Policy text analysis of Hainan Free Trade Zone (Port) from the perspective of policy tools

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Abstract. Through the analysis of policies of Hainan Free Trade Zone (Port), deficiencies can be found and timely adjustment can improve the supporting role of policies for the construction of Hainan Free Trade Zone (Port), which is of great significance for promoting the development of Hainan Free Trade Zone (Port). Based on the perspective of policy combination, the research framework is constructed from five dimensions of "posting time - Issuing agency - policy type - policy subject - policy tool". The content analysis and social network analysis are combined to conduct quantitative research on 108 policy texts related to the construction of Hainan Free Trade Zone (Port) from April 2018 to June 2020. The study found that the current policies of Hainan FREE Trade Zone (Port) involve more comprehensive fields, the government pays more attention to them, and the central government has a good coordination. However, there are some problems, such as fewer institutional associations, lack of demand-type policy tools, and imbalance in the internal structure of policy tools.

1. Introduction
In April 2018, Guidelines of the CPC Central Committee and the State Council on Supporting Hainan in Comprehensively Deepening Reform and Opening up was officially promulgated, giving Hainan Special Economic Zone a new mission of building a pilot free trade zone and a free trade port with Chinese characteristics in its 30th year. In October 2018, the State Council promulgated The overall plan of China (Hainan) Pilot Free Trade Zone, marking that the construction of China (Hainan) Pilot Free Trade Zone has entered a substantive stage and begun to set sail at an accelerated pace. In June 2020, the party central committee and the State Council issued The overall plan of hainan Free Trade Port, marking important progress in the construction of the Hainan Free Trade Zone and we have begun to accelerate the construction of a high-level free trade port with Chinese characteristics. From a special economic zone to a free trade zone and a free trade port with Chinese characteristics, Hainan continues to assume new missions in the new era, which has important exemplary significance for the construction of my country's special economic zones and opening to the outside world.

Therefore, this article selects the Hainan Free Trade Zone (Port) policy text from April 2018 to June 2020 as the research object, combines the content analysis method and the social network analysis method to carry out quantitative research on the policy text. It also puts forward countermeasures and suggestions, hoping to improve the effect of the policy, and provide reference for the grasp of the construction process of the Hainan Free Trade Zone (Port) and the formulation and regulation of subsequent policies.
2. Literature review and research methods

After sorting out the literature on Hainan Free Trade Zone (Port), it is found that scholars' research system on the construction of Hainan Free Trade Zone (Port) has taken shape. Many scholars discussed the construction ideas of the Hainan Free Trade Zone based on the development experience of domestic and foreign free trade zones (ports). For example, Dai Weiqing \(^1\) sorted out the legislative norms of the Shanghai Free Trade Zone and summed up the experience and inspiration that the Hainan Free Trade Zone should learn from; Wang Sheng, Wang Lei, Dong Wen'ai and others \(^2\) summarized the experience and lessons of the development of Japan’s Okinawa Free Trade Zone, which has a certain reference significance for Hainan to promote the construction of a pilot free trade zone. Some scholars have also explored the construction path of the Hainan Free Trade Zone (Port). Pei Changhong, Liu Bin, Li Yue and others \(^3\) analyzed in detail the development history, major difficulties and advanced experience of major international free trade ports in China, and proposed the development of China Policy recommendations for characteristic free trade ports; Shi Benye, Wang Xiaojuan and others \(^4\) explored the construction path of a free trade port with Chinese characteristics from theoretical analysis, experience reference and system construction. In addition, other scholars have studied the development and innovative measures of a certain aspect of the construction of Hainan Province or an industry under the background of the free trade zone. For example, Li Xiaojia and Zhu Jiaming \(^5\) have studied the taxation of the “Belt and Road” under the background of the free trade zone. Li Yizhao and Ye Xi \(^6\) analyzed the policies of the Hainan Free Trade Zone, but as of March 2019, the collection of policy texts has not yet issued the relevant policies of the free trade port, so it cannot be applied to the recent development of the Hainan Free Trade Zone (Port) construction.

The current research is more limited to the summary of experience and the exploration of the construction path of Hainan Pilot Free Trade Zone, and the research on the construction status as well as the systematic analysis of the matching degree and formulation effect of relevant policies are relatively deficient. Therefore, this article uses the five-dimensional research framework of "posting time-Issuing agency-policy type-policy subject-policy tool" to conduct research, and referring to the views of Rothwell and Zegveld \(^7\), and divides policy tools into supply-type, demand-type and environmental-type.

3. Sample selection and coding

This article uses the official website of Hainan Free Trade Zone (Port), Hainan Provincial People’s Government and Municipal People’s Government websites to review the Hainan Free Trade Zone (Port) policy texts from April 2018 to June 2020. 108 samples of effective policies were obtained. They are coded one by one in the order of "policy number-hierarchical title number-clause code". A total of 686 policy tools and measures are obtained.

4. Statistical analysis

4.1. Dimensional Analysis of Posting Time

From the perspective of policy posting time, the number of policy postings fluctuates and rises. The promulgation of several iconic policies is used as an important time node for analysis. In April 2018, the Guiding Opinions of the Central Committee of the Communist Party of China and the State Council on Supporting Hainan's Comprehensive Deepening of Reform and Opening Up was promulgated, giving Hainan a new mission to build a free trade zone. The number of policy promulgations in the next two months showed an upward trend. On June 1, 2020, the General Plan for the Construction of Hainan Free Trade Port was promulgated, marking the important progress made in the construction of Hainan Free Trade Zone and the acceleration of the construction of a high-level free trade port with Chinese characteristics. The number of relevant policies issued that month reached a new high. In the construction of the Hainan Free Trade Zone (Port), the iconic policies issued by the central government have been approved by the local governments. The positive response shows that the central government and the local government have good coordination.
4.2. Dimensional Analysis of Issuing Agency

The statistical results are shown in Table 1 (the space is limited, only some organizations' publications are shown). The Hainan Free Trade Zone (Port) policy sample involves 38 central issuing agencies, with a total of 35 publications, and 28 local issuing agencies, with a total of 73 publications. The Ministry of Finance of the State Council and the State Council have issued the largest number of documents issued by the central document issuing agencies, with 6 documents each. The Hainan Provincial People's Government and the General Office of the Hainan Provincial People's Government are the main departments for issuing documents at the local level. A total of 41 documents were issued, accounting for about 56% of the number of documents issued at the local level. The Hainan Provincial People's Government has the highest number of independent and joint publications among all departments. It is the core institution in the construction of the Hainan Free Trade Zone (Port). The number of documents issued by the municipal government is uneven. The Sanya Municipal People’s Government and the Sanya Municipal People’s Government Office issued a total of 14 documents, which are significantly higher than other cities. From the perspective of the issuing agency’s joint policy, the Hainan Free Trade Zone (Port) policy is mainly formulated by a single agency, with 82 publications, accounting for 76%, and only 26 joint agency, accounting for 24% (data for 2020 as of June 30). With the help of gephi analysis (as shown in Figure 2), the network density of the joint network of issuing agencies is 0.222, which shows that the issuing agency structure network is relatively loose and poorly centralized.

Table 1 The composition of the issuing agencies of the Hainan Free Trade Zone (Port) policy (partial)

| Sending agencies (local) | Independent | Joint | Total |
|--------------------------|------------|-------|-------|
| Hainan Provincial People's Government | 20 | 8 | 28 |
| Office of the Hainan Provincial People's Government | 10 | 3 | 13 |
| People's Government of Sanya | 10 | 0 | 10 |
| Hainan Provincial Committee | 1 | 8 | 9 |
| Standing Committee of the Hainan Provincial People's Congress | 6 | 0 | 6 |
| Office of the People's Government of Sanya | 4 | 0 | 4 |
| Office of the Hainan Provincial Party Committee | 3 | 0 | 3 |
| Haikou Municipal People's Government | 3 | 0 | 3 |

| Sending agencies (central) | Independent | Joint | Total |
|---------------------------|------------|-------|-------|
| Ministry of Finance | 1 | 5 | 6 |
| State Council | 3 | 3 | 6 |
| General Directorate of Customs | 2 | 3 | 5 |
| Ministry of Commerce | 2 | 3 | 5 |
| State Council Development and Reform Commission | 1 | 3 | 4 |
| State Administration of Taxation | 0 | 3 | 3 |
| Central Committee | 0 | 3 | 3 |
| Office of the State Council | 0 | 2 | 2 |
4.3. Dimensional Analysis of Policy Type

According to the actual situation of Hainan Free Trade Zone (Port) policy promulgation, the policy form can be divided into 13 categories, 10 normative and guiding categories: notice, suggestion, regulation, plan, reply, decision, project, provision, system, announcement, and 3 binding and operability categories: proposal, method and measure.

| Policy language | Quantity | proportion | Policy language | Quantity | proportion |
|-----------------|----------|------------|-----------------|----------|------------|
| Notice          | 51       | 46.53%     | Decision        | 2        | 1.98%      |
| Proposal        | 16       | 15.84%     | Project         | 2        | 1.98%      |
| Suggestion      | 13       | 12.87%     | Provision       | 1        | 0.99%      |
| Method          | 7        | 6.93%      | System          | 1        | 0.99%      |
| Regulation      | 6        | 3.96%      | Measure         | 1        | 0.99%      |
| Plan            | 3        | 2.97%      | Announcement    | 2        | 0.99%      |
| Reply           | 3        | 2.97%      |

From Table 2, we can see that there are a total of 84 policy types with strong normative and guiding nature, accounting for about 78%, and a total of 24 types with strong binding and operability, accounting for only 22%. From the perspective of subject coordination, take the Hainan Provincial People’s Government and the Hainan Provincial Party Committee, which have issued a large number of articles, as examples. The independent publications of the two are mainly based on notices, suggestions, and regulations, and they are highly normative and instructive. But the joint publication of the two is more plans with strong binding and operability.

4.4. Dimensional Analysis of Policy Subject

In order to obtain the subject classification of policy samples, 108 policy texts were segmented by jieba, and five keywords were extracted respectively, and a high-frequency keyword co-occurrence matrix was constructed and visualized by gephi (see Figure 4). Table 6 shows a list of keywords with high degree centrality.
Table 3 Centrality of policy keywords in Hainan Free Trade Zone (Port)

| Keywords             | Centrality |
|----------------------|------------|
| Construction         | 58         |
| Enterprise           | 34         |
| Reform               | 22         |
| Talent               | 19         |
| Ecology              | 16         |
| Service              | 15         |
| Tourism              | 15         |
| Reward               | 13         |
| Introduce            | 11         |
| Encourage            | 11         |
| Innovation           | 10         |
| Customs              | 10         |
| Infrastructure       | 9          |
| Features             | 8          |
| Industry             | 8          |
| Subsidy              | 7          |
| Jiangdong New District | 7         |
| Medical institutions | 7          |
| Start a business     | 7          |
| Housing              | 7          |
| Business environment | 7          |
| investment           | 7          |
| transport            | 7          |
| Reform and Opening   | 7          |
| Approve              | 7          |
| Culture              | 6          |
| Merchants            | 6          |
| 3                    | 5          |
| 4                    | 4          |
| License separation   | 6          |
| Yacht                | 6          |
| Coordination         | 6          |
| Big Data             | 6          |
| Industrial Development | 6       |
| Pilot                | 6          |
| Intellectual property | 6        |
| Ecological Civilization | 5       |
| Bonded               | 5          |
| Foreign country      | 5          |
| Culture              | 5          |
| Duty free            | 5          |
| Green                | 5          |
| Financial            | 4          |

It can be analyzed from Table 3 that among the keywords with a high degree of centrality, the words such as enterprise, subsidy, business environment, and investment promotion indicate that the state attaches great importance to the support and management of enterprises when constructing the Hainan Free Trade Zone (port), hoping to expand investment promotion and promote economic development by optimizing the business environment. The high centrality of keywords such as talents and intellectual property rights means that the construction of Hainan Free Trade Zone (Port) pays great attention to the cultivation, selection and protection of intellectual property rights. This may be in line with the need to attract a large number of high-quality related to domestic and foreign talents. Therefore, from the perspective of content, the formulation of the Hainan Free Trade Zone (Port) construction policy is more comprehensive and targeted. It not only draws on international experience, but also reflects Chinese characteristics and conforms to Hainan's positioning. It mainly involves eight topics: economic construction, talent cultivation, ecological civilization construction, industrial development, full opening, reform and innovation, social governance and infrastructure construction, business environment and investment promotion.

4.5. Dimensional analysis of Policy Tool

It can be seen from Table 4 that the most used environmental-type policy tools (56.0%) in the construction of the Hainan Free Trade Zone (Port), followed by supply-type policy tools (36.4%), and demand-type policy tools (7.6%) were the least used. This statistical result preliminarily reflects that the current policy structure is dominated by environmental-type policies, which is in line with the fact that the construction of the Hainan Free Trade Zone (Port) is at the initial stage and the Hainan Free Trade Zone (Port) policy is at the exploratory stage in the past two years.

Research on 6 specific environmental-type policy tools found that “political strategy” (36.2%) accounted for the largest number of environmental-type tools, mainly including planning and guiding policies. Although policy tools such as “tax incentives”, “finance”, and “regulatory control” with strong operability are also mentioned, they only account for 3.6%, 5.4% and 3.1%. This shows that at present, it focuses on formulating and regulating the free trade zone's institutional system through indirect means such as strategic measures and standard design.

Supply-type policy tools are also one of the important tools for the construction of Hainan Free Trade Zone (Port), accounting for a moderate proportion. It focuses on “public utilities” (16.5%), which mainly involves infrastructure construction, industrial parks, pilot construction of demonstration projects, and the provision of corresponding supporting service facilities, etc. “Talent attraction and training” (6.8%), “supervision and management” (6.0%), and “capital investment” (4.8%) have also been reflected to a certain extent. “science and technology” and “information” are rarely used, indicating that the government pays more attention to service tools insufficient publicity and guidance for the construction of Hainan Free Trade Zone (Port) and insufficient attention to technology investment.

At present, compared with the other two types of policy tools, demand-type policy tools are not
used strongly. “trade control” (7.2%), including some tariff policies, overseas companies and technology introduction, etc. In addition, “government procurement”, “overseas institutions” and “service outsource” are hardly involved, and the imbalance is serious, indicating that the construction of the Hainan Free Trade Zone (Port) is mainly driven by the state from top to bottom, and there is insufficient motivation and demand from the private sector.

Table 4 Dimensional distribution statistics of policy tools in Hainan Free Trade Zone (Port)

| Types of policy tools | Name of Policy tool                        | Number of policies | percentage |
|----------------------|-------------------------------------------|--------------------|------------|
| Supply-type          | Science and Technology                    | 3                  | 0.4%       |
|                      | Talent attraction and training             | 47                 | 6.8%       |
|                      | Public utilities                           | 113                | 16.5%      |
|                      | Capital investment                         | 33                 | 4.8%       |
|                      | Information                                | 13                 | 1.9%       |
|                      | Supervision and management                 | 41                 | 6.0%       |
|                      | Subtotal                                   | 250                | 36.4%      |
| Demand-type          | Trade control                              | 48                 | 7.2%       |
|                      | Government Procurement                     | 2                  | 0.3%       |
|                      | Overseas institutions                      | 1                  | 0.2%       |
|                      | Service outsource                          | 1                  | 0.2%       |
|                      | Subtotal                                   | 52                 | 7.6%       |
| Environmental-type   | ecosystem                                  | 25                 | 3.6%       |
|                      | Finance                                    | 37                 | 5.4%       |
|                      | Open to the outside world                  | 28                 | 4.1%       |
|                      | Political strategy                         | 248                | 36.2%      |
|                      | Tax incentives                             | 25                 | 3.6%       |
|                      | Regulatory control                         | 21                 | 3.1%       |
|                      | Subtotal                                   | 384                | 56.0%      |
|                      | Total                                      | 686                | 100%       |

5. Conclusions and recommendations

5.1. Conclusions
From the perspective of policy posting time, the number of policy postings has fluctuated and risen. The coordinations between the central and local governments are good. From the perspective of issuing agency, both the central and local governments actively provide impetus for the construction of the free trade zone (port), but the policy is mainly formulated by a single agency. At the local level, the provincial government has given the greatest support, especially the Hainan Provincial People's Government, which is the main force in the promulgation of the Free Trade Zone (Port) policy. From the perspective of policy type, the policies of Hainan FREE Trade Zone (Port) are mostly in the type of strong standardization and guidance, while type with strong operability and have stronger constraints on actual work are less used. From the perspective of policy subject, the policy focuses on more comprehensive areas, including eight themes: economic construction, talent cultivation, ecological civilization construction, industrial development, full opening, reform and innovation, social governance and foundation Facilities construction, business environment and investment promotion.

From the perspective of policy tools, 1) Environmental policy tools are used appropriately. "Political strategy" is used most frequently, which is in line with the reality that the construction of the Hainan Free Trade Zone (Port) is in the initial stage of exploration; although tax incentives (3.6%) and finance (5.4%) do not account for a high proportion, they are highly targeted and operational. It is reasonable that the proportion of regulatory control (3.1%) is not high, because too high may indicate weak policy enforcement and need to be repeatedly controlled. 2) The lack of demand-based policy tools and the unbalanced internal structure. The current Hainan Free Trade Zone (Port) policy
structure is dominated by environmental-type policies, and demand-type policy tools are rarely used. This is due to the fact that the construction of the Hainan Free Trade Zone (Port) has been in the preliminary stage of exploration in the past two years. However, with the acceleration of construction, the construction of the free trade zone (port) has entered a new stage, and demand-type policy tools, environmental-type policy tools, and supply-type policy tools should form a balanced complement, so as to jointly promote the sustainable development of Hainan Free Trade Zone (Port).

3) Among the supply-type policy tools, the emphasis is on service tools. "Public utilities" are service-oriented tools, accounting for 16.5%. “Talent attraction and training” (6.8%), “supervision and management” (6.0%), and “capital investment” (4.8%) were less. Service policies have a very good guiding role in the initial stage of the free trade zone (port) construction, but with the rapid progress of construction, more human resources, capital investment and technical support are still needed to promote the free trade zone (port) High-quality development.

5.2. Recommendations
First, attach importance to the use of demand-type policy tools and give full play to the driving force of the policy. Since 2020, the development goal of Hainan Free Trade Zone (Port) has been transformed into establishing a free trade port policy system and gradually improving laws and regulations that adapt to free trade port construction. At this time, the three types of policy tools should be combined to promote the high-quality construction of the Hainan Free Trade Zone (Port).

Second, optimize the internal structure of policies, strengthen the operability of policies, and strengthen the supervision of the formulation and implementation of existing policies. With the rapid progress of construction, there should be less macro guidance in policy formulation, and the implementation quality of policy tools should be improved. In addition, we can regularly or irregularly investigate the formulation and implementation of various policy tools, collect feedback from departments and grassroots people at all levels, and regulate policies in a more targeted manner to prevent imbalances.

Finally, strengthen horizontal and vertical coordination and cooperation between policy subjects. The construction of the Hainan Free Trade Zone (Port) is characterized by dynamic, long-term, and complex nature. It requires close co-ordination and cooperation between government departments at different levels and functions to give full play to the nation’s ups and downs. The institutional advantages of the power to do major events will jointly promote the construction of the Hainan Free Trade Zone, and realize the development goal of the Hainan Free Trade Zone (Port) to become a high-level free trade port with strong international influence.

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