

Visualization and Analysis of Domestic Research on Language Economics based on Citespace Knowledge Mapping

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Abstract: Linguistic economics is a cross-discipline of linguistics and economics, which adopts the theories, methods and tools of economics to study language and speech behaviours as universal social and economic phenomena, and it is an integrated study of language and economic issues, which transcends the limitations of the previous sub-divisions and reflects a new paradigm of contemporary scientific exploration. However, the review and analysis of related research progress in China is not sufficient. Therefore, based on the theory of bibliometrics, this paper takes the literature related to linguistic economics in the core journals of China Knowledge Network (CN) CSSCI and Beida as the object of research, and analyses the year, author, institution, and keywords of the literature visually with the help of the CiteSpace Knowledge Mapping tool, in order to explore the current situation of the research on linguistic economics and the hot frontiers of the research in China, with a view to providing a good basis for the subsequent research. In particular, in terms of multimodal information fusion, geospatial analysis, and the combination of language industry and tourism, it can directly guide the construction of Guilin case corpus and the design of application scenarios. The results show that: (1) From the annual trend of the number of articles published, the overall development is slow and unstable, except for the golden period of development, which is booming. (2) From the perspective of the authors, among them, Huang Shao'an, Zhang Weiguo, Su Jian and Liu Guohui are the leaders in the field of linguistic economics in China, and the four of them are in a relationship of master and apprentice, with close co-operation. (3) From the perspective of issuing institutions, the position in the field of language economics is higher education institutions, and the key position is in Shandong University. (4) From the point of view of research hotspots, 'language industry', 'language', 'language economy' and so on have been widely and persistently concerned. (5) From the perspective of research trend, 'human capital' has great potential for development in recent years.

Keywords: Linguistic Economics, CiteSpace, Visual Analysis, Current State of Research.

1. Introduction

The term 'language economics' comes from a short article of the same name written by Malthacker, the pioneer of information economics in 1965. In the 1990s, the development of language economics has reached the fourth stage, and under the promotion of scholars such as F. Green, researchers have been involved in the field of language policy and language planning, and have made great progress in the selection, design and evaluation of language policy. In the meantime, under the background of economic globalization, the communicative function of language has been gradually enlarged, language and its related problems are more and more linked with economy, and domestic language economics has quietly emerged as a marginal cross-disciplinary field. (Liu Guohui, Zhang Weiguo 2017).

Since the beginning of the 21st century, it is the fifth stage of the development of language economics, and the research of language economics has shown a trend of a hundred flowers. On the one hand, the traditional research on language economics has developed in depth, and a large number of foreign experiences have been supplemented in the relationship between language ability and income, and the issue of language diversity and minority language protection has become a hot topic in the economic analysis of language policy and language planning. On the other hand, with the development of big data and visualization technology, the research of linguistic economics is not limited to traditional

text analysis, but also explores emerging research directions, and draws on advanced technical methods to analyze linguistic economic issues, such as the use of multimodal data mining, information integration and visualization technology to display tourism information, the construction of Guilin's urban tourism geospatial information corpus, and the in-depth analysis of Guilin's urban tourism resources. This is also a new idea in the study of linguistic economics, that is, to integrate linguistic economics data from different sources, such as linguistic market survey data, linguistic policy documents, linguistic and economic statistics, etc., and then use visualization technology, such as the knowledge graph visualization tool Citespace, to display the research hotspots and research trends of linguistic economics in an intuitive way, so as to help readers better understand the development of the field of linguistic economics and provide theoretical support for related linguistic economic research. Expand the use of visualization technology.

Despite the fact that language economics in China has flourished in recent years, which has caused great repercussions in the fields of both linguistics and economics, its review studies have not been sufficiently researched by domestic scholars. Based on the Theory of Bibliometrics, this paper takes the literature related to linguistic economics in the CSSCI and Peking University core journals on China Knowledge Network as the research object, and with the help of the CiteSpace knowledge graph analysis tool, we conduct a visual analysis on the annual volume of articles, the authors of articles, the institutions of articles, the high-frequency

keywords of articles, the keyword co-occurrence, the clustering and the temporal distribution, and the analysis of the keywords of the sudden emergence in order to present the current research situation of linguistic economics and the current status of the field of linguistics and trade relations in a scientific and objective manner. This is to present a scientific and objective picture of the current status of research in the field of linguistic economics and to predict the future development trend, so as to provide a scientific reference for the subsequent research.

2. Data Sources and Methods

2.1. Data Source

The data of this study comes from CNKI, searching for the subject word 'language economics', no limit on the search time, and the type of literature is CSSCI and Peking University core, manually filtering the search results one by one, eliminating irrelevant literature, and including literature that does not contain 'language economics', but also contains 'language' and 'economy' within the scope of the search. The search results were manually screened one by one, excluding irrelevant documents, and the documents that did not contain the keyword 'language economics' in the search scope, but also contained the keywords 'language' and 'economics', were also included, and finally 155 valid documents were obtained (the search time was 2 January 2025), and the screened documents were exported to the format of Refwork, which was used as a reference for this study. The selected documents were finally exported in Refwork format as the research object of this study.

2.2. Research Methodology

With the development of science and technology, visualization technology provides abundant and practical information resources for academic research and commercial applications, such as the visualization of Guilin urban tourism information corpus research based on multimodal geospatial information fusion, which can provide important reference and support for Guilin's urban tourism planning and decision-making. Citespace is an information visualization software developed by Dr. Chaomei Chen of Drexel University in the United States using Java language. CiteSpace is a software dedicated to scientific literature analysis, which has gradually developed in the context of scientometrics and data visualization, and is mainly used to generate scientific knowledge graphs to visualize the information panorama in the field of scientific knowledge, and intuitively and clearly display the key literature, research hotspots and frontier directions in the field of scientific knowledge (Xu Jiang 2019:20). Its core function is citation visualization analysis, which helps users quickly understand the research status in the research field. At first, CiteSpace was mainly used in the field of library and archives management, becoming one of

the popular methodologies, and then gradually extended to various disciplines, and has been widely used in various fields, and can provide practical and valuable references for the core structure, development history, and research frontiers of the field (Yu Lin and Li Fuyin 2016: 9). In the study of linguistic economics, it can also be emphasized that through visual analysis methods such as knowledge graphs, the literature resources and data resources in the field of linguistic economics can be mined and integrated to form a valuable information collection and provide reference for subsequent research and related practices. This paper uses Citespace to draw a scientific knowledge map of language economics research in China, visualizes the research status, and analyzes quantitatively and qualitatively to answer the current situation of language economics research, so as to provide a scientific basis for decision-making in the formulation of language policy, the development plan of the language industry, and the allocation of language education resources.

2.3. Research Steps

Create a new folder, and then create four new folders in the folder, respectively input, output, date, project, put the content exported from Knowledge Net Refworks format in the input folder, and output it to the output folder through the Citespace software, and then use Author, Institution, Keywords and other node types of the software to analyse the current status of research in language economics. We then use the node types of Author, Institution, Keywords and so on to analyse the research status of the field of language economics in China, the time span is set to 1999-2024, and the time slice is 1 year, and Pathfinder, Pruning the merged network mode is selected, and the parameters are set and adjusted according to the effect of the visual presentation of knowledge graphs, and the rest of the parameters are the system defaults. The rest of the parameters are system defaults.

3. Results and Discussion

3.1. Analysis of the Number of Annual Publications

The number of scientific research papers is an important measure of the development of the field to which it belongs, and the co-occurrence of the number of papers and the year can show the distribution of research in a certain field at various stages. The relationship between the number of papers published in the field of language industry and the time change can reveal the research history and development speed of this field and predict its development trend (Peng Shuang 2020). In this paper, we statistically analyse the annual number of papers published in the research of language economics in China from 1999 to 2024, and draw a trend chart of the change of the annual number of papers published in the field in terms of years. This is shown in Fig. 1

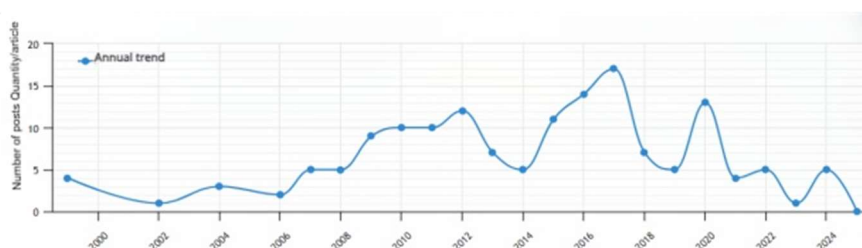


Fig. 1 Trend of Annual Publication Volume of Domestic Literature

Although linguistic economics started in the 1990s, the process of the early development was slow and the germination period was long. In 1999, when linguistic economics was just emerging, the number of articles appeared the first small peak; from 1999 to 2002, the number of articles decreased year by year, and there was only one article in 2002; from 2002 to 2012, the number of articles on linguistic economics showed a steady growth trend, even though there was a decrease in 2006, and the decrease was only 1 article; from 2002 to 2012, the number of articles on linguistic economics showed a steady increase, even though there was a decrease in 2006, and the decrease was only 1 article. In 2006, there was a decrease, and the decrease was only 1 article; in 2008, it began to enter the initial development period, and got a certain degree of development, but the momentum of development is not stable; in 2012-2014, the number of articles in language economics in this phase showed a small decline in the trend again, with a decrease of 7 articles, which is a larger decline; in 2014-2017, language economics ushered in a new round of vigorous development, and the number of articles reached the number of articles of language economics in 2017. In 2017, the number of articles reached the peak of linguistic economics since its emergence, and the number of articles in this year was as high as 17, which can be regarded as the golden period of the field; however, the good times did not last long, and the development of the field slowed down in fluctuation from 2017 to the present, with a sharp decline in the number of articles from 2017-2019, and the number of articles in 2019 was only 5; although the trend rebounded in 2020, and a new peak of the number of articles was realized. The subsequent years of fewer publications, it is difficult to return to the former development of the heyday, the number of publications in 2022 and 2024 is only 5, and even the number of publications in 2023 is only 1. The reason may be similar to the reasons for the fall of 2012-2014, 2017-2019 2012 and 2013, and it is more difficult to achieve new research breakthroughs for a period of time after experiencing the peak, but it only shows that scholars in the 2022-2024 the field of language economics research encountered a development bottleneck, it is difficult to publish high-level academic papers, it can not fully represent the whole field to the decline, if the relevant scholars can successfully break through the bottleneck period, then the field of language economics will once again usher in a developmental flourish similar to that of the 2014-2017, and reach a new peak.

3.2. Analysis of Publishing Authors

The survey of the main publishing scholars in a field of research can understand the research leaders in this field (Li Hanji Chen Haiqing, 2018). Publishing Authors are shown in Table 1. In the field of language economics, the scholar with the most publications in Chinese core journals is Professor Zhang Weiguo, Ph.D. in economics, professor of the Institute of Economic Research of Shandong University, Ph.D. supervisor, and director of the Language Economics Research Centre of Shandong University. His research interests include the economics of language, the economics of education, and the economics of labour and population, with a special focus on the economic, political and social analysis of language. He has published articles in *Economic Research*, *Chinese Language Teaching in the World*, *Language Teaching and Research*, *Language and Literature Application*, *Technology in Society*, *Journal of International Trade and Economic*

Development, *IZA World of Labour*, *Language Problems and Language Planning*, *Language and Population Economics*, and *Language and Population Economics*, with special focus on the economic, political and social analysis of language. *Technology in Society*, *Journal of International Trade and Economic Development*, *IZA World of Labour*, *Language Problems and Language Planning*, *Language Policy* and other authoritative and important journals in economics and linguistics at home and abroad, as well as *People's Daily*, *Guangming Daily*, *China Social Science News* and other important newspapers have published more than 60 papers, and many of which have been reproduced in full by *Xinhua Digest*, *Chinese Social Science Digest*, *Academic Digest of Liberal Arts for Higher Education*. He is also one of the main contributors to *The Routledge Handbook of Language Policy and Planning*, an authoritative toolkit for international language policy and planning. The second ranked scholar in terms of the number of articles published is Su Jian, PhD in Economics, Postdoctoral Fellow in Foreign Languages and Literature, and Young Future Scholar of Shandong University, who has published a total of 10 articles, with the main research direction of Western economics; the third ranked scholar in terms of the number of articles published is Liu Guohui, Associate Professor of Yanbian University, who has published a total of 8 articles, with the main research direction of language policy and planning, and the analysis of the economics of foreign language education policy. Analysis. It is worth noting that all three scholars are also under the supervision of Huang Shao'an, Ph.D. in Economics, a famous economist, Changjiang Scholars Distinguished Professor of the Ministry of Education, Chair Professor of Shandong University, and National Philosophy and Social Science Leading Talent. He is currently the Dean of the Institute of Economic Research (Centre) of Shandong University and the Executive Vice President of Shandong Development Research Institute. He is also an expert of the Academic Degrees Committee of the State Council on Theoretical Economics and an expert of the National Social Science Foundation and the National Natural Science Foundation of China. He is the founder of the Institute of Property Rights and the Institute of Economic Research (Centre) of Shandong University, and the founder of the *Journal of Institutional Economics Research*. He is also one of the key organizers and leaders in the research and discipline construction of property rights theory, institutional economics and legal economics in China, and has founded and organized the 'China Forum of Legal Economics', 'China Forum of Linguistic Economics' and 'China Forum of Institutional Economics'. He founded and organized the 'China Legal Economics Forum', 'China Language Economics Forum' and 'China Institutional Economics Forum'. He has set up excellent academic teams of theoretical economics in Shandong University and Central University of Finance and Economics respectively. He enjoys a high reputation in the national economics community. In general, among the authors with the highest publication volume, the top 4 authors with the highest publication volume are all from Shandong University, and they used to belong to the same research team, which reflects the leading role of Shandong University in the field of linguistic economics in China. In addition to the top four scholars, the rest of the scholars have fewer articles, Zheng Liping, Xu Qichao, Jiang Guoquan, Liu Jinlin, Li Yan, and the rest of the scholars have only three articles. In conclusion, although a professional

research team has been formed in the field of language economics in China, the number of the team is still relatively small, mainly concentrated only in Shandong University. Therefore, large-scale cross-institutional horizontal cooperation research in the field of language economics in

China needs to be strengthened urgently. Only through the formation of more large-scale research institutions, the field of language economics is expected to break through the bottleneck of publications and achieve the flourishing development of a variety of flowers.

Table 1. The Top 21 Authors of Language Economics in China.

Serial Number	Number of posts Quantity/ar	First delivery Text/year	Author
1	16	2008	Zhang Weiguo
2	10	2011	Su Jian
3	8	2011	Liu Guohui
4	4	2011	Huang Shaoan
5	3	2015	Zheng Liping
6	3	1999	Xu Qichao
7	3	2009	Jiang Guoquan
8	3	2019	Liu Jinlin
9	3	2017	Li Yan
10	2	2015	Song Jingyao
11	2	2004	Lin Yong
12	2	2016	Wang Qingran
13	2	2009	Nong Xueming
14	2	2020	Ma Jing
15	2	2014	Wang Lifei
16	2	2004	Song Jinfang
17	2	2014	Li Lin
18	2	2007	Xu Qilong
19	2	2022	Zeng Chengang
20	2	2004	Ren Rong
21	2	2021	Cheng Shi

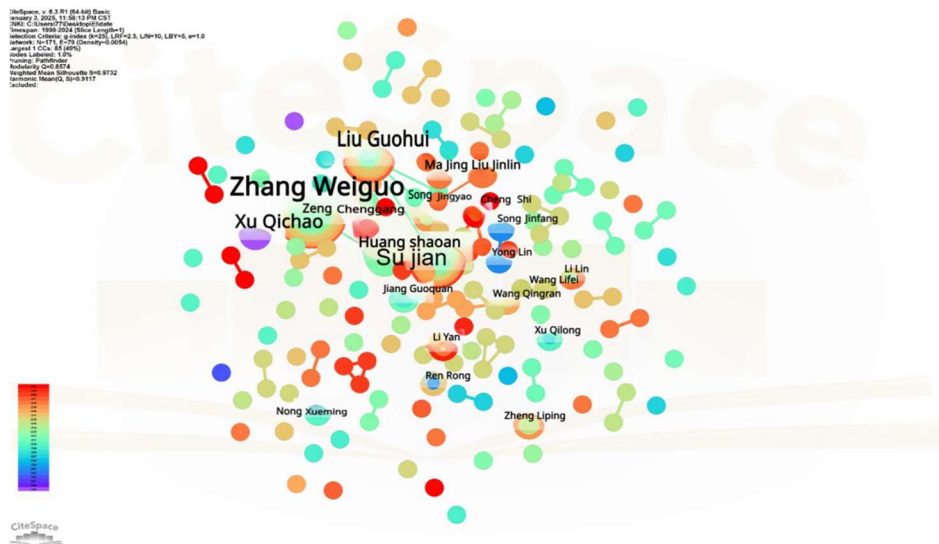


Fig. 2 Mapping of Co-occurrence Network of Author Cooperation

Fig. 2 shows the co-occurrence network mapping of author cooperation, in which each node represents an author, and the size of the node reflects the frequency of the author's posting; the thickness of the connecting lines between the nodes indicates the closeness of the co-operative relationship between the authors. The author co-occurrence mapping, which can not only discover highly productive authors but also explore the co-operative relationship among authors, helps to show the structure of the academic community within the field of language economics. In addition, because language economics involves both language and economics disciplines, collaboration among different authors also

enhances interdisciplinary communication and progress, and demonstrates the depth and maturity of research. As shown in the figure, there are a total of 171 nodes in the authors' co-linear graph, resulting in 79 collaborative co-linears. Among them, Huang Shaoan, Zhang Weiguo, Su Jian, and Liu Guohui have the largest scope of the collaboration network, and the thickness of the connecting lines between authors also indicates that there exists a close collaboration among the four, which is a stable author group in the field of language economics.

3.3. Analysis of Publishing Institutions

Table 2. Research Institutions with Two or More Articles

Serial Number	Number of posts/Quantity/article	First delivery Text/year	Issuing agency
1	21	2011	Institute of Economic Research, Shandong University
2	4	2009	School of International Culture, Capital Normal University
3	4	2016	School of Foreign Chinese Language, Yanbian University
4	3	2017	College of Liberal Arts, Capital Normal University
5	3	2010	School of English, University of International Business and Economics
6	3	2009	School of Foreign Chinese, Guangxi University
7	2	2012	Research Institute of Economic Research/Research Center for Language Economy, Shandong University
8	2	2012	Guangxi University for Nationalities
9	2	2012	Institute of Economic Research, Shandong University/Research Center for Language Economy, Shandong University
10	2	2017	Hunan Agricultural University
11	2	2020	School of Ethnology and Sociology, Guangxi University for Nationalities
12	2	2017	College of Liberal Arts, Wuhan University
13	2	2012	School of Economics, Central University of Finance and Economics
14	2	2010	School of Liberal Arts, Nanjing University
15	2	2004	School of Economics and Management, South China Normal University
16	2	2014	College of Foreign Chinese, Xinjiang Agricultural University
17	2	2012	Research Center for Language Economy, Shandong University

As can be seen from Fig. 3, the institutions located in the top of the number of articles include Shandong University, Yanbian University, Guangxi University, Capital Normal University, and the University of International Business and Economics, and these institutions have a relatively close cooperation relationship with each other or with other institutions. Domestic language economics research institutions are mainly concentrated in Shandong University, Shandong University in this field is the largest number of articles issued by the institution, corresponding to the author group, Shandong University, Institute of Economic Research alone, the number of articles issued 21, far ahead of other institutions, Shandong University, all the research centers of the total number of articles issued can reach 27, accounting for a very large proportion of the number of articles issued, but compared with the other areas of comparison, the amount of articles issued 27 However, compared with other fields, the number of 27 articles is not much, and the number of articles issued by the rest of the institutions is even less, even less than 5 articles, and the number of articles issued by the School of International Culture of Capital Normal University and the School of Foreign Languages of Yanbian University, which ranked the second in the number of articles issued by the

institutions, is only in single digits, which basically conforms to the actual situation of one of the emerging cross-disciplines of linguistic economics, and there are not many high-level articles issued by one of them, even though it has made certain development achievements in recent years. This is basically in line with the actual situation of the new interdisciplinary field of linguistic economics.

The distribution of institutional publications can reflect the main distribution of the field, which is also an effective way to study the current development of the field. The table shows that the top 17 issuing institutions are all colleges and universities, which can be concluded that the main position of language economics research in China is colleges and universities. Institutions of higher education have always been the most important places for scientific research (Peng Shuang 2020), and the strong research atmosphere, complete research facilities, professional research personnel training programs, and efficient research incentives provide sufficient conditions for the development of scientific research, and it can be predicted that the institutions of higher education will be an indispensable and powerful driving force to promote language economics to the next peak of its development in the future.

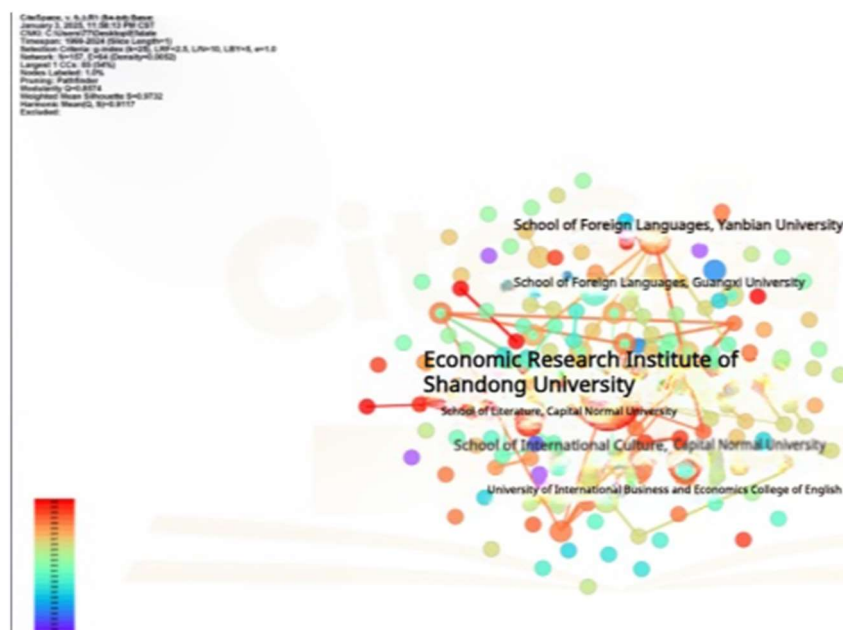


Fig. 3 Map of the Co-occurrence Network of Institutional Collaborations

Shandong University is definitely the main force in the scientific research of language economics. The China Forum of Language Economics, led by the Institute of Economics of Shandong University, is a professional academic forum of language economics, aiming at improving the level of research and application of language economics in China, promoting the cross-disciplinary development of economics and linguistics, as well as the exchange and co-operation of scholars, which has been held for 16 times so far. It provides

an interdisciplinary frontier communication platform for economics and linguistics, a dialogue window for experts and scholars from various fields to collide their thinking, and is conducive to the promotion of the cross-fertilization of language and economic disciplines, making great contributions to the development of language economics.

3.4. Analysis of Keywords in the Published Articles

Table 3. High-Frequency Keywords with a Frequency of Four or More

Serial Number	Number of posts Quantity/article	Centrality	First delivery Text/year	Key words
1	14	0.11	2012	Language industry
2	10	0.21	2004	Language
3	9	0.21	1999	Human capital
4	7	0.21	2010	Language planning
5	7	0.01	2010	The language economy
6	5	0.1	2010	English language education
7	5	0.05	2009	economic value
8	5	0.04	2006	philology
9	4	0.05	2010	Language Resources
10	4	0.09	2007	Foreign language education
11	4	0	2011	Business English

Keywords are the embodiment of important information about the content of the literature, and keywords that appear frequently in a certain period of time may be the research in the field at that time hotspot or focus (Li Jie Chen Chaomei 2016: 196). In this paper, we use CiteSpace software, set Node Types as Keywords, and we can get the high-frequency keywords in the field of domestic language economics as shown in Table 3, and this paper only selects the high-frequency keywords with a frequency of 4 times (including) or more, a total of 11 keywords, among which ‘language industry’ is the most high-frequency, and the number of articles issued is 14. The number of articles is 14. This word is a product of the intersection of linguistics and economics, which reflects the economic value of language, and there are other keywords of the same type, such as ‘language planning’, ‘language economy’, ‘language resources’, etc. The second high-frequency keyword is ‘language industry’. The second high-frequency keyword is ‘language’, with 10 articles, reflecting the linguistic characteristics of the discipline of language economics, and the keywords of the same attribute are ‘English education’, ‘linguistics’ and ‘language’. Linguistics’, “foreign language education”, “business English”; followed by the third most frequent keyword is “human capital”. The third most frequent word is ‘human capital’, with 9 articles, which is a proper noun in economics, similar to ‘economic value’. The frequency of keywords can show the degree of attention (Huang Dongjing Mao Zhujun 2023), so the most popular keywords in the field of language economics are ‘language industry’, ‘language’, ‘language’, ‘language’, ‘language’, ‘language’, ‘language’, ‘language’, ‘language’, ‘language’, ‘language’ and ‘language’.

In addition to frequency, CiteSpace can also count the Centrality of keywords, centrality is an index that measures

the importance of a node's position in the network by the number of shortest paths through the node (Li Jie Chen Chaomei 2022: 86). Usually, the keywords with high frequency and strong centrality are the common research problems and directions of most researchers in the same period, i.e., research hotspots and frontiers. As shown in Table 4, the most frequent keyword ‘language industry’ (frequency 14) and the most central keywords ‘language’ ‘human capital’ ‘language planning’ (centrality 0.21) are important nodes in research in the field of language economics. However, although frequency and centrality are correlated to some extent, they are not necessarily positively correlated. For example, the keywords with the highest frequency are not the keywords with the highest centrality. It is worth noting that although the discipline of language economics is named as the keyword ‘language economy’, the term does not co-occur frequently with the rest of the keywords. In other words, ‘language economy’, as the foundation of the discipline of language economics, does not have a strong correlation with the focus of the discipline of language economics (e.g., ‘human resources’, ‘language planning’, etc.). The relevance of ‘language economics’ as a foundation for the discipline of language economics to the concerns of language economics (e.g. ‘human resources’, ‘language planning’, etc.) is not strong. On the other hand, the keyword ‘language planning’, although appearing only seven times, is a key hub in the whole keyword co-occurrence network.

3.5. Keyword Co-Occurrence Analysis

The basic principle of co-occurrence analysis is to count the number of times a group of words appear two by two in the same set of literature and measure the affinity between them by the number of co-occurrences (ibid. 2017: 201).Citespace software visualizes the hotspots of the

research in the field of domestic linguistic economics by obtaining the keyword-keyword co-occurrence matrix through a series of operations on the co-occurrence matrix. The temporal distribution, co-occurrence relationship and strength of centrality of the keywords are visualized according to the size, colour and number of lines connecting the nodes to each other in the visualization map. We set to display all nodes, and only display the names of nodes with a frequency of 3 times or more. This is shown in Fig. 4, with

176 nodes, 198 days of co-occurrence, and a density of 0.0129. The high-frequency keywords in the field of language economics in China are ‘language industry’, ‘Human capital’, ‘language planning’, ‘English education’, etc. The classification is the same as that of the above high-frequency keywords, which comprehensively shows the types of research in the field of domestic language economics from three perspectives.

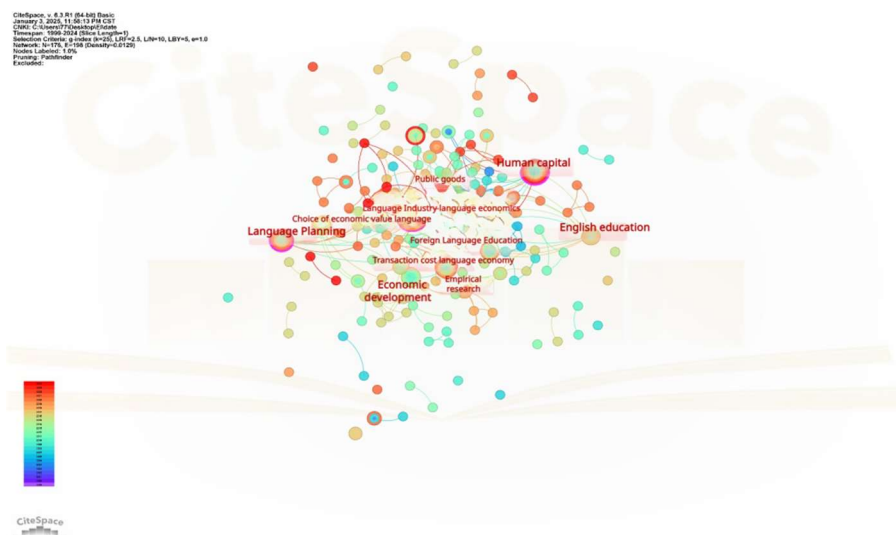


Fig. 4 Visualization of Keyword Co-occurrences

3.6. Keyword Cluster Analysis

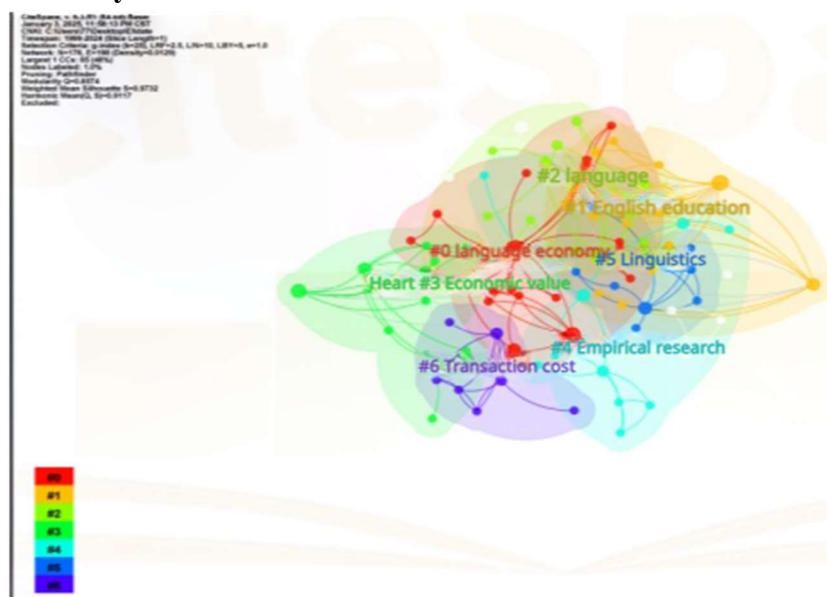


Fig. 5 Visualization Map of Keyword Clustering

The principle of Cluster Analysis is to gather closely related keywords together to form clusters by using the method of clustering statistics, and to show the research themes of language economics specifically on the basis of high-frequency keyword analysis and co-occurrence analysis. The results of cluster analysis show that Modularity Q is 0.8574 (> 0.3) and Mean Silhouette, S is 0.9117 (> 0.7), which indicates that the cluster structure is significant and credible, but the overall structure is looser (density is 0.0136, see Figure 4). There is a negative correlation between the cluster number and the number of keywords contained in the cluster, i.e. the smaller the cluster number, the larger the keywords

contained. As shown in Fig. 5, there are six keywords in the field of language economics in China, namely, ‘language economy’ (#0), ‘English education’ (#1), ‘language’ (#2), ‘economic value’ (#3), ‘empirical research’ (#4), ‘linguistics’ (#5), and ‘transaction costs’ (#6). ‘ (#6), which are also research themes in the field of language economics.

3.7. Analysis of Keyword Temporal Distribution

On the basis of keyword clustering, the time distribution map of keywords drawn by Citespace software can show the evolution of keywords intuitively and clearly. The visualization map of the time distribution of keywords in the

research field of domestic language economics (see Fig. 6) shows that English education is the cluster with the earliest origin and the longest development time, with the starting year of 1999, and since then, for nearly two decades, its connotation has been constantly developed and enriched in scholars' researches, and rich and diversified new contents have been developed, which has laid a strong foundation for the development of the whole discipline and has lasted the longest time throughout the whole process of the development of language economics, which still remains the same as the development process of the whole discipline. It has lasted the

longest, throughout the development process of language economics, and still maintains vigorous vitality, which to a certain extent also points out the direction for the development of language economics; while the remaining clusters only dominate for a period of time, setting off a wave of development, but the development time is not long, and it even seems to have stepped into the development of winter, and there is no new breakthroughs in recent years; the cluster with the shortest development time is the category of cost transaction, and the history of its development has lasted for less than five years.

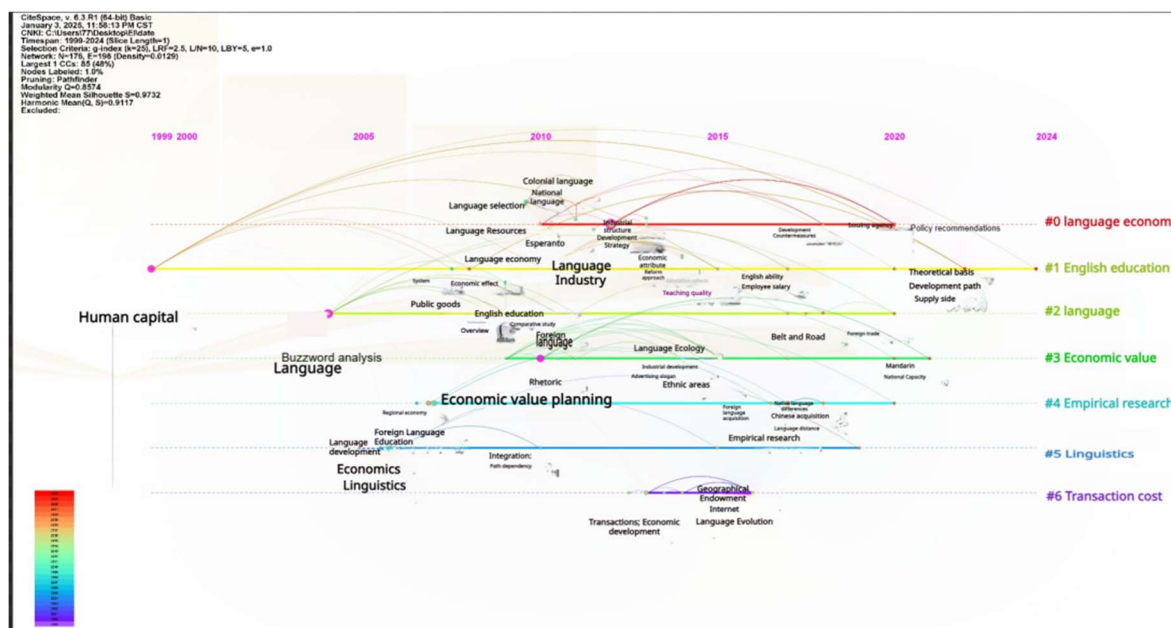


Fig. 6 Keyword timeline Visualization Mapping

3.8. Analysis of Emergent Words

Compared with the use of high-frequency subject words, the use of emergent subject words for analysis and research is more suitable for detecting new trends and sudden changes in the development of subject areas (Chen Chaomei 2006: 359 - 377). Using the Burst Detection function in the CiteSpace software, based on the temporal distribution of word frequencies, the subject words with high rates of change in word frequencies are detected to elucidate the research frontiers of the discipline. As shown in Fig. 7, the map of emergent words using Citespace includes Keywords, Year, Strength, Begin, and End. the larger Strength is, the longer the duration of the emergent state is, the higher the research fervour of the keywords in the time span, and the more the research frontiers in the field are reflected.

According to the keyword timeline visualization mapping in the field of domestic language economics in Figure 7, there are a total of 18 emergent words in the field of language economics, including 'language policy' "economics" "linguistics" "language" 'language resources', "language choice", etc. Among them, the keyword "language" has the greatest intensity of emergence, far exceeding the rest of the keywords (intensity 2.25), and the duration of the emergent state is up to 15 years (2008 to 2020). The second keyword with the highest intensity is 'empirical research' (intensity 1.65). As a research paradigm, empirical research originated from the empirical philosophy of Bacon and the natural science research of Newton-Galileo. Galileo's study of the natural sciences. French philosophers Condorcet (1743-1794), Saint-Simon (1760-1825), and Comte (1798-1857) advocated that

the spirit of natural science empirical evidence be applied to the study of social phenomena, and they advocated that the study of social phenomena should start from experience, and that it should adopt the means of procedural, operative, and quantitative analyses so as to reach the level of refinement and accuracy. The high intensity of the keyword 'empirical research' indicates that although the research object of language economics is social phenomenon, which belongs to the field of social science, the research method of natural science is adopted to make the research result more scientific and objective; the third and fourth keywords ranked in the intensity degree are respectively 'economic value' (intensity of 1.0) and 'the value of language' (intensity of 1.0). The third and fourth ranked keywords are 'economic value' (intensity 1.5) and 'economics' (intensity 1.44), which shows that the role of economics in the development of linguistic economics should not be underestimated. Although the keyword 'language resources' is only ranked fourth with an intensity of 1.27, it has been in the list for five years, second only to the top-ranked keyword 'language', which shows that it has played an important role in the establishment and development of linguistic economics. It can be seen that it plays an important role in the establishment and development of language economics. From the figure, it can be seen that 'human capital' is an emerging hotspot for research, and the research time will last from 2022 to 2024, but the research intensity is relatively low (intensity of 0.78), and there is still a huge space for development, but the opportunities and challenges coexist, and it requires the cooperation and efforts of scholars in this field.

Top 18 Keywords with the Strongest Citation Bursts

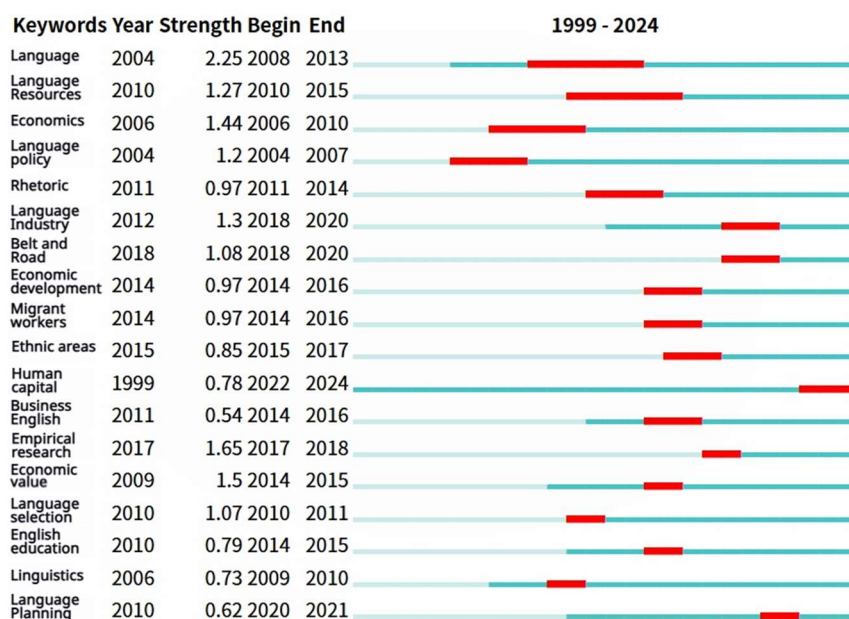


Fig. 7 Keyword timeline Visualization Mapping

4. Conclusion

By screening the literature research results in the field of language economics in CNKI database from 1999 to 2024, 155 valid literature were obtained as the research object. Then we used Citespace software to compile statistics and draw tables and knowledge maps, and reached the following conclusions after visual analysis: (1) From the trend of annual changes in the number of articles issued, linguistic economics started earlier, but went through a slow and long germination period; the initial development period was developed to a certain extent, but was unstable, with a short period of fallback; the golden period of development was vigorous and flourishing; the development fluctuation period was very unstable, and the overall development speed slowed down. (2) From the perspective of the authors, among them, Huang Shaoan, Zhang Weiguo, Su Jian, and Liu Guohui are the leaders in the field of language economics in China, and the four of them are in the relationship of master and apprentice, with close co-operation. (3) From the perspective of issuing institutions, the position in the field of language economics is higher education institutions, and the key position is in Shandong University. (4) From the point of view of research hotspots, 'language industry', 'language', 'language economy' and so on have been widely and persistently concerned. (5) from the perspective of research trend, 'human capital' has great potential for development in recent years.

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