Daluang: Journal of Library and Information Science, 3(1), 2023, 1-11

Available online at https://journal.walisongo.ac.id/index.php/daluang

A case study of the impact of regional knowledge services and management on regional economic development

Na Ran*

Library, University of Science and Technology Beijing, 30 Xueyuan Road, Haidian District, Beijing 100083, P. R. China

Paper type:
Research article

Article history:
Received February 2, 2023
Revised April 6, 2023
Accepted April 8, 2023
Published April 30, 2023

Keywords:
- Public library
- Knowledge diseemination
- Knowledge share
- Regional economic development
- Statistical analysis

Abstract

Background. Knowledge can give an important contribution to local economic development, but the correlation between library activities and local economic development has not been clarified yet. The purpose of this investigation is to discuss the correlations between library output measures and regional economic measures.

Methodology. The raw data obtained via the website of the National Bureau of Statistics of China have been analyzed by correlation coefficient calculations and multivariate regressions.

Results and discussion. It was found that there are significant positive correlations between the data of the regional public libraries such as the collections of public libraries owned per person, the total number of circulation of public libraries, the Number of Seats of Reading Room in Public Libraries, the Floor Space of Buildings of Public Libraries Owned per 10000 Population, the Number of Lectures in Public Libraries and the data of their economic development. Linear relationships between library activities and the gross regional product of the five provinces in China and one of China's direct-controlled municipalities were observed after multivariate regressions were performed on the data.

Conclusions. It can be concluded that economic development can benefit the development of libraries, and better education or a more educated population has resulted in more library use. The correlation analysis and multivariate regression analysis can be developed as a new way to measure the societal value of public libraries orientated for economic development or other targets.

1. Introduction

Knowledge is believed to be one of the main sources of economic growth (Toerien, 2016). Knowledge can give an important contribution to local economic development (Borhani, 2020). Differences in knowledge accessibility can be used to explain differences in regional growth rates (Huggins, 2015). Knowledge gives an important contribution to regional economic performance (Liang, 2019). Creating and disseminating knowledge and innovation in universities can give contribution to regional development and growth (Galvão, 2018). But much remains to be done before the contribution has been thoroughly understood.

A public library is a social institution whose roles are to educate, inculcate values, and provide recreational opportunities for the public (Hashmi, 2019). Public libraries' functions are to acquire, process, organize, and disseminate information (Kolawole, Ogbuiyi, Oriogu, & Ogbuiyi, 2015). Public libraries provide opportunities and support for

* Corresponding author.
Email address: ranna@ustb.edu.cn (N. Ran)

p-ISSN: 2797-3182; e-ISSN: 2797-3131. Doi: 10.21580/daluang.v3i1.2023.14694

learning and knowledge development, health and well-being, community development, and economic development (Cole & Stenström, 2020). Public libraries are important places for knowledge dissemination, which made knowledge more accessible. For example, librarian expertise is used to mobilize evidence, manage and share knowledge, support patients, caregivers, and families, optimize technology and social media, and provide a cornerstone for improving patient care and safety (Lacey Bryant et al., 2018); public libraries play an important role in the development of lifelong learning (Yoshida, 2021); it is found that people in three different financially independent reader groups use the public library of Shanghai as the main place for lifelong learning and studying, as well as enhancing job-related skills (Lo & Stark, 2020); Libraries can develop creative "space" for tourism purposes (Lavranos, Vouvaki-Manousaki, & Kostagiolas, 2020); the role of librarians and knowledge experts is crucial to consolidate the transformation of healthcare services (Day & Goswami, 2020). Public libraries can provide support for individual progress, vulnerable groups, and community development (Stenstrom, Cole, & Hanson, 2019).

The above results denote that people can develop their power, creative ability, and so on by learning from public libraries. Therefore, the library will inevitably have effects on the transformation between knowledge and productive forces. It implies that the library service can be helpful to improve the local development. The library can make contributions to the realization of many sustainable development goals and has a wide range of positive impacts on the community (Tbaishat, 2020). The result of the causality test show that when the number of library users changes, the gross domestic product will be affected (Öztemiz & Tekindal Mustafa, 2020).

Firstly, public libraries play an important role in promoting sustainable development and benefiting mankind (Kosciejew, 2020), whereas academic libraries focus on the contribution of the library to learning, teaching and research (Atkinson, 2017). Secondly, public libraries are usually regarded as a city card in China, and the local government's investment in public libraries also makes people have further expectations for the services of public libraries. Studying public libraries can reorganize the services of public libraries, and find out how to improve them, which is helpful for the development of public libraries in China. This paper aims to re-understand the value of public libraries, the role of public libraries in local economic development, the contribution of public libraries to social development, and the contribution of public libraries to rebuild the public image of the library actively participating in social affairs through the correlation analysis between public libraries and local economic development.

2. Methods

Libraries of all sizes are dedicated to strengthening and promoting local economic development and the development of small businesses (Hughes & Boss, 2020). It means that it is necessary to know the relationship between the impacts of library activities and local economic development. It is the aim of this article. There are few studies on the economic impact or value of Public Libraries in China. Exploring the data of the public libraries of the provinces, municipalities, and autonomous regions and their economic development data in recent years published by the National Bureau of Statistics of China, the correlations have been studied by the correlation theory in mathematics. This article explores what public libraries should do for getting better societal value or meeting the needs of social and economic development in an administrative region.

Public knowledge of nuclear energy is found to be positively correlated with perceived benefit and public acceptance of nuclear energy, but not with the perceived risk of nuclear

energy in China using statistical analysis (Wang, Wang, Lin, & Li, 2019). Statistical methods had been used in library customer surveys and had found that public libraries are used for the special projects of the library (participating in activities, reading, learning, work, research, using computers), and also for activities other than library-specific activities (asking questions, hanging out with friends, going to the toilet, resting) (Richter et al., 2019). Big data and other non-traditional data sources have changed the production, dissemination, use of data, and fundamentally changed the epistemology of information and knowledge. The increasing role of big data that can contribute to sustainable development goals and other non-traditional data sources will change the production, dissemination and use of data, and fundamentally change the epistemology of information and knowledge. (Fukuda-Parr & McNeill, 2019).

The National Bureau of Statistics of China set up a new version of the database in 2013, which included a Chinese version and an English version. The time series data of the main indicators in each field of expertise investigated by the National Bureau of Statistics can be queried. Its annual data include data in 27 fields, including synthesis, GDP, population, employment and wages. The data in this paper comes from its annual data (http://data.stats.gov.cn).

3. Results and Discussion

3.1 Data on public libraries and regional economic development in the five provinces in China and one of China's direct-controlled municipalities

In the following, we will analyze the data of public libraries and economic development based on the annual data in recent years that come from the website of the National Bureau of Statistics of China (http://data.stats.gov.cn) according to the mathematics methods (Ho, 2017; Yockey, 2017). Because the COVID-19 outbreak in recent years, the data of this study were selected from 2008 to 2017 in order to avoid the disturbance brought by such abnormal factors to the results,. Four major economic regions (zones): eastern, central, northeast, and western regions were divided according to the National Bureau of Statistics of China. The eastern region plays a leading role in economic development, whereas the economic developments of the western, central, and northeast regions are far behind that of the eastern region. Representative provinces from three economic regions will be selected in the following. According to the difference of gross regional product, five provinces in China and one of China's direct-controlled municipalities with different gross regional products were selected for case analysis and discussion.

Figure 1 gives how (a) the gross regional products (100 million yuan), (b) the collections of public libraries owned per person (volume/person), (c) the accumulated number of library cards distributed in public libraries (10000 units), (d) the total number of circulation of public libraries (10000 person-times), (e) the number of circulation borrowing from libraries in public libraries, (f) the number of books and periodicals lent to readers in public libraries (10000 volume-times), (g) the number of seats of the reading room in public libraries (10000 units), and (h) the floor space of buildings of public libraries owned per 10000 population (square meter) of the five provinces in China and one of China's direct-controlled municipalities change with time. Figure 1a shows that the gross regional products of the five provinces in China and one of China's direct-controlled municipalities increased rapidly with time, but the growth slowed after 2012. The gross regional products of the five provinces in China and one of China's direct-controlled

municipalities can be approximated by two exponential growth stages, and the turning point is 2012. It can be concluded from Figure 1b that the regions with high gross regional products (Shanghai, Jiangsu, Zhejiang, eastern region) generally have more collections of public libraries owned per person than those regions with low gross regional products (Gansu, western region; Heilongjiang, northeast region; Hunan, central region). Figure 1c demonstrates that regions with high gross regional products (Shanghai, Jiangsu, Zhejiang, eastern region) generally have a more accumulated number of library cards distributed in public libraries than those regions with low gross regional products (Gansu, western region; Heilongjiang, northeast region; Hunan, central region). Similar relations have been found for the total number of circulation of public libraries (Figure 1d), the number of circulation borrowing from libraries in public libraries (Figure 1e), the number of books and periodicals lent to readers in public libraries (Figure 1f), the number of seats of the reading room in public libraries (Figure 1g), and the floor space of buildings of public libraries owned per 10000 population (Figure 1h)of the five provinces in China and one of China's direct-controlled municipalities.

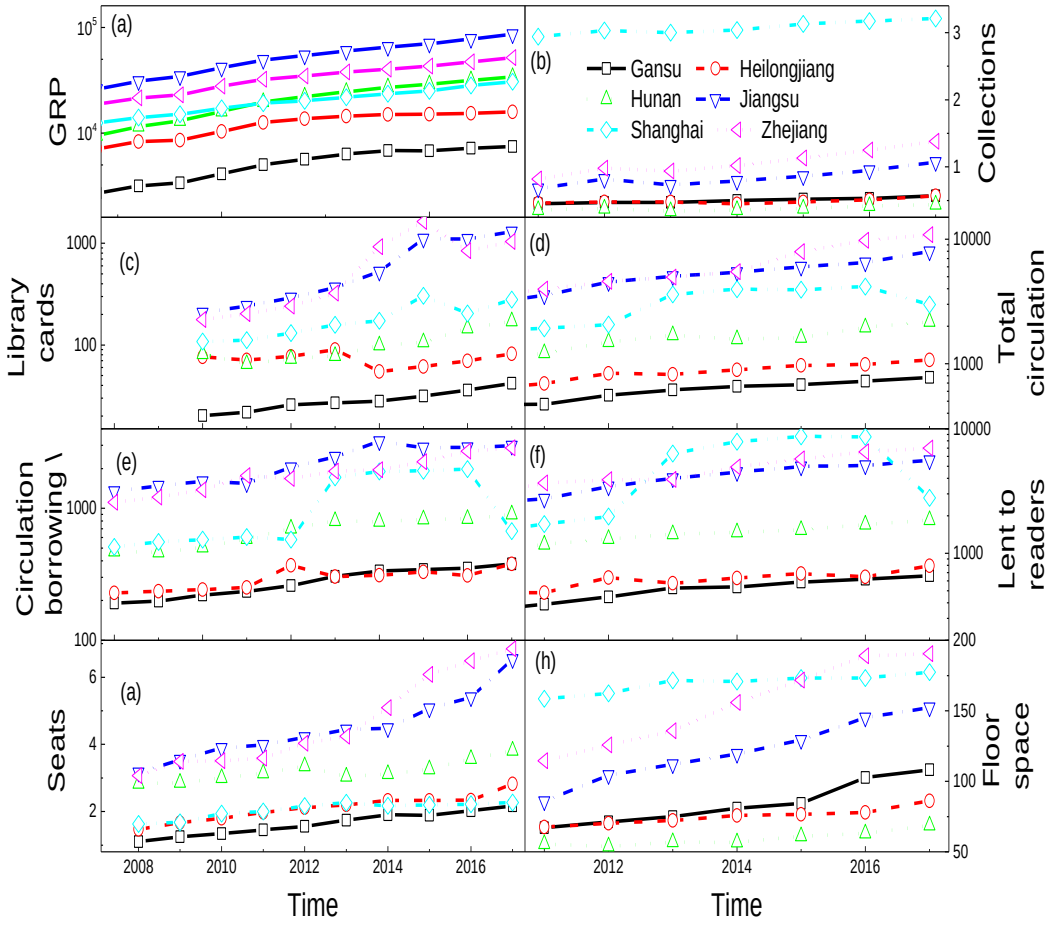

Figure 1. the annual data of regional economy, library facilities and library activities as a function of time

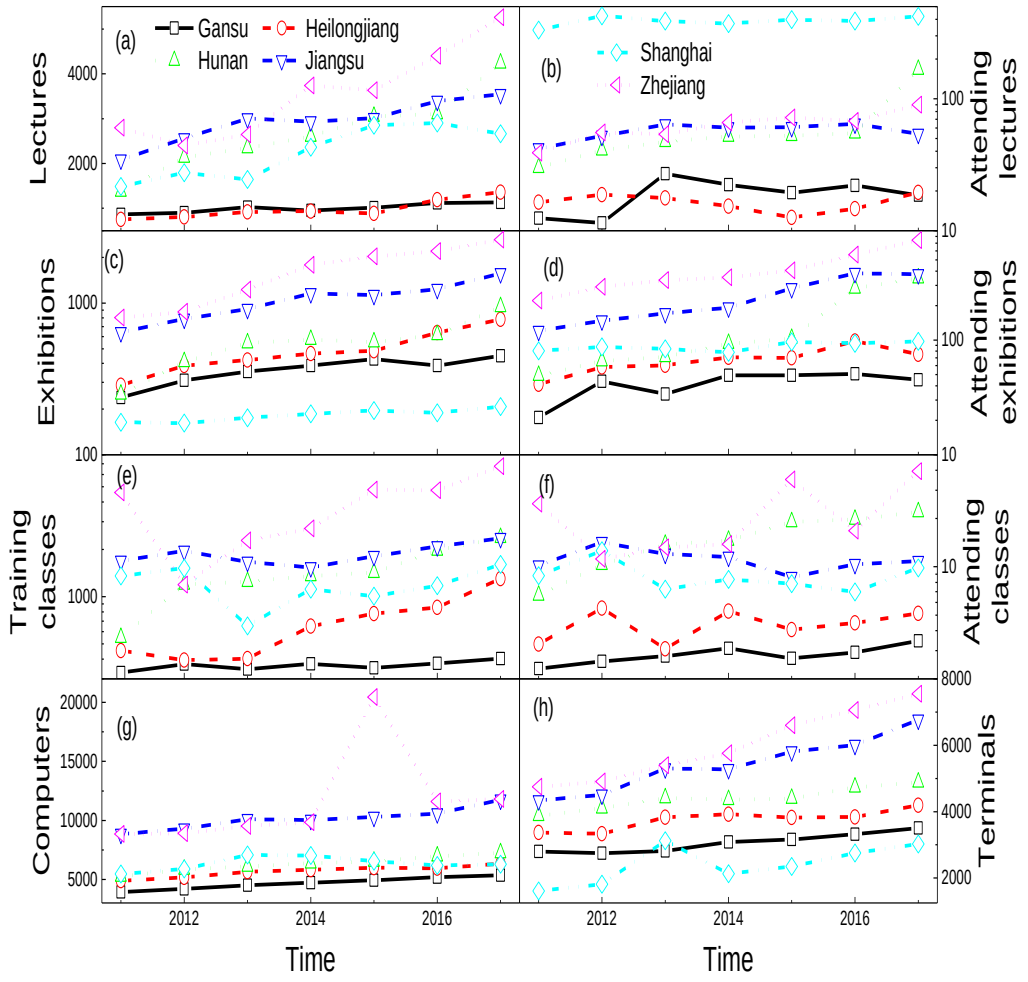

Figure 2. the annual data of regional library facilities and library activities as a function of time.

Figure 2 depcits how (a) the number of lectures in public libraries (time), (b) the number of person-times attending lectures in public libraries (10000 person-times), (c) the number of exhibitions held in public libraries (unit), (d) the number of person-times visiting exhibitions in public libraries (10000 person-times), (e) the number of training classes held in public libraries (unit), (f) the number of person-times attending training classes in public libraries (10000 person-times), (g) the number of computers in public libraries (set), and (h) the number of terminals in electronic media reading rooms in public libraries (set) of the five provinces in China and one of China's direct-controlled municipalities change with time. It can be concluded from the Figure 2a that the number of lectures in public libraries in the five provinces in China and one of China's direct-controlled municipalities nearly linearly increases with time. This figure shows once again that the regions (Shanghai, Jiangsu, Zhejiang, eastern region) with relatively high gross regional products have more lectures in public libraries than those regions (Gansu, western region; Heilongjiang, northeast region; Hunan, central region) with relatively gross regional products have. There are similar relations for the number of person-times

attending lectures in public libraries (Figure 2b), the number of exhibitions held in public libraries (Figure 2c), the number of person-times visiting exhibitions in public libraries (Figure 2d), the number of training classes held in public libraries (Figure 2e), the number of person-times attending training classes in public libraries (Figure 2f), the number of computers in public libraries (Figure 2g), and the number of terminals in electronic media reading rooms in public libraries (Figure 2h).

3.2 Correlation Analysis

Table 1 demonstrates the Pearson correlation coefficients r between the data of public libraries in the five provinces and one of China's direct-controlled municipalities and their gross regional products were obtained via correlation analysis. The significance level in the calculations of 0.01 has been chosen in this paper, which indicates that the result is significant when the *p*-value (Sig. (2-tailed)) is less than the significance level. The results of the calculated Pearson correlation coefficient (*r*) are discussed as follows.

Table 1. The correlation between the data of the public libraries owned by administrative regions and their Gross Regional Product (100 million yuan)

		Gross Regional Product (100 million yuan)					
		Jiangsu	Zhejiang	Shanghai	Gansu	Heilongjiang	Hunan
Collections of Public Libraries Owned per Person (volume/person)	Pearson Correlation	0.927	.978	.958	.911	.622	.778
	Sig. (2-tailed)	.003	.000	.001	.004	.136	.039
Accumulated Number of Library Cards Distributed in Public Libraries (10000 units)	Pearson Correlation	0.993	.727	.831	.893	-.157	.867
	Sig. (2-tailed)	.001	.041	.011	.003	.711	.005
Total Number of Circulation of Public Libraries (10000 person-times)	Pearson Correlation	0.990	.916	.804	.979	.927	.968
	Sig. (2-tailed)	.000	.000	.005	.000	.000	.000
Number of Circulation Borrowing from Libraries in Public Libraries (10000 person-times)	Pearson Correlation	0.910	.983	.567	.977	.838	.975
	Sig. (2-tailed)	.000	.000	.087	.000	.002	.000
Number of Books and Periodicals Lent to Readers in Public Libraries (10000 volume-times)	Pearson Correlation	0.982	.974	.642	.974	.452	.989
	Sig. (2-tailed)	.000	.000	.046	.000	.190	.000
Number of Seats of Reading Room in Public Libraries (10000 units)	Pearson Correlation	0.961	.947	.861	.982	.938	.868
	Sig. (2-tailed)	.000	.000	.001	.000	.000	.001
Floor Space of Buildings of Public Libraries Owned per 10000 Population (square per meter)	Pearson Correlation	0.987	.972	.878	.891	.916	.915
	Sig. (2-tailed)	.000	.000	.009	.007	.004	.004
Number of Lectures in Public Libraries (time)	Pearson Correlation	0.941	.948	.857	.900	.828	.963
	Sig. (2-tailed)	.002	.001	.014	.006	.021	.000
Number of Person-times Attending Lectures in Public Libraries (10000 person-times)	Pearson Correlation	.493	.931	.463	.612	-.128	.741
	Sig. (2-tailed)	.261	.002	.296	.144	.785	.057

Continued table 1...

Number of Exhibitions Held in Public Libraries (unit)	Pearson Correlation	.936	.977	.928	.951	.888	.919
	Sig. (2-tailed)	.001	.000	.003	.001	.008	.003
Number of Person-times Visiting Exhibitions in Public Libraries (10000 person-times)	Pearson Correlation	.958	.972	.756	.787	.835	.883
	Sig. (2-tailed)	.001	.000	.049	.036	.019	.009
Number of Training Classes Held in Public Libraries (unit)	Pearson Correlation	.704	.702	.197	.742	.788	.955
	Sig. (2-tailed)	.077	.079	.672	.056	.035	.001
Number of Person-times Attending Training Classes in Public Libraries(10000 person-times)	Pearson Correlation	-.375	.555	-.262	.879	.401	.984
	Sig. (2-tailed)	.408	.196	.571	.009	.372	.000
Number of Computers in Public Libraries(set)	Pearson Correlation	.965	.401	.222	.977	.985	.990
	Sig. (2-tailed)	.000	.372	.632	.000	.000	.000
Number of Terminals in Electronic Media Reading Rooms in Public Libraries(set)	Pearson Correlation	.983	.989	.687	.887	.910	.964
	Sig. (2-tailed)	.000	.000	.088	.008	.004	.000

3.3 Multiple linear regressions

Note that the data used in this article have different scales and units, the data were normalized before performing multiple linear regressions. This is because standardization can adjust the values measured on different scales to a theoretically common scale. Table 2 shows the relationship between library activities and the gross regional product. R Square is 1.000.

Table 2. The Standardized coefficients of multiple linear regressions between library activities and the gross regional

	Gross Regional Product (100 million yuan)					
	Jiangsu	Zhejiang	Shanghai	Gansu	HeilongjiangHunan	
Collections of Public Libraries Owned per Person (volume/person)	0.3065	-0.0345	0.14304	0.01005	-0.03595	0.02935
Accumulated Number of Library Cards Distributed in Public Libraries (10000 units)	0.21298	-0.01971	-0.05777	-0.0109	0.01086	0.14656
Total Number of Circulation of Public Libraries (10000 person-times)	0.10656	0.00619	0.06394	0.03953	0.03863	-0.14783
Number of Circulation Borrowing from Libraries in Public Libraries (10000 person-times)	0.14061	0.12512	-0.02243	0.05871	0.02978	0.03781
Number of Books and Periodicals Lent to Readers in Public Libraries (10000 volume-times)	0.16121	-0.07659	-0.02227	0.02613	0.01838	0.1211
Number of Seats of Reading Room in Public Libraries (10000 units)	0.04403	0.00874	0.12766	0.06124	0.02589	-0.08391
Floor Space of Buildings of Public Libraries Owned per 10000 Population (square per meter)	0.10556	0.06193	0.10134	0.02409	0.01622	0.02748

Continued table 2...

Number of Lectures in Public Libraries (time)	-0.0663	-0.01609	0.09739	4.46864E-4	0.0093	0.05679
Number of Person-times Attending Lectures in Public Libraries (10000 person-times)	-0.1017	0.0728	-0.04614	0.06833	-0.01244	-0.04196
Number of Exhibitions Held in Public Libraries (unit)	0.05734	0.13066	0.10964	0.01436	0.01058	0.03707
Number of Person-times Visiting Exhibitions in Public Libraries (10000 person-times)	0.08298	0.12171	-0.01727	0.06632	0.05485	0.03671
Number of Training Classes Held in Public Libraries (unit)	0.24688	-0.0091	0.15399	0.00564	-0.03408	0.01237
Number of Person-times Attending Training Classes in Public Libraries (10000 person-times)	0.14398	-0.01227	-0.06131	0.03469	0.0055	0.08974
Number of Computers in Public Libraries (set)	-0.08583	-0.0045	-0.04803	0.03229	0.06471	0.1317
Number of Terminals in Electronic Media Reading Rooms in Public Libraries (set)	-0.06183	0.11512	0.11914	0.04067	0.07183	0.00941

4. Discussion

Note that there are interrelationships among various factors in Table 1 and this article aims to discuss the library activities oriented regional economic development, thus. Interrelationships among various factors could be considered in a future article. From the data of library services in public libraries of the five provinces in China and one of China's direct-controlled municipalities, the Pearson correlation coefficient in Table 1 clearly shows: There is a significant positive correlation between collections of public libraries owned per person, the total number of circulation of public libraries, number of seats of the reading room in public libraries, floor space of buildings of public libraries owned per 10000 population and gross regional products for the five provinces in China and one of China's direct-controlled municipalities. This implies that improving collections of public libraries owned per person, the total number of circulations of public libraries, number of seats of the reading room in public libraries, and floor space of buildings of public libraries owned per 10000 population can give a positive contribution to the gross regional products improve. However, the correlation between the number of computers in public libraries or the number of terminals in electronic media reading rooms in public libraries and the gross regional products is more complicated. Besides, the Pearson correlation coefficient of Table 1 clearly shows that there is also a significant positive correlation between the number of exhibitions held in public libraries and the gross regional products. However, the number of lectures in public libraries, the number of person-times attending lectures in public libraries, the number of person-times visiting exhibitions in public libraries, the number of person-times attending training classes in public libraries, and so on have more complicated dependent relation on the gross regional products. The above results agree well that the public library can give a contribution to the gross regional product (Tbaishat, 2020). This is because knowledge sharing and knowledge quality are positively correlated with innovation ability (Ganguly, Talukdar, & Chatterjee, 2019) and knowledge plays an important role in regional economic performance (Cole & Stenström, 2020; Urbano, D., & Aparicio, S.,2016; Liang,2019). In a word, public libraries in the five provinces in China and one of China's direct-controlled municipalities can give support

regional economic development. Such a conclusion is consistent in that libraries of all sizes can strengthen and promote local economic development (Hughes & Boss, 2020).

Table 2 demonstrates that normalized data of library activities have a linear dependent relation to the gross regional product of the five provinces in China and one of China's direct-controlled municipalities. Such a dependent relation agrees well with the former conclusion that the gross domestic product will be affected by the number of library users changes, (Öztemiz & Tekindal Mustafa, 2020). Both floor space of buildings of public libraries owned per 10000 population and the number of exhibitions held in public libraries have a positive contribution to the gross regional product of the five provinces in China and one of China's direct-controlled municipalities. Both factors are the basic guarantee for the public to carry out lifelong learning from libraries. It is consistent with existing research results that the public uses the library as the main place for lifelong learning and studying, as well as enhancing job-related skills (Lo & Stark, 2020). The relationship between other library activities and the gross regional product of the five provinces in China and one of China's direct-controlled municipalities is complicated. Such a complication could be explained by the matching of technological and economic activities in the local areas (Henning & Peter, 2020).

It is well-known that Shanghai is the most developed area in China. The economic developments in the eastern regions (Jiangsu, Zhejiang) are better than those in the western (Gansu), central (Hunan), and northeast (Heilongjiang) regions. One can note that the growth of Gross Domestic Product beyond a threshold of basic needs does not lead to further increases in well-being (Pretty et al., 2016). It could be the reason why there is no strong relationship between the variables for Shanghai (one of China's direct-controlled municipalities and a developed region).

5. Conclusions

In summary, the data of the public libraries of the five provinces in China and one of China's direct-controlled municipalities and their gross regional products have been analyzed. Through a comparative study of the public libraries and their gross regional products for the five provinces in China and one of China's direct-controlled municipalities by the correlation analysis and multivariate regression analysis on the data knowledge services and management provided by regional public libraries in regional economic development, the effects of the various library services of the public library were explored. Because knowledge can be transformed into productivity, libraries are an important place to disseminate knowledge. From the qualitative point of view, the knowledge dissemination of the library can promote gross regional products. The results of correlation analysis prove a significant positive correlation between collections of public libraries owned per person, or the total number of circulation of public libraries (or the number of seats in reading rooms in public libraries, or floor space of buildings of public libraries owned per 10000 population) and gross regional products for the five provinces in China and one of China's direct-controlled municipalities. Further results of multivariate regression analysis also demonstrate that there are linear relationships between library activities and the gross regional product of the five provinces in China and one of China's direct-controlled municipalities. In other words, vigorously developing these library services can promote gross regional products. All these results are consistent with the conclusions drawn in the literature.

Lastly, the correlation analysis and multivariate regression analysis can be performed on the activities of public libraries and a target (e.g. Indices of economic development, or other indices of society development). Based on these analyses, a new evaluation method

to measure the societal value of activities carried out by public libraries orientated to a special target can be proposed.

6. Acknowledgement

This work was supported by the reading promotion project of the China Library Society (Project No. YD2022B62).

References

Atkinson, J. (2017). Academic libraries and quality: An analysis and evaluation framework. New Review of Academic Librarianship, 23(4), 421-441. https://doi.org/10.1080/13614533.2017.1316749.

Borhani, M., Amiran, H., Edalatian Shahriari, J., & Kabaran Zadeh Ghadim, M. R. (2020). A readiness framework to evaluate local economy for an entrepreneurial university. Journal of Industry-University Collaboration, 2(3), 111-123. https://doi.org/10.1108/JIUC-03-2020-0003.

Cole, N., & Stenström, C. (2020). The value of California's public libraries. Public Library Quarterly, 1-23. https://doi.org/10.1080/01616846.2020.1816054.

Day, A., & Goswami, L. (2020). Driving change with evidence and knowledge: Transforming knowledge services for the NHS across England. Business Information Review, 37(1), 10-18. https://doi.org/10.1177/0266382120909240.

Fukuda-Parr, S., & McNeill, D. (2019). Knowledge and politics in setting and measuring the SDGs: introduction to special issue. Global Policy, 10(S1), 5-15. https://doi.org/10.1111/1758-5899.12604.

Galvão, A., Ferreira, J. J., & Marques, C. (2018). Entrepreneurship education and training as facilitators of regional development: A systematic literature review. Journal of Small Business and Enterprise Development, 25(1), 17-40. https://doi.org 10.1108/JSBED-05-2017-0178.

Ganguly, A., Talukdar, A., & Chatterjee, D. (2019). Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization. Journal of Knowledge Management, 23(6), 1105-1135. https://doi.org/10.1108/JKM-03-2018-0190.

Hashmi, F. A. (2019). Political discourse: Do public libraries serve as a fertile ground?. Library & Information Science Research, 41(3), 100965. https://doi.org/10.1016/j.lisr.2019.100965.

Henning, K., & Peter, N. (2020). Recent trends of regional development in china – technological portfolios and economic growth. Zeitschrift für Wirtschaftsgeographie, 64(1), 14-27. https://doi.org/10.1515/zfw-2018-0032.

Ho, R. (2017). Understanding statistics for the social sciences with IBM SPSS. CRC Press. London: CRC Press.

Hughes, C., & Boss, S. (2020). How rural public libraries support local economic development in the mountain plains. Public Library Quarterly, 1-24. https://doi.org/10.1080/01616846.2020.1776554.

Huggins, R., & Thompson, P. (2015). Entrepreneurship, innovation and regional growth: a network theory. Small business economics, 45, 103-128. https://doi.org/10.1007/s11187-015-9643-3.

Kolawole, O., Ogbuiyi, S., Oriogu, C., & Ogbuiyi, D. (2015). Disaster management practices in five public libraries in south-west, Nigeria. IOSR Journal Of Humanities And Social Science, 20(11, Ver. V), 78-83. https://doi.org/10.9790/0837-201157883.
Kosciejew, M. (2020). Public libraries and the UN 2030 agenda for sustainable development. IFLA Journal, 46(4), 328-346. https://doi.org/10.1177/0340035219898708.
Lacey Bryant, S., Bingham, H., Carlyle, R., Day, A., Ferguson, L., & Stewart, D. (2018). Forward view: advancing health library and knowledge services in England. Health Information & Libraries Journal, 35(1), 70-77. https://doi.org/10.1111/hir.12206.
Lavranos, C., Vouvaki-Manousaki, C., & Kostagiolas, P. (2020). Developing creative "spaces" in libraries for creative tourism. Qualitative and Quantitative Methods in Libraries, 9(1), 1-7. http://78.46.229.148/ojs/index.php/qqml/article/view/534.
Liang, W., & Yang, M. (2019). Urbanization, economic growth and environmental pollution: Evidence from China. Sustainable Computing: Informatics and Systems, 21, 1-9. https://doi.org/10.1016/j.suscom.2018.11.007.
Lo, P., & Stark, A. J. (2020). Shanghai Library as a human capital developer for a knowledge-driven socio-economic environment. Journal of Librarianship and Information Science, 0961000620948565. https://doi.org/10.1177/0961000620948565.
Öztemiz, S., & Tekindal Mustafa, A. (2020). Estimation of GDP from public library usage: Turkey sample. Library Management, 41(4/5), 153-171. https://doi.org/10.1108/LM-10-2019-0078.
Pretty, J., Barton, J., Pervez Bharucha, Z., Bragg, R., Pencheon, D., Wood, C., & Depledge, M. H. (2016). Improving health and well-being independently of GDP: dividends of greener and prosocial economies. International Journal of Environmental Health Research, 26(1), 11-36. https://doi.org/10.1080/09603123.2015.1007841.
Richter, S., Bell, J., Jackson, M. K., Lee, L. D., Dashora, P., & Surette, S. (2019). Public library users: perspectives of socially vulnerable populations. Journal of Library Administration, 59(4), 431-441. https://doi.org/10.1080/01930826.2019.1593711.
Stenstrom, C., Cole, N., & Hanson, R. (2019). A review exploring the facets of the value of public libraries. Library Management, 40(6/7), 354-367. https://doi.org/10.1108/LM-08-2018-0068.
Tbaishat, D. (2020). Jordanian public libraries in relation to achieving SDGs: Shoman library in action. Public Library Quarterly, 1-19. https://doi.org/10.1080/01616846.2020.1738836.
Toerien, D., & Donaldson, R. (2016). George. In Secondary Cities and Development (pp. 101-124). Routledge.
Urbano, D., & Aparicio, S. (2016). Entrepreneurship capital types and economic growth: International evidence. Technological forecasting and social change, 102, 34-44. https://doi.org/10.1016/j.techfore.2015.02.018.
Wang, S., Wang, J., Lin, S., & Li, J. (2019). Public perceptions and acceptance of nuclear energy in China: The role of public knowledge, perceived benefit, perceived risk and public engagement. Energy Policy, 126, 352-360. https://doi.org/10.1016/j.enpol.2018.11.040.
Yoshida, Y. (2021). Public libraries as places for self-directed lifelong learning: narratives of empowerment. Information Research, 26(1), paper 888. https://doi.org/10.47989/irpaper888.
Yockey, R. D. (2017). SPSS demystified. Oxford: Taylor & Francis.