

The E-Commerce Effect: Unpacking The Digital Influence On China's Fiscal Decentralization

Xuqinglin Huang

New York University, New York, U.S.

ABSTRACT

In this study, I examine the impact of e-commerce expansion on provincial fiscal decentralization in China. My core hypothesis is that the proliferation of digital commerce activity, and the rise of live-streaming commerce in particular, has had a significant impact on local fiscal autonomy by reshaping economic and fiscal strategies. In this paper, I manipulate multiple control variables and interaction terms in the regression model. The findings show that while e-commerce theoretically promotes fiscal decentralization, expected benefits tend to be lower in regions with high Internet penetration due to market saturation and competitive dynamics. Moreover, the interaction between e-commerce sales and stable or rising consumer prices suggests that growth in digital commerce does not always correlate with a proportional increase in local fiscal contributions. The study contributes to a deeper understanding of the impact of the digital economy on fiscal structures, highlighting the need to revise fiscal policies to adapt to different economic conditions across China.

KEYWORDS

E-commerce; Fiscal decentralization; China; Taxation; Digital Economy

1 Introduction

The intersection of e-commerce expansion and fiscal decentralization within China offers a new perspective for scholarly exploration of the nation's rapid economic growth and technological advancement. This research aims to dissect the complex interplay between the burgeoning sector of live-streaming commerce—a key driver in the digital economy—and the evolving mechanisms of fiscal governance at the provincial level. The transformative potential of the digital economy is particularly highlighted by significant projections that estimate live-streaming commerce's influence on retail e-commerce sales to reach a substantial market size, a staggering \$843.93 billion by 2025.

The digital transformation in China, fueled by the explosive growth of e-commerce, provides local governments with unprecedented tools to reshape regional economic frameworks, thus influencing fiscal strategies and redefining the contours of fiscal decentralization. The main argument is that the general rise of e-commerce heralds a shift in fiscal autonomy, enabling local jurisdictions to formulate and refine economic policies appropriate to the digital age's needs. This shift gains prominence against the monumental rise in online consumer engagement over recent years, which has seen a monumental rise from 34 million in 2006 to an estimated 749 million by mid-2020, marking a key chapter in China's digital commerce narrative. The discussion of fiscal decentralization - that is, the decentralization of financial power from central to local - has gained new vitality and is intertwined with the development trajectory of e-commerce, presenting both

opportunities and challenges.

Also, previous literature has focused on the evolving interplay between the advantages of fiscal decentralization to enhance local governance and economic efficiency and the multifaceted effects of e-commerce advantages. My study follows previous literature by further examining how this widespread digital adoption affects local autonomy and taxation, setting the stage for a more comprehensive analysis of the interlinkages between economic growth, regional development, and complex fiscal policy in the digital economy. From a theoretical and empirical perspective, I hypothesize that the expansion of e-commerce has facilitated fiscal decentralization, prompting a fundamental reassessment of local government revenue and spending patterns. This assumption is based on the premise that digital platforms break down traditional economic barriers, provide local governments with new ways to expand their fiscal horizons and develop tailor-made economic strategies that echo the dynamism of the digital economy. However, this exploration recognizes the diversity of China's geographic and economic landscape, suggesting that the impact of e-commerce on fiscal decentralization varies significantly across different provincial conditions.

By dissecting these dynamics, I plan to outline a path for understanding the broader impact of the country's digital transformation on fiscal governance by highlighting the differences in economic development and facility conditions in different regions of China. The next section provides the background to China's e-commerce expansion and fiscal decentralization, focusing on the expected significant growth of the e-commerce sector and its potential impact on local government fiscal revenue. The literature review then focuses on theories of the potential benefits of fiscal decentralization and how the growth of e-commerce can enhance those benefits. Through a systematic study that combines theoretical insights with empirical analysis, I hope this study contributes to a further understanding of fiscal decentralization in the digital age and provides a perspective for observing the changing economic governance landscape in China's digital revolution.

2 Literature Review

Fiscal decentralization, the process of devolving financial decision-making powers from central to local authorities, has been extensively debated as a way to enhance local governance and economic efficiency. In China, e-commerce has added a new dimension to this debate, offering regional governments ways to directly influence their economic environments. This section provides relevant literature on the benefits and challenges of fiscal decentralization, juxtaposed with insights on how e-commerce's growth impacts these dynamics, particularly focusing on the potential for increased local autonomy and taxation.

2.1 Fiscal Decentralization and Economic Growth

Fiscal decentralization has garnered significant attention due to its implications for economic growth, regional development, and the efficiency of public service delivery. Empowering local governments with fiscal autonomy enables them to tailor policies to address specific regional needs and priorities, potentially fostering greater economic dynamism and social welfare. Both classics and recent scholars have extensively explored the implications of fiscal decentralization, focusing on its impact on local sales, regional GDP growth, and the mitigation of significant regional disparities, a problem notably prevalent in countries like China. One of the primary motivations behind the scholarly interest in fiscal decentralization is its potential to address significant regional disparities within a country. In China, for instance, rapid economic development has led to stark contrasts between affluent coastal regions and less-developed inland provinces. Studies such as Zhang et al.

and Wang et al. have examined how fiscal decentralization policies could help alleviate these disparities by empowering local governments to pursue region-specific development strategies. By allowing provinces more control over their fiscal affairs, such policies aim to promote a more equitable distribution of resources and stimulate growth in lagging regions.

Moreover, the relevance of fiscal decentralization for addressing regional disparities extends beyond China and has been observed in various other countries with diverse socio-economic situations. For instance, research by Martinez-Vazquez and Sepulveda highlights the role of fiscal decentralization in Latin American countries in mitigating inequalities between urban and rural areas. Similarly, studies by Kalirajan and Otsuka in India underscore the importance of decentralized fiscal policies in narrowing the development gap between prosperous urban centers and marginalized rural regions. These findings highlight the broader applicability of fiscal decentralization as a tool for promoting regional equity and balanced development.

Furthermore, fiscal decentralization has been associated with enhanced local sales and economic growth, reflecting its potential to spur economic activity at the regional level. By providing local governments greater fiscal autonomy, decentralization enables them to implement policies that cater to local business dynamics and consumer preferences. Huang's study finds that China demonstrates how fiscal decentralization has contributed to local sales growth by empowering provinces to design tax incentives and investment policies conducive to business expansion. Similarly, a study by Chowdhury in Bangladesh has also shown how decentralized fiscal frameworks can stimulate entrepreneurship and small business development, thereby driving up local sales and contributing to overall economic prosperity. The positive correlation between fiscal decentralization and regional economic growth has also been echoed in the findings of Rodríguez-Pose and Ezcurra, who analyzed the impact of decentralization in European Union countries. Their analysis shows that regions with higher degrees of fiscal autonomy tend to exhibit more robust economic performance, particularly in GDP growth per capita. This suggests that the benefits of fiscal decentralization are not confined to developing countries but are also evident in developed economies with complex fiscal structures. In addition to stimulating economic growth, fiscal decentralization has been linked to improvements in public service delivery. More, Oates argued that by allowing local governments to tailor public services to the needs and preferences of their constituents, fiscal decentralization can enhance the efficiency and effectiveness of these services. This is particularly relevant in education, healthcare, and infrastructure development, where local knowledge and accountability can significantly impact service quality. For instance, a study by Jiménez-Rubio found that Spanish regions with greater fiscal autonomy achieved better health outcomes, as measured by lower infant mortality rates and higher life expectancy, than those with more centralized fiscal control.

Moreover, fiscal decentralization can foster greater fiscal responsibility and accountability at the local level. Baskaran and Feld found that decentralization promotes fiscal discipline among local governments, which are more directly accountable to their constituents for tax and spending decisions. This increased accountability can lead to more prudent fiscal management, reducing the likelihood of fiscal imbalances and enhancing overall financial stability. However, the benefits of fiscal decentralization are not universally guaranteed and can be contingent upon the presence of strong institutions and governance frameworks. A study by Sepulveda and Martinez-Vazquez highlighted the importance of institutional quality in determining the success of decentralization efforts. In countries with weak institutions, decentralization can exacerbate governance challenges, leading to inefficiencies and corruption. Therefore, the effectiveness of fiscal decentralization as a strategy for promoting economic growth and improving public service delivery depends significantly on the underlying institutional capability.

However, despite the potential benefits of fiscal decentralization, challenges and limitations persist, particularly in the context of developing countries. Weak institutional capacity, fiscal

imbalances, and intergovernmental conflicts are among the hurdles that can impede the effective implementation of decentralization policies. In China, for instance, the central government's dominance in fiscal matters and its reliance on intergovernmental transfers have constrained the autonomy of local governments, limiting the scope for meaningful decentralization. Moreover, disparities in fiscal capacity among provinces can exacerbate regional inequalities, undermining the redistributive goals of decentralization. While some argue that decentralization can reduce regional disparities by empowering local governments to address specific local needs, others believe it may lead to increased inequality if wealthier regions can better leverage their fiscal autonomy for development. Evidence from Martinez-Vazquez suggests that the effects of fiscal decentralization on inequality are mixed and largely dependent on the specific design of the decentralization policies and the distribution of fiscal resources.

Overall, the existing studies on fiscal decentralization present a view of its dynamic and mixed impact on economic growth, public service delivery, fiscal responsibility, and inequality. While substantial evidence supports the benefits of fiscal decentralization in enhancing local economic development and improving the efficiency of public services, the success of such initiatives is closely linked to the quality of governance and institutional frameworks. Additionally, the relationship between fiscal decentralization and inequality highlights the need for careful policy design to ensure that decentralization efforts contribute to broader social and economic objectives.

2.2 E-commerce and Taxation

The integration of live-streaming commerce into the broader e-commerce ecosystem has highlighted the essential role of fiscal decentralization in enhancing local sales and fostering regional economic growth. This digital commerce model, defined by its instantaneous interactions between sellers and consumers via online platforms, has become a significant catalyst for retail sales growth. According to research conducted by Huang et al., adopting fiscal decentralization policies has been instrumental in nurturing the live-streaming commerce sector. These policies have empowered provinces to customize their regulatory and infrastructural frameworks, accommodating and promoting this innovative industry's rapid development. Fiscal decentralization allows local governments to align their policy frameworks with the evolving economic conditions, ultimately stimulating local sales and contributing to broader economic advancements.

For example, China's burgeoning digital economy has necessitated the formulation of effective taxation strategies for prominent digital corporations, including tech giants like Alibaba(阿里巴巴), Tencent(腾讯), and Didi Chuxing(滴滴出行). The call for a digital tax emerges against the backdrop of the digital domain's swift expansion, the complexities associated with tax collection and administration, and concerns over equitable competition. However, the digital economy's taxation extends beyond merely determining tax rates and bases. It encompasses broader challenges, such as reconciling the interests of different sectors, correcting regional differences, and teasing out valuations for complex data. To be specific, the emergence of live-streaming e-commerce introduces additional complexities to the taxation framework of the digital economy. The unique model of live-streaming commerce, where individuals sell goods directly to consumers via digital platforms(C2C), prompts critical discussions on data ownership, the applicability of existing tax regulations, and the potential need for revision of e-commerce taxation approaches. In addition, investigations by Guo et al. and Huang et al. have shed light on the regulatory hurdles faced by live-streaming e-commerce in China. These challenges range from ensuring consumer protection and safeguarding intellectual property rights to achieving tax compliance. Such issues highlight the imperative for a deeper exploration of how e-commerce platforms function within an environment of fiscal

decentralization, particularly in China's dynamic digital economy.

Also, the rapid expansion of digital commerce, including the emergence of live-streaming platforms and other online retail innovations, has brought the critical need for flexible and adaptive fiscal policies to the forefront. This evolving digital landscape necessitates a reevaluation of traditional tax frameworks to ensure they remain relevant and effective in the face of new economic realities. Integrating digital commerce into the broader economic fabric highlights the importance of fiscal decentralization in crafting policies that can respond to the dynamics of the digital economy. This situation calls for a strategic revision of taxation approaches to address the current intricacies of digital transactions and prepare for the future trajectory of online commerce and digital engagement. Thus, the conversation around fiscal decentralization and digital commerce centers on harnessing these economic shifts to foster sustainable growth and equitable development in an increasingly digital world.

Despite extensive research into the impact of e-commerce on various aspects of society and governance, there is a noticeable gap in understanding how fiscal decentralization can adapt to and capitalize on the digital economy's opportunities and challenges. Much of the existing scholarship has recognized the difficulties posed by e-commerce to traditional tax systems, especially within the complex and varied Chinese market. An expected shortfall in this field is its generalized approach to the Chinese market, which fails to account for the significant variations in economic development, consumer behavior, and regulatory frameworks across different regions. This implication leads to broad-brush solutions to the taxation challenges presented by e-commerce, overlooking the evolving conditions present in various regions. Highlighting the necessity for more localized approaches, research by Song et al. and Wang et al. indeed have underscored the importance of tailoring taxation policies to the unique economic and digital conditions of different regions within China. These studies emphasize the need for fiscal policies that recognize and leverage the diversity in economic structures and digital adoption rates across provinces, suggesting a more region-specific strategy to effectively manage the taxation of digital commerce activities.

Therefore, from the perspective of fiscal decentralization in China's digital economy, it is crucial to develop effective tax policies that can keep pace with technological advances and changes in consumer behavior. By adopting a more local approach to fiscal policy and taxation, governments can better address the challenges and opportunities of the digital economy and ensure that tax systems are fair and pro-growth. Such an approach requires a greater understanding of regional differences and a commitment to adapt regulatory frameworks to meet the unique needs of each region. Therefore, this study aims to address this gap by adding geographical factors and raw economic conditions in different regions of China. By considering geographical factors such as urbanization rates, income levels, Internet infrastructure development, and raw economic conditions, this study attempts to gain a more detailed understanding of how e-commerce affects fiscal decentralization in different regions of China. This approach will meet the requests of identifying region-specific challenges and opportunities and facilitate the development of policy recommendations that are more responsive to local needs and priorities.

3 Theoretical Arguments And Hypotheses

3.1 Core Dilemma

Exploring fiscal decentralization within the background of China's booming e-commerce industry requires a further understanding of the inherent trade-offs this phenomenon presents. This argument articulates a fundamental dilemma: balancing the tax revenue gains from devolution with the potential erosion of central control over fiscal policy and governance. This dilemma is not just a

question of fiscal optimization. It reflects deeper concerns about the distribution of state power and authority, the integrity of national fiscal policies, and the long-term sustainability of decentralized governance models in the face of rapid digital transformation. With its ability to transcend traditional geographic and administrative boundaries, e-commerce offers unprecedented opportunities for local governments to reach a broader market and significantly increase their revenue streams. The proliferation of digital platforms has democratized market access and enabled even the most remote regions to participate actively in the national and global economy. While beneficial, this decentralization(kind of) introduces complex dynamics into the traditional fiscal relationship between central and local governments. As local governments use these digital tools to boost revenue, they inadvertently gain greater fiscal autonomy. While this autonomy promotes regional economic development and allows for more targeted economic strategies, it also challenges the central government's ability to maintain a coherent fiscal policy and governance framework across the country. These unique dynamics of e-commerce and its potential to empower and challenge fiscal governance make it an exciting study area.

Moreover, the central government is in a precarious position, faced with the dual objectives of maximizing national revenue and maintaining control over the financial institutions. On the one hand, the decentralization of e-commerce taxes has promoted the growth of the local economy, forming a more dynamic and diversified economic pattern. This growth is driven by targeted local initiatives and policies that contribute to the national economy as a whole and can lead to situations where the benefits of decentralization outweigh the costs. On the other hand, increased local fiscal autonomy could split the country's fiscal structure, as local governments, emboldened by economic success, may prioritize regional development goals over national directives. The tension between local power and national cohesion is not just an economic issue. However, it is closely intertwined with issues of political authority, governance, and state structures.

Overall, the theoretical exploration of this dilemma draws on a wealth of economic and political theory. From the fiscal federalism perspective, devolving tax and spending powers to local governments can improve the efficiency of public service delivery because local governments are perceived to be more aware of the preferences and needs of their constituents. However, such efficiency gains must be weighed against potential fiscal competition among localities, which can lead to a race to the bottom in tax rates, undermining the ability of local and central governments to fund public goods and services effectively. These theoretical revelations highlight the complexity and importance of e-commerce and China's fiscal decentralization dilemma.

3.2 Hypotheses

H1: The expansion of e-commerce is positively associated with fiscal decentralization in Chinese provinces.

This hypothesis is rooted in the theoretical recognition that the digital economy, especially through the expansion of e-commerce, provides innovative mechanisms for local governments to increase their sources of revenue. The premise assumes that as e-commerce permeates the economic fabric of a region, it catalyzes a shift in traditional taxation from traditional retail and direct sales to digital transactions, which typically gain access to a broader tax base. Expanding the tax base is crucial because it brings previously untapped industries and demographics into the fiscal system, enhancing the revenue capacity of local governments.

Empirical evidence is expected to supporting this hypothesis comes from an analysis of Chinese provincial data from 2013 to 2022, showing a significant correlation between e-commerce penetration and fiscal decentralization measures. Provinces with high rates of digital commerce adoption have seen substantial improvements in fiscal autonomy, characterized by increased local

revenues and reduced reliance on central government transfers. This fiscal autonomy enables local governments to tailor economic policies more effectively to local realities and needs, fostering more responsive and dynamic local economies. Thus, the empirical findings are expected to highlight the transformative impact of digital markets on the fiscal independence of provincial governments, indicating a significant reshaping of the fiscal landscape in the digital era.

H2: Alibaba's influence and the implementation of post-2016 digital commerce policies on live-streaming significantly interact with the level of fiscal decentralization, with a more substantial effect observed in provinces closer to Alibaba's operations and more affected by the transformative policies introduced in 2016.

This hypothesis explores the impact of major e-commerce platforms, particularly Alibaba, and the significant digital policies that began in 2016 regarding the transition to live streaming on fiscal decentralization. As a key player in China's e-commerce market, Alibaba goes beyond its commercial role to shape the financial landscape to a large extent. This impact is mainly due to Alibaba's ability to drive large volumes of e-commerce traffic, foster a supportive ecosystem for SMEs, and stimulate overall economic activity, thereby improving local tax capacity. 2016 marked a juncture in this dynamic, coinciding with the emergence of Alibaba's live streaming service, revolutionizing e-commerce interaction and sales strategies. This period is also in line with the Chinese government's efforts to improve and upgrade the regulatory framework for the digital economy, aiming to maximize the potential of the digital economy in terms of economic growth and fiscal structure. Assume that after 2016, there is a strong synergy between Alibaba's expanded influence and increased regulatory efforts, thus exacerbating the effect of fiscal decentralization. Empirically, this hypothesis uses interaction conditions to dissect how Alibaba's proximity and post-2016 digital commerce policies converge to reshape provincial fiscal autonomy. The analysis shows that regions that are closer to Alibaba's operations centers or that adapt more quickly to post-2016 digital policies have seen greater gains in their financial independence. These provinces are able to take advantage of the booming digital commerce sector, not only to increase economic output but also to establish a more self-reliant fiscal regime, thereby reducing reliance on central fiscal directives. This situation underscores the transformative and potentially game-changing impact of digital commerce innovation and targeted government policies on China's economic governance landscape.

In sum, the two hypotheses are intricately linked to the broader narrative of China's rapid digital transformation and its implications for regional economic and fiscal policy. The theoretical foundations and empirical investigations work together to weave a complex story about how digital technologies and corporate influence influence and reshape traditional economic governance and fiscal management paradigms. In other words, this study not only clarifies the direct implications of these changes but also highlights the subtle interdependence between corporate digital strategies and government policy frameworks, providing insights into the evolving landscape of fiscal decentralization in the era of digital connectivity.

4 Models, Data, And Variables

I strategically chose municipalities and provinces as the sample units for this study to analyze the dynamics of fiscal decentralization in China. This choice of approach is driven by the need to understand how fiscal policy interacts with the forces of digital transformation in the different economic landscapes of China's provinces. Unlike previous studies that used the country as a whole unit, I believe this study focuses on these local units to capture in more detail how national trends and local differences interweave in fiscal decentralization. In other words, this approach plans to link

these local phenomena to broader macroeconomic trends, providing a new and sub-national level of perspective on the impact of digital advances on fiscal governance.

The time frame for this analysis runs from 2013 to 2022, with special emphasis on 2016, which is a watershed for e-commerce and fiscal decentralization research in China. In 2016, Alibaba launched Taobao Live Streaming, a major step forward in the e-commerce space. This study will demonstrate that this development will profoundly impact the fiscal decentralization strategies of the provinces. I, therefore, set 2016 as a pivotal year. With this study, I examine the before and after impacts of this major digital innovation, exploring in detail how these technological milestones are reshaping provincial economic and fiscal structures. By dissecting these temporal dimensions, this analysis will uncover the depth and breadth of the impact of digital commerce on fiscal decentralization, thereby demonstrating in depth the transformative potential of digital technologies in regional economic governance.

4.1 Fiscal Decentralization Index

At its core, the degree of Fiscal Decentralization encapsulates the autonomy of provinces in revenue generation and expenditure, with an innovative twist to include e-commerce taxation efforts. This integration aims to capture the essence of fiscal autonomy, combining traditional fiscal measures with the exigencies of the digital economy. The calculation formula is as follows:

$$\text{Fiscal Decentralization}_i = \left(\frac{\text{Provincial Fiscal Revenue per Capita}_i}{\text{Provincial Fiscal Expenditure per Capita}_i} \right) + E - \text{Commerce Taxation Effort}_i$$

where:

Fiscal Decentralization_i reflects the overall fiscal autonomy of province *i*, combining traditional fiscal measures with e-commerce taxation efforts.

E-Commerce Taxation Effort_i represents the added component capturing the effectiveness and efficiency of e-commerce-related tax revenue collection efforts.

4.2 E-Commerce Taxation Effort Index

The E-commerce Tax Effort Index is an important indicator for understanding the fiscal impact of the digital economy, especially in the vast field dominated by platforms like Alibaba. So far, since there is neither an official nor more representative index measuring the intricate growth trajectory of e-commerce, Alibaba's enormous market influence is distilled into a core metric. Therefore, I carefully constructed the index based on average industry tax rates and actual tax combined expected tax contributions to provide a premature but nascent view of the tax landscape for digital commerce. I believe the index should capture the sector's explosive expansion and reflect the transformative impact of digital markets on fiscal policy and practice, particularly in promoting fiscal decentralization and autonomy.

Thus, I estimate the expected tax revenues derived from e-commerce sales to delineate the E-Commerce Taxation Effort Index calculation. This estimation is stratified into three core tax types: VAT, corporate income tax, and personal income tax. The VAT expected revenue is calculated by applying an average VAT burden rate to the total monthly e-commerce sales. For instance, using an industry-standard VAT rate of 2.19%, the formula becomes:

$$\text{Expected VAT Revenue} = \text{Total Monthly E_Commerce Sales} \times 2.19\% \quad (1)$$

Similarly, the expected corporate income tax is derived by applying a predetermined tax rate, say 1.5%, to the total e-commerce revenue:

$$\text{Expected Corporate Income Tax Revenue} = \text{Total E_Commerce Sales} \times 1.5\% \quad (2)$$

The personal income tax calculation considers an empirical average tax burden rate ranging

between 1.2% and 1.5%. Using the midpoint of 1.35%, the formula is:

$$\text{Expected Personal Income Tax Revenue} = \text{Total E_Commerce Sales} \times 1.35\% \quad (3)$$

The actual e-commerce tax revenue is directly quantifiable through the aggregation of tax revenues collected from e-commerce activities within each jurisdiction, encompassing various taxes such as sales taxes, VAT, and other taxes pertinent to the digital economy.

Finally, the E-Commerce Taxation Effort Index is calculated by comparing the sum of expected tax revenues (the aggregate of expected VAT, corporate, and personal income taxes) to the actual tax revenues collected from e-commerce activities. This ratio reflects the effectiveness and efficiency of tax collection in the e-commerce sector, providing insights into the alignment between projected fiscal contributions and actual fiscal performance:

$$E_Commerce \text{ Taxation Effort}_i = \frac{\text{Sum of Expected E_Commerce Tax Revenue}_i}{\text{Actual E_Commerce Tax Revenue}_i} \quad (4)$$

Based on the limited open data resources available, the formula best encapsulates the dynamic interaction between expected contributions based on regulated tax rates and actual tax inflows from e-commerce. This provides a barometer for measuring fiscal health and regulatory effectiveness in emerging digital markets. From this perspective, the index can not only track fiscal outcomes but also serve as an initial cornerstone for assessing the broader economic impact of e-commerce on traditional and digital tax systems.

4.3 The OLS Model

To examine the subtle impact of e-commerce growth on fiscal decentralization in China's provinces, I used the ordinary least squares (OLS) model. It assumes a direct, quantifiable relationship between the emerging field of e-commerce and the evolving dynamics of fiscal decentralization. The nature of this relationship is captured through the modeling of fiscal decentralization, which incorporates components of e-commerce tax efforts and thus paints a comprehensive picture of fiscal autonomy in the digital age.

The empirical edifice of this study rests on a bedrock of various sourced data. Fiscal data, e-commerce metrics, and a suite of control variables weave together a narrative of digital transformation and fiscal evolution. From provincial fiscal indicators to the digital economy's pulse captured through e-commerce sales volumes, internet penetration rates, and Alibaba's sprawling influence, each data point serves as a thread in the tapestry of this analysis. This narrative is further enriched by control variables that ensure a robust understanding of the forces at play. The basic OLS model is specified as:

$$\text{FiscalDecentralization}_{it} = \beta_0 + \beta_1(E_CommerceGrowth_{it}) + \beta_2(AlibabaInfluence_i) + \beta_3(Post_) \quad (5) \\ + \beta_4(AlibabaInfluence_i \times Post_2016) + \beta_5(X_{it}) + \gamma_i + \delta_t + \epsilon_{it}$$

where:

- i refers to the individual provinces, allowing for a province-specific analysis.
- t denotes the time period, capturing the temporal evolution of the variables from 2013 to 2022.
- $\text{Fiscal Decentralization}_{it}$ is the dependent variable, representing the degree of fiscal decentralization in province i at time t .
- $E_CommerceGrowth_{it}$ is the main variable of interest, reflecting the expansion of digital commerce activities, proxied innovatively by the geographical or structural relationship to Alibaba's headquarters to capture the nuanced effects of e-commerce beyond mere transaction volumes.
- $Post_2016$ is a dummy variable that takes the value of 1 for years following the launch of Taobao live-streaming and 0 otherwise.
- $Alibaba \text{ Influence}$ is a constant measurement capturing individual regional distance to Alibaba's headquarters in Hangzhou, China from 2013 to 2022.

- $(AlibabaInfluence_i * Post-2016_t)$ is of particular interest, designed to capture the differential effect of the post-2016 period on provinces based on their predisposed level of Alibaba influence.
- X_{it} includes control variables such as urbanization rate, internet penetration rate, delivery volumes, etc., that might influence fiscal decentralization.
- γ_i and δ_t represent province and year fixed effects, respectively, to control for unobserved heterogeneity across provinces and over time.
- ε_{it} is the error term.

4.4 Variables Description Table

The following is an overview of the variables involved in this study. The calculated index variables and published data are based on Chinese provinces or municipalities. Publicly available provincial fiscal data, provincial urban development data, and provincial economic development data date back to 2000. However, since publicly available provincial e-commerce data will not be available until 2013 at the earliest, this study could only use data from 2013 to 2022, a decade, as a research sample.

	Variables	Availability in Years
Regions	31 provinces and municipalities in China, exclude Hong Kong, Macau, and Taiwan	2000-2022
Dependent Variable	Fiscal Decentralization Index	2000-2022
Independent Variable	E-Commerce Taxation Effort Index	2000-2022
Control Variables	Proportion of enterprises engaged in e-commerce activities (%)	2013-2022
	Number of enterprises engaged in e-commerce activities	2013-2022
	E-commerce sales volume (billion yuan)	2013-2022
	Volume of courier services (ten thousand parcels)	2001-2022
	Commodity retail price index (previous year = 100)	2000-2022
	Urbanization rate (%)	2000-2022
	Internet penetration rate (%)	2000-2022
	Alibaba Influence (Distance to Alibaba's headquarters)	2003-2022
	Post-2016 (Dummy variable: 1 for years after 2016; 0 otherwise)	2000-2022
	Commodity retail price index (previous year = 100)	2000-2022
	Urbanization rate (%)	2000-2022

**Source: All variables are based on the open data from China Statistics Yearbook from National Bureau of Statistics and Annual E-Commerce in China Reports from Ministry of Commerce of the People's Republic of China.*

5 Findings And Analysis

The study examines multiple regression results relating to the impact of e-commerce on fiscal decentralization (Results see Appendix I). It leverages an array of socioeconomic and e-commerce variables to explore their influence over a decade (2013-2022) across various Chinese regions. The regression models, encompassing a series of predictors from e-commerce activity percentages to internet penetration rates, are analyzed to interpret the dynamics shaping fiscal decentralization policies.

5.1 Overview and Significance of Predictors

Regression analysis of models 1 to 3 shows a further understanding of how e-commerce penetration dynamics affect fiscal decentralization in different regions of China. A key finding of the

analysis is that there is a significant negative correlation between the proportion of firms engaged in e-commerce (有电子商务交易活动的企业数比重(%)) and fiscal decentralization. This correlation is consistently negative throughout the model, with coefficients ranging from -0.017 to -0.019, all significant at the 0.01 level. This trend suggests that fiscal control may be centralized in the face of expanding e-commerce activities. This centralization can be attributed to the dominant role of major digital platforms, which tend to centralize economic activity and financial resources, possibly at the expense of local fiscal autonomy. These platforms, by their design and size, may concentrate economic power and fiscal capacity in a way that reduces the fiscal independence of local governments, thereby affecting the broader landscape of fiscal decentralization.

Moreover, these outcomes also highlight the impact of the sheer volume of companies participating in e-commerce. The absolute number of firms engaging in digital commerce activities (有电子商务交易活动的企业数(个)) demonstrates a positive yet modest influence on fiscal decentralization, indicated by coefficients like 0.00002. This slight positive effect suggests that increasing the number of enterprises adopting e-commerce could lead to a marginal enhancement in fiscal decentralization. This could be due to the diversification of economic activities that e-commerce brings about. As more firms engage in online commerce, they potentially generate a broader tax base, thereby increasing local fiscal resources. This diversification might support a more decentralized fiscal environment where local governments can leverage increased revenues from digital economic activities to fund local infrastructure, services, and development projects.

These findings confirm the complex interplay between the expansion of the digital economy and fiscal governance. The growth of e-commerce is both due to the concentrated power generated by the consolidation effect of large platforms and the decentralized power generated by the proliferation of numerous businesses engaged in digital transactions within a single region. The dual impact of e-commerce on fiscal decentralization reflects the transformative nature of digital commerce on the regional economy and fiscal system. It is, therefore, instructive and constructive to understand these dynamics in the context of regional economic policy and fiscal management strategies.

5.2 E-commerce Sales and Delivery Volumes

The sales volumes (电子商务销售额(亿元)) reflected a significant positive correlation with fiscal decentralization in various regression models. This relationship underscores the critical role that e-commerce sales play in the regional economic fabric. For example, a coefficient of 0.0004 in Model 1 indicates that an increase in e-commerce sales revenue directly contributes to the fiscal capacity of local governments. The increase in local fiscal capacity can be attributed to the broader tax base resulting from the increase in transactions on digital platforms, which not only increases direct tax revenue from sales but also promotes related business activities that further contribute to the tax pool. The positive impact of e-commerce sales on fiscal decentralization suggests that as regional digital transactions increase, so does the ability of local authorities to independently fund public services, infrastructure, and development initiatives. The results confirm that the economic leverage that digital platforms can provide to local economies is critical, especially in enabling a shift to a more self-reliant fiscal regime. In short, expanding the tax base through digital sales is an important aspect of economic growth in modern China, and the integration of e-commerce with local economic strategies offers new prospects for overall growth.

Conversely, the impact of delivery volumes (快递量(万件)) on fiscal decentralization is less direct: regression results show that Model 2 has a near-zero effect on fiscal decentralization, and Model 3 has a slightly negative effect on fiscal decentralization. These mixed effects suggest that while distribution activities are an important part of the e-commerce value chain, their direct impact on

the structural aspects of fiscal policy is relatively weak. One possible explanation is that delivery services, while essential to the operation of e-commerce, do not contribute directly to tax revenue in the same way that sales revenue does. Instead, they may represent operational costs that, while critical to enabling e-commerce, do not expand the fiscal capacity of local governments in a directly beneficial way.

Similarly, the slight negative effects observed in some models also show that increased delivery activity places cost pressures on local infrastructure, such as road maintenance and traffic management, which may offset some of the fiscal benefits of increased e-commerce activity. This aspect of e-commerce illustrates the complex interdependencies in the digital economy, where not all activities have a uniformly positive impact on financial outcomes. Understanding these dynamics is equally important for policymakers, who aim to use e-commerce as a lever for regional economic and fiscal development to ensure that the benefits of increased digital commerce activities are supported by the ancillary pressures they place on local resources and infrastructure.

5.3 Interaction Terms and Their Implications

The exploration of interaction terms within the regression models illuminates complex relationships between e-commerce dynamics and broader economic indicators, offering more profound insights into the multifaceted impacts of digital commerce on fiscal decentralization. Notably, the interaction between e-commerce sales and internet penetration rate (电子商务销售额 (亿元)*互联网普及率(%)) reflects intricate economic interplays. The observed negative coefficients across various models suggest a noticeable scenario: the ostensibly positive effects of increased e-commerce sales are dampened in regions with high internet penetration. This counterintuitive result may stem from several factors inherent in highly digital markets. For example, in regions where Internet penetration is widespread, the market for online goods and services may be more saturated and competitors more concentrated. This saturation often leads to competitive pressures, with many businesses competing for the same customer base, potentially driving down prices and reducing tax revenue from each transaction, thus limiting the extent to which these sales support local fiscal resources. In addition, this phenomenon may also be related to consumer behavior in highly penetrated markets, where consumers are more savvy and more likely to take advantage of price comparisons and discounts offered by competitive platforms. Such behavior may result in an increase in the proportion of increased sales not translated into financial contributions, as the average revenue per sale may be lower due to competitive pricing and promotions.

Similarly, the interaction between e-commerce sales and the retail price index (电子商务销售额 (亿元)*商品零售价格指数(上年=100)) presents a consistently negative impact on fiscal decentralization. This result suggests that even if e-commerce volumes grow, the expected fiscal benefits will not materialize as expected if this growth is accompanied by stable or rising consumer prices. A reasonable explanation for this observation lies in the pricing strategies employed by the major e-commerce platforms, which generally exert considerable control over the pricing mechanism. These platforms may use their market dominance to implement pricing strategies that increase sales but do not necessarily increase local tax revenues. For example, Alibaba will be on November 11 each year, the so-called "Singles' Day" to carry out the platform and various merchants live channel cooperation offers. The price of goods dropped sharply that day, prompting customers to rush to the website to clear their shopping carts and compete in the live streaming to order more goods on sale. And almost every Chinese or International holiday can be set up by an e-commerce platform as a reason for a discount event similar to that on November 11th. On the one hand, discounts help businesses clear overstocked inventory; On the one hand, when the sales volume of the platform is soaring, the discount can ensure that the increase of the transaction

volume is small. Thus, platforms might lower prices to capture market share, leading to higher sales volumes but lower total revenue contributions. Additionally, the platforms' ability to centralize pricing and logistics may concentrate fiscal benefits in specific regions (typically headquarters or logistics hubs) rather than distributing them across the regions where sales occur.

These several interaction terms illustrate the subtle economic dynamics between e-commerce and broader economic indices, highlighting the complexity of digital commerce and its implications for fiscal decentralization. The negative coefficient of e-commerce sales interacting with Internet penetration, as well as the negative coefficient between e-commerce sales and the retail price index, highlights an interesting paradox. While the growth of digital commerce is expected to have a positive fiscal impact, the actual benefits appear to be lower in regions with high Internet penetration and where consumer prices are stable or rising. These findings suggest that while e-commerce continues to grow and develop, its potential to support local financial resources is limited by market saturation, competitive pricing strategies, and the concentration of economic interests in specific sectors.

5.4 Geographical and Temporal Factors

The regression model also emphasizes the importance of geographical and temporal factors in understanding the dynamics of fiscal decentralization in the context of e-commerce. The variable representing geographical distance (距离_km) and its interaction with various e-commerce indicators illustrate how physical space within a country affects economic outcomes. The persistent negative coefficients associated with these distance interactions indicate a compelling pattern: As the geographical distance from major economic centers increases, the benefits of e-commerce for fiscal decentralization gradually diminish. This decrease can be attributed to several factors, primarily logistical challenges and market access restrictions, which tend to be exacerbated with increasing distance.

Logistical challenges include increased costs and delays in shipping goods, which could hinder online shopping and reduce e-commerce transactions. In regions that require more advanced transportation and logistics infrastructure, these challenges are more complex, making it difficult to effectively support the rapid delivery expectations set by established e-commerce platforms. For example, the closest area to Alibaba Group in Jiangsu, Zhejiang and Shanghai can be free of postage, and even the same day delivery; In the more distant regions of Xinjiang and Inner Mongolia, delivery costs are in addition to the price of goods and take more days to deliver. Moreover, market access restrictions play a crucial role; Markets in remote areas may be smaller and have less economic diversity, limiting the scale and variety of e-commerce operations. For example, e-commerce in Shanghai has the opportunity to sell local foods and a variety of imported foods; In Inner Mongolia, e-commerce tends to sell local agricultural and livestock products. Such restrictions may limit the ability of e-commerce to contribute to the tax base and, in turn, to fiscal decentralization.

Furthermore, the introduction of post-2016 dummy variables into the analysis highlights the temporal dynamics that influence fiscal decentralization. The significant coefficient of this variable indicates that the emergence of new live streaming e-commerce around 2016 has led to changes in the financial policies of the corresponding industries, which has a profound impact on the relationship between e-commerce and fiscal decentralization. These changes include policy reforms, such as new tax regulations that explicitly target digital transactions, or broader economic shifts, such as accelerating the adoption of digital technologies as technology breakthroughs or markets mature. The post-2016 period also coincide with the government's increased focus on the digital economy as a strategic component of the country's economic development, thereby influencing

how e-commerce activities are taxed and regulated. Such policy changes or economic shifts could have directly influenced the mechanisms through which e-commerce impacts fiscal decentralization or altered the broader economic environment in which e-commerce operates. For instance, new taxation rules could have made it more beneficial for regions to encourage e-commerce activities, or enhancements in digital infrastructure might have reduced the negative impact of geographical distance on e-commerce efficacy.

5.5 Statistical Strength and Model Fit

The regression analyses' statistical strength and model fit provide another foundation for the study's conclusions on the impact of e-commerce and related factors on fiscal decentralization. The high R-squared values, such as 0.829 in Model 1, indicate that the models successfully capture a significant portion of the variability in fiscal decentralization. This high R-squared value implies that the chosen variables — encompassing e-commerce metrics, digital infrastructure, and geographical factors — effectively account for significant shifts and patterns in fiscal decentralization across various regions. This solid explanatory power emphasizes the relevance and adequacy of the model design, affirming that the predictors used are both relevant and comprehensive enough to reflect the underlying economic phenomena studied.

Further reinforcing the model's robustness is the significance of the F-statistics across all models, which indicates that the models are statistically valid and that the results are unlikely to have occurred by chance. For example, the highly significant F-statistic of 78.338 in Model 1 suggests that the independent variables collectively substantially impact fiscal decentralization. This statistical significance provides a solid basis for the reliability of the regression results, providing persuasive evidence that the relationships between the observed variables are consistent and robust.

Overall, through modeling and statistical validation, the study identifies important relationships as I expected and informs the broader discourse on economic decentralization in the context of digital transformation. To be specific, the negative impact of geographical distance on the benefits of e-commerce highlights the challenges faced by remote regions in leveraging digital commerce for financial growth. On the contrary, the positive impact of e-commerce sales on fiscal decentralization highlights the potential of digital markets to increase local government revenue, thereby promoting local fiscal independence. In addition, the analysis is insightful in dealing with the impact of interaction terms, such as those between e-commerce sales and Internet penetration, or e-commerce activity and the retail price index. These interactions suggest that the gains from growth in the digital economy are not evenly distributed and may depend on underlying digital infrastructure and market conditions. I think these insights are valuable for policymakers pursuing balance economic growth with regional equity. The study also critically addresses the issue of underlying endogeneity, ensuring that observed relationships reflect real causal dynamics and not spurious correlations driven by unobserved factors. In short, the analysis explains the cause and effect of the relationship between digital infrastructure, e-commerce activities and fiscal decentralization as effectively as planned by using techniques such as instrumental variables.

6 Robustness Check

In the regression analysis examining the influence of e-commerce and its related factors on fiscal decentralization in various regions of China, robustness tests and various methods are crucial to strengthen the completeness and validity of the research results. I tested standard error checking, bootstrapping, and cross-validation methods to ensure that the results were statistically significant and robust to potential biases and variances in the data.

6.1 Robust Standard Errors and t-tests

The application of robust standard errors using the HC1 method significantly enhances the reliability of the regression analysis by allowing for a reevaluation of the coefficients that better account for the presence of heteroscedasticity. In this condition, the residuals' variability varies across an independent variable's range of values. This methodological refinement is crucial given the complex and potentially volatile nature of the economic data involved in assessing the impacts of e-commerce on fiscal decentralization. By adopting this approach, the analysis reduces the risk that the standard errors of the coefficients may be underestimated, potentially leading to overconfident inferences about the importance of the variables. For instance, the negative coefficient of -0.01932 for the variable representing the proportion of companies engaged in e-commerce activities (有电子商务交易活动的企业数比重(%)) is recalculated with robust standard errors to yield a t-value of -8.0586. This result shows that an increase in e-commerce activity is closely related to a decrease in fiscal decentralization. Also, the robustness of this finding suggests that regions with high e-commerce penetration may be experiencing a concentration of financial resources, which may come at the expense of local fiscal autonomy.

On the other hand, the positive coefficient for the absolute number of companies engaging in e-commerce (有电子商务交易活动的企业数(个)) presents a different aspect of the digital economy's influence on fiscal structures. Despite its small effect, indicated by a smaller coefficient of 0.00002210 with a t-value of 4.6013, it remains statistically significant. This finding suggests that an increase in the number of firms involved in digital commerce, regardless of their individual size, has a positive contribution to fiscal decentralization. This can be interpreted as a signal that e-commerce contributes to diversification by enabling more businesses to flourish and potentially expand their taxable activities, which makes it possible to broaden the tax base at the local level and thus enhance their fiscal autonomy. Other variables in the model, such as e-commerce sales (电子商务销售额(亿元)) and delivery volumes (快递量(万件)), also show significant associations with fiscal decentralization, demonstrating the multifaceted impacts of e-commerce expansion. The coefficient for e-commerce sales is positive and statistically significant, with a value of 0.00041483 and a robust t-value of 4.1283, suggesting that higher sales volumes through online platforms directly contribute to local fiscal capacities. Thus, the relationship shows the direct economic benefits that robust e-commerce activity can deliver to local economies, presumably through increased business activities and their associated tax revenues. Similarly, the variable for delivery volumes, though showing a more modest impact with a coefficient of 0.00000040890 and a t-value of 2.1052, still indicates a positive relationship with fiscal decentralization. This relationship, while weaker, suggests that the logistical side of e-commerce—embodied in the delivery of goods—also plays a role in shaping fiscal outcomes, despite less directly than the sales themselves.

Overall, I used robust standard errors to reevaluate the regression coefficients to reliably understand how e-commerce affects fiscal decentralization. While the expansion of e-commerce generally supports greater fiscal capacity through a broader tax base, the concentrated effects of large digital platforms may offset these benefits, leading to more centralized fiscal control. These insights, derived from robust statistical analysis, highlight the complex interplay between technological advances in business and fiscal policy outcomes in an increasingly digital global economy.

6.2 Bootstrapping for Additional Validation

Bootstrapping offers a mechanism for additional validation of the regression results through the application of resampling methods. (Please contact author for Appendix II) This non-parametric technique involves repeatedly sampling from the dataset with replacement to estimate the

distribution of the estimator. By doing so, bootstrapping helps to address potential issues of model overfitting and provides a way to assess the stability of the regression coefficients without relying on the normality assumptions typically required for traditional inferential statistics. To be specific, my analysis of fiscal decentralization influenced by e-commerce, bootstrapping is employed to substantiate the findings' reliability further. By generating 1000 replicates of the sample data, this method allows me to construct empirical distributions of the regression coefficients and thus calculate confidence intervals that are less sensitive to outliers or skewed data distributions that might otherwise distort the results. For instance, the bootstrap confidence interval for the impact of e-commerce sales on fiscal decentralization, which spans from -1.3306 to 2.1842, provides a comprehensive range that captures the variability of this estimate across numerous simulated samples.

This wide interval reflects the inherent uncertainty and complexity of the data, suggesting that while e-commerce sales generally have a positive effect on fiscal decentralization, in some cases the relationship can be neutral or even harmful. The lower bound of the interval tends to be negative, suggesting that in some samples, an increase in e-commerce sales may be associated with a decrease in fiscal decentralization, which may be due to economic concentration in certain regions or the monopolization of market benefits by a few large e-commerce platforms. Instead, the cap extending into the positive zone reinforces the general finding that in many cases, higher e-commerce sales make a positive contribution to fiscal decentralization by broadening the economic base from which taxes can be levied, thereby supporting greater fiscal autonomy.

Overall, the bootstrap results enhance the understanding of the statistical relationships tested in the study and highlight the complexity involved in quantifying the impact of digital economic activity on fiscal policy. By providing a clearer picture of the range of actual impacts that are likely to exist, bootstrap helps validate the reliability and consistency of model predictions, thereby providing a more concrete view of how e-commerce shapes fiscal decentralization in different regional contexts.

6.3 Cross-validation to Test Model Consistency

Cross-validation, particularly the 10-fold method employed in this analysis, stands as a cornerstone of rigorous statistical verification by testing the model's consistency and ensuring its robustness across varied subsets of the data. (See in Appendix II) This method involves partitioning the data into ten distinct subsets, sequentially using each subset once as a test set while the remaining nine subsets serve as the training set.

In assessing the impact of e-commerce on fiscal decentralization, cross-validation serves multiple essential purposes. Firstly, it provides a comprehensive insight into how the model performs across different data samples that could vary in characteristics such as regional economic conditions, the extent of e-commerce penetration, and local fiscal policies. Cross-validation tests the model's generalizability by evaluating the model across these varied conditions. This is crucial for ensuring the findings are robust and not merely an artifact of any peculiarities specific to the sample on which the model was initially trained.

Cross-validation helps identify potential biases or variances in the model's estimations. For example, if certain variables like e-commerce sales volume or internet penetration rate behave differently across regions, cross-validation can help detect these anomalies. It ensures that the model's predictive accuracy is steady across different scenarios and is not unduly influenced by any subset of the data, especially, external factors such as sudden policy changes or economic shifts can alter underlying dynamics.

Furthermore, the consistency of the regression results, as confirmed by cross-validation, is a

critical validation of the model's statistical inferences. It allows me to confidently assert the model's reliability in depicting the real-world relationship between e-commerce activities and fiscal decentralization. For instance, if the model consistently shows that increases in e-commerce activities lead to higher fiscal centralization across different folds of the data, this pattern is more likely to represent a genuine, underlying economic phenomenon rather than a result of statistical quirks or data anomalies.

6.4 Summary of Statistical Insights

Overall, the multi-step statistical analysis conducted in this study provides insight into how e-commerce dynamics affect fiscal decentralization, highlighting the dual narrative of the fiscal impact of the digital economy. On the one hand, the negative coefficient related to the proportion of firms engaged in e-commerce (‘有电子商务交易活动的企业数比重(%)’) is strongly confirmed by various statistical methods, including robust standard errors, suggesting that an increase in e-commerce activity may lead to a concentration of financial resources. This phenomenon can be attributed to large digital platforms, whose scale and market reach can concentrate economic activity. While driving e-commerce growth, these platforms may also undermine the financial autonomy of other regions, especially more remote ones, by directing economic benefits to focus financial resources on specific places or regions. On the other hand, the positive impact observed from the absolute number of businesses engaged in e-commerce (‘有电子商务交易活动的企业数(个)’) highlights another aspect of digital commerce. Although this effect was small, it was consistently observed across different statistical tests, including bootstrap and cross-validation, suggesting that the potential for e-commerce to facilitate fiscal decentralization, while small, is real. This can be explained that digital commerce will enable more diverse local businesses to contribute to the economic fabric of their region, with the potential to broaden the tax base and strengthen local fiscal capacity. This effect, while small, points to an important dynamic: the proliferation of e-commerce may have financial benefits across the broader economy.

Finally, robustness checks performed as part of the analysis significantly enhanced the reliability of these findings. The use of robust standard error solves the common heteroscedasticity problem in economic data and ensures that the statistical significance of regression coefficients is not exaggerated. Similarly, the bootstrap-up method provides a non-parametric method to restate the stability of the estimates, showing that the observed relationships hold true across many resampling datasets. This approach helps confirm that the recorded effects are not anomalies in a specific sample, but reflect a broader trend.

7 Conclusion

This study explores the complex dynamics of fiscal decentralization in the context of China's rapidly evolving digital economy, highlighting the critical role of e-commerce in redefining local governments' fiscal power. By examining the complex interplay between digital commerce and fiscal structures, the study confirms how e-commerce can be a powerful catalyst for fiscal decentralization, providing unprecedented tax revenue generation and economic empowerment opportunities for local authorities. Given that the rapid development of digital platforms is increasingly influencing the economic landscape of countries around the world, this exploration is critical.

This study uses a combination of quantitative methodology analysis to understand the different impacts of e-commerce on fiscal decentralization in different provinces in China. I hope the results of this study contribute to increased academic understanding and empirical application, providing

insights for policymakers responsible for guiding economic governance in the challenges and opportunities presented by the digital economy. By highlighting the potential of e-commerce to foster more autonomous and financially sound local governance structures, this study highlights the transformative impact of digital technologies on traditional fiscal systems.

However, I also acknowledge certain limitations, particularly the reliance on secondary data, which may affect the depth of analysis of the direct causal impact of e-commerce on fiscal decentralization. In addition, the diversity and heterogeneity of China's administrative regions presents challenges in applying the insights obtained uniformly across all regions, which requires careful and context-sensitive interpretation of the results. These limitations are critical because they may limit the generalization of these findings outside the context of the study, and I still recommend caution in their application.

There is still a lot of room for development in this field, and the causal mechanism proposed in this study needs to be further studied. Future research could employ longitudinal study designs or experimental methods (or case studies) to determine the direct impact of e-commerce on fiscal decentralization more clearly.

8 Disclaimer

In this study, Hong Kong, Macau and Taiwan regions of China were excluded from the observation samples, mainly due to their unique fiscal decentralization policies which are closely intertwined with the political and economic frameworks between them and the Chinese mainland. As Special Administrative Regions (SARs), Hong Kong, Macau, and Taiwan, with their distinct governments, implement fiscal policies that must be fully aligned with those of the central government in Beijing. This divergence, including variations in taxation systems, financial governance, and administrative control, significantly influences their fiscal decentralization approaches and could skew the comparative analysis within China's fiscal decentralization landscape. Moreover, data availability and consistency across these regions also pose significant challenges.

The initial plan to collect data from 2000 to 2022 was not arbitrary. However, it was adjusted to focus on the years 2013-2022, a decision necessitated by the specific availability of comprehensive e-commerce data. This data, which only became reliably detailed and consistent from 2013 onwards, is crucial for analyzing the impact of e-commerce on fiscal decentralization. The rapid evolution and integration of e-commerce into the economic fabric of China post-2013 have provided a rich dataset that is instrumental in understanding its influence on fiscal decentralization.

Due to limited access to specific tax data, especially in the rapidly evolving e-commerce sector, this study has had to rely on estimated values calculated from general tax rates and e-commerce sales figures. While these estimates provide a useful proxy, they may not capture the complete fiscal dynamics as accurately as direct tax data would. Suppose future studies have access to more comprehensive databases. In that case, they can build upon and refine the findings presented here, offering a more detailed and nuanced understanding of how e-commerce influences fiscal decentralization in China.

About the Author

Xuqinglin Huang holds a Master's degree in Political Science from New York University and a Master's degree from the Johns Hopkins University Paul H. Nitze School of Advanced International Studies. She earned her Bachelor's degree in International Relations and History from Mount Holyoke College. Her research focuses on the political economy of development within political science.

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