Research Article

Policy Analysis and Optimization Method of Chinese Animation Industry Management Based on Policy Tools

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On the basis of theoretical research, a two-dimensional analysis framework of China's animation industry policy text is constructed from the dimension of policy tools and the dimension of value chain. According to the two-dimensional analysis framework constructed in this study, the content analysis of the Chinese animation industry policy samples selected in this study is carried out, and the characteristics of China's animation industry policy in the use of policy tools and the application of policy tools at various stages of the value chain are obtained. Then, the shortcomings of China's animation industry policy are discussed. Finally, to promote the reform and improvement of the policy step by step and promote the long-term and healthy development of China's animation industry, this study proposes corresponding strategies for the optimization of China's animation industry policy. This study takes the theory of policy tools as a theoretical perspective and deeply analyzes the possible shortcomings of China's animation industry policy texts. Based on the perspective of policy tools, corresponding strategies are proposed for the optimization of China's animation industry policy, and the proposed optimization strategies are evaluated through fuzzy mathematical theory. The results obtained are excellent, and it can be concluded that an optimization strategy is proposed to improve the animation industry structure.

1. Introduction

With the continuous improvement of China's economic level and people's yearning for a better life, the cultural industry plays an increasingly important role in economic development. The animation industry is one of the important branches of the cultural industry [1]. It has received extensive attention from all walks of life because of its broad development space, the economic value that cannot be ignored, and strong appeal among young people. According to the description of the International Cultural Development Report, the animation industry is one of the core industries of the global economy in the new century that cannot be ignored [2, 3]. The animation industry has already become one of the important economic pillar industries in the United States, Japan, South Korea, and other countries. Most of the labor-intensive production links adopt outsourcing strategies to minimize production costs (as shown in Figure 1).

It can drive the development of a large number of related industries through activities such as cultural communication, market trade, and derivative diffusion. At the same time, animation works are also a core and important part of cultural works, occupying an increasingly important position in the development of national cultural strength [4, 5]. With the support and promotion of a series of related animation industry policies, China's animation industry has made gratifying progress. The production of animation works increased from 195 minutes in 1993 to 12,755 minutes in 2003 and reached a height of 260,231 minutes in 2011. The output exceeds that of the United States, Japan, and other countries, ranking first in the world in terms of output. In 2013, the total output value of China's animation industry reached more than 87 billion yuan. The change law of the total output value of China's animation industry in recent years is drawn as shown in Figure 2(a). There are more than 4,600 companies directly or indirectly involved in animation production. There are more than 220,000 employees in the
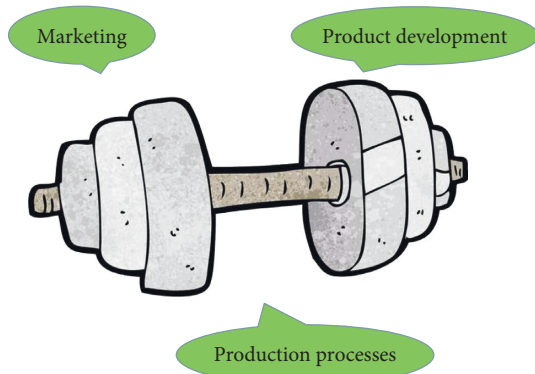
Figure 1: Development characteristics of animation industry.

animation industry (as shown in Figure 2(b)). Compared with the beginning of the century, the number of products in China's animation industry has continued to increase. The industry chain and related structures have been continuously improved, and the industry as a whole has made significant progress. According to the State Administration of Press, Publication, Radio, and Television's domestic cartoon production record and publicity information, Chinese TV cartoons mainly include seven types of fairy tale themes, educational themes, historical themes, mythology themes, science fiction themes, reality themes, and other themes (as shown in Figure 3).

In this context, China's animation industry has also entered a period of rapid development. With the development of the Internet and new media technology, the development mode of the animation industry is quietly changing [6, 7]. The entire industry increasingly needs more powerful scientific theories to guide. Academia has paid close attention to the development of the animation industry since the early 2010s, but most studies have been conducted as a subset of the cultural industry [8, 9]. The research on the animation industry is not rich. These studies focus on the way the animation industry develops. The theoretical system research on animation industry policy is very scarce. In addition, these policy studies focus on national plans and opinions and do not pay enough attention to how local governments can promote the development of the animation industry and improve and revise industrial policies [10]. Since 2010, the total value of China's online animation industry has also grown substantially. The relationship between animation output and market size is shown in Figure 4.

At the same time, the relevant policies of China's animation industry are not only numerous but also the subjects of policy release are intricate. However, the current academic research on the animation industry policy text is slightly insufficient, and there is also a lack of research on the animation industry policy text based on a quantitative perspective [11–13]. In this context, it is necessary to deeply analyze the connotation of China's animation industry policy for more than 20 years. This is helpful for macroscopically grasping the characteristics of the Chinese government in the selection and use of policy tools. We can find the shortcomings of the Chinese government in the selection

and use of policy tools and propose policy optimization strategies. This can better help the development of China's animation industry [14].

At present, the analysis of China's animation industry policy is more focused on qualitative analysis. This study analyzes the policy text from a quantitative perspective to improve the scientific nature of the policy analysis. This study introduces the theory of policy tools into the research of my country's animation industry policy. The analysis framework of Chinese animation industry policy text is constructed from the dimension of policy tool and value chain. This provides a new perspective and new idea for future research on China's animation industry policy. This study applies the policy tool theory to the research on China's animation industry policy. It not only expands a new field of theoretical research on policy tools, but also provides a new theoretical perspective for future research on animation industry policy.

2. Policy Tools

2.1. The Concept of Policy Tools. With the deepening of the reform and opening up in the economic field, the government's economic regulation and social management began to complicate. Based on practical needs, several books on policy and policy tools have appeared in the academic world [15]. On the whole, domestic research on policy tools is organized into systems [16]. Figure 5 shows the statistics on the number of annual policy publications and the number of annual publications on animation policies.

In fact, a policy instrument can be defined as either an "object" or an activity. On the one hand, we can see the tool as an object. For example, in legal literature, people tend to refer to laws and executive orders as tools. On the other hand, tools can also be seen as activities. Therefore, some scholars define a policy tool as "a series of activities that exhibit similar characteristics. The focus is on influencing and governing social processes." This definition expands the scope of the tool to include certain informal activities. However, it blurs the line between "policy" and "tool."

At the same time, policy tools are commonly known as "policy measures." Policy tools are the means by which the government implements policies. Although many macro-level means or methods can be regarded as policy tools to a certain extent, these things are not clear enough to solve certain problems or achieve certain goals. Therefore, the policy tool we define should be a means of "achieving policy goals" and should emphasize its pertinence to achieving the goal. Others define a policy tool as an activity because the policy tool accomplishes its mission by transforming the ultimate goal to be achieved by the policy into concrete actions in the process of implementation. In this way, the meaning of policy tools, in short, is a means or method to achieve policy goals, and the process of its realization is counted as the use of policy tools.

2.2. Theoretical Research on Policy Tools. The theoretical and practical research results on policy tools at home and abroad
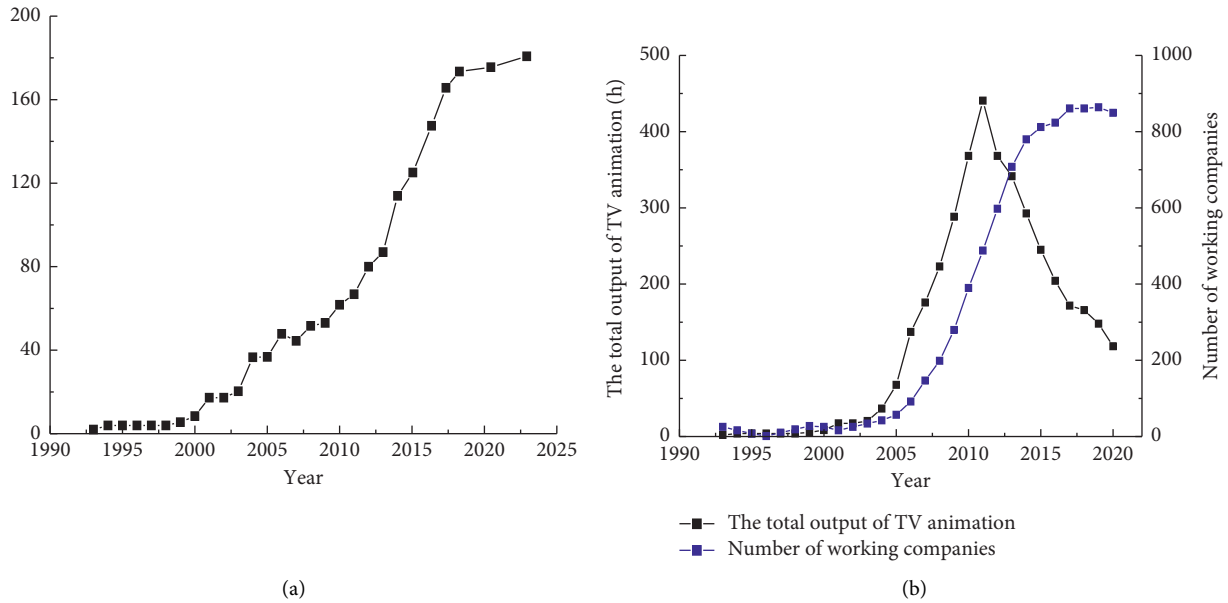
FIGURE 2: Total output value and total output of China's animation and the number of in-service companies. (a) Total output value of China's animation industry in recent years. (b) Total output of TV animation and the number of incumbent enterprises.
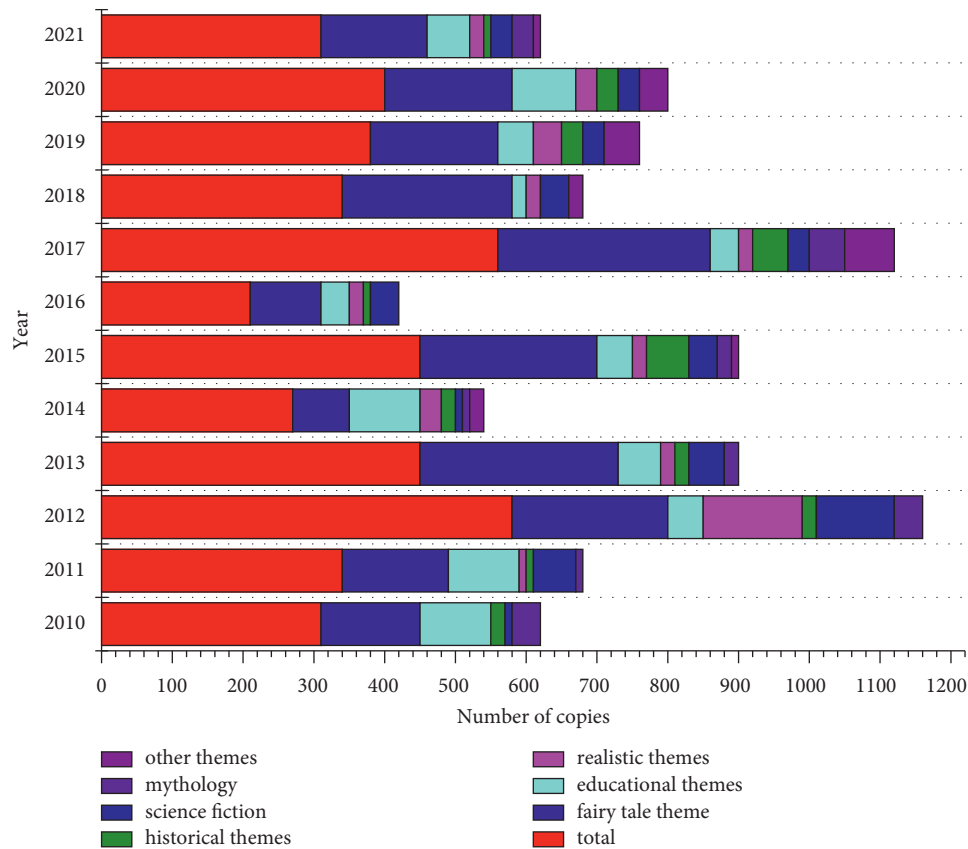

FIGURE 3: Number of domestic cartoons filed and the distribution of themes.

are very rich. The definition of policy tools has been summarized in the previous section, and the research results of the classification of policy tools and the selection of policy tools will be described next [17, 18].

2.2.1. *Taxonomy of Policy Tools.* Some scholars classify policy tools according to the domain category. For example, the famous policy analyst Van der Doelen divides policy tools into legal tools, economic tools, and communication
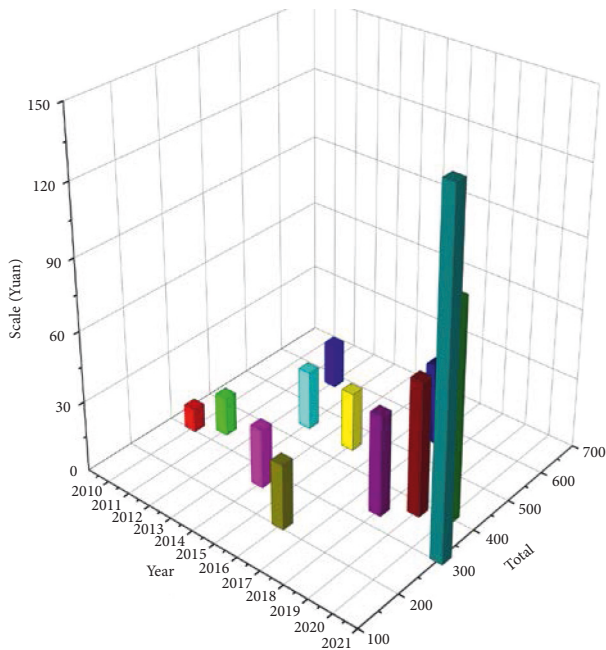
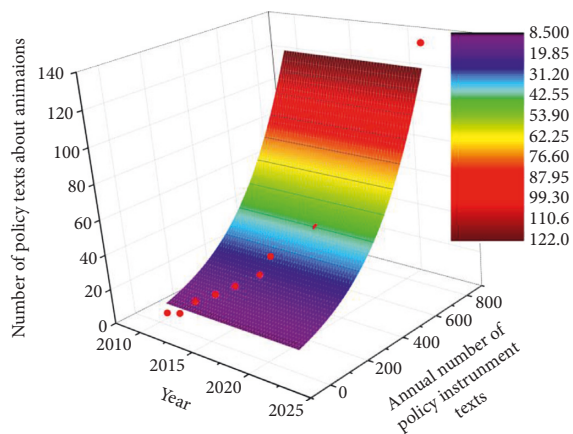FIGURE 4: Scale of China's online animation market.

FIGURE 5: Statistics on the number of annual policy publications and the number of annual publications on animation policies.

tools. Each set of tools can be mutated as needed. Chen Zhenming, a Chinese public management scholar, divides policy tools into three types: market-oriented tools, business management technical tools, and socialized means. Some scholars have classified them according to different research fields. Rothwell and Zegveld divide technological innovation policy tools into three types: supply side, environment side, and demand side. Schneider and Ingram divide policy tools into four categories: "incentive," "enhancing capacity," "symbol and exhortation," and "learning" according to the goals to be achieved. In general, Chinese and foreign scholars have classified policy tools from multiple perspectives according to their own research needs. These classification ideas are closely related to the political characteristics of the country where scholars live and their main

research fields. This not only lays an important theoretical foundation for the study of policy tools but also enlightens scholars in the future.

2.2.2. Research on the Choice of Policy Tools. Since the main objects of policy tools are related to social practices (social governance, industrial development, international exchanges, etc.), the selection of policy tools must be the focus of policy tool research. On CNKI, with the keyword "policy tool perspective," 439 search results were obtained. Most of the papers use the policy tool theory as a tool to construct a relatively scientific and rigorous policy analysis system. The content of policy texts of related industries is summarized, and the implementation of policies in a certain field is studied. This kind of analysis basically adopts the method of combining content analysis and quantitative analysis. The research objects in the economic field involve artificial intelligence policy, Internet of Things policy, new energy vehicle policy, industrial Internet policy, smart pension industry policy, photovoltaic industry policy, etc. In the field of public service, it involves government information disclosure policy, postgraduate education reform policy, Fujian Province talent policy, etc.

2.3. Analysis of the Applicability of Policy Tool Theory to This Article. In the analysis of the dimensions of China's animation industry policy tools, this study adopts the classification method of Australian scholars Mark Dodgson and Roy Rothwell. The policy tools are divided into supply-based policy tools, demand-based policy tools, and environmental-based policy tools. Mark Dodgson and Roy Rothwell's taxonomy of policy tools is originally applied to public policy and reindustrialization and industrial innovation. They are the classification of policy tools from the perspective of the focus of policy tools and the law of market operation. The animation industry policy studied in this study is closely related to the market, industry, and society. The classification of Mark Dodgson and Roy Rothwell is more applicable to the research object of this study [19].

The classification of Mark Dodgson and Roy Rothwell [20] is more helpful to clarify the relationship between China's animation industry policy and relevant subjects of animation industry policy. Then, we can discuss which angle and method the animation industry policy is more inclined to use to promote the development of the animation industry. This classification of policy tools has been applied to the analysis and research of policy texts such as health industry policy, network ecological governance policy, and public policy. It provides a reference for the analysis and policy optimization of policy texts in various fields and is scientific and feasible.

From the perspective of China's national policy reform, from the "organic unity of the role of the government and the role of the market" to "supply-side structural reform" and then to "taking into account the demand-side reform," the reform of China's economic policy not only takes into account the role of the government and the market but also takes into account the structural reform of the "supply side"

and "demand side." The classification of policy tools by Mark Dodgson and Roy Rothwell not only pays attention to the relationship between the government and the market but also takes into account the "supply" and "demand" of the industry. The use of this classification method is more in line with China's current national conditions.

In general, the three policy tools promote the development of the animation industry from three aspects: direct supply, increasing social demand, and shaping a good social environment for the industry. From directly driving the development of the animation industry to shaping a good production, circulation, and consumption environment for the animation industry, the three policy tools complement each other and jointly promote the development of China's animation industry (as shown in Figure 6).

3. The Construction of China's Animation Industry Policy Analysis Model

3.1. Construction of a Two-Dimensional Analysis Model for China's Animation Industry Policy. To analyze China's animation industry policy text more clearly, intuitively, and scientifically to discover the shortcomings of China's animation industry policy, it is necessary to construct a relatively reasonable analysis framework for China's animation industry policy. Therefore, this study constructs a two-dimensional analysis framework of animation industrial policy in the dimension of "policy tool value chain" on the basis of referring to the research in related fields at home and abroad. Based on the division of the cultural industry value chain based on the production cycle of the cultural industry and the activity law of the value chain, the Chinese animation industry policy is divided into four stages: creative formation, investment, production and circulation, and consumption from the value chain dimension.

To sum up, the two-dimensional analysis model constructed in this study for China's animation industry policy is as follows (as shown in Figure 7).

3.2. Policy Text Encoding Rules and Examples. On the issue of coding and classification in this study, to ensure the accuracy of coding and classification, this study selects 3 postgraduates majoring in communication to assist in coding on the basis of fully understanding the theory of policy tools and classification and coding standards in this study. In terms of the dimension coding of policy tools, supply-based policy tools, demand-based policy tools, and environmental-based policy tools are marked as 1, 2, and 3, respectively [22]. In the value chain dimension, the four stages of idea formation, investment, production and circulation, and consumption are marked as 1, 2, 3, and 4, respectively. When using the dimension coding of policy tools, this article adopts the coding method of "policy serial number-X-axis number-Y-axis number." It should be noted here that not all the single policy texts collected in this study only correspond to a certain stage in the animation industry value chain in the value chain dimension. Therefore, when encoding the Y-axis, multiple encoding methods are adopted [23].
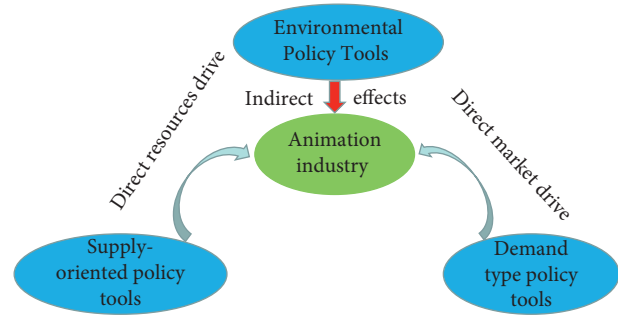

FIGURE 6: Relationship between policy and industry-driven policies in the dimension of policy tools.
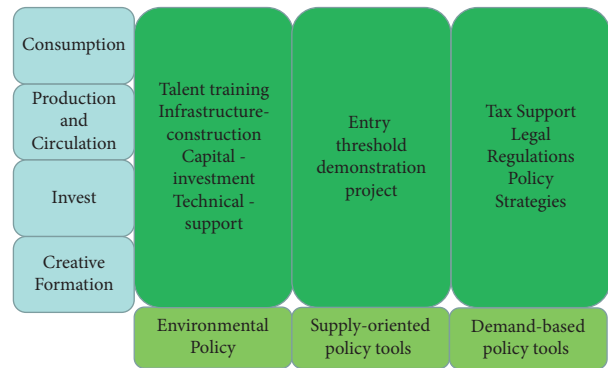

FIGURE 7: Two-dimensional analysis model of animation industry policy [21].

3.3. Reliability and Validity Test. The reliability of research conclusions refers to the stability of research conclusions, that is, the consistency of the conclusions obtained by repeated testing of the research objects. The higher the consistency, the higher the stability and reliability of the research conclusion and the smaller the research error. In this study, the reliability of the research conclusions is shown by the consistency of the coding results of 4 communication graduate students. Validity refers to how well an empirical measure reflects the true meaning of a concept. Validity refers to the rationality of the article's coding of policy decomposition. It is difficult to give a quantitative index at present, so this study interprets and tests it from theoretical basis and expert judgment. In terms of theoretical basis, the division of policy tools by the policy tool dimension (X dimension) has been applied to the analysis and research of policy texts such as health industry policy, network ecological governance policy, and public policy at home and abroad. It has a certain scientific nature. This classification method is also more applicable to the policy research in this study.

3.4. Content Analysis of Policy Texts in Two-Dimensional Analysis Framework. As far as the 187 Chinese animation industry policy research samples in this study are concerned, the number of environmental policy tools is the largest, accounting for 58%. The number of supply-oriented policy tools ranked second with 58, accounting for 30%. The

number of demand-based policy tools is the least, accounting for 12% (see Figure 8(a)). It can be seen that within the scope of the sample selected in this study, most of China's animation industry policies are policies that indirectly affect the development of the animation industry, such as target planning, legal norms, and policy strategies. However, there are relatively few supply and demand policy tools from the perspective of directly affecting industrial development. It can be seen that within the scope of the sample selection in this study, China's animation industry policy is more inclined to promote and regulate the development of the animation industry by indirectly affecting the animation industry. However, the number of policies to drive the development of China's animation industry through direct market and direct resources is relatively small. In particular, the number of policies to drive the development of China's animation industry through direct markets is the least.

Among the supply-oriented policy tools, 53 policies are direct capital investment, accounting for 85%. Information technology support and talent training policies are both 3, accounting for 7%. Among the supply-oriented policy tools, there is only one policy involving infrastructure construction, accounting for 1%. As far as the samples selected in this study are concerned, among supply-type policy tools, capital investment has an absolute advantage. However, policies related to information technology support, talent training, and infrastructure construction are relatively lacking (as shown in Figure 8(b)).

Within the scope of the sample collected in this study, the types of policy tools required by China's animation industry policy are the establishment of demonstration projects. There are currently no policies related to government procurement and entry barriers.

Based on the research samples of this study, in China's animation industry policy, environmental policy tools are most frequently used. Policy-based strategies have the largest number, accounting for 40%. The proportion of legal and normative environmental policy tools is 32%. Environmental policy tools such as target planning and taxation accounted for 14% (as shown in Figure 8(c)).

Based on the above analysis of the content of China's animation industry policies within the sample range selected in this study, it can be seen that the overall distribution of China's animation industry policies in the dimension of policy tools is uneven. Environmental policy tools are dominant, followed by supply-based policy tools and less demand-based policy tools. The distribution of specific types of policy tools is also uneven. Among the types of supply-oriented policy tools, capital investment dominates, and policies related to information technology support, talent training, and infrastructure construction are less. The types of demand-based policy tools are the establishment of demonstration projects, and the relevant policies of government procurement and access thresholds are not covered in the scope of this study. The types of environmental policy tools are dominated by policy strategies and legal norms. There are relatively few policies of the type of targeted planning and tax support.

3.5. Value Chain Dimension Quantitative Analysis of China's Animation Industry Policy.

Within the scope of the 187 samples counted in this article, there are 176 Chinese animation industry policies in total. This policy involves the production and circulation stages of the animation industry. This is about 94.1% of the total sample. Policies involving the creative formation stage of the animation industry accounted for about 35.2%. There are fewer policies related to the investment stage of the animation industry, accounting for about 10.7%. The policies involving the consumption stage of China's animation industry are the least, accounting for about 9.0% (see Figure 8(d)).

It can be seen that within the scope of this paper's sample research, China's animation industry policy has a relatively obvious tendency in the policy distribution of the animation industry value chain dimension. China's animation industry policy is more inclined to focus on the production and circulation stage in the animation industry. However, China's animation industry policy pays relatively little attention to the creative formation, investment, and consumption stages of the value chain.

According to the two-dimensional policy analysis model built in this study and the coding of the Chinese animation industry policy texts collected in this study, the two-dimensional frequency distribution of China's animation industry policies is obtained as shown in Table 1.

It can be seen from Table 1 that within the scope of the sample selected in this study, the policy distribution of China's animation industry in the dimension of "policy tools-value chain" shows a clear tendency.

From the perspective of policy tools, the distribution trends of China's animation industry policies within the sample range selected in this study in each stage of the animation industry value chain are as follows.

Among the supply-oriented policy tools, the policy for the production and circulation stage is the most, followed by the creative formation stage. There are fewer policies involving the consumption stage. There are currently no supply-oriented policy tools involved in the investment phase. Among the demand-based policy tools, the policies involving the production and circulation stage are the most. The second is policies involving the creative formation stage of the animation industry. Within the scope of the sample selection in this study, there are no policies related to the investment stage and the consumption stage in the demand-based policy tools. Among the environmental policy tools, the policies involving the production and circulation stage are the most. The second is policies for the creative stage, investment stage, and consumption stage.

From the perspective of the value chain, within the scope of the research sample in this study, the distribution of policy tools is as follows.

Environmental policy tools in the creative stage are the most used. Supply-based policy tools and demand-based policy tools are second. Only environmental policy tools are involved in the animation industry investment stage. In the production and circulation stage of the animation industry, environmental policy tools are the most widely used. The second is the application of supply-oriented policy tools.
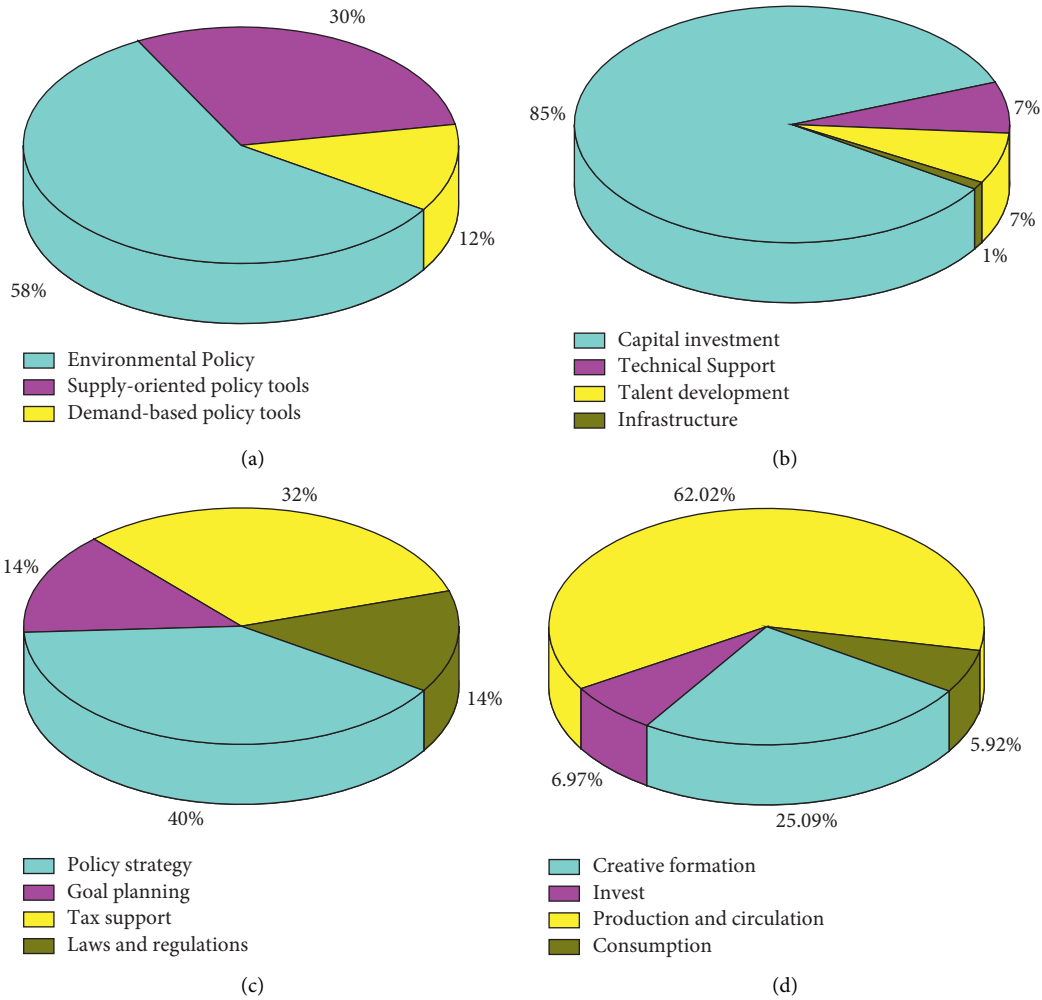
FIGURE 8: Statistics on the distribution. (a) Statistics on the distribution of policy tool dimensions and policy types. (b) Distribution statistics of supply-type policy tools. (c) Statistics on the distribution of types of environmental policy tools. (d) Statistics on the frequency of policy distribution in the value chain dimension.

TABLE 1: Two-dimensional frequency distribution of China's animation industry policies.

	Supply-oriented policy tools	Demand-based policy tools	Environmental policy tools
Creative formation	18	11	37
Invest	0	0	20
Production and circulation	57	17	101
Consumption	2	0	15

There are relatively few applications of demand-based policy tools. In the consumption stage of animation industry, environmental policy tools are widely used. Supply-oriented policy tools are less used. There is currently no application of demand-based policy tools.

4. China's Animation Industry Policy Optimization Strategy

To sum up, several measures can be put forward on the future development direction of China's animation industry policy.

(1) From focusing on quantitative development to focusing on supporting high-quality masterpieces; (2) change from rewarding a single broadcast platform to focusing on expanding new channels; (3) change from encouraging import and going out to emphasizing international exchange and going out; (4) an industrial fund can be established to change from direct reward to indirect support; and (5) it is necessary to emphasize the functions of entrepreneurship and innovation service platform and element aggregation and transform from the layout of the industrial chain to the creation of an industrial ecology [24, 25].

Combined with the development direction of China's animation industry, the Chinese government should devote itself to policy innovation and improve the animation industry policy system. To further improve the policy development path of the animation industry and enhance the development quality of the animation industry, we can start from the following aspects [26].

4.1. Optimization Method of Supply-Oriented Policy Tools

4.1.1. Highlight the Intermediary Function of Industry Associations. Industry associations are in the middle of the government and animation enterprises, and they are the staff assistants of the government and the voice of enterprises. It can reflect the demands of the enterprise. It not only helps the government better understand the operation status of the entire animation industry but also equates industry development policies.

4.1.2. Strengthen the Construction of Technical Basic Information. The government can lead industry associations, animation industry think tanks, universities, and enterprises to jointly establish and create a scientific and technological innovation service platform that is open, shared, multi-win, advanced, and professional. The platform integrates and allocates the advantageous resources owned by Hangzhou National Animation Industry Base, colleges and universities, industrial bases, financial institutions, and leading enterprises [27, 28].

4.1.3. Optimize the Structure of Capital Investment. The transfer of some decision-making powers may be considered. Each district government can reasonably allocate and improve the efficiency of capital use according to the characteristics of the animation enterprises in the region and the needs of the animation industry in the region.

4.1.4. Further Improve the Accuracy of Talent Training. Under the circumstance that China's animation professionals are in short supply, a simple talent introduction policy cannot solve the fundamental problem. Therefore, the establishment of a talent training system can be increased. One is to cooperate with colleges and vocational schools to open animation-related majors and courses. In addition, in the face of the situation that the junior practitioners who have just left the school have insufficient work experience and insufficient ability, they can regularly organize training courses for animation talents.

4.1.5. Guide Animation Enterprises to Formulate a Management Mechanism for Consumer Value Co-Creation. Consumers can use available resources and their own knowledge, skills, experience, etc., to create use value for themselves in the process of self-service consumption. In turn, consumers can become the creators of customer value. Even consumers can enter the production process through the platform provided by animation companies and become

co-creators of animation products. In this link, the policy intervention can take the form of guiding opinions combined with the training of industry management agencies. By guiding animation enterprises to redefine the role and mutual relationship of value co-creation parties, a new value creation system is formed by reflecting the way consumers participate in value co-creation and the distribution of interests between consumers and enterprises in their internal management process.

4.1.6. Establish and Improve the Procurement and Outsourcing System of Government Animation Products. It is necessary to consider equating relevant regulations on promoting government procurement of animation products. A portion of the annual financial budget is reserved for the procurement of animation-related products and services. For example, by purchasing good animation derivative stage performance services or some animation DVDs and books for remote areas, let underdeveloped areas experience animation culture. Government purchases and related bidding systems can improve the level and efficiency of government public services through market competition. It can also guide more private capital to participate in the animation industry chain [3].

4.2. Environmental Policy Tool Optimization Methods

4.2.1. Increase the Construction of Target Planning and Supporting Implementation Policy System. In terms of improving the flexibility of the management of various departments, we can consider setting up a special animation industry promotion group on the basis of the Hangzhou Cultural and Creative Industry Office. The functions are fixed to form a high-standard, full-function entity department. Finally, a tracking and supervision mechanism must be established to avoid administrative mediocrity where orders cannot be made and government cannot be made [29].

4.2.2. Construction of Innovative Financial Support System. To promote the entry of financial capital into animation enterprises, innovative financial tools such as intellectual property securitization can be explored in the animation industry. It can actively guide Internet capital to cultivate high-quality projects in combination with the needs of leading Internet companies for strategic layout in the cultural industry. Through cooperation to launch Internet financial products for cultural and creative industries, the financing channels of animation enterprises will be enriched.

4.2.3. Build a Fully Functional Animation Market System. It is necessary to pay attention to the role of intermediary service agencies in technical support and enterprise services and to improve the conversion rate, circulation rate, and marketization level of animation products and related services.

4.3. Demand-Based Policy Tool Optimization Method

4.3.1. Increase Publicity Efforts and Advocate Animation Consumption Culture. With the help of exhibition activities such as the China International Animation Festival, people's understanding of animation culture can be promoted. By integrating resources and connecting supply and demand, a cultural consumption platform for value sharing and co-construction is built between enterprises and consumers. In addition, direct financial subsidies can also be provided to the public for purchasing animation-related products and services in the form of cash subsidies and discounts.

4.3.2. Industrial Policy Optimization Strategies: Specialization and Cooperation. The development of China's animation industry policy should increase the use of hybrid and voluntary hybrid tools. By fully mobilizing the enthusiasm of enterprises, schools, industry associations, group organizations, etc., the healthy development of the animation industry can be guided. In the final analysis, the specialization of animation industry policy development is the optimization of professional talents. The trend of policy evolution should start from the direction of accelerating the standardization process of animation talent training, formulating animation talent training standards, and promoting the professionalization of animation talents. The government should issue policies and regulations related to animation. It can effectively enhance the connection between various animation companies and promote the healthy development of the animation industry.

5. Analysis of the Shortcomings of the Application of Policy Tools at Various Stages of the Value Chain

The development of animation industry should be the common development of the four stages of creative formation, investment, production and circulation, and consumption. Industrial policies that focus too much on the development of a single stage of the value chain and ignore other stages are not conducive to the overall development of the animation industry value chain. Among them, the creative formation stage is the core link of the animation industry value chain. The quality of animation ideas and their popularity in the market directly affect the willingness of employers to invest in animation ideas, as well as the production and circulation of animations and derivatives, which in turn affects the consumption of animation products by consumers. The investment stage is also very important for the animation industry with a long production cycle and high production costs. In particular, for the current situation where small- and medium-sized animation enterprises are still the main production entities of animation products in my country, animation enterprises in China are also highly dependent on the investment stage. The production and circulation stage includes not only the production and production of animation but also the production and production of animation derivatives. This

stage is the intermediate link of the animation industry value chain from the creative formation stage to the consumption stage, and it is also the premise for the profitability of animation industry products. Therefore, it is particularly important to strengthen the property rights protection of animation creativity and animation products in the production and circulation stage. The consumption stage is the last stage of the animation industry value chain. Only when the animation products are consumed they can be finally realized. It can be seen that the creative formation, investment, and consumption stages all have their importance and necessity in the animation industry value chain.

5.1. Policy Tools at the Creative Stage Have Limitations. As a cultural and creative industry, animation creativity is the starting point of the animation industry value chain. The quality of animation creativity almost determines the performance of the rest of the animation industry value chain. Within the scope of the sample research in this study, the policies most closely related to animation creativity in the creative formation stage of China's animation industry are the policies for the planning and management of animation creative themes represented by the filing and publicity system.

On the one hand, the filing and publicity system ensures that domestic cartoons have the correct social orientation in terms of content, from the selection and production of TV cartoons, the review, and filing, to the filing and review of online cartoons. It is also in line with the purpose of Chinese cartoons to "serve the people, especially the majority of young people and children," and has its rationality. On the other hand, the filing and publicity system may restrict the innovation of Chinese cartoon content to a certain extent. To facilitate the review, the producers of cartoons may choose relatively "safe" animation themes. Therefore, the filing and publicity system may also restrict the content innovation of cartoons in my country to a certain extent, which is not conducive to the innovative development of cartoons.

5.2. The Overall Lack of Policy Tools at the Investment Stage. In the "Implementation Opinions on Encouraging and Guiding Private Capital to Enter the Cultural Field," the expression directly related to investment in the animation industry is as follows: "Encourage and guide private capital to invest in animation, games and other industries and fields. It is necessary to support private capital to participate in the implementation of major cultural industry projects. It is necessary to encourage cross-regional and cross-industry mergers and acquisitions of private cultural enterprises. Private capital investment in cultural industry categories and fields that are in line with the national key support direction can be given financial support through project subsidies, loan interest discounts, insurance premium subsidies, performance incentives, etc." This kind of policy is relatively general, and there is no specific explanation on how to "encourage" and "guide," which is not conducive to direct implementation.

5.3. Insufficiency of Legal and Normative Policy Tools in the Production and Circulation Stage. The policy tools most used by the Chinese government in the field of production and circulation are the capital investment in the direct supply policy tools, the legal norms in the environmental policy tools, and the establishment of demonstration projects in the demand policy tools. The animation industry is an industry with animation creativity as the core. The model of "IP creation-animation production-derivatives development-feedback creation" carried out by the animation industry around animation creativity is of great significance to promoting the healthy and rapid development of the animation industry. At the same time, this business model centered on IP creativity and the ease of replication of the animation industry products themselves also lead to the fragility of the animation industry. The production and circulation stage is an important intermediate link in the realization of IP ideas. It is also necessary to strengthen the property rights protection of animation ideas and animation products at this stage.

5.4. Lack of Overall Use of Policy Tools at the Consumption Stage. With the country's emphasis on domestic animation and policy support and the rise of the "new animation school," domestic animation has reentered the track of rapid development. A number of excellent domestic animation products have gradually emerged. However, the stereotype that domestic cartoons are once "inferior" still exists in the minds of some Chinese people. Potential foreign consumers also have insufficient understanding of domestic animation, and the competitiveness of foreign animation products represented by the United States and Japan is still strong. These factors all affect the consumption behavior of potential consumers for domestic animation and animation products. To this end, it is also particularly important for the animation industry to promote potential consumers to become interested in Chinese animation products and generate consumption behavior from the national policy level.

6. Evaluation of Optimization Methods

The fuzzy comprehensive evaluation method is a comprehensive evaluation method based on fuzzy mathematics. It mainly solves some evaluation problems with unclear extension, that is, the so-called ambiguity problem. The fuzzy comprehensive evaluation method transforms qualitative evaluation into quantitative evaluation according to the membership degree theory of fuzzy mathematics. Fuzzy mathematics can be used for general evaluation of things or objects constrained by multiple factors. It has the characteristics of clear and systematic results. It can better solve vague and difficult to quantify problems and is suitable for solving various nondeterministic problems. The animation optimization method is evaluated by experts scoring the optimization method; that is, the qualitative problem is transformed into a quantitative evaluation. Therefore, the fuzzy comprehensive evaluation method can better evaluate the animation optimization method.
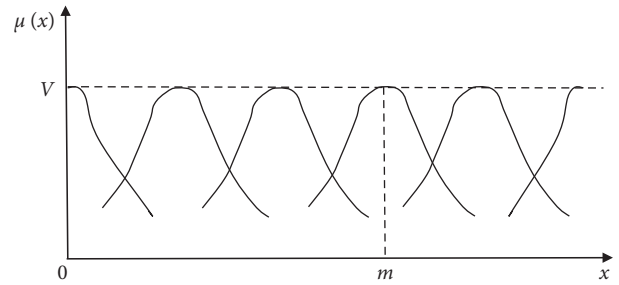

FIGURE 9: Normal distribution model.

This study evaluates the supply-oriented policy tool optimization method. The optimization method is divided into k levels, and a judgment set V is introduced. At the same time, the factors affecting the optimization method are taken as a factor set U.

$$V = \{v_1, v_2, \ldots, v_k\},$$
$$U = \{u_1, u_2, \ldots, u_k\}, \tag{1}$$

where v_i is the judging set factor and u_i is the factor set factor.

Based on these influencing factors, a corresponding evaluation matrix is established. For each factor, its corresponding membership degree is obtained, that is, probability in probability statistics.

$$R = \begin{Bmatrix} r_{11} & \cdots & r_{1m} \\ \vdots & \ddots & \vdots \\ r_{n1} & \cdots & r_{nm} \end{Bmatrix}, \tag{2}$$

where r_{ij} is the judgment matrix factor.

According to the determined membership degree of each influencing factor, the factor membership degree function is established. The weight of each factor can be determined; that is, $A = (a_1, a_2, \ldots, a_k)$. Then, the weighted average model $M(\cdot, +)$ is used to obtain the comprehensive evaluation result vector B.

$$B = A \bullet R = (b_1, b_2, \ldots, b_k), \tag{3}$$

where b_k is the evaluation result vector factor.

It is necessary to solve the vector size of the comprehensive evaluation result strictly according to the actual situation. Finally, the quality of the optimization method is determined according to the membership criterion.

In this study, the following six influencing factors are selected as fuzzy evaluation parameters. R_1 highlights the intermediary function of industry associations. R_2 strengthens the construction of technical basic information. R_3 optimizes the structure of capital investment. R_4 further improves the accuracy of talent training. R_5 increases publicity efforts and advocates animation consumption culture. R_6 establishes and improves the procurement and outsourcing system of government animation products. The above six influencing factor parameters are all quantitative parameters, and then, only the corresponding membership function of the influencing factor parameters needs to be established. Quantitative grading and grading standards are

TABLE 2: Important degree of judgment value.

Importance	Equally important	Slightly important	...	Very important	Slightly unimportant	...	Unimportant
k_{ij}	1	3	...	9	1/3	...	1/9

all asked to score by famous animation masters in the industry.

The fuzzy evaluation parameters are six influencing factors as follows. The five grades represent excellent, good, fair, pass, and fail at one time. The six factors are the six methods of optimization.

$$V = \{v_1, v_2, v_3, v_4, v_5\},$$
$$U = \{u_1, u_2, u_3, u_4, u_5, u_6\}. \quad (4)$$

To obtain the evaluation matrix of the optimization method, the membership function adopts a normal distribution model (as shown in Figure 9).

$$u_j(x_i) = \exp\left[\left(-\frac{x_i - m}{c}\right)^2\right], \quad (5)$$

where $u_j(x_j)$ is the membership degree of the i element belonging to the jh level. x_j is the value of the ith element in the evaluation element. c and m are constants.

The constants c and m can be expressed as follows:

$$\begin{cases} m = \dfrac{(x_{\text{top}} + x_{\text{down}})}{2}, \\ c = \dfrac{(x_{\text{top}} - x_{\text{down}})}{1.665}, \end{cases} \quad (6)$$

where x_{top} is the upper-middle value of the evaluation element and x_{down} is the middle and lower value of the evaluation element.

Commonly used judgment methods include the Delphi expert determination method, analytic hierarchy process, and pairwise comparison of factors. In this study, the matrix analysis of the mutual comparison between each element is used to determine the weight of each element. The elements can be compared with each other in pairs. We can use k_{ij} to represent the judgment value of the importance of the j factor relative to the i factor.

The important degree of judgment values is shown in Table 2.

Therefore, the judgment matrix can be constructed as follows:

$$k = \begin{bmatrix} 1 & k_{12} & \cdots & k_{16} \\ k_{21} & 1 & & \vdots \\ \vdots & & 1 & k_{56} \\ k_{61} & \cdots & k_{65} & 1 \end{bmatrix}. \quad (7)$$

According to the constructed matrix, the eigenvalue with the largest absolute value is found. Then, the corresponding eigenvector is obtained, and the eigenvector is normalized as a weight vector. For the
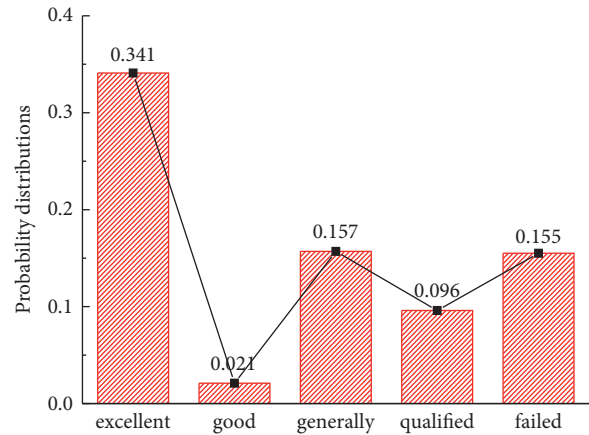

FIGURE 10: Histogram of the probability distribution of the five levels.

convenience of calculation, the following steps are used to simplify:

$$a_i = \sqrt[v]{\prod_{j=1}^{n} k_{ij}}, \quad (i = 1, 2 \ldots, n), \quad (8)$$

where a_i is the important coefficient vector of the factor set.

After normalizing matrix A, the following equation is obtained:

$$A = (0.134, 0.201, 0.16, 0.099, 0.037, 0.072). \quad (9)$$

According to equation (3), the comprehensive evaluation result vector B is obtained:

$$B = A \bullet R$$
$$= (b_1, b_2, b_3, b_4, b_5). \quad (10)$$

According to the expert's score and the actual situation, the quantitative values of R_1, R_2, R_3, R_4, R_5, and R_6 are obtained. $R_1 = 60.94$, $R_2 = 70.2$, $R_3 = 32.65$, $R_4 = 0.235$, $R_5 = 12.00$, and $R_6 = 6.49$. At the same time, by substituting the obtained data into equation (5) in combination with the evaluation criteria, it can be obtained as follows:

$$R = \begin{bmatrix} 0.963 & 0 & 0 & 0 & 0 \\ 0.874 & 0 & 0 & 0.016 & 0.005 \\ 0.001 & 0.915 & 0.213 & 0 & 0 \\ 0.359 & 0.105 & 0 & 0.831 & 0.632 \\ 0.023 & 0 & 0 & 0.026 & 0.591 \\ 0.002 & 0 & 0 & 0.154 & 0.997 \end{bmatrix}. \quad (11)$$

Therefore, a comprehensive evaluation result vector B is obtained as follows:

$$B = A \bullet R$$
$$= (0.341, 0.021, 0.157, 0.096, 0.155). \quad (12)$$

The histogram of the probability distribution of the five levels is shown in Figure 10.

According to the calculation and evaluation result vector value of equation (12), it can be judged as excellent. Therefore, through the above five levels, the policy strategy of China's animation industry can be optimized.

7. Conclusion

Based on the theory of policy tools, this study constructs a two-dimensional analysis framework of China's animation industry policy from the perspective of policy tools and value chain. The content analysis method is used to analyze China's animation industry policy after marketization reform. Based on the perspective of policy tools, corresponding strategies are put forward for the optimization of China's animation industry policy.

Through analysis, this study finds that among the three policy tools, supply-based policy tools, and environmental-based policy tools are used more. However, the supply-based policy tools have the problem of overflow, and the demand-based policy tools are less used and not paid enough attention. These policy tools mainly focus on the R&D and production stages of the animation industry, while consumption and investment account for less. In terms of policy participants, existing policies ignore the value-creating ability of consumers.

This study suggests that local governments speed up the transformation of government functions and pay attention to the role of industry associations and intermediaries, by further improving infrastructure construction, optimizing the structure of capital investment, and increasing government procurement to promote animation consumption. Through the above research, this study attempts to make a useful supplement to the development of China's animation industry and the equation and implementation of the animation industry policy system.

Aiming at the insufficiency of the application of policy tools in each stage of the value chain, the proposed revision suggestions are evaluated in combination with fuzzy mathematics theory. According to the fuzzy evaluation results, the suggestions proposed in this study can better optimize the structure of China's animation industry and promote the vigorous development of China's animation industry.

Data Availability

Some or all data, models, or code that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no known conflicts of interest or personal relationships that could have appeared to influence the work reported in this study.

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