

A Study on the Problem of Starting and Depositing of Ming Dynasty Fields Based on the Perspective of HGIS

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Abstract

The origination, transportation, and retention of field levies are the core contents of the Ming Dynasty financial research, and in the past, the academic community's attention to the origination, transportation, and retention problems only stayed in the discussion of the amount of field levies and the institutional level. With the use of digital humanities and historical geographic information systems in historical research, the spatial information implied in the Ming dynasty field levies can also be presented in the study. The book "Wanli Accounting Record" compiled by the Ministry of Revenue during the Wanli period contains the collection and storage of field levies at all levels of provinces and counties in the Ming Dynasty, and the historical documents are converted into data and then the GIS software is utilized to present them in a hierarchical manner on a nationwide scale. The results of the hierarchical presentation are further analyzed by using spatial analysis software to analyze the spatial relationship between the field levies in each state and county in the Ming Dynasty.

Keywords

Historical GIS; field fugue; starting and transportation; survival.

1. Overview of "starting and transportation" and "retention" of summer tax and autumn grain in the Ming Dynasty

Taxation is one of the most important elements in the financial system of the Ming Dynasty. Mr. Liang Fangzhong made a detailed introduction to the starting and staying of the Ming Dynasty in his article "The relationship between the division of starting and staying in the history of field tax and the proximity of the road". According to Mr. Liang, the field levies of the Ming Dynasty could be divided into two categories: the first one is the starting transportation and the other one is the retention. The use of starting transportation and retention varied. Starting transportation referred to the part of tax revenue that was used to pay to the central treasury. Its flow can be categorized into the central treasury, the emperor's inner treasury, the transit treasury along the canal, the treasury of the six ministries and temples, the treasury of the southern Zhili, and the various types of military districts or administrative units at all levels of the country. Deposit refers to the local administrative organizations at all levels by the chief secretary, directly under the prefectures, prefectures, directly under the counties, counties, guards, the land division will be paid taxes deposited in the local for the local military, administrative, Zongfan, construction expenditures. Because of the complexity of each place, and slightly different. Commonly divided into the following categories: one for the supply of local officials, teachers and students of the granary, and the revitalization of the orphans and the elderly, hospitality to the transit of the rations of the guests; the second for the supply of the territory of the guards of the military pay; and then is the year of disaster as a disaster relief. For other purposes, the budget is prepared once a year. The balance, after deducting the local reserves, was used to make up for the deficiencies within the province or in neighboring countries. The remaining surplus was put into local warehouses for disaster relief. Therefore,

the starting transportation and retention was a classification of the use of field levies, which reflected the financial relationship between the central and local governments in the distribution and use of the levies. For example, scholars [1]cite the text of the Ming Huidian, which also considers that the starting transportation of the Ming dynasty "refers to the transportation of taxes to the central government and the warehouses of the nine sides of the country in a regular and fixed amount according to the assignments of the central government". "The starting transportation of Beijing and the border, each has a fixed number." [2]

Depositing means "a portion of the tax is retained at the local level and used for regular expenses." Local taxes [3]were mainly used for the regular expenditures of the feudal lords, the salaries of the provinces in the hinterland other than the Nine Borders, and the salaries of local officials and education funds. The use of retained money and grain had to be audited by the central government, and prior instructions had to be given to the central government for spending, and could not be withdrawn by the localities without authorization. In terms of [4] the types of items to be paid for the field levy, there was a distinction between the original color and the folded color. In the Ming Dynasty, the field tax was paid twice a year, in summer and in autumn, and the summer tax was mainly paid in wheat and rice; the autumn grain was paid in rice. With wheat and rice grain is called "the color", summer tax in the autumn grain in addition to the grain submitted in addition to the banknotes, silk, mulberry silk, cloth, cotton, ramie, horse grass, and other taxes instead of food is called "folding color". "seventeen years, Yunnan to gold, silver, cloth, lacquer, sand and mercury on behalf of the autumn rent, so that the rice and wheat for the original color, and the folding of the tax on food is called the folding of color." [5]

The types of taxes and levies in the Ming Dynasty have been undergoing continuous changes over time, and the types of taxes and levies have been increasing. At the beginning of the Ming Dynasty, the types of taxes were relatively homogeneous, with only rice, wheat, money and silk as summer taxes. Autumn grain also only rice and wheat, money notes. "Two taxes Hongwu summer tax: rice and wheat, money bills, silk, money bills; autumn grain: rice, money bills, silk" But by the Hongzhi period, the types of taxes on summer tax and autumn grain had increased substantially.[6] The quotas in the Wanli Accounting Record are basically the quotas inherited from the Hongwu period. The quota is still the main content of local taxation in the Wanli period. Summer tax, autumn grain has its own quota, and in the starting and retention of all aspects of summer tax and autumn grain, the court annually assigned "Zhejiang, Hubei, Shandong, Henan, Jiangxi and South Zhili, etc." , will be part of the summer tax and autumn grain along the water transport to the capital as a canal grain.[77] It constitutes a complete financial statistics of the Ming Dynasty.

2. Dataization of the Administrative Boundaries and Field Taxes of the Entire Country in the Ming Dynasty

2.1. Vectorization of Administrative Boundaries

In the compilation of financial geospatial data of the Ming Dynasty, it is necessary to locate the place names of prefectures and counties corresponding to the Wanli Accounting Record, i.e., to obtain the information of their spatial scope or the location of the seat of government, or the conversion of financial and economic data to spatial data cannot be completed. At present, the geographic information and data sources that can be referred to are Tan Qichang's Chinese Historical Atlas , Zhou Zhenhe's General History of Chinese Administrative Districts - Ming Dynasty Volume , and Fudan University's CHGIS database.[8-9] It is possible to combine the three to recover the national political districts of the Ming Dynasty, but at present, it can only be accurate to the government boundary, and the level of county boundary cannot be recovered yet. The record time of Wanli Accounting Record is Wanli six years (1578), while the time of

Ming Dynasty map in Chinese Historical Atlas is Wanli ten years (1580), so the time difference between the two is not much, so the Ming Dynasty map in Chinese Historical Geographic Atlas can be extracted as the basis of historical geographic data when making vector data. However, it is necessary to pay attention to the deviation between the administrative areas in the Wanli Accounting Record and those in the Chinese Historical Atlas, and if necessary, it is necessary to use the General History of Chinese Administrative Districts - Ming Dynasty Volume written by Zhou Zhenhe and other scholars to check and correct the perfection, so as to get the administrative boundaries close to the sixth year of the Wanli reign (1578) and the locations of the various levels of districts; and finally, 1,318 vector point data are produced. 1,318 vector points represent the six years of the Wanli reign of the Ming dynasty, and 1,318 vector points represent the six years of the Ming dynasty. Finally, 1318 vector point data are produced; 1318 vector points represent 1318 prefectures and counties and 208 surface data, and the surface data represent all the provinces, prefectures directly under the government, guards, tributaries, and military and civil administrations of the country in the sixth year of the Wanli reign of the Ming Dynasty (1578); in the process of production, the present-day latitude and longitude values of the names of the places are given to the present-day names and the present-day values of latitude and longitude values are borrowed for the spatial corrections to guarantee the accuracy of the vector data after completing the production of the spatial vector data.

2.2. Construction of the database of Wanli Accounting Records

The fiscal statistics during the Wanli period are fused with the historical GIS to form a fiscal geostatistical table, which is converted to generate a spatial fiscal statistics database using ArcGIS software. The national finance covered in the Wanli Accounting Record is vast, and the various types of financial information recorded are huge and rich, including ten types of statistical information. These include: the National Clearance Division, 15 provinces (including Shandong addendum part) and the provinces directly divided into government, state, county summer tax, autumn grain; military and town payroll, internal treasury, and the supply of the Guanglu Temple, transportation, warehouse, salt, tea, commercial tax (banknote off the ship material commercial tax) and miscellaneous lessons (accumulation of grain). This paper focuses on the origination, transportation, and retention of field taxes and their related statistics, and then uses the historical geographic information system to summarize the geospatial characteristics of the origination, transportation, and retention of local field taxes in the Ming Dynasty.

Firstly, for the spatial geographic characteristics of the origin, transportation and retention of taxes in the Ming Dynasty, and combined with all kinds of financial literature and historical materials of the Ming Dynasty, the reasons are analyzed and certain characteristics of the financial operation of the Ming Dynasty are explored.

Secondly, starting from the historical materials, using the research means of digital humanities combined with the analysis method of historiographical literature, we depict and explore the problems related to the reform of Wanli and the monetization of silver.

3. The starting and transportation of the summer and autumn tax , the problem of storage and retention

3.1. Spatial visualization of summer tax

The items of summer tax collection in the field tax are mainly based on wheat, first of all, look at the spatial presentation of wheat.

3.1.1. Historical map display of "the amount of summer tax and wheat collection" in prefectures and counties of the Ming Dynasty

The author in ArcGIS using layered coloring method, the summer tax wheat database added to the ArcGIS software, also take five levels of layering, the depth of the color on the map represents the value of the high and low. The first layer of the government is 408.2929060.54, the second layer is 29060.5555826.58, the third layer is 55826.5999837.26, the fourth layer is 99837.2722872.29 and the fifth layer is 228872.30388660.92. The first layer of data for prefectures is 14.62905.17, the second layer is 2905.187143, the third layer is 7143.0114520.64, the fourth layer is 14520.6527040.1, and the fifth layer is 27040.1152722.83, in units of stones.

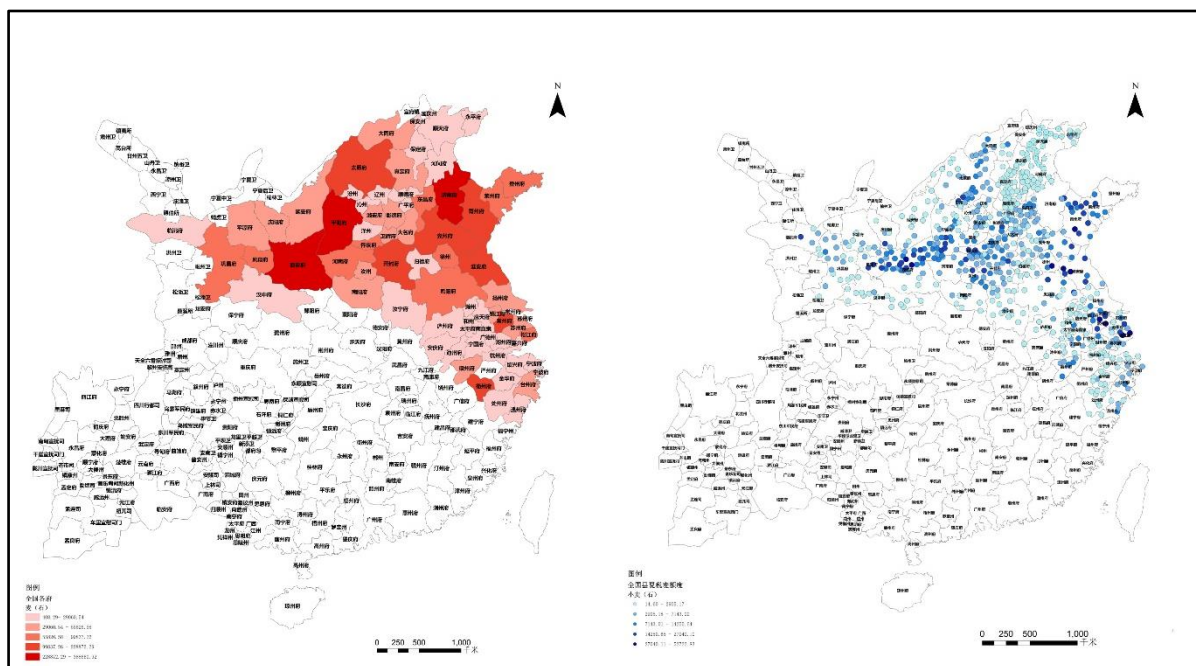


Figure 1: The amount of summer tax and wheat levied in Fuzhou County of the whole country in the Ming Dynasty

However, due to the special nature of tax collection in the Ming Dynasty, summer tax wheat was affected by natural factors such as geography, and the distribution of wheat-producing areas was mainly based on the northern region. The high-taxed prefectures were mainly Xi'an Prefecture of Shaanxi Chief Secretary, Pingyang Prefecture and Datong Prefecture of Shanxi Chief Secretary, and Jinan Prefecture of Shandong Chief Secretary. Changzhou Prefecture and Quzhou Prefecture in Zhejiang Prefecture were the highest-rated districts. At the county level, there are high-tax counties in all prefectures except Northern Zhili. The number of high-tax counties shows a positive correlation with the number of high-tax prefectures. Combined with topographic and geomorphological factors, the tax area of summer tax wheat was mainly distributed in the middle and lower reaches of the Yangtze River, the North China Plain, the Hetao Plain, the Yinchuan Plain, and the Hexi Corridor; and there were obvious branches in other natural areas, and its spatial distribution in the Ming Dynasty coincided with that of the wheat-producing areas in the modern agro-geography.

Through the above map, we find that several high summer tax counties were also located in the Shaanxi, South Zhili, and Zhejiang Provincial Administrations respectively. By comparison, we can find that these high tax amount areas also basically coincide with China's present-day commodity grain producing areas. The high-tax counties are basically located in the Hetao Plain, the Huanghuaihai Plain, and the Taihu Lake Plain. Relying on the three areas of unique natural environmental advantages and location advantages, so the region's wheat production is also

very high. Li Bozhong that: the Jiangnan region thanks to the natural environment and water transportation convenience, so agriculture and commodity economy is very developed, Jiangnan region in the Ming and Qing empire's economic core area. The size of the domestic market in the Jiangnan region during the Ming and Qing dynasties was even larger than that of the British Empire during the same period.[10]

3.1.2. Historical map showing the amount of summer tax on wheat transportation in prefectures and counties during the Ming Dynasty

Using the method in the above section, the first layer of data of the prefecture is 200012338.65, the second layer is 12338.6626385.57, the third layer is 26385.5845900, the fourth layer is 45900.0187700, the fifth layer is 87700.01151660, the first layer of data of the county is 501897.08, the second layer is 1897.09, the first layer is 501897.08, and the second layer is 1897.09. , the second tier is 1897.091897.094605.49, the third tier is 4605.508992.20, the fourth tier is 8992.2122096.85, and the fifth tier is 22096.8651913.87, in stone. According to the following chart.

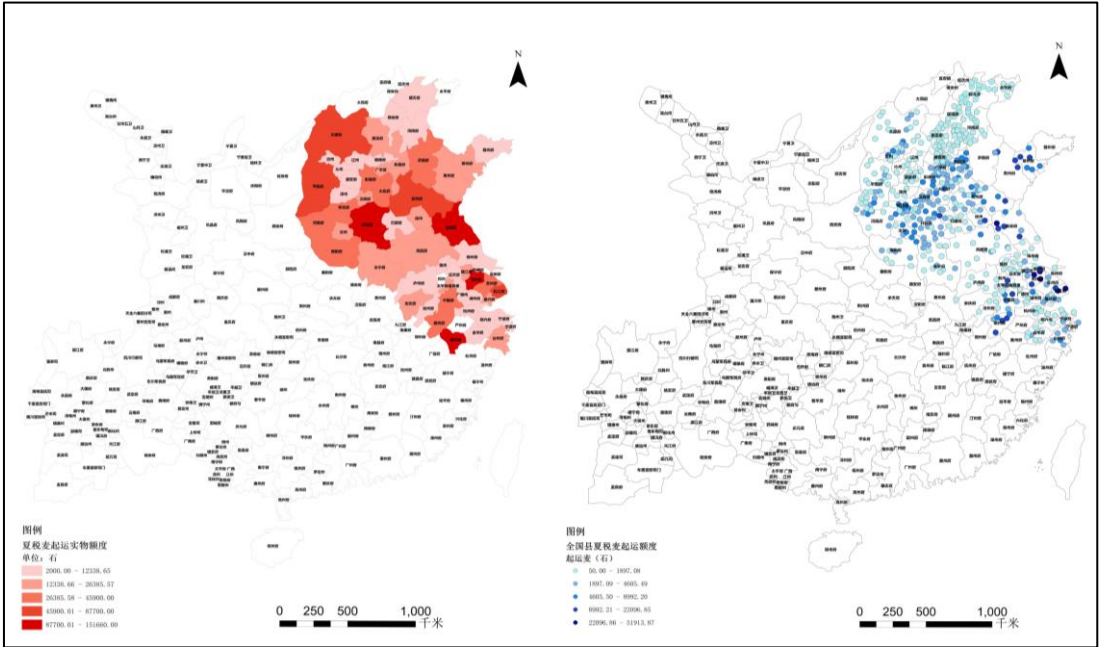


Figure 2: The starting amount of summer tax wheat transportation in Prefecture and County of the whole country in Ming Dynasty

From the above figure, we can see that the starting amount of the northern high-tax prefectures was not completely consistent with the levy, for example, the levy of Jinan Prefecture was located in the fifth tier of the high-tax area, but its starting amount was only up to the fourth tier, while Huai'an Prefecture was in the fourth tier of the levy but its starting amount was up to the fifth tier, which was in the area of the high starting amount; Changzhou Prefecture and Songjiang Prefecture of the Southern Directly-controlled Subdivision, as well as Quzhou Prefecture of Zhejiang Province, also had a similar situation. Similarly, Changzhou and Songjiang Prefectures in Southern Zhili and Quzhou Prefecture in Zhejiang also have similar situations. Looking at the layer of counties, it can be seen that the starting quota of counties and the starting quota of prefectures in the Suzhou-Songzhou-Changshaipo region are basically the same. At the same time, the amount of transportation in the counties in this region is directly proportional to the amount collected by the prefectures; that is, this region is a high tax area and a high transportation area at the same time.

3.1.3. Historical map display of "summer tax on wheat" in prefectures and counties during the Ming Dynasty

Using the same method as in the previous section, the first layer of data for prefectures is 1.7%12.85%, the second layer of data is 18.85%27.47%, the third layer of data is 27.47%49.82%, the fourth layer of data is 49.82%79.96%, and the fifth layer of data is 79.96%100%. The first layer of data for counties is 0.1%20.11%, the second layer is 20.11%38.32%, the third layer is 38.32%-57.87%, the fourth layer is 57.87%83.70%, and the fifth layer is 83.70%100%. From the figure, it can be seen that the region with the highest degree of survival of the prefectures in the country during the Ming Dynasty is still dominated by the northwest region, and the highest proportion of survival is found in the Datong prefecture in the Northwest region of Shaanxi and Shanxi prefectures and the Yongping prefecture near Liaodong. In terms of the survival of counties, several counties near Shaanxi Prefecture and the capital have the highest percentage of survival, and the counties around Nan Zhili in the Jianghuai region have the highest percentage of survival.

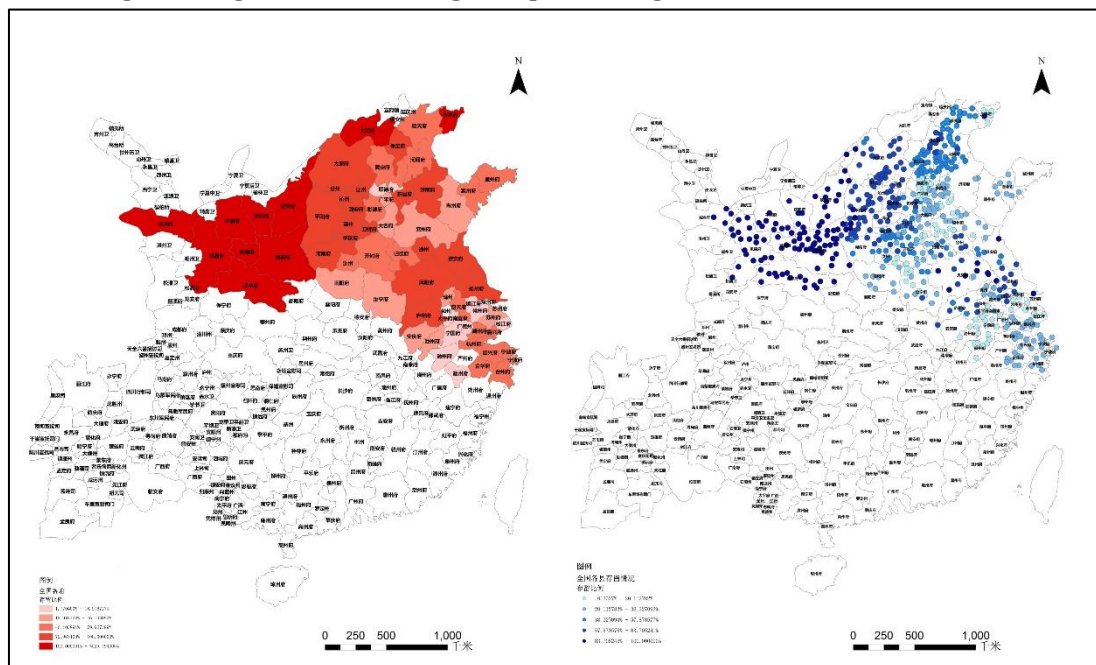


Figure3: Proportion of summer tax retained in prefectures and counties of the Ming Dynasty

3.2. The starting and transportation of grain in autumn

After comparing the tax types of fifteen provinces, the author found that the tax types of autumn grain were more uniform and comprehensive compared with summer tax, which could be compared and observed on a large scale in space.

3.2.1. Historical map of the amount of autumn grain and rice collected in prefectures and counties of the Ming Dynasty

ArcGIS software enables economic data to be visualized geospatially, and the data from the Ming dynasty prefectures can be converted into different graded layers by using the data hierarchical symbol processing method on the map.

The author will have obtained the autumn grain and rice data of each prefectural county in the country in ARCGIS using the method of graded color and symbol size to establish five graded intervals after excluding the value of the attribute of zero. The interval of total fall grain rice for prefectures is 91 koku to 2038894.74 koku, and five natural breakpoints are established in this interval. The first level is point 9171375.47, the second level is 71375.4701183973.17, the third level is 183973.17394421.22, the fourth level is 394421.221939226.230, and the fifth level is 939226.2312038894.74. The same method was used to create five natural intervals for the

county data; the first interval was 012291, the second was 1229237945, the third was 3794684532, the fourth was 84533204767, and the fifth was 204768463465; the unit was stone. The first and second intervals are low-tax zones, the third interval is the medium-tax zone, and the fourth as well as the fifth interval is the high-tax zone, and the colors of the faces and points in the historical map display deepen with the increase of the values.

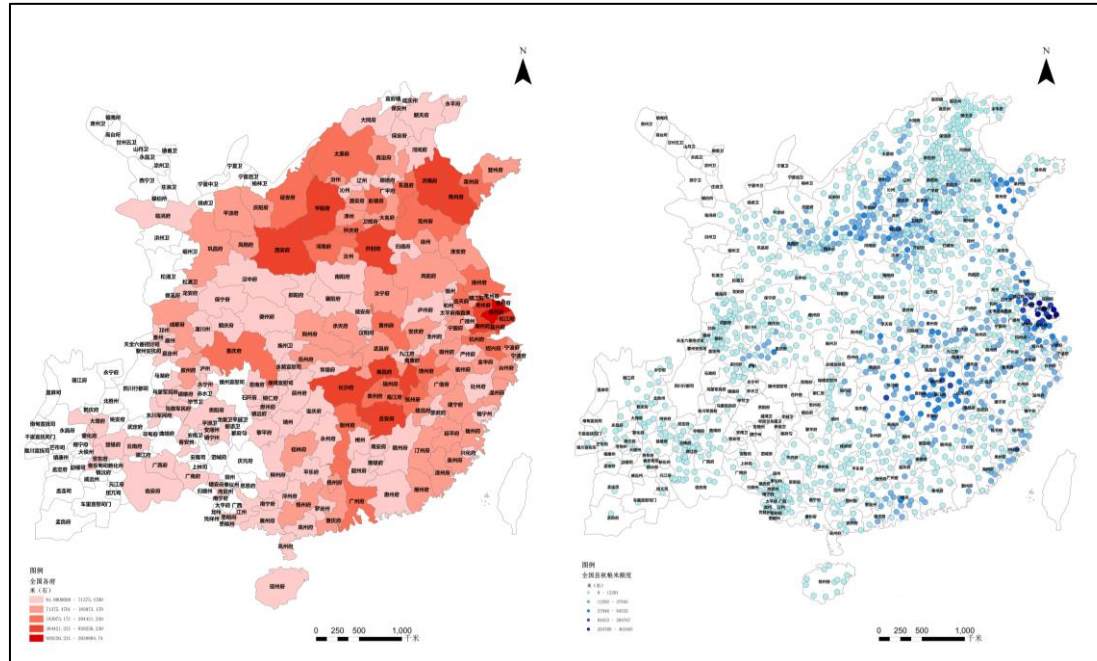


Figure4:Map of the amount of autumn grain and rice levied in prefectures and counties of the Ming Dynasty

After the data of autumn grain and rice in Wanli Accounting Record are shown on the historical map, in the level of prefectures, it can be observed that the amount of the tax area of autumn grain and rice in the Ming Dynasty is in the spatial difference, there is a more obvious difference between the east and west and the north and south directions. In the north, the high-tax prefectures were mainly Xi'an Prefecture in Shaanxi Prefecture, Pingyang Prefecture in Shanxi Prefecture, and Yanzhou Prefecture and Qingzhou Prefecture in Jiaodong Peninsula, while the whole of Huguang, Sichuan, and Nan Zhili were the intermediate transition zones. The high-tax prefectures in the southern region are mainly the Changsha and Ji'an prefectures in the Dongting Lake Plain. In the eastern region, Suzhou, Changzhou, and Songjiang prefectures in the Taihu Lake Plain had the highest tax rates. The entire southwest region and the Jiangnan Plain had lower taxes. The author further looks at the amount of vernacular autumn grain and rice levied at the county level to see that the areas in which high-tax counties appear roughly overlap with the areas in which high-tax prefectures are located, while showing regional clustering. The high-tax counties were also mainly concentrated in the Su-Song-Chang region of Jiangnan.

3.2.2. Historical map displaying the "autumn grain and rice transportation quota" of prefectures and counties in the Ming dynasty

Similarly, using the above layered color treatment method, the starting amount of autumn grain and rice transported by each prefecture in the country can be classified and presented on the historical maps. The classification is as follows: 547.3835006.64 for the first layer of prefectures, 35066.6578512.78 for the second layer, 78512.7941748.2 for the third layer, 141748.21251820.37 for the third layer, and 251820.38869566.92 for the fifth layer; the first layer of prefectures is 6.0411190.79 for the second layer, and 6.0411190 for the second layer; and the first layer of prefectures is 6.0411190.79 for the second layer. .79, the second tier is 11190.834900.23, the third tier is 34900.2478850.8, the fourth tier is 78850.81186675.4, and

the fifth tier is 188675.41426247.79, and the data is in stone. The first and second interval is the low tax zone, the third interval is the medium tax zone, and the fourth as well as the fifth interval is the high tax zone.

As can be seen from the figure, the high and low starting amount of native rice for autumn grain in each prefecture of the country and the high and low starting amount in each county basically show the same situation. On the whole, the high-tax starting value areas in the north were Pingyangfu in Shanxi Chief Secretary and Kaifengfu in Henan Chief Secretary, and the higher-tax starting value areas were Jinanfu in Shandong Chief Secretary and Henanfu and Huaqingfu in Henan Chief Secretary. The rest of the regions have lower starting quotas. The northern part of Hubei Province, Sichuan Province and most of Southern Zhili Province also had low starting quota. However, Changsha Prefecture in Dongting Lake Plain of Huguang Prefecture and Nanchang Prefecture and Ji'an Prefecture in Poyang Lake Plain of Jiangxi Prefecture are also high transportation starting areas. The high shipping area of counties also basically coincides with the high shipping area of prefectures, and shows the characteristic of regional aggregation on the historical map, and the counties with high shipping amount are concentrated in the south, including Ji'an Prefecture, Changsha Prefecture, Nanchang Prefecture, and Suzhou-Songchang Triangle.

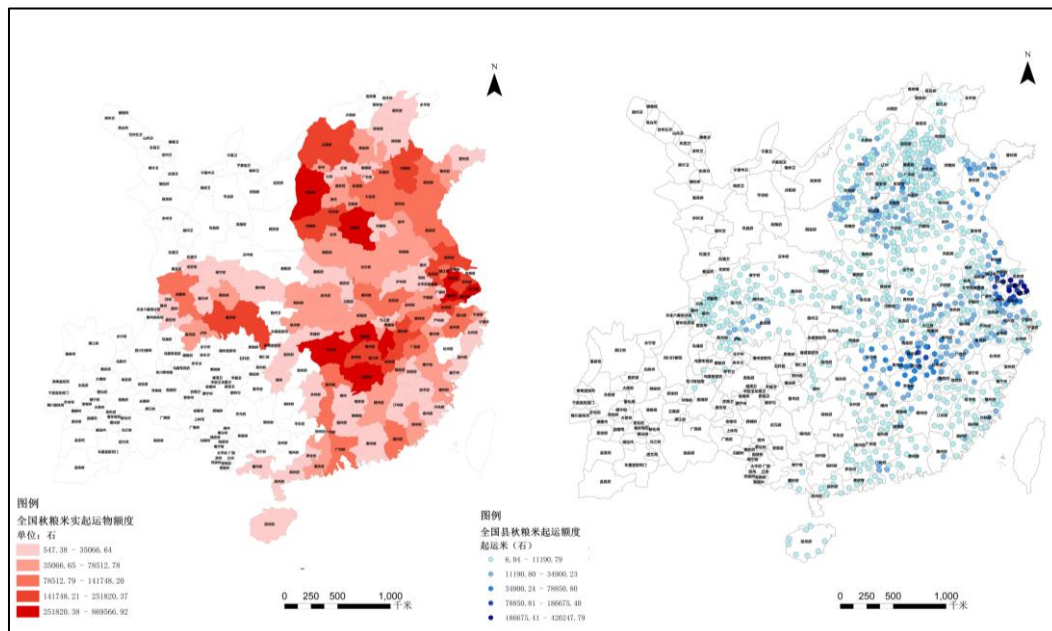


Figure5: Map of the amount of autumn grain and rice transported by prefectures and counties in the Ming Dynasty

3.2.3. Historical map of "Autumn Grain Rice Retention Situation" in Prefectures and Counties in Ming Dynasty

In the Ming Dynasty, the distribution of autumn grain rice was mainly based on the starting transportation and retention, and after removing the above mentioned starting transportation part, the remaining part could be used by the localities as retention. In "Wanli Accounting Record", the total amount of summer tax and autumn grain is equal to the sum of the respective starting amount and retention amount, and the retention amount of autumn grain divided by the total amount can be calculated as the percentage of the total amount of the retention of the autumn grain, and then the author will be the retention of the autumn grain in the local area is also divided into two layers, the first layer of the retention of the autumn grain of each province, the second is the retention of the autumn grain of each county. The darker the color on the graph, the higher the percentage of retention, which reflects the higher degree of retention of each prefecture, state and county in reality. Using the methodology as in the previous section, the first tier of data for prefectures is 2.15% 15.27%, the second tier is 15.27% 35.98%, the

third tier is 35.98% 63.77%, the fourth tier is 63.77% 83.79%, and the fifth tier is 83.79% 100%. The first tier of data for prefectures was 0.83%18.81%, the second tier was 18.81%37.91%, the third tier was 37.91%-58.04%, the fourth tier was 58.04%82.6%, and the fifth tier was 82.6%100%.

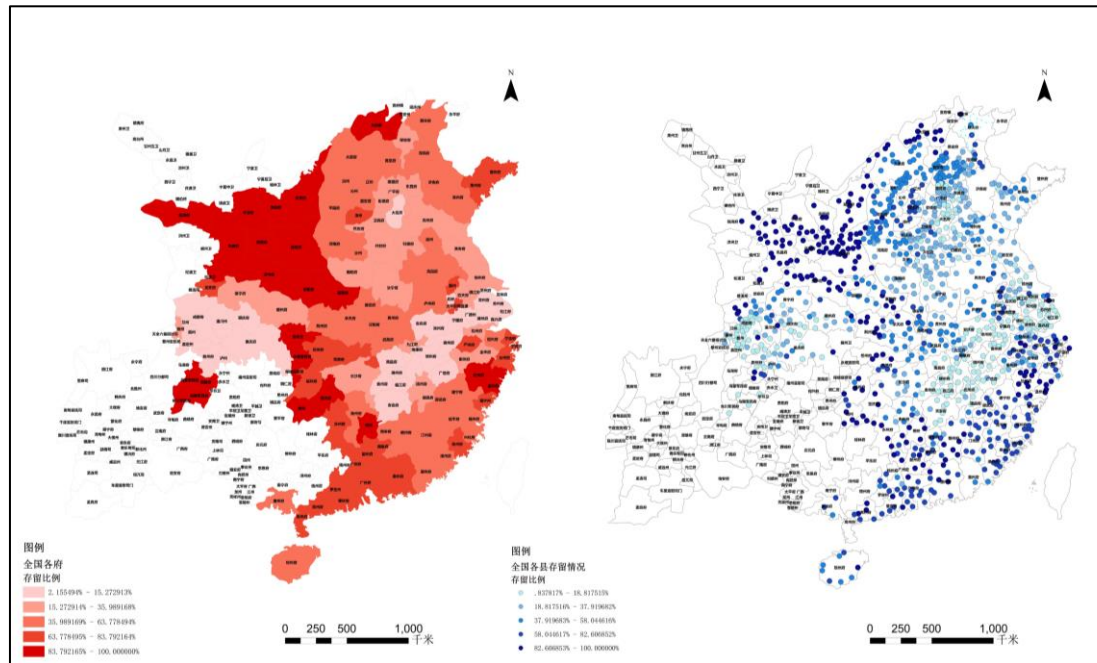


Figure6:Proportion of Autumn Grain Storage in Prefecture and County of the Country in Ming Dynasty

Through the national prefectures and counties of the autumn grain retention ratio map of the horizontal control, I found that a higher proportion of the region of retention is mainly concentrated in the north; the direction of the north-west to the northeast along the line, the whole of Shaanxi Chief Secretary and Shanxi Chief Secretary of the Datong Province is particularly obvious. Of course, the survival phenomenon is also more obvious in the areas where the southern guardhouses are gathered, for example, the areas on the border between the Hubei and Guizhou Chief Bureaus, such as Shizhouwei, Yongshun Xuanxuanshi, and Baojing Xuanxuanshi, are the most obvious, and Ganzhoufu within the Jiangxi Chief Bureaus is also very obvious. The southeastern coastal provinces of Chuzhou and Wenzhou also belong to the high retention areas. In terms of the survival of counties, the survival in the north basically coincides with that of prefectures, and the counties under the prefectures with a higher degree of survival also have a high percentage of survival. The distribution of high retention counties in the north is basically in line with the Great Wall. In the central region, the distribution of high retention prefectures is characterized by a vertical distribution from north to south. The high retention counties in the south are also mainly concentrated in the southeastern two regions.

3.3. Spatial autocorrelation analysis of the summer tax honored field mai

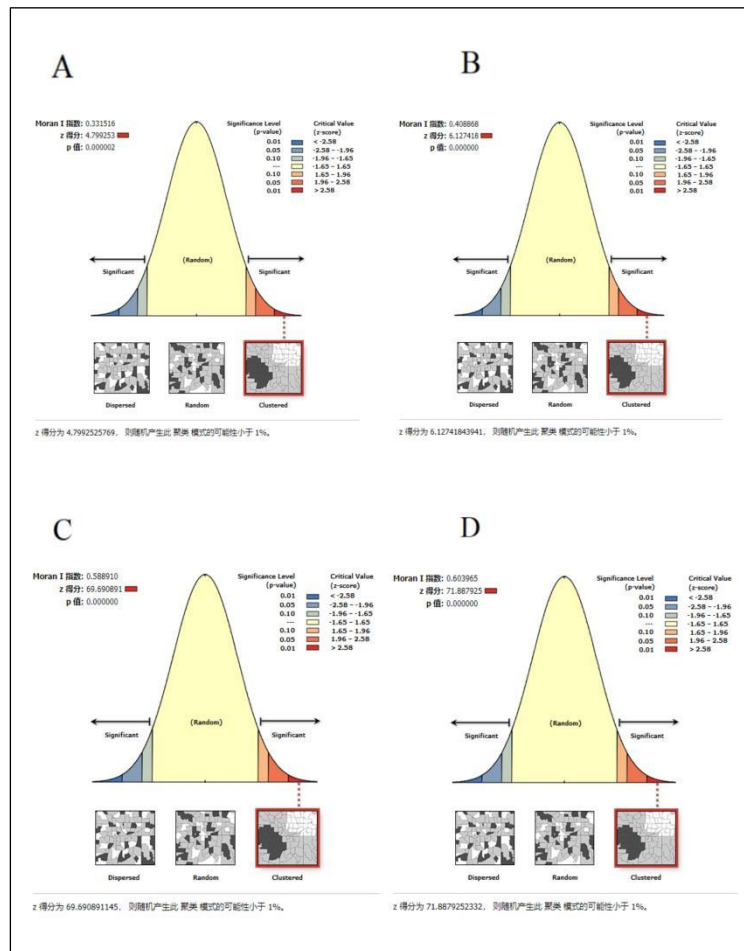


Figure7: Spatial autocorrelation analysis of summer tax wheat in prefecture and counties across the country during the Ming dynasty

Using the spatial autocorrelation analysis method, the spatial autocorrelation analysis was conducted with the prefectural and county-level administrative districts as the study unit (Figure 7). Figure A shows the amount of wheat collected in each prefecture, Figure B shows the amount of wheat shipped from each prefecture, Figure C shows the amount of wheat collected in each state and county, and Figure D shows the amount of wheat shipped from each state and county. The results show that the amount of physical summer tax wheat collected in each prefecture and county and the amount of physical wheat shipped from each prefecture during the Ming Dynasty were spatially consistent.

Using the spatial autocorrelation analysis method, the spatial autocorrelation analysis was conducted with prefectural and county-level administrative districts as the research unit (Figure 8). Figure A shows the amount of rice collected in each prefecture, Figure B shows the amount of rice shipped from each prefecture, Figure C shows the amount of rice collected in each state and county, and Figure D shows the amount of rice shipped from each state and county. The results show that the amount of physical autumn grain rice collected and the amount of physical grain shipped from all the prefectures and counties across the country in the Ming Dynasty were spatially consistent.

3.4. Spatial Autocorrelation Analysis of Autumn Grain Benthic Field Fu Rice

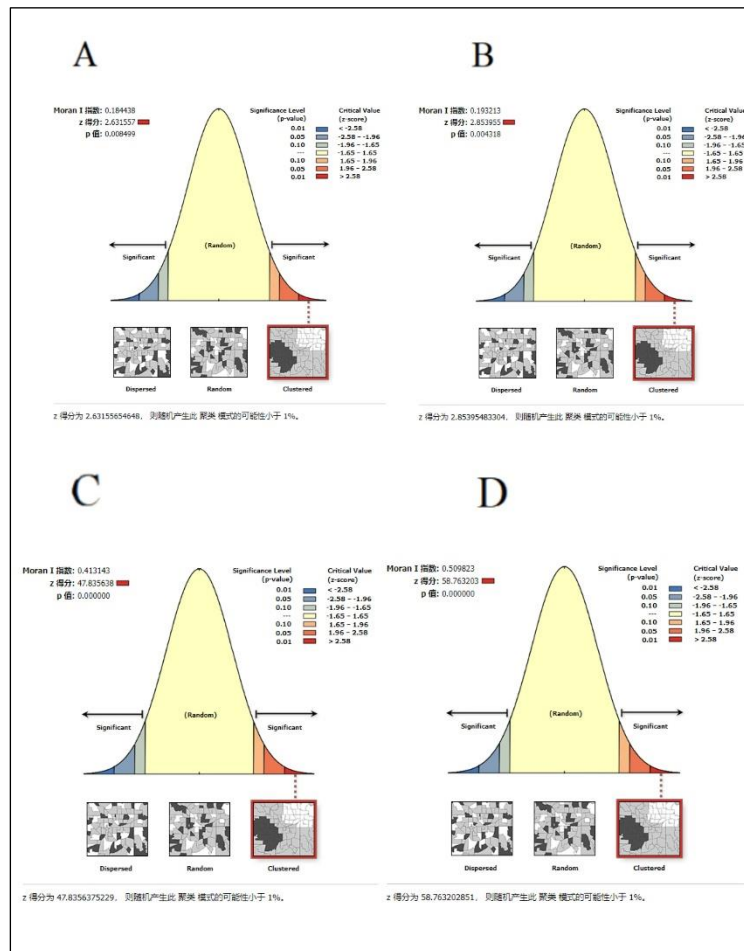


Figure 8: Spatial autocorrelation analysis of autumn grain rice in prefectures and counties of Ming Dynasty

4. Remaining Discussions

The spatial differences in the amount of summer tax wheat and autumn grain and rice levy and the natural environment, nowadays China's wheat producing areas from south to north mainly in the north and the Jianghuai region. The main distribution areas are most concentrated in the North China Plain, Yinchuan Plain, Huanghuai Plain, Zhongnan Ji, Northwest Lu, and North Yu Plain. In terms of the natural environment, the distribution range of these areas is roughly between 100 degrees east longitude and 120 degrees east longitude, and between 30 degrees north latitude and 40 degrees north latitude. This part of the region is a temperate monsoon climate zone, and wheat generally grows in a temperate environment. Among them, warm temperate zone is mostly winter wheat and temperate zone is mostly spring wheat. Thus wheat in the northern Zhili and parts of Shanxi Bushu is spring wheat, and wheat in the southern middle and lower Yangtze River plains, the North China Plain, the Yinchuan Plain and other regions is mostly spring wheat. Thus the regions [11] where the high-taxed House appeared also coincided with China's present-day commercial wheat-producing regions. Autumn grains are mainly rice-based, and the regions with higher amounts are also China's present-day rice commercial grain bases. The high-tax-quota areas are mainly in the plain areas in the south, such as Taihu Lake Plain, Dongting Lake Plain, and Poyang Lake Plain. Relying on their good water, heat, light and soil conditions, the rice yields in the above areas are high. The distribution of high-tax prefectures was mainly in the form of piecemeal aggregation, and geographically,

they were mainly concentrated in the Huanghuaihai Plain and North China Plain, where the warm-temperate zone and the temperate zone intersected. This point in the early Ming Dynasty when the formulation of the tax law, the tax level depends on the advantages and disadvantages of the land, the Ming Dynasty "fish scale atlas" formulated different levels of land, the advantages and disadvantages of the land also determines the amount of taxes. It is mentioned in the Ming History - Food and Goods Zhi:

The method of taxation, Tang Rent and Means adjustment is still near ancient times. Since Yang Yan made two tax law, simple and easy to implement, successive generations along, to Ming does not change. Taizu for the King of Wu, tax ten take one, service law counting field out of the husband. County on, in, under three classes, to the endowment of 100,000, 60,000, 30,000 stone for the difference. The government three, to the tax 200,000 up and down, 100,000 stone for the difference. At the beginning of the reign, the law of the feudal service, a yellow book shall prevail. The book has ding has field, ding has service, field has rent. Rent is said to be summer tax, is said to be autumn grain, where two classes. Summer tax no more than August, autumn grain no more than February next year. [12]

Therefore, the Ming dynasty since the great-grandfather Zhu Yuanzhang set down the tax system until later on different periods of the central government to the local are used in the way of land clearing used to adjust the amount of taxes around the country. The amount of summer tax and autumn grain in the affluent places in the central plains differed greatly from that in the poorer and weaker places on the extreme edges of the country.

The difference in transportation is mainly related to the geographical environment and transportation conditions. The transportation of summer tax and autumn grain of wheat and rice in the Ming Dynasty mainly relied on canal transportation, which was mainly based on sea transportation in the early Ming Dynasty, but the demand for grain in the whole north increased greatly after the Yongle moved the capital to Beijing, and the risk and transportation cost of sea transportation was too high, so the sea transportation was replaced by the canals. Huang Renyu argues in *The Canal Transportation of the Ming Dynasty* that "the entire northern finance depended on the Grand Canal, which was the lifeline of the entire northern finance of the Ming Dynasty." Cao transport [13] was also accomplished by human transportation and ships, so for the hilly and mountainous areas of the south, where transportation was difficult, the high cost of transportation would result in a lower starting amount and a higher degree of storage.

Summer tax wheat and autumn grain rice as the most core part of the two taxes in the Ming Dynasty, its origination and retention is a relative process, the origination of a high degree of region on the one hand due to its own region of grain production is very high, and then the transportation conditions are convenient, there is an interconnection between high tax and high origination of a process, when a certain region meets the above two conditions, its origination will be very high degree of transportation. And part of the high tax area but shows a low starting situation may have the following two reasons, the first is inconvenient transportation; for example, the Sichuan basin, the Ming dynasty's canals are not covering the whole country, and the way of transport is the people transport plus the official army in the form of a baton layer by layer transport, far from the two capitals of the high tax area may be due to the problem of transportation costs, so the starting transport is used in the neighboring guards or ethnic minorities inhabited areas. The second one is the nearby transportation, Mr. Liang Fangzhong thinks that the transportation of summer tax and autumn grain can make use of the principle of proximity, the principle of which is to deduct the balance retained locally to make up for the shortfall in the province or neighboring territories, and the rest of the surplus will be put into the local warehouses in order to prepare for the relief of the disaster. This involves [14] the two problems of transportation and retention in the belly. Of course, He Xiangming mentioned in "Study on the System of Deposit and Retention of Field Levies in the Ming Dynasty - Taking the Example of Hubei and Hunan Areas during the Wanli Period" that

the flow of taxes in Hubei and Hunan areas had the flow of Beijing transportation and the flow of belly transportation but not the flow of side transportation, and that the flow of belly transportation was mainly to the two chief offices of Guangxi and Guizhou. Therefore, the starting transportation of taxes in the Ming Dynasty also had a certain degree of flexibility.[15] As seen in the figure the area with high degree of deposit is mainly distributed along the Great Wall in the north, and there is a military expenditure among the uses of deposit, and it has been recorded in Ming History - Yang Shoushui Biography that the local deposit can be used to pay for the salary of the local garrison. "Outside the official salary, soldier's pay is not given over the years, by the county accumulation of less also, please in the starting transportation outside the amount, plus the deposit to help the lack of scarcity." Spatial visualization [16] of the data from the Wanli Accounting Record reveals that the high storage areas are basically related to the military and the heavy affairs of the minority regions. In the north, due to the setting up of military regions, the grain and salary expenditures of the Jiubian military towns were needed; therefore, all the taxes of the cities along the Great Wall in the north were basically deposited for military expenditures. Sichuan and Shaanxi junction area, Hubei and Guangxi, Sichuan, Guizhou junction due to the geographical transportation conditions are inconvenient, at the same time, minority groups gathered, and the southern region of the Ming Dynasty, there are a large number of Tusi, military expenditure is ponderous.

Liu Pu played, exempt Sian call soil army thousand five hundred people autumn food two thousand three hundred stone, Tianshun yuan year Tobe Department played Sian deposit Guangxi drill army one thousand five hundred people, there is a mistake in planting grain; Begging subdivided into three classes to stay five hundred drill, exempt from its food seven hundred and seventy stone, put back one thousand people cultivation, the levy of its food more than one thousand five hundred and forty stone. [17]

The survival of the southeastern regions such as the coasts of Zhejiang, Fujian, and Guangdong may be related to the need to fight against the Japanese.

Since the Japanese, the official army has nothing to use, so discretionary recruitment, the rate of indigenous, between the collection of Yiwu Wuyi's people; the allocation of the total about a total of several, but also in addition to the regular tax, the section send training silver to give the soldiers pay, depending on the monthly food of the official army is not less than twice. And the governor of the military officials elect people who know a little about the military, filled for the name of the color, the general Shijian command thousands of households and so on between one. Commissioned so far more than forty years, the sea is not without alarm, the soldiers dare not discuss the abolition of the guards of the official army as much as set up. This southeastern frontier, safety and security to the plan can not not pay attention. And Zhenbrush also set up an official army, when the line of duty full and the people's tax lost counted enough to supply today's consumption of the official army, will be half and the amount of civil service; however, it is still not reduced. This is the reason why the non-traitorous Xuxu invasion of fisheries, the luxury military leaders, recently proposed to investigate the remaining food; to meet the needs of the army, is not the law and discipline is appropriate.[18]

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