Causal Factors Influencing to Business Operation on Human Capital in Heilongjiang Province

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Abstract

This research article studies the causal factors affecting business performance on human capital in Heilongjiang Province, identifies and analyzes the underlying factors of population decline and personnel outflow in Heilongjiang Province, with the objectives of this research study were: (1) To identify and analyze factors behind population decline and talent outflow in Heilongjiang province. (2) To examine key aspects that impact business operations and management in Heilongjiang enterprises. (3) To recommend policy measures that Heilongjiang province can implement. This mixed-methods study investigated the causal factors influencing business operations through human capital in Heilongjiang Province, China. For the quantitative component, a simple random sample of 400 individuals was drawn from the 31.85 million population using Taro Yamane's formula with a 5% margin of error, and survey data was collected through questionnaires. The qualitative component involved in-depth interviews face to face with several key questions, including government officials, business managers, and university faculty. The research results were found as follows; (1) The population decrease in Heilongjiang was primarily due to large-scale immigration, driven by factors associated with the area of origin, the area of destination, intervening obstacles, and personal factors. The population loss had subsequently influenced local government policies and motivation factors, which then impacted the operations of local enterprises. (2) Structural equation modeling (SEM) analysis demonstrated that the decision to migrate, local government policies, and motivation factors affecting expectations had a positive direct influence on business operations in human capital. The overall SEM model exhibited a good fit, indicating the robustness of the proposed causal relationships. (3) Policy measures informed by research can address the serious human capital challenge facing businesses in Heilongjiang. Local governments should facilitate talent mobility through favorable policies, infrastructure upgrades, and incentives. Businesses must prioritize human resources - controlling costs while offering career growth and competitive compensation to boost productivity and innovation. Strengthening coordination among stakeholders is crucial to balance interests, enable orderly population movement, and foster regional development. Understanding population dynamics, refining regulations, and removing migration barriers can promote rational mobility.

The theoretical models used to analyze business performance in human capital include migration decision, local government policy theory, and expectancy-related motivation theory. In addition, this study can be used to optimize Heilongjiang's strategic emerging industries.

Keywords: Business operation; Human capital; Heilongjiang Province

Introduction

Heilongjiang Province, located in the northeastern most region of China, borders Russia and has the city of Harbin as its provincial capital. With a vast geographic area of 466,600 km2, Heilongjiang is China's sixth largest province by total land area (National Bureau of Statistics of China, 2021). The terrain is relatively flat, dominated by extensive plains, rolling hills and forested mountains. Major rivers that flow through the province include the Songhua River, Heilongjiang (Amur) River and Wusuli River, providing abundant water resources (Liu, 2005). Heilongjiang has a cold temperate continental monsoon climate, with very long, freezing winters and short, warm summers. Average temperatures in winter plunge well below -30°C, making Heilongjiang one of the coldest provinces in China (Zhang et al., 2006). As a result of the cold climate, Heilongjiang is a vital agricultural production base in China's northern regions, producing staple crops such as wheat, soybeans and corn. The province also leads the nation in forestry and freshwater fisheries output (Yu, 2019). The economy relies heavily on agriculture, forestry, fishing and related processing industries, as well as on traditional heavy industry like petroleum extraction and natural gas production (Li & Wei, 2017).

As one of the oldest industrial bases in Northeast China, Heilongjiang Province underwent rapid industrialization in the 1950s and 1960s, especially in pillar industries like steel, coal and electricity production. However, with the onset of China's reform and opening up period starting in 1978, heavy industry across Heilongjiang went into decline, resulting in the closure of many factories and enterprises. This caused major negative impacts on the provincial economy and employment (Yu, 2019). In order to revive economic growth in Northeast China, the central government has introduced a series of supportive development policies and financial subsidies. However, these measures do not seem to have stimulated significant growth or arrested industrial decline in Heilongjiang. The province's GDP continues to rank low nationally, at 22nd out of 34 provincial level divisions (National Bureau of Statistics of China, 2022). Scholars argue this highlights the general ineffectiveness of current initiatives in addressing deindustrialization, human capital loss and population decline in Heilongjiang and similar regions of China's northeast (Li & Wei, 2017; Yu, 2019). More strategic investments, new industries and effective policy incentives are urgently needed to reverse long-term economic stagnation and stem the outflow of people and human capital.

Recent census data shows Heilongjiang's permanent population was 31.85 million in 2020, decreasing by 16.87% from 38.31 million in 2010. The annual population growth rate was -1.83% over this period (National Bureau of Statistics of China, 2021). This ongoing population decline could negatively impact economic and social development in the province. A shrinking labor force and consumer market are potential issues facing Heilongjiang. Population loss often coincides with human capital outflow as well. As the population shrinks, the labor market and economy tend to stagnate, prompting skilled and educated talents to move to more attractive cities and regions with greater opportunities (Liang & Chen, 2019). In addition, population decline can strain public services like education and healthcare, further hampering talent retention and exacerbating demographic issues (Gu et al., 2018). In summary, Heilongjiang faces a vicious cycle where population loss and economic stagnation reinforce each other. The outflow of human capital removes the skills necessary for economic growth, while weakening public services deter talents from staying or moving there. Stemming population and talent decline is thus critical for improving Heilongjiang's investment environment and development prospects.

The decrease in population may affect those who have the following skills: Brain drain, Talent shortage, Decrease in education and training levels, Reduction in social security and public service facilities. Therefore, to attract and retain talents, Heilongjiang needs to provide a favorable work and living environment, including quality job opportunities, high-level education and training opportunities, sound social security and public service facilities, etc., to improve the retention rate of population and talents, and promote the sustainable development of the region.

The complex challenges facing Heilongjiang Province highlight several promising research directions. This can provide valuable insights to guide more effective policies. In-depth research in these areas would powerfully inform policies to retain and attract talent in Heilongjiang. The benefits for the province could be profound. Firstly, an improved understanding of talent flight's causes and impacts would motivate officials to take this issue more seriously and act decisively. Secondly, data-driven insights would allow policy targeting for maximum effectiveness. Thirdly, implementing other regions' best practices could accelerate Heilongjiang's revitalization. Fourthly, successful pilot zones could kickstart broader positive change across Heilongjiang. Finally, optimized strategic industries would sustainably strengthen Heilongjiang's competitiveness, growth and appeal.

This research paper presents the study of Causal factors influencing to business operation on human capital in Heilongjiang province by identify and analyze factors behind population decline and talent outflow in Heilongjiang province. To examine key aspects that impact business operations and management in Heilongjiang enterprises. and To recommend policy measures that Heilongjiang province can implement

Research Objectives

1. To identify and analyze factors behind population decline and talent outflow in Heilongjiang province.
2. To examine key aspects that impact business operations and management in Heilongjiang enterprises.
3 .To recommend policy measures that Heilongjiang province can implement.

Literature Review

Theory of associated with the decision to migrate.

The push-pull theory is an important theory for studying population migration, which originated in the 19th century. In 1880, the British scholar Regenstein first proposed seven laws of population migration in his paper "The Law of Population Migration", pointing out that the population moves towards cities with developed industry and commerce, and there are certain reverse return flows. This laid the foundation for the subsequent push-pull theory.

In the first half of the 20th century, the American scholar Bagne first explicitly proposed the push-pull theory. He believed that the purpose of population migration is to improve living conditions. The favorable conditions in the inflow area constitute the "pull" force, while the unfavorable conditions in the outflow area form the "push" force. The interaction of push and pull forces jointly determines the direction and scale of population movements. Afterwards, many scholars supplemented and revised the theory. Among them, Lee's contribution was the most prominent. He added the intervening obstacle factors and formed a complete theoretical framework of "push-pull-resistance".

Guang Pan (2019) said “Push and pull theory” is one of the most important theories for studying floating population and immigrants. The theory holds that the reasons for migration and immigration are because people can improve their living conditions through migration. As a result, the factors that have caused immigrants to improve their living conditions in the inflow areas have become the pull force of the floating population, and the unfavorable socio-economic conditions of the outflow areas have become the thrust of the floating population. Population migration is accomplished through the combined effect of the thrust of the outflow areas and the pull force of the inflow areas.

Duan, H. (2012) said in the push-pull model, migrants are pushed by negative factors in their origins and pulled by positive factors in their destinations. The passivity of human behaviour, which is ignored by many models, is innately addressed in the push-pull model. However, the push-pull model, both in its original form and later versions, is constrained by some assumptions, particularly relating to rational choice, which must be challenged from the perspective of embodiment. The embodied push-pull theory argues that push and pull factors must be understood through migrants experiences, including active aspects, such as planning, and passive aspects, such as affect. Both activity and passivity reside in migrants bodies, taking effect through desire, memory, and perception. In conclusion, at the micro level, individual and household socio-demographic characteristics also impact migration decisions. These include age, gender, education, risk preference, information-seeking capacity and other individual traits, as well as household size, economic strength, social networks etc. Different agents make subjective assessments based on their attributes and opt for different migration outcomes. Such factors reflect the theory's attention to individual agency.

From a review of related literature, it was also found that Impressions of the push-pull theory on population migration. Zhenwu and Fan (2011) stated that population fluctuations have caused dramatic changes in the structure of the working-age population. On the one hand, the working-age population has gradually changed. Entering old age and the proportion of young workers has decreased. But employers like young people. This conflict leads to an imbalance in the supply and demand of young workers, and Gáková and Dijkstra (2010) state that, given the likely decline in labor supply, Population decline is therefore closely related to economic decline. Although this relationship is neither automatic nor inevitable, Wirth, P., Elis, V., Müller, B., & Yamamoto, K. (2016) state that the most common development patterns in cities small is the decline of the economy and a shrinking and aging population. The two components are closely linked. and overlapping and intensifying Reduced job opportunities are responsible for travel. And a study by Niu, F. (2022) found that population migration will change the pattern of population distribution. and is closely related to economic development. Accurate predictions of intercity population migration are critical for regional capacity models, transport and urban planning. Skuras D, Meccheri N, Moreira MB, Rosell J, Stathopoulou S (2005). Several arguments suggest that contexts of population decline tend to produce lower quality startups. First, regions experiencing population decline tend to see young people emigrate at the same time. also faced a decrease in the number of workers at the same time, especially those with higher education tended to find work elsewhere. This is because the quality of startups depends on the level of human capital or ability, and Delfmann, H., & Koster, S. (2016) also found a consistent point that The number of startups is likely to decrease. This is because the number of potential entrepreneurs has decreased**.**

Local government policy

Chung, Jae Ho, Hongyi Lai, and Jang-Hwan Joo (2009) said For the "revive the northeast" scheme, central targets were stipulated by NDRC, the Ministry of Finance, the Ministry of Agriculture and the State Tax Administration. Targets set by the northeast provinces can be distilled from the three documents on "planning guidelines", all approved by

the State Council Office for Reviving the Northeast. In line with the centre's preferences, the three provinces also underlined the acute need for thorough restructuring of their state sector. Unfortunately, provincial guidelines did not specify concrete - quantified - targets for this goal. And Wang, Tingting, Kang Wu, Cuiyou Yao, and Xiaoxiao Liu （2022）said the market led public service facilities represented by POI have a time lag of two to three years with the changes of demographic structure, economic and industry structure respectively. Which shows that market led public service facilities are more than government led public service facilities (Eiamnate et al., 2024). The possible reason is that due to the profit seeking nature of the market, once feels the economic recession and population loss, it will make corresponding rapid adjustment strategies.

Government investment and subsidies Zhang, Pingyu（2008）said by the end of the 1970s, Chinese economy has been almost at the edge of collapse due to the political reason, while stricken symptom appeared in the Northeast Old Industrial Base for long-term absence of investment on upgrading technology and adjusting structure of hundreds of thousands of overburdened state-owned enterprises. In 1978, China implemented the reform and opening up policy to begin with the southeast coastal area, which indicated the shift of regional policy focus from the inner lands to coastal areas. Northeast China, far away from the economic frontier areas, was no longer at the core of preferable policies, but it must continue the state instructions and afford reform cost through some unequal policy such as the dual track of price system in the late 1980s (Yang, 1992) and China Development Review（2004）said After the problems of the Northeast emerged in the late 1980s, the State adopted a series of policy measures (such as infusing large amounts of capital into the state-owned enterprises) to revitalize old industrial bases in the Northeast. To some extent, these policies eased many conflicts in the development process of the Northeast, but they had very limited impact as they were not well incorporated with reforms.

Local government policies Based on a review of related literature, Yang et al. (2022) stated that, however, due to the implementation of market-oriented reforms in the 1990s, the economy of the northeastern region China has always faced many difficulties. Including company failures and important factors. employment conflicts Due to the emergence of new sectors in those developed areas Northeast China's economic growth rate which is dominated by general industry It has lagged significantly behind China's coastal urbanization rate in recent years. In addition, the long-term comprehensive development paradigm has caused increasing conflicts between economic and social development. Waste of resources and environmental degradation.

Theory of Motivation factors affecting expectations

Herzberg's seminal theory remains highly relevant in diagnosing and influencing employee attitudes and motivation. By satisfying real needs through success Responsibility, Growth, and Fair Treatment Employers can thus harness the inherent drive and creativity of their human capital. External factors provide the environmental support necessary for self-determined motivation to flourish. Managing both motivation and hygiene factors in a balanced and ethical manner is essential to attracting, engaging, and retaining the best talent in today's competitive labor market.

Martela & Colleagues (2020) stated that a positive organizational culture that satisfies the need for autonomy, competence, and relatedness. Promote engagement and intrinsic motivation, and manager behavior that demonstrates acceptance empowerment and development of subordinates It helps to satisfy the need for self-awareness (Kazimoto, 2022) and in that work. Subordinates or employees expect a fair and transparent compensation system that is commensurate with their skills and contributions. Unclear reward policies undermine motivation and trust (Rodriguez et al., 2022), and Sheldon (2021) states that innovation is

motivated by interest. enjoyment and satisfaction in making progress External rewards can be debilitating. Instead of increasing creativity This is consistent with Allan and colleagues (2019) who stated that meaningful work that provides a sense of purpose has a greater impact on job satisfaction compared to extrinsic incentives. Chillakuri (2020) stated that professional success and purpose-driven work trumps material rewards among the top motivators. For Gen Z job seekers. Our research reveals that today's employees expect an open, collaborative culture that values cooperation. creativity and social connections in the workplace (Jenkins et al. 2019).

Theory of Business Operation in human capital

Agrawal, A., & Tambe, P. (2022) Large technology companies fiercely compete for AI and data analytics experts, making recruitment in these areas extremely challenging. It calls for strategic partnerships with universities to build a talent pipeline.

Recruitment costs can pose a major expense for companies, especially in competitive industries like technology and customer service. Service companies in particular rely heavily on the quality of customer-facing staff, and high turnover in these roles can directly damage corporate reputation and customer loyalty. This requires ongoing recruitment to fill vacant positions, adding to costs. Moreover, large technology firms aggressively compete for top talent in high-demand areas like artificial intelligence and data analytics, making hiring in these specialties extremely challenging. The stiff competition inflates salaries, signing bonuses, and other incentives needed to attract qualified candidates. Between continually having to replace departed staff and the difficulty of recruiting specialists in cutting-edge fields, companies can face substantial budgets pressures. The constant need to recruit, onboard, and train new hires is costly not just in financial terms, but also in terms of productivity and knowledge loss when staff leave. Strategic partnerships with academic institutions to build a talent pipeline is one approach companies can adopt to reduce recruitment costs and secure the human capital integral to their success. Developing such partnerships and focusing on retention of top performers may help firms minimize the considerable expenses associated with recruitment. Investment in competitive compensation, training, advancement opportunities and a positive corporate culture can also aid retention. By taking proactive steps to reduce turnover and create a strong talent pipeline, companies can better manage the significant costs of recruitment.

A review of related literature also found that Anderson (2020) stated that startups often have difficulty recruiting talented executives and engineers. Because there is limited compensation This negatively affects an organization's performance in its quest for growth.

Conceptual Framework

The researcher defines the research conceptual framework from literature review the concept of factors, policies, and business operation. Show details as follows.

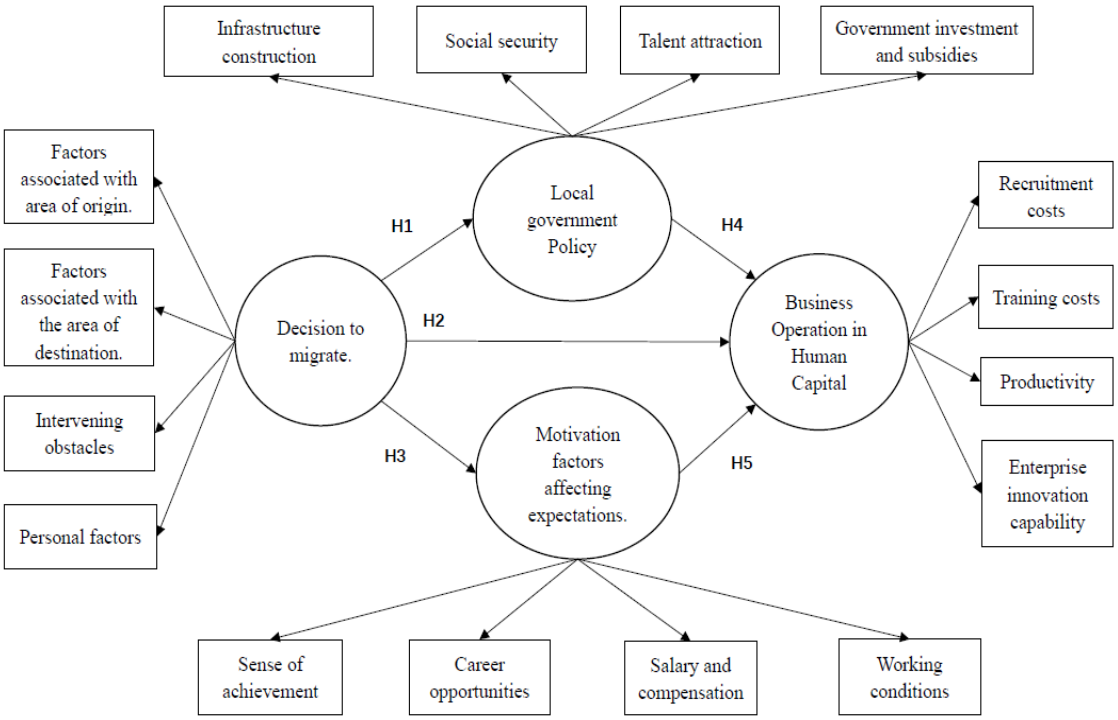

Fig. 1 Conceptual Framework

Research Methodology

This research is Quantitative Research the sample used for quantitative research is the total population of Heilongjiang Province which is 31.85 million people. Using the method of Taro Yamane (1970) with a sample size error of 5% or 0.05. Population size 31.85 million (source:2020 Seventh National Population Census released by the National Bureau of Statistics of China). Sample size randomly selected 400 from 31.85 million Heilongjiang people. The questionnaire is a commonly used data collection tool in quantitative research approaches. In this study, the researcher will utilize a questionnaire to gather numerical data relevant to the research questions. The questionnaire consists of closed-ended questions with a predefined set of response options that participants will select from. Using a standardized questionnaire allows the researcher to survey a large sample of the target population efficiently.

The questionnaire is selective. For example, the gender of the questionnaire is divided into two types, namely male and female, and there are multiple options for the age range of the questionnaire. In this survey, researcher divided the questionnaire into 5 parts, Part 1 General Information of Respondents, Part 2 Information about associated with the decision to migrate, Part 3 Information about local government Policy in Heilongjiang, Part 4 Information about Motivation factors affecting expectations, and Part 5 Information about Business Operation in Heilongjiang. The statistics used in data analysis. To analyze the interview content and insights, the researcher will extract information from the 8 participant transcripts. Relevant team members will conduct analysis and synthesis on:

1. Categorizing responses per the 4 sections of the conceptual framework: Factors Related to Migration Decisions, Local Government Policy, Motivational Influences on Expectations, and Business Operations.

2. Compiling and completing participant answers for each question.

3. Aggregating key points across all participants' responses, analyzing through the lens of the framework, summarizing results, and drafting the findings report.

Research Results

Objective 1, to identify and analyze the primary drivers behind population decline and talent outflow in Heilongjiang province.

Through quantitative and qualitative research methods, and with the help of AMOS and a basic software, we can see decision to migrate is the reason for population loss in Heilongjiang Province, and there are four reasons to let the people decide to migrate, there are Factors associated with area of origin (DTM1), Factors associated with the area of destination (DTM2), Intervening obstacles (DTM3), Personal factors (DTM4), and the value for these four parts are 0.86, 0.98, 0.84 and 0.51. R2 for them are also very high, they are 0.75, 0.95, 0.70 and 0.26. CFI=1, NFI=0.999, GFI=0.998, IFI=1, RMSEA=0.032 , RMR=0.004. From these data it can tell factors associated with the area of destination is the most important to let people leave Heilongjiang. And the other factors are also having the positive effect for people leave Heilongjiang.

Research objective 2, to examine how talent outflow has impacted key aspects of business operations and management in Heilongjiang enterprises.

According to chapter 4, we use structural equation modeling (SEM) to examine key aspects that impact business operations and management in Heilongjiang enterprises And through quantitative and qualitative research methods, and with the help of AMOS and a basic software, we can see that decision to migrate (DTM) has a positive influence on Local government Policy (LGP) with the highest value 0.43; Decision to migrate (DTM) has a positive influence on Motivation factors affecting expectations (MFAE with the highest value 0.53, Local government Policy (LGP) has a positive influence on Business Operation in Human Capital (BOIHC) with the value about 0.08, Motivation factors affecting expectations (MFAE) has a positive influence on Business Operation in Human Capital (BOIHC) with the highest value 0.41, Decision to migrate (DTM) has a positive influence on Business Operation in Human Capital (BOIHC) with the highest value 0.47.

All in all, from the above data, we can see that if we want to positively affect business operations, the decision to migrate, local government policy and motivation factors affecting expectations to affect business operation in human capital.

Research objective 3, To investigate and recommend effective policy measures and strategies that Heilongjiang province can implement to mitigate population decline and talent outflow, as well as promote sustainable economic development.

Through Chapters 3 and 4, it can be concluded that the importance of national policies and local policies in attracting and retaining personnel. If the local government has good attraction policies, it will be able to attract a lot of talents. The results of the confirmatory component analysis in the structural equation modeling of local government policy consisted of 4 latent variables: Infrastructure construction (LGP1), Social security (LGP2), Talent attraction (LGP3), and Government investment and subsidies (LGP4). The factor loading score is between 1.00 to 1.126. The R2 scores are 0.7, 0.87, 0.98 and 0.83. and the value are 0.83, 0.93, 0.99 and 0.9. The construct reliability (CR) score was 0.994 (PC > 0.7) and the average variance extracted (AVE) was 0.975 (PV > 0.5). So from these data all of them are very important for the local government.

Therefore, after previous analysis and summary, and through AMOS data, the development model shown below can be constructed.

Through the investigation and research carried out in the previous four chapters, the researcher has made the following observations about the status of the 5 hypotheses put forth in the paper.

Discussions

Hypothesis 1 (H1): Decision to migrate including factors associated with the area of origin, area of destination, intervening obstacles, and personal factors influence local government policies including infrastructure construction, social security, talent attraction, and government investment and subsidies.

Good infrastructure and social security policies can attract more inflow of population, while poorer environmental, employment and living conditions lead to outflow of population (Fan, 2005). In addition, socioeconomic characteristics of individuals and families also affect migration decisions (Greenwood, 1975). To stem such tides, governments may invest more in infrastructure, offer incentives, or improve services. Ultimately, the socioeconomic makeup of populations drives policy by spurring either virtuous or vicious cycles. Interventions aim to retain human capital, without which other policies falter. In essence, the mobility of people facilitates the mobility of capital toward favorable conditions. So policymakers must continually respond based on migration patterns.

From above quotes, their opinion agrees with my point of view.

Hypothesis 2 (H2): Decision to migrate including Factors associated with the area of origin, area of destination, intervening obstacles, and personal factors influence business operations including recruitment costs, training costs, productivity, and enterprise innovation capability.

According to Pekkala (2003), migration shifts labor supply and demand dynamics in regional markets, influencing hiring difficulties faced by companies. And Niebuhr (2010) found that high-skilled immigration can increase regional R&D activity and innovative outputs. Labor supply shifts shape hiring and retention difficulties in both declining and growing areas. Businesses in expanding regions may readily fill positions while struggling locales face shortages. The skill-sets and education of migrant groups also affect productivity potentials. For instance, high-skilled immigrants can boost innovation but brain drain undercuts regional competitiveness. Therefore, firms across various sectors and locations need to calibrate their talent acquisition, training, and research and development strategies based on local population flows. In essence, people movements present both opportunities and challenges for companies. Corporations must keep pace with demographic changes and proactively adjust their workforce plans and strategic directions.

As you can see, the above quotes opinions agree with my point.

Hypothesis 3 (H3): Decision to migrate including Factors associated with the area of origin, area of destination, intervening obstacles, and personal factors influence motivational factors affecting expectations including sense of achievement, career opportunities, salary and compensation, and working conditions.

"A variety of factors influence an individual's decision to migrate from one area to another, including conditions in their area of origin, the perceived opportunities in potential destinations, obstacles or barriers inhibiting movement, and personal motivations (Sjaastad, 1962; Lee, 1966). Key economic motivations include expectations for improved salary, career opportunities, sense of achievement, and working conditions in destination areas relative to the origin (Williams & Baláž, 2012). However, migration decisions also depend on social networks connecting origin and destination and intrinsic desires for adventure or cultural experience that characterize many young mobile populations."

Their views are also the same as this article.

Hypothesis 4 (H4): Local government policies including infrastructure construction, social security, talent attraction, and government investment and subsidies influence business operations in Human capital including recruitment costs, training costs, productivity, and enterprise innovation capability.

"An expansive talent policy and improved urban infrastructure facilities help attract and retain skilled workers, thereby positively influencing business performance." (Florida et al., 2010). "Besides direct subsidies and tax incentives for employee training, local government policies favorable for human capital accumulation include education financing, community amenities, affordable housing and transportation." (Shapiro, 2006)

The above quotes opinions agree with my point.

Hypothesis 5 (H5): Motivational factors affecting expectations including sense of achievement, career opportunities, salary and compensation, and working conditions influence business operations including recruitment costs, training costs, productivity, and enterprise innovation capability.

Non-pecuniary motivational factors like sense of achievement and meaningful work tend to not only reduce employee turnover but also make staff more resilient during crises. (Grant, 2008)

"Besides extrinsic rewards like pay and job security, intrinsically motivating factors involving personal growth opportunities and social impact influence job satisfaction." (Stringer, Didham & Theivananthampillai, 2011)

From above, they have the same opinion with me.

All in all, destination attributes like technological capabilities and innovation ecosystems attract skilled migrants, boost innovation, but barriers around language and culture can temporarily lower migrant productivity. Migrants' education level and experience impact human capital transferability and innovation outcomes, so business investments in training and integration programs can aid productivity. Infrastructure investments can expand labour pool access and talent recruitment, while subsidies encourage R&D spending, and public skill development services boost productivity over time, though regulations can also limit expansion. High achievement motivation among workers boosts productivity by encouraging skill development, but higher salary expectations could inflate costs. Positive perceptions of work-life balance predict innovative behaviors by allowing intellectual stimulation. Companies can optimize productivity and innovation through talent analytics assessing motivational profiles, career ladders, compensation benchmarking, and flexible working arrangements.

Knowledge from Research

This study utilizes multiple theoretical models to analyze the Business Operation in Human Capital, differentiating it from previous works which typically apply a single theory. The key theories adopted include the decision to migrate model, local government policy theory, and motivation factor theory related to expectations. These frameworks enable examination of the impact of local policies and motivational expectations on business operations involving human capital.

Additionally, a mixed methods approach combining both quantitative and qualitative techniques is employed in contrast to prior studies relying solely on a singular methodology. Structural equation modeling further bolsters the analysis to ensure robust and reasonable data interpretations. The pluralistic theoretical and analytical approach underpins a comprehensive investigation into the research subject from multiple perspectives.

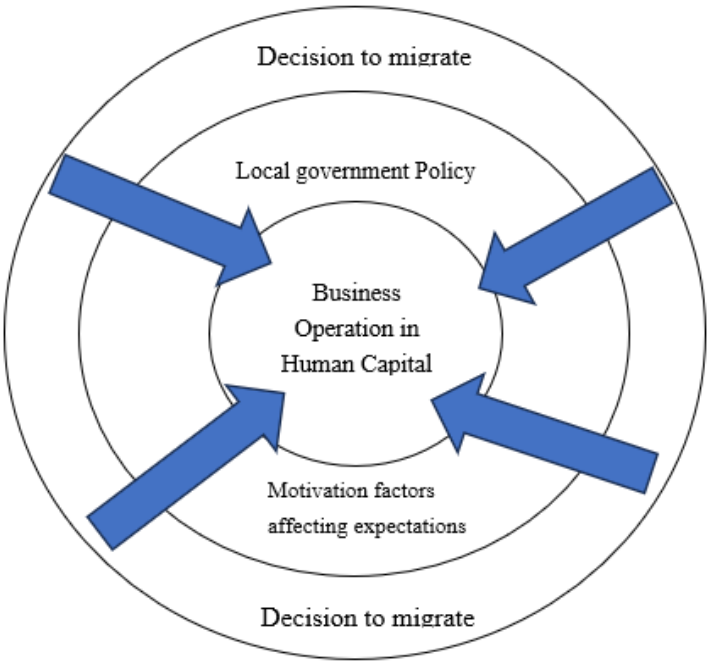

Fig. 2 Model improve Business Operation in Human Capital

Conclusion

From this study, it was found that Theoretical models used to analyze business performance in human capital include model migration decisions. Local government policy theory and theories of motivation related to expectations. They further found that these frameworks allow for examining the impact of local policies and motivational expectations on human capital-related business practices. This study can be used to optimize the strategic emerging industries of Heilongjiang. and consider the advantages of local resources and the strengths of talented personnel. Identifying high-potential sectors and designing targeted policies for their development are key to economic recovery. This includes evaluating how to take advantage of Heilongjiang's cold weather. Abundant agriculture and higher education institutions to create a new industry that can compete

Suggestions

The present study lays the groundwork for future in-depth investigations on this topic. Overall, there remain many aspects of this topic that warrant further exploration, and we hope that future studies will build on the foundation of this research to gain deeper insights. Some specific directions for additional research include expanding the sample to different demographic groups, investigating the longitudinal impacts over longer time periods, identifying moderating factors that may affect the outcomes, using more robust statistical models to analyze the data, and comparing our methodology with alternative approaches. With continued investigation, we can develop a more thorough understanding of this phenomenon and its practical implications.

1. Demographic Change Research

With accelerating population aging and decline of working-age labor force, Heilongjiang province faces structural human resource shortage challenges. Further analyzing shifting age demographic trends and the resultant impact on employment, consumption and investment patterns could inform corporate strategy and government policy-making. For example, assessing skill transformation pressures faced by traditional industrial firms or projecting

consumer market potential and evolving spending drivers would provide valuable insights to guide industry upgrades and regional growth priorities.

2. Rural-Urban Inequality Research

Stark rural-urban development imbalances in Heilongjiang directly constrain efficient allocation of human capital. Comprehensive evaluation of gaps in infrastructure, public services and social welfare protections would analyze consequent distortions in factor mobility, industrial transfer and talent development. Operational policy recommendations for promoting coordinated advances across urban and rural systems are needed to dismantle dualistic structures and build an integrated open economy.

3. Income and Consumption Shift Research

Amidst profound industrial and technological transformations, the evolving income levels and spending patterns across China's socioeconomic spectrum mirrors the momentum within regional economies. Therefore, continually tracking the impact from rising household incomes and consumption structure upgrades on sectoral growth, especially researching emerging middle classes and latent consumer segments, would inform forward-looking economic policies for companies and local governments.

4. Environmental and Energy Impact Research

Against the backdrop of ecological civilization reforms, assessing constraints from environmental and energy factors on Heilongjiang's growth trajectory, while correlating policy outcomes on conservation efforts and green development initiatives, would contribute insights to advance sustainable development goals over the long-term. Case studies on environmental remediation, clean energy adoption and the like could provide useful references.

5. Regional Economic Integration Research

Proactively integrating into regional economic spheres is an important pathway for Heilongjiang province to leverage its geographical advantage. Analyzing collaborative opportunities with Russia and Northeast Asian economies, assessing impacts from free trade bloc developments in attracting talent, technologies and financial capital, and formulating strategies alongside actionable policy recommendations for participating in global and regional integration will be pivotal.

In presenting long-term perspectives alongside targeted suggestions on "Causal factor related to business operation on human capital in Heilongjiang province", the paper serves as a meaningful starting point to guide further investigation in this complex area. Recognizing that interdisciplinary mastery takes time to attain, the researcher aspires to comprehensively review prevailing academic theories and emerging data analytics models regarding the manifold drivers of regional industrial progress and talent formation. Follow-up research will be more specific and profound, and can help companies improve operations and help companies operate more efficiently, and the government can work together with companies to help each other and gain mutual benefits.

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