. We adopt a stepwise approach in this paper to check the robustness of our results, as Columns (1) and (2) report for the baseline specification without fixed effects, and Columns (3) and (4) move towards a two-way fixed effects specification. The positive and statistically significant government Fintech prioritization coefficients (Columns (3) and (4)) indicate that these unobserved heterogeneities are not enough to drive the coefficients to zero. Specifically, as the fully controlled model demonstrates (Column 4), a marginal increase in the government's attention to Fintech contributes to an increase in the urban IGG index by 0.060 units supporting the critical role of Fintech in the march of sustainable development. This may be attributed to the fact that in the era of the digital economy, promoting IGG relies not only on traditional tangible factors such as capital and technology, but more importantly on the shaping of social cognition and information environment. In essence, the attention to Fintech is a process of decreasing information asymmetry, bringing up social consensus and shaping expectations. Collective

actions will arise once the public, enterprises and local governments begin to understand the concept of Fintech at a certain level. This in turn morphs cognitive attention into green financial products in the marketplace, green innovations in the technology space, and green incentives in the policy arena, ultimately all leading to practical drivers for IGG. So, hypothesis H1 is confirmed.

Turning to the controls, population scale exerts a pronounced positive influence on IGG, echoing the logic of agglomeration economies. A bigger population underpins a deeper labour pool, finer occupational specialization, and readier access to spillovers of knowledge and technology; together, these conditions enlarge market reach and sustain innovative drive, fostering a favourable setting for IGG. Economic density likewise carries a significantly positive coefficient. This accords with the intuition that denser economies tend to use land more intensively, consume energy more efficiently, and support more elaborate public infrastructure—features that trim the per-unit environmental burden of activity and thereby serve as an important conduit for green growth. The coefficient on financial development is significantly positive as well, underscoring the centrality of financial backing: a sound financial system mobilizes savings more effectively, spots green investment prospects, and contains risk, channelling the capital that green technological innovation and inclusive finance require. The urbanization rate enters with a significantly positive coefficient, a pattern traceable to the structural transformation inherent in urbanization. Shifting labour out of low-productivity farming toward higher-efficiency industry and services yields a factor-reallocation dividend that is pivotal to regional productivity gains, while the clustering of people allows environmental facilities and services to be supplied on a shared basis, thereby strengthening both the inclusive and green dimensions of growth. By contrast, the estimates reveal no significant link between IGG and openness, industrial structure, or household consumption. The likely explanations run as follows: openness bears on IGG indirectly rather than directly; as China moves into the mid-to-late phase of industrialization, the industrial-structure effect can

be masked by the transitory drag on productivity from rapid service-sector expansion and therefore warrants caution in the IGG context; and the consumption metric, capturing only the scale of household spending without reflecting its environmental quality, leaves the overall effect statistically insignificant.

B. ROBUSTNESS TEST

1) Control provinces and time interaction fixed effect

To improve our estimation, this paper adds provincial fixed effects to correct for regional unobservables. Provinces act as the key governance units in China in a hierarchical governance system, and cities within the same province have similar developmental trajectories and have shown significant policy diffusion and imitation behaviors. The coefficient of Fintech attention remains significantly positive even when the intra-provincial commonalities and inter-dependent characteristics are controlled for as reported in Column (1) of Table IV. This persistence enhances the soundness and validity of our results.

2) Replace explained variable

This paper remeasures the IGG indicator with the measurement method suggested by ZHANG and LI [77] and performs a benchmark regression including the IGG indicator. The coefficient of 'government attention to Fintech' is also still significant at the 1% level in Column (2) of Table IV, following the change in the measurement method of the explained variable, thus supporting the research findings.

3) Eliminate special samples

Municipalities are administrative units at the provincial level, and thus, have more policy autonomy and fiscal power directly from the Central Government. They may have systematic differences from prefecture-level cities in their attention to Fintech and pathways to IGG. Thus, the regression is done again without the four direct-controlled municipalities (Beijing, Tianjin, Shanghai, and Chongqing) in this paper. According to Column (3) of Table IV, the promotional effect of government attention to Fintech remained significant at the 1% level after the municipal sample was excluded, further supporting our findings.

C. ENDOGENOUS TEST

1) Lag the explanatory variable for one period

The Government's focus on Fintech could not have an immediate impact on urban IGG, and directly using the attention of the current period to estimate urban IGG could lead to some endogeneity problems. Hence, in this paper, the attention of the government towards Fintech is lagged one period behind the core explanatory variable. It then projects the effects of the attention paid to Fintech in the previous period on the urban IGG in the current period to mitigate the endogeneity issue to some extent. Table V reports the results of endogeneity treatment. As indicated in Column

(1) the regression result remains significantly positive after a lag of one period, thus confirming the robustness of our findings.

2) Instrumental variable method

While we have controlled for many of the relevant covariates, the possibility of unobserved regional heterogeneity is not totally eliminated due to possible endogeneity. This paper thus proposes an instrumental variable method to protect the robustness of the policy effect of the dividend.

This paper uses the average value of attention to Fintech in other cities within the same province as the instrumental variable. This instrumental variable should meet two important identifying assumptions: relevance and exogeneity. The policy tone in the same province is fairly homogeneous with respect to relevance, while cities in a province have a high degree of information diffusion and economic interaction. Hence, the attention of Fintech among the other cities in the same province will have an impact on the attention of the government to Fintech which will satisfy the relevance assumption. With regard to exogeneity, there are different economic, social and geographical conditions in each city and consequently different approaches to and needs for promoting IGG. Conditional on city and year fixed effects, the attention to Fintech in other cities affects IGG primarily through the channel of influencing the local city's attention to Fintech, rather than directly impacting the local cities IGG. Thus the instrumental variable meets the requirement of exogeneity.

The results of the two-stage least-squares regression (2SLS) to address endogeneity are reported in Columns (2)-(3). The first-stage estimation shows that the provincial average of attention to Fintech has a significant impact on the local government's attention, which aligns with the IV's relevance assumption. Results for the second stage show that the positive effects on IGG remain after controlling for endogenous issues. A weak IV test was conducted to make sure that the instrument is strong; the obtained F-statistic (187.47) is well above the 10% maximal IV size critical value. The rejection of the weak-instrument null hypothesis by the overwhelming data is a strong endorsement for the effectiveness of our empirical architecture.

D. MEDIATING EFFECT ANALYSIS

Building upon the established direct impact, this section seeks to elucidate the underlying transmission pathways through which governmental Fintech attention facilitates urban IGG. Based on the above theoretical bases, this paper suggests the two mediating variables of the influence, which are green technological innovation and financial inclusion. A causal-steps regression approach is used to carefully examine these intervening mechanisms. The results of the mediating effect are presented in Table VI.

This paper first explores the mediating pathway of green technological innovation. The regression analysis results in Column (1) indicate that government attention on Fintech

TABLE III. BENCHMARK REGRESSION RESULTS

Variable	(1) IGG	(2) IGG	(3) IGG	(4) IGG
Attention	0.042*** (0.006)	0.036 (0.004)	0.070*** (0.019)	0.060*** (0.016)
Population size		0.027*** (0.002)		0.044*** (0.012)
Economic density		0.013*** (0.001)		0.010*** (0.003)
Financial development		0.003*** (0.000)		0.002* (0.001)
Opening-up		0.091 (0.141)		-0.029 (0.342)
Urbanization rate		0.026*** (0.004)		0.025*** (0.009)
Industrial structure		-0.007 (0.005)		0.002 (0.013)
Consumption		-0.019*** (0.003)		-0.001 (0.005)
Constant	0.109*** (0.002)	-0.104*** (0.017)	0.102*** (0.001)	-0.238*** (0.070)
City \ Year fixed effect	NO	NO	YES	YES
Obs	3692	3692	3692	3692
R-squared	0.179	0.192	0.414	0.458

Notes: 1. standard errors are reported in parentheses; 2. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The same applies to the following tables.

TABLE IV. THE RESULTS OF ROBUSTNESS TESTS

Variable	(1) Control province effects	(2) Replace explained variable	(3) Eliminate special samples
Attention	0.062*** (0.018)	0.035*** (0.012)	0.057*** (0.013)
Constant	-0.125*** (0.035)	-0.107** (0.048)	-0.203*** (0.067)
Control variable	YES	YES	YES
City fixed effect	NO	YES	YES
Year fixed effect	YES	YES	YES
Provincial fixed effect	YES	NO	NO
Obs	3692	3692	3640
R-squared	0.453	0.623	0.625

TABLE V. THE RESULTS OF ENDOGENOUS TEST

Variable	(1) Lagged by one period	(2) First-stage	(3) IV-2SLS
Attention			0.114*** (0.020)
One-period lagged attention to Fintech	0.065*** (0.016)		
Average attention to Fintech in other cities within the same province		0.984*** (0.016)	
Constant	-0.169*** (0.077)	-0.792*** (0.017)	-0.193*** (0.051)
Control variable	YES	YES	YES
City \ Year fixed effect	YES	YES	YES
Obs	3408	3627	3627
R-squared	0.449	0.581	0.532
F-statistic		187.468	

is a strong driver of green innovation ($p < 0.01$). Next, Column (3) shows that the positive effect of green innovation on the IGG index significantly remains, even after controlling for policy attention ($p < 0.01$). The double effect can be expressed in two ways: one, policy attention acts as an ‘informational signaling’ tool to make markets expect it and target critical capital, for example, VC funding and bank loans, into the eco-innovation field. Second, Fintech enables the innovation lifecycle by leveraging big data and AI to enable better environmental risk mapping and the valuing of green intellectual property. So, this means we have confirmed Hypothesis 2a.

Then, the digital financial inclusion is discussed as a

mediator. According to the estimation in Column (2), the prioritization of Fintech by the government increases the development of inclusive finance significantly (at the 1% significance level). The results in Column (4) then further reveal that inclusive finance is a strong catalyst for IGG once the policy attention variable is controlled for ($p < 0.01$). The “infrastructure effect” lies at the heart of this process, whereby digital financial infrastructures start being deployed sooner than ever the more policy efforts that are dedicated to them. Thus, it creates an enabling environment for MSMEs and vulnerable groups, traditionally marginalized by conventional banking, thereby solidifying the micro-foundations of inclusive green growth. So, we can confirm

Hypothesis 2b.

The results of the simultaneous estimation (including both mediators) appear in Column (5). The coefficients for green technological innovation and digital financial inclusion are still estimated to be significantly positive. The governmental focus on Fintech accelerates urban IGG by a two-fold mechanism. These two seem to be reinforcing each other and mutually reinforcing administrative focus to become concrete green growth drivers and equitable developmental dividends.

E. MODERATING EFFECT ANALYSIS

Human capital level is one of the significant factors that affect the absorption and optimal utilization of advanced technologies and management experiences and the better efficiency of the economy and society in general. Turning government attention to Fintech into IGG is not an automatic process, as it also relies on the absorptive capacity and executive capacity of actors. Human capital, on the other hand, is the essence that makes such skills possible. Therefore, it is important to examine the moderating effect of human capital on the relationship between governmental Fintech priority and urban IGG. The quality of human capital can be an important boundary condition for successful policy execution.

Table VII shows the results of the moderation analysis. Column (2) further tests the interaction effect, after accounting for human capital in Column (1). The multiplicative term's coefficient is positive and significant at the 1% level. This result indicates that the human capital level in the region positively moderates the relationship between government Fintech attention and IGG. The strong argument is that the transition of Fintech from administration to execution will only happen when these factors of financial literacy and digital competency are high. Policy signals can be efficiently internalized by cities with superior human capital, which they possess and have the "absorptive capacity" to do so. These areas possess a favourable intellectual and resource environment, and can use these environments better to convert government "attention" into "actions" and to catalyse high quality urban economic transformation. In addition, human capital can also act as a moderating factor in the relationship between government attention to Fintech and IGG via two mechanisms: empowering green products innovation and optimizing inclusive finance resource allocation. There is fertile ground for green technology innovation in high human capital. With government focus on green investment opportunities, it is not difficult for local scientific and technological talents to quickly form teams, apply for patents and transform financial information flows into knowledge flows and innovation flows in time to improve IGG by the road of green technology innovation. Moreover, high human capital is also high financial literacy; the people with high financial literacy are more likely to screen and use the complex inclusive finance products, invest in the inclusive finance sector, and attain more inclusive and

sustainable development at the individual level and foster urban IGG. Therefore, hypothesis 3 (H3) is confirmed.

F. HETEROGENEITY ANALYSIS

This paper analyses the impact of government attention to Fintech across three dimensions: regional distribution, city size and financial development level, to examine the heterogeneity of the distribution of impact of government attention to Fintech on IGG.

1) Regional heterogeneity

Given the spatial heterogeneities in China's development, we explore if governmental attention to Fintech affects differently amongst various geographical groups. The eastern and central regions are characterized by more sophisticated market mechanisms and superior institutional environments compared to the west. Table VIII shows the regression results from the subsamples; the coefficient for eastern cities is 0.077 ($p < 0.01$) and that for central cities is 0.070 ($p < 0.05$). There is no doubt that there is a "gradient effect": the coefficients for eastern and central cities are both higher than the coefficient for western cities. The influence in western cities, on the other hand, is significantly less, at 0.039 ($p < 0.10$). This indicates that the potential for policy prioritization to promote IGG depends on regional market maturity and institutional quality. The plausible reasons may lie in the following: First, the eastern and central cities have entered the innovation-driven and service sector-led development stage, with a more urgent intrinsic demand for industrial upgrading and green transformation. In addition, these cities have a higher efficiency in implementing policies and local governments have stronger capacity to transform the "attention" into supporting policies and actions. In contrast, western regions are still in the middle to the later phase of industrialization and much reliance has been placed on traditional path of development. Moreover, western cities' institutional contexts are not sufficiently developed for efficient channels of converting "attention" into actual economic activities, and financial markets are not deep enough. Hence, the impact of government's attention on Fintech to IGG may be less in western regions.

2) City size

The more attention is given, the more network effects are likely to be observed in large cities because of population agglomeration, which is associated with a larger market scale and dense networks of information exchange. For this reason the urban sample is divided into two sub-samples (large and small) according to the average size of the population in the sample, and each sub-sample is analyzed separately using stratified regression analysis to identify the heterogeneities based on the scale. The estimated coefficient of large cities is 0.106, which is significantly larger than 0.045 for small cities (both at the 1% level, reported in Columns (4) and (5), respectively). This means the promotional impact of the government's focus on Fintech on IGG

TABLE VI. THE RESULTS OF MEDIATING EFFECT ANALYSIS

Variable	(1) Green technology innovation	(2) Inclusive finance	(3) IGG	(4) IGG	(5) IGG
Attention	0.899*** (0.342)	0.162*** (0.049)	0.086*** (0.029)	0.052*** (0.014)	0.068*** (0.013)
Green technology innovation			0.007*** (0.002)		0.004*** (0.001)
Inclusive finance				0.050*** (0.008)	0.052*** (0.005)
Constant	-5.933*** (0.176)	-1.775*** (0.253)	-0.130*** (0.021)	-0.149** (0.063)	-0.216*** (0.011)
Control variable	YES	YES	YES	YES	YES
City \ Year fixed effect	YES	YES	YES	YES	YES
Obs	3692	3692	3692	3692	3692
R-squared	0.458	0.596	0.553	0.405	0.463

TABLE VII. THE RESULTS OF MODERATING EFFECT

Variable	(1) Add human capital level	(2) Add interaction term
Attention	0.059*** (0.016)	0.029 (0.018)
Human capital level	0.052*** (0.018)	0.051*** (0.017)
Attention × Human capital level		0.305*** (0.049)
Constant	-0.269*** (0.069)	-0.247*** (0.066)
Control variable	YES	YES
City \ Year fixed effect	YES	YES
Obs	3692	3692
R-squared	0.483	0.496

is more pronounced in big cities. The most possible explanations are: One, knowledge and information is concentrated in large cities and the interaction of residents and enterprises is more frequent; second, their cross-pollination results in more efficient dissemination of skills and resources. The knowledge, and the applications, are recognized, imitated and adopted faster regarding Fintech. Moreover, large cities have more diversified resource pools. If attention to Fintech rises and moves towards the green and inclusive finance sectors, the matching of the required technologies and talents becomes more efficient and effective, and “attention” turns into “action” for the large cities. By contrast, small cities might find themselves in a situation where they have the desire, but not the capacity, to transform attention to Fintech into IGG, for example because of limited resources.

3) Financial development level

The effects of government focus on IGG can be different depending on the varying financial maturity and institutional arrangements across regions. The ratio of outstanding loans at the end of year to regional GDP is used as a proxy for financial development. To test for possible heterogeneity, the sample is split in half by the annual mean financial development for the city. Subsample regressions then show whether the effectiveness of government Fintech attention is dependent upon the existing financial environment. The results of the subsample estimation are reported in Columns (6) and (7). The coefficient of governmental Fintech attention to IGG is 0.078 ($p < 0.01$) in the regions with high financial development level. In less financially developed areas, the coefficient is still positive (0.046, $p < 0.01$),

but not as large. This divide implies that a strong financial system acts as a “multiplier” of the effect of policy, allowing cities to leverage the credit resources available to them so that they can implement green and inclusive industrial transformations more efficiently. The plausible reasons include the following: municipalities that are financially advanced have more developed and better financial systems, infrastructure, and financial resources, which facilitates access to green financing for enterprises and thus contributes to the advancement of IGG. However, financially underdeveloped municipalities development has weak infrastructure and significant resource constraints. The growing interest in Fintech is not conducive to large-scale green investment or innovation projects and is more challenging in terms of its ability to boost the momentum of economic growth when compared with high financial development regions.

V. FURTHER ANALYSIS

Based on the First Law of Geography developed by Tobler, geographic areas have complex spatial relationships, which are mediated in various ways, including the mobility of factors, the spread of technology, and the imitation of policies. The city’s innovations in green innovation will simulate the innovation of surrounding areas through various ways such as skills transfer and talent flow, and refer and learn from the other cities in formulating policies. So, this paper also takes into account the externality nature of space in IGG, and adds a spatial econometric model to the analysis.

A. SPATIAL AUTO-CORRELATION TEST

1) Global spatial auto-correlation test

So the practice of conducting spatial correlation tests is necessary before a spatial regression. We observe that the Moran’s I method, applying a geographic distance specification, reveals that both IGG and government Fintech attention have been significantly spatially clustered from 2011 to 2023 ($p < 0.01$). The spatial dependence of IGG has been steadily increasing, as reflected by the rising Moran’s I values, but the spatial correlation of government attention has remained fairly constant. These results provide an interesting empirical justification for the next modelling step of spatial econometrics.

TABLE VIII. HETEROGENEITY ANALYSIS RESULTS

Variable	Regional heterogeneity			City size		Financial development level	
	(1) Eastern	(2) Central	(3) Western	(4) Large cities	(5) Small cities	(6) High	(7) Low
Attention	0.077*** (0.012)	0.070** (0.035)	0.039* (0.042)	0.106*** (0.029)	0.045*** (0.012)	0.078*** (0.018)	0.046*** (0.016)
Constant	-0.244** (0.114)	-0.166** (0.083)	-0.142 (0.165)	-0.031 (0.057)	-0.693*** (0.228)	0.102* (0.060)	-0.325*** (0.121)
Control variable	YES	YES	YES	YES	YES	YES	YES
City \ Year fixed effect	YES	YES	YES	YES	YES	YES	YES
Obs	1300	1300	1092	1851	1841	1846	1846
R-squared	0.430	0.300	0.163	0.166	0.430	0.214	0.327

TABLE IX. GLOBAL MORAN INDEX TEST

Year	IGG			Attention		
	Moran's I	Z	P-value	Moran's I	Z	P-value
2011	0.029	6.335	0.000	0.088	19.108	0.000
2012	0.029	6.290	0.000	0.090	19.540	0.000
2013	0.029	6.438	0.000	0.084	18.227	0.000
2014	0.032	6.844	0.000	0.086	18.669	0.000
2015	0.030	6.600	0.000	0.081	17.834	0.000
2016	0.032	6.849	0.000	0.069	15.420	0.000
2017	0.041	8.538	0.000	0.063	14.093	0.000
2018	0.040	8.378	0.000	0.063	14.219	0.000
2019	0.047	9.825	0.000	0.075	16.431	0.000
2020	0.045	9.293	0.000	0.090	19.237	0.000
2021	0.047	9.819	0.000	0.092	19.540	0.000
2022	0.049	10.208	0.000	0.094	19.845	0.000
2023	0.048	9.998	0.000	0.081	17.418	0.000

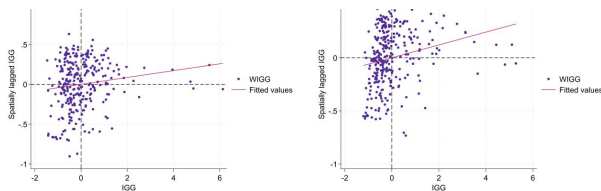


FIGURE 4. Moran Scatter Plot of IGG

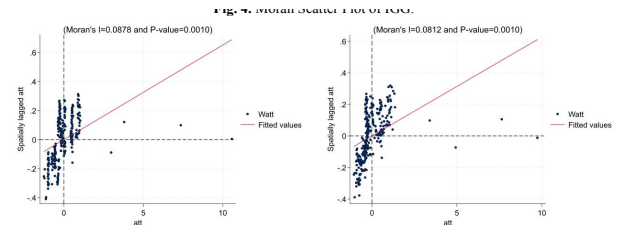


FIGURE 5. Moran Scatter Plot of Government attention

2) Local spatial auto-correlation test

This paper then applies the local Moran's I index formula to calculate the local Moran's I index of IGG and government attention to Fintech in 2011 and 2023, uses the local Moran's I index scatter plot to analyze the local spatial correlation of the two, and draws scatter plots to help the analysis.

The panels of Figure 4 show the local Moran's I scatter plots of IGG for 2011 and 2023. From the figure, it can be seen that most cities are in the first and third quadrants, showing the existence of strong spatial agglomeration in the field of IGG among cities. The scatter plots in Figure 5 illustrate the local Moran's I results for Fintech government attention in 2011 and 2023. The majority of the cities also fall into the first and third quadrant as indicated in the figure, which indicates that there is also a high level of spatial agglomeration with respect to government attention to Fintech across cities.

B. ANALYSIS OF SPATIAL ECONOMETRIC MODEL RESULTS

1) Result analysis of spatial Durbin model

After the diagnostic tests, this study uses SDM as the main specification with SAR and SEM for robustness compar-

isons. From Table X, the spatial autoregressive coefficient ρ in Column (1) is 0.746 ($p < 0.01$) indicating that there is significant spatial interdependence in the IGG. The main coefficient for the governmental Fintech attention (0.061, $p < 0.01$) is still strong, supporting the idea that the promotional effect of governmental Fintech attention is still strong even after adjusting for spatial interactions. Importantly, the coefficient for the spatial lag of Fintech attention ($W \times$ Attention) is positive and 0.0131 ($p < 0.10$), indicating positive spillovers for the IGG of its geographical neighbors as a result of the administrative priority. These results are reinforced by the stable results obtained in both SAR and SEM.

2) Spatial effect decomposition

This paper also applies an effect decomposition to separate local effects from spatial spillovers. Table XI reveals that the direct impact of Fintech attention is positive and statistically significant at 1% level, supporting the Fintech effect on improving local IGG. The indirect effect is positive, but not significant, indicating that there is a "demonstration effect" on neighboring cities, but one that has not yet reached a statistically significant level. Importantly, the overall impact

TABLE X. SPATIAL EFFECT TEST RESULTS

Variable	(1) SDM	(2) SAR	(3) SEM
Attention	0.061*** (0.006)	0.060*** (0.006)	0.060*** (0.006)
$W \times \text{Attention}$	0.131* (0.070)		
ρ	0.746*** (0.199)	0.540*** (0.187)	
λ			0.554*** (0.190)
σ^2_{ϵ}	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Control variable	YES	YES	YES
City \ Year fixed effect	YES	YES	YES
Obs	3692	3692	3692
R-squared	0.429	0.454	0.453

TABLE XI. DECOMPOSITION RESULTS OF SDM

Variable	(1) Direct Effect	(2) Indirect Effect	(3) Total Effect
Attention	0.061*** (0.006)	0.055 (0.041)	0.116*** (0.041)
Population size	0.043*** (0.004)	0.030 (0.036)	0.074** (0.036)
Economic density	0.010*** (0.001)	-0.005 (0.018)	0.005 (0.018)
Financial development	0.002*** (0.000)	0.004 (0.004)	0.006 (0.004)
Opening-up	0.036 (0.130)	2.088 (1.400)	2.123 (1.412)
Urbanization rate	0.024*** (0.004)	-0.181*** (0.045)	-0.158*** (0.045)
Industrial structure	0.002 (0.006)	0.066 (0.058)	0.068 (0.059)
Consumption	-0.001 (0.003)	0.104*** (0.038)	0.103*** (0.038)

of the Fintech attention on IGG is positive and large, suggesting that the overall impact of Fintech attention on IGG is still significant in the regional spatial network. Therefore Hypothesis 4 (H4) is accepted. This means that the cross-regional spread of the government's attention for Fintech and the spread of Fintech is not clear at the present time, except for its strong local effect. The plausible reasons are as follows: there may be intangible administrative barriers or policy segmentation between regions; knowledge spillover has clear geographical limits, and this geographical limit might be further restricted by the distance decay law of tacit knowledge dissemination, which hinders the cross-regional diffusion of Fintech factors and green growth models. This then translates to a lack of a significant link between Fintech attention in the region and IGG in neighbouring regions.

VI. CONCLUSIONS AND POLICY RECOMMENDATIONS

This paper uses an extensive panel data of 284 cities in China from 2011 to 2023 to systematically examine the relationship between governmental Fintech attention and Inclusive Green Growth (IGG). These are the following findings resulting from the empirical synthesis: Firstly, the administration's attention to Fintech is a strong catalyst for IGG, which is confirmed after conducting rigorous endogeneity treatments and stability checks. Second, the mechanism analysis sheds light on how this positive effect is mediated by a dual mechanism of increased eco-innovation and more digital financial inclusion, which are additionally

boosted by regional human capital endowments. Third, there are significant heterogeneities in the impact: policy attention has more dividends in eastern and central regions, large-scale metropolitan areas, and cities with sophisticated financial infrastructures. Finally, while IGG manifests strong spatial interdependence, the promotional effect of Fintech-oriented governance is mainly characterized by localized concentration rather than broad-based regional spillovers.

Considering the above, the following suggestions are made in this paper:

First of all, create a complete mechanism to foster and transform attention to Fintech. Local governments should enhance their focus on Fintech, and may use cooperation between local and media to regularly publish authoritative information like the development indexes of Fintech and green financial products, so as to enhance the public awareness of Fintech. Businesses should actively implement the government's policy on green development and inclusive development in their company's strategic planning and operations.

Secondly, boost the effectivity of green technology innovation and digital inclusive finance, and give due attention to regional talent cultivation. Firstly, optimize the financial support mechanism for green technology, build a government-led platform for sharing information on green technology finance, and apply blockchain technology to achieve the intelligent matching of financing needs and Fintech solutions, so as to reduce the cost of technology transformation. Secondly, innovate the linkage between inclusive finance and green growth, guide financial institutions to develop digital inclusive financial products embedded in green consumption scenarios, and establish a linkage model between personal carbon accounts and credit limits to realize the green allocation of inclusive financial resources. Promote local governments to co-build regional green inclusive financial infrastructure with Fintech platforms, and realize the capitalization transformation of local ecological value with Fintech tools. In addition, there is an urgent need to invest in human resources development in a targeted fashion. A cross-disciplinary pathway in "Fintech and Green Inclusive Economy" in higher education institutions can help to systematically build hybrid professionals with skills in both digital technologies and sustainable growth metrics, thus boosting the absorptive capacity and localized efficiency of the deployment of Fintech innovations in the society.

Thirdly, give importance to the differences in inter-regional development and take policies based on local conditions. For financially advanced, large-scale municipalities situated within the eastern and central regions, support advanced regions in carrying out institutional innovation in cutting-edge Fintech fields, explore complex financial tools such as blockchain-based green bonds and intelligent pricing of environmental risks, and build a globally influential green Fintech innovation center. Focus on breaking down institutional barriers that restrict the in-depth integration of technologies, construct a Fintech regulatory framework in

line with international standards, and attract the agglomeration of global high-end factors. For financially underdeveloped, small-scale municipalities situated within the western region, the policy focus should be on strengthening the traditional financial infrastructure system, and enhancing the financial ecological environment, for example, by setting up the local credit reporting platform and optimizing the banking service system. On the premise of ensuring financial stability, prudently introduce simple Fintech solutions suitable for local needs, and avoid blindly pursuing technological advancement while ignoring applicability.

Fourthly, improve the coordination mechanisms at the regional level and increase spillover effects. In the meantime, although affirming local value of Fintech, policymakers should proactively remove the obstacles by setting up regional coordination mechanisms, standardizing data standards, co-building innovation alliances, and let the positive spatial externalities of Fintech come into play so as to ultimately achieve regionally coordinated IGG.

DECLARATIONS

Competing interest: The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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