

Research on the Influence Mechanism and Promotion Countermeasures of New Infrastructure Construction on Entrepreneurial Vitality

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Abstract

From the international perspective, the international trade environment is deteriorating under the impact of the global epidemic. Domestically, due to the dual impact of declining economic growth and COVID-19 epidemic, the economic development faces multiple pressures, so we must stimulate entrepreneurial vitality and ensure more and more full employment. With the wave of new infrastructure rolling in, building infrastructure systems such as digital transformation, intelligent upgrading and integrated innovation has become an important cornerstone for promoting the development of innovation and entrepreneurship. Taking this as the background, this project carries out a research on the influence mechanism and countermeasures of the new infrastructure on the entrepreneurial vitality, and reveals the factors affecting the entrepreneurial vitality from the perspective of the new infrastructure, which has certain reference significance for stimulating the entrepreneurial vitality.

Keywords

New Infrastructure; Entrepreneurial Vitality; Investment and Financing System; Business Closed Loop.

1. Introduction

Under the new normal of economic structure transformation and economic development speed decline, entrepreneurship is a powerful "engine" to promote employment, which has a multiplier effect on stable employment. With the continuous advancement of the new round of technological revolution and industrial transformation, the new infrastructure construction featuring digitalization, network, intelligence and integration is getting more and more attention. The mechanism of studying the impact of new infrastructure on entrepreneurial vitality can provide more optimized market resources and top-level design for entrepreneurial activities, thus achieving the following effects: coping with internal and external pressure; accelerating towards high-quality development; forcing enterprises to transform and upgrade; solving employment problems for more people; and responding to deal with downward pressure and uncertainty.

This article will take the construction of new infrastructure and entrepreneurial vitality as the research object, combine the current national development policies and market environment, as well as scholars' theoretical research on new infrastructure and entrepreneurial vitality, summarize the basic connotation and comb the development status of these two research objects, and preliminarily analyze the impact path of new infrastructure on innovation vitality. Then, explore the impact mechanism of new infrastructure on entrepreneurial vitality in depth, refine the impact degree and direction of factors in the evaluation index system on entrepreneurial vitality, and clarify the key elements of new infrastructure that stimulate

entrepreneurial vitality. Finally, from the perspectives of the government and the market, corresponding suggestions are made on the core and key areas in multiple different dimensions.

2. Literature Review

The current research is roughly the following three aspects: first, the research on the connotation and development mode of the new infrastructure. He Qian (2020) makes suggestions on the endogenous security technology of the new infrastructure: from the beginning of the construction and design, the safety architecture and security theory should ensure the parallel development of the function realization and security of Ma Rong et al. (2019), it points out that strengthen coordination and cooperation, optimize system supply, and improve the efficiency of infrastructure operation and management. The second is the research on new infrastructure related effects. Song Deyong et al (2021) empirically tested the policy effect of new infrastructure construction on green technology innovation from the urban panel data of 2003-2018 using the dual difference model and "quantity" and "quality"; Shen Kunrong and Sun Zhan (2021) pointed out that the path mechanism of new infrastructure driving industrial upgrading and the future development focus on strengthening the investment in frontier basic research, the coordinated layout of "new infrastructure" manufacturing industry and the participation of private enterprises. Third, research on the factors influencing entrepreneurial activity. The study by Huang Manyu et al. (2021) shows that the coverage of digital inclusive finance has positive spatial spillover effect on entrepreneurial activity, while the depth of use and digital support do not have significant impact. Ye Wenping's team study (2018) shows that the proportion of floating population will increase the urban entrepreneurial activity, and the larger the scale of urban floating population, the higher the entrepreneurial activity.

Current research on the new infrastructure on entrepreneurial energy, both are studied separately, involving new infrastructure and industrial transformation, emission effect, green financing, economic development, and other fields, or the influence of entrepreneurial activity factors analysis, few scholars directly on the influence of new infrastructure of entrepreneurial energy quantitative and empirical analysis, for the country to develop new infrastructure and entrepreneurial development policy lack of theoretical guidance. This paper will take the new infrastructure construction and entrepreneurial vitality as the research object, innovatively analyze the influence mechanism of the new infrastructure construction on the entrepreneurial vitality and put forward the corresponding improvement countermeasures, so as to enrich the theoretical achievements in the related fields of new infrastructure and innovation vitality.

3. New Type of Infrastructure Construction

3.1. The Connotation of New Infrastructure

Guided to adapt to the needs of the new round of scientific and technological revolution and industrial transformation, and supported by digitalization and intelligence, the new infrastructure is a new structural force in the digital era and an information highway in the digital era. The connotation of the new infrastructure is: under the background of digital, intelligent, network development, to adapt to the 5G, artificial intelligence, such as a new round of technological revolution needs as the guidance, on the basis of connection, calculation as the core, facing modernization and digital economy development, support data perception, connection, convergence, fusion, analysis, decision, execution, security and so on each link operation, and provide intelligent products and services of a new generation of digital infrastructure system .

According to the function and technical characteristics, the new infrastructure can be divided into perception layer, connection layer, platform layer, fusion layer and application layer. The perception layer is a key part of the data and information collection, It mainly includes sensors, cameras, intelligent terminals and other equipment; The connection layer connects the information of different space and time with the data, Mainly through the construction of extensive coverage of the mobile communication network to achieve long-distance transmission, is the highest degree of standardization, the strongest industrialization capacity and the most mature part in the new technology field, Including 5G and satellite access; The platform layer is a hierarchy that provides the basic services needed for application development, testing, and operation in a cloud environment, Mainly including cloud computing, edge computing, big data development, etc. The integration layer is the level of integration of information, automation and other technologies with industrial innovation, mainly through the Internet of Things, blockchain and other technologies. The application layer focuses on the construction of the industrial ecology and the development of its application. It is in the commercial stage, representative applications include , such as the Internet of Vehicles, smart cities, and smart factories.

3.2. Characteristics of new infrastructure

First, the technology update and iteration is fast, and the need to take the market as the main body for investment and financing. In the process of promoting the digitalization, networking and intelligence of people, machines and things, the new infrastructure needs the support of new technologies such as artificial intelligence, 5G and blockchain. From the perspective of investment and financing, incremental capital needs to be continuously introduced to provide support at different stages of technological development. Therefore, the existing investment and financing methods dominated by financial support and traditional bank loans are not suitable for the main source of funds, and more investment dominated by social capital is needed to adapt to the rapid changes of the market.

Second, the production factors have different forms of software and hardware, and the investment and financing mode is more complex. The traditional infrastructure with "iron and public base" as the main body, its production factors are mainly stylish hardware. In contrast, the production factors of the new infrastructure include not only hardware, such as integrated circuits, 5G base stations, data centers, but also intangible software, such as operating systems, network platforms, etc. The perfect connection between hardware and software represents its innovation ability and development level. From the perspective of investment and financing, the different physical attributes will directly affect the investment subject, investment tools, investment cycle, etc.

Third, the subdivided industries have the characteristics of deep integration and common development, and need the comprehensive use of various investment and financing tools. The new infrastructure integrates perception, transmission, storage, computing and processing, and can give more and greater development initiatives to vertical industries such as industry, agriculture, transportation, energy and medical care.

4. Entrepreneurship Vitality

4.1. Basic Connotation

Entrepreneurial vitality is an indicator of the degree of entrepreneurial activities, and the main content includes the development degree and scale of entrepreneurial enterprises and entrepreneurs in the region. However, there are still various methods for specific measures of entrepreneurial vitality.

Global Entrepreneurship Observation uses the rate of full-staff entrepreneurial activity as an indicator to measure the entrepreneurial vitality. The so-called full-staff entrepreneurial activity rate is the percentage of including the number of participants and the number of owners or managers of enterprises established for less than 42 months. For example, Armington and Acs advocate the birth rate of the enterprises below 500 employees; while Chi Renyong thinks it is more appropriate to use the opening rate and closing rate of small and medium-sized enterprises in a certain period to measure the entrepreneurial vitality. Bruce and Gurley consider the personal income tax to reflect the high correlation of tax and entrepreneurial activities.

4.2. Causes of the differences in entrepreneurial vitality

One is the cultural theory. It is believed that the cultural atmosphere of encouraging innovation and adventure has played a leading role in promoting entrepreneurship. For example, Wu Jinglian compared the development history of Silicon Valley and Highway 128, and proposed that the reason for the final failure of Highway 128 is the lack of entrepreneurial culture of Silicon Valley to tolerate failure and encourage adventure.

Second, the basic theory of cluster theory. According to Marshall's external theory of economies of scale, clusters can provide entrepreneurs with mature industrial technology and cooperation network, and to some extent can avoid the problems such as narrow market and lack of technology caused by the small size of enterprises in the early stage of entrepreneurship. For example, Guo Jianluan et al. believe that clustering can effectively reduce the external governance problems of companies, thus increasing the transparency between investors and entrepreneurs, reducing transaction costs, and catalyzing the generation and development of start-up enterprises in .

Third, the basic theory of science and technology. It is believed that technology is the primary problem for opportunistic entrepreneurs to solve, and effective technology support and well-trained technicians can greatly promote the development of entrepreneurial activities in the region. For example, the reason why innovation and entrepreneurship activities in Beijing Zhongguancun area continue to be active is that many national key universities, national research institutions and returnees can provide a steady stream of technical resources and human resources.

Fourth, the theory of system. North's institutional theory believes that under the condition of the technical level remaining unchanged, institutional innovation and change can effectively improve production efficiency and promote economic growth. Therefore, under certain circumstances, the system is the decisive factor of the development scale, speed and efficiency of enterprise development. For example, Shi Jinchuan believes that the main reason for the rapid development of the private economy in Zhejiang province is the advantage of system innovation brought by its first reform.

Fifth, the systematic theory. The theory holds that the city is a chaotic system, which is composed of many subsystems, and it is at the same time a more unified subsystem, whose vitality is determined by multiple factors of mutual influence. For example, in Ni Pengfei's urban competitiveness model, urban competitiveness consists of 13 in two categories: soft power and hard force.

5. Difficulties Faced by the Construction of New Infrastructure

5.1. Constraints faced by new sources of infrastructure financing

In terms of the government perspective, as the prevention of local government implicit debt risks and a series of documents issued by the local government increased the regulation of hidden debt, for government infrastructure investment formed a strong constraints, especially

for local government leading projects, matching funds by larger constraints. From the perspective of the market, a series of regulatory policies, such as the Guiding Opinions on Regulating the Asset Management Business of Financial Institutions, have clearly defined the definition of non-standard assets, and conducted strict supervision on the capital pool model and channel business, which to a certain extent has blocked the investment of non-standard assets in infrastructure, real estate and other fields.

5.2. The investment and financing system for new infrastructure construction needs to be improved

New infrastructure construction has large demand for capital, long investment cycle, and is closely connected with new industries, new forms of business, new business models and new products. It directly serves vertical industries such as manufacturing industry and has a high degree of marketization operation, which requires diversified subjects to participate in investment and construction. However, the current relevant investment and financing mechanism in this field is still not perfect, which restricts the entry of social capital to a certain extent. For example, the lack of standardized and institutionalized arrangements for the market-oriented withdrawal of social capital leads to the greater uncertainty of social capital, which further affects the enthusiasm of enterprises and financial institutions to participate in project construction.

5.3. New infrastructure investment has not yet formed a commercial closed-loop

Many new infrastructure related fields are still in the early stage of development, faced with problems such as unclear application scenarios, insufficient technology maturity and unclear business model, which make it difficult to form a closed investment loop, which restricts the entry of social capital to some extent. In terms of application scenarios, due to the very different demands of vertical industries, the specific application scenarios of digital transformation in various fields of economy and society need to be further explored, and the corresponding infrastructure capabilities need to be further improved. In terms of technology, compared with the traditional infrastructure in the fields of transportation and energy, the maturity of new infrastructure-related technologies and industries with information technology as the core needs to be improved, and the market's investment demand, investment mode and investment tools for new infrastructure is still in the exploratory stage [12].

6. Conclusions and Enlightenment

6.1. Strengthen top-level design and increase financial support for supporting policies

First, strengthen pre-research and prediction for new infrastructure construction, and strengthen guidance on investment direction. We will formulate and issue guiding documents and plans for investment and construction, forward-looking layout, unified understanding, clarify the categories, ideas, tasks and requirements for new infrastructure construction, and improve supporting measures. Second, we will increase the support for supporting funds for infrastructure construction. In the central government, it is suggested to appropriately expand the new quota of special local special debt, provide mortgage supplementary loans, special construction bonds or special construction funds, etc. to provide new matching funds for infrastructure investment; in the local level, accelerate the investigation of implicit debts of local governments and promote the formation of a settlement mechanism of implicit debt of local governments. Third, we should establish a new infrastructure support system and strengthen various policy support. In terms of fiscal policy, for enterprises involved in the research and development of core technologies of new infrastructure, it is suggested to give the

corresponding financial subsidies to the research and development projects; in financial policy, the development finance plays the role, and encourage policy banks such as China Development Bank to provide low-interest loans to support the implementation of systematic major core projects; in industrial policy, to provide land use, electricity consumption and tax incentives for new infrastructure.

6.2. Strengthen the guiding role of the government and expand the sources of funds through multiple channels

First, set up national industrial investment funds and local government guide funds for the field of new infrastructure. For the industries that need key development and systematic construction of new infrastructure, the coordinated development of new infrastructure construction is supported through various investment methods such as capital investment, equity investment and debt investment. For innovative and entrepreneurial enterprises in the field of new infrastructure in the region, it is suggested to set up government guide funds led by local governments at all levels to support new infrastructure enterprises in the region to develop core technologies through various ways such as equity investment and debt investment, so as to promote the development and growth of regional enterprises. Second, we will guide the social security funds to participate in the equity investment of leading enterprises in the new infrastructure sector. Guide the social security fund in a variety of forms to participate in the new infrastructure leading enterprises listed each link, such as in Pre-IPO for equity investment, in the enterprise IPO strategic placement, participate in stock placement, after the enterprise listed help enterprises develop new core technology of infrastructure, concentrated capital advantage construction international top new infrastructure enterprises. Third, keep special funds for state-owned enterprises to support key upstream and downstream new infrastructure projects. Some upstream and downstream affiliated enterprises are selected as large state-owned enterprises with new infrastructure, and a special fund for state-owned enterprises is set up by retaining a certain proportion of profits every year.

6.3. Cultivate application scenarios, explore business model innovation, and form a closed-loop of investment income

First, we will promote the coordinated development of 5G networks, cloud computing and other technologies and application scenarios, and foster and optimize the industrial ecology. We will make overall plans for the deployment of Internet of Things facilities, focus on promoting 5G-based Internet of Things access technology and network construction, and accelerate the application and deployment of sensing facilities in urban management, manufacturing, environmental protection and other fields. Second, improve the construction of the standard system and promote business model innovation in the field of new infrastructure. We will establish a mechanism for the coordinated development of cross-industry, cross-sector and cross-department digital infrastructure standards, and accelerate the improvement of infrastructure engineering construction standards for digital applications. Third, we should promote cross-border integrated development and innovate investment models. Enterprises are allowed to invest, build and operate diversified ways in compliance with laws and regulations, and explore more value-added services and find new business models through government-purchased services, investment and construction of state-owned companies, and leasing and operation of third-party companies.

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