Structural Issues Confronting China's Third-front Resource-based Cities during the Period of Industrial Transformation: A Case Study of Panzhihua City

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Abstract

China's Third-front Construction was an immense movement which had a substantial influence on the country. The movement had two significant impacts on China, firstly, it improved the country's strategic industrial structure; secondly, it enhanced China's national defense industries. However, the decline of Third-front Enterprises and Third-front Resource-based Cities was due not only to economic causes but also political causes. Through a case study of typical Third-front Enterprises and a typical Third-front Resource-based City, Panzhihua city, Sichuan Province, that includes 13 in-depth interviews and 331 questionnaires, it was found that there were three structural problems encountered in the transformation of Third-front Resource-based Cities, namely: the locational disadvantage resulting from locating industry in remote areas; the operational disadvantage caused by poor management; and the market disadvantage caused by institutional issues. The situation was the result of the conflict of the three dichotomies of ideas, namely, war and peace; planned economy and market economy; and public ownership and private ownership.

Keywords: Third-front Construction, China's Resource-based Cities, Industrial Transformation

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ปัญหาเชิงโครงสร้างที่ประสบโดยเมืองที่อาศัยทรัพยากรเป็นฐานในพื้นที่ด้านในของประเทศจีนในช่วงเวลาของการปฏิรูปอุตสาหกรรม: กรณีศึกษาของเมืองพานจือฮัว

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บทคัดย่อ

การก่อสร้างในพื้นที่ด้านในของประเทศจีน นับเป็นความเคลื่อนไหวอย่างมโหฬารที่มีอิทธิพลอย่างมากต่อประเทศ ความเคลื่อนไหวดังกล่าวมีผลกระทบสำคัญสองประการต่อประเทศจีน ประการแรก เป็นการปรับปรุงโครงสร้างของอุตสาหกรรมเชิงกลยุทธ์ของประเทศ และประการที่สองเป็นการขยายอุตสาหกรรมการป้องกันประเทศของจีน อย่างไรก็ตาม การถดถอยของวิสาหกิจในพื้นที่ด้านในและเมืองที่อาศัยทรัพยากรเป็นฐานในพื้นที่ด้านใน ไม่ได้เกิดจากเหตุผลทางเศรษฐกิจเท่านั้น แต่เกิดจากเหตุผลทางการเมืองด้วย จากกรณีศึกษาของตัวอย่างวิสาหกิจในพื้นที่ด้านใน และตัวอย่างเมืองที่อาศัยทรัพยากรเป็นฐานในพื้นที่ด้านใน คือ เมืองพานจือฮัว มณฑลเสฉวน ที่ครอบคลุมการสัมภาษณ์เชิงลึก 13 ราย และแบบสอบถาม 331 ราย พบว่า การปฏิรูปของเมืองที่อาศัยทรัพยากรเป็นฐานในพื้นที่ด้านใน ประสบปัญหาเชิงโครงสร้างสามประการ กล่าวคือ ความเสียเปรียบ ด้านพื้นที่ ซึ่งเกิดจากการไปตั้งอุตสาหกรรมในพื้นที่ห่างไกล ความเสียเปรียบด้านการดำเนินงาน ซึ่งเกิดจากการบริหารจัดการที่ไม่มีประสิทธิภาพ และความเสียเปรียบด้านการตลาด ที่เกิดจากประเด็นด้านสถาบัน สถานการณ์ดังกล่าวเกิดจากความขัดแย้งของการแบ่งขั้วของสามแนวคิด คือ สงครามและสันติภาพ เศรษฐกิจแบบวางแผนและเศรษฐกิจแบบตลาด และหน่วยงานธุรกิจของรัฐและหน่วยงานธุรกิจของเอกชน

คำสำคัญ: การพัฒนามณฑลด้านในของจีน เมืองที่อาศัยทรัพยากรเป็นฐานของประเทศจีน การปฏิรูปอุตสาหกรรม

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1. Introduction

Third-front Construction took place from the mid-1960s to the end of 1970 in China. The large-scale adjustment of the strategic distribution of industry was undertaken in response to the need for national defense readiness. The major motivation for the implementation of this large-scale modern industrial system was because of the imminent threat of war (Youwei & Xi, 2015). In terms of China's industrial distribution and national defense construction, Third-front Construction has exerted a profound influence on China and the world.

First, Third-front Construction has improved China's industrial structure and promoted the long-term development of China's economy (Caihua, 2011). The economic development of regions in China was uneven before the founding of the People's Republic of China (PRC) with more than 70% of the industries being concentrated in the eastern regions which account for less than 12% of the PRC's land area (Haitao, 2011). To address this situation, the government invested 205.268 billion yuan (approximately US$29.188 billion) in the Third-front Construction areas, accounting for 39.01% of national investment for the period from 1965 to 1980. The original value of industrial fixed assets in the Third-front Construction areas increased from 28.681 billion yuan (approximately US$4.078 billion) to 143.598 billion yuan (approximately US$20.419 billion), a five-fold increase, and an increase from 29.12% to 38.5% of the proportion of the national total (Division of Fixed Assets Investment of National Statistics Bureau, 1997:78-83).

Secondly, Third-front Construction altered the overall situation of China's national defense industry and basically established a relatively complete national defense industry system. When the PRC was established in 1949, China's defense industry was fragile and consisted of only 76 defense enterprises which included: 45 arsenals, 6 aviation center repair factories, 17 radio equipment factories, and 8 ship repair factories (Guang, 1992). Moreover, these factories were equipped with antiquated technology and simple equipment in poor condition unable to deal with the routine maintenance of heavy equipment such as warships, manufacture aircraft, and only able to manufacture basic weaponry (Xiaoyong & Li, 2016). The Third-front Construction established a comprehensive defense industry system in China's inland areas, ranging from the production of conventional weapons to missiles and nuclear weapons, laying the foundation for China to face the various complex international situations confronting it at that time (Quanshan, 2011).

Third-front Resource-based Cities were established due to Third-front Construction Projects, developing over decades of vigorous construction during which they encountered a range of structural problems to various degrees. These local issues have increasingly become a major practical problem facing the entire nation. The impact of the Third-front Construction on society has been far-reaching and the transformation of these Resource-based Cities has been important in the social development of China.

2. Literature Review

Industrialization in China has comparatively late beginnings and, correspondingly, issues related to Resource-based Cities as well as other issues seem to have occurred later than similar issues that arose in some Western countries. Likewise, academic research on the transformation of Resource-based Cities in China only began decades later than similar research by academics in the West.

2.1 Academic Research on the Transformation of Resource-based Cities in China

Previous research on the transformation of Resource-based Cities were conducted from many perspectives such as spatial distribution, historical development, economic geography, industrial structure, system of government, development patterns, and so forth (e.g., Bo & Xvhui, 2018; Changhong, 2010; Huijuan, Ruyi, & Hong, 2013; Liping, 2017; Lvhong, 2014; Xiangang & Cunru, 2018; Xuejie, Li, & Xiaolei, 2008; Xuexin, Guangzeng, & Changhong, 2010). For example, Liping (2017) pointed out that the current spatial distribution of Resource-based Cities was characterized by nationwide distribution, spatial non-equilibrium distribution, and regional agglomeration distribution. Meanwhile, Xuexin et al. (2010) considered that the time, degree, potential, and evolution of regional central cities are insufficient in theory, and need to be further investigated.

From the perspective of overall development, the economic development conditions of Resource-based Cities have inherent advantages as well as deficiencies. Comprehensive transformation is the focus of China's current economic development. The main manifestations are as follows: firstly, in ancient China, priority was given to the development of political centers, and it was difficult for Resource-based Cities to fully develop. Secondly, in modern China from 1840-1949, due to the background of foreign aggression and extended periods of warfare, the development of most Resource-based

Cities was closely related to the ongoing conflicts which restricted their development to some extent. Thirdly, from 1949 to 1978, due to the influence of internal politics and the Cold War, the overall development of the Chinese cities was warped, greatly limiting the comprehensive and full development of Resource-based Cities. Finally, from 1978 to the present, Chinese society entered a stage of comprehensive transformation, and the amount of resources that can be mined has rapidly increased, and many Resource-based Cities have entered a stage of comprehensive transformation (Lvhong, 2014).

There are significant differences in green transformation benefits between different cities, and there are obvious imbalances. Specifically, the green transition of some cities (such as Zaozhuang City, Shandong Province; and Jiaozuo City, Henan Province) is more rapid than the national average, while the transition of others (such as Fushun City, Liaoning Province; and Shuangya City, Heilongjiang Province) has comparatively been lagging behind (Xiangang & Cunru, 2018). At present, the transformation of China's Resource-based Cities is not focused on economic geology, which requires the application of economic principles to the value, cost, long-term investment, reserves, distribution, ownership, international circulation of minerals, and the comprehensive study of these geographical elements. Instead, China's Resource-based Cities are paying more attention to basic factors such as resource type, scale, production method, and resource mining life cycle. Due to the lack of economic geological perspective, the development of Resource-based Cities does not rely on resources, extend resources, surpass resources, or the promotion of industrial diversification (Xuejie et al., 2008).

The structural growth of industries usually reflects the changing trends caused by the varying levels of rising and falling demand between the different industries, potentially reflecting the inherent driving force of industrial development in the overall economic system, and the direct value-added rate is used to examine whether the various industries in the city are experiencing structural growth issues. From the perspective of industrial structural growth, China's current Resource-based Cities lack the emphasis on increasing the direct value-added rate and ignore the related effects of downstream industries (Jiangsu & Zhipeng, 2017). Based on an analysis of data on 107 Resource-based Cities in the National Resource-Based City Sustainable Development Plan (2013-2020) issued by China's National Development and Reform Commission in 2012, the development of service industry conditions that play an important role in

the transformation of Resource-based Cities, although conforming to the general law of industrial evolution, lags behind the overall development of China's service industry. The development of different types of Resource-based Cities' service industry demonstrates the different characteristics related to regional distribution, city type, economic growth rate, and industrialization stage (Bo & Xvhui, 2018).

The main reasons that cause Resource-based Cities to lag behind other cities are the continued influence of the planned economy (such as the planned economic model's exclusion of market competition), and unreasonable tax systems (e.g., the government's tax system is obviously more conducive to state-owned enterprises rather than conducive to the development of non-state-owned enterprises), poor planning and misguided resource development policies (e.g., policies for the pursuit of maximizing economic benefits that lead to over-exploitation of resources while neglecting environmental protection) (Huijuan et al., 2013).

The traditional development model that Resource-based Cities are facing many challenges. Multiple superimposed development problems confronting resource-based society are gradually emerging such as the lack of a market mechanism, and also the development energies of market players are insufficient. Specific manifestations are: China's current environmental carrying capacity has reached or is approaching the upper limit, and many Resource-based Cities will face the problem of resource exhaustion. Meanwhile, China's economy is at a stage of shifting gears and changing its growth mode, structural adjustments, analgesia, and other adjustments. The travails of structural adjustment and the vitality stimulated by the reform are intertwined. The weakening of traditional growth engines coexists with the vigorous development of emerging industries.

Most of China's Resource-based Cities developed in the era of the planned economy, which has a strong brand. The government dominates the development of the urban economy. Most major enterprises in cities are state-owned. The development of state-owned enterprise has severely limited the development of other types of industries (such as private enterprises), making it difficult for non-state-owned enterprises to become active and grow. As a result, the spontaneous role of the market mechanism cannot be fully exerted. Under this mechanism, people's ideas and thoughts are also bound to a certain degree, which inhibits the creation of pioneering and innovative

thinking. At the same time, in Resource-based Cities, as the resource-based industry is dominant due to the excessive development of resource-based industry, innovation is also inhibited to a certain extent, resulting in a lack of innovation momentum (Caixia, 2016).

The previous academic research on the transformation of China's general Resource-based Cities has been comprehensive, both in terms of depth and breadth, and has entered a relatively mature stage. However, among the vast number of Resource-based Cities, there exists a unique group of cities known as the Third-front Resource-based Cities, which are obviously different from the general Resource-based Cities in terms of the emergence of cities and their management and operation. If we ignore the difference between Third-front Resource-based Cities and general Resource-based Cities, it would be difficult to explain why Third-front Resource-based Cities remain locked in a stage of transition. However, at present, the academic research on the transformation of a large number of Third-front Resource-based Cities is still at the initial stage. Therefore, this researcher wishes to answer the research question: What is difference between Third-front Resource-based Cities and general Resource-based Cities?

2.2 Characteristics of Third-front Resource-based Cities

While the current research on the transformation of China's Resource-based Cities has entered a mature stage, research into the transition problem facing many Third-front Resource-based Cities remains at the first stage. At present, there are 262 Resource-based Cities (General Office of the State Council, 2013), with 144 cities in 13 provinces of Third-front Construction, accounting for 55.73% of all Resource-based Cities; and 65 Resource-based Cities are in prefecture-levels, accounting for 51.59% of 126 Resource-based prefecture-level Cities (See Table 1). From the point of view of both city site layout and production operation, Third-front Resource-based Cities have obvious differences from general Resource-based Cities.

2.2.1 Third-front Resource-based Cities follow a unique strategic layout principle in the stage of urban site selection

Considering the preparation for war, the Third-front Construction Projects follow the principle of "relying on mountains, dispersing and concealing." The most fundamental

starting point of this layout lies in "adapting to the characteristics of modern warfare, not breaking with or destroying in a thermonuclear war, and insisting on production cooperation in peacetime and wartime to make sure wartime needs" (Donglin, 2003). As the Third-front Resource-based Cities were built because of the Third-front Projects, most are far from the central cities and have lack transportation infrastructure. All these characteristics are different from the general Resource-based Cities which are mostly close to the source of resources. Third-front Resource-based Cities were conceived of and built as part of an overall war preparation and security standpoint, while the general Resource-based Cities have been mostly developed as a result of economic interest.

2.2.2 Unique operation models in the process of construction of Third-front Resource-based Cities

Third-front Construction began under enormous pressure exerted by the need to build national defenses, thus it was inevitable that the high efficiency of construction projects would be pursued. A militarized management system was implemented during the construction process, actively advocating national support for Third-front Construction, arranging for old industrial bases to drive new industrial bases, old industrial and mining enterprises to drive new mining enterprises, experienced old workers to lead new workers, and concentrating on the spirit of cooperation in fighting the war of annihilation (Donglin, 2003: 163).

The military-style nature of the Third-front Enterprise management model has also had a greater impact on Third-front Resource-based Cities because most Third-front Projects were key projects of the Third-front Construction at that time. Some of the Third-front Resource-based Cities were projects first, then cities. Those cities (e.g., Panzhihua city) initially carried out the management model of government-enterprise integration (Yougui & Hongchun, 2013: 59). After the establishment of the city, the key to urban management was the Third-front Construction Projects for a long period of time. Providing administrative support to Third-front Enterprises was one of the most important tasks in Third-front Cities after their establishment. Because Third-front Construction was China's national strategy at that time, every Third-front Resource-based City was under the unified management of the central government of PRC and had little autonomy. Therefore, the political and military significance of the movement was greater than

the economic significance. However, the movement of general Resource-based Cities is different from other cities, and most were more closely related to economic interests.

2.2.3 Third-front Resource-based Cities encounter unique difficulties during the period of adjustment and transformation

After the beginning in 1978 of the period of reform and opening up, the state shifted its focus to the eastern coastal areas, reducing investment in Third-front Construction Projects, many of which began to experience difficulties. Meanwhile, many Third-front Resource-based Cities with Third-front Projects as independent industries were also faced with major structural problems. In particularly, the location of the cities has not been conducive to the development of a market economy. Furthermore, the products produced by Third-front Enterprises are mostly for military and heavy industry, which are highly dependent on national planning orders (Donglin, 2003: 393). Once the central government reduced orders, these enterprises immediately fell into difficulties and the cities that relied mainly on these enterprises experienced concomitant difficulties. On the other hand, the crisis facing general Resource-based Cities generally is the result of resource exhaustion, overcapacity, lagging capacity, and other economic-related reasons.

Because of the great difference between Third-front Resource-based Cities and general Resource-based Cities, the difficulties encountered by the former in the process of transformation is very different from those of the latter. Thus, this study focuses on the differences between the two.

3. Research Methodology

3.1 Research Sites and Objects

The researcher selected Panzhihua city, Sichuan Province, China as the research site, and took Panzhihua city as the main object because Panzhihua city is a typical Third-front Resource-based City comparable to other Third-front Resource-based Cities. Also, Panzhihua city has rich natural resources and is in a special zone of China's Third-front Construction.

Table 1: List of Resource-based Cities in 13 Provinces of the Third-front Construction in China (Only Part of Prefecture-level Cities are Present)

Provincial Area	City Quantity	Prefecture Level City Name	Provincial Area	City Quantity	Prefecture Level City Name
Sichuan province	10	Panzhihua, Guangyuan, Guangan, Nanchong, Luzhou, Zigong, Daxian, Ya'an, Liangshan Yi Autonomous Region, Aba Tibetan and Qiang Autonomous Region	Henan province	7	Sanmenxia, Luoyang, Jiaozuo, Hebi,Puyang, Pingdingshan, Nanyang
Guizhou province	5	Liupanshui, Anshun, Bijie, Buyi and Miao Autonomous Region in Southern Guizhou, Buyi and Miao Autonomous Region in Southwestern Guizhou	Guangdong province	2	Shaoguan, Yunfu
Yunnan province	7	Qujing, Baoshan, Zhaotong, Lijiang, Puer, Lincang, Chuxiong Yi Autonomous Region	Shanxi province	10	Datong, Shuozhou, Yangquan, Changzhi, Jincheng, Xinzhou, Jinzhong, Linfen, Yuncheng, Lvliang
Shaanxi province	6	Yan'an, Tongchuan, Weinan, Xianyang, Baoji, Yulin	Hubei province	2	Ezhou, Huangshi
Gansu province	7	Jinchang, Baiyin, Wuwei, Zhangye, Qingyang, Pingliang, Longnan	Hunan province	4	Hengyang, Chenzhou, Shaoyang, Loudi
Ningxia Hui Autonomous region	1	Shizuishan	Guangxi Zhuang Autonomous region	3	Baise, Hechi, Hezhou
Qinghai province	1	Mongolian and Tibetan Autonomous Region of Haixi			

Source: National Resource-Cities Sustainable Development Plan 2013-2020

Panzhihua city is a Third-front special economic zone, is located in the southwest of China in Sichuan, bordering Yunnan (see Figure 1). It is located in the deep mountains and is rich in natural resources. It boosts that it is "the future industrial prefecture" and "the capital of vanadium and titanium in China." It is one of China's most resource rich areas. At present, 76 types of minerals have been found in Panzhihua city. For example, iron reserves account for 16% of China's total iron reserves; while vanadium-titanium reserves account for 59% and 93% of the world's total and China's total respectively. Moreover, it has more than 20 precious metals, such as cobalt, nickel, and chromium; and has coal reserves of 560 million tons. Non-ferrous metals such as lead, zinc, and copper are also stored and non-metallic minerals such as granite, limestone, and clay ore are also plentiful (Yougui & Hongchun, 2013: 19).

Figure 1: Panzhihua Administrative District Map
Source: People's Government of Panzhihua Municipal

Because of these innate advantages, the Central Committee of the Communist Party of China (CPC) and the State Council officially issued the "Approval for the Establishment of the People's Committee of Panzhihua Special Zone" on February 2, 1965 which designated Panzhihua as a special zone for Third-front Construction (Yougui & Hongchun, 2013: 59). In the spring of 1965, Panzhihua Iron and Steel Company, together with Chengkun Railway, Liupanshui and other projects were initiated as part of the first

batch of Third-front Construction Projects in China (Donglin, 2003: 126). For the planning of Panzhihua, Mao Zedong–the supreme leader of Third-front Construction–declared the strategic design of "Two Points and One Line." That is, making Panzhihua as the center, with a pendulum swinging to Chongqing and Liupanshui via the Chengdu-Kunming Railway, transporting coal from Liupanshui to Panzhihua, steel from Panzhihua to Chongqing, and machinery from Chongqing to Panzhihua and Liupanshui (Yougui & Hongchun, 2013: 9). This strategic design shows the importance of Panzhihua in the Third-front Construction Projects. China's national leaders imagined that if a serious situation such as the Sino-Japan War (1937-1945) were to happen again and a large area of land were to fall into enemy hands, they would be able to retreat to the southwest corner and become a "Micro-China" that would still be self-sufficient, able to defend itself and eventually able to counter-attack (Yougui & Hongchun, 2013: 79). From this point of view, the Third-front Area centered on Panzhihua city was considered to be the potential last hope of the most critical moment of China's national destiny.

Secondly, Panzhihua city has made remarkable achievements in Third-front Construction and has become prominent in the Third-front Resource-based City. Panzhihua city, as a model of the achievements of the Third-front Construction, was built in the autumn of 1964. By 1970, iron was being produced, steel was produced from 1971 and hot-rolled steel was successfully rolled in 1974. Panzhihua Iron and Steel Company began to cast its own glorious history step by step. From 1964 to 1978, Panzhihua Iron and Steel Company increased steel output in the southwest area from 4% to 12% as a proportion of the entire country's steel production (Zhiyi, 2000). In 2016, the GDP of Panzhihua city was 101.468 billion yuan (approximately US$14.489 billion), an average of 82.2 thousand yuan (approximately US$11,738.16) per head, according to 2016 data published in Panzhihua Statistical Yearbook. Compared with the other cities in Sichuan province, Panzhihua City ranks as first. According to the National Resource-City Sustainable Development Plan (2013-2020) issued by State Council in 2013, there are 262 Resource-based Cities in China. Among them, 10 are located in Sichuan province (General Office of the State Council, 2013). In comparison with the nine other Third-front Resource-based Cities in Sichuan province, the achievements of Panzhihua city are remarkable (see Table 2). According to statistics released by Panzhihua Statistical Bureau in 2017, the GDP of Panzhihua city increased from 0.037 billion yuan (approximately

US$5,283,600) in 1964 to 101.468 billion yuan (approximately US$14.4896 billion) in 2016, a total increase of 2,742.38 times as shown in Figure 2. At the same time, in the construction process of Panzhihua city, the builders overcame many technical problems and successfully carried out a series of innovations, such as high-titanium vanadium titanium magnetite smelting technological innovation, the design of "ivory micro-carving" steel city (Group on "Third Line Construction" and Panzhihua in the Development of the Western Region, 2013).

During the process of its construction Panzhihua city overcame numerous difficulties and its achievements make it stand out from other Third-front Resource-based Cities. However, Panzhihua city remains a typical case among Third-front Resource-based Cities, thus, this case study on the plight of the transformation of a Third-front Resource-based City will be representative of the other Third-front Resource-based Cities and the results in the countermeasures proposed in this study will be relevant and applicable across the board of similar Third-front Resource-based Cities.

The tools used in this study include: (1) personal in-depth interview records; (2) authoritative statistical data obtained from official statistical departments and government websites; and (3) questionnaire survey.

Table 2: Per Capita GDP and Disposable Income of Urban and Rural Residents in Third-front Resource-based Cities (Prefecture-level Cities) of Sichuan Province in 2016

City Name	Per Capita GDP (USD)		Per Capita Disposable Income of Rural Residents (USD)		Per Capita Disposable Income of Urban Residents (USD)	
	Absolute Number	Provincial Ranking	Absolute Number	Provincial Ranking	Absolute Number	Provincial Ranking
Panzhihua	11,741	1	2,007	2	4,691	2
Zigong	6,352	4	1,884	7	4,062	9
Ya'an	5,946	10	1,591	16	3,904	14
Luzhou	4,926	12	1,778	12	4,134	5
Guang'an	4,731	13	1,782	11	4,028	11
Aba Prefecture	4,308	15	1,526	17	4,004	12
Liangshan Prefecture	4,220	16	1,478	18	3,703	19
Dazhou	3,702	17	1,672	14	3,714	17
Nanchong	3,694	18	1,671	15	3,710	18
Guangyuan	3,580	19	1,401	20	3,677	21

Source: Panzhihua City Statistical Yearbook 2017

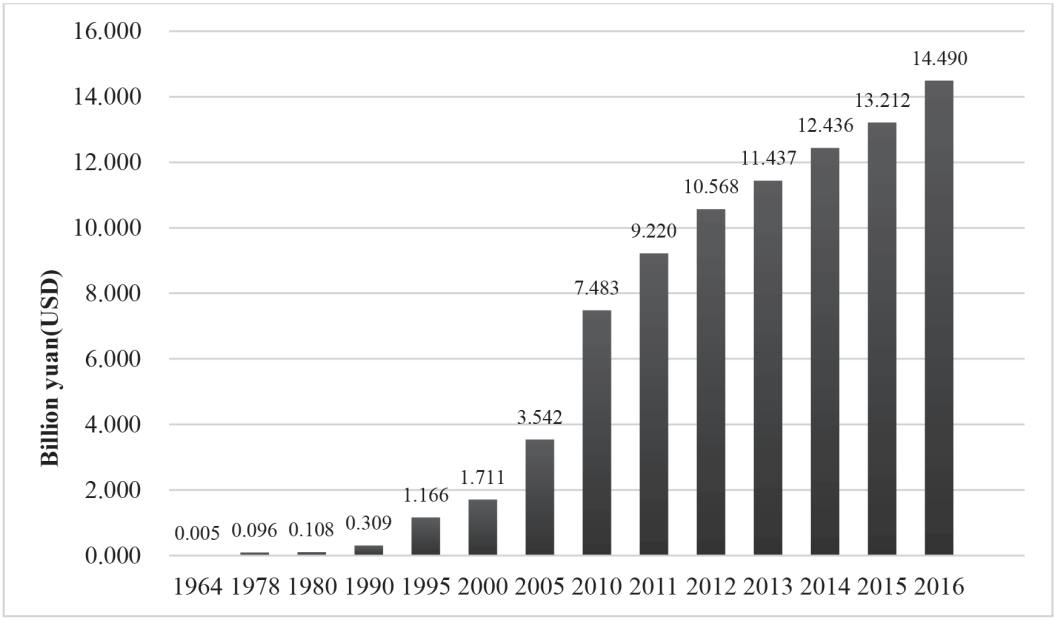

Figure 2: GDP of Panzhihua City in Major Years
Source: Panzhihua City Statistical Yearbook 2017

3.2 Data Sources

The data sources of this study include three parts: data obtained through face-to-face interviews, official government statistics, and data obtained through questionnaires.

(1) Interviewees

In this study, 13 in-depth interviews were conducted according to the needs of the topic choices. The basic personal data of the 13 interviewees are illustrated in Table 3. The interviewees remain anonymous and a digital number instead of real name has been used to protect their privacy. According to the different work unit of the 13 interviewees, they were divided into three groups.

The first group consisted of three on-the-job leaders and employees of Panzhihua Iron and Steel Co., Ltd. (the key project of the Third-front Construction). The purpose of these in-depth interviews is to gain a deeper understanding of the development status and structural problems confronted by the Third-front Enterprises in Panzhihua city in recent years. In this way, the evidence provided could be mutually supportive among the three interviewees, thus ensuring the objectivity and reliability of the interview

content, avoiding interference from personal prejudices, and ensuring the authenticity of the interview content.

The second group included four state officers in Panzhihua city engaged in urban development related to data analysis, business management, city management, and party management. The purpose of these in-depth interviews is to gain a comprehensive understanding of the situation and structural issues confronting Panzhihua city in recent years from different perspectives, as well as to ensure the authenticity and accuracy of the interview results.

The third group has six professionals and technical researchers from Panzhihua university engaged in research in the vanadium and titanium industry, sunshine health industry, and heritage protection of Third-front Construction (two researchers from each area). The purpose of selecting these interviewees was to understand Panzhihua's current situation and difficulties in these three industries. The aim of interviewing two researchers from each area is to gather reliable evidence that is mutually supportive and avoids subjective prejudice.

The researchers recorded and transcribed the interviews. Two researchers were at the each interview, one conducting the interview and the other taking notes. Immediately after the interview, the researchers cross-checked the facts and impressions. The researchers followed Eisenhandt (1989) who stated the detailed interview accounts should be made within 24 hours of the interview, included all data and interview notes with the researchers' overall impressions. In designing the study, the researchers followed Miles and Huberman (1994) by clearly identifying the study intentions and the data collection processes from the interviewees. The researchers avoided "elite bias" by interviewing different levels of staff including professors, managers, directors, and ordinary office clerks. The researchers triangulated the findings over multiple sources and asked colleagues to check the findings and conclusions as the study progressed.

Table 3: Basic Personal Data of Respondents

No.	Group	Gender	Age	Company/ Depatement	Position (Title)	Research Direction
1	1	Male	51	Panzhihua Iron and Steel Company	Deputy Manager	Third Front Enterprise
2	1	Male	50	Panzhihua Iron and Steel Company	Deputy director	Third Front Enterprise
3	1	Male	51	Panzhihua Iron and Steel Company	Clerk	Third Front Enterprise
4	2	Female	49	Government of Panzhihua City	Deputy Director	Analysis of Urban Statistics
5	2	Female	28	Government of Panzhihua City	Office Clerk	Business Management
6	2	Male	35	Government of Panzhihua City	Director	City Management
7	2	Male	50	Government of Panzhihua City	Deputy Director	Party Management
8	3	Male	44	Panzhihua University	Vice Dean (Professor)	Vanadium titanium industry
9	3	Male	43	Panzhihua University	Vice Dean (Professor)	Vanadium titanium industry
10	3	Male	46	Panzhihua University	Director	Sunshine Health Industry
11	3	Female	51	Panzhihua University	Vice Dean (Professor)	Sunshine Health Industry
12	3	Male	30	Panzhihua University	Director	Heritage protection of Third Front Construction
13	3	Male	44	Panzhihua University	Dean (Professor)	Heritage protection of Third Front Construction

To enhance the reliability of the result, the researchers followed Miller, Cardinal, and Glick (1997) and the approach taken by Cardinal, Sitkin, and Long (2004), using free reports and not forced reports, allowing informants to not answer a question if they did not remember clearly. The researchers verified each report by asking the same questions to multiple participants. Finally, the researchers supplemented the interviews for secondary data and supported them via the questionnaire survey, as described below.

(1) Interview questions

For the practitioners involved in Third-front Enterprises, the main problems include three parts: the overall working situation of the company and the largest problem the company is facing now; the company's production situation and awareness of management problems; and the current sales situation of the enterprises' products, including the most significant impact on sales.

For the research of Panzhihua city transformation, the main problems include four parts. Firstly, the statistical data on the past five years show that the city's overall economic status and the transformation problem met with Panzhihua city's development. Secondly, the city's present situation of overall development of vanadium and titanium industry and the problems it faces. Thirdly, the conditions for the city to develop sunshine health industry and the present situation of the city's overall development of this industry and the difficulties it faces. Fourthly, the current situation of cultural heritage protection in Panzhihua's Third-front Construction and the problems in the protection of its cultural heritage.

(2) Official statistics

The data in this study included National Resource-City Sustainable Development Plan 2013-2020 published on the official websites of the State Council, Panzhihua Statistical Yearbook published by Panzhihua Statistical Bureau in 2017

(3) Questionnaire survey

In order to show the reliability and validity of the conclusions drawn from the in-depth interviews and official data, 331 students were randomly selected from the only undergraduate college in Panzhihua city. A questionnaire survey was conducted on their willingness and reasons for choosing to stay in Panzhihua city to find employment.

The result shows the current situation of the city's transformation and development and verify the rationality of the city's transformation and development countermeasures. The specific questionnaire questions are introduced in the data analysis section.

3.3 Data Analysis

(1) Preliminary collation and classification of personal in-depth interview materials

The research follows Eisenhardtand (1989) and Van Maanen (1988). Eisenhardt believed that "research needs to be related to practical experience to develop a set of verifiable, relevant, and effective theories" (Eisenhardt, 1989: 532). Van Maanen believed that such research "should be based on empirical evidence to make sure the credibility and analytics of research, ultimately the interesting research issues (Van Maanen, 1988: 29)." Therefore, this study focuses on the problem based on the data and information collected via interviews. Throughout the analysis process, the researchers repeatedly pondered the relationship between the presentation mode of raw materials and materials, the related transformation theory of Resource-based Cities, and the basic characteristics of Third-front Resource-based Cities. This study used an iterative and not a linear path, but for simplicity, the different stages of the analysis are listed below.

First step. Because the purpose of this study was to develop countermeasures in the transformation of China's Third-front Resource-based Cities, the first step of the analysis was to reveal the difficulties related to the transformation of China's Third-front Resource-based Cities through interviews. Interviews for this study were conducted with 13 participants as shown in Table 4.

Second step. As is well-know, in the root cause of many of challenges, there are a large number of opaque reasons and Third-front Resource-based Cities in the situation of transformation are no exception. During the interviews, the researchers collected the data on the root causes of the structural problems related to transformation as shown in Table 5.

In the process of data acquisition, the researchers recorded the interviews with the consent of the interviewees, and after the interviews were completed the interviewees were invited to read the written records. A confidentiality agreement was also signed, and an agreement about which parts of the content of the interviews could be included was concluded.

(2) Questionnaire survey supports the interview results

The development of a city cannot be separated from the participation of labor. Therefore, the employment intention of the labor force can reflect the development status of a city to a certain extent. Employment intention can indirectly show the development status and the future of the city. Therefore, to the further test of the accuracy of the in-depth interviews and related data published by the government, the researcher used the platform of Tencent Questionnaire, asking students to send in questionnaires using mobile phones "scanning two-dimensional code to answer the questionnaire." A random questionnaire survey was conducted in Panzhihua college on students' employment intention in Panzhihua city. The researcher intended to discover through the students' reasons behind choosing to leave or stay in Panzhihua city. Thus, the researcher can gather the data revealing the transformation issues of Panzhihua city. In this research, 331 questionnaires were collected by anonymous random selection. The specific information reflected on the questionnaire are shown in Figure 3 and Figure 4.

The results of this questionnaire indicate that "traffic inconvenience" and "location disadvantage" reflect the in-depth interview data and are the key factors restricting Panzhihua's successful transformation and development. Furthermore, they are consistent with the data published by Panzhihua authority on the current situation and issues facing the city, indicating that the government data is highly reliable.

Table 4: Key points of interviews on Third-front Resource-based Cities

Category of Urban Transformation Problem	Interview Content
Location traffic status	"Panzhihua Iron and Steel Co., Ltd. is located in the remote western region of China. Because of the high cost of transportation, it has obvious disadvantages of the site." "From the point of view of expressways, comparing with the eastern areas, there is a huge difference. Only one expressway in Panzhihua.....lack of high-speed rail limits the development of Panzhihua city. When people from outside come over to talk about business, they also check the level of development of transportation. It's really inconvenient to enter and exit the place."

Table 4: Key points of interviews on Third-front Resource-based Cities (Cont.)

Category of Urban Transformation Problem	Interview Content
Enterprise management	"In the past, there were too many manager layers and a few contacts between managers and employees which resulted in the alienation of the relationship between managers and employees. The inconsistency of goals between managers and executives, unclear definition of post categories, all these created high management costs and more conflicts."
The introduction of funds	"At present, Panzhihua city has Vanadium and Titanium Industry Development Fund and Health Industry Development Fund, but..... the complex process of bank financing needs to be stipulated..... Therefore, how to obtain more financial support is a difficult problem for the development of these two industries." "In recent years, attracting foreign investment is an important source of funds and coastal areas have great advantages in attracting funds, investment in those areas can be immediate. However, the site like Panzhihua city is very difficult to get investment from foreign countries."
Development of vanadium and titanium industry	"Panzhihua vanadium and titanium technology are still at the middle and low-end level, urgently needs to develop to the high-end. It is mainly manifested in the small-scale, incomplete industrial chain, low quality, and quantity of talents in Panzhihua City. Because there is no regional advantage, serious brain drain in Panzhihua City." "From the quantitative point of view, only a few people engaged in vanadium and titanium research in Panzhihua city and it's far from enough. From the quality point of view, we lack leading figures. Because only a few local people engaged in vanadium and titanium research, it has not formed a team, and the local talents do not have the advantages."

Table 4: Key points of interviews on Third-front Resource-based Cities (Cont.)

Category of Urban Transformation Problem	Interview Content
Development of sunshine health industry	"As for the problems faced by the development of sunshine and health care industry in Panzhihua, the first one is the inconvenient transportation. At present, there is no high-speed railway in Panzhihua city, only trains and expressways. Although there are planes but only a medium-sized airport, so it's very inconvenient to go in and out by plane. For example, it takes nearly 50 hours by train from Beijing to Panzhihua. The second problem is lagging internal infrastructure. At present, the traffic in Panzhihua is quite convenient, but it is not ideal for the outskirts where the road condition is very bad."
The protection and utilization of Third-front Construction Heritage	"At present, the protection for Third-front Cultural Heritage nationwide is just a preliminary start and the work is not very solid, the level of protection is also not complete enough. Secondly, the protection and utilization of Third-front Industrial Heritage in the later period are weak". "What are the Third-front Cultural Heritage? how to protect them? We haven't formed our own thought yet." "There are some difficulties in evaluating the value and potential for the cultural heritage of Third-front Construction in Panzhihua city. For example, how to understand the national defense culture? How to inherit the industry cultural heritage? How to merge the regional culture? How to treat the immigrant culture?"
Market management of enterprise	Panzhihua Iron and Steel Co., Ltd. had a very difficult time from 2013 to 2015, especially in 2014, "The average cost of producing steel per ton is RMB ¥2200 (approximately US$314.16), while the market price of steel per ton is only about RMB ¥1870 (approximately US$267.03) which means that every ton of steel sold will lose about RMB ¥300 (approximately US$42.84) to RMB¥400 yuan (approximately US$57.12). "

Table 5: Classification of Reasons for the Transformation Problem of Third-front Resource-based Cities

Causes of Urban Transformation Problem Category	Interview Content	Analysis of Interview Content
Difficulties caused by location traffic factors.	"As for the problems faced by the development of sunshine and health care industry in Panzhihua, the first one is the inconvenient transportation. At present, there is no high-speed railway in Panzhihua city, only trains and expressways. Although there are planes but only a medium-sized airport, so it's very inconvenient to go in and out by plane. For example, it takes nearly 50 hours from Beijing to Panzhihua. The second problem is lagging internal infrastructure. At present, the traffic in Panzhihua is quite convenient, but it is not ideal for the city. Many places are old roads built many years ago and the road condition is very bad."	This information shows that the location and the inconvenient transportation have been a drag on transformation and development of Panzhihua city.
Difficulties caused by management factors.	"At present, Panzhihua city has Vanadium and Titanium Industry Development Fund and Health Industry Development Fund, but……the complex process of bank financing needs to be stipulated……Therefore, how to obtain more financial support is a difficult problem for the development of these two industries."	This revealed that the bureaucratic management model can no longer adapt to transformation and development of Panzhihua city.

Table 5: Classification of Reasons for the Transformation Problem of Third-front Resource-based Cities (Cont.)

Causes of Urban Transformation Problem Category	Interview Content	Analysis of Interview Content
Predicament caused by institutional factors	"In the past, there were too many managers and a few contacts between managers and employees which resulted in the alienation of the relationship between managers and employees. The inconsistency of goals between managers and executives, unclear definition of post categories, too many assistants posted and space for some people to steal time, high management costs and more conflicts."	The section shows that the problems of overstaffed organization, unclear responsibilities, and powers, inefficiency and waste of resources have obstructed the transformation and development of Panzhihua city.

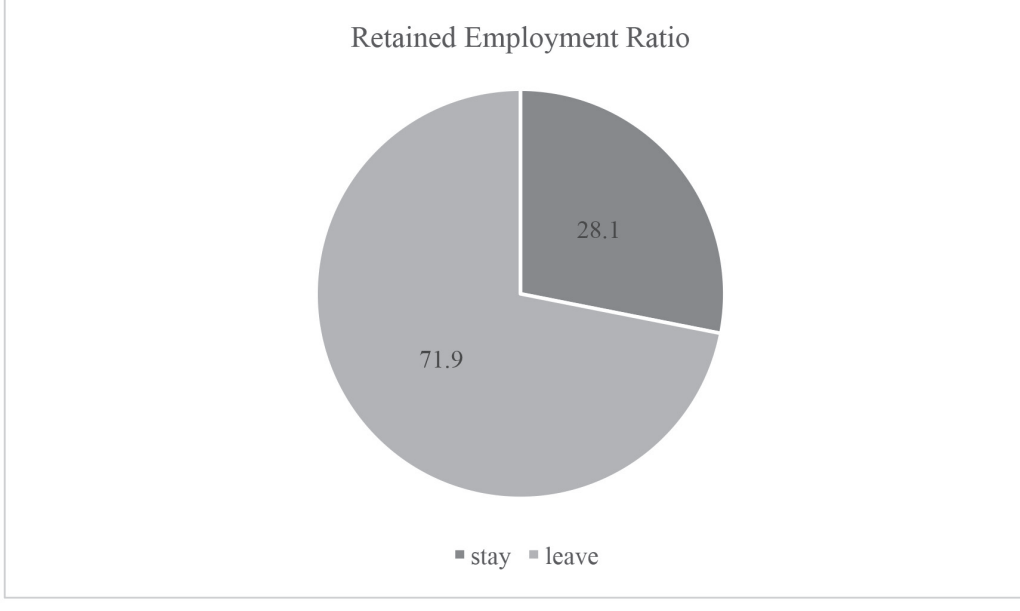

Figure 3: Students' Employment Willingness in Panzhihua College

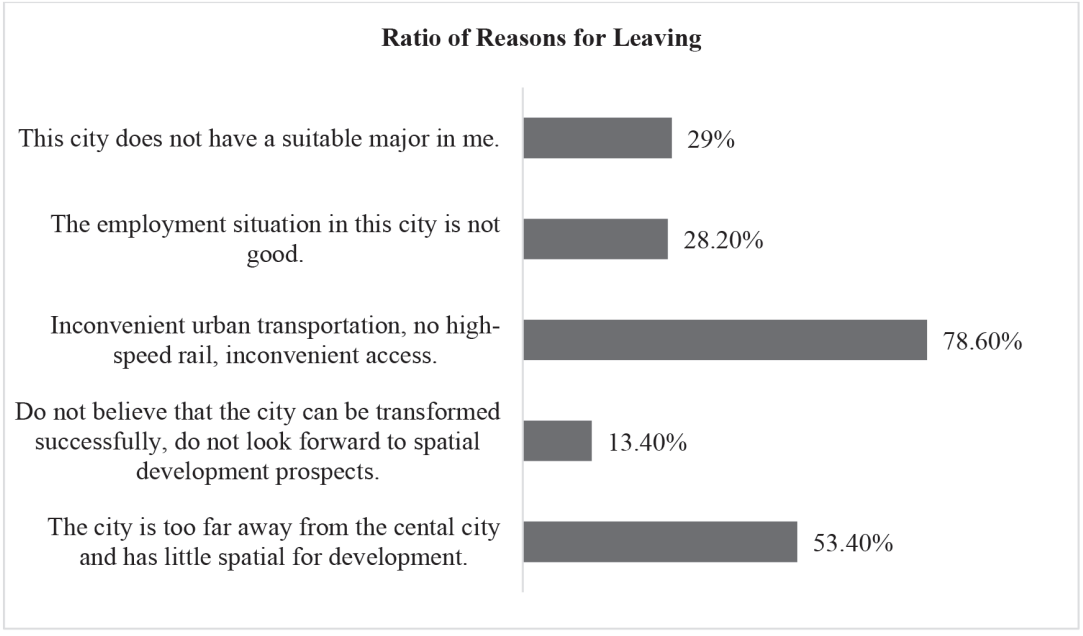

Figure 4: Causes of Students' Employment Intention in Panzhihua College

4. Results of Initial Analysis

From the previous research, it can be concluded that Panzhihua city is facing three difficulties in the process of urban transformation and development.

4.1 Structural Problem I: Location disadvantage caused by layout

During peacetime cities toward the east coast–where the terrain is flat, population plentiful, and transportation infrastructure abundant–have a greater competitive advantage in comparison to cities in the central and western interior–where terrain is steep, population is less dense, and transportation infrastructure is underdeveloped. However, the formation and development of Third-front Resource-based Cities is a result of the positioning mandated by the central government for the purpose of war preparation and following the principle of "relying on mountains, dispersing and concealing." After peaceful development began, the location of Third-front Resource-based Cities made out of the need of war usually falls into the problem of development and transformation due to geographical disadvantage. Therefore, the location disadvantage caused by the layout problem has long troubled the development and transformation of China's Third-front Resource-based Cities in peacetime.

Panzhihua city is exemplifies this structural issue as it is located in the deep mountains, 614 kilometers north of Chengdu city and 273 kilometers south of Kunming city (Panzhihua Statistical Bureau, 2017). There is a large distance between Panzhihua city and the capital city of Beijing. In today's era of globalization with the theme of "peace and development" and information characterized by the rapid transit of information and logistics, the distance barrier has become a major obstacle to "capital investment" and "talent introduction," two "natural barriers" to the development of modern industries.

Because of the location disadvantage, the traffic problem has become a key issue to resolve through better urban planning in order to foster urban transformation and development. However, the current traffic situation in Panzhihua city is very unsatisfactory, as one interviewee pointed out: "From the point of view of expressways, comparing to the eastern areas, we could see the great differences. There is only one expressway in Panzhihua and only three high-speed railways in Sichuan Province. As the southernmost city in Sichuan, Panzhihua has no high-speed rail in the 12th Five-year Plan and 13th Five-year Plan. Obviously, Panzhihua city has been excluded from the high-speed rail industry. As we all know that where the high-speed rail extends, the district of economy develops, the lack of high-speed rail, the development of that area will be limited. When people from outside come over to talk about business, they also check out the level of development of transportation. As the matter of fact, it's very inconvenient for people and goods to enter and exit Panzhihua city."

Meanwhile, according to the results of the questionnaire, 71.9% of the 331 students who participated chose not to stay in Panzhihua city for future employment. When asked about the reasons for not choosing to stay, 78.6% chose "urban traffic is not improved, there is no high-speed rail, inconvenient access" as the top reason. Meanwhile, 53.4% chose "the city is too far away from the central city, and there is little spatial for development." This result shows that the disadvantage of the location and the traffic situation have seriously hindered the economic and social development of Panzhihua city and is the key factor restricting its transformation and development.

4.2 Structural Problem II: Operating disadvantage caused by management

In this era of market economics, the market should be the primary target of concern for business operators. Enterprises should respond to changes in the market, and

management of a company should regulate the organization accordingly. However, many businesses are a third-tier companies born under the planned economy system and due to the long-term impact of the traditional thinking mode of the planned economy, the important role of the market is often ignored. At the same time, the government's macro management and policy supervision of corporate operations also play a very important role in the smooth operations of enterprises. Panzhihua Iron and Steel Company, for example, a Third-front company in Panzhihua city, has a backward management style with a lack of market awareness. This antiquated approach to of management has serious consequences, for example, during the period 2013 to 2015, it was in serious trouble due to major overcapacity in China's steel market and a management that was unable to adjust to the market situation.

Three employees who have worked in Panzhihua Iron and Steel for more than 20 years during the interviews all discussed the latest business problem from 2013 to 2015. "The most difficult time of Panzhihua Iron and Steel Company was about 2013, 2014 and 2015, especially in 2014. The average cost of producing steel per ton was about RMB ¥2200 (approximately US$314.16), while the market selling price of steel per ton was only about RMB ¥1870 (approximately US$267.03) which means that every ton of steel sold lost about RMB ¥300 (approximately US$42.84) to RMB ¥400 yuan (approximately US$57.12)."

When talking about how Panzhihua Iron and Steel resolved this predicament, the respondents thought that "the main reason for Panzhihua Iron and Steel to get out of this predicament was the national policy: first, the state issued policies to subjectively regulate iron and steel production and seriously restrict the problem of excess production capacity. For example, the relevant management departments of the national government have restricted the output of the two largest iron and steel production areas in China, Hebei Iron and Steel Production Area and Shandong Iron and Steel Production Area which has reduced the market output, thus reducing the overall output and alleviating the oversupply in the past. Second, the government strictly prohibits the production of "Inferior Steel." Inferior Steel refers to steel made from ordinary scrap steel or steel slag after simple processing, producing a kind of bar steel normally of poor quality. If using this kind of steel to build a house or a bridge, it will be very dangerous and easily collapse. In Panzhihua city alone, the government has knocked out 50 to 60

Inferior Steel manufacturers. Thirdly, to cope with the problem of excess iron and steel production capacity, the state has issued policies to promote the reduction of steel prices which have promoted a large-scale shuffling of the steel industry, leading to the closure of some enterprises with improper operating conditions. In this round of shuffling, some excellent private enterprises took the lead in getting out of the predicament, and then some state-owned enterprises with huge potential gradually got out of the predicament."

It is not difficult to see from this statement that the main reasons that led to Panzhihua Iron and Steel's current economic difficulties are twofold. First, the government has neglected market management. For example, due to inadequate market supervision, substandard products flooded the market. The situation has also been exacerbated by the overcapacity of the steel industry. Second, the company itself does not pay enough attention to the market, which results in a slow response to changes in the market, which ultimately causes the company to suffer serious operating problems.

Under the traditional planned economic system, the government's role is to make decisions and give instructions, like a lofty, indifferent, and dignified parent. However, in the context of market economy, the government should change its concept, have a strong sense of service, pay close attention to market changes at all times, strive to create a suitable competitive environment for enterprises, maintain normal competition, and crack down on illegal enterprises so that enterprises who abide by the law and have excellent quality can gain a favorable competitive position.

To sum up, the failure of government to fulfill its duty in terms of management leads to disorder and confusion in market competition, leading to "bad currency expelling good currency," generating market problems, and eventually hindering the development of urban transformation.

4.3 Structural Problem III: Market disadvantage caused by institution

The primary purpose of enterprise is to generate a profit. However, this was not case in the construction of Third-front Enterprises, which were constructed for national defense. In 1964, China was confronted with war threats from the four directions: from the east (thread of American military exercises), the south (American Vietnam War),

the west (the Sino-Indian War) and the north (the Soviet nuclear threat), placing mainland China under tremendous national defense pressure (Donglin, 2003: 77-102). All the material and human resources of these enterprises are under the unified control of the national plan. The products of the enterprises are allocated by the central government. Panzhihua Iron and Steel, as the key project of the Third-front Construction, is a state-owned enterprise under the direct leadership of the Central Metallurgical Ministry. Thus, its management need not concern themselves with market problems if they can regularly and quantitatively fulfil the state's mandatory plans. Under this mode of management, numerous managerial problems can arise, such as unclear responsibilities and powers, many management levels, overstaffed organizations, high administrative costs, low production efficiency, low motivation for technological innovation, lack of competitive vitality of enterprises, imbalance between wages, and expenditures of labor force.

After the reform and the opening up of the country in 1978, although state-owned enterprises have gained a certain level of autonomy, the original management structure has remained with its ambiguous allocation of responsibilities and powers. A series of problems still exist such as many levels of management, overstaffed institutions, high administrative costs, low production efficiency, low motivation for technological innovation, lack of competitiveness, and the disproportionate income and expenditure of labor force. These problems make it difficult for many state-owned enterprises to compete with market-oriented private enterprises with clear responsibilities, clear goals, flexibility, and pragmatism. However, local governments share similar features thus also faces the problems of overstaffing, high administrative costs, low administrative efficiency, prevailing bureaucratic style, incompatible income, and labor. The rigid and backward system means it is difficult to adapt the market economic model which prioritizes profit, efficiency, flexibility, and responsive to changeable market conditions. This is a main reason for Third-front Resource-based Cities failing during the period of transformation.

The interviewees describe the management of these enterprises thusly: "As an old central enterprise, there are still some problems in management. We reformed three years ago due to the impact of the market. In order to deal with the predicament, save energy, increase efficiency, the reform has completed and achieved a great result, but it still has some problems," said one interviewee. "In the past, there were too many

managers but now only a few are left. Managers and employees have more opportunities to contact each other and have more harmonious relationships. The number of managers is small but very capable. Almost every manager does several things at once," said another interviewee.

At present, the uppermost level of management has less contradictions because it has common goals. In comparison to the past, the specific work and responsibility of each member is clearer with reduced overlap, and management has become more professional. An interviewee said, "Since the people reformed three years ago, it has a big positive impact on production performance. Employees have become willing to work hard because it is directly linked to their income which means more work will earn more income, so the employees put great effort into their work."

The interviewees employed at Panzhihua Iron and Steel mentioned that the reform of three years ago was a pivotal moment. The result was positive for the company with the management model recreated from the traditional state-owned model with its rigid backwardness to free market model. Overall, the reform has led to the improvement of the enterprises in general, with a great difference in the "spirit" of the enterprises after the reform.

Meanwhile, the management advantages of Third-front Resource-based Cities at the local government level? An interviewee pointed out that in order to encourage the development of vanadium and titanium industry and sunshine health industry in Panzhihua city, a special vanadium and titanium industry development fund and sunshine health industry development fund were established. One interviewee said, "The current problem is how to make these industries more supportive. Despite the existence of these two kinds of funds, there are many regulations and boundaries between them. It is unlikely that they can be taken out directly from the mouth of finance and complex processes such as bank financing that need to be regulated and involved. The financial side is 'more monks and less porridge,' so how to get more financial support is a difficult problem for the development of these two industries." This interview shows that problems remain in the management of Third-front Resource-based Cities, such as cumbersome administrative procedures, inefficiency, and many policies that are difficult to carry out remain in place. In conclusion, overstaffed organization, ambiguous

responsibilities and powers, and inefficient management system are the main barriers to the successful transformation and development of China's Third-front Resource-based Cities.

5. Discussion

In the past, international research on the transformation problem of Resource-based Cities usually included: (1) Resource Locking Trap; (2) Professional Lock-in Trap; (3) Government Subsidy Trap; and (4) Waste Ghost Towns (Li, Chunmei, & Zuo, 2008: 15-22). However, the transformation problems of China's Third-front Resource-based Cities discussed in this study are different to general Resource-based Cities due to a series of special historical and political reasons: (1) Layout; (2) Management; (3) Institutional.

On the surface, firstly, there were differences in the purpose of the Third-front Resource-based Cities and the general Resource-based Cities at the beginning of construction. The former were established out of political considerations and the latter out of economic considerations. Secondly, there are great differences in the operational models of the Third-front Resource-based Cities and the general Resource-based Cities. The former belongs to the planned model of government-enterprise integration, while the latter belongs to the market-oriented model. Third, the problems faced by the Third-front Resource-based Cities is different from the problems faced by the general Resource-based Cities in the process of transformation. The reason for the former's difficulties is often closely related to the "weaning" off from government, while the latter is typically related to resource depletion, overcapacity, lagging capacity, and other market factors.

However, when investigating the factors underpinning these problems, the researchers found that the root causes of China's Third-front Resource-based Cities problems lie in the conflicts between the three major concepts in the process of transformation, namely, the conflict between war and peace, the conflict between ownership and private ownership, and conflict between planned economy and market economy as shown in Figure 5.

5.1 Conflict between the Idea of War and Peace

The locating of an enterprise based on the concept of "war readiness" is entirely different from that based on "peace." The locating of an enterprise based on the concept of "preparedness" usually takes the "security factor" as the primary consideration to prevent enemy bombing or destruction. Therefore, in preparing for the war, the locating of China's Third-front Construction Projects will inevitably follow the principle of "relying on mountains, dispersing, and concealing." During periods of peace, the locating of an enterprise usually is based on the location of raw material, markets and urban centers with convenient transportation to maximize the economic advantage of the enterprise. However, for China's Third-front Enterprises, when the overall international situation changed, the once imminent threat of the war has receded, and "peace and development" have become the theme of the times.

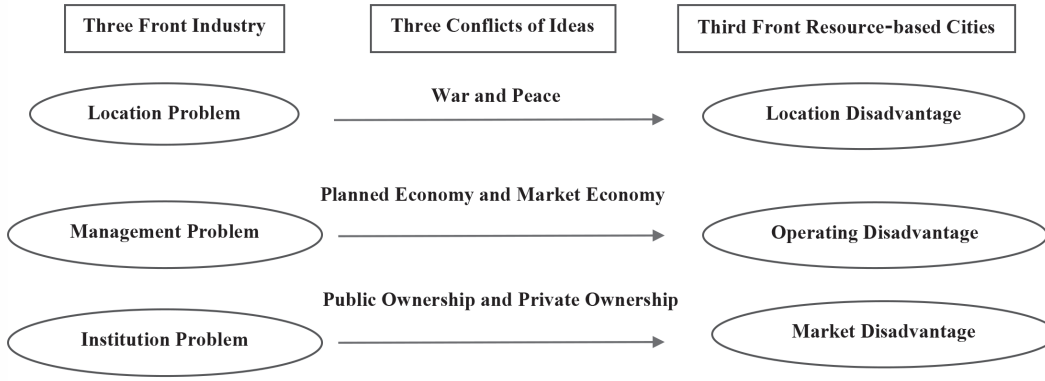

Figure 5: Structural Problems of Industrial Transition in the Third-front Resource-based Cities
Source: Developed by the author

In this new era, Third-front Enterprises find it very difficult to transform themselves because of the original location choices. The principle of "relying on mountains, dispersing, and concealing" resulted in a massive waste of people and material resources. Being far from urban centers also makes it difficult for enterprises to attract investment and talent. Although the government has relocated thousands of these enterprises since the 1980s, many remain deep in the mountains, such as in the case of Panzhihua Iron and Steel. Panzhihua city, established by Panzhihua Iron and Steel, relies on the project and is bound to suffer from the choice of location. Therefore, the conflict between the concept of war

and the concept of peace is the root cause of the barrier to the transformation of Third-front Resource-based Cities.

5.2 Conflict between Planned Economy and Market Economy

Planned economy and market economy are two different forms of social and economic management. It was once believed that a planned economy was the product of public ownership while a market economy was the product of private ownership. However, since rise to Keynesian economics, the difference between them has been blurred. Deng Xiaoping's vision for China has put forward the concept of a market economy under socialist public ownership. However, since the management model of the planned economy was retained, there has been major difficulties in adapting. From raw material supply to organizational production, to product sales, almost all links revolve around the market economic model. The development of a city is often closely related to the overall situation of the enterprises under its jurisdiction. In the context of the market economy, in order to adapt, enterprises should adopt a market-centric business philosophy, actively promote the development of the enterprise, and strive to develop in line with market changes. However, in reality, a certain number of state-owned enterprises retain the management model of the planned economy, ignoring the importance of market factors, leading to a disconnection between the production of the enterprise and the market, and ultimately putting the enterprise in jeopardy. For Panzhihua city, where Panzhihua Iron and Steel is a major enterprise, the choice of a market or planned economic management model will directly determine the operating status of Panzhihua Iron and Steel, and will affect the future city of its success or failure in transformation and development.

If the overall business situation of the enterprise is negative, it will inevitably result in a huge negative impact on the development of the city. As for Panzhihua Iron and Steel, its operation will directly affect the future urban transformation and development of Panzhihua city. Therefore, the conflict between the concept of planned economy and the concept of the market economy is a fundamental reason leading to the management problem and operating disadvantage of Third-front Resource-based Cities.

5.3 Conflict between the Idea of Public Ownership and Private Ownership

Public ownership and private ownership originally belong to two opposite political concepts. In China, public enterprises are also called state-owned enterprises, meaning the state is in charge of management, and output belongs to the state. Unlike state-owned enterprises, the ownership and management of the private enterprises is in the hands of private ownership and output belongs to private owners. During the era of the planned economy, management of Third-front Enterprises were not autonomous. What and how much to produce depended on the national government. This operational model inevitably led to a lack of ability of its leaders to work independently.

When the external situation changed, the state returned autonomy to the management of the enterprises, however, the majority of the leaders were unable to cope, leading to inertia. It has been four decades since the opening up of China and two decades since the state gave managerial autonomy to the Third-front State-owned Enterprises, but the concept of traditional management under public ownership still exists. In fact, in the transition process of third-tier resource-based cities, more vibrant private enterprises have played an important role in the process of urban transformation. However, the actual situation is that private enterprises find it difficult to obtain equal opportunities for competition with state-owned enterprises, and remain at a relative disadvantage.

In Panzhihua city, due to the country's financial and tax preferences, state-owned Panzhihua Iron and Steel remains the city's largest enterprise. Its operating status still fundamentally determines the fate of the entire city's prosperity or otherwise. Meanwhile, in their competition with state-owned enterprises, private enterprises in Panzhihua city are at a disadvantage in terms of national finance and taxation, and have weak influence on the city. Therefore, the conflict between the concept of public ownership and private ownership is a fundamental reason for the systemic problem and institutional disadvantage of Third-front Resource-based Cities.

6. Conclusion

In summary, the researcher believes that the difficulties experienced in the transformation and development of these Third-front Resource-based Cities are on

the surface caused by huge market fluctuations. However, market fluctuations are in fact only external factors that stimulate the outbreak of the problems, and market fluctuations is not the fundamental factor causing the transformation problems of the Third-front Resource-based Cities. Because of the fierce conflict of the three concepts of war and peace, planned economy and market economy, public ownership and private ownership, the development of the Third-front Resource-based Cities in the transitional stage has had enormous troubles which reside in their planning and construction stage in the middle of last century as the Third-front Construction Projects and the concomitant Third-front Resource-based Cities were not established for profit in a free market economy, but for the reason of national defense. Therefore – whether due to the location disadvantage, the management disadvantage or the institutional disadvantage – the transformation challenges are congenital and endogenous, not the result of external factors encountered during development. However, despite the innate and endogenous nature of the difficulties facing them, Third-front Construction Projects and Third-front Resource-based Cities have substantially improved China's industrial situation and strengthened its national defense.

It has been four decade since the beginning of the period of reform and opening-up, and two decades since state-owned enterprises have gained operational autonomy. In these 20 years, state-owned enterprises in the Third-front Resource-based Cities have had to reduce the burden of "enterprises running social problems." In the planned economy, state-owned enterprises oversaw all facets of employees' lives including children's education and employment, health care, pension, housing distribution, and so forth. Moreover, the personnel organization establishment, the employment system, and working concept management model of the planned economy already become stagnated. Thus, Third-front State-owned Enterprises faced serious issues in the period of transformation. At the same time, the government of Third-front Resource-based Cities also faced a series of challenges in their transition from a bureaucratic "command" government to a market "service" government. To promote the successful transformation of these Third-front Resource-based Cities, all the above "pain" and "challenge" must be experienced. To adapt to the tide of the market economy, they must start from the perspective of location, managerial role, and government system to successfully carry out the transformation.

The researcher believes that the shortcomings of this study mainly lie in two aspects. As is typical of case studies, an important question is whether its findings can be extending to a broader context. Furthermore, even though the samples selected in this study are typical, different cities may have their own priorities. Therefore, future researchers can focus on other Third-front Resource-based Cities to compensate for this limitation.

The most obvious beneficiaries of this study, as a paper focusing on the transformation problem of China's Third-front Resource-based Cities, should be China's Third-front Resource-based Cities in the process of transformation, especially Panzhihua city which was the city chosen in this case study. This study is based on empirical interviews and questionnaires, supported by government data. Thus, the results can be used as a resource by policy-makers of Third-front Resource-based Cities in China, especially Panzhihua city.

In the past, both outside and inside China, the research on the transformation of Resource-based Cities have focused on the structural problem and countermeasures of urban transformation from the perspective of the market economy. Few scholars have considered the market competition disadvantage of China's Third-front Resource-based Cities from the historical and political perspectives. Therefore, it is difficult to make a comprehensive and thorough analysis of the structural problems of Third-front Resource-based Cities in the process of transformation. On this premise, it is also difficult suggest effective countermeasures. However, this study hopes to offer a new way of thinking for researchers engaged in the transformation of China's Third-front Resource-based Cities.

In sum, this study of Third-front Resource-based Cities covering the background of international and domestic politics reveals the obstacles to and root causes of their transformation difficulties. It is hoped this study lays the foundation for the government and future researchers to complete systematic, practical, and possible countermeasures to the structural problems found in this study. As Third-front Resource-based Cities each have their own unique weaknesses and advantages, future researchers could select different cities as case studies to investigate their successful and failed urban transformation strategies and thus contribute to a broad corpus that can contribute to the future transformation of Third-front Resource-based Cities.

References

Bo, L., & Xvhui, Z. (2018). Economic transition and service industry development of Resource-based Cities in China: Comparison and analysis based on China's 107 Prefecture Resource-based Cities. *West Forum, 28*(3), 25-32.

Caihua, L. (2011). A review of the research on the Third-front Construction. *Social Sciences Front*, *10*, 98-102.

Caixia, W. (2016). Research on the economic transformation of Resource-based Cities under the New Normal Situation. *Modern Management Science*, *10*, 85-87.

Cardinal, L. B., Sitkin, S. B., & Long. C. P. (2004). Balancing and rebalancing in the creation and evolution or organizational control. *Organization Science*, *15*, 411-431.

Division of Fixed Assets Investment of National Statistics Bureau. (1997). *Statistical yearbook of China's fixed assets investment (1950-1995).* Beijing, China: Statistics Publishing House.

Donglin, C. (2003). *The Third-front Construction: The western development in the period of preparation for war*. Beijing, China: Communist Party School Press.

Donglin, C. (2016). Seizing the opportunities of supply-side reform and military-civilian integration to promote the protection and utilization of Third-front heritage. *Guizhou Social Sciences*, *322*(10), 30-35.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*, 532-550.

General Office of the State Council. (2013). *National Resource-cities sustainable development plan (2013-2020).* Retrieved December 3, 2013 from http//www.gov.cn/zwgk/2013-12/03/content_2540070.htm

Group on "Third Line Construction" and Panzhihua in the Development of the Western Region. (2013). A practice to make the Chinese dream come true: Vivid interpretation of Chinese experience by reform and development of Panzhihua iron and steel based research. *Teaching and Research, 9,* 5-13.

Guang, X. (1992). *National defense science and technology in contemporary China (I).* Beijing, China: Contemporary China Press.

Haitao, Z. (2011). The influence of the CPC's regional development ideas to the Three-line Construction and adjustment and reform. *Journal of Northeast Normal University, 251*(3), 5-7.

Haojv, H., Renzhong, H., & Jiagui, X. (2003). *The Third-front Construction and the western development*. Beijing, China: Contemporary China Press.

Huijuan, L., Ruyin, L., & Hong, C. (2013). Economic transition policies in Chinese Resource-based Cities: An overview of government efforts. *Energy Policy*, *55*, 251-260.

Jiangsu, L., & Zhipeng, T. (2017). An analysis of industrial structure increase of regenerative Resource-based Cities: A case of Tangshan City. *Geographical Research*, *36*(4), 707-718.

Li, Y., Chunmei, J., & Zuo, Y. (2008). *Research on industrial transformation of resource-exhausted cities.* Beijing, China: China Academy of Social Sciences Press.

Liping, Y. (2017). Long-term mechanism for sustainable development of Resource-based Cities in the midwest and east China. *Reform*, *282*(8), 110-114.

Lvhong, L. (2014). The historical development and transformation of Resource-based Cities in China. *Journal of Southwest University for Nationalities*, *10*, 151-155.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis.* Thousand Oaks, CA: Sage.

Miller, C. C., Cardinal, L. B., & Glick, W. H. (1997). Retrospective reports in organizational research: A reexamination of recent evidence. *Strategic Management Journal*, *40*, 189.

Minliang, Z. (2000). The history review and policy consideration of developing west China. *World SCI-TECH R&D*, *22*(4), 72-76.

Panzhihua Statistical Bureau. (2017). *Panzhihua statistical yearbook 2017*. Panzhihua, China: Statistical Bureau of Panzhihua City.

People's Government of Panzhihua Municipal. (2019). *Panzhihua administrative district map.* Retrieved September 5, 2019 from http://www.panzhihua.gov.cn/zjpzh/zrgk/xzqh/index.shtml

Quanshan, M. (2011). The issue on the evaluation of Third-line Construction. *Contemporary China History Study*, *18*(6), 63-70.

Van Maanen, J. (1988). *Tales of the field.* Chicago, IL: University of Chicago Press.

Xiangang, Z., & Cunru, D. (2018). Performance evaluation and differential analysis on green transformation of coal resource-exhausted cities in China. *China Population, Resources and Environment*, *28*(7), 127-135.

Xiaoyong, S., & Li, W. (2016). On the interaction between China's defense industry and the economic development (1949-2015). *Research in Chinese Economic History*, *5*, 93-101.

Xuejie, Y., Li, L., & Xiaolei, W. (2018). Economic geology and the path of industrial transformation in Resource-based Cities: A case study of Huainan city. *China Soft Science*, *2*, 186-192.

Xuexin, L., Guangzeng, T., & Changhong, M. (2010). The regional central urban economic transformation: Mechanism and mode. *Urban Studies*, *17*(4), 26-32.

Yan, X. (1999), "Revolution and war" or peace and development: China's understanding of the characteristics of the times in the past 50 years. *Centennial Tide*, *3*, 34-42.

Yong, Z. (2018). History writing and public participation: An investigation centered on the Third-front Construction. *Southeast Academy*, *2*, 223-232.

Yougui, Z., & Hongchun, Z. (2013). *Panzhihua in the Third-front Construction and the great western development*. Beijing, China: Contemporary Chinese Communist Publishing House.

Youwei, X., & Xi, C. (2015). The impact of Third line Construction on China's industrial economy and urbanization. *Contemporary China History Studies*, *22*(4), 81-92.

Yuming, S., Binbin, Y., & Yun, Z. (2006). Study on the eco environmental problems and its countermeasure in the sustainable development of resources based cities: A case study of Jining City. *Geographical Research*, *25*(3), 430-438.

Zhiyi, N. (2000). From historical comparation, see Sichuan's "Leaping-over Style" development. *History of C.P.C., Sichuan, 184*(4), 18-25.