

Research Hotspots, Frontiers, and Evolutionary Trends of Rural E-Commerce in China: A CiteSpace-Based Analysis

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Abstract

Rural e-commerce has attracted sustained scholarly attention in China as digital platforms, logistics networks, and rural development policies have become increasingly interconnected. Yet the field has expanded so rapidly that its internal structure and changing research agenda are not easily captured through a conventional literature review. This study therefore examines 734 publications retrieved from the China National Knowledge Infrastructure (CNKI) for the period 2016–2025. Bibliometric statistics and CiteSpace visualization are used to analyze publication output, institutional and author collaboration, keyword clusters, citation bursts, and the temporal development of major themes. The findings indicate that the literature grew rapidly during the first half of the period and later entered a stage of slower but more differentiated development. Universities and research institutes remain the principal contributors, although the low-density collaboration networks show that cooperation across institutions and research teams is still limited. Four broad areas dominate the literature: the development and operation of rural e-commerce, its relationship with rural revitalization, its effects on industrial and rural economic development, and the role of digital platforms and supporting technologies. Frontier topics have also changed over time. Earlier studies concentrated on logistics, platform access, poverty alleviation, and development models, whereas more recent work has paid greater attention to development outcomes, regional heterogeneity, digital inclusion, and common prosperity. These changes suggest that research on rural e-commerce in China is moving beyond the description of development pathways toward closer examination of mechanisms, outcomes, and distributional consequences. By linking thematic structure with temporal change, this study provides a clearer account of how the field has developed and identifies several directions that warrant further investigation.

Keywords

Rural E-commerce; Knowledge Mapping; Research Hotspots; Research Frontiers; CiteSpace.

1. Introduction

1.1. Research Background

The expansion of digital technologies has altered the way goods, information, and services circulate between urban and rural areas. E-commerce platforms, online payment systems, and logistics networks have lowered some of the geographical barriers that once restricted rural producers' access to wider markets. These changes have made e-commerce an important component of China's rural economic transformation.

The effects of this transformation, however, are not uniform. Rural areas differ considerably in industrial foundations, infrastructure, access to information, human capital, and market organization. In some regions, digital platforms have opened new channels for agricultural

products and local specialties. In others, weak logistics systems, limited operational capacity, and fragmented production continue to constrain participation. Rural e-commerce therefore cannot be understood simply as the extension of urban online retail into the countryside. Its development depends on how digital tools interact with local industries, institutions, and social conditions.

Existing studies have examined several practical functions of rural e-commerce, including widening markets for agricultural products, reducing circulation barriers, supporting rural industrial restructuring, and creating additional income opportunities for farmers[1,2].

Policy developments have reinforced this trend. Initiatives concerning Digital China, rural revitalization, digital villages, and county commercial systems have gradually incorporated e-commerce into wider programmes of rural development. Within this policy setting, rural e-commerce is increasingly discussed in relation to rural industrial revitalization and high-quality development rather than as an isolated form of online retail[3,4].

The focus of the literature has also changed. Early work was largely concerned with infrastructure, logistics, platform access, local implementation difficulties, and the construction of workable rural e-commerce ecosystems[5,6]. As rural e-commerce became more widely established, researchers began to examine its economic and social effects.

A growing body of work now links rural e-commerce with household consumption, digital literacy, the urban–rural consumption gap, and rural entrepreneurship[7-10]. Other studies address spatial spillovers, digital financial inclusion, employment, common prosperity, farmers' income, urban–rural income disparities, and rural cross-border e-commerce[11-16].

This expansion has made rural e-commerce a broad and internally diverse field. It now connects research in e-commerce, agricultural economics, regional development, public policy, digital governance, and rural sociology. At the same time, the growing diversity of topics has made it more difficult to identify the field's main intellectual structure and to determine how its central concerns have changed.

1.2. Research Gap and Objectives

A substantial body of research on rural e-commerce has already been produced, but much of it is organized around individual policies, regions, cases, or practical problems. Such studies provide detailed evidence on particular aspects of rural e-commerce, yet they do not necessarily show how the field is structured as a whole.

Several review studies have summarized specific themes, including development models, poverty alleviation, logistics, platform operation, and income effects. Fewer studies have examined how these themes relate to one another or how their relative importance has changed over an extended period. Consequently, three issues remain insufficiently clarified.

First, the development of the field cannot be judged from publication volume alone. It is also necessary to examine who produces the research and whether stable collaboration networks have emerged. Second, frequently discussed topics do not necessarily represent the newest directions of inquiry, so established hotspots and research frontiers need to be distinguished. Third, a static list of keywords cannot explain how the academic agenda has moved from one set of concerns to another.

These limitations are particularly important because rural e-commerce has developed under changing technological, economic, and policy conditions. Topics that were central during the early expansion of online retail in rural areas may not remain equally important once platforms, logistics, and digital services become more established. A longitudinal analysis is therefore required to capture both continuity and change.

This study addresses these issues by examining Chinese research on rural e-commerce published between 2016 and 2025. The analysis is based on 734 records indexed in CNKI and

combines bibliometric measurement with CiteSpace visualization. Specifically, it asks: (1) How did publication output and scholarly collaboration develop during the study period? (2) Which themes constituted the principal research hotspots, and which topics emerged as research frontiers? (3) How did the thematic structure of the field change between 2016 and 2025?

By answering these questions, the study aims to provide a structured account of the field rather than another summary of individual rural e-commerce topics. Particular attention is paid to the relationship between long-term themes and newly emerging concerns.

1.3. Research Contributions

This study contributes to the literature in three respects.

First, it combines several dimensions of bibliometric evidence within one analytical design. Publication statistics are considered together with institutional networks, author networks, keyword clusters, burst terms, and timeline patterns. This makes it possible to examine not only the size of the literature, but also its organizational and thematic structure.

Second, the study distinguishes relatively stable hotspots from short-term frontier topics. Keyword clustering is used to identify the main bodies of research that persisted across the period, while burst detection captures topics that gained attention rapidly at particular points in time. The distinction matters because a highly frequent topic may reflect long-term accumulation rather than recent change.

Third, the ten-year observation period allows thematic shifts to be examined against changes in the broader development of rural e-commerce. The analysis traces the movement from early studies of infrastructure, logistics, and operational models toward research on economic effects, digital transformation, regional heterogeneity, and inclusive development. Rather than treating this movement as a simple replacement of old topics by new ones, the study considers how earlier concerns continued to shape later research.

Together, these contributions provide a basis for understanding how rural e-commerce research in China has expanded, differentiated, and reorganized over time.

2. Data Sources and Methods

2.1. Data Sources and Sample Selection

The dataset was collected from the China National Knowledge Infrastructure (CNKI). The study focuses on the development of Chinese scholarship on rural e-commerce, a field closely connected with domestic rural policies, regional practices, and the expansion of China's digital economy. CNKI was therefore used to capture publications produced within this specific academic and institutional context.

The search covered the period from 2016 to 2025. Records were retrieved through subject-field searches for "rural e-commerce" and "rural electronic commerce." The initial results were screened manually rather than being imported directly into the analysis. News items, conference notices, calls for papers, policy publicity materials, and records whose main content was not closely related to rural e-commerce were removed. After screening and data cleaning, 734 publications remained in the final sample.

The choice of 2016 as the starting year reflects the development of both rural e-commerce practice and the associated academic literature. Around this period, digital platforms and logistics services were extending further into county and rural markets, while rural e-commerce was receiving greater policy and scholarly attention. A ten-year window also provides sufficient continuity to observe changes in publication output and research themes without treating short-term fluctuations as long-term trends.

The dataset is intended to represent the development of Chinese-language rural e-commerce research during this period. It does not cover all publications on the subject, particularly studies published outside CNKI. This boundary should be kept in mind when interpreting the results.

2.2. Research Methods

The analysis combines conventional bibliometric statistics with visual mapping in CiteSpace[17]. The two approaches serve different purposes. Bibliometric statistics describe the scale and distribution of the literature, whereas CiteSpace is used to examine relationships among researchers, institutions, and keywords.

Annual publication counts were calculated to identify changes in research activity between 2016 and 2025. Institutional and author networks were then generated to assess the extent and structure of scholarly collaboration. In these networks, nodes represent institutions or authors, while links indicate co-authorship relationships recorded in the sample.

The thematic analysis was based mainly on keywords. Keyword clustering was used to group closely related terms and identify the relatively stable areas around which the literature was organized. Because frequently occurring keywords do not necessarily represent newly emerging topics, burst detection was conducted separately. This procedure identifies terms whose occurrence rises sharply during a particular period and is therefore useful for tracing changes in frontier attention.

A timeline view was subsequently used to examine when the principal clusters appeared, how long they remained active, and whether later topics developed independently or grew out of earlier lines of research. Reading the cluster, burst, and timeline results together reduces the risk of drawing conclusions from any single visualization.

2.3. Analytical Framework

The analysis was arranged around three levels of inquiry. The first concerns the scale of the field and asks how publication output changed over the ten-year period. The second concerns the research community, focusing on the distribution of institutions and authors and the strength of collaboration among them. The third concerns the content of the literature, including its established themes, emerging topics, and temporal development.

These levels correspond to the order in which the results are presented. Annual publication data provide the general context. Collaboration networks then show how knowledge production is organized. Keyword clusters identify the main thematic areas, while burst terms reveal issues that attracted concentrated attention during shorter periods. The timeline analysis connects these findings by showing how older and newer themes overlap across time. The framework does not assume that the development of the field follows a simple linear sequence. Publication growth, collaboration patterns, and thematic change may proceed at different speeds. A field may expand rapidly without forming a closely connected research community, and new frontier topics may emerge while earlier themes remain active. The different forms of evidence are therefore interpreted jointly rather than as separate indicators of academic maturity.

3. Results

3.1. Publication Trends

Figure 1 presents the annual number of publications on rural e-commerce in China between 2016 and 2025. The series begins with 40 publications in 2016 and rises substantially over the following years. By 2019, annual output had reached 82, more than twice the level recorded at the beginning of the period.

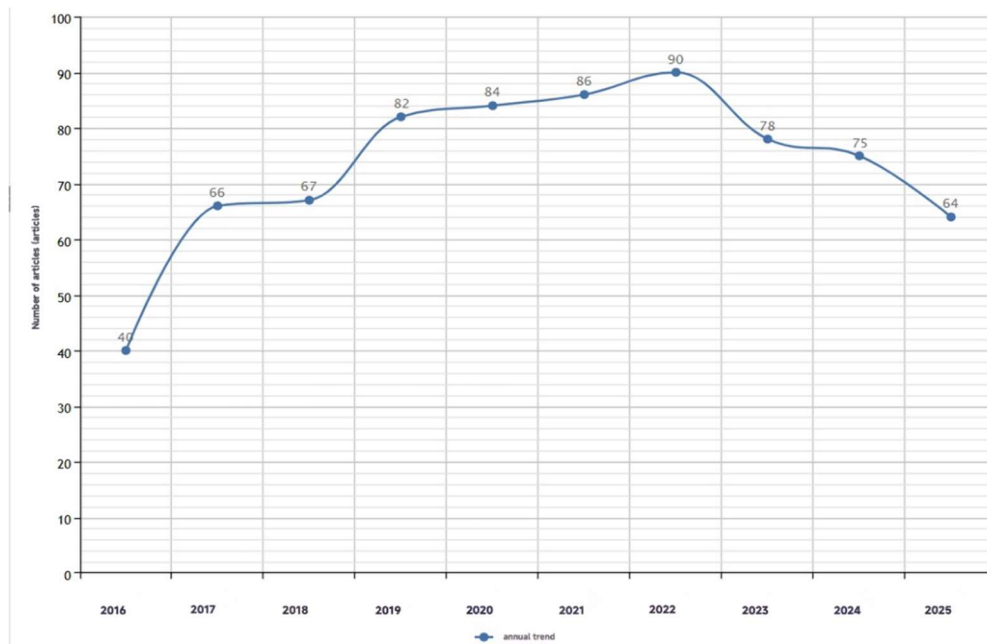


Figure 1. Annual publication trends in rural e-commerce research in China

The increase was most pronounced between 2016 and 2019. During these years, rural e-commerce developed from a relatively dispersed topic into a more visible area of research. The figure therefore points to 2016–2019 as the main period in which the research agenda took shape.

Growth slowed after 2019, but annual output remained high. The sample contains 84 publications in 2020, 86 in 2021, and 90 in 2022, the highest annual total during the ten-year period. Research published in these years was no longer confined to the conditions and operational models of rural e-commerce. Topics such as industrial integration, farmers' income, digital governance, and development quality received greater attention.

Publication output declined after the 2022 peak. This contraction should not, on its own, be interpreted as either the decline or maturation of the field. Publication counts measure research activity, but they do not directly show whether the content of that research has become more theoretically developed. Nevertheless, when read together with the keyword and timeline results reported below, the later years appear to involve greater thematic differentiation rather than a return to the field's earlier concerns.

The publication record can thus be divided into three broad periods: rapid growth from 2016 to 2019, sustained high output from 2020 to 2022, and a moderate decline after 2022. The pattern indicates that rural e-commerce remained an established research topic throughout the latter part of the sample period, even though its rate of publication growth was no longer maintained.

3.2. Institutional Collaboration Network

The institutional network shown in Figure 2 contains 239 nodes and 81 links. Its density is 0.0028. Relative to the number of participating institutions, the number of collaborative connections is small, producing a sparse network rather than a densely connected research community.

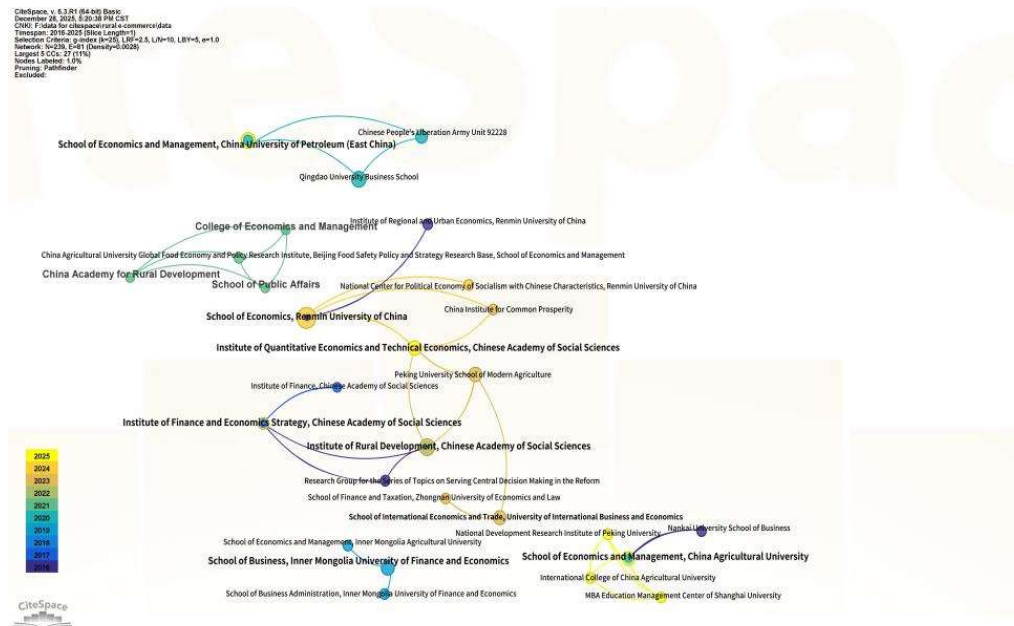


Figure 2. Institutional collaboration network of rural e-commerce research in China

Several institutions appear as relatively prominent nodes, including the School of Economics at Renmin University of China, the Institute of Rural Development of the Chinese Academy of Social Sciences, the College of Economics and Management at China Agricultural University, and the National Academy of Economic Strategy of the Chinese Academy of Social Sciences. Their positions show that universities and national research institutes constitute important centres of rural e-commerce scholarship.

The disciplinary backgrounds of these institutions are concentrated mainly in economics, agricultural economics, rural development, and related areas. This composition is consistent with the dominant concerns of the field, particularly agricultural product circulation, rural industry, farmers' income, and regional economic development.

The links in Figure 2 are unevenly distributed. A limited number of institutions have established visible collaborative connections, but many nodes remain weakly linked or isolated. The map therefore shows broad institutional participation without a correspondingly strong level of cooperation. Participation in the field is not the same as integration within the field.

Based on the reported network indicators, the safest conclusion is that rural e-commerce research has acquired a reasonably broad institutional base, while collaboration remains limited in relation to the number of participating organizations. The visualization alone cannot determine why particular institutions cooperate or whether the weak links result from geographical, disciplinary, or administrative barriers. Such explanations would require additional institutional data.

3.3. Author Collaboration Network

The author collaboration network consists of 276 nodes and 63 links, with a density of 0.0017. This density is lower than that of the institutional network, indicating that co-authorship ties among individual researchers are particularly sparse.

Figure 3 contains several small and relatively compact groups rather than one connected network. Cao Lingling, Qiu Zeguo, Pan Sitong, and Shi Qinghua appear among the more visible authors, and collaborative links can be observed around each of them. Connections between these groups, however, are limited.

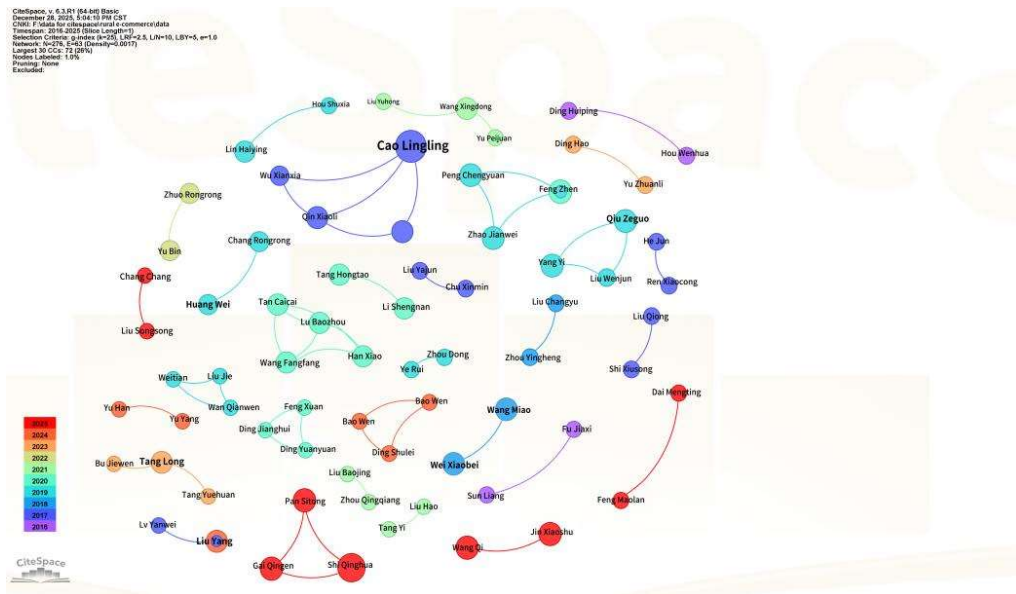


Figure 3. Author collaboration network of rural e-commerce research in China

The network therefore has two concurrent features. It includes a fairly large number of authors, showing that rural e-commerce has attracted participation from a broad research population. At the same time, the small number of links shows that this participation has not produced extensive co-authorship across the field. Most collaborative activity remains concentrated within separate groups.

This finding is broadly consistent with the institutional analysis. Both networks have numerous nodes but low density, although fragmentation is more pronounced at the author level. The results support the conclusion that rural e-commerce research in China has expanded through the parallel contribution of multiple researchers and teams rather than through a closely connected scholarly network.

The map does not provide enough evidence to identify the social basis of these groups. In particular, co-authorship links cannot by themselves demonstrate that collaboration arose from project relationships, long-term partnerships, or advisor–student ties. These possibilities should not be presented as established findings without author affiliation or biographical data.

3.4. Keyword Cluster Analysis of Research Hotspots



Figure 4. Keyword clustering map of rural e-commerce research in China

The keyword network produced a modularity value of 0.8665 and a silhouette value of 0.9681. Both indicators are sufficiently high to support further interpretation of the clusters. The first value shows that the network can be divided into relatively distinct thematic groups, while the second indicates a high degree of consistency among the keywords assigned to the same cluster. The map contains several clusters of different sizes and with varying degrees of overlap. For interpretation, these clusters can be grouped into four broader lines of research: the operation and development of rural e-commerce, its relationship with rural revitalization, its economic and industrial effects, and the technological and organizational conditions that support it.

The first line concerns the basic operation of rural e-commerce. Relevant clusters include rural e-commerce, e-commerce, rural e-commerce development, and rural e-commerce logistics. Studies within this group address platform operation, circulation channels, logistics constraints, development models, and the organization of online agricultural markets. These topics formed an important part of the early literature and continued to provide a practical foundation for later research.

A second line links rural e-commerce with policy implementation and rural development. Clusters labelled rural revitalization, rural revitalization strategy, targeted poverty alleviation, and public service fall mainly within this group. Here, e-commerce is examined less as an independent commercial activity than as one component of wider programmes involving rural governance, poverty reduction, public services, and the allocation of urban and rural resources. The third line focuses on economic outcomes and industrial relationships. Industrial integration, rural economy, and farmers' income are among the visible clusters in the network. Research in this area asks how rural e-commerce affects agricultural value chains, local industries, market circulation, and household income. The prominence of these topics marks a move away from describing e-commerce models alone and toward assessing their wider economic consequences.

The remaining clusters concern technological and platform-based forms of development. Internet Plus, Taobao villages, digital platforms, and logistics systems illustrate the continuing importance of infrastructure and technological access. Technology is treated both as a condition for market participation and as a factor that shapes differences in operational capacity across rural areas.

The four lines are analytically distinguishable but not independent. Logistics and platform access affect the operation of rural e-commerce; operational development influences industrial and income outcomes; and these outcomes are frequently discussed in relation to rural revitalization policies. The cluster map therefore depicts a field organized around connected problems rather than four isolated bodies of literature.

3.5. Burst-Term Analysis of Research Frontiers

Keyword bursts identify terms that received an unusually rapid increase in attention during a specific period. They should not be treated as a direct measure of research quality or importance. Their value lies in showing when particular issues became especially prominent within the literature.

The earliest bursts were closely related to the conditions required for rural e-commerce to operate. Rural logistics remained active from 2016 to 2019, while Internet Plus continued from 2016 to 2020. Targeted poverty alleviation, e-commerce for poverty alleviation, development models, and development paths also appeared during this period. The concentration of these terms indicates that the early agenda was shaped primarily by implementation problems: how platforms could reach rural markets, how goods could be transported, and how e-commerce might be incorporated into poverty-reduction programmes.

Top 15 Keywords with the Strongest Citation Bursts

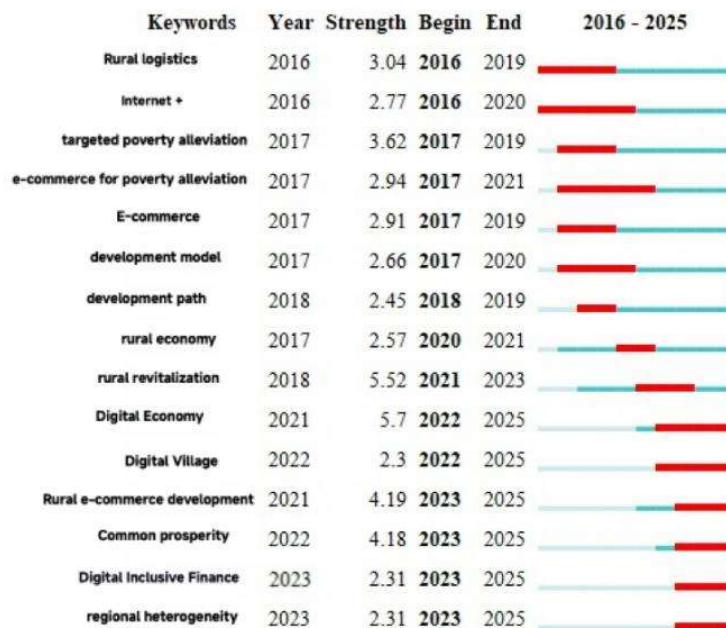


Figure 5. Keyword burst map of rural e-commerce research in China

The pattern changed around 2020. Rural economy became a burst term in 2020–2021, while the longer burst associated with e-commerce-based poverty alleviation continued until 2021. Attention was therefore moving from the establishment of rural e-commerce towards its observable economic and livelihood effects. Income generation, rural economic activity, and the practical outcomes of poverty alleviation became more prominent than the description of particular operating models.

Rural revitalization registered one of the strongest bursts, with a strength of 5.52 during 2021–2023. Its timing shows that the field was being reorganized around a broader rural development agenda. Rather than discussing e-commerce mainly as a tool for individual projects or local poverty reduction, studies increasingly placed it within longer-term questions of rural industry, governance, and development capacity.

The most recent group of bursts extends from 2022 or 2023 to 2025. Digital economy recorded the highest burst strength in the figure, at 5.70. Digital village, rural e-commerce development, common prosperity, digital financial inclusion, and regional heterogeneity also remained active at the end of the observation period. These terms broaden the frontier in two directions. One concerns deeper digital integration; the other concerns differences in who gains from that integration.

The appearance of common prosperity and regional heterogeneity is particularly important. It shows that recent studies are not concerned only with whether rural e-commerce generates economic benefits. They increasingly ask how those benefits are distributed, why effects differ across regions, and whether weaker groups and areas can participate on comparable terms.

The burst sequence therefore records a change in emphasis: from infrastructure and implementation, through economic effects and rural revitalization, to digital transformation and distributive outcomes. These periods overlap, and earlier problems such as logistics have not disappeared. The figure identifies changes in relative attention rather than a complete replacement of one agenda by another.

3.6. Timeline Analysis of Evolutionary Dynamics

The timeline map places keywords within their clusters and displays their activity across the ten-year period. Unlike the burst map, which highlights sudden increases in attention, the timeline is useful for observing continuity. It shows whether earlier themes ended, remained active, or became connected with later topics.

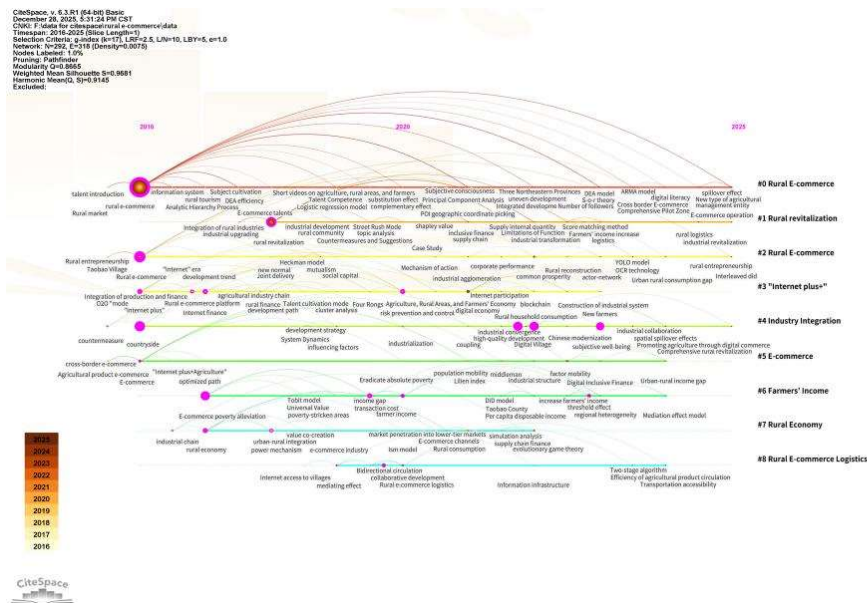


Figure 6. Keyword timeline map of rural e-commerce research in China

For descriptive purposes, the timeline can be read in three overlapping periods. The boundaries are not absolute, but they help distinguish the main changes visible in the map.

From 2016 to 2018, research was concentrated around rural e-commerce, e-commerce, Internet Plus, rural logistics, and development models. Much of the literature addressed practical constraints, including platform access, logistics services, product circulation, and local implementation. These studies were largely concerned with the feasibility of rural e-commerce and the conditions under which it could be established.

Between 2019 and 2021, industrial integration, the rural economy, and farmers' income became more visible. The agenda was no longer confined to building platforms or identifying development paths. Researchers increasingly examined the connection between e-commerce and agricultural production, industrial chains, market circulation, employment, and income. Rural e-commerce began to be treated as one link in a wider process of rural economic restructuring.

After 2021, rural revitalization, digital economy, and digital village remained active across several clusters. Later terms concerning common prosperity, digital financial inclusion, public services, and regional heterogeneity further extended the agenda. Their appearance added questions of governance, access, inequality, and development quality to the earlier interest in operational efficiency and economic growth.

The timeline does not show a simple movement in which new topics replace old ones. Logistics, platforms, development models, and industrial integration remain connected with newer concerns. Recent studies still depend on the earlier research foundation, but they place those established issues within broader questions about digital transformation and uneven development.

The main evolutionary feature of the field is therefore accumulation. Initial research established the practical conditions of rural e-commerce; subsequent work examined its economic functions; and more recent studies have added questions concerning governance and distribution. This interpretation is more consistent with the timeline than describing the field as having moved neatly from one completed stage to another.

4. Discussion

4.1. Interpretation of the Main Findings

The publication record and thematic maps describe two related but distinct changes in Chinese research on rural e-commerce. The first is an increase in the scale of the literature, particularly between 2016 and 2022. The second is a change in the questions being asked. Early studies concentrated on logistics, platform access, poverty-alleviation projects, and workable development models. Later work placed greater emphasis on industrial linkages, income effects, rural revitalization, digital inclusion, and regional heterogeneity.

These results should not be read as evidence that the field has passed through a simple sequence from an “immature” to a “mature” stage. Annual publication counts cannot measure theoretical quality, and the appearance of new keywords does not mean that earlier problems have been resolved. Logistics, market access, platform operation, and local implementation remain visible in the maps. What has changed is that these established concerns are increasingly discussed together with questions about outcomes, governance, and distribution. The collaboration results reveal a different pattern. The institutional network contains 239 nodes and 81 links, while the author network contains 276 nodes and 63 links. Their respective densities, 0.0028 and 0.0017, indicate that participation is considerably broader than collaboration. Many institutions and researchers have contributed to the literature, but most co-authorship relationships remain confined to small groups.

Low network density does not necessarily mean that researchers are intellectually isolated. Scholars may draw on one another’s work without publishing together, and bibliographic or informal exchanges are not captured in a co-authorship map. Even so, the contrast between a large number of participants and a small number of links shows that the growth of the field has not produced an equally extensive collaborative structure.

The keyword evidence also points to cumulative development. Topics associated with rural revitalization, the digital economy, common prosperity, and regional heterogeneity emerged after the earlier focus on logistics and development models, but they did not displace it. Instead, the agenda widened. Rural e-commerce came to be examined not only as a means of connecting products to markets, but also in relation to industrial organization, public services, governance, and unequal access to digital resources.

Policy language is prominent throughout this development. Terms such as targeted poverty alleviation, rural revitalization, digital village, and common prosperity correspond closely to changes in China’s rural development agenda. The temporal overlap suggests that academic attention has been responsive to policy priorities. It does not, however, establish a direct causal relationship between a particular policy and a particular research theme. The maps record changes in the literature; explaining why those changes occurred would require closer examination of policy documents, research funding, and representative publications.

The central finding is therefore not simply that rural e-commerce research has become “more complex.” More specifically, the field now brings three kinds of questions into closer contact: the conditions under which rural e-commerce operates, the processes through which it affects rural production and circulation, and the uneven outcomes associated with its development.

This combination distinguishes the later literature from the earlier concentration on implementation alone.

4.2. Theoretical Implications

The thematic structure identified in this study offers a way to organize a literature that has often developed through separate topic areas. The four broad lines-development and operation, rural revitalization and policy, industrial and economic effects, and technological support-can be read as parts of a connected analytical sequence rather than as an inventory of independent subjects.

At the beginning of this sequence are institutional and technological conditions, including infrastructure, logistics, platform access, and policy support. These conditions shape how rural e-commerce is organized at the local level. Operational arrangements, in turn, influence its relationship with agricultural production, circulation channels, rural industries, and household income. The later literature adds a further question: whether the resulting benefits differ across places and social groups.

This sequence should be treated as a provisional organizing framework, not as a causal model established by the present analysis. Keyword co-occurrence shows that topics appear together in the literature, but it does not demonstrate how one factor produces another. Testing relationships among enabling conditions, operational mechanisms, and development outcomes would require survey data, case studies, or econometric evidence.

Even with this limitation, the findings suggest that rural e-commerce is becoming difficult to explain solely as a branch of online retail. The literature increasingly treats it as a rural socio-economic process involving technology, market organization, public policy, and local development conditions. This broader framing may help connect rural e-commerce research with work on digital inequality, rural industrial change, platform governance, and regional development.

The timeline results also have implications for theory building. Because earlier and later themes coexist, future research should avoid assuming that the spread of digital platforms makes foundational constraints irrelevant. A region may have nominal access to e-commerce while still facing weak logistics, limited skills, small-scale production, or restricted bargaining power. Theoretical analysis therefore needs to account for the interaction between digital access and local productive capacity rather than treating participation itself as an outcome.

A further issue concerns heterogeneity. The recent prominence of regional differences, digital financial inclusion, and common prosperity indicates growing dissatisfaction with average-effect explanations. A general claim that rural e-commerce increases income may conceal substantial variation by region, industry, household resources, or platform position. Future frameworks will be stronger if they specify the conditions under which particular groups benefit, face new risks, or remain excluded.

Methodologically, the present analysis shows the value of reading several bibliometric outputs together. Clustering identifies established thematic areas, burst detection captures periods of concentrated attention, and timeline mapping shows whether those topics persist. No single map is sufficient on its own. The contribution here lies in combining these forms of evidence to produce a field-level account, rather than in proposing a new bibliometric method.

4.3. Practical Implications

The findings provide signals about the issues receiving sustained or growing academic attention, but they should not be treated as direct evidence that a particular policy intervention will succeed. Bibliometric analysis maps the research agenda; it does not evaluate the effectiveness of individual rural e-commerce programmes.

Within that boundary, the results suggest that rural e-commerce policy cannot be reduced to constructing platforms or extending logistics coverage. Those investments remain necessary in many areas, but the more recent literature places them alongside industrial coordination, service provision, digital skills, financing, and local governance. Practical assessment should therefore examine whether infrastructure is actually connected with local production and market capacity.

Regional heterogeneity also deserves greater attention. Rural areas differ in product structure, transport conditions, population, digital skills, and access to finance. A model that works in a region with established agricultural industries and strong logistics may be difficult to reproduce in a remote area dominated by dispersed smallholders. Uniform targets based on transaction volume or the number of online stores may conceal these differences.

Evaluation indicators should consequently extend beyond the scale of online sales. Relevant measures may include the stability of farmers' income, participation costs, the position of small producers in platform-based value chains, service accessibility, and the distribution of benefits across regions and groups. The emergence of common prosperity, digital financial inclusion, and regional heterogeneity as recent burst terms reflects the growing importance of these questions.

The weak collaboration networks point to a separate issue for the research community. More exchange among universities, research institutes, local governments, and practitioners could improve access to local data and allow findings to be compared across regions. Collaboration itself is not a guarantee of better research, however. Its value depends on whether it supports shared datasets, transparent methods, longitudinal observation, and comparative analysis rather than simply increasing the number of participating organizations.

Closer contact with practice would also help correct the limitations of aggregate bibliometric evidence. Local cases can show why similar platform or logistics arrangements produce different outcomes, while longitudinal studies can distinguish temporary project effects from durable changes in rural production and income. These forms of evidence are particularly important as the policy agenda moves from expanding access toward assessing quality, inclusion, and long-term sustainability.

5. Conclusion

5.1. Main Conclusion

Based on 734 CNKI-indexed publications from 2016 to 2025, this study examined the development of rural e-commerce research in China through publication statistics, collaboration networks, keyword clustering, burst detection, and timeline mapping.

The publication record shows rapid growth during the earlier years of the period, followed by sustained high output and a decline after the 2022 peak. Rural e-commerce nevertheless remained an established research topic through 2025. The later decline in publication numbers cannot by itself be taken as evidence of either reduced interest or improved research quality. When considered alongside the keyword results, it is more accurately interpreted as part of a period in which the agenda became increasingly differentiated.

Knowledge production is distributed across a relatively large number of institutions and authors, but collaboration remains sparse. The institutional network contains 239 nodes and 81 links, with a density of 0.0028, while the author network contains 276 nodes and 63 links, with a density of 0.0017. These figures show that the field has expanded through the contributions of many separate organizations and research groups rather than through a densely connected academic community.

The thematic results identify four closely related areas: the development and operation of rural e-commerce, its connection with rural revitalization and public policy, its industrial and economic effects, and the technological and platform conditions that support it. These areas should not be understood as independent strands. Platform access and logistics affect how rural e-commerce operates; operational arrangements influence industrial and income outcomes; and those outcomes are increasingly examined within wider debates on rural development and public policy.

Changes in burst terms and timeline patterns reveal an accumulating research agenda. Logistics, Internet Plus, poverty alleviation, and development models were prominent during the earlier years. Later studies gave greater attention to rural revitalization, the digital economy, digital villages, common prosperity, digital financial inclusion, and regional heterogeneity. Newer concerns did not replace the earlier ones. Instead, questions of distribution, inclusion, and governance were added to continuing research on infrastructure, platforms, and economic effects.

Taken together, the findings show that Chinese research on rural e-commerce has widened its focus. The field initially concentrated on how rural e-commerce could be established and operated, but now also asks how it affects rural industries and livelihoods, why its outcomes vary across regions and groups, and how it relates to wider processes of digital and rural transformation. Bibliometric evidence can clarify this change in the research agenda, although it cannot by itself establish the causal mechanisms behind it.

5.2. Limitations and Future Research

This study has several limitations. The dataset was drawn solely from CNKI and was designed to represent Chinese-language research conducted within China's academic and policy context. Publications indexed only in international or other disciplinary databases were not included. The results should therefore not be treated as a complete account of the global literature on rural e-commerce. Future comparative studies could combine CNKI with international databases, while keeping differences in indexing rules, keyword usage, and publication language in view.

The findings also depend on the retrieval and data-cleaning procedures. The search used the subject terms "rural e-commerce" and "rural electronic commerce," followed by manual screening. Relevant studies framed through adjacent concepts may not have been retrieved, while decisions made during screening and keyword normalization may affect the structure of the resulting maps. Later studies should report the retrieval date, search fields, screening process, software settings, and keyword-merging rules in greater detail to improve reproducibility.

Bibliometric mapping is useful for identifying publication patterns, co-authorship relations, clusters, and changes in keyword attention. It is less capable of evaluating the quality of individual studies or reconstructing their full theoretical arguments. Keyword co-occurrence also does not demonstrate causal relationships among technology, policy, operational mechanisms, and rural development outcomes. Combining bibliometric analysis with systematic content analysis or close reading of representative publications would allow these conceptual relationships to be examined more directly.

The collaboration networks have a similar boundary. Co-authorship records formal publication ties, but not informal exchanges, shared datasets, conference interaction, or other forms of intellectual connection. Low network density should therefore be interpreted as limited co-authorship rather than complete academic isolation. Surveys or interviews with researchers could provide a fuller account of how collaboration in this field is organized.

Finally, the analysis ends in 2025. The latest burst terms reflect the research agenda visible at the end of this observation window, not a stable prediction of future development. Further

studies could update the dataset periodically and examine whether recent attention to digital inclusion, regional heterogeneity, platform governance, and distributive outcomes persists or gives way to new concerns.

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References

- [1] Yang, C. (2026). Strategy research on rural e-commerce promoting comprehensive rural revitalization from a digital perspective. *Agricultural Economy*, 1, 154-156.
- [2] Guo, H., Zhang, W., Li, J. Y., et al. (2025). Study on the effect and mechanism of rural e-commerce on rural industrial revitalization. *Business Economics Research*, 21, 93-97.
- [3] Xiang, X. (2025). High-quality development path of rural e-commerce under the rural revitalization strategy. *Agricultural Economy*, 4, 141-144.
- [4] Yu, H., & Li, X. W. (2025). Research on the high-quality development of rural e-commerce under the background of comprehensive rural revitalization. *Agricultural Economy*, 3, 136-137.
- [5] Li, Y. X. (2024). Rural e-commerce empowering rural revitalization: internal mechanism, practical bottlenecks, and relief strategies. *Agricultural Economy*, 7, 135-138.
- [6] Yang, Y. X., & Zhang, Y. (2024). Practical dilemmas and promotion strategies for rural e-commerce ecosystem construction led by the digital economy. *Agricultural Economy*, 9, 140-142.
- [7] Bai, Y. Y. (2025). Rural e-commerce, entrepreneurial activity, and rural consumption expansion. *Business Economics Research*, 12, 100-103.
- [8] Chen, M. Y., & Zhou, L. Y. (2024). Rural e-commerce, digital literacy, and rural residents' consumption. *Business Economics Research*, 23, 113-116.
- [9] Wang, Y. L., & Yang, X. Y. (2024). The impact of rural e-commerce development on the urban-rural consumption gap. *Scientific Decision-Making*, 11, 63-79.
- [10] Zhang, X. C., Liu, X. Y., & Wang, Q. (2025). Has the development of rural e-commerce promoted rural entrepreneurship? Evidence from China's township-level panel data. *China Soft Science*, 3, 89-102.
- [11] Guo, M., & Guo, Q. (2025). Spatial spillover effects and income-increasing models of rural e-commerce development under the goal of common prosperity. *Agricultural Economy*, 1, 142-144.
- [12] You, X. D., Chen, L. P., Wang, H. Y., et al. (2024). Rural e-commerce, digital financial inclusion, and income growth of rural residents. *Business Economics Research*, 19, 102-105.
- [13] Tian, Y., & Xia, J. C. (2024). Rural e-commerce, rural residents' employment, and common prosperity. *China Business and Market*, 38(6), 66-76.
- [14] Qiu, H., Zhang, X., Feng, M., et al. (2024). Exploring the income-increasing benefits of rural e-commerce in China: Implications for the sustainable development of farmers. *Sustainability*, 16(17), 7437.
- [15] Wang, L., & Sun, Y. (2025). Digital dividends? Rural E-commerce policy and urban-rural income disparity in China. *Telecommunications Policy*, 49(10), 103058.
- [16] Yu, W. R., & Yang, L. Z. (2025). Constraints and countermeasures for the development of rural cross-border e-commerce under the digital economy ecosystem. *Agricultural Economy*, 7, 136-138.
- [17] Chen, Y., Chen, C. M., Liu, Z. Y., et al. (2015). The methodological functions of CiteSpace knowledge mapping. *Studies in Science of Science*, 33(2), 242-253.