

On the Challenges and Countermeasures of Industrial Transformation in Fuxin City

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Abstract: Fuxin, a city that prospered from coal, is undergoing a difficult transformation process in the face of the pain caused by resource depletion. To cope with the chain reaction caused by the decline of traditional pillar industries and to reconstruct a new economic ecosystem, many problems have been exposed in this process. In response to the challenges of imbalanced industrial structure, insufficient innovation capability, financing difficulties, and low investment efficiency in Fuxin City, this article proposes five solutions and suggests that while carrying out industrial transformation, people's livelihoods and employment promotion should be ensured, hoping to contribute to the overall industrial structure transformation of Fuxin City.

Keywords: Fuxin City; Industrial structure; Transformation strategies

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1. The Main Challenges of Industrial Transformation in Fuxin City

(1) Imbalance in industrial structure and weak continuity of industries

Fuxin has long relied on the coal industry, with coal-fired power accounting for 76% of the city's industrial output in 2000, resulting in a single economic structure. The coal mining industry once contributed over 60% of the city's financial and tax revenue, while the proportion of the tertiary industry remained at a low level of around 35% for a long time. Although attempts were made to develop modern agriculture and agricultural product processing in the early stages of transformation, these industries had low added value and were difficult to support long-term economic transformation. Although the goals of "three major bases" (agricultural product processing, new energy, coal chemical industry) and "six major industrial clusters" have been proposed, some clusters are still in the formation stage, the industrial system lacks depth, the upstream and downstream extension is insufficient, and the regional network cooperation and socialized service system are not perfect. For example, the equipment manufacturing industry mainly focuses on casting and parts, lacking complete equipment; More than 80% of enterprises in the chemical industry produce intermediates, but end products are missing.

(2) Prominent structural contradictions in the job market

The unemployment rate in traditional mining areas once climbed to 7.2%, exceeding the national average by 3 percentage points. Coal miners have a single skill set, with 62% of laid-off workers aged 45 and above. However, (Manuscript NO.: JIESS-25-7-113004)

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there is a serious mismatch between the demand for technical talents in emerging industries and the skills of the labor force. The professional settings of local vocational colleges lag behind the needs of industrial transformation, resulting in a high vacancy rate of 40% for technical positions in equipment manufacturing enterprises. This contradiction forces nearly 30000 young and middle-aged people to go out for work every year, forming a vicious cycle of "talent loss industry shrinkage".

(3) Heavy historical arrears in ecological environment

There are 28 gangue mountains left over from a hundred years of mining history, with a total accumulation of over 200 million tons, and the dust pollution index in the mining area frequently exceeds the standard. The coal mining subsidence area covers an area of 140 square kilometers, posing a threat to the safety of 12 towns and villages, with a funding gap of 5 billion yuan for repair. The problem of water scarcity is prominent, with per capita water resources only one-third of the national average, and the contradiction between industrial and agricultural water use is sharp. These environmental issues not only constrain the landing of emerging industries, but also increase governance costs, further squeezing transformation resources.

(4) Financing difficulties and low investment efficiency

Fuxin's economic transformation has been driven by investment for a long time, but the effect coefficient of fixed assets investment has declined rapidly, and the investment benefit is not optimistic. There are few major projects and insufficient momentum for industrial growth. In the past three years, there have been only six new industrial projects with an investment of over 500 million yuan, and there has not yet been a consensus on "revitalizing the city through industry". Although the new energy industry is the core engine of transformation, its year-on-year growth is limited by factors such as annual sunlight and air volume, which restricts the growth of industrial economy.

(5) Insufficient innovation driven capability

The scale and total number of science and technology innovation enterprises are small, and the proportion of high-tech enterprise recognition households in the province is relatively low. Insufficient R&D investment, with a R&D expenditure intensity (as a percentage of GDP) of 0.96% in 2020, which is 1.23 percentage points lower than the provincial average level. The innovation efficiency such as the number of patents and sales revenue of new products needs to be improved. In 2021, the authorized number of invention patents for industrial enterprises above designated size was only 9, and the effective number of invention patents was 88, ranking at the bottom of the province.

(6) Policy coherence and institutional barriers

The extensive development model left over from the planned economy era has led to a lag in urban construction and industrial development, resulting in a serious lack of infrastructure investment. The mechanism of resource price formation is distorted, with 80% of coal profits flowing out, making it difficult for local retained funds to support transformation needs. When it became the first resource depleted city pilot in 2001, a systematic support policy system had not yet been formed, missing the best window for transformation. In addition, excessive government intervention in state-owned coal enterprises has led to resource waste and low production efficiency.

2. Solutions for Industrial Transformation in Fuxin City

(1) Industrial upgrading and diversified development

1) New energy industry

Fuxin City utilizes its abundant wind resources to vigorously develop new energy industries such as wind power

and photovoltaic power generation, replacing the traditional coal industry. At the same time, we will extend the new energy equipment manufacturing industry chain, introduce wind and photovoltaic equipment manufacturing enterprises, and form three major bases for new energy power generation, equipment manufacturing, and on-site consumption.

2) Modern agriculture and agricultural product processing

Fuxin City develops modern agriculture according to local conditions, improving the quality and added value of agricultural products. By building a modern agricultural demonstration belt, creating a "one township, one product" model, and expanding the rural consumer market. At the same time, we will develop deep processing of agricultural products, extend the industrial chain, and enhance industrial added value.

3) Equipment manufacturing continuation industry

Fuxin City relies on its existing industrial foundations such as mechanical processing and mining construction to cultivate equipment manufacturing and follow-up industries. By introducing and cultivating leading enterprises, developing high-end equipment manufacturing, and forming new economic growth points.

4) Fine chemicals and new materials

Fuxin City relies on its coal advantages to develop the coal chemical industry and build an important national demonstration base for the coal chemical industry. At the same time, we will develop industries such as fluorine chemical and metallurgical industries, extend the industrial chain, and increase added value.

5) Tourism and cultural industries

Fuxin City utilizes resources such as industrial heritage, hot spring tourism, and cultural tourism to cultivate and strengthen the tourism market. By integrating natural ecology, ethnic culture and other tourism resources, a composite modern tourism system combining multiple tourism resources is formed.

(2) Ecological restoration and governance

1) Comprehensive management of abandoned mines

Fuxin City is promoting comprehensive management of abandoned mines and restoring them to green. Through the "integrated promotion of geological disaster management, ecological restoration, and development and utilization" model, more than 15000 acres of mines have been restored and 40 square kilometers of geological hazards have been eliminated.

2) Comprehensive management of desertified land

Fuxin City vigorously implements comprehensive management of desertified land and builds a "Green Great Wall" on the sandy beach. Through the implementation of desertification prevention and control projects, more than 8.5 million acres of artificial afforestation have been completed, and over 1.6 million acres of desertified grasslands have been treated.

3) Comprehensive management of water environment

Fuxin City is focusing on implementing comprehensive water environment management and activating the urban water system. By launching the construction of "Global Sponging and Moisturizing Fuxin", implementing water damage restoration, river discharge outlet treatment and other projects, the treatment of 6 rivers flowing through the city has been completed, and all 8 "National Surface Water Assessment Sections" have met the standards.

(3) Policy support and guidance

As the first resource depleted city in China to pilot economic transformation, Fuxin actively seeks national policy

support, obtains funding support, and policy incentives. Attracting investment and diversifying investment entities, improving the investment environment, relaxing policy restrictions, and encouraging strong foreign enterprises to invest and develop in Fuxin. By attracting investment, adjusting the structure of investment entities, and promoting economic transformation. Introduce policies and measures to support new industrialization, and provide financial support and rewards for investment and technological transformation in manufacturing, development of fine chemicals, and research and development of industrial mother machines and other equipment.

(4) Innovation driven and talent introduction

Accelerate the implementation of the innovation driven development strategy and strengthen the dominant position of enterprises in innovation. By establishing industry university research alliances and implementing high-tech enterprise doubling plans, we aim to shape new driving forces and advantages for development. In addition, we need to increase efforts to introduce high-quality talents and provide intellectual support for industrial transformation. By optimizing talent policies, providing a good working environment and benefits, and other measures, we aim to attract and retain talent.

(5) Livelihood security and employment promotion

We will deepen the comprehensive management of coal mining subsidence areas and the renovation and upgrading of independent industrial and mining areas, and work together to promote livelihood projects such as the relocation of residents in areas with major geological hazards and the management of shantytowns. By improving the living environment, we aim to enhance the quality of life for residents. Implement the campaign to stabilize employment and benefit people's livelihoods, adhere to making employment the top priority of people's livelihood, and maintain zero employment in households. By providing job stabilization subsidies, stabilizing job positions, and creating new urban employment opportunities, we will continue to enhance people's well-being.

3. While Transforming Industries, We must also Ensure People's Livelihoods and Promote Employment

In the process of industrial transformation in Fuxin City, ensuring people's livelihood and promoting employment are one of the core tasks. To cope with the employment pressure caused by the decline of traditional industries, Fuxin City has established a collaborative mechanism of "industrial transformation+livelihood security+employment promotion" through multi-dimensional policy combinations and precise implementation. The following are specific safeguard measures and implementation paths.

(1) Policy support and financial investment: building a solid foundation for livelihood security

As the first resource depleted city in China to pilot economic transformation, Fuxin City actively strives for central government transfer payments, with a focus on using them for livelihood projects such as coal mining subsidence area governance, shantytown renovation, and improvement of social security system. For example, with the support of national funds, over 100000 households in coal mining subsidence areas have been relocated and resettled, improving their living conditions.

Develop the Implementation Plan for Employment Security during the Industrial Transformation Period in Fuxin City, clarify the goal of "dynamic zero employment for zero employment families", establish a special employment fund, and provide preferential policies such as tax reduction and social security subsidies to enterprises that absorb laid-off workers. At the same time, linking the unemployment insurance premium standard with the minimum wage standard to ensure the basic living of unemployed people.

(2) Industrial transformation and employment structure optimization: creating diversified employment opportunities

Relying on the advantages of agricultural resources in Fuxin, develop characteristic planting, breeding, and deep processing industries, and create a large number of seasonal employment opportunities. For example, by building modern agricultural demonstration zones, more than 50000 farmers in surrounding towns and villages can achieve on-site employment. When introducing wind power and photovoltaic equipment manufacturing enterprises, priority should be given to hiring local laid-off workers and providing skill training. At present, the new energy industry has employed over 20000 people, of which 30% are former coal miners. Utilizing industrial heritage and hot spring resources to develop tourism projects, such as the Haizhou Open pit Mine National Mining Park and Baodi Spa Hot Spring Town, directly creating over 5000 positions for tour guides, catering, accommodation, and more. Constructing an agricultural product e-commerce industrial park, cultivating geographical indication brands such as "Fuxin Xiaomi" and "Zhangwu Black Bean", and driving employment of over 10000 people in e-commerce operations, logistics and distribution.

(3) Skill training and career transformation: resolving structural employment contradictions

In response to the problem of older age and limited skills among coal miners, "order based" training has been carried out, and courses such as wind power equipment maintenance and agricultural product processing technology have been offered in cooperation with emerging industry enterprises. Over 30000 laid-off workers have been trained, and the re employment rate has reached 85%. Establish a "Skill Enhancement Subsidy" and provide a maximum subsidy of 2000 yuan per person to employees who participate in training and obtain vocational qualification certificates. Relying on institutions such as Fuxin Vocational and Technical College and Liaoning University of Engineering and Technology, we will establish training bases for equipment manufacturing, new energy, and modern agriculture, with an annual training capacity of 10000 people, achieving seamless integration between training and employment.

(4) Entrepreneurship support and flexible employment: stimulating market vitality

Establish an entrepreneurship incubation base in Fuxin High tech Industrial Development Zone, providing one-stop services such as venue, funding, and technology for entrepreneurs. At present, over 200 enterprises have settled in the base, driving employment for over 5000 people. Establish a start-up guarantee loan fund to provide interest free loans of up to 200000 yuan to eligible entrepreneurs, with a total loan disbursement exceeding 100 million yuan. Introduce measures to support the development of new forms of employment, providing social security subsidies, occupational injury protection, and other support for new professions such as ride hailing drivers, food delivery riders, and live streaming e-commerce. At present, the number of employees in the new employment form has exceeded 30000.

(5) Social security and public services: strengthening the bottom line of people's livelihood

Continuously improving the social security system, including all retired personnel from coal mining enterprises in the urban employee pension insurance, to achieve the goal of "ensuring coverage to the fullest extent possible". At the same time, the basic pension standards for urban and rural residents will be raised, benefiting over 200000 elderly people.

Establish a dual protection mechanism of "medical assistance+commercial insurance" to provide full or partial reimbursement of medical expenses to families who suffer from poverty due to illness. Continue to optimize the supply of public services and build new facilities such as schools, hospitals, and community service centers in coal mining subsidence areas to ensure that residents enjoy equal access to public services. For example, planning and constructing three nine-year integrated schools around the Haizhou open-pit mine will solve the enrollment problem for over 5000 students. Fully implement the "Warm House Project" and carry out energy-saving renovations

on old residential areas, benefiting over 100000 households.

(6) Optimizing employment services

The employment and entrepreneurship services were publicized to college students across the country through channels such as the media service brand "Come to Liaoning" and the official official account of "Fuxin Employment". Continue to hold various recruitment special activities, and hold at least 10 online and offline job fairs for college graduates throughout the year. According to the plan, a number of "Comfortable Employment" employment and entrepreneurship guidance service stations will be built in universities, and the functions of the already built guidance service stations will be utilized to promote 10 public employment services on campus, including city situation propaganda, policy interpretation, recruitment services, employment guidance, entrepreneurship services, vocational training, craftsmanship spirit, employment models, difficult assistance, and rights protection. The responsible officials of the Municipal Human Resources and Social Security Bureau and the Municipal Education Bureau shall establish designated contacts, conduct regular visits, and provide targeted services to universities in Fujian. Based on the educational level, skill level, and employment willingness of graduates from paired universities, targeted screening and promotion of job information shall be carried out, and targeted services such as career guidance and entrepreneurship counseling shall be provided.

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