

ACI Research Paper #07-2023

Northeastern China's Revitalisation: Evidence from Cross-Year Competitiveness Analysis

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June 2023

Please cite this article as:

Li, Jingwei, and Xuyao Zhang, "Northeastern China's Revitalisation: Evidence from Cross-Year Competitiveness Analysis," Research Paper #07-2023, *Asia Competitiveness Institute Research Paper Series (June 2023)*

Northeastern China's Revitalisation: Evidence from Cross-Year Competitiveness Analysis

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Abstract: This paper presents a cross-year regional competitiveness analysis focusing on Northeastern China. Despite its past achievements in industrialisation and urbanisation, Northeastern China faces significant challenges that hinder its progress. The overreliance on a single growth driver and slow industrial restructuring limit the region's ability to diversify its economy and adapt to changing market dynamics. Brain drain, ageing profile and population outflow further add to these challenges. The effectiveness of the central government's revitalisation plan is still unfolding, and continuous evaluation is necessary to assess its long-term impact on addressing the region's challenges and improving competitiveness. This study contributes to a better understanding of the region's current state and provides valuable insights for policymakers and stakeholders seeking to foster sustainable growth in Northeastern China.

Keywords: Regional Economics, Policy Evaluation, Northeastern China

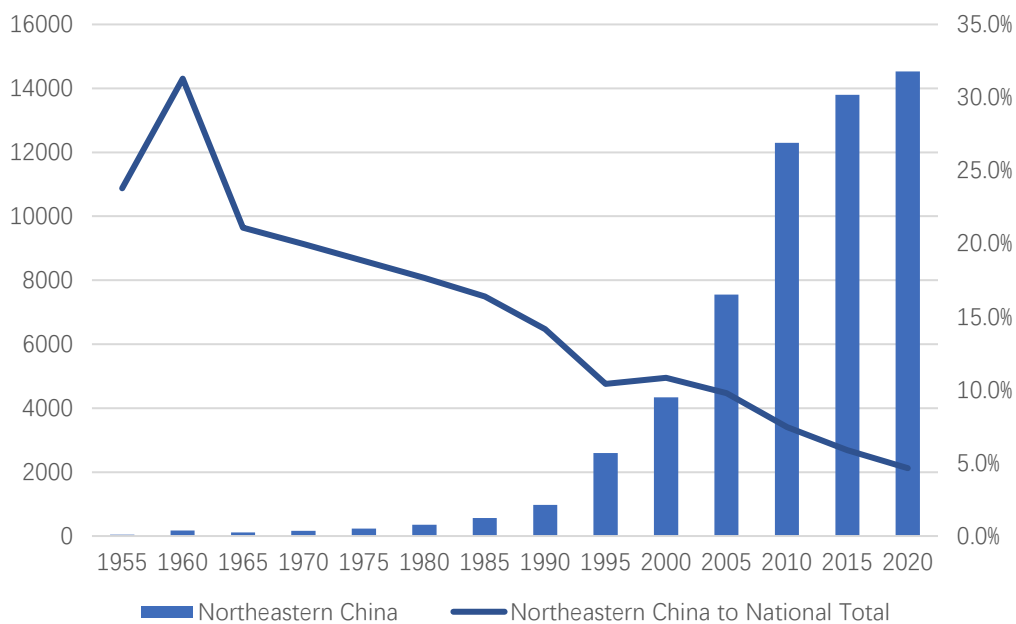
JEL Classification: C43, R58

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1. Introduction

During the 1950s, Northeastern China emerged as a pioneering hub for heavy industry, constituting more than one-fifth of the national industrial output value (Figure 1). Its remarkable achievements in industrialisation and urbanisation surpassed those of other mainland regions, owing to its abundant natural resources, preferential policies, and strategic partnership with the Soviet Union. Notably, Northeastern China received substantial investments of RMB 104.4 billion, representing 21% of the country's total investments from the first Five-Year Plan to the fifth Five-Year Plan (Zhan, 2018). These investments drove Northeastern China to develop a comprehensive industry system focused on steel, machinery, petroleum, and chemicals (Hou et al., 2019). From the 1950s to the beginning of reform and opening up in the late 1970s, it played a significant role in supporting the growth of the central and western regions by exporting materials, manufacturing equipment, and skilled labour. Its contributions included an impressive half a billion tons of rolled steel, one million machinery equipment units, and two million technicians and skilled workers, benefiting other regions (Bao et al., 2006).

Figure 1. Northeastern China's Industry Output (1955-2020) (100 Million Yuan)

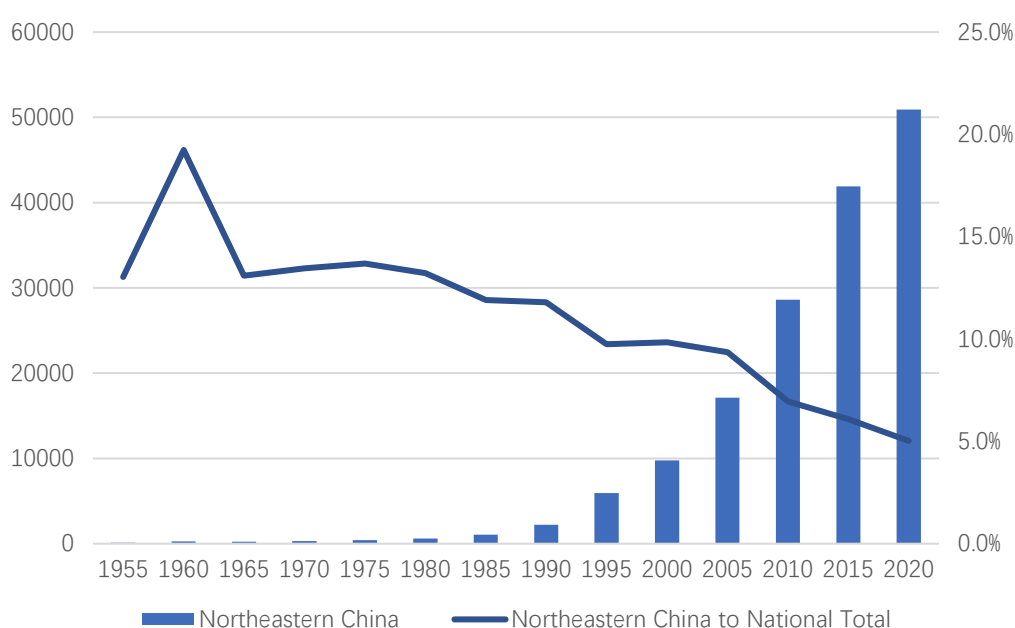


Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

However, the trajectory of Northeastern China took a downturn with the onset of the Reform and Opening Up era in the late 1970s. During this time, the government shifted its policy focus from the interior regions to the eastern coastal areas, embracing market-oriented reforms. As a result, the emphasis shifted away from capital-intensive heavy industries, and instead, the government implemented an export-led growth

strategy, establishing a select few “special economic zones.” This strategic move attracted foreign investments and advanced technologies, leading to rapid growth in the eastern coastal areas from the 1980s to the early 21st century. In contrast, Northeastern China struggled to adapt and fell behind in economic development. Its inability to fully embrace marketisation and transition from a planned economy hindered its progress. Moreover, the region’s high concentration of state-owned enterprises and reliance on outdated heavy industries further exacerbated its challenges. It experienced a decline in its contribution to the national GDP, with its share dropping from 19.2% in 1960 to 9.8% in 2000 (Figure 2).

Figure 2. Northeastern China’s GRP and its Share of National GDP (1955-2020) (100 Million Yuan)



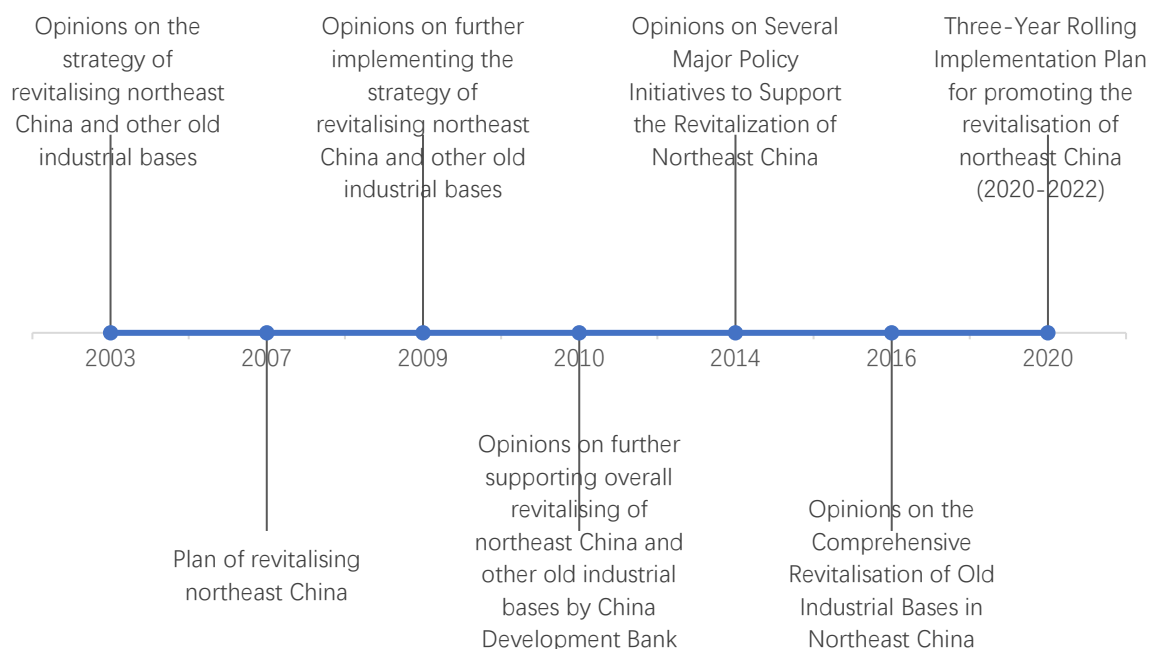
Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

Addressing these obstacles became crucial for the region’s revitalisation and narrowing the economic gap with the more prosperous areas of the country, which promoted the government to take action (Figure 3). In October 2003, the first governmental document outlining the revitalisation of Northeastern China was released, followed by several subsequent detailed plans, indicating the first round of revitalisation.

As a result, Northeastern China’s combined GDP growth rates experienced an upturn in 2004, 2005, and 2006, reaching 14.3%, 16.8%, and 16.0%. However, beyond 2006, concerns arose regarding the region’s economic drivers. A significant issue was the heavy reliance on gross capital formation, which became the primary driver of Northeastern China’s economic growth, contributing to over 60% of the GDP. In contrast, consumption accounted for approximately 40% of the GDP, while the

persistence of a trade deficit added to the challenges. Northeastern China’s economic growth heavily relied on investments and preferential policies from the central government, creating a vulnerability as alternative sources of growth were lacking. This dependence hindered the region’s ability to diversify its economic activities and sustain long-term development.

Figure 3. Government Documents on Revitalising Northeastern China



Source: Asia Competitiveness Institute

Furthermore, the industrial structure in Northeastern China has been lagging behind. The development of high-tech industries has struggled to gain momentum. Between 2006 and 2010, the output value of high-tech industries in relation to the total industry output remained stagnant, fluctuating between 4.6% and 5.1%. Although there was a slight increase in the proportion of tertiary industry output, rising from 37% in 2010 to 41.5% in 2014, it still fell short of the national average of 48%. As a result, traditional industries continue to dominate the region’s economy.

In 2016, the Central Committee and State Council released a significant revitalisation strategy titled “Several Opinions on the Comprehensive Revitalization of Old Industrial Bases in Northeastern China.”, starting the second round of revitalisation. This strategy outlined key areas of focus for the region’s revitalisation efforts, with a strong emphasis on modernising industries such as steel, shipbuilding, aircraft manufacturing, automobile manufacturing, and petroleum refining. The document also stressed the importance of fostering regional innovation and transforming it into a driving force for development. Local governments were called upon to support and incubate innovation, recognising its potential as a major source of economic growth.

Additionally, the strategy highlighted the need to strengthen the structure of state-owned enterprises (SOEs) in the region and create a supportive environment that enhances their competitiveness. SOEs were identified as a vital component of the regional revitalisation program. To promote the growth of the private sector, the document underscored the importance of improving financing services for small and medium-sized firms. It also acknowledged the need to ease restrictions on private capital investment, creating a more favourable investment climate for private enterprises. Recognising the significance of people's well-being, the revitalisation strategy outlined tasks to strengthen the social security net, generate more employment opportunities, enhance public services in cities, and create a more liveable environment. Ultimately, safeguarding and improving the people's lives in the region were identified as the ultimate goal of revitalising Northeastern China's industrial bases.

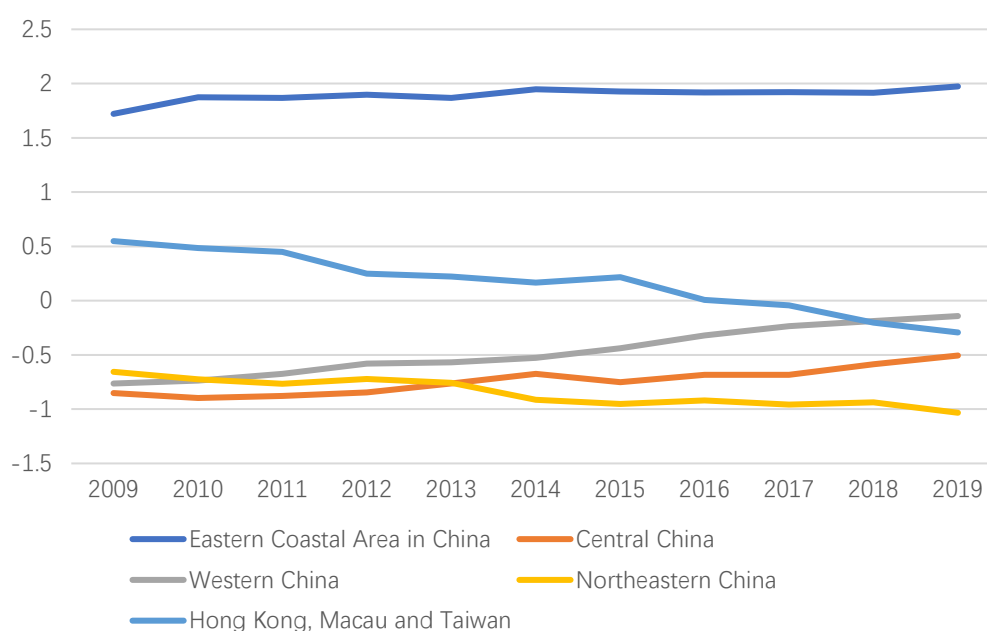
This paper presents a comprehensive and in-depth analysis of Northeastern China, focusing on its performance compared to other regions in China. The objective of this study is to provide valuable insights into the declining overall competitiveness of Northeastern China since 2009 and to delve into the underlying factors that have contributed to this trend. By examining these factors and their implications, we aim to enhance understanding of the challenges faced by the region and identify potential avenues for improvement. Through this analysis, we seek to contribute to the broader discussion on revitalising Northeastern China's economy and enhancing its competitiveness on a national and global scale.

2. Research Methodology and Findings

This study follows the methodology outlined in ACI TWP #12-2020, enabling us to conduct a cross-year comparison of competitiveness scores. There are 97 indicators in total in the framework. Due to the data availability, for the competitiveness analysis, the data coverage is from 2009 to 2019, with 2009 as the base year for our analysis. If the score is higher than the value in 2009, it indicates an improvement for the region and vice versa.

In addition to the competitiveness analysis, we have collected the most up-to-date data to conduct an in-depth examination of some indicators, providing a more detailed understanding of the progress made in the revitalisation of Northeastern China. By utilising the latest data, we aim to capture a comprehensive snapshot of the region's current state and gain insights into specific areas of development.

Figure 4. Overall Regional Competitiveness Scores (2009-2019)



Source: Asia Competitiveness Institute

Figure 4 shows the overall competitiveness scores of the five regions in Greater China spanning the period from 2009 to 2019. Northeastern China, Western China and Central China consistently maintained below-average performances throughout this time frame, reflected by their negative scores over the 11 years. However, within these three regions, different patterns can be observed. Northeastern China held the third position in 2009 but experienced a significant decline in scores by 2014, remaining at the bottom in subsequent years. In contrast, Western China and Central China displayed

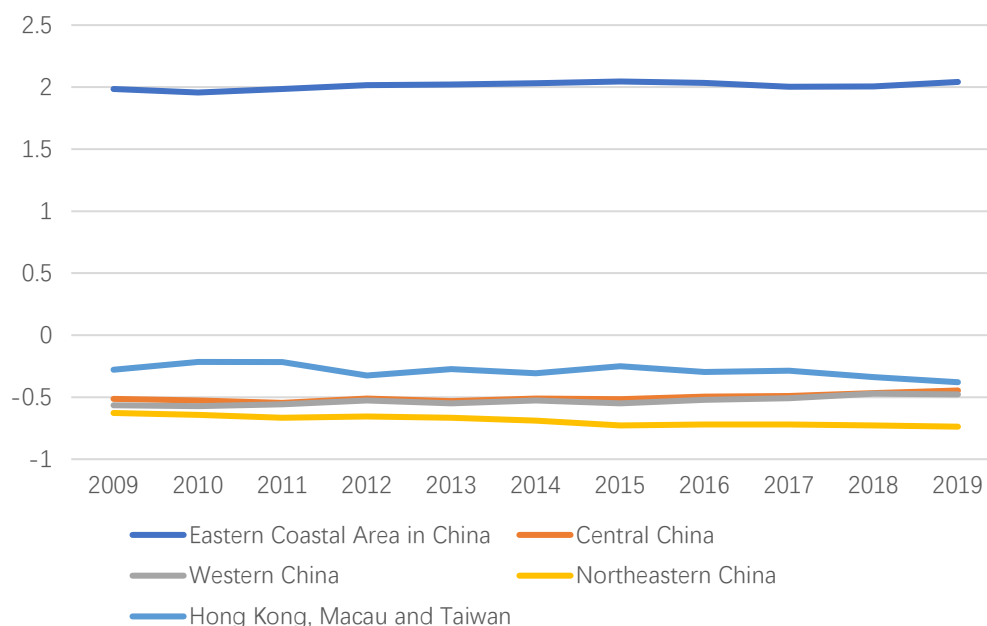
strong upward trends and surpassed Northeastern China in 2011 and 2014, respectively, exhibiting notable improvements in their competitiveness.

Despite ongoing efforts to reform and transition Northeastern China towards a market economy, the competitiveness performances indicate that these endeavours have yet to realise substantial results. To comprehensively evaluate the effectiveness of the revitalisation plan in Northeastern China, we have undertaken a deeper investigation into the four specific environments and conducted an extensive analysis at the indicator level.

2.1 Macroeconomic Stability

Figure 5 presents the scores of the five regions under Macroeconomic Stability. Over the research period, Northeastern China consistently demonstrated a lagging performance, experiencing a decline in its scores. Initially, Northeastern China exhibited a comparable performance to that of Western China and Central China. However, as the years progressed, a noticeable gap emerged, with Western China and Central China consistently displaying an upward trend in their scores. By 2019, Northeastern China had obtained a negative score of -0.73769.

Figure 5. Macroeconomic Stability Regional Competitiveness Scores (2009-2019)

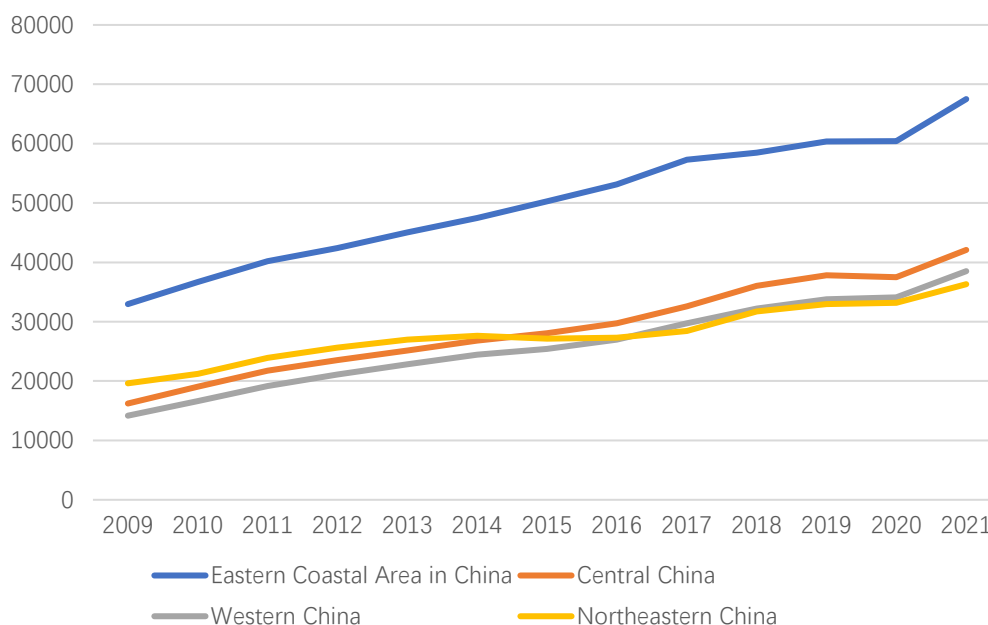


Source: Asia Competitiveness Institute

Looking closely at GDP per capita (Figure 6), Northeastern China initially held the second position among mainland China regions. However, between 2013 and 2017, Northeastern China's GDP per capita remained relatively stagnant, showing little change. In contrast, Western and Central China experienced substantial growth during

the same period, with their GDP per capita increasing by approximately 30%. As a result, Western China surpassed Northeastern China in 2014, and Central China surpassed it in 2016.

Figure 6. GDP per capita of Four Regions in Mainland China (Yuan per person)



Note: Constant Prices at 2000

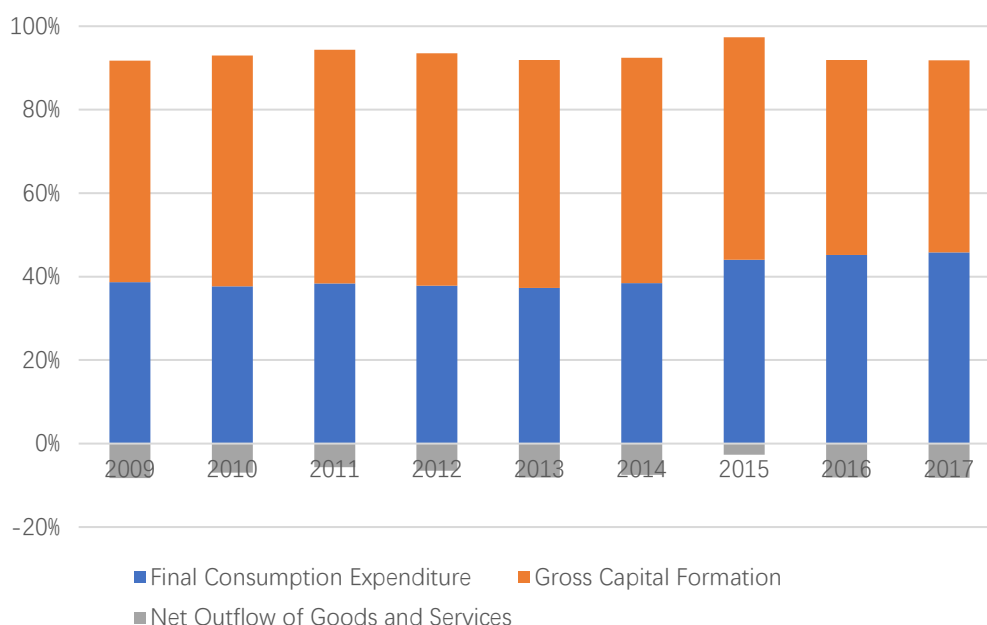
Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

Northeastern China’s historical emphasis on heavy industry and infrastructure development has resulted in industries that are predominantly capital-intensive rather than labour-intensive. These industries require substantial investments in equipment and machinery, a significant portion of which has been attracted by the government’s preferential policies. Figure 7 presents Northeastern China’s GDP Components by Expenditure Approach. From 2009 to 2017, investments have consistently accounted for more than 60% of the region’s economic activity. On the other hand, Final Consumption Expenditure contributed approximately 40% to the economy during the same period. Additionally, the Net Outflow of Goods and Services remained negative. These findings highlighted the heavy reliance of Northeastern China on investment-driven growth and the importance of promoting domestic consumption as well as foreign trade to achieve a more balanced and sustainable economic structure.

Although unlike the Eastern Coastal area of China which enjoys natural advantages in foreign trade because of its connectivity and accessibility, Northeastern China plays a pivotal role in trade within Northeast Asian countries. In recognition of such importance, the State Council approved establishing the Suifenhe-Dongning pilot development and opening-up zone in Heilongjiang province in 2016. This decision

catapulted promoting trade and investment in the region. Furthermore, Northeastern China has been designated as one of the key areas of China’s Belt and Road Initiative, highlighting its strategic importance in enhancing regional connectivity and economic cooperation. The China-Northeast Asia Expo, held biennially, continues to play a crucial role in facilitating trade and investment in the Northeast Asia region. The ongoing efforts to strengthen trade infrastructure and Northeastern China’s active participation in China’s Belt and Road Initiative hold the potential to reshape the trade deficit in the near future.

Figure 7. Northeastern China’s GDP Components by Expenditure Approach



Note: 2018 onwards data not released

Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

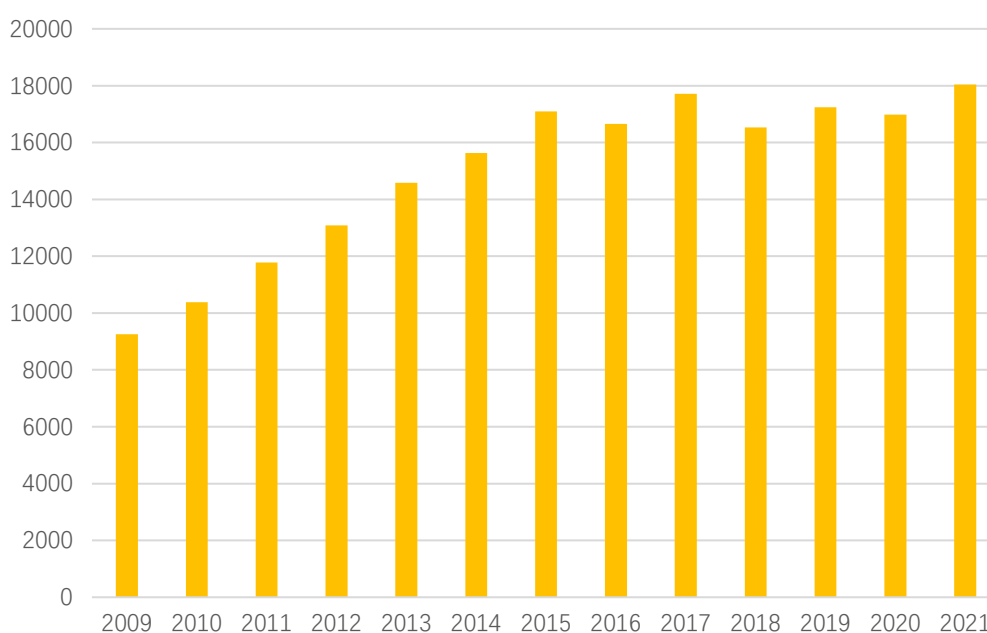
In addition, the region has faced challenges in keeping up with the transition towards technology and service-oriented industries, resulting in unsatisfactory progress in industry upgrading. Currently, the region’s industries largely remain at the lower end of the value chain, limiting their competitiveness and contribution to higher value-added activities. Despite efforts to implement pilot projects for “Made in China 2025” in the region, traditional industries have struggled to transform and upgrade processes successfully.

In the 13th Five-Year Plan for Revitalizing Northeast China and the subsequent 14th Five-Year Plan, the central government placed significant emphasis on promoting the service sector to revitalise Northeast China. Recognising the need to cultivate new engines for growth, these plans specifically highlighted the importance of sectors such as tourism.

The annual International Ice and Snow Sculpture Festival in Harbin is a prominent event in the region that draws visitors from around the globe. According to Heilongjiang Ice and Snow Tourism Industry Development Index Report (2021), the tourism receipts registered an average yearly increase of 18%, achieving RMB 160.3 billion in 2019. Similarly, the Changbai Mountain Nature Reserve in Jilin offers various winter activities to captivate and amuse tourists. In response to the increasing fascination with the wintertime charm of northern China, initiatives have been undertaken to improve accessibility. The introduction of the Snow Express has facilitated convenient and comfortable transportation for tourists travelling from the southern parts of the country.

However, the growth of the tertiary industry in Northeastern China has been relatively slow. Figure 8 demonstrates that the expansion of the region’s tertiary industry experienced a slowdown around 2014 and witnessed intermittent decreases in 2016, 2018, and 2020. In contrast, the tertiary industry in the Eastern Coastal Area of China demonstrated more robust growth during these periods. In 2021, the tertiary industry in Northeastern China expanded by 6%, while the Eastern Coastal Area recorded a higher growth rate of 10%. Li Chenggu (1996) pointed out that the aged industrial structure kept Northeastern China from growing. Addressing this imbalance and fostering a more robust consumer-driven economy will be crucial for Northeastern China’s long-term development and revitalisation.

Figure 8. Tertiary Industry in Northeastern China (100 Million Yuan)

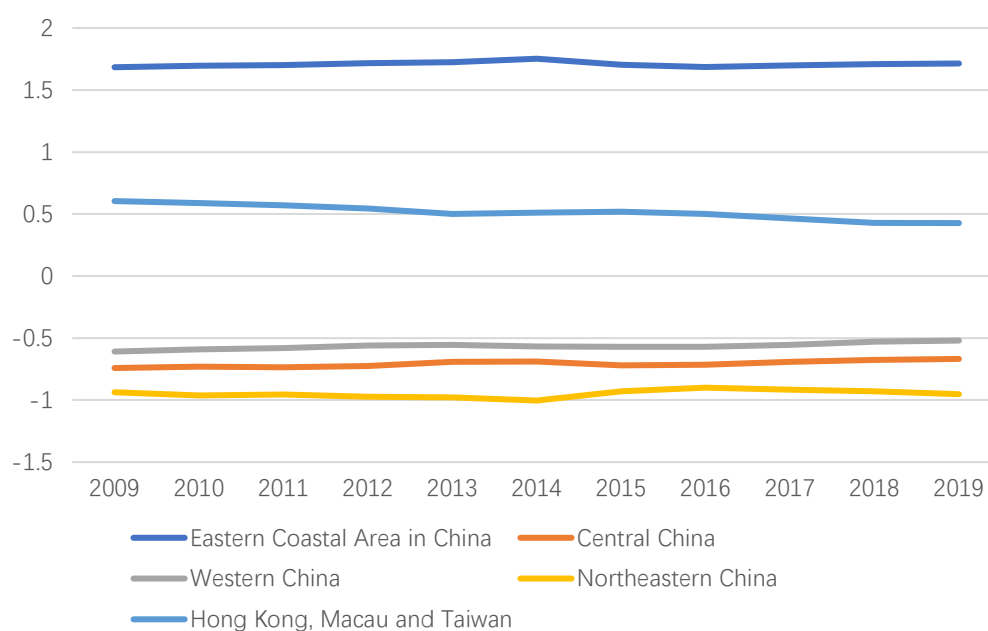


Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

2.2 Government and Institutional Settings

Figure 9 highlights the scores of the five regions in the Government and Institutional Settings, consistently positioning Northeastern China as the region with the lowest score. Nevertheless, it is noteworthy that this environment has witnessed slight improvements over the years, primarily attributed to successful progress in state-owned enterprise (SOE) reforms. By implementing mergers, acquisitions, and asset restructuring measures, Northeastern China has effectively consolidated resources and reduced redundancy within the state-owned sector. These initiatives have improved efficiency and profitability for state-owned enterprises in the region. Additionally, the introduction of mixed ownership, which involves attracting new capital and expertise from non-state entities, has played a pivotal role in enhancing management practices and increasing competitiveness for these companies.

Figure 9. Government and Institutional Settings Regional Competitiveness Scores (2009-2019)

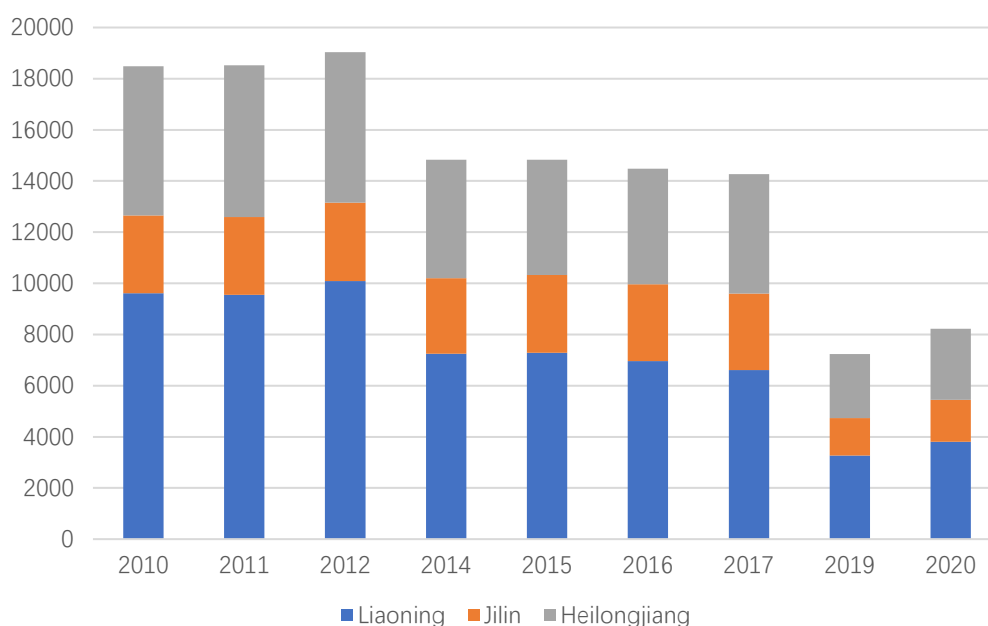


Source: Asia Competitiveness Institute

Figure 10 illustrates a significant reduction in the number of state-owned enterprises (SOEs) in Northeastern China, reflecting a notable shift in the region's business landscape. The count of SOEs declined sharply from 19,030 in 2012 to 14,827 in 2014. Furthermore, there was a drastic halving of the number from 14,271 in 2017 to 7,241 in 2019. In contrast, the number of private enterprises substantially increased during the same period, rising from 387,780 in 2014 to 878,525 in 2020. Private enterprises accounted for 84.9% of the total enterprises operating in Northeastern China.

Moreover, according to data from the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC), until the end of 2018, more than two-thirds of all subsidiaries under central SOEs had achieved mixed ownership. To further accelerate these reforms, SASAC introduced the “Double hundred action” plan for SOE reform, aiming to incorporate a total of 404 pilot subsidiaries into mixed ownership between 2018 and 2020. In Heilongjiang, over 100 state-owned enterprises have completed mixed-ownership reforms in the past few years, receiving tens of billions of RMB in investment from the private sector¹. In Liaoning, the amount of FDI increased from 3 billion US dollars in 2016 to 5.3 billion US dollars in 2017. The shift towards mixed ownership and the significant growth of private enterprises signified a positive trend in Northeastern China’s business environment. The region fosters innovation, competition, and overall economic development by embracing a more diverse ownership structure and encouraging private sector growth.

Figure 10. The Number of SOEs in Northeastern China



Note: The Data for 2013 and 2018 were not released

Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

Furthermore, the National Development and Reform Commission (NDRC) implemented a strategic pairing initiative to promote cooperation and resource sharing in 2018. The Northeastern provinces were paired with three economically prosperous provinces from China’s eastern and southern regions.² Such reforms have increased

¹ http://english.scio.gov.cn/chinavoices/2021-03/02/content_77262330.htm accessed on Jan 2023

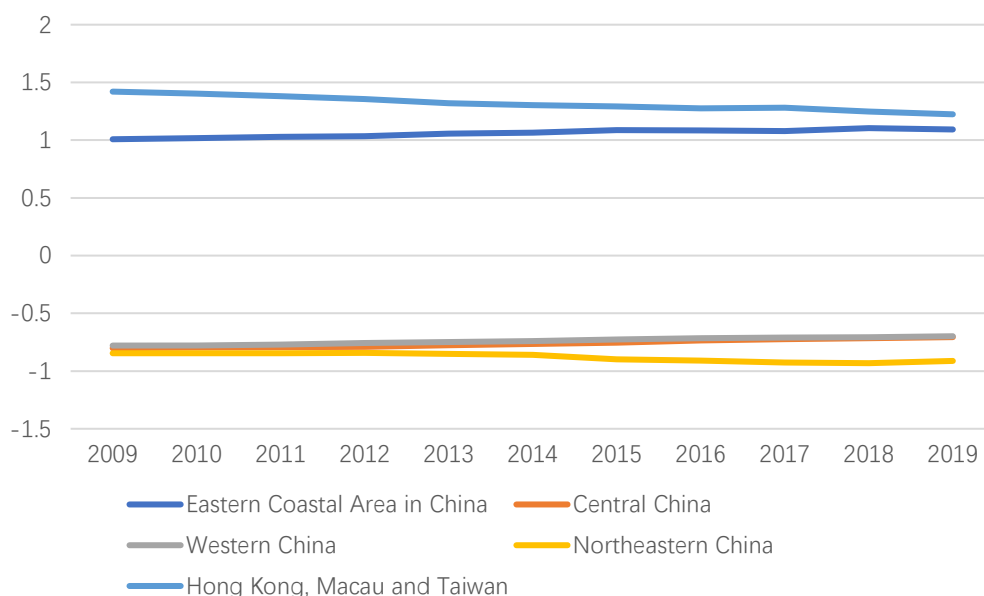
² Liaoning Province was paired with Jiangsu Province; Similarly, Zhejiang Province was partnered with Jilin Province, while Guangdong Province provided support and assistance to Heilongjiang Province.

SOEs' profitability significantly. Especially in 2018, the total profit made by major SOEs in Liaoning saw a considerable rise of over 40% year-on-year.³ Worker's benefits were also improved. Average wages for SOE employees in Liaoning increased from RMB 47,768 in 2014 to RMB 90,167 in 2021. During those seven years, that of Jilin and Heilongjiang also increased by 74.6% and 81.0%, respectively.

2.3 Financial, Businesses and Manpower Conditions

Figure 11 shows the scores of the five regions in Financial, Businesses and Manpower Conditions. Initially, Central China, Western China, and Northeastern China started at a similar stage, reflecting comparable conditions in terms of financial resources, business environment, and manpower. However, significant divergences became apparent. Northeastern China facing challenges in upgrading its industries, leading to a decline in its financial and business development and an increase in unemployment. Meanwhile, Central China and Western China showed more resilience and adaptability, enabling them to better align with the market-oriented economy. The widening gap between Northeastern China and the other two regions became more pronounced after 2012, highlighting the urgency for Northeastern China to address the challenges and catch up with Central and Western China.

Figure 11. Financial, Businesses and Manpower Conditions Regional Competitiveness Scores (2009-2019)

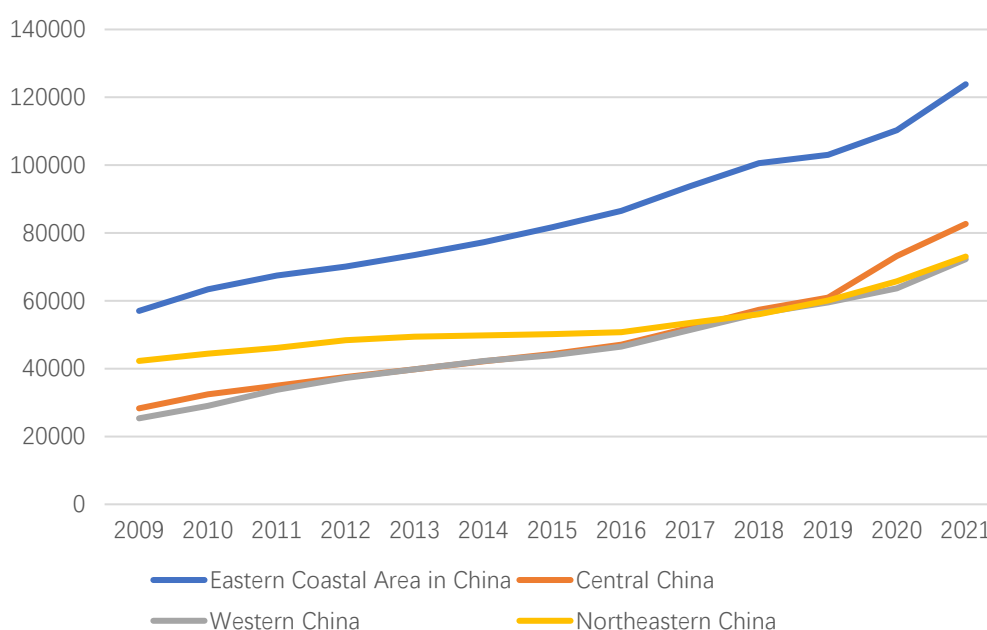


Source: Asia Competitiveness Institute

³ <https://news.cgtn.com/news/2019-06-27/Traditional-industrial-base-in-NE-China-succeeds-in-SOE-reform-HRCIUNVFkY/index.html> accessed on 25 Jan 2023

Relatively slower labour productivity growth in Northeastern China can further explain its weak performance in this environment. As shown in Figure 12, Northeastern China’s overall labour productivity remained stagnant, while Western and Central China experienced significant growth of about 50% during the same period. The net outflow of skilled workers and brain drain in Northeastern could account for this trend. The three provinces lost more than 30% of their population compared to 2010⁴. The slow pace of restructuring and the lack of well-paid jobs for skilled workers drove out educated young people⁵. The “pulling effect” from more developed regions, such as the Eastern Coastal Area, further exacerbated the outflow of talent from Northeastern China. This phenomenon has resulted in a low retention rate of local university students, with only 37.5% choosing to work in Northeastern China after graduation (Jiang, 2017).

Figure 12. Overall Labour Productivity of Four Regions in Mainland (Yuan per Person-Year)



Note: Constant Prices at 2000

Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

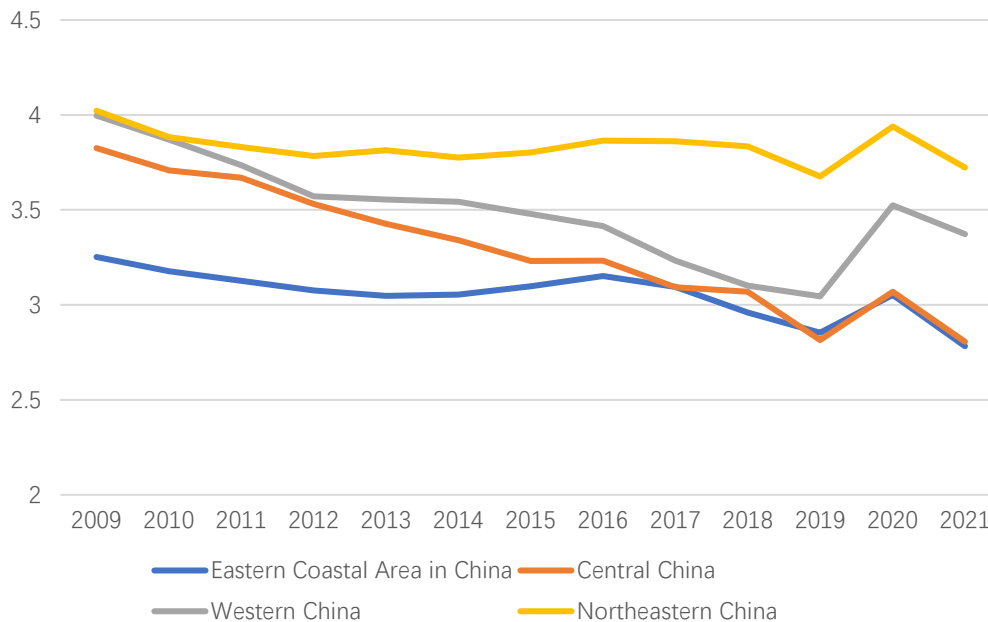
The high and persistent unemployment rate in Northeastern China has also been a longstanding issue for the region. As depicted in Figure 13, Northeastern China consistently exhibited the highest unemployment rate compared to other areas. Notably, in recent years, the government’s efforts to curb industrial overcapacity have resulted in potential layoffs. In 2016, the government reportedly aimed to lay off 5-6 million

⁴ <https://www.scmp.com/economy/china-economy/article/3133397/chinas-rust-belt-population-plummeted-last-decade> accessed on May 2023

⁵ <http://english.cctv.com/2016/12/16/VIDETq6ZNIYJQnQdgFBm2BGD161216.shtml> accessed on 6 Feb 2023

state workers to address overcapacity issues⁶. Essentially, there is now a greater urgency to address the surplus capacity in heavy industries and re-channel people and resources to more promising sectors of the economy.

Figure 13. Unemployment Rate of Four Regions in Mainland China (Percentage)



Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

2.4 Quality of Life and Infrastructure Development

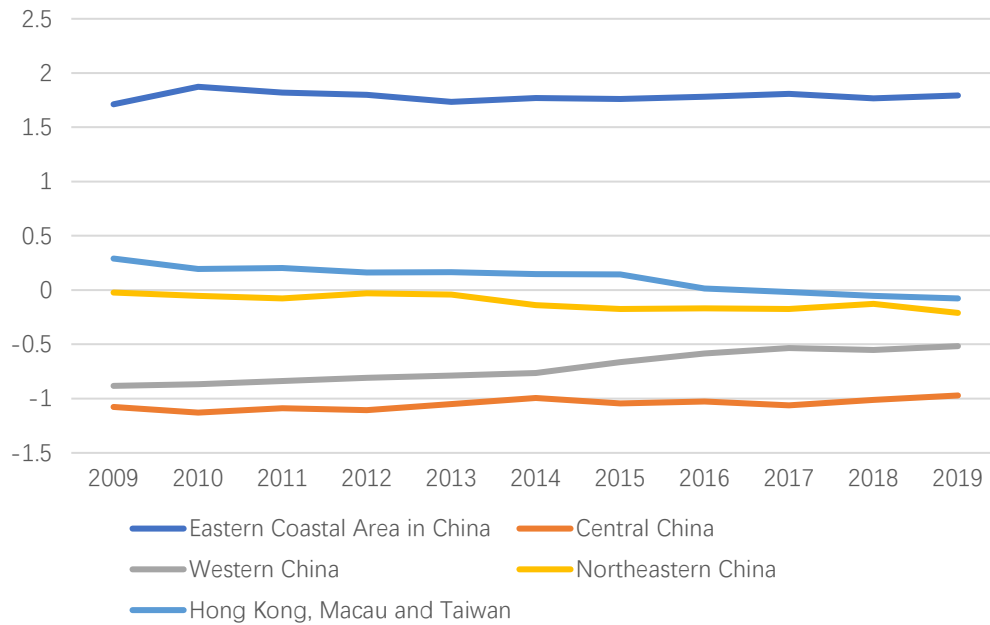
Figure 14 illustrates the scores of the five regions in Quality of Life and Infrastructure Development. Northeastern China maintained an average performance in this environment, with scores around 0 from 2009 to 2013. However, since 2014, the region has experienced a downward trend, indicating a worsening situation. The gap between Northeastern China and Western China gradually narrowed during this period.

A notable challenge for Northeastern China is the ageing workforce, as many workers are nearing retirement age, leading to a decline in the labour pool and a shortage of skilled workers. The heavy industry in Northeastern China has also contributed to high pollution levels and environmental degradation. It has resulted in significant health risks for the residents, further exacerbating the challenges. Figure 15 presents the demographic data for Northeastern China, highlighting the ageing population trend. In 2021, the proportion of individuals aged 65 and above in the region exceeded 16%. More specifically, Jilin, Liaoning, and Heilongjiang provinces recorded

⁶ https://www.scmp.com/news/china/society/article/1940998/can-beijing-revive-chinas-ailing-rust-belt?module=hard_link&pgtype=article accessed on May 2023

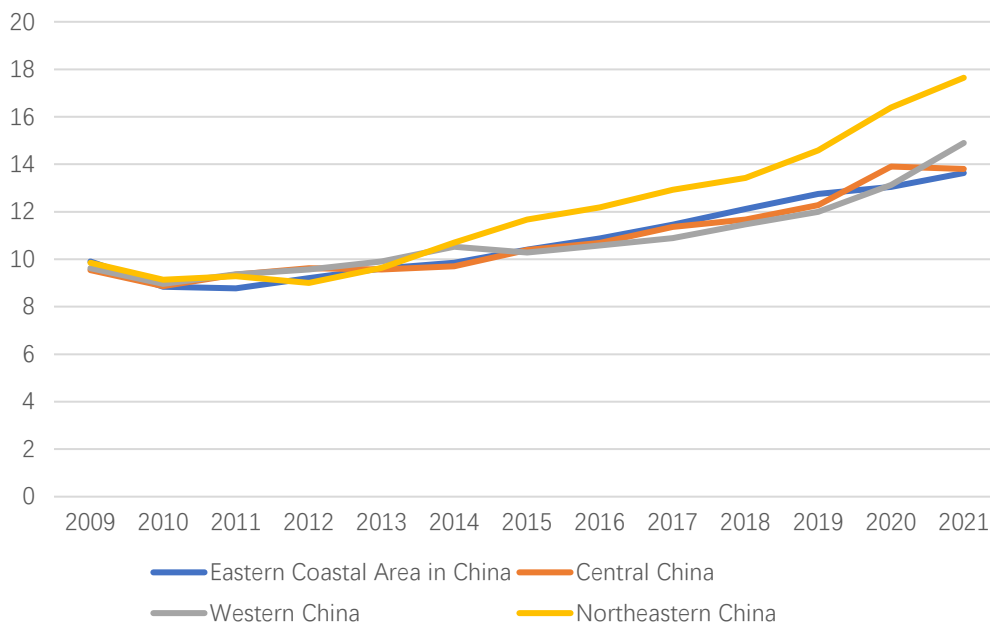
percentages of 16.71%, 18.80%, and 16.78%, respectively, higher than the national average. These figures indicate a significant ageing population in Northeastern China, posing challenges in healthcare, social welfare, and labour supply.

Figure 14. Quality of Life and Infrastructure Development Regional Competitiveness Scores (2009-2019)



Source: Asia Competitiveness Institute

Figure 15. Aging Profile of Four Regions in Mainland China (Percentage)

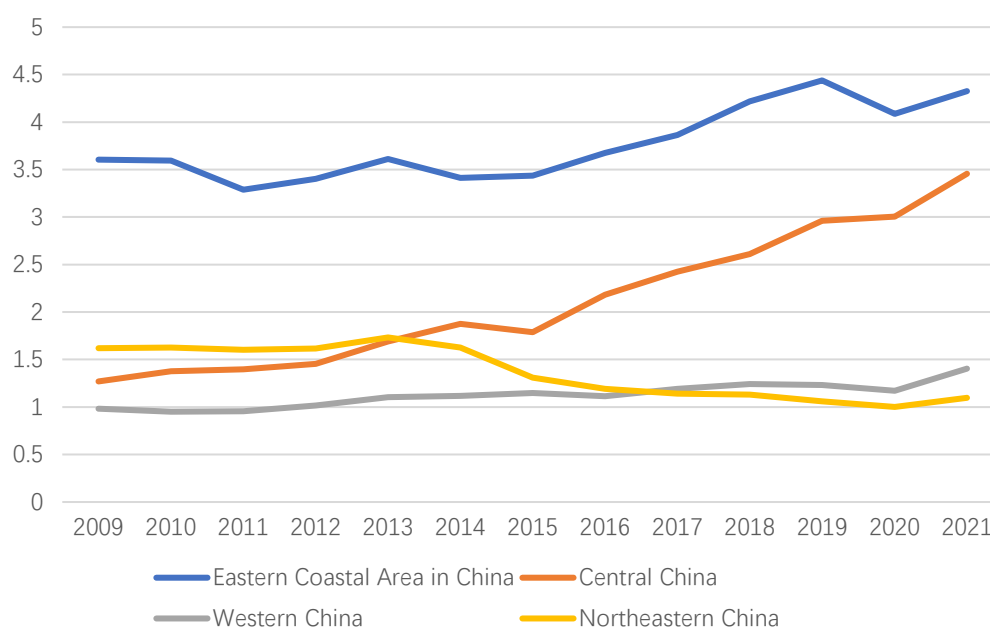


Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

As a historical legacy of the planned economy, high government expenditure in healthcare and social welfare squeezed the inputs in high technology sectors. In Northeastern China, over 35% of the government budget was spent on healthcare, social security and public security. Specifically, in 2021, Liaoning, Jilin, and Heilongjiang allocated 41.4%, 34.1%, and 39.0% of their budgets, respectively. Conversely, the proportion of expenditure on high technology sectors, as depicted in Figure 16, has remained around 1% to 1.5% with a declining trend. Insufficient investments in high technology have hindered the region’s progress in advanced industries.

To stimulate new sources of economic growth, Northeastern China has taken steps to enhance support for the information industry and related infrastructure. The region has recognised the potential of industries based on the concept of “Internet Plus”. Additionally, efforts have been made to boost e-commerce development in the region. In line with these initiatives, National Independent Innovation Demonstration Zones have been set up in Harbin and Changchun⁷. These endeavours aim to foster a conducive environment for entrepreneurial activities and innovation in Northeastern China. However, despite these efforts, the region faces challenges catching up with China’s more developed Eastern Coastal Area.

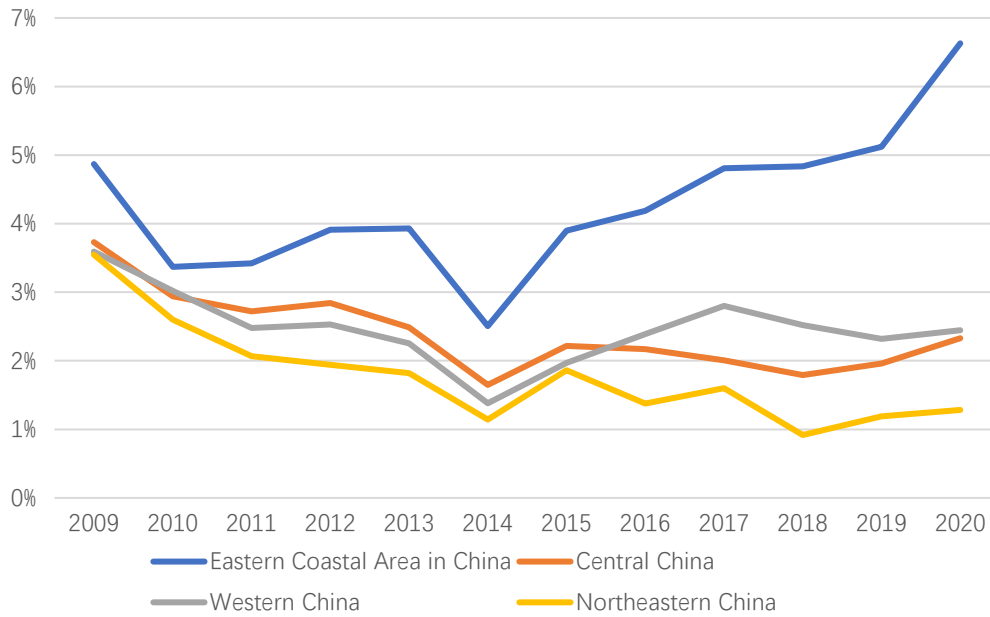
Figure 16. High Technology Expenditure to Total Government Expenditure of Four Regions in Mainland China (Percentage)



Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

⁷ http://english.www.gov.cn/policies/latest_releases/2016/11/16/content_281475492716602.htm accessed on May

Figure 17. The Percentage of Taxes Collected from the ICT Sector



Source: Asia Competitiveness Institute Based on Data from the National Bureau of Statistics of China

Figure 17 further illustrates a significant disparity in tax revenues generated from the Information and Communication Technology (ICT) sector between Northeastern China and the more developed Eastern Coastal Area in China. These factors collectively indicate the challenges faced by Northeastern China in terms of advancing its digital industries and fostering competitiveness in the digital era.

3. Conclusions

This paper presents a cross-year regional competitiveness analysis for five regions in China, particularly focusing on Northeastern China. Through this analysis, we provide several insights into the complex dynamics influencing Northeastern China's competitiveness. Our findings contribute to a better understanding of the region's current state and inform potential strategies and policy interventions to foster sustainable and inclusive growth in Northeastern China.

Despite having a solid foundation in terms of industrialisation and urbanisation in the past, Northeastern China currently faces significant challenges that hinder its upward momentum. One key factor is the overreliance on a single growth driver, which limits the region's ability to diversify its economy and adapt to changing market dynamics. Additionally, industrial restructuring has been slow, impeding the region's competitiveness in emerging industries. Moreover, the issue of brain drain, where talented individuals migrate from the region in search of better opportunities, further exacerbates the challenges Northeastern China faces.

It is essential to acknowledge that the full effects of the central government's revitalisation plan on Northeastern China are still unfolding, and their full impact has yet to be fully realised. While there have been noticeable improvements in state-owned enterprise reforms, this revitalisation plan's overall success and effectiveness in addressing the mentioned challenges and the region's competitiveness require continuous evaluation. Ongoing assessment and monitoring are necessary to determine the plan's long-term outcomes and to make any necessary adjustments to ensure sustained progress and development in Northeastern China.

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