Economic revitalization and city branding practices in the old industrial base in northeast China

Limin Xu (4509080)
Engineering and Policy Analysis
Faculty of Technology, Policy and Management
Delft University of Technology
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Title page

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Author	Limin Xu
Date	August 1th, 2018
Email	xlm219@126.com
University	Delft University of Technology Faculty of Technology, Policy & Management
Program	Engineering and Policy Analysis
Graduation committee	Chairman: Martin de Jong First Supervisor: Mark de Bruijne Second Supervisor: Baiqing Sun

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Executive Summary

The old northeastern industrial base, including Liaoning province, Jilin province and Heilongjiang province, used to be the most developed areas in China back in 1980s. Now they are going through a tough time in recent years. GDP growth rate of the northeast kept declining and below national average in the past ten years. Liaoning, the biggest economy entity in the northeast, even negative growth in 2015. Two facts should be blamed for, including single industrial structure and rigid governmental and economic system. Main industries in the northeast are resource-based heavy industry and manufacturing, which almost account for half of its GDP. This single economic structure can hardly maintain economic growth when its secondary industry is stagnating and even recession. And that is the situation in the northeast. Another problem is the lack of innovation caused by rigid governmental and economic system. Governmental institution still dominates the allocation of market resources. Specifically, state-owned enterprises are the main force in the market, and private economy is weak. While, state-owned enterprises cannot count on to initiate innovation.

Faced with the problems mentioned above, cities in the northeast are seeking ways to restructure their industries, to distinguish themselves among other cities and to attract more investment to revitalize their economy. Under this background, city branding practice is employed by the northeastern cities to develop strong competitive identities, and in the end to achieve economic revitalization.

This paper is an extending study of the research of de Jong et al. (2018), and aims to answer the questions of how do the northeastern cities brand themselves, what actions they took to flesh out their chosen brands, and how their city branding practices fitting into their reality. The concepts of ecological modernization and city branding were employed in this paper. Ecological modernization means to relieve environmental and energy shortage problems without sacrificing economic development. City branding is a systematic method for cities to understand their current situations, clarify strategies, build positive city images, and take consistent actions to actualize their ambitions. The development of city branding practice follows 5 pathways depending on city's position in the region and its urban economic development stage. Different pathways mean different developing mode. This paper only focuses on the study of pathways 2 (developmental pathway) cities in the northeast, namely regional or national oriented and secondary sector dominated. Their main industries are manufacturing or material processing, and seeking for ways to upgrade industry or restructure economy, to make economic development more sustainable. They prefer branding positions like low carbon city, advanced manufacturing, sustainable development city and smart city, etc.

There are 34 cities in the northeast, and their economic data were collected from the statistical Yearbooks to pick out pathway 2 cities. The define of city's position depending on their regional orientations. Hongkong, Shanghai, Shenzhen, etc. were recognized as international oriented cities but none of them are in the northeast; the

provincial capital city was recognized as national importance city; and the rest are treated as reginal importance city. Harbin, Changchun and Shenyang are national important cities; the rest 31 cities are all reginal important cites. The determination factors of urban development stage including GDP per capita, the three dominant industries and the proportion of primary/secondary/tertiary sector in % of GDP and in % of working population. In this way, 11 industrial cities were selected as pathway two cities in the end and would be studied in this paper. They are Shenyang, Anshan, Fushun, Benxi, Panjin, Huludao, Changchun, Liaoyuan, Tonghua, Daqing, and Qitaihe.

The following aspects were studied, including how those 11 industrial cities in the northeast brand themselves, how those brand practices are linked with their unique features and their economic revitalization goals, what the following urban projects they take to support their brand practices, and to what extent those urban projects are consistent with their branding identities. City branding identity is how a city recognize itself and how it what to be perceived by the outside world. City branding identities in this paper were identified from the key sentences of Urban Master plan (UMP) and the 13th Five Year Social and Economic Plan. Results show only Daqing and Fushun seem unsatisfying with their current city profiles and adopted the description of center city in addition to pathway 2 labels. As a whole, industrial cities in the northeast identify themselves in line with existing industrial profiles which are predominantly manufacturing oriented.

City brand position (assumed pathway) was subsequently established by counting the appearance frequency of the branding labels in UMP and 13th Five-Year plan. Each label was categorized into different developmental pathways. Technological progress city and administrative progress city are the unique brand positions of cities in the northeast. *Technological progress city* in there means industrial upgrading and economic restructuring by adopting more advanced technology. *Administrative progress* means the change in the government's administrative system to make the economy more efficient. Although administrative progress can hardly be categorized into any pathway, it still should be included into analysis for its significant meaning for economic revitalization. The consistency between city branding positions and their developmental pathway was studied. In the 11 industrial cities, only Benxi took inconsistent brand positions with the pathway 1 label of eco-city. In this context, eco city means the restoration of eco environment after years of mining, to make the city more livable. The adoption of pathway 1 label does not deviate from its development goals. It can be concluded that the assumed pathways of the northeast cities are consistent with their city profiles. There are two possible explanations for this consistency: 1) those cities know clearly about their current economic dilemma, and plan to readjust economic structure based on their existing industrial strength; 2) strong and clear guidance from higher level government.

Urban projects were also collected to study whether those 11 cities took consistent actions to support their city branding identities and positions. The projects were

categorized into different brand labels and pathways. For each city, the pathway who has the maximum number of projects would be the dominant pathway for this city. Overall speaking, the number of pathway 2 projects have overwhelming advantages. No matter what those cities claim to be, they all follow pathway 2 to plan their economic development. It is not hard to understand this choice. Production of secondary industry accounts for almost half of GDP in the northeast. but facing with the risk of growth stagnation. It is a necessary option to strengthen and upgrade secondary industry to maintain economic growth and rebuild their core competitiveness. It can be concluded that northeastern cities chose appropriate city branding labels which fitting into their reality, and take consistent actions to actualize their ambitions.

In this second round of economic revitalization, central government set economic restructuring and institutional reform as priorities. And city branding practice followed this instruction with clear target and unified actions. But there is still a long way to go for the northeast to revitalize their economy. For central government, they need to set a reasonable evaluation system to assess the economic progress in the northeast, not just look at GDP growth. In this transformation period, excessively focus on GDP may lead short-term behavior of local governments. For local governments, they need develop stronger execution abilities. For example, the revolution of state-owned enterprises has been discussed for years, but still not much progress was made. Or at least not much information was known to the public. Keep the public informed and be educated is also important. This is also one important way to rebuild public confidence.

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1. introduction

The research of de Jong, et al. (2018) proposed a Five-Pathway theory to study city branding practices in China. Using this theory, many researches regarding city branding practices in China were conducted. Those researches mainly focused on city branding practices in relatively developed areas in China, like Yangtze River Delta, Pearl River Delta, and Jing-Jin-Ji area. Results show that those cities prefer to use fancy labels, like innovation city, service city, etc. to describe themselves, which may not exactly fit into their reality. But the city branding practices in less developed areas in China remains to be studied. And that is why my colleague Zhuqing Cui and I chose to study city branding practices in the northeast of China. Primary industry and secondary industry are two main economic forms in the northeast. Zhuqing mainly focused on the research of primary sector dominated cities, and this paper will focus on secondary sector dominated cities. Together all those studies mentioned above will show a complete picture of how different types of cities conduct city branding practices in China.

The northeast of China, known as the old northeastern industrial base, including Heilongjiang province, Jilin province, and Liaoning province (see figure 1), has undergone nearly 30 years' rapid development after the establishment of New China in 1949 and used to be the engine of economic development for the whole country (Zhang, 2013). The pillar industries in those three northeastern provinces, including steel, fossil energy, heavy machinery, car, etc., laid a good foundation to the industrialization of China. Before 80's in last century, the old northeastern industrial base, as "the republic eldest son", was always the national fore type and did huge contribution for the republic. However, the old northeastern industrial base is undergoing a serious economic recession nowadays. In 2014, the GDP growth rate of Liaoning, Jilin, and Heilongjiang are relatively 5.8%, 6.5%, and 5.6% (Finance. sina, 2015), which are among the bottom five provinces across the country. From then on, the economy in the three provinces of northeast is continue declining. In 2016, Liaoning became the only negative growth province with an GDP growth rate -2.5%. Heilongjiang and Jilin are also among the lowest economy growth provinces (Pit. ifeng, 2017).

Two major reasons are widely accepted for this recession. One is the rigid bureaucracy and the consequent corruption, low efficiency, and "official position" thought that local people hold, all of which made the northeast of China a place lack of economic vitality. Another reason is that the traditional extensive growth style has posed many great challenges to the northeast, including resource depletion, the conflict between economic development and protection of environment, the growing labor cost, and the increasingly fierce competition in both domestic and international markets and so on (Hao, & Yongda, 2013). For example, Daqing, a city located in Heilongjiang province and used to be rich in oil, has already facing serious problems of oil depleting.

Under this situation, the economic revitalization of the northeast received attention from both the central government and the local governments. Back in 2003, the Chinese

government has already come up with the national strategy to revitalize the old northeastern industrial bases in China. In 2016, the state council issued "Some advices on implementing the new round strategy of revitalizing economy in the northeast", in which, the economic structural reforms, especially industrial transformation and upgrading are of strategic importance (Finance. Ifeng, 2016). Industrial transformation focuses on the transition from a resource-consuming environmental-destroying economic growth style to a direction that takes the need of maintaining the sustenance base into account (Evans, 2012). However, the GDP growth rate in the northeast is still the top priority and Chinese government is trying to relieve this resource and environmental pressure without sacrificing the economic development. Thus, modest measures are taken by the governments when performing the economic reforms in the northeast. In this situation, the view of ecological modernization is taken by Chinese government. Ecological modernization delivers economic and environmental improvement without posing serious challenges to the existing economic practice (Gibbs, 1998), which implies a lower increase in resource input or emission output and a higher efficiency in the industrial production chain (de Jong, 2018). A lot of administrative means have already been taken by governments to accelerate the process of industrial transformation in northeast, such as state-owned enterprise reform, providing subsidies to high-tech industries, shutting down the factories with heavy pollution, etc. (Chen, Jefferson, and Zhang, 2011).

Faced with fierce competition from peer cities, local governments also seek for some new ways to distinguish themselves and to attract more investment, business, residents and visitors (Demirbag Kaplan, Yurt, Guneri, & Kurtulus, 2010). The local governments are doing their best to create a new image of the northeast to rebuild residents' and investors' confidence. Thus, city branding as a useful tool is adopted by the cities in the northeast of China. City branding is an entire system to build a comprehensive image and subsequently to communicate this image both locally and globally (Wen, & Sui, 2014). The *brand identity* reflects how a city recognize itself and how they what to be perceived by the outside world, including its unique features, economics, people, and even strategic goals, etc. (Bhupesh, 2015). The *brand position* means the competitive advantages of a city on specific aspects, namely how a city positions itself in various markets. In this case a city's brand position, also called city labeling, is its eco-industrial profiles for attracting investment vis-à-vis other cities. The *brand images*, in the opposite, reflects how the public perceived about a city through specific brand associations. This paper will deal with city brand identity, city brand position, and leave city brand image out. Cities in China performed city branding practice for a long time. At the beginning, most of the city branding practices in China focus on the tourism (Scott, Suwaree Ashton, Ding, & Xu, 2011) to attract more visitors and the main way to do it is to advertise on the TV (Hanna, & Rowley, 2011). Recently, city branding practices in China are carrying more significance. They also convey information about economy, culture, attitudes and at the same time performing relevant projects to support their city identities. Beijing, Hong Kong, and Shanghai are the most successful examples. Some of the less developed cities, like Chengdu, Chongqing and

Xi'an, also performed successful city branding practices (Harry Rothschild, Alon, & Fetscherin, 2012). With those successful practices in front, cities in the northeast are also trying to perform city branding practices to help revitalizing their economy. But the effectiveness of city branding practice in the northeast still needs further demonstration.

In this situation, the research of de Jong, et al. (2018) provides a comprehensive way to study the city branding practices in the northeast of China. According to the research of de Jong, et al., a city's stage of urban development and its geographic position within the region are two defining factors which together determine the developmental pathways in dealing with ecological modernization. Thus, five developmental pathways are identified, including "eco-tourism (pathway 1), advanced low carbon manufacturing (pathway 2), high-tech innovation (pathway 3), knowledge and culture oriented services (pathway 4) and global advanced producer services (pathway 5)". This paper adopts this theory and use this framework to analyze city branding practices in the northeast of China. Since the northeast is an old industrial base, so this paper will focus on the 11 industrial cities (mainly pathway 2 cities with two exceptions), namely the cities who are secondary sector dominated and are of regional or national importance. The main contribution of this paper would be how the industrial cities in the northeast brand themselves, how those brand practices are linked with their unique feature and their economic revitalization goals, what the following urban projects they take to fulfill their brand practices, and to what extent those urban projects are consistent with their branding identities.

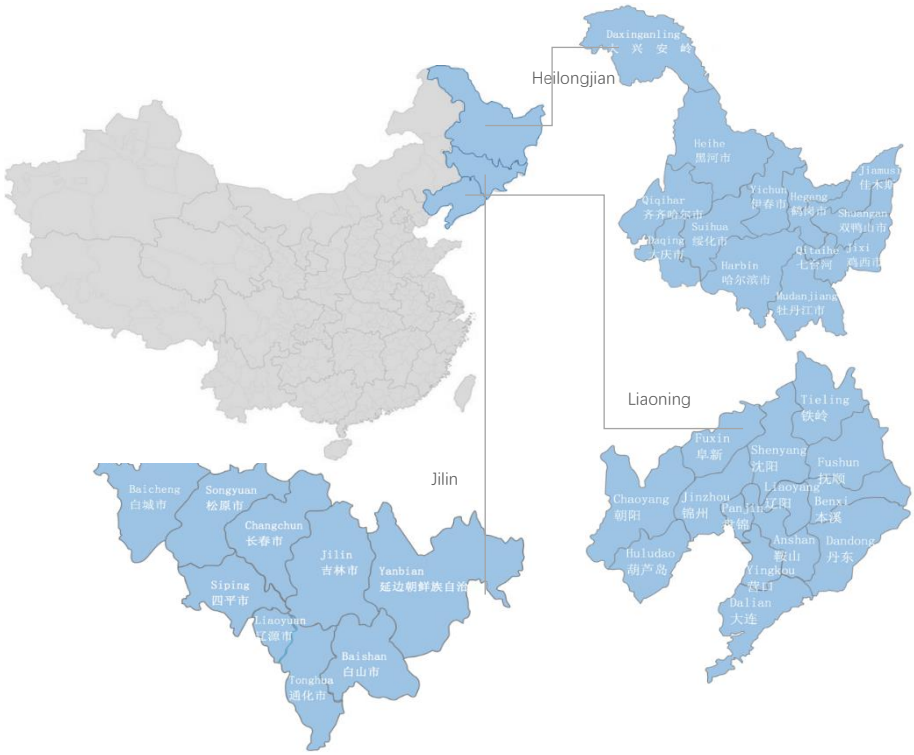


Figure 1.1 Location of the old northeastern industrial base of China

2. Theoretical framework and methodology

2.1 Literature review

Facing with all the challenges, the northeast on the one hand take measures to solve current problems and seek ways to distinguish themselves, on the other hand proactively broadcast their changes to the outside world. Their changes mainly focus on readjusting economic structure (including adjust the proportion of first/secondary/tertiary industry, resource-based/technology oriented economy/, private/state-owned economy, etc.) and simplifying government procedures. While, under the pressure of current economy depression, all those changes happen under the condition of not hurting current economy to exchanges for future development.

Under this background, city branding practice under the perception of ecological modernization is adopted in this paper. Specially, as mentioned in introduction part, the research of de Jong, et al. provided a comprehensive way to study city branding practices in the northeast, which will be explained in detail in the following part. Also, the theories regarding industrial upgrading and state-owned enterprises reform is introduced in the bellow literature review part to help understand economy revitalization in the northeast.

2.1.1 City branding

During the last two decades, brand management has attracted an increasing interest in both academic research and practical application (Demirbag Kaplan, et al., 2010). The use of branding as a modern business tool can be traced back to the end of the nineteenth century (Low, & Fullerton, 1994). Branding now is a widely accepted tool for companies to create differentiation and preference for a product or a service and to strengthen their comparative advantages in the market (Knox, & Bickerton, 2003). The successful implementation of branding in business market results in a drastic extension of the scope of branding. Branding, as a strategic tool that can generate value, was increasingly applied to other areas. During the 1990s, branding was used by corporations in addition to their products (Kavaratzis, Warnaby, & Ashworth, 2015). In parallel with the application in cooperation, attention has gradually turned to the branding of services (Hatch, & Schultz, 2003) and non-profit organizations (Ewing, & Napoli, 2005).

City branding is also origin from the products branding in about 1900s. With the increasing competition from peer cities, the local governments are seeking new ways to distinguish themselves to attract more resources. To reach those goals, the concept of branding was borrowed from the business market to help cities develop strong competitiveness identities. However, for a long period of time, city branding has developed independently with little references to mainstream marketing for its more complex process compared to the branding of goods and services (Fan, 2006). One difficulty is that various factors and stakeholders should be considered. Lots of efforts should also be paid to communicate city image both locally and globally. Also, a city's

attribute is hard to define. But still, places are entities that have specific characteristics which can differentiate them from each other and thus are brandable (Ashworth, & Kavaratzis, 2009). In this context, city branding refers to the practice that applying appropriate marketing strategies to differentiate a city in the competition, with regards to economic, social, political and cultural aspects (Demirbag Kaplan, et al. 2010).

However, city branding is not just about building a comprehensive city image, it is also supposed to provide strategic guidance for city development (Kavaratzis, et al., 2015). This logic assumes that city branding should not only create a vision for the city's future, but also provides a way to use various measures to achieve this vision. Many European and North American cities have successfully used city branding to distinguish themselves and become more competitive (Berg, & Bjorner, 2014), which provides valuable experiences for developing world. While, it exposes more challenges when applying city branding practice to developing counties, such as China, for their top-down government structures (Wen, et al., 2014). Because city branding practice needs full communication with varies stakeholders who may hold conflicting values and benefits. Despite all those disputes, city branding does provide a way for Chinese cities to enhance themselves, especially in this special period, where every city is pursuing a new way of development under the pressure of environmental disruption and energy shortage.

City branding is not a new concept in China. In 1999, the city of Weihai, located in Shandong province, released an advertisement, which is the first attempt in Chinese history at city branding (Chunying, 2013). In China, early academic interest and practical application of city branding was primly paid to tourism, and focused on its significant influences on the destination choices (Gallarza, Saura, & García, 2002). As more extensive researches are introduced in this filed, the studies and practices of city branding are not limited to the destination image only. A comprehensive and systematic city branding system is gradually built over time. Beijing, Hong Kong, Macau, and Shanghai, as the most developed areas in China, are among the first to successfully conduct city branding practice in China. For less developed cities, like Chengdu and Chongqing, also built local and international reputations using online city branding practices (Björner, 2013). While, city branding practice in under-developed areas of China still needs further study. Cities in the northeast are among the poorest in China and are trying so hard to revitalize their economy. This paper will do research on their city branding practices and to see how those branding practices are linked to their economic revitalization.

2.1.2 Ecological modernization

There is a widely accepted concern that the industrialization has caused the environmental degradation and actions need to be taken to remedy this. Energy shortage also brings pressure to the rapid development of economy. Thus, sustainability has increasingly become a central topic for policy making by the government. In general terms, the concept of sustainability requires people taking actions within the ecological

limits of the planet (Gibbs, 1998). This ecological consideration poses great challenges to the existing human activities, especially in developing counties for their extensive style of economic growth. In this situation, the concept of ecological modernization (EM) was brought up.

Ecological modernization was first introduced by the EU's Fourth Environmental Action Program (Baker, 1997). Ecological modernization means replacing the earlier phase of crude, environmental damaging economic development style and to achieve decreased energy and material use per unit of GDP produced (Pepper, 1998). In this way, the environmental and energy shortage problems are relieved without seriously sacrificing the economic development. Thus, the concept of ecological modernization is widely accepted when dealing with the conflicts between economic development and environmental protection.

The concept of ecological modernization and city branding practice are intimately connected. City branding provides strategic guidance to a city's development. Ecological modernization, as a long-term consideration, also focus on the sustainability of the economy development. City branding theory used in this paper is also developed from the perspective of ecological modernization. In de Jong et al.'s (2018) theory, city branding practices are seen as a dependent variable, which can be explained by two independent variables, namely a city's position in the region and its stage of urban economic (Table 1). In this way, 5 pathways are identified.

Table 2.1 Urban developmental pathways and expected branding choices (de Jong et al., 2018)

Stage of economic development/ Position within the region	**Primary sector dominates**	**Secondary sector dominates**	**Tertiary sector dominates**
Regional orientation	PATHWAY 1 Eco-tourism (accommodating manufacturing)	PATHWAY 2 Advanced, low carbon manufacturing	PATHWAY 4 Knowledge and culture-oriented services
National orientation	n.a.	PATHWAY 2 Advanced, low carbon manufacturing	PATHWAY 4 Knowledge and culture-oriented services
International orientation	n.a.	PATHWAY 3 High-tech innovation	PATHWAY 5 Global advanced producer services

Pathway 1 cities are regional oriented and primary sector dominated. They have significant green space, which they depend on to develop economy. Their revenues largely come from agriculture and agricultural related industries. Thus, *eco city, tourism city, modern agricultural city and livable city* are preferred brand positions. Pathway 2

cities are regional or national oriented and secondary sector dominated. Their main industries are manufacturing or material processing, and seeking for ways to upgrade industry or restructure economy, to make economic development more sustainable. They prefer branding positions like *low carbon city, advanced manufacturing, sustainable development city and smart city*, etc. The pathway 3 cities are those who are international oriented and secondary sector dominated. Those cities have the strength and ambition to build high-tech oriented and innovation-driven economy. The labels of *high-tech city, innovation city, smart city*, etc. would be suitable for them. Pathway 4 cities refers to cities who are regional or national oriented and tertiary sector dominated. Those cities position themselves as service providers, including culture, facilities and knowledge. Their brand positions include s*ervice city, innovation city, tourism city, livable city*, etc. Cities who follow pathway 5 are international oriented and tertiary sector dominated with the label *global advanced producer services*.

Two concepts should be clarified here, developmental pathways and assumed pathways. *Developmental pathways* are the pathways a city should take after carefully studying its urban development stage and its geographic position within the region. *Assumed pathways* are pathways a city chooses in its official planning documents. Result shows that there is a huge divergence between developmental pathways and assumed pathways for pathway 2 cities in three mega areas of China, and pathway 2 seems not an attractive city brand practice (de Jong et.al., 2017). While the city branding practices in pathway 3, 4 and 5 are in good agreement with the prediction. City branding practice for industrial cities remain to be further investigated. This study is also a follow-up study of their research to see how pathway 2 cities in the northeast of China brand themselves, and how well their city branding practice in accordance with the prediction.

2.1.3 Economic revitalization of the old northeastern industrial base

From the year of 2016, the second round of economic revitalization is started, and this is also the opening year of 13th Five-Year economic development plan. This second round of economic revitalization put economic restructuring and institutional reform as priorities, which is reasonable and will be analyzed in the following part. In this context, only if the city branding practices follow this logic, can it be claimed useful to help revitalize economy. Also, follow this logic, the relevant information about economic restricting and institutional reform is introduced.

State-owned enterprises reform

The northeast has the highest SOE shares in its economic sector in China, the potential for economic distortions is hence large. The low efficiency and rigid economic and political system largely weakened the competitiveness of the northeast. The reform of SOEs thus is a necessary process for the northeast to revitalize their economy.

Economic reform in China has been undertaken for nearly forty years. Throughout all the period, the reform of state-owned enterprises (SOEs) has always been a critical issue. State-owned enterprises are legal entities that are created by the government in

order to execute commercial activities on the behalf of the government (Cull, & Xu, 2003). Those SOEs are officially owned by the whole people, with the state being the representative of the people (Chiu, Hui, & Lai, 2007). SOEs is a product of planned economy, which is one of the main form of economic systems. Economic systems are the means by which counties and governments distribute resources and trade goods and services (Ostrom, 2010). They are used to control the five factors of production, including labor, capital, entrepreneurs, physical resources and information resources ("Economic systems", 2017). Planned economy and market economy are two main forms of economy systems. A planned economy is one in which the government decides how the factors of production are used (McMillan, & Naughton, 1992). It is the government who decide who can produce a certain product, and who can buy it. A market economy, in the contrary, people decide on their own how to utilize the factors of production (Kerekes, 2011). They can decide from whom they buy, whether to start their own business or work for other people. China has undergone a transition from planned economy to market economy, the reform of SOEs also happened during this process.

When SOEs are first initiated in China, they received full support from the central government. After three decades of development, they are supposed to become the driving force of the development of emerging economy in China. However, failed to deal with the challenges posed by market economy, many of the state-owned enterprises were disappeared over the years (Wang, Zhao, Ning, & Yu, 2009). Especially when China entered the WTO in 2001, SOEs not only facing the threatening from domestic private companies, but also facing the challenges from the growth of the foreign-controlled business sector. In many cases, the SOEs suffered huge losses and were kept afloat only through generous government subsidies, they were inefficient and run by incompetent and corrupt managers (Desvaux, Wang, & Xu, 2004). The survival problem has become a prominent issue for SOEs and their poorly performing is also a huge burden for the economy.

Facing with those problems, Chinese government performed multiple rounds of SOEs reform. The first round started from 1978 to 1989 with the main character of efficiency-oriented. The main purpose in this stage is to improve the efficiency of the SOEs by providing incentives through profits retention, decentralization, etc. The second round of reform started from 1992 to 2007, and it mainly focus on the reform of property rights. The call for the privatization is strong in the hope that private sectors can turn some of the SOEs around or at least stem their losses (Luqmani, & Quraeshi, 2011). During this period, most of the SOEs diversified their ownership structures (Yang, 2015). In 2014, a deepened and comprehensive SOEs reform was started. Until now this round of reform is still carry on. But due to the complexity of the SOEs, the SOE reform is not finished and still exerting influence on the economic development in China.

Industrial transformation and upgrading

There is no consensus on the definition of industrial transformation and upgrading in academic research. The relevant official planning in China pointed out that industrial transformation and upgrading should be based on innovation, efficiency, environmental friendly, and endogenous growth, to enhance the core competitiveness of the industry and to achieve sustainable development (National Development and Reform Commission, 2011). Based on this, the industrial transformation and upgrading in this paper means the transition from traditional extensive economic growth style to the new efficient economic growth with the goal of enhancing the core competitiveness of industry and achieving sustainable development. The guiding principles of industrial transformation and upgrading in China includes: the way of economical return from the industry should be transformed from extensive and low efficient economic growth to intensive and high efficient growth; the motivation of industry progress should be transformed from factors to innovation, and from resource depleting to environmental protecting (Fu, 2016). Those principles are also suitable for the old northeastern industrial base. The pillar industries in the northeast are mostly heavy industries, which caused serious environmental problems and also brought the problem of resource depleting. Thus, industrial transformation and upgrading is a necessary and urgent option for the northeast to revitalize its economy. For example, the branch office of PetroChina in Jilin province keeps losses from the year of 2007, and there are many other state-owned enterprises in the same situation. There are also some resource-dependent companies, such as Daqing oil filed, are facing serious oil depleting. Thus the industry transformation and upgrading in the northeast received urgent attention from the central government and is written into the 13th Five Year Plan in 2015.

The industrial transformation and upgrading is a natural feature of economic life but it also brings challenges in terms of reallocating factors of production. For example, a shift in production and jobs in one sector can lead to problems of structural unemployment (“Economic structure”, 2017). In the northeast of China, more challenges are presented in terms of industrial transformation and upgrading. People with vested interests would interrupt the reformation of state-owned enterprise, which would directly hinder the industrial transformation and upgrading process. Even the central government keep pushing the economic development in the northeast, it still yields little effects. The local residents and the investors from local or global are negative towards the economic revitalization and have lost confidence on the efficiency of its political and economy system. In the past few years, the local and central governments are trying to remedy this widespread negative sentiment and published many official documents to encourage innovation and provided subsidies to the industry upgrading. In addition, local governments advertise their city through numerous other ways, like advertisement on TV, posters on the street, etc. They come to realize the importance of communication city identities and changes with the public.

2.2 Research questions

After carefully study the research background and the relevant literatures, the main research question is stated as the following:
Under the objective of economic revitalization, how do the industrial cities in the old northeastern industrial base in China brand themselves, what follow-up actions cities undertake to flesh out their chosen brands, and what are the recommendations for making their brand ambitions for the future and their actual implementation congruent?
The main research question can be split into four sub-questions:
1) How to identify the important industrial cities in the old northeastern industrial base in China?
2) What are the general features of those industrial cities?
3) How do those industrial cities brand themselves?
4) What follow up actions those cities take to support their city branding practices?
5) What are the recommendations to maximize the effectiveness of city branding practices on supporting economic revitalization in the northeast?

2.3 Research methodology

2.3.1 Methodological framework

The research framework is shown in Figure 2.1, which responds to the five sub research questions. This paper will start with the establishment of pathways for all the cities in the northeast of China. And the cities whose developmental pathway should be pathway 2 would be selected for further research. Then the city branding practices (assumed pathway) of the selected cities would be clarified through carefully studying the cities' official documents, including the Urban Master Plan and the 13th Five Year Social and Economic Plan. The consistency between developmental pathways and assumed pathways of those cities would also be studied to reflect the scientific of their city branding practices. Further, the follow up actions that those cities take to flesh out their city branding practices would be demonstrated and analyzed. In the last, the recommendations would be given to the local governments about how to set appropriate city branding goals and also how to take effective actions to actualize their branding ambitious.

The data needed in this paper mainly comes from the statistical Yearbooks and official planning of Chinese local and central governments. The economic revitalization of the northeast was listed as national strategy by central government back in 2003 by issuing *Some advices on the implementing of economic revitalization strategies of the old industrial base*. But the outcomes are not satisfying. In 2016, a new round of economic revitalization strategy went to the stage. The state council issued *Some advices on the economic revitalization of the old industrial base in the northeast*, which is one of the main data resource in this paper.

The 2016 yearbooks of Heilongjiang province, Liaoning province, Jilin province and their cities are also consulted for relevant economic data. The Urban Master Plan and

the 13th Five Year Social and Economic Plan issued by the local governments demonstrated how cities in the northeast brand themselves. Some relevant government websites and news media also provide valuable information about city profiles and urban projects in the northeast, which will be indicated in the paper. The data sourcing system shows as Figure 2.2.

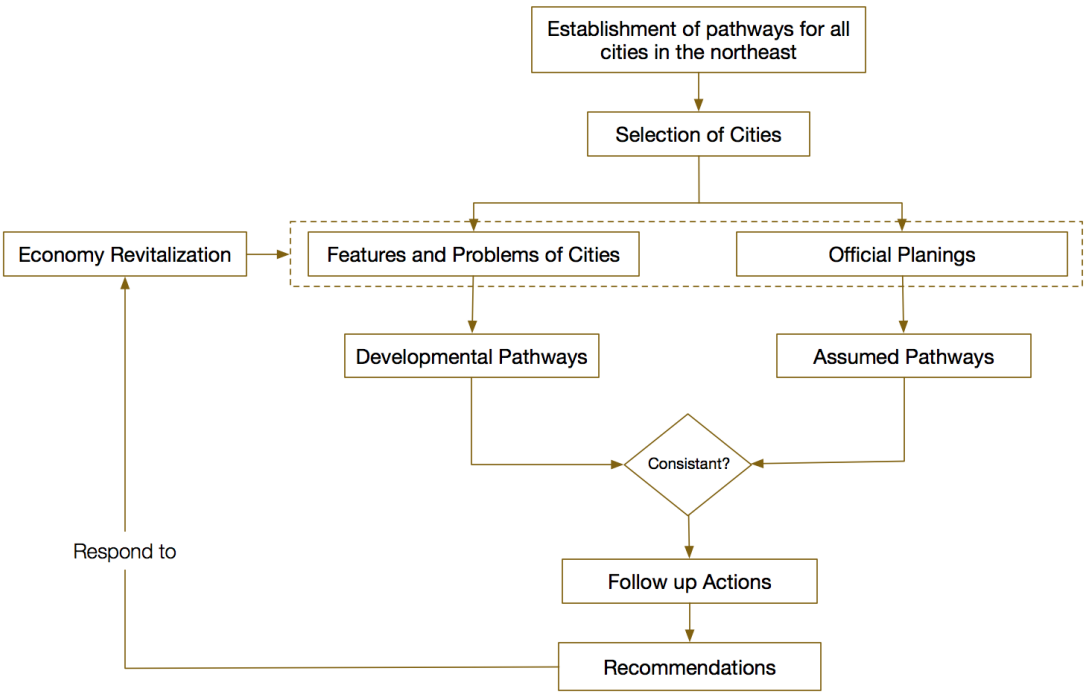


Figure 2.1 Research Framework

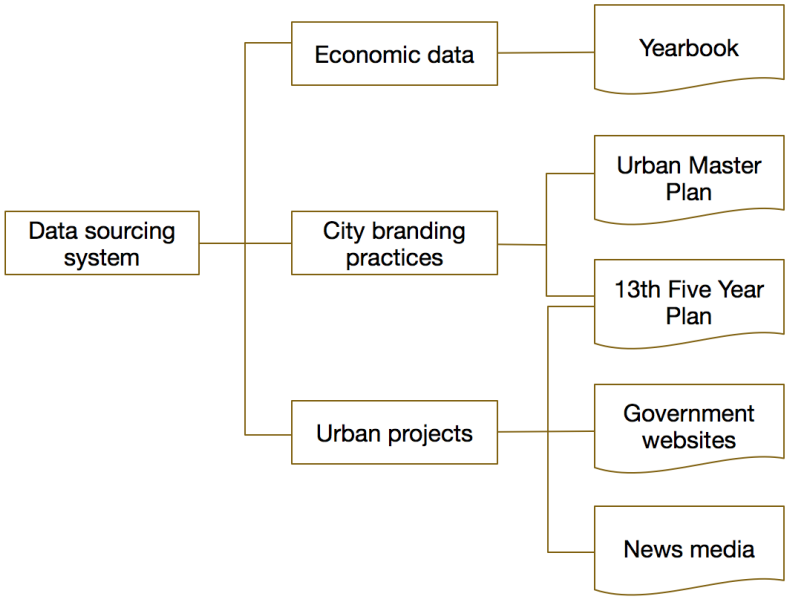


Figure 2.2 Data sourcing system

2.3.2 Research methods

Different methods will be employed in this paper to answer the five sub research questions. Those methods will be discussed in detail in the following part, and it will be presented in a way that connected to the research questions.

To answer sub question 1: *How to identify the important industrial cities in the old northeastern industrial base in China?* The methods in Step 1 and Step 2 will be used.

Step 1: The establishment of pathways for all the cities in northeast of China

This paper will focus on the cities in the northeast whose developmental pathway should be pathway 2, or a combination of pathway 2 with other pathways. To do that, all the cities in the northeast should be studied to screen the cities who satisfy with the requirements. The old industrial base in northeast China includes Heilongjiang province (12 cities), Liaoning province (14 cities), and Jilin province (8 cities), in which Liaoning province is relatively more economic developed than the other two provinces. The economic data of those 34 cities in the northeast would be collected and analyzed to pick out the industrial cities. Those data mainly come from the statistical Yearbooks of each city.

As demonstrated in the literature review, the developmental pathways are determined by two independent variables, which are regional position and the economic development stage. The cities who should follow pathway 2 means they are of regional or national importance and secondary sector dominated. City's positions within the region are indicated as international, national, and regional importance. There are only limited number of international cities in China which are recognized by GWaC, namely Hong Kong, Shanghai, Beijing, Shenzhen and Guangzhou, and none of them located in the old industrial base of the northeast. The national important cities in the northeast are provincial capital cities, including Harbin, Changchun, and Shenyang. The rest cities in the old northeastern industrial base are regional important cities.

The establishment of the economic development stage is a little complex compared to the regional position. Data, including GDP per capita, the three dominant industries and the proportion of primary/secondary/tertiary sector in % of GDP and in % of working population, is employed to determine the economic development sage. The proportion of primary/secondary/tertiary sector in % of working population would be given the top priority when deciding the development stage and also check other indicators for verification. If those indicators conflict with each other, then it would be indicated as two possible pathways. In addition, the data of land area, permanent population would also be collected as background information. In this method, the cities which are of regional or national importance and secondary sector dominated are selected for further analysis.

According to this method, relevant data is collected for the cities in Heilongjiang province, Jilin province, and Liaoning province and their developmental pathways are identified (see table 1 in Appendix).

Step 2: Selection of study cases

Since this paper will focus on industrial cities, so 11 cities are selected from all 34 cities, of which 6 are located in Liaoning province, 3 are in Jilin province, and 2 are in Heilongjiang province. Cities in Liaoning province includes Shenyang, Anshan, Fushun, Benxi, Panjin, and Huludao. Cities in Jilin provinces includes Changchun, Liaoyuan and Tonghua. Cities in Heilongjiang province includes Daqing, and Qitaihe. In particular, Shenyang and Changchun (their first development pathway is 4) are also seemed as industrial cities in this paper. There are two main reasons for including those two cities. One is Shenyang and Changchun are widely known as industrial cities in China for a long time and their pillar industries are all heavy industries. The value of output of secondary sector is also slightly bigger than tertiary sector in two cities. Specifically, Changchun is famous for its car manufacture, railway vehicles, and chemical industry, and Changchun is the biggest car manufacture city in China. As shown in Statistical Yearbook 2016 of Jilin province, the output of those three industries in Changchun almost occupies half of the total secondary sector output in Jilin province. Thus, although the working population in secondary sector is a little bit less than in the tertiary sector, Changchun still is treated as industrial city in this paper. Shenyang's pillar industries are equipment manufacture, Metallurgy, and petrochemical industry. In 2015, the value of secondary sector output in Shenyang is 727.2 billion RMB, which is the highest among all the cities in Liaoning province. Shenyang is one of the most important industrial cities in Liaoning province and of strategic importance for Liaoning to achieve the goal of economic revitalization. Thus, it is also included in the analysis. Another reason is that the revitalization of secondary industry in those two cities is listed as national important strategy by the central government, so they have great potential and willingness to boost the development of secondary sector. As strong industrial base, Shenyang and Changchun will play a key role in the economic revitalization of the northeast and have a high possibility to develop into cities who are equally strong in both secondary and tertiary sector. The conclusion would be biased if study the industrial cities in the northeast without considering Changchun and Shenyang. The rest 23 cities are either clearly pathway 1 or pathway 4, and thus not part of this research.

The locations of those 11 cities are shown in figure 2.3, 2.4 and 2.5 This uneven distribution of industrial cities in the three provinces also reflects the imbalanced development within the old northeastern industrial base.

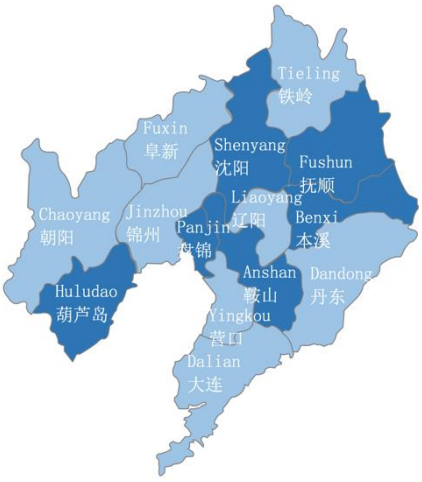


Figure 2.3 The location of industrial cities in Liaoning province

Figure 2.4 The location of industrial cities in Jilin Province

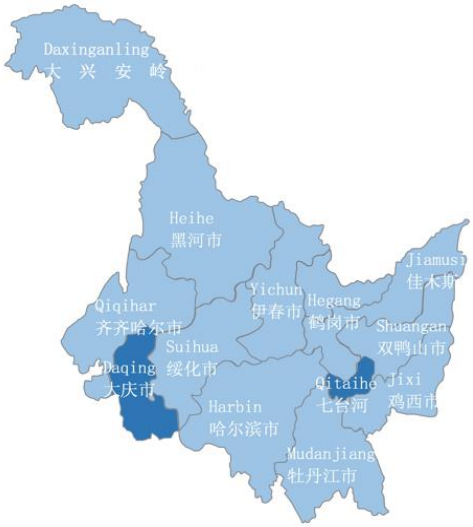


Figure 2.5 The location of industrial cities in Heilongjiang province
rovince

To answer the sub question 2 and 3: *What are the general features of those industrial cities and how they brand themselves?* The method in Step 3 will be used.

Step 3: Identification of city branding practices

The Urban Master plan and the 13th Five Year Social and Economic Plan are consulted for the demonstration of city branding practices. First *city branding identities* would be identified from the key sentence in the above official documents. Those sentences describe how the cities recognize themselves and how they what to be perceived by the outside world. The city brand position would be subsequently established by counting the appearance frequency of the branding labels in those various plan documents.

After roughly counting, the most frequent terms that appears in the Urban Master plan and the 13th Five Year Social and Economic Plan describing cities' development goal

includes modern industrialization, sustainable city, livable city, intensive development, and advanced manufacture city, etc. Since the description in different planning documents varies, so the terms will be categorized into about 10 labels. Those labels will include sustainable development city, low carbon city, advanced manufacture city, smart city, livable city, service city and eco city, plus some other labels reflecting the unique features of the northeast. Those labels are representing different developmental pathways, for example, sustainable city, low carbon city, smart city, advanced manufacture city are the labels describing pathway 2 cities. Service city is used to label pathway 4 cities. So later in this paper, the meaning of those labels would first be decided (belong to which pathway), and then by counting the appearance frequencies of those labels, the assumed pathways of those eleven cities would become clear. The consistency between developmental pathways and assumed pathways will be analyzed and the reasons behind this choice will also be given.

To answer the sub question 4 *What follow up actions those cities take to support their city branding practices?* The method in Step 4 will be used.

Step 4: Implementation of the follow up actions

The follow up actions that those cities take to support their city branding practices will be analyzed. The relevant data will be find in 13th Five Year plan, municipal official websites, and the news media. The projects will be found in the lists given by municipal master plans and relevant documents in municipal websites. There is also some updated information in the social news media. But it is hard to do this step as precise as the previous steps since some of the information is fuzzy and lack of authority. Information from official planning documents and websites is given top priority, and those from social media is verified and used as reference.

Whether those urban projects can support their city branding practice is also studied. A city's projects were categorized into different branding labels, and those branding labels were categorized into different developmental pathways. By counting the frequency of the projects appears at each branding label, the dominant pathway was identified. For example, city A, whose developmental pathway is pathway 2, carried out 8 projects, in which 3 are classified into advanced manufacturing city, 1 is administrative progress city, and 2 are low carbon city, and 2 are innovation city. Pathway 2 (advanced manufacturing city and low carbon city) got a total score of 5, pathway 4 (innovation city) got a score of 2. Thus, pathway 2 is the dominant pathway in carrying out the urban projects, which is in accordance with its developmental pathway. And we can conclude that city A take consistent actions to support its city branding practice.

The answer of sub question 5: *What are the recommendations to maximize the effectiveness of city branding practices on supporting economic revitalization in the northeast?* needs more qualitative analysis of the data collected above. The data about their economic situation and unique features will be analyzed to set appropriate city

branding goals, and relevant literature will be studied to learn from the cities who performed successful city branding practices.

2.4 Conclusion

City branding practices is one of the methods the northeast took to build and broadcast their developmental strategies and to achieve economic revitalization. The basic concept of city branding is introduced in this chapter, and the work of de Jong, et al. is explained in detail, which provides theoretical framework for this paper. Regarding current economic situation in the northeast, the concept of SOE reform and industrial transformation and upgrading is also presented in this part to help better understand economic revitalization in the northeast. Then the research questions are raised and the corresponding research methods are established to study the city branding practices in the northeast, including how those practices fitting into their reality, and how those practices supporting their economy revitalization.

3. Profiles of industrial cities in the old northeastern industrial base in China

3.1 Overview of the old northeastern industrial base

3.1.1 Development history

The northeast used to be economic center of China, but experienced a long-term economic recession. The development of the northeast can be divided into the following stages:

Stage I: Start up (1920s-1950s)

The northeast of China used to be the Japanese puppet state of Manchukuo for 14 years. Benefiting from Japanese technology, the northeast has developed relatively complete industrial structure.

Stage II: Rapid development (1960s-1980s)

After the foundation of new China, the northeast enjoyed full support from central government under planned economy. In this stage, Chinese prioritize the development of heavy industry and military industry, which provided great opportunity to the northeast. Because the northeast was the only area that have relatively complete industry base in China, and near the Soviet Union, which is the only provider of technology and capital for young China. Heavy industry and military industry are capital intense industries and need huge amount of investment. From the period of first five-year plan to the fifth five-year plan, the northeast of China got 21% of national investment (104.4 billion RMB) with only 7%-8% population. Also, among the 156 major construction projects of the whole country, the northeast account for 52 (Chen, Song, &Yang, 2013).

In that time, the northeast developed complete industry system, including mining industry (mostly oil and coal), car manufacture, machinery industry, steel, chemical, and military industry, etc. Those achievements, on the one hand, benefited from its

abundant natural resources, but more importantly it is a result of the planned economy system in China, which was a double-edged sword and presented hidden hazard to the future economy. And as a product of planned economy, the northeast adopted state-owned enterprises system. So huge number of products and resources were sent to the northeast at no expense, which directly lead to the lack of innovation and stagnation of technology progress. The economy of the northeast was in rapid development.

Stage III Economic recession (1990s-2010s)

Due to the deterioration of Sino-Soviet relation, the northeast started to support the development of central and western areas in respond to go-west national strategy. During that period, the northeast exported lots of capital, talents and equipment to west cities, which delayed its economic development. But in that time, heavy industry and military industry were still on top priority and received lots of investment from central government. The first turning points appeared in 1978, when China gradually abandoned to prioritize heavy and military industries lots of military projects were canceled and the investment on capital-intensive industry was cut substantially. The driving force of economic development of China was shifting to export-oriented light industry. The northeast gradually lost its advantages due to geographic location and unchanged industrial structure. But it still needed to export capital to west cities. The second turning point happened in 1992. In that year, the central government started to explore the reformation of state-owned enterprises and introduced market economy to China. The existing economy system of the northeast was not compatible with market economy, and it took time to make changes. Without the full support from the central government, the old northeastern industrial base gradually went in trouble. The low efficiency caused by high proportion of state-owned economy finally lead to the failure of the northeast in the competition. In contrast, places, like Guangdong, Fujian, Jiangsu and Zhejiang, made huge progress under market economy.

Stage IV Economic revitalization (2010s until now)

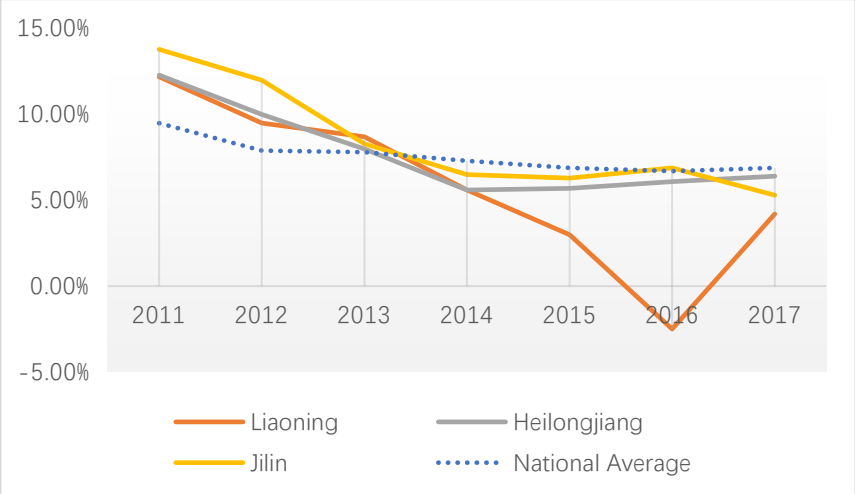
Realized the recession of the northeast, central government proposed national strategy to revitalize northeast economy. Transfer payment was made to the northeast for over ten years. But the progress is not satisfying. In 2016, central government started a second round of economic revitalization of the northeast with the priority of promoting reform and economic restructuring. The reform centers on the reformation of state-owned economy and bureaucratic regimes; and the economic restructuring centers on changing existing industrial structure, especially to reduce the dependence on energy industry. But it is still a long way to go. Even until now, the main form of economic organization in the northeast is still state-owned enterprises. The low efficiency and bureaucratic regimes have greatly hindered the economic development.

3.1.2 Economic situations

GDP growth rate of the northeast kept declining in the past ten years. After the year of 2013, GDP growth rate of the northeast became lower than national average, and was among the bottom in 2016. Liaoning province is the biggest economic entity in the northeast. In 2016, Liaoning's GDP gross was 2866.90 billion RMB, still almost equal the sum of Jilin province (1406.31 billion) and Heilongjiang province (1508.37 billion).

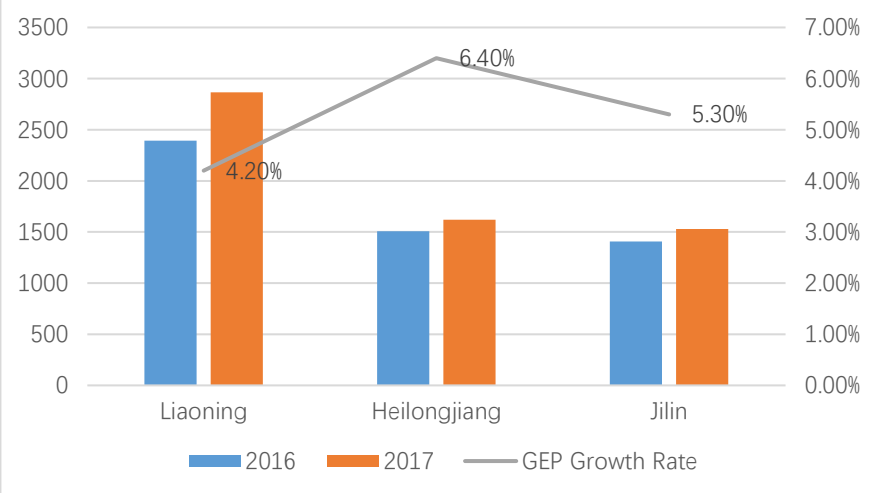
But economic situation in Liaoning was not optimistic. Liaoning's gross GDP ranked 7 in 2014 among all the Chinese cities, ranked 10 in 2015, ranked 14 in 2016, and the GDP growth rate kept declining for six consecutive years, even negative growth in 2016. The turning point appeared in 2017, when GDP growth rate of Liaoning came back to positive (Figure 3.1 and 3.2). And Liaoning government hold positive opinion upon its GDP growth in 2018 and their expectation is around 6.5%.

In Heilongjiang province, GDP growth rate kept increasing in the past four years. In 2017, Heilongjiang is the only province in the northeast who accomplished its GDP growth target, although it is still below national average. Jilin province was the fastest GDP growth province in the northeast in three consecutive years until 2017. GDP growth rate of Jilin dropped 1.6% in 2017 compared to 2016. And the GDP gap between Jilin and Heilongjiang widened further.



Data source: 2018 Liaoning/Heilongjiang/Jilin/national statistical Yearbook

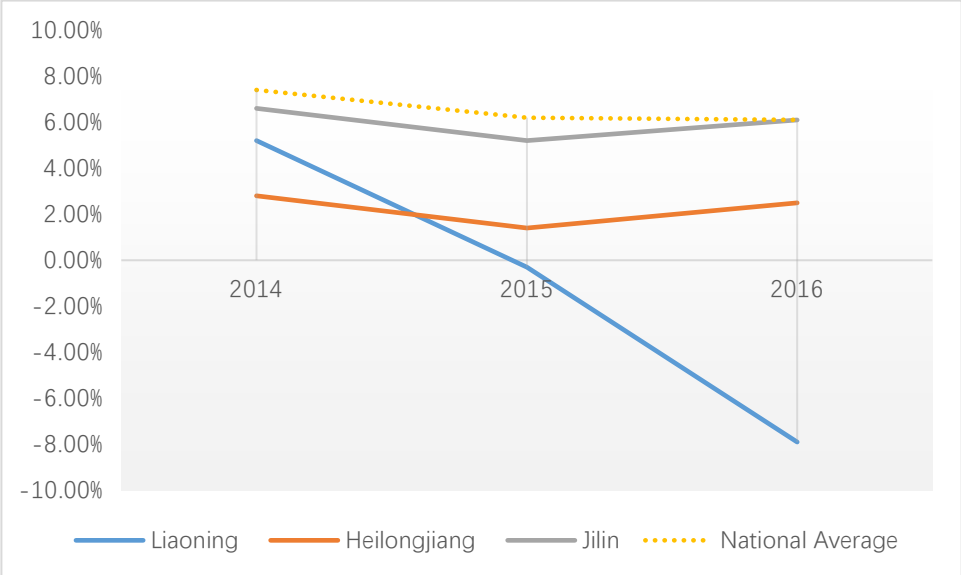
Figure 3.1 GDP growth rate of the northeast



Data source: 2018 Liaoning/Heilongjiang/Jilin statistical Yearbook

Figure 3.2 GDP gross and growth rate in northeast

There are two main reasons for this economic recession in the northeast, including single industrial structure and rigid governmental and economic system. As analyzed before, 11 industrial cities are selected for further study, of which 6 are in Liaoning province, 3 are in Jilin, and 2 are in Heilongjiang. An interesting finding is that, in the northeast, the more industrial cities one province has, the lower its GDP growth rate. The influence of industrial structure on GDP growth rate was studied. Results shows that the low GDP growth rate in the northeast largely because the stagnation and recession of secondary industry, which account for about half of total GDP. At the same time, the emerging industries are too weak to make up this gap, especially for those resource-based cities. As shown in Fig 3.3, secondary industry growth rate in the northeast below national average, especially for Liaoning province.



Data source: 2017 Liaoning/Heilongjiang/Jilin statistical Yearbook

Figure 3.3 Secondary industry growth rate in northeast and nationwide

Specifically, industrial structures in the three provinces are different. The top 3 industries in Liaoning province are oil processing and coking, ferrous metal smelting and rolling, and agricultural by-products processing, most of which are resource-based industries. The economy of Liaoning province is heavy industry dominated and almost half of the cities are industrial cities. This single industry structure now facing serious challenges due to outdated technology and resource exhausting. The pillar industries in Jilin province are car manufacturing, agricultural by-products processing, and medicine manufacturing. Changchun, as the provincial capital of Jilin province, is the largest car manufacture city in China. But the industrial output of car manufacturing is also declining. In 2016, the value of the output of car manufacture industry is 553.51 billion RMB, which declined 14.9% compared to the year of 2015, but still occupied 24% of the total industrial output in Jilin. The economy of Heilongjiang province is supported by agricultural by-products processing, petroleum and gas extraction, and electricity, heat production and supply industry.

Governmental and economic system should also be blamed for economic recession in the northeast. Governmental institution still dominates the allocation of market resources. Specifically, state-owned enterprises are the main force in the market, and private economy is weak. It is hard to rely on the state-owned enterprises to take initiative on innovation. At the same time, the innovation achievements achieved in universities can hardly be commercialized. In a word, the rigid governmental and economic systems lead to less innovation, less economic vitality, which lead to weak growth of the economy. And the weak growth of economy in turn prevent talent flow and innovation. A vicious cycle is born. The fundamental solution is to free the market from the government, make it a welcome place for capital and talent flow, and transmit this massage to the public.

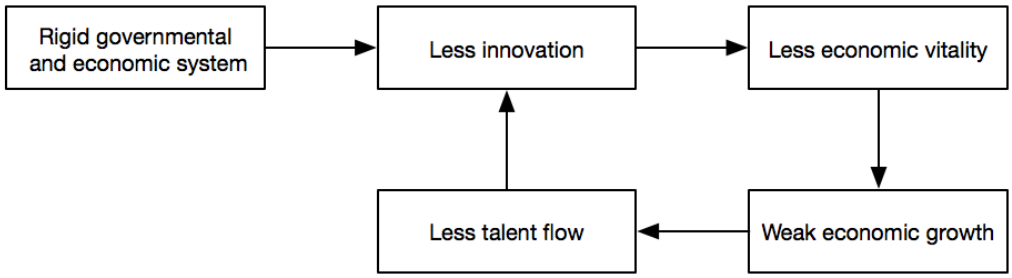


Figure 3.4 Vicious cycle of economic development caused by rigid system

Regarding to the problems mentioned above, in the second round of economic revitalization, central government put industry restructure and institutional reform as main priorities to revitalize economy in the northeast. Below research will further demonstrate how the city branding practices serve this purpose.

3.2 City profiles

As stated in the research methodology, 11 cities are selected for further study, of which 6 located in Liaoning province (LN), 3 are in Jilin (JL), and 2 are in Heilongjiang (HLJ). The key geographic features and economic development of those 11 cities are shown in table 3.1. Below is a briefly introduction.

Shenyang (LN)

Shenyang is the provincial capital city of Liaoning province, and the biggest industrial city in the northeast. After the foundation of China, Shenyang was built into one of the most important industrial cities with the pillar industry of equipment manufacturing under planned economy. Although Shenyang went through serious economic declining after the economic reforms in China, it is still the biggest economic entity in the northeast nowadays and of strategic importance for the big picture of economy revitalization. In 2015, the GDP proportion of primary sector, secondary sector, and tertiary sector in Shenyang was 4.7%, 47.8%, and 47.5%. The total industrial output value in 2015 is 923.9 billion RMB (in current price), in which the light industry accounted for 221.2 billion (23.9%), and the heavy industry accounted for 702.7 billion (76.1%). The competitive industries in Shenyang include equipment manufacturing

(56.3%), automobile and part manufacturing (21.7%), architecture products manufacturing (7.1%), agricultural by-products processing industry (16.6%), chemical products manufacturing (4.0%), and steel and non-ferrous metal melting industry (3.8%). Therefore, heavy industry has overwhelming advantages over light industry in Shenyang.

A fact should be noticed that Shenyang has 3284 industrial enterprises, of which 353 are state controlled (10.7%), taking up 27.3% of total output in 2015. But all the 353 state controlled enterprises are suffering losses. We can safely conclude that Shenyang is still state-owned economy dominated.

Anshan (LN)

Anshan is the biggest steel manufacturing city in the northeast. The proved iron ore resource in Anshan is 10.7 billion tons, which accounts for 23.5% of the total iron ore resource of the whole country (Wang, Wang, & Hu, 2014). Relying on the resource advantage, Anshan has formed a heavy industry dominated economy, which particularly centered on steel industry. In 2011, the added value of heavy industries above a designated scale accounted for 87.7% of the total value increase on industries above a designated scale, in which steel industry took a great proportion for about 45.7%. When only considering the urban area, this proportion reached up to 94%. In 2015, the total industrial output of Anshan was increased by 96.92 billion RMB, and Anshan Steel Company Limited (the biggest steel company in the northeast) contributed 17.93 billion. This kind of single industry structure brings huge risks to the economy of Anshan. In addition, the state-owned enterprises dominated economy also brings the problem of lacking innovation and economy efficiency.

After years of extraction and steel production, the eco environment of Anshan has also been seriously damaged. The local government is mainly relying on industrial upgrading to boost its economy and alleviate the environmental pressure.

Fushun (LN)

Fushun, also known as “a city of coal”, is in the east of Liaoning province. Fushun was first developed for its abundant coal resources. Large scale exploration on coal resource started from1901 and reached its peak in 1930s. It is in that time Fushun became the largest coal city in the northeast, and even in the whole country. While, due to the energy upgrading, the coal industry has undergone serious recession. In 1990, Fushun has already developed into a city with the dominated industry of petrochemical industry, metallurgy, and coal. After years of development, instead of coal, the petrochemical industry has become the absolute dominant industry in Fushun. Nowadays, Fushun’s economy is dominated by heavy industry with the proportion of 86.8% in 2015. The pillar industries in Fushun include petrochemical industry, metallurgy, equipment manufacture, and deep processing of agricultural products. The output value of those four pillar industries accounts for 87.5% of the total industrial output.

As in most cities in the northeast, the dominating enterprises in Fushun are all state-owned. Thus, low efficiency and corruption hindered the competitiveness of the city. Besides the exploration of coal resources brought serious environmental problems for many craters has have been left in the urban area, which are generally used as open pits. In addition, the exhausted gas and ore have also brought environmental risks

Benxi (LN)

Benxi is one of the resource-based cities in the northeast and its main mineral resources include iron ore and quartzite. The economy of Benxi is dominated by heavy industry with low level technology, more specifically, resource-based industry is dominating. In 2011, the output of mining industry was 26.47 billion RMB, nonmetal mineral products industry was 4.55 billion, ferrous metal smelting and rolling processing industry was 13.43 billion. Those three resource-based industries already contributed 42.6% of total GDP in Benxi. But due to over exploration, the iron ore resource is gradually exhausted. Also, influenced by the excess capacity of steel industry in the whole country, the advantageous industries in Benxi are losing their competitiveness.

Facing with serious economic and environmental problems, the local government has already taken measures to upgrade its industry. The effectiveness of those measures will be analyzed later.

Panjin (LN)

Panjin's development also benefits from its oil resources. Panjin is abundant with oil, natural gas, well-salt, coal, and sulfur resources. In 2010, Liaohe oil field, the third biggest oil filed in China, has proven reserves of 2.1 billion tons' crude oil and 178.4 billion cubic meter natural gas. After years of development, Panjin has gradually formed its unique industrial structure, with oil and gas production as leading industry, petrochemical and fine chemicals, oil equipment manufacturing, offshore and marine fabrication as pillar industries. In 2014, the output of oil and gas exploration industry decreased 3.5%, while the oil processing industry increased 12.1%, oil equipment manufacturing increased by 15.5%. The growth rate of state controlled economy share is 2.6%, far less than the private sector of about 20%. Also, the economic share of resource-based industry is declining. Facing the low economy efficiency and resource exhausting problems, the local government is trying to decrease the share of state owned economy and reduce the dependency on oil resource.

Huludao (LN)

Huludao located in the boarder of Liaoning province and Hebei province. The pillar industries in Huludao include petrochemical, non-ferrous metal processing, shipbuilding, and energy & power industries. The output of those four industries accounted for 82.2% of total industrial output in 2013. However, under the background of economic structure reform and industrial upgrading, the proportion of resource-based industries is decreasing. In 2013, the output of petrochemical industry was 35.76 billion RMB, decreased by 14.1% compared to the year of 2012; the output of

shipbuilding was 26.35 billion, increased by 13.2%, the output of non-ferrous metal processing is 13.04 billion, decreased by 9.1%; and the output of energy & power industry was 6.81 billion, decreased by 4.6%.

Changchun (JL)

Changchun is the provincial capital city of Jilin province, and an important car manufacturing city in China. In 2014, the total industrial output of Changchun was 241.57 billion RMB, increased by 6.7% compared to the year of 2013. The heavy industry is still playing leading role in Changchun's industrial structure. The output of heavy industry increased by 8%, which surpassed the GDP increase rate by 1.3%, and accounted for 82.5% of the total industrial output in Changchun. The output of car manufacturing industry, as the most important industry in Changchun, increased by 8.5% in 2014, and contributed 75.5% of the total industrial output. The advanced equipment manufacturing and biomedical industry developed rapidly in the year of 2014, which increased by 18.8% and 13% respectively, far more than the average economy growth rate in Changchun.

The state-controlled enterprises still dominate Changchun's economy and their output increased by 4.8% in 2014. By 2014, the state-controlled economy accounted for 66.4% of the total economy. Meanwhile, the proportion of private sector increased drastically by 11.5%, which injected vitality into local economy.

Liaoyuan (JL)

16 different types of mineral resources are proved in Liaoyuan, but only a few are worth mining, among which coal is the most important reserve. After years of exploration, Liaoyuan now is a typical coal resource-exhausted city, thus economic transformation becomes an urgent option.

In 2015, the industrial output increased 9.5% compared to the year of 2014, holding for 59.4% of the total GDP of Liaoyuan and ranking second in Jilin province. The light industry increased by 11.1%, and the heavy industry increased by 8.0%. The pillar industries in Liaoyuan are equipment manufacturing and deep processing of agricultural products. The output of those two industries increased 12.9%, accounting for 59.9% of the total industrial output and contributed 78.7% to the increase of industrial output. The high-accuracy aluminum processing, stockings and other textiles, and medicine, as three advantage industries, increased 16.7%, taking up 16.2% of the total industrial output and contributed 26.6% to the increase of industrial output.

The performance of private economy is also worth mentioning. In 2015, the industrial output of private sector increased by 10.1%, occupying 91.0% of the total industrial output increase. But considering the decrease of electricity consumption of the secondary sector (27.6%), the economy situation in Liaoyuan is not optimistic.

Tonghua (JL)

The pillar industries in Tonghua include pharmaceutical industry, processing of agricultural products industry, and metallurgy industry. In 2015, the output of secondary sector in Tonghua increased by 8.0%, accounting for 51.2% of Tonghua's GDP. The output of light industry was 15.42 billion RMB, increased by 17.0%; the output of heavy industry was 6.03 billion, increased by 0.9%. The output of products from heavy industry, such as coal, ore mine, steel, etc. reduced drastically. While, the food processing products, like beer, increased by about 16.9%. So different from other resource-based cites in the northeast, the economy of Tonghua is dominated by light industry, and the advantage of light industry keeps strengthening.

Besides, the state-owned or controlled economy is 22.2 billion RMB, far less than the private economy (100.0 billion). Due to the lack of natural resources, the share of state-owned economy in Tonghua is also lower than other cities, which may bring more vitality to the local economy. However, considering the location and general economic situation in the northeast, it may be hard for Tonghua to boost its economy.

Daqing (HLJ)

Daqing is famous for its abundant oil reserves and is the richest city in the northeast of China. The biggest oil field in China, Daqing oil Filed, is located there. In 2013, the GDP of Daqing was 418.15 billon RMB increasing by 7%. The output of crude oil kept 40 million tons per year for 11 years. But Daqing is also facing the oil exhausting problems, so the local government is now focusing on the economy structure reforms to reduce the dependency on oil industry. In 2013, the GDP of secondary primary sector increased by 7.0%, the econdary sector increased by 6.2%, and the tertiary increased by 11.0%. The ratio of non-oil economy verses oil economy already reached 43.9:56.1. Still, with the abundant oil resources, the industrial output in Daqing account for 56.1% of the total industrial output of Heilongjiang province.

As a resource-based industrial city and facing with the resource exhausting problem, Daqing has to take measures to reform its economic structure. As a result, stock farming, tourism and outsourcing service are developed under the support of its strong economy foundation. But it is still left to be seen whether the local government can successfully complete this economy transformation.

Qitaihe (HLJ)

Qitaihe is the youngest city in Heilongjiang province and its economy is dominated by coal and wood processing industry. Qitaihe is one of the three protective exploration coal fields in China and the largest coking coal production base in the northeast. By 2010, the proved coal reserve is 2.2 billion tons, and 0.48 billion tons can be explored. There are 282 coal mines across the city, and the yearly coal outputs are more than 20 million tons for over ten years. Except for coal resources, Qitaihe also proved considerable gold reserve of 11 tons.

As an industrial city, the proportion of primary sector, secondary sector and tertiary sector in Qitaihe are respectively 10.1%, 58.4%, and 31.5% in 2013. Influenced by the weak market of coking coal, the non-coal industry served as the economy engine and increased by 14.2%, while the increase rate of coking coal industry reduced by 6.7%. Like other resource-based industrial cities in the northeast, Qitaihe will inevitably face the dilemma of resource exhausting. The weak coal market nowadays makes this situation worse.

3.3 Conclusion

Most of the industrial cities selected in this paper are resource-based cities, including Qitaihe, Daqing, Huludao, Panjin, Benxi, Fushun, and Anshan, and their economic situations are not optimistic. After years of exploration and production, many problems have been exposed and some cities have gotten into trouble with serious socioeconomic conflicts. Thus, industry upgrading and the reform of economy structure would be necessary for those cities to achieve sustainable development.

Another problem is that the state-owned enterprises control a big part of the economy in most of the northeastern cities, which brings the problems of corruption, low efficiency, and lack of economic vitality, etc. Measures must be taken to promote the reform of SOEs, such as diversifying SOEs' ownership structures. In that way, all types of enterprises can develop in a fair competitive environment, and thus boost innovation.

Table 3.1. Key geographic and economic data and developmental pathways of Liaoning Province (2015).

Cities	Land Area (km^2)	Perm. Pop. (10,000 Persons)	Three Dominant Industries	GDP/Cap Permanent Pop. (RMB)	1/2/3 as GDP (in %)	1/2/3 as Working Pop. (in %)	Regional Position	Urban Stage	Pathway Following Geographic Position
Shenyang	12,860	730.41	Manufacturing (37.2%) Real Estate (25.8%) Transport, storage and post (8.5%)	87,734	4.69/47.77/47.53	0.20/44.75/55.05	NAT	3/2	4/2
Anshan	9255	346.05	Manufacturing (55.9%) Real estate (13.1%) Wholesale and retail trades (5.1%)	64,710	5.84/47.19/46.97	0.54/51.89/47.56	REG	2	2
Fushun	11,272	215.76	Manufacturing (49.8%) Real estate (13.3%) Management of Water Conservancy, Environment and Public Facilities (8.5%)	58,597	8.06/48.87/43.07	1.59/52.49/45.92	REG	2	2
Benxi	8411	151.21	Manufacturing (35.0%) Real estate (14.0%) Information transmission, software and IT software (13.1%)	67,656	5.75/51.43/42.81	0.29/52.87/46.84	REG	2	2
Panjin	4065	129.54	Manufacturing (25.8%) Real estate (25.7%) Transport, storage and post (15.2%)	87,351	9.64/53.48/36.89	35.66/38.35/25.98	REG	2	2
Huludao	10,414	280.10	Real estate (53.3%) Manufacturing (23.6%) Transport, storage and post (6.1%)	28,176	14.49/41.14/44.37	1.13/49.62/49.25	REG	2/3	2/4
Changchun	20,594	753.83	Manufacturing (42.6%) Wholesale and retail trades (10.0%) Construction (7.7%)	73,324	6.21/50.11/43.69	0.98/48.26/50.75	NAT	3/2	4/2
Liaoyuan	5140	120.80	Manufacturing (53.6%) Agriculture, forestry, animal husbandry and fishery (8.4%) Wholesale and retail trades (7.3%)	59,855	8.38/57.43/34.19	1.98/55.34/42.68	REG	2	2
Tonghua	15,612	221.10	Manufacturing (45.3%) Wholesale and retail trades (11.1%) Agriculture, forestry, animal husbandry and fishery (9.8%)	45,171	9.23/51.14/39.63	1.57/56.09/42.34	REG	2	2
Daqing	21,219	275.48	Manufacturing (52.4%) Management of Water Conservancy, Environment and Public Facilities (9.4%) Agriculture, forestry, animal husbandry and fishery (9.2%)	110,113	6.53/64.88/ 28.59	0.65/50.54/48.81	REG	2	2
Qitaihe	6221	83.11	Mining (26.1%) Manufacturing (24.9%) Real Estate (10%)	24,823	16.09/36.78/47.13	3.93/60.38/35.70	REG	2/3	2/4

4. City branding in the old northeastern industrial base in China

4.1 City branding identities

Faced with fierce competition from peers, cities are seeking ways to distinguish themselves. A city's urban master plan and 13th Five-Year plan describe how this city recognize itself and how it what to be perceived by the outside world. Table 4.1 shows branding identities of those 11 cities and the consistency between city branding identities and predicted developmental pathways. It seems like that only Daqing and Fushun are not satisfied with their industrial profiles and describes them as center city and tourism city in addition to industrial city. Generally speaking, cities in the northeast have a good sense on where they are handing for. But it still needs further demonstration on the reasons they make this choice, which we will return.

Table 4.1 Developmental pathways and city brand identities for 11 cities

City (province)	Developmental pathway	Brand identity description (source)	Assumed pathway	Conformity with predictions
Shenyang (LN)	4/2	Shenyang will keep pushing the development as an **economic center and comprehensive hub in the northeast**, and will be built into a national central city who base on the northeast and provide service to the whole country. Promote ecological progress and build Shenyang into an **ecological and livable city**; Follow the way of modern industrialization, and build Shenyang into an **advanced equipment manufacturing base** with international competitiveness; strengthen the protection of historic sites and culture, make Shenyang **a city combined with modern and traditional culture** (UMP).	**4/2**	**YES**
Anshan (LN)	2	Made progress on industrial transformation, promote the development of industries toward the medium-high end , strengthen emerging industries, and increase the competitivity of pillar industries. To made Anshan into a **world-class refined steel processing base, magnesite new material processing base, and green city** (UMP).	**2**	**YES**
Fushun (LN)	2	Follow the main principle of the transition from production-oriented to consumption-oriented economy. To build Fushun into **modern industrialization base**, **central city** of Shenyang economic zone, and **tourism city** characterized by landscape ecological resource and industrial heritage. (UMP).	**2/4**	**NO**
Benxi (LN)	2	The main goal is to revitalize the economy of the old industrial base in Benxi. The economic development concept should be changed to explore the **modern industrialization mode**; the urban and rural development should be balanced to build a **harmonious, ecological and sustainable** Benxi (UMP).	**2**	**YES**
Panjin (LN)	2	Take full advantage of ecological resource, oil and gas resource, agriculture resource, and traffic location of Panjin, keep exploring the mode of **modern industrialization and modern urbanization**, to build Panjin a city with developed economy and good ecological environment. Long-term vision of Panjin is an international famous **livable city**, **fossil and fine chemical base**, **domestic leading petroleum machine and marine equipment manufacture base, and an emerging port city in the northeast** (UMP).	**2**	**YES**
Huludao (LN)	2/4	An important center city in the west of Liaoning province, and an important node city to connect the northeast and north China. Huludao will be built into an **eco and sustainable**	**2/4**	**YES**

City (province)	Developmental pathway	Brand identity description (source)	Assumed pathway	Conformity with predictions
		city with the support of **industry, port and tourism (UPM)**.		
Changchun (JL)	4/2	Follow the principles of promoting economic development and improve people's livelihood, to perfect institutional system, promote structural reform and encourage innovation. Changchun will be built into a **comprehensive service city**, **national importance industrial base**, and **livable city (UMP).**	**4/2**	**YES**
Liaoyuan(JL)	2	As a resource-exhausted city, Liaoyuan is proactively seeking for economic restructuring. Strengthening two important industries, including equipment manufacturing and agricultural products processing, and introducing **strategic emerging industry and light and textile industry** (UMP). Liaoyuan is going to be built into a **sustainable and smart city** (13th FYP).	**2**	**YES**
Tonghua(JL)	2	Important **industrial city** in southeast of Jilin province, with the main industries of steel, pharmacy, food processing, minerals, and building material (UMP). Change extensive development mode to intensive development to promote **sustainable development**. Build Tonghua into a demonstration city of green transformation, and an international pharmacy city (13th FYP).	**2**	**YES**
Daqing(HLJ)	2	Promote economic structural reform to reduce the dependence on oil resource, transit form resource city to **comprehensive city**, self-service city to **regional center,** mine city to **eco city**, to build Daqing into a **high-tech modern city** following the rule of **sustainable and intensive development** (UMP).	**4/2**	**NO**
Qitaihe(HLJ)	2/4	**Rely on the technology progress and economic reform,** to achieve **sustainable development** and to explore the unique mode of economic development for Qitaihe to **reduce the dependency on the coal resource** (13th FYP).	**2**	**YES**

4.2 City branding positions

City branding positions can be drawn from counting the frequency of labels appears in various city planning documents, including UMP and 13th FYP. The right column in table 4.2 shows the labels collected from city planning documents of the 11 cities. Those labels are further categorized into 12 brand positions, as represented in the left column of table 4.2, including advanced manufacturing city, service city, tourism city, modern agricultural city, eco city, low carbon city, sustainable development city, innovation city, livable city, smart city, technological progress city and administrative progress city.

Those city branding positions can be fitted into different developmental pathways. As stated in literature review, pathway 1 cities depend on significant green space to develop economy, and their revenues largely come from agriculture and agricultural related industries. Thus, *eco city, tourism city, modern agricultural city and livable city* are preferred brand positions. The main industries in pathways 2 cities are manufacturing or material processing. Their urgent options are to upgrade industry or restructure economy, to make economic development more sustainable. They prefer branding positions like *low carbon city, advanced manufacturing, sustainable development city and smart city*, etc. The pathway 3 cities have the strength and ambition to build high-

tech oriented and innovation-driven economy. The brand positions of *high-tech city, innovation city, smart city*, etc. would be suitable for them. Pathway 4 position themselves as service providers, including culture, facilities and knowledge. Their brand positions include s*ervice city, innovation city, tourism city, livable city*, etc. Cities who follow pathway 5 are international oriented and tertiary sector dominated with the label *global advanced producer services*.

City brand positions are categorized into different developmental pathways, as shown in table 4.2. Technological progress city and administrative progress city are the unique brand positions of cities in the northeast. *Technological progress city* in there means industrial upgrading and economic restructuring by adopting more advanced technology, in most cases changing from resource-based and labor-intensive industry to technology-driven industry, from heavy pollution industry to clean industry, etc. Thus, technological progress city can be identified as pathway 2 city. Administrative progress means the change in the government's administrative system to make the economy more efficient, including SOEs reform, administrative reform, open-up city, and administrative reform. Administrative progress is of critical importance for cities to revitalize their economy. It will not only contribute to a more efficient economy, but will also rebuild people's confidence on economic revitalization in the northeast and send a positive signal to the outside world to attract more investment. Although administrative progress can hardly be categorized into any pathway, it still should be included into analysis when it comes to city image building and economic revitalization in the northeast.

Table 4.2 Categories of city branding positions and the corresponding pathways

City brand positions	**City brand position varieties found in planning documents**
Advanced manufacturing city Pathway 2	Advanced manufacturing city Advanced equipment manufacturing Emerging industrial base Intelligent manufacturing Industrial base Modern equipment manufacturing Pharmaceutical base Steel city
Service city Pathway 4	Center city of the country Comprehensive hub Comprehensive city Consumption-based city Financial center in the northeast Modern service city Service city Transportation hub Regional financial center

City brand positions	City brand position varieties found in planning documents
	Regional center
	Port city
Tourism city	Cultural city
Pathway 4	Characteristic tourism city
	Cultural tourism
	Eco tourism
	Tourism city
Modern agricultural city	Characteristic agriculture
Pathway 1	Eco agricultural city
	Modern agricultural city
Eco city	Eco city
Pathway 1	Ecological garden city
	Garden city
Low carbon city	Green development
Pathway 2	Green transformation
	Green manufacturing
	Green city
	Low carbon city
Sustainable development city	Sustainable development city
Pathway 2	Resource-saving city
	Environmentally friendly city
	Eco protection
Innovation city	Entrepreneurial innovation city
Pathway 4	Innovation city
Livable city	Livable city
Pathway 1 or Pathway 4	Moderately prosperous city
Smart city	Information city
Pathway 2	Smart city
	High-tech city
*Technological progress city	Industrial upgrading city
pathway 2	Economic restructuring
	Industrial upgrading and transformation
	Industrial transformation
	Modern industrialization
*Administrative progress city	Administrative reform
Unique feature of northeast, and	Open up city
cannot be categorized	SOEs reform
	New pattern urbanization

The labels in the 13th FYP and UMP of the 11 cities were collected and categorized. The frequencies of city branding positions and the overall dominant brand positions were counted and presented in table 4.3. The assumed pathways of each city can be

drawn. In there, the assumed pathway means what self-profiles they have chosen. Take Shenyang for example, the frequency of service city is 30 and advanced manufacture city is 23, thus the assumed pathways of Shenyang are 4 and 2, which is in accordance with its developmental pathways.

Table 4.3 Developmental pathways, brand positions and assumed pathways for 11 cities

City (province)	Developmental pathway	Most frequent brand positions in 13th FYP	Most frequent brand positions in UMP	Overall dominant brand position(s)	Assumed pathway
Shenyang (LN)	4/2	Advanced manufacturing city 18 Service city 16 Sustainable development city 10 Innovation city 8	Service city 14 Advanced manufacturing city 5 Technological progress city 4	Service city 30 Advanced manufacturing city 23 Sustainable development city 13 Technological progress city 8 Innovation city 8 Tourism city 7	4/2
Anshan (LN)	2	Technological progress city 15 Low carbon city 5 Advanced manufacturing city 4 Innovation city 4	Technological progress city 8 Innovation city 5 Administrative progress city 6	Technological progress city 23 Innovation city 9 Administrative progress city 6 Low carbon city 5	2
Fushun (LN)	2	Low carbon city 15 Sustainable development city 12 Technological progress city 12 Administrative progress city 8 Advanced manufacturing city 7	Technological progress city 7 Tourism city 6 Eco city 5	Technological progress city 19 Low carbon city 15 Sustainable development city 12 Administrative progress city 8 Advanced manufacturing city 7	2
Benxi (LN)	2	Technological progress city 12 Tourism city 6 Eco city 8 Sustainable development city 3	Advanced manufacturing city 9 Tourism city 4 Sustainable development city 8 Eco city 6	Eco city 15 Technological progress city 12 Sustainable development city 11 Tourism city 11 Advanced manufacturing city 9	1/2
Panjin (LN)	2	Technological progress city 14 Service city 6 Advanced manufacturing city 9	Service city 3 Advanced manufacturing city 3 Tourism city 2 Administrative progress city 8	Technological progress city 14 Advanced manufacturing city 12 Service city 9 Administrative progress city 8	2
Huludao (LN)	2	Administrative progress city 10 Technological progress city 9 Sustainable development city 8 Smart city 6 Low carbon city 6	Sustainable development city 9 Technological progress city 3	Sustainable development city 17 Technological progress city 12 Administrative progress city 10 Low carbon city 6 Smart city 6	2
Changchun (JL)	4/2	Technological progress city 28 Advanced manufacturing city 20 Administrative progress city 15 Sustainable development city 9 Service city 9	Sustainable development city 7 Livable city 4 Tourism city 4	Technological progress city 28 Advanced manufacturing city 20 Sustainable development city 16 Administrative progress city 15 Service city 9	2/4
Liaoyuan (JL)	2	Technological progress city 14 Advanced manufacturing city 8	Advanced manufacturing city 10 Technological progress city 8	Technological progress city 22 Advanced manufacturing city 18	2

City (province)	Developmental pathway	Most frequent brand positions in 13th FYP	Most frequent brand positions in UMP	Overall dominant brand position(s)	Assumed pathway
		Innovation city 4	Livable city 5	Livable city 5 Innovation city 4	
Tonghua (JL)	2	Low carbon city 20 Advanced manufacturing city 11 Administrative progress city 10	Technological progress city 9 Service city 8 Livable city 4 Tourism city 4	Low carbon city 20 Advanced manufacturing city 11 Administrative progress city 10 Technological progress city 9 Service city 8	2
Daqing (HLJ)	2	Sustainable development city 25 Technological progress city 12 Administrative progress city 11 Innovation city 9	Sustainable development city 53 Smart city 35 Advanced manufacturing city 21 Service city 18	Sustainable development city 78 Smart city 35 Technological progress city 12 Advanced manufacturing city 21 Service city 18 Administrative progress city 11	2
Qitaihe (HLJ)	2	Technological progress city 9 Sustainable development city 4 Eco city 3	Technological progress city 15 Advanced manufacturing city 4 Livable city 4	Technological progress city 24 Sustainable development city 4 Advanced manufacturing city 4 Livable city 4	2

4.3 Possible explanations of city branding practices in the northeast

As shown in table 4.3, only Benxi took inconsistent brand positions. Eco city was the most frequently used label in Benxi's planning documents, and eco city is a label of pathway 1. In this context, eco city means the restoration of eco environment after years of mining, to make the city more livable. The adoption of pathway 1 label does not deviate from its development goals. It can be concluded that the assumed pathways of the northeast cities are consistent with their city profiles. Lu. H, et.al (2017) proposed three possible explanations to explore why cities adopt specific city branding positions over others. Those are (1) their plan to readjust economic structure based on their existing industrial strength, and (2) their reaction to the policies initiated by higher level governments. This section will explore whether those three propositions can help explain city branding practices in the northeast.

Proposition 1 The economic geography thesis: connecting with a city's industrial evolution

All the cities tend to be stronger in some industries than in others. City branding practices not just define current economic situations and not mean to lock cities' development into their historical strength. On the other hand, city branding practices reflect cities' expectations about their future development. A city's branding practice should build on their current strengths to upgrade their industries to make them greener and more adapted to modern times.

The 11 cities are all industrial cities, and their advantageous industries are either

resource-based industry, labor intensive industry, or high pollution industry, as stated in chapter 3. In accordance with their advantageous industries, the 11 cities in the northeast all brand themselves as pathway 2 cities. The most frequent labels they use to describe their future development including advanced manufacturing city, technological progress city, sustainable development city, etc. It should become apparent that those industrial cities reinvent themselves largely in line with their historical industrial profiles. Therefore, proposition 1 is applicable in this situation.

Proposition 2 The public policy thesis: Anticipating and reaction to policy initiatives
City branding is considered as a response facing the fierce inter-urban competition. City branding practices are complex, not only because of the various realities behind the brands and cities, but also the dynamic relationship between different levels of governance, especially in the multi-governance context in China. City brands are used as a policy tool by local governments to convey the policies made by higher level governments to the public by conducting flagship urban projects. To understand why and how city branding practice may be highly political-oriented in China, the multi-level governance system should be introduced.

Multi-level governance combines top-down and bottom-up actions between different tiers of governments (H Lu, MD Jong, Y Chen, 2017). Top-down governance is in the dominant position in China. Inherited from central control system for thousands of years, China's government still keeps the feature of hierarchical governance. The central government will first issue China's five-years plan, and the provincial and municipal governments will follow this idea and make their own planning. Basically, the provincial and municipal governments are just responsible for executing the national strategies.

Things are a little different with city branding process. The municipal governments enjoy a certain degree of freedom when making their own city branding choices, which makes the city branding practice particularly complex. Theoretically, the municipal governments should first take the national and provincial strategies and guidelines into account, then consider their own goals and wishes about the future of the city, and reflect them into the choice of city branding.

The National Development and Reform Commission in China issued 13th Five-year plan of northeast revival in November 2016, which is inherited from the spirit of 18th National People's Congress. In this plan, the economic structural reform in the northeast was put as a top priority. Specifically, in the next five years, the northeast should follow the main line of economic structural reform, upgrade the traditional industries, encourage innovation, improve the eco-environment, push new form of industrialization, urbanization, and agricultural modernization, to boost the developmental vitality, strengthen endogenous impetus, and enhance the competitiveness of the old industrial base in the northeast. To realize this ambitious goal, the 13th Five-year plan for revitalizing the northeast also put forward four basic

requirements: 1) the institutional reform should be put as fundamental solution to revitalize the old industrial base in the northeast; 2) the economic structural reform should be the main direction for the revitalization; 3) innovation and entrepreneurship should become a strong support to the economic revitalization of the northeast; 4) ensure and improve people's livelihoods should be the basic starting point and the final destiny.

To see whether the city branding practices of the industrial cities in the northeast react to the above policies, all the labels are categorized into the above policies. Most frequently mentioned branding labels over all the eleven cities are technological progress city, advanced manufacturing city, sustainable development city, service city, administrative progress city and innovation city. 1) Technological progress city, advanced manufacturing city, and sustainable development city are the labels target at economic structural reform; 2) the label of administrative progress city corresponds to institutional reform; 3) and innovation city is apparently one of the basic requirements of the national strategy. 4) Regarding the last requirement of improving people's livelihoods, almost all the municipal planning documents mentioned to build moderately prosperous society. This label is too common and vague, thus is neglected in this paper.

The summary of branding labels of the 11 cities is given in table 4.4. Each label was scored according to its appear frequency. The branding labels with the highest scores are identified as most common labels across all the cities. By comparing the most common labels with national policies, the conclusions can be draw. The scoring principals are: 1) frequently appears at one planning document but not overall dominant label for this city, representing 0.5 point; 2) frequently appears at one planning document and is overall dominant label for this city, representing 1 point; 3) frequently appears at two planning documents and is overall dominant label for this city, representing 2 points. Results show that technology progress city and advanced manufacturing city are overall dominant cities in the northeast with scores of 16 and 12 respectively. The scores of institutional reform and innovation (including innovation city and technology progress city) is also an influencing branding labels across all the northeast cities. Thus, the three requirements of central government are all fulfilled in local planning. Proposition 2 is applicable in this case.

In summary, proposition 1 and proposition 2 are applicable to the eleven industrial cities in the northeast. When choosing branding labels, the industrial cities in the northeast would consider their own industrial evolution. Also, the policies issued by higher level governments offers clear and strong guidance to the choose of branding practices for industrial cities in the northeast.

4.4 Conclusion

The eleven industrial cities in the northeast have a good sense and understanding about their current situations and have a clear target towards their future development, at least

in their planning documents. The way they recognize themselves are in accordance with our prediction, namely the brand identities they take exactly match what we what them to choose given the pathways they are in. The labels they choose to distinguish themselves includes advanced manufacturing city, service city, tourism city, modern agricultural city, eco city, low carbon city, sustainable development city, innovation city, livable city, technological progress city, and administrative progress city. After counting the labels appears in 13th Five-year plan and urban master plan of the eleven cities, it appears that the assumed pathways of those cities are the same with their developmental pathways. Two possible reasons may be accountable for this perfect match. One is the clear and strong guidance from higher level governments, another is cities' good understanding of their real situations.

Table 4.4 Overall summary of branding labels of eleven industrial cities in the northeast

	Shenyang	Anshan	Fushun	Benxi	Panjin	Huludao	Changchun	Liaoyuan	Tonghua	Daqing	Qitaihe	Score
Service city	**				**		*		*	*		7
Advanced manufacturing city	**		*	*	**		*	**	*	*	*	12
Sustainable development city	*		*	*		**	**			**	*	10
Technological progress city	*	**	**	*	*	**	*	**	*	*	**	16
Innovation city	*	**						*		*		4.5
Administrative progress city		*	*		*	*	*		*	*		7
Low carbon city		*	*			*			*			4
Smart city			*			*				*		3
Livable city							*	*	*		*	2
Eco city				**							*	2.5
Modern agricultural city												0
Tourism city				**	*		*		*			3.5

Note: * frequently appears at one planning document but not overall dominant label, representing 0.5 point. * frequently appears at one planning document and is overall dominant label, representing 1 point. ** frequently appears at two planning documents and is overall dominant label, representing 2 points.

5. Follow up actions in the old northeastern industrial base in China

5.1 Urban projects

5.1.1 Urban projects in national level

What really matters are not what those cities say, but what they actually do. In this sense, the follow up actions of those cities to a large extent define the success of city branding practices. In national level, the National Development and Reform Commission issued *three years (2016-2018) implementation plan to revitalize the economy of the old northeastern industrial base*. The core missions of this implementation plan are in line with the 13th Five-year plan for revitalizing the northeast, including perfect institutional functions, promote economic structure reform, encourage innovation and entrepreneurship, and ensure and improve people's livelihoods. To achieve those goals, this implementation plan explicitly scheduled 137 important works and 127 major projects, in which 62 of those projects started at 2016, 33 projects started at 2017, and 32 projects will start at 2018. Those projects involve transportation (including railway, highway, airport, rail transit), energy, water conservation, industry, agriculture, urban and rural construction etc., which aims at improving weak links and cultivate new developmental driving forces. Specifically, those projects involve the following aspects:
1) Reshuffle state-owned enterprises, and facilitate the corporation among research institutes and high-tech enterprises.
2) Build *Made in China 2025* pilot cities by carrying out advanced manufacturing projects, and building industry upgrading sites.
3) Organize major innovation projects.
4) Promote the urban reformation in old industrial cities.
5) Build competitiveness in resource depleting cities.

Those efforts all focus on the structural reform, both economic and political, which are also the fundamental solutions to revitalize the economy of the northeast. Regardless those strong assistances from central government, the ultimate way lead to economic revitalization of the northeast relies on its own sustaining efforts on economic and political reform.

5.1.2 Urban projects in city level

Based on the cities' actual situations and different developmental strategies, various projects are carrying out. Bellow data mainly comes from government official websites, urban master plans, and 13th Five-Year plans.

Shenyang

Shenyang aims to become a center city in national level and carried many projects to increase its comprehensive competitiveness. Strategic emerging industries, like intelligent manufacturing, robot, aviation, IC equipment, electronic information and biological medicine, are in rapid development in Shenyang. The development of

finance, logistic, and ecommerce also contribute to the increase of the proportion of tertiary industry in Shenyang. The main urban projects and their corresponding brand label and pathways are shown in table 5.1.

Table 5.1 Major urban projects in Shenyang

Projects	Projects discription	Band labels and pathways
China and German advanced manufacturing industrial park①	Covered an area of 40 square kilometers, emphasis on four industrial clusters, including intelligent manufacturing, advanced machine manufacturing, car manufacturing, and industrial service, aims to build pilot areas for strategic cooperation between *China Made 2025* and *German Industry 4.0*.	Aadvanced manufacturing city Pathway 2
China & France Eco-city project②	Emphasis on the development of new energy technology and energy conservation by carrying out comprehensive corporation between Chinese and France.	Sustanabale development/Eco city Pathway 2/1
Shenyang Hualong industrial park for new energy vehicles③	To develop new energy vehicles research institutes, and to build a manufacturing base with annual production capacity of 5000 extended-range electric shuttle bus, 200 thousand extended-range electric vehicles, 500 thousand extended-range power systems. Total investment of this project will be 6.7 billion RMB.	Low cabon city/Advanced manufacturing city Pathway 2
Konggang intelligent logistic park④	Speeding up the construction of logistic hub, including Shenyang international logistic park and other third party logistic, and promoting the standardize, informative and intelligent level of logistic industry.	Smart city/Service city Pathway 2/4
My Shenyang project⑤	Rely on the technology of big data, cloud computing, things internet, etc. To provide intellegent transportation, medical, education service to the public.	Smart city/Sevice city Pathway 2/4
Enterprises walk out projects⑥	Enable enterprises, like Yuanda, Tebian, and Litong, etc. to make oversea investemnts.	Administrative progress city

Anshan

Anshan is a resource-based city with pillar industry of steel processing. Its economy is facing great challenges due to resource depleting and downturn of steel market. It is a must and urgent option for Anshan to get rid of the dependence on iron resource. The main urban projects in Anshan are shown in table 5.2.

Table 5.2 Major urban projects in Anshan

Projects	Projects discription	Band labels and pathways
Electronic information industry strenghen project ①	Encourage outstanding domestic technology companies, like Inspur, Huawei and Zhongxing etc. to build big data cloud computing center in Anshan. Build High-tech industrial park with the emphasis on laser technology, electronic information manufacturing, mobile internet, cloud computing and big data industries.	Advanced manufacturing/Smart city Pathway 2
Key manufacturing companies strengthen project②	Introduce strategic investors to refresh Anshan iron and steel company; speed up the construction of Hailong intelligent machine park, Danfoss global heating equipment manufacturing base, and Qingdao urban rail traffic manufacturing base, etc. Support Rongxin joint stock company transform to flexible power supplier and integrated clean energy fueling solutions provider	Advanced manufacturing city/Low carbon city/Sustainable develomental city Pathway 2
Raw material and deep processing industry③	Prioritize the development of advanced steel processing, like heat resistant steel, extra thick steel for nuclear pressure vessel equipment, and high strength steel, etc. Centered with Anshan iron and steel company, supported by Anshan economic development zone, Taian economic development zone, and Lishan economic zone, to build steel deep processing industrial cluster.	Advanced manufacturing city Pathway 2
Resource conservation and environmental protection projects④	Cultivate key enterprises, including Kaixin, Xinpu battery, Hongcheng electricity, etc. and cultivate key resource conservation and environmental protection projects, like biodiesel project, sewage treatment equipment, etc. to increase resource utilization.	Sustainable development city Pathway 2
Open economy projects⑤	Cooperate with Russia, Malaysia, America in mineral exploitation, iron processing, oil processing, and electricity industries, to complete each other's advantages and boost economic vitality. Closely cooperate with cities in Yangtze river delta and Bohai Rim	Technological pregress city/Administrative progress city Pathway 2
Intelligent city project⑥	Using big data and data mining technology, build information storage, transmit, apply, and security management platform, to enhance the cloud service ability of Anshan. This project would include four main aspects, including city	Smart city/Service city Pathway 2/4

Projects	Projects discription	Band labels and pathways
	operation system, citizen service system, company service system, and agriculture service system.	
Old industrial base transform project⑦	This project includes four programs, namely old industrial sections removal, resource-based city transformation, key industries sustaining development, and environmental protection program.	Livable city/Sustainable development city/Technological progress city Pathway 1/2
Environmental protection project⑧	This project includes four major programs, eco environment restore, air pollution treatment, water pollution treatment, and ecological green belt.	Eco city/Sustanable development city Pathwy 1/2

Daqing

Daqing is the richest city in Heilongjiang province in the past few years. While, like other resource-based city, Daqing is also facing the resource depleting problems and must seek for new driving forces to develop economy. Urban projects in Daqing are shown in table 5.3.

Table 5.3 Major urban projects in Daqing

Projects	Project descriptions	Band labels and pathways
Car maunufacturing projects①	Speed up the construction of Volvo car manufacture production base and automobile parts industrial park. Promote the corporation with Waltmal, a new energy company in Shenzhen, to boost the development of new energy vehicle industry and related parts.	Advanced manufacturing city/Innovation city Pathway 2/4
Yingao display manufacturing project②	Yingao new generation of display program, including mobile phone LED, pad display screen and vehicle display screen.	Advanced manufacturing Pathway 2
Energy conservatin projects③	Develop energy conservation program, including earth heat, wind power, solar power, biomass energy.	Sustainable development/Low carbon city Pathway 2
Bio technology pojects④	Complete the functions of Furuibang bio-technology industrial park to help strengthen biological medicine industry.	Advanced manufacturing city Pathway 2
Logistic service projects⑤	Support the construction of Changsheng agricultural products logistic park, Daqing port	Service city Pathway 4

Projects	Project descriptions	Band labels and pathways
	logistic park, and vehicle parts logistic park, to optimize the logistical service ability of Daqing.	
Intellegent city project⑥	Promote the construction of Huawei cloud computing center in Daqing, and rely on those technology company to build Daqing an intelligent city.	Smart city/Innovation city Pathway 2/4
Tourism project⑦	Rely on its abundant hot spring and wetland resource to build tourist resort. And complete supporting services.	Service city Pathway 4
Agricultural procesing project⑧	Yipin 1.8 million tons corn deep processing program, to provide corn processing service in the Heilongjiang province.	Moedern agricultural city Pathway 1
Institution simplification peojects⑨	Simplify and public the government working process to reduce the rent-seeking behavior and bring convenience the public. Reform state-owned enterprises to optimize resource allocation and increase economy efficiency, especially focus on water supply, heat supply and transportation areas. Encourage the development of private economy to boost economy vitality, such as reduce trade barriers by allowing private economy enter public utility industry, lower financing cost, etc.	Administritive progress city

Fushun

As a resource-based city, industrial transformation and upgrading was raised as strategic importance in Fushun. The main urban projects are shown in table 5.4.

Table 5.4 Major urban projects in Fushun

Projects	Projects description	Band labels and pathways
Honghe tourist resort①	Rely on local wetland and other natural resource, build supporting service facility, to develop tourism industry.	Service city Pathway 4
Logistics and warehouse projects②	Hongkong Shouhua tax-protected warehouse; Yifeng logistics center, Donghai cold-chain logistics; Xinghe medicine logistics;	Service city Pathway 4
Energy and raw material industry upgrading projects③	Develop high-tech petrochemical engineering, and fine chemical engineering	Advanced manufacturing city Pathway 2
Metallurgist strengthen	Rely on key enterprises, like Fushun steel	Advanced

Projects	Projects description	Band labels and pathways
projects④	company, to build national-level high-end metal material processing industrial base.	manufacturing city Pathway 2
Coal industry upgrading projects⑤	Eliminate excess capacity of coal, build complete coal mining and processing industrial chain, and develop recycling economy.	Sustainable development city/Technology progress city Pathway 2
Equipment manufacturing projects⑥	Liaoning airline industrial park construction; Zhongzhi new energy vehicles development; Hanwanghui electronic chips production.	Advanced manufacturing city Pathway 2
Modern agricultural products processing projects⑦	Combine traditional industry with emerging e-commerce technology, to improve operation ability, especially focus on agricultural products processing, meat processing.	Modern agricultural city Pathway 1
Advanced equipment manufacturing⑧	Shenayng Baigao robot manufacturing, Liaoning Gerui robot manufacturing, Shenyuan new energy vehicles manufacturing	Advanced manufacturing city Pathway 2
Electronic component manufacturing⑨	Miniaturization and go green of electronic components,	Low carbon city Pathway 2
New energy and energy recycling projects⑩	Use garbage processing to generate electricity, prioritize hydro energy, solar energy, biomass energy, etc.	Sustainable development/Low carbon city Pathway 2
Energy conservation and environmental protection⑪	Fushun Xinshengyuan reusable resource processing, Wanghua new kind of energy conservation building material.	Low carbon city Pathway 2
Agricultural modernization projects⑫	Construction of ecological agricultural demonstration area, farm upgrading.	Modern agricultural city Pathway 1
Water conservation projects⑬	Hongheshui sewage treatment	Livable city Pathway 1

Benxi

Benxi, called the steel city, what to enrich its industrial structure and become greener recently. To achieve its transformation goals, the following projects were conducted as shown in table 5.5.

Table 5.5 Major urban projects in Benxi

Projects	Projects description	Brand labels and pathways
Innovation alliance①	Steel deep processing technology innovation alliance, bio-medical technology innovation	Advanced manufacturing

Projects	Projects description	Brand labels and pathways
	alliance, resource utilization technology innovation alliance	city/Innovation city Pathway 2/4
Innovation platform②	Automobile steel processing technology, green iron exploration platform, modern Chinese medicine R&D,	Innovation city Pathway 4
Institutional reform③	Strengthen state-owned enterprises reform, to boost economy vitalization and prevent the loss of national asset.	Administrative progress city
Green mining projects④	Benxi iron mining program, Jinchuan iron mining program, etc.	Low carbon city Pathway 2
Steel deep processing and equipment manufacturing projects⑤		Advanced manufacturing city Pathway 2
Resource conservation projects⑥	Residual-heat utilization from steel processing, sewage treatment, etc.	Sustainable development city Pathway 2
New material development projects⑦	Lithium ion batteries production, siliceous material production, etc.	Advanced manufacturing city Pathway 2
Medicine R&D and medical equipment manufacturing⑧	Xiuzheng medicine production industrial park, Haiping medical equipment manufacturing.	Advanced manufacturing city Pathway 2
Culture & Tourism⑨	Panlongshan tourist resort, Longmatang cultural tourism zone project, etc.	Service city Pathway 4
Manufacture-related logistics projects⑩	Minglida logistics industrial park, medicine logistics center in the north, etc.	Service city Pathway 4
Eco-agriculture projects⑪	Organic rice cultivation, organic vegetables planting, etc.	Modern agricultural city Pathway 1
Intelligent city projects⑫	Industrial software R&D, intelligent transportation, intelligent medical service, intelligent education, etc.	Smart city Pathway 2
Environmental remediation projects⑬	Abandoned mine remediation projects, Beiying wasted water treatment projects, etc.	Livable city Pathway 1

Panjin

The development of agriculture, two pillar industries, and emerging industries are top three priorities for Panjin to develop its industry. Also, environmental protection and resource conservation were put as strategic importance. Main urban projects in Panjin

are shown in table 5.6.

Table 5.6 Major urban projects in Panjin

Urban Projects	**Projects description**	**Brand labels and pathways**
Modern agriculture projects①	Cultivate high-quality agricultural goods, and develop the deep processing ability.	Modern agricultural city Pathway 1
Leisure agriculture②	Develop agricultural tourism, like Liaohekou fish feast, folk village with local characters.	Eco city Pathway 1
Petrochemical and fine chemical industry strengthen projects③	Expand the industry chain and prioritize the production of downstream products, like ethene, propene, and high value new materials.	Advanced manufacturing city Pathway 2
Energy equipment manufacturing④	Transforming and upgrading traditional energy equipment manufacturing,	Advanced manufacturing/Sustainable development city Pathway 2
Intelligent manufacturing⑤	Especially focus on the manufacturing of energy robot, drone, general aviation equipment.	Advanced manufacturing/Smart city Pathway 2
Energy recycle project⑥	The building of waste treatment plant, methane and organic fertilizer, etc.	Sustainable development city Pathway 2
Agriculture industrialization⑦	Build agricultural wholesale market, agricultural products processing base, eco-agricultural planting base.	Modern agricultural city Pathway 1
Intelligent city project⑧	Including intelligent industry, intelligent infrastructure, intelligent public management, intelligent public service.	Smart city Pathway 2

Huludao

Huludao is now facing the problems of unbalanced industrial structure, less developed emerging industry and decreasing competitiveness of traditional industry. Adjusting economic structure and increase public revenue are main focus of Huludao. Huludao's main projects shows as table 5.7.

Table 5.7 Major urban projects in Huludao

Urban Projects	**Project description**	**Brand labels and pathways**
Strengthen competitive manufacture industries①	Promote the development of swimwear manufacturing, food processing, and green building materials producing, etc.	Advanced manufacturing city Pathway 2
Strengthen organic high-end food	Rely on Yurun, one flagship company in	Modern

Urban Projects	Project description	Brand labels and pathways
processing industry②	food processing industry, to build animal by-product, cereals, and dried and fresh fruits cluster industrial zone.	agricultural city Pathway 1
Energy conservation and environmental protection project③	Especially focus on the manufacturing of desulfurization and denitrification equipment,	Advanced manufacturing city/Sustainable development city Pathway 2
Upgrading traditional industry④	Promote the development of fine-petrochemical engineering, nonferrous metal engineering, green energy, high-end shipbuilding, etc.	Technological progress city/Sustainable development city Pathway 2
Intelligent equipment manufacturing⑤	Prioritize the development of intelligent chemical equipment, intelligent instrument, and industrial robot, etc.	Smart city Pathway 2
Industrial informatization project⑥	Combine data science with traditional manufacturing, including shipbuilding, petrochemical engineering, and swimwear, etc.	Advanced manufacturing city Pathway 2
Tourist resort project⑦	Relying on the sea resource and historical culture, to develop leisure tourism sites, like Juehuadao national ocean park.	Service city Pathway 4
Develop modern logistic park⑧	Cultivate competitative logistic companies, improve road network construction, and build comprehensive logistic service center.	Service city Pathway 4

Changchun

As provincial capital city of Jilin province. Changchun has relatively clear development pattern and complete infrastructure construction, compared to other northeastern cities. While, problems are also extinct, including relatively closed economic market, inefficient institution system, unbalanced industrial structure, less attractive invest environment, heavy environmental pressure, etc. To pursue healthier economic development, Changchun planed the following projects (Table 5.8).

Table 5.8 Major urban projects in Changchun

Urban projects	Project description	Brand labels and pathways
State-owned enterprises reformation①	Represented by FAW, to simplify administration procedure and privatize equity.	Administrative progress city

Urban projects	**Project description**	**Brand labels and pathways**
Promote the development of private economy②	Develop industrial cluster of private economy, following the instruction developing modern agriculture, advantage industry, emerging industry and modern service.	Administrative progress city
Intelligent manufacturing projects③	Focus on the development of advanced manufacturing, new energy equipment, new material, new energy vehicles, nano-material, etc.	Advanced manufacturing city/Smart city Pathway 2
Technology innovation projects④	Build innovative technology sharing, financing, transforming platforms, to encourage and facilitate tech innovation.	Innovation city Pathway 4
Mass entrepreneurship and innovation project⑤	Encourage more people to involve in business and innovation by providing financing and policy support.	Innovation city Pathway 4
Internet plus project—industrial development⑥	Promote the merge of internet and manufacturing, to develop internet-based intelligent manufacturing.	Advanced manufacturing city Pathway 2
Internet plus project—public service⑦	Promote the development of internet-based medical, health, elderly care, tourism, society security service.	Smart city Pathway 2
Big data platform⑧	Mainly focus on financial service, intelligent car manufacturing, and satellite remote sensing.	Advanced manufacturing city/Smart city Pathway 2
Farmland improving project⑨	Promote the high standard farmland construction, including farmland protection, modern agricultural technology demonstration area, agricultural leisure park, etc.	Modern agricultural city Pathway 1
Car manufacture strengthen project⑩	Promote the building of FAW-VW car manufacturing base, Dayunli new energy vehicles manufacturing base, etc.	Advanced manufacturing city Pathway 2
Emerging industry introducing projects⑪	Changchun advanced equipment manufacturing park, General aviation industrial park, Kangningjie biopharming park, etc.	Advanced manufacturing city Pathway 2
Modern service improving projects⑫	Mainly focus on finance service and logistic service.	Service city Pathway 4

Urban projects	Project description	Brand labels and pathways
Eco-environment construction⑬	Build Jingyue and Lianhuashan two eco-area, and perform environment restore projects.	Livable city Pathway 1

Liaoyuan

As a resource-exhausted city, Liaoyuan is now exploring new mode of development by introducing equipment manufacturing and agricultural products processing industries. Table 5.9 are the main projects in Liaoyuan.

Table 5.9 Major urban projects in Liaoyuan

Urban projects	Project description	Brand labels and pathways
Private economy introducing project①	Attracted private companies, including Shapuaisi, Baijiayidai, etc. to invest in Liaoyuan.	Administrative progress city
Economic development zone strengthens project②	Especially focus on equipment manufacturing, new energy, medical, auto parts manufacturing zone.	Advanced manufacturing city Pathway 2
Jinzhou eco-agricultural park③	Build a comprehensive industrial park with the function of eco-agriculture, tourism and leisure.	Modern agricultural city Pathway 1
Emerging industries introducing project④	Mainly focus on new material, new energy, high precision aluminum.	Sustainable development city Pathway 2
Strengthen equipment manufacturing industry⑤	Mainly focus on advantages manufacturing industries, including auto and auto part manufacturing, building machinery, energy efficient equipment, and rail traffic.	Advanced manufacturing city Pathway 2

Tonghua

Similar with many other northeastern cities, economic growth rate in Tonghua slow down and below national average. Many reasons can be blamed for, including unbalanced industrial structure, relatively closed market environment, and remote geographical location, etc. The projects shown in table 5.10 are what Tonghua now is doing to boost its economy development.

Table 5.10 Major urban projects in Tonghua

Urban projects	Projects description	Branding labels and pathways
Health industry strengthen project①	Especially focus on bio pharmaceutical production	Advanced manufacturing city Pathway 2

Urban projects	Projects description	Branding labels and pathways
Steel industry upgrading project②	Stainless steel production, and green transformation.	Advanced manufacturing city/Low carbon city Pathway 2
Tourism zone construction③	Using the abundant resource of grapery to build tourism zone.	Eco city Pathway 1
Environment protection project④	Especially focus on treating air pollution, reducing major pollutants, and key area pollution treating.	Sustainable development city Pathway 2
Agriculture industrialization project⑤	To improve agricultural efficiency.	Modern agricultural city Pathway 1

Qitaihe

Qitaihe is known as a coal city. To relieve the pressure caused by coal depleting, Qitaih must enrich its industrial structure to find new economic driving forces. Main projects carried out by Qitaihe are shown in tale 5.11.

Table 5.11 Major urban projects in Qitaihe

Urban projects	Projects description	Brand labels and pathways
Coal-power-chemical integrative development①	Relying on coal resource, to develop relevant industries to promote coal-power-chemical jointly development.	Low carbon city Pathway 2
Agricultural industrialization project②	Promote the development of large scale breeding farm, and strengthen brand building.	Modern agricultural city Pathway 1
Ecological restoration③	Mainly focus on the restoration of subsidence area caused by coal mining, air and water pollution caused by coal production.	Sustainable development city Pathway 2
Simplify institutional procedure④	To reduce barriers caused by multiple layers of institutional structure and boost efficiency.	Administrative progress city
Traditional manufacture upgrading⑤	Apply the model of manufacturing + internet to upgrade traditional manufacturing industry.	Advanced manufacturing city Pathway 2
Promote the development of emerging industry⑥	Especially focus on biological fermentation, green energy.	Advanced manufacturing/Sustainable development city Pathway 2

5.2 The consistency of urban projects in supporting city brandings

Top priority for the cities in the northeast is economic revitalization, and city branding is one of the main measures those cities take to broadcast their changes both institutionally and economically, and to rebuild investors' and residents' confidence. The goal of city branding practice is not just about building a competitive city image, but is also supposed to provide strategic guidance for city development. In this sense, the consistency between city branding images and the actual practice is important to maximize the value of city branding practice, and contribute to economy revitalization. All the main projects carried out by the 11 industrial cities were categorized into different brand labels and pathways. Based on that, table 5.12 summarized the number of projects carried by each city. For each city, the pathway who has the maximum number of projects would be the dominant pathway for this city. Table 5.13 presented the detailed project information and the consistency between their developmental pathways and actual practices of those eleven industrial cities in the northeast.

Results show that no matter what those cities claims, they all follow pathway 2 in their actual practices during the way to revitalize their economy, which to a large extent in consistent with their city branding positions. City branding practice of Shenyang and Changchun, provincial capital cities of Liaoning and Jilin, is a little different from other cities. Shenyang's developmental pathway is 4 (working population in 1/2/3 industry is 0.20/44.75/55.05), and took consistent brand identity and position, but follow pathway 2 to plan its economy development. It is not hard to understand this choice. Tertiary industry is growth engine for Shenyang. While, secondary industry still accounts for 47.77% of total GDP, and facing with the risk of growth stagnation. In 2015, GDP growth rate of secondary industry is only 0.9%. Changchun is in the similar situation. It took the brand identity of pathway 4/2, took city labeling of pathway 2/4, and plan its urban projects following pathway 2. Changchun is one of the biggest car manufacturing city in China and secondary industry account for 50.1% of its GDP. It is a necessary choice for Shenyang and Changchun to strengthen and upgrade secondary industry to maintain economic growth and rebuild their core competitiveness in secondary industry.

Table 5.12 Number of projects and dominated pathways

Cities	**Number of pathway 1 projects**	**Number of pathway 2 projects**	**Number of pathway 4 projects**	**Dominated pathway**
Shenyang	1	6	3	2
Anshan	2	12	2	2
Fushun	3	10	2	2
Benxi	2	7	4	2
Panjin	3	7	0	2
Huludao	1	6	2	2
Changchun	2	9	3	2
Liaoyuan	1	4	0	2

Cities	Number of pathway 1 projects	Number of pathway 2 projects	Number of pathway 4 projects	Dominated pathway
Tonghua	2	4	0	2
Daqing	1	6	4	2
Qitaihe	1	5	0	2
Total	19	76	20	-

5.3 Conclusion

Cities in the northeast of China are trying to transfer positive images to the outside world to support their economy revitalization. And lots of urban projects were carried out to make real changes to their economy. The ideal situation might be what they do is consistent with what they say. Thus, this chapter focused on the examination of the consistency between the city branding identities and urban projects used to support those identities. Results shows that 10 out 11 cities know clearly about their current situation and follow the consistent pathways to develop their economy. Only Shenyang identifies itself to be pathway 4/2 cities, but follows pathway 2 to plan its urban projects. Thus, city branding practice in the northeast are reasonable, and well consistent with their real economic situation. But that does not necessary guarantee the effectiveness of those city branding practice in supporting economic revitalization. At least for now, no significant economy improvement happened in the northeast.

At the same time, 7 cities out of 11 took the system revolution in both institution and economy as main tasks, which is the unique feature of northeast cities. The high degree of concern about governmental and economic efficiency is a good sign for economic revitalization. But still, whether it would have substantial effect to a large extent depends on the execution.

Table 5.13 Consistency between branding labels and actual practice of eleven industrial cities in the northeast

Pathways	Branding labels	Shenyang	Anshan	Fushun	Benxi	Panjin	Huludao	Changchun	Liaoyuan	Tonghua	Daqing	Qitaihe
Pathway 1	Eco city	②	⑧			②				③		
	Modern agricultural city			⑦⑫	⑪	①⑦	②	⑨	③	⑤	⑧	②
	Livable city		⑦	⑬	⑬			⑬				
Pathway 2	Advanced manufacturing city	①③	①②③	③④⑥⑧	①⑤⑦⑧	③④⑤	①③⑥	③⑥⑧⑩⑪	②④⑤	①②	①②④	⑤⑥
	Sustainable development city	②	②④⑦⑧	⑤⑩	⑥	④⑥	③	⑫	④	④	③	③⑥
	Low carbon city	③	②	⑨⑩⑪	④					②	③	①
	Smart city	④⑤	①⑥		⑫	⑤⑧	④⑤	③⑧⑦			⑥	
	Technological progress city		⑦⑤	⑤			④					
Pathway 4	Service city	④⑤	⑥	①②	⑨⑩		⑦⑧	⑫			⑤⑦	
	Innovation city				①②			④⑤			①⑥	
--	Administrative progress city	⑥	⑤		③			①②	①		⑨	④
Dominant pathway		Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2	Pathway 2
Consistent with developmental pathway/brand position?		N/N	Y/Y	Y/Y	Y/N	Y/Y	Y/Y	N/Y	Y/Y	Y/Y	Y/Y	Y/Y

6. Conclusion

6.1 Conclusions of the research questions

The main goal of this paper is to study how the industrial cities in the northeast brand themselves, and how this city branding practice help their economic revitalization. The research question is stated as the following:
Under the objective of economic revitalization, how do the industrial cities in the old northeastern industrial base in China brand themselves, what follow-up actions cities undertake to flesh out their chosen brands, and what are the recommendations for making their brand ambitions for the future and their actual implementation congruent?
The main research question can be split into five sub-questions and will answered one by one in the following part.

6.1.1 Selection of the industrial cities in the northeast

1) How to identify the important industrial cities in the old northeastern industrial base in China?
Developmental pathways are the prediction of a city's development direction in current stage considering two independent factors, reginal positions and economic stage. Economic data of 34 cities in the northeast were collected from Yearbooks. Only pathway 2 cities were studied in this paper. By studying those economic and geographic data, 9 pathway-2 cities, including Anshan, Fushun, Benxi, Panjin, Huludao, Liaoyuan, Yonghua, Daqing and Qitaihe, were selected; 2 pathway 4/2 cities, Shenyang and Changchun, are treated as industrial cities in this research for their strong industrial base.

6.1.2 General features of industrial cities in the northeast

After the study cases were selected, their general features were studied. Second sub-question is:
2) What are the general features of those industrial cities?
To answer sub question 2, the development history was studied. During the period of 1960s to 1980s, Chinese prioritize the development of heavy industry and military industry. With abundant natural resources and relatively complete infrastructure, the northeastern cities had received full support from central government and had undergone rapid development during the period of first-five-year plan to fourth-five-year plan. Central government allocated more resource to the northeast during that time, which presented hidden hazards to the future economy. From 1992, when China started to introduce market economy and gradually stopped unconditional supporting to the old northeastern industrial base, the northeast lost its strongest superiority. Sigle economic structure and rigid economic and political system finally lead to the failure of the northeast in the market competition. The northeast economy is heavy industry-dominated and resource-based. 7 out of 11 cities are heavy resource-based cities, including Anshan, Fushun, Benxi, Panjin, Liaoyuan, Daqing, Qitaihe. Abundant oil reserves, iron ore, and coal were once one of the main driving force for economy

development of those cities but not anymore. After years of exploration, those natural resources are depleting, which posed great challenges to local economy. GDP growth rate in the northeast kept declining and below national average for four years due to the stagnation and recession of secondary economy. Another important feature of the northeast is low efficiency and lack of innovation caused by rigid economic and political system. State-owned enterprises are the main force in the market and private economy is still weak. Less innovation and less economic vitality lead to weak growth of the economy. And the weak growth of economy in turn prevent talent flow and innovation. This vicious cycle is the current situation in the northeast.

6.1.3 Branding identities and branding positions of the 11 industrial cities

A successful brand practice should congruent with their development goals. As analyzed in the general feature part, the priority of this round of economic revitalization is economic restructuring and institutional reform. The brand identities and positions were subsequently studied to see whether it can support this goal.

3) How do those industrial cities brand themselves?

City branding identities show how a city recognize itself and how it what to be perceived by the outside world. It can be summarized from the key sentences in cities' urban master plan and 13th Five-Year plan. Results shows that 9 out of 11 cities took pathway 2 identities, which shows perfect match between their branding identities and the predicted developmental pathways. Shenyang and Changchun recognized themselves to be pathway4/2 cities, and the rest 7 cities would rather to follow pathway 2 in current stage. Only Daqing and Fushun seem unsatisfying with their current city profiles and adopted the description of center city in addition to pathway 2 labels. As a whole, industrial cities in the northeast identify themselves in line with existing industrial profiles which are predominantly manufacturing oriented.

City branding positions means how a city position itself in various markets, also called city labeling, to attract investment vis-à-vis other cities. City branding labels were collected and classified into different pathways in this paper. Technological progress city and administrative progress city are the unique brand positions of cities in the northeast. Technology progress city corresponding to single economic structure in the northeast, means industrial upgrading and economic restructuring, which can be categorized into pathway 2. Administrative progress city targeted at the problem of rigid economic and political system. Although it cannot be categorized into any pathway, it still should be included into analysis for its significant meaning for economic revitalization.

Results show that the assumed pathways well consistent with their identities and developmental pathways. 10 out of 11 cities took consistent branding positions with their developmental pathways. Benxi took eco city, a pathway 1 label, as dominant positions in addition to pathway 2 labels. Benxi took this label aims to stress the importance of environment restoration after years of mining to achieve sustainable development, which does not deviate from its pathway 2 position. It can be concluded

that the assumed pathways of the northeast cities are consistent with their city profiles. Possible explanations for adopting those city branding positions includes: 1) clear understanding of their current situation; 2) clear and strong guidance from higher level government. When choosing branding labels, northeastern cities did consider their traditional industrial strength and future industry evolution. Also, the policy from central government gives strong guidance and have significant influence on their branding choice.

6.1.4 Follow up actions cities take to support branding practices

City branding identities and positions can well support their economic development goals. The fourth sub-question was raised as:
4) What follow up actions those cities take to support their city branding practices?
The second round of economic revitalization in the northeast initiated by central government was started at 2016. Flowing the principle of perfecting institutional functions, promoting economic structure reform, encouraging innovation and entrepreneurship, and improving people's livelihoods, central government supported many urban projects. Those projects involve transportation (including railway, highway, airport, rail transit), energy, water conservation, emerging industry, agriculture, urban and rural construction etc., aim at improving weak links and cultivate new developmental driving forces. Those projects take a leading role when cities in the northeast planning their urban projects.

Under the guidance from central government and considering their own economic situation, northeastern cities carried out various urban projects to solve existing problems and to revitalize economy. The information of those urban projects was collected and categorized in this paper. The projects mostly focus on developing advanced manufacturing, building smart city, balancing economy development, environmental protection, and performing institutional reformation. Overall speaking, the number of pathway 2 projects have overwhelming advantages. No matter what those cities claim to be, they all follow pathway 2 to plan their urban projects. In current stage, secondary industry still accounts for about half of the GDP in northeast, especially in Liaoning and Jilin. To stop the declining of secondary industry and enable it with new vitality is a necessary choice.

What worth mentioning is that 7 out 11 cities take institutional reformation as one of the main tasks to actualize economy revitalization, which shows the determination of northeastern cities to get rid of the influence inherited from planned economy. For example, Changchun has already reshuffled FAW to improve efficiency and reduce corruption. The outcomes from this round of economical and institutional reform in the northeast remines to be seen.

6.1.5 Recommendations to maximize the effectiveness of city branding practices

The northeastern cities took consistent city branding practices to help revitalize their economy. But there is still a long way to go to achieve satisfying results. There are some

recommendations for the northeastern cities to fully leverage city branding practices to boost economy. That is also the answer to the fifth sub-question:

5) What are the recommendations to maximize the effectiveness of city branding practices on supporting economic revitalization in the northeast?

Firstly, economic structure reform comes before GDP growth, enterprises ability enabling comes before production expansion. Depleting resource, outdated technology, and single industrial structure will evitable slow down the economic development. Excessively focus on GDP growth will contribute to enterprises output expansion, but will not help to increase margin and competitiveness. The failure of the first round of economic revitalization verified this point. In the first round of economic revitalization, governments focus on helping important enterprises expansion to increase revenue. Then the economy in the northeast entered a trap. Enterprises run into trouble, seek for government help, enterprises expansion, margin decrease, and in the end run into trouble again. In the second-round economic revitalization, central government raised the concept of economic restructure. By helping the northeast upgrade its existing industry and by developing new emerging industries, to rebuild its core competitiveness in manufacturing and to enrich industrial structure. That is a more reasonable way to achieve economy revitalization. And that is also what the government is doing now by studying their city branding practices. But in this transformation period for the northeast, the economic performance of the northeast is still evaluated by GDP growth, which is not a fair indicator and will lead to short-term behavior of local government. To take it shortly, central government set a right direction for the northeast, but didn't design a reasonable evaluation system to assess their progress.

Secondly, strong execution of the planned projects. As mentioned above, the northeast is heading in the right way under the instruction of central government. And the city branding practice also shows the consistency between government planning and action. But it the perfect execution that will really make a difference. For example, the discussion about the reformation of state-owned enterprises in the northeast has lasted for years, but is still lack of substance progress. At least little progress was known to the public.

Thirdly, educate and involve the public during this transformation period. Many people in the northeast still hold official standard thought. It is hard to initiate innovation under this circumstance. Also, public's perception towards economy in the old northeastern industrial base is negative, with the labels of official standard thought, lack economic vitality, low efficiency and corruption. Those inherent cognitions are strong barriers for the northeast to rebuild public's confidence. Thus, fully communicate with and engage the public via various media, which is not done well now, is an urgent and necessary option.

Lastly, reduce the dependence on the support of central government and develop the ability of designing long-term strategy. One of the main reasons for the fall of northeast economy is to loss central support before the northeast is ready to develop economy on

its own ability. There is no early plan for industrial evolution in the northeast. For example, it was until the resource was exhausted, northeastern cities started to seek a way out but already missed their best chance. Cities like Chongqing and Chengdu planed their economy in advance, and now among one of the fastest growth cities in China. By studying the ongoing projects, it seems like that the northeast cities now still focus more on current economic development and lack of long term strategic plan. Their city branding practice didn't transfer a long-term inspiring vision to the public.

6.2 Main contributions

The research of de Jong et al. (2018) laid solid theoretical basis for this paper. Based on their study, many researches regarding city branding practices in China is conducted and those studies mostly focus on the relatively developed areas in China, like Yangtze River Delta, Pearl River Delta, and Jing-Jin-Ji area. Results shows that those developed cities somewhat prefer to choose the pathway 4 labels like innovation city, service city, etc., which may not exactly fit into their reality. But the city branding practices in less developed areas in China remains to further study. And that is why my colleague Zhuqing Cui and I chose to study city branding practices in the northeast of China. Primary industry and secondary industry are two main economic forms in the northeast. Zhuqing mainly focused on pathway 1 cities and this paper focused on pathway 2 cities. Together all those studies mentioned above will show a complete picture of how different types of Chinese cities conduct city branding practices.

The main contribution of this paper can be summarized into the following points:

- Complete the study of city branding practices in China by conducting qualitative and quantitative analysis of economic and projects data

In short, the developed cities prefer pathway 4 branding labels and tends to over-claim their developmental goal (de Jong et al., 2018). The quantitative analysis of economic and urban projects data shows that northeast cities labeling themselves according to their reality and at the same time is highly political oriented.

- Enrich city branding labels by considering regional unique feature

The labels of technological progress city and administrative progress city are employed to describe city branding identities due to the unique economic features in the northeast. The label of administrative progress city cannot be categorized into any pathway, but it is a critical element for northeast cities to perform successful economic reformation.

6.3 Research limitation and future research

By analyzing economic data of northeast cities, their developmental pathways were predicted; by studying the key sentences in the 13th FYP and UMP, their branding identities were identified; by counting the frequency of branding labels in 13th FYP and UMP, their branding positions were got; by studying the urban projects they are carrying out, the consistency of their city branding practice was identified. The logic of this research is convincing but there are still some limitations stated as the following.

- Limited data resource for city branding practice

Most of the data in this research comes from yearbooks, 13th FYP, UMP and official

governmental websites. Information from other public media, the most direct and common information resource for the public, also plays a large part in city branding practice, which is leaved out from this research.

Also, the information about the execution of those urban project is missing in this research. Plan is one thing, execution is another thing, and the latter one is the deciding factor for the effectiveness of city branding practice.

- Limited perspectives towards economic revitalization

Under the background of economic revitalization, this research studied city branding practices in the old northeastern industrial base. To be more focused on city branding practices, this research leaves out many other factors that may have influence on economy development, such as aging of the population, climate, geographical location, etc. Thus, this paper is not a comprehensive research about economic revitalization in the northeast, but starting from the perspective of economic revitalization to analyze their city branding practices.

Starting from the limitations analyzed above, the future research will focus on two aspects:

- Include information from public media into the research.

Information from public media can be divided into two categories. One is the news published by governments or authorized by governments or the information resource can be traced back to the government; another kind of news is public opinion. The former one can be included as supplementary information to identify city branding practices. While the latter one can be used to test the effectiveness of city branding practice, which will be elaborated in the following part.

- Verify the effectiveness of city branding practice

Firstly, the factors that may have effects on the effectiveness of supporting economic revitalization should be studied, for example the execution of projects. Secondly, the methods to measure the effectiveness should be developed, for example public opinion, total investment attracted by city branding practices, etc. So there is still a long way to go to accurately measure the successfulness of city branding practice in the old northeastern industrial base.

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Appendix

Table 1 Key geographic and economic data and developmental pathways

City (Province)	Land area (km^2)	Perm.Pop. (mln)	GDP/cap permanent pop. (RMB)	1/2/3 as GDP (in %)	1/2/3 as working pop. (in %)	Regional position	Urban stage	Developmental pathways
Liaoning								
Shenyang	12860	0.073041	87734	4.69/47.77/47.53	0.20/44.75/55.05	NAT	3/2	4/2
Dalian	12574	0.059356	110682	5.86/43.31/50.83	0.36/48.42/51.22	REG	3/2	4/2
Anshan	9255	0.034605	64710	5.84/47.19/46.97	0.54/51.89/47.56	REG	2	2
Fushun	11272	0.021576	58597	8.06/48.87/43.07	1.59/52.49/45.92	REG	2	2
Benxi	8411	0.015121	67656	5.75/51.43/42.81	0.29/52.87/46.84	REG	2	2
Dandong	15290	0.023815	40850	15.91/40.91/43.18	2.11/40.02/57.86	REG	3	4
Jinzhou	10047	0.030256	43207	15.92/42.85/41.23	3.12/39.72/57.16	REG	3/2	4/2
Yingkou	5242	0.023262	61925	7.32/48.05/44.63	0.25/41.20/58.55	REG	3/2	4/2
Fuxin	10355	0.018947	29491	22.51/38.21/39.28	1.67/45.24/53.09	REG	3	4
Liaoyang	4788	0.017896	55674	7.06/55.27/37.67	1.64/46.50/51.85	REG	3/2	4/2
Panjin	4065	0.012954	87351	9.64/53.48/36.89	35.66/38.35/25.98	REG	2	2
Tieling	12985	0.030038	27885	27.68/31.79/40.53	6.84/41.42/51.74	REG	3	4
Chaoyang	19698	0.03409	28852	25.81/30.37/43.82	0.84/31.40/67.76	REG	3	4
Huludao	10414	0.02801	28176	14.49/41.14/44.37	1.13/49.62/49.25	REG	2/3	2/4
Jilin								
Changchun	20594	0.075383	73324	6.21/50.11/43.69	0.98/48.26/50.75	NAT	3/2	4/2
Jilin	27711	0.042624	56076	10.55/45.42/44.03	2.48/46.45/51.06	REG	3/2	4/2
Siping	14382	0.032641	37714	25.73/43.34/30.93	4.06/29.62/66.32	REG	3	4
Liaoyuan	5140	0.01208	59855	8.38/57.43/34.19	1.98/55.34/42.68	REG	2	2

Tonghua	15612	0.02211	45171	9.23/51.14/39.63	1.57/56.09/42.34	REG	2	2
Baishan	17505	0.012537	53136	9.33/56.71/33.96	10.99/39.15/49.86	REG	3/2	4/2
Songyuan	21089	0.027807	58841	17.41/44.07/38.52	7.88/45.61/46.51	REG	3/2	4/2
Baicheng	25759	0.019667	35571	16.89/45.53/37.58	11.03/21.46/67.51	REG	3	4
Heilongjiang								
Harbin	53100	0.096137	59027	11.69/32.39/55.92	3.41/33.31/63.28	NAT	3	4
Qiqihar	42469	0.054939	24430	24.13/31.04/44.83	16.89/27.13/55.98	REG	3	4
Jixi	22531	0.01817	28222	36.43/25.96/37.61	26.46/32.73/40.82	REG	3	4
Hegang	14679	0.010561	24981	35.19/29.88/34.93	27.01/39.17/33.82	REG	2/1	2/1
Shuangyashan	22619	0.014743	29237	38.22/22.77/39.01	4.35/40.81/54.83	REG	3	4
Daqing	21219	0.027548	110113	6.53/64.88/28.59	0.65/50.54/48.81	REG	2	2
Yichun	32800	0.012119	20414	42.93/18.67/38.40	53.65/14.70/31.64	REG	1	1
Jiamusi	32704	0.023755	35069	33.07/22.01/44.92	11.76/26.72/61.52	REG	3	4
Qitaihe	6221	0.008311	24823	16.09/36.78/47.13	3.93/60.38/35.70	REG	2/3	2/4
Mudanjiang	38827	0.0262	47356	17.08/35.81/47.11	15.04/31.32/53.64	REG	3	4
Heihe	68340	0.0168	26575	48.32/15.17/36.51	48.91/12.50/38.59	REG	1	1
Suihua	34873	0.05485	23095	39.77/26.26/33.97	4.94/29.92/65.14	REG	3/1	4/1

Table 2 Developmental pathways and city brand identities (Chinese version)

City (province)	**Developmental pathway**	**Brand identity description (source)**	**Conformity with predictions**
沈阳 Shenyang (LN)	4/2	推进东北**金融中心、综合性枢纽**城市建设，提升城市实力，把沈阳建设成为立足东北、服务全国、面向东北亚的国家中心城市；推进**生态文明建设**，把沈阳建设成为人与自然和谐共生的**生态宜居**之都；坚持走**新型工业化**道路，集约发展、合理布局，把沈阳建设成为具有国际竞争力的**先进装备制造业基地**；加强历史文脉保护和特色风貌建设，把沈阳建设成为历史文化与现代文明交相辉映的**文化名城**；加快向经济开放、文化包容的**东北亚国际大都市**迈进（UPM）。	**YES**
大连 Dalian (LN)	4/2	充分发挥改革开放与自主创新的优势，实现**经济发达、社会和谐、文化繁荣、资源节约、环境友好**的发展目标，将大连建设成**基础设施完备、城市功能完善、产业集群高端、具有较强辐射和服务功能的东北亚重要国际城市**。城市发展分目标为**区域中心、创业基地、生态城市、滨海名城**（UMP）。	**YES**
鞍山 Anshan (LN)	2	坚持科学发展原则，建设**环境友好型**城市；坚持集约节约原则，建设**资源节约型**城市；坚持多规衔接原则，建设**综合性中心**城市；坚持公平和谐原则，建设**和谐宜居型**城市（UMP）。	**YES**
抚顺 Fushun (LN)	2	全面落实新型城镇化要求，以生产型城市消费型城市转型为基本导向，探索以新型工业化为引领的四化同步模式，全面提升城市综合功能，形成具有**地方文化特点**、**绿色低碳高效**的城镇化和城市建设模式，实现市域城乡统筹发展。2020 年后使抚顺称为**低碳宜业**的国家产业基地，**活力宜居**的区域中心城市以及**生态宜游**的文化旅游名城（UMP）。	**YES**
本溪 Benxi (LN)	2	转变发展观念，创新发展模式，以本溪老工业基地全面振兴为主题，以开放促改革，走**新型工业化道路**；统筹城乡发展，**优化生态功能**，构建和谐本溪，促进经济社会全面、协调**可持续性发展**，实现本溪老工业基地的全面振兴（UMP）。	**YES**
盘锦 Panjin (LN)	2	充分发挥盘锦独特的生态环境、油气资源、农业基础和交通区位优势，不断探索**新型工业化**、**新型城镇化**的实施路径，将盘锦建设成为辽宁省乃至全国**经济繁荣**、**生态环境优良**的城乡一体化发展示范区和国际知名的**生态旅游与宜居城市**，**东北亚石化和精细化工基地**、**国内领先的石油装备和海洋装备制造业基地，东北地区新兴港口城市**（UMP）。	**YES**

葫芦岛 Huludao (LN)	2/4	辽宁西部的重要中心城市，连接东北与华北的重要节点城市，着力建设环渤海地区以工业、港口、旅游为主体的**生态型**、**可持续发展**的宜居城市（UMP）。	**YES**
长春 Changchun (JL)	4/2	遵循**可持续发展**战略，统筹工业化、城镇化、农业现代化发展，增强城市综合辐射能力；转变经济发展方式，持续扩大传统优势产业，发展**战略性新兴产业**；**加大对外开放力度**，搭建国际经济、文化交流合作平台，形成区域开发与国际合作的新格局；持续**改善民生**，完善社会保障体系，保证社会和谐稳定。规划期末将长春市建设成为**经济发达、社会和谐、科学进步、资源节约、环境优良的绿色宜居城市**（UMP）。	**YES**
辽源 Liaoyuan(JL)	2	吉林省南部以战略性新兴产业和轻纺工业为主的**区域性中心城市和宜居城市**，全市政治、经济、文化中心（UMP）。结构优化，以主导产业、优势产业、战略新兴新产业为重点，转变经济增长方式，积极创新招商引资方法，实现**可持续性发展**，建设**智慧城市**，实现辽源转型发展（13th FYP）。	**YES**
通化 Tonghua(JL)	2	推动经济发展模式从粗放型向**集约型**转变，促进通化经济、社会与环境的全面协调**可持续性发展**。把通化建设成经济繁荣、社会和谐、生态优良、特色鲜明的东北东部地区中心城市以及**生态宜居城市**（UMP）。	**YES**
大庆 Daqing (HLJ)	2	由资源城市向**综合型城市**、自我服务型城市向**区域中心型**城市、矿区型城市向**生态型城市**转变。全面建成**高新技术现代化城市**，同时遵循**可持续发展和集约**原则 (UMP)。	**YES**
七台河 Qitaihe (HLJ)	2/4	立足**煤炭资源型城市转型**实际，坚持复合式渐进式转型模式。转变发展方式、促进经济转型为主线，以增强**可持续发展能力**为核心，以**改善民生**为根本出发点和落脚点，紧紧依靠**科技进步**和改革创新增强发展动力，突出优势，补齐短板，积极培育壮大接续替代产业，努力探索具有七台河特色的**煤城转型发展之路**（13th FYP）。	**YES**