Promoting Inclusivity and Accessibility with Fintech

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Abstract
Fintech has revolutionized financial services by improving efficiency, accessibility, and security. This study examines its impact on financial inclusion, credit access, and economic growth, while noting adoption barriers like digital literacy, regulation, and cybersecurity. Key findings show that financial literacy, perceived security, and ease of use drive fintech adoption more than trust. The study calls for joint efforts by policymakers, fintech firms, and institutions to close the awareness gap and enhance inclusivity. Future research should explore long-term effects, DeFi's role, and digital literacy programs.

Key Words: Fintech, Financial Inclusion, Accessibility, Inclusivity, Digital Financial Services, Fintech Adoption, User Satisfaction, Awareness Gap, Digital Literacy, Trust in Fintech

Introduction

Fintech has significantly transformed the financial sector by challenging traditional systems and enhancing financial inclusion through innovations like digital wallets, mobile banking, and blockchain (Lee & Shin, 2018; Demirgüç-Kunt et al., 2018). Originating in the late 20th century with online banking and ATMs (Arner et al., 2016), fintech now drives operational efficiency and lowers costs. However, adoption varies due to socioeconomic, regulatory, and infrastructure barriers, especially in emerging markets (World Bank Group, 2020).

Fintech improves financial services by making transactions faster, cheaper, and more secure (Ozili, 2018), while expanding credit access and startup funding via alternative platforms (Erel et al., 2022). Technologies like blockchain further boost trust and transparency (World Bank Group, 2020). Yet, large inclusivity gaps remain, particularly among rural, low-income, and older populations due to limited awareness and digital literacy (Aleemi et al., 2023).

This study explores how awareness drives adoption, engagement, and satisfaction—key to building an inclusive digital economy (Sethi et al., 2025; Tang et al., 2024). While fintech enables greater access, persistent barriers like poor infrastructure and regulatory hurdles hinder its inclusive potential. Addressing these through better literacy, supportive policy, and user-friendly designs is essential (Deng et al., 2024; Lee & Shin, 2018).

In conclusion, fintech enhances access, efficiency, and security, but realizing its full potential requires narrowing awareness and satisfaction gaps to foster inclusive, sustainable growth.

Problem Statement

Fintech's rapid growth has revolutionized financial services by enhancing security, efficiency, and accessibility. However, disparities persist, particularly among older adults, low-income groups, and rural communities, largely due to limited awareness and digital literacy (Demirgüç-Kunt et al., 2018; World Bank Group, 2020). Lack of awareness remains a key barrier to adoption (Gomber et al., 2017), while usability, security concerns, trust issues, and weak customer support affect user satisfaction even among adopters (Erel et al., 2022). Understanding the role of awareness in driving adoption and satisfaction is crucial for expanding fintech's reach and impact (Lee & Shin, 2018; Ozili, 2018).

- **Fintech Growth & Inclusivity Gap:** Despite rapid fintech expansion, adoption is concentrated among urban, digitally literate users, while underbanked and marginalized groups remain excluded.
- **Awareness & Adoption Link:** Limited awareness—particularly among older, less-educated individuals—significantly hampers fintech adoption.
- **User Satisfaction Concern:** Long-term engagement depends on user satisfaction, which is often hindered by issues related to usability, security, and trust.
- **Influence of Awareness on Usage:** Greater awareness leads to higher usage, enhancing perceived value and satisfaction—key drivers of broader adoption.

Research Objectives

This study examines the primary factors influencing the adoption of fintech from the perspectives of user awareness, satisfaction, and usage patterns. In order to identify the primary adoption drivers that will direct the development of more user-centered financial technology, it seeks to ascertain users' level of knowledge about fintech solutions and how this awareness impacts their overall experience and satisfaction.

- **Evaluate Fintech Awareness:** Assess current awareness levels among potential fintech users to identify knowledge gaps and design strategies that enhance awareness—addressing the critical link between awareness and adoption.
- **Assess User Satisfaction:** Measure user satisfaction with fintech platforms and identify key drivers and barriers to satisfaction, informing the creation of more user-centric solutions.
- **Analyze the Awareness–Satisfaction–Adoption Relationship:** Explore how awareness and satisfaction interact to influence fintech adoption, integrating key variables to identify the most effective adoption drivers.
- **Examine the Causal Links:** Investigate how increased awareness leads to greater usage, which then affects satisfaction and overall adoption—supporting targeted strategies to boost fintech uptake.

Research Gap

Financial inclusion relies on access to financial services, yet marginalized groups—such as seniors, low-income individuals, and rural communities—face significant barriers. Despite fintech's potential to bridge this gap, research has largely overlooked the specific adoption challenges these groups face. Few empirical studies, especially in Southeast Asia, explore the direct link between awareness and usage. Most existing research focuses on initial adoption, offering limited insight into how fintech providers can enhance user experience and trust for long-term satisfaction, particularly among MSMEs. The mechanisms through which awareness impacts satisfaction and sustained engagement remain underexplored.

Literature Review

This review explores fintech innovations that improve financial accessibility, empower underserved populations, and reshape financial behaviors. Digital banking, mobile payments, blockchain, and AI-driven services have made traditional

systems more inclusive. As fintech evolves, it emphasizes the need for targeted policies, user-friendly solutions, and better digital literacy to ensure equitable access for marginalized communities.

Guo et al. (2024): This study examines how FinTech drives inclusive growth in China, identifying key channels—entrepreneurship, human capital, and innovation—that enhance financial inclusion using panel data from 281 cities (2011–2020) and the XGBoost algorithm.

Fan et al. (2023): Using spatial econometrics and machine learning, this study analyzes FinTech's role in inclusive growth in China, showing that FinTech boosts growth through entrepreneurship and human capital, but its impact diminishes beyond a certain threshold.

Ghouse and Iqbal (2024): This research explores how natural resource extraction affects social equity, with FinTech moderating these effects by funding social programs and improving infrastructure, introducing an equal access index to measure social equity.

Smith et al. (2024): A bibliometric analysis of 1,416 Scopus-indexed articles reveals the rapid growth of fintech research, highlighting key areas like financial inclusion, digital finance, and emerging technologies, with gaps in empirical studies.

Li et al. (2024): This study explores how regional FinTech development in China enhances firms' productivity by improving credit access, reducing costs, and fostering innovation, while noting gaps in understanding its microeconomic impacts.

Gia et al. (n.d.): The study examines how FinTech, illustrated through M-Pesa, promotes financial inclusion for unbanked populations, emphasizing the need for more research on its long-term effectiveness and regulatory challenges.

Hasan et al. (n.d.): This literature review maps how FinTech aligns with the UN's Sustainable Development Goals, showing its role in expanding investment and supporting green finance, while identifying gaps in understanding its long-term ethical, legal, and sustainability impacts.

Wang et al. (2024): The study investigates how FinTech and green finance mitigate environmental degradation by reducing emissions, demonstrating their potential in environmental sustainability.

Xie and Huang (2024): This study explores how FinTech, natural resources, and social vulnerability influence sustainable development in China, offering policy recommendations for inclusive growth and stressing the need for an interdisciplinary evaluation framework.

Sreenu (2024) This research highlights how FinTech and green bonds in India's renewable energy sector reduce transaction costs and improve transparency, though it identifies gaps in understanding their long-term effectiveness.

Su, Tao, and Ying (2024): This study explores how digital inclusive finance alleviates farmers' credit constraints and promotes agricultural modernization in China, focusing on capital access rather than land.

Wan, Niu, and Li (2025) The research shows how FinTech enhances the carbon reduction effects of green credit policies in China, improving environmental disclosure and funding access, while addressing information asymmetry and greenwashing.

Wang, Qi, and Guo (2024) This study finds that FinTech promotes rural prosperity in China, increasing income and reducing rural-urban disparities, while examining the social impact of digital financial services in agriculture.

Tao and Chao (2024) This study investigates how FinTech drives green investment in China's energy sector, improving data-driven decision-making and transparency, with recommendations for further research on mediating factors influencing investment.

Yu, Qi, and Ren (2024): This study analyzes the impact of FinTech on farmers' wealth distribution in China, showing that it improves credit access and asset allocation, enhancing wealth distribution and addressing rural financial inequality.

Azmeh (2024): This research examines how FinTech moderates the effects of financial globalization on poverty and inequality in developing countries, clarifying its role in financial inclusion and shaping globalization's impacts.

Omeragica, Zaimovica, and Zaimovica (2024): A literature review on FinTech's role in advancing SDGs 7 and 13 highlights specific technologies promoting green finance and clean energy, while identifying challenges like cyber risks and regulatory barriers.

Research Methodology

This study uses a mixed-methods approach, combining surveys and statistical analysis with focus groups and interviews to explore fintech adoption across diverse groups—from urban tech users to underserved rural, low-income, and elderly populations. While quantitative data reveals trends in awareness, usage, and satisfaction, qualitative insights uncover trust issues and adoption barriers. Supported by secondary data, the study highlights current gaps and offers recommendations to enhance fintech accessibility and inclusivity.

Research Design

Our research takes a practical, mixed-methods approach, combining survey data with firsthand accounts from focus groups and interviews. This allows us to capture both broad statistical trends and real user experiences—from urban tech users to underserved communities. By integrating these insights with secondary data, we aim to better understand the links between fintech awareness, usage, and satisfaction, and to inform more inclusive financial solutions.

Source of Data

The study utilises both Primary and Secondary Data Sources:

- **Primary Data:** Data was collected using structured questionnaires distributed among participants from diverse demographic groups. The survey was crafted to evaluate individuals' financial literacy, budgeting practices, saving habits, and investment decisions. It featured a mix of multiple-choice questions, Likert scale items, and open-ended queries to capture a broad range of insights.
- **Secondary Data:** We reviewed a range of literature, reports, financial studies, and prior research papers to build the theoretical framework for the study. Additionally, secondary data was used to identify trends in financial literacy and provide a comparative foundation for our analysis.

Sampling Techniques

To ensure demographic representation across age, income, and location (rural vs. urban), we used stratified sampling. A structured online questionnaire was distributed via email, social media, and tools like Google Forms, with follow-ups to boost response rates. The survey collected basic demographic and contact details, followed by multiple-choice, Likert scale, and open-ended questions.

Key focus areas included:

- Fintech awareness and usage frequency
- Understanding of benefits
- Satisfaction with ease of use, security, speed, and customer support
- Impact of awareness on adoption

This approach yielded both quantitative and qualitative data, offering a well-rounded view of fintech experiences across diverse groups.

Statistical Tool for Data Analysis

Microsoft Excel was used for data analysis due to its efficiency in handling large datasets and performing essential statistical functions.

Analysis Techniques:

- **Data Preparation:** Cleaning data by removing duplicates, managing missing values, and standardizing formats.
- **Descriptive Statistics:** Calculating means, medians, standard deviations, and visualizing trends with charts.
- **Cross-Tabulation:** Comparing responses across demographics (age, income, location) to identify patterns in awareness and usage.
- **Regression Analysis:** Examining the impact of key variables—such as awareness, adoption, and inclusivity—on fintech usage.
- **Correlation Analysis:** Measuring the strength and direction of relationships to identify predictors of fintech adoption.

Data Analysis and Interpretation

This section analyzes data gathered from an online questionnaire on participants' experiences and opinions of fintech. The goal is to identify key insights on user familiarity, adoption trends, and the impact of awareness on fintech usage. Microsoft Excel was used for data management, with a combination of descriptive statistics, cross-tabulation, correlation, and regression analysis to evaluate relationships. Descriptive statistics summarize responses using frequencies, means, and graphical representations after data cleaning. Correlation and regression analyses examine the strength and significance of relationships, while cross-tabulation explores differences in fintech awareness and usage across demographics. Based on these findings, recommendations are made to improve fintech accessibility and adoption across various groups.

Analysis & Interpretation of Correlation Analysis

Fintech vs Inclusivity (Correlation: 0.61 - Moderate Positive Relationship)

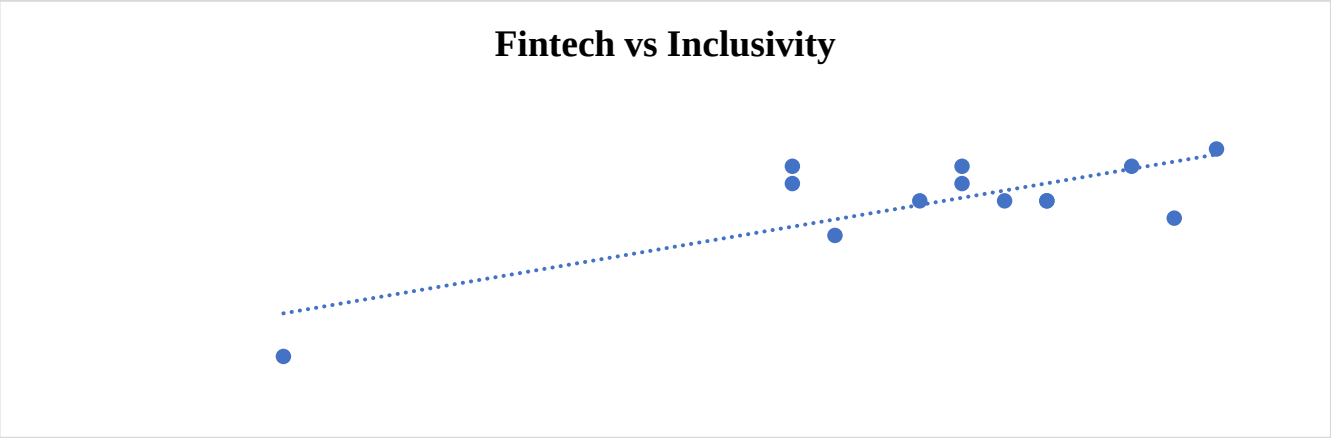

Figure 1 Fintech vs Inclusivity

Regression Statistics:

- **Multiple R (0.7794):** This represents the correlation between the independent and dependent variables. A value of 0.7794 indicates a strong positive correlation.
- **R Square (0.6075):** This means that 60.75% of the variation in Inclusivity can be explained by Fintech.
- **Adjusted R Square (0.5719):** Adjusted for the number of predictors, it slightly lowers the value but still shows a strong explanatory power.
- **Standard Error (0.6571):** This indicates the average deviation of observed values from the regression line.

- **Observations (130):** The number of data points used in this regression.

ANOVA Table:

Regression SS (7.35) vs. Residual SS (4.75): The sum of squares for the regression (explained variance) is much higher than the residual sum of squares (unexplained variance), indicating a good model fit.

- **F-statistic (17.03) & Significance F (0.00168):** Since the p-value is much lower than 0.05, it confirms that the regression model is statistically significant.

Regression Coefficients:

- **Intercept (0.9961):** This is the predicted Inclusivity value when Fintech is **zero**. However, its p-value (0.2079) is not statistically significant.
- **X Variable 1** (0.8356): This means that a one-unit increase in Fintech leads to an increase of 0.8356 in Inclusivity. The p-value (0.00168) is very small, meaning this effect is statistically significant.

Inclusivity vs Adaptation (Correlation: 0.68 - Strong Positive Relationship)

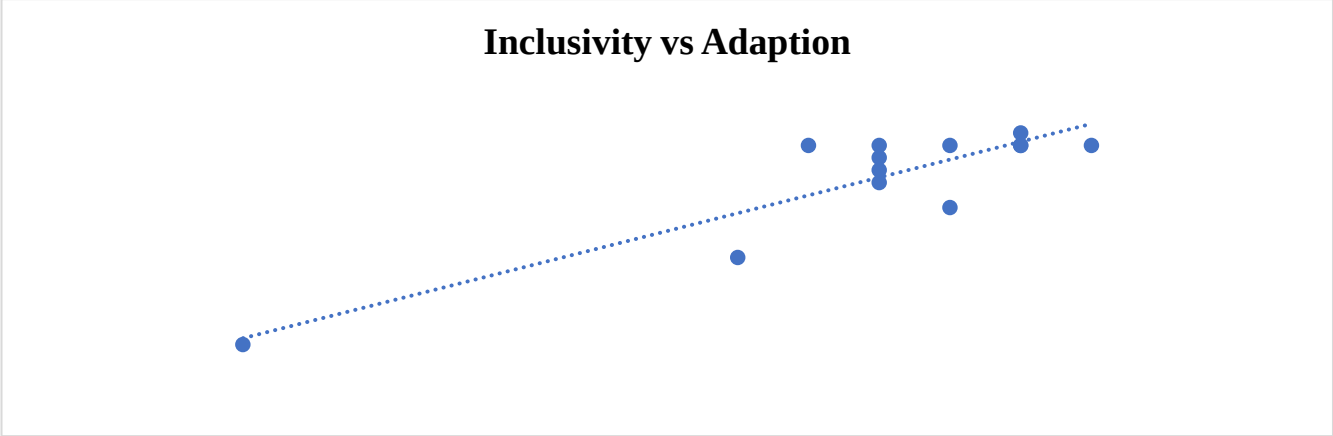

Figure 2 Inclusivity vs Adaptation

Regression Statistics

- **Multiple R (0.8906):** This is the correlation coefficient, indicating a very strong **positive** relationship between Adaptation and Inclusivity.
- **R Square (0.7932): 79.32% of the variation in Inclusivity is explained by Adaptation.** This suggests a strong explanatory power.
- **Adjusted R Square (0.7745):** After adjusting for the number of predictors, the value slightly decreases but remains very high.
- **Standard Error (0.4611):** This represents the average deviation of actual values from the predicted regression line.
- **Observations (130):** The total number of data points used in the analysis.

ANOVA Table

- **F-Statistic (42.20)** is quite large, indicating the model is statistically significant.
- **Significance F (4.45×10^{-5})** is **very small**, far below 0.05, confirming that the regression model is **highly significant**.

Regression Coefficients

- **Intercept (0.2395):** The predicted Inclusivity when Adaptation is zero.
- **However, p-value (0.6671)** is high, meaning it is not statistically significant.

X Variable 1 (0.8610):

- A one-unit increase in Adaptation leads to a 0.861 increase in Inclusivity.
- P-value (4.45×10^{-5}) is very low, confirming the relationship is statistically significant.

- The confidence interval [0.5693, 1.1527] does not include zero, reinforcing its significance.

Adaptation vs Fintech (Correlation: 0.50 - Moderate Positive Relationship)

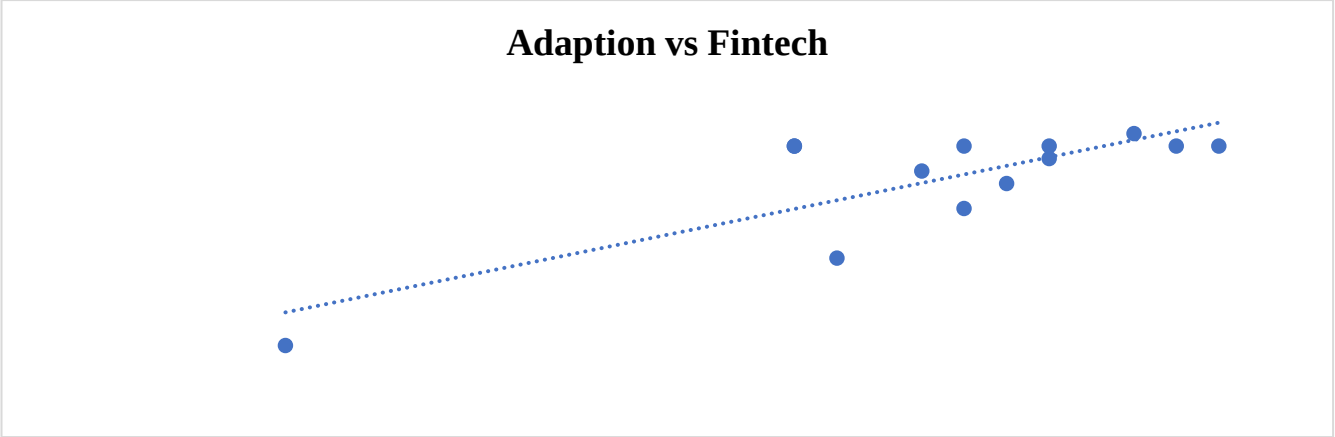

Figure 3 Adaptation vs Fintech

Regression Statistics

- **Multiple R (0.8017):** The correlation coefficient indicates a **strong positive** relationship between Fintech and Adaptation.
- **R Square (0.6426): 64.26% of the variation in Adaptation is explained by Fintech.** This suggests a good explanatory power.
- **Adjusted R Square (0.6102):** After adjusting for the number of predictors, the value slightly decreases but remains high.
- **Standard Error (0.6062):** This represents the average deviation of actual values from the predicted regression line.
- **Observations (130):** The total number of data points used in the analysis.

ANOVA Table

- **F-Statistic (19.78)** is relatively large, meaning the model is statistically significant.
- **Significance F (0.00098)** is **very low**, confirming that the relationship is **highly significant**.

Regression Coefficients

- **Intercept (0.7003):** The predicted Adaptation level when Fintech is zero.
- However, the p-value (0.3297) is quite high, indicating it is not statistically significant.

X Variable 1 (0.8308):

- A one-unit increase in Fintech leads to a 0.8308 increase in Adaptation.
- **P-value (0.00098)** is very low, confirming the relationship is statistically significant.
- The confidence interval [0.4197, 1.2420] does not include zero, reinforcing its significance.

Conclusion

The rapid development of financial technology (fintech) has transformed the financial services sector, enhancing security, accessibility, and efficiency. By reducing reliance on physical institutions and increasing access to financial services, fintech has revolutionized traditional banking, especially for marginalized groups. However, its adoption remains uneven due to challenges such as digital literacy gaps, regulatory issues, cybersecurity concerns, and limited technological infrastructure, particularly in rural areas and among lower-income groups.

Key findings from the study reveal a strong link between fintech awareness, adoption, and user satisfaction. Despite rapid growth, a significant portion of the population remains unaware or hesitant to use fintech services, with barriers including socioeconomic factors, lack of familiarity, and trust concerns. To foster adoption, the study highlights the need for strategies such as consumer protection laws, digital literacy campaigns, and stronger security measures. Overcoming these barriers through improved cybersecurity, regulatory clarity, and financial education will enhance trust and accelerate fintech adoption.

Beyond individual transactions, fintech has also driven economic growth by fostering entrepreneurship, job creation, and policy innovation. Digital lending, blockchain, and AI-driven financial services have improved access to credit, especially for small businesses and individuals without traditional credit histories. However, regulators must balance risk mitigation with fostering innovation to address concerns about fraud, cyber threats, and data privacy. A well-designed regulatory framework is essential to sustain the fintech revolution while ensuring security and compliance.

References

Guo, Z., Wei, Y., Fan, S., & Shahbaz, M. (2024). *Is FinTech making world more "inclusive"? Evidence from inclusive growth story of China*. doi:10.1016/j.techfore.2024.123780.

Fan, Wei, Niu, Balezentis, & Agnusdei (2023). *Can FinTech development pave the way for a transition towards inclusive growth: Evidence from an emerging economy*.

Ghouse, & Iqbal (2024). *Resource extraction, FinTech, and social equal access: A quantitative analysis of resource-rich countries*. https://doi.org/10.1016/j.resourpol.2024.105416

Smith, Johnson, & Lee (2024). *Mapping the Evolution of Fintech Research: A Bibliometric Analysis*.

Li, Ye, Li, Shum, & Lai (2024). *Regional FinTech development and total factor productivity among firms: Evidence from China*. https://doi.org/10.1016/j.najef.2024.102304

Gia, Hoang, & Hoang (n.d.). *Financial Inclusion Through Fintech: Bridging the Gap for the Unbanked*. https://doi.org/10.1016/B978-0-443-13701-3.00339-X

Hasan, Hoque, Abedin, and Gasbarro (n.d.). *FinTech and sustainable development: A systematic thematic analysis using human- and machine-generated processing*.

Wang, Zheng, Chen, and Wang (2024). *Mineral wealth to green growth: Navigating FinTech and green finance to reduce ecological footprints in mineral rich developing economies*. https://doi.org/10.1016/j.resourpol.2024.105116.

Xie and Huang (2024). *How to drive sustainable economic development: The role of fintech, natural resources, and social vulnerability*. https://doi.org/10.1016/j.resourpol.2024.105104.

Sreenu (2024). *The impact of Fintech and green bonds on the Indian renewable energy production*. https://doi.org/10.1016/j.renene.2024.121807.

Su, Tao, and Ying (2024). *Agricultural transformation in the digital age: Digital inclusive finance and the development of new agricultural business entities*. https://doi.org/10.1016/j.frl.2024.106614.

Su, Tao, and Ying (2024). *Agricultural transformation in the digital age: Digital inclusive finance and the development of new agricultural business entities*. https://doi.org/10.1016/j.frl.2024.106614.

Wan, Niu, and Li (2025). *Does Fintech improve the carbon reduction effect of green credit policy? Evidence from China*. https://doi.org/10.1016/j.eap.2025.01.016.