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主 論 文 の 要 旨

論文題目

The Rebalancing of Human Capital Disparity in China

(中国における人的資本の不均衡の是正)

氏 名

張 一楓 ZHANG Yifeng

論 文 内 容 の 要 旨

1. Introduction

As one of the most critical perspectives in economic and social development studies, human capital has proved to be important in stimulating sustainable growth of the economy and keeping social balance. This chapter will offer several key arguments to demonstrate the necessity of studying human capital development and how to rebalance the disparity in China. Since the economic growth of China in the past three decades not only proved its success of the opening strategy but also derived the imbalance in China's social development, this dissertation will focus on human capital development in China in the past decade by exposing the imbalance issue on the subnational level and provide policy suggestions to rebalance such human capital disparity from education and health perspectives.

This study is designed to analyze human capital's actual status associated with education and health components with a better human capital formation methodology concerning China's background. The final goal is to offer essential policy suggestions to rebalance the human capital accumulation process across provinces in China. We begin by estimating China's trend of return to education in the past two decades. Secondly, with further understanding of the role of education and health factors as human capital key components, a better methodology of forming the human capital index with quality-based adjustment can be formulated using China's datasets. With its comprehensive information, this new human capital index is ideally suited to demonstrate the imbalance of human capital development across China. Furthermore, we will use this human capital index to find the impact of specific education, medical, and health policy factors. These findings can help the policy makers adjust their strategies from the view of human capital development and bring sustainability to human capital accumulations in different provinces.

2. Return to Education in China

To assess the trend of the return to education in China more accurately, a better understanding of China's achievement in the education sector should be one of the slightest requirements. Since the consistent education investment from the government and individuals poured into the education industry, the gross enrollment rate of primary school has been maintaining the level of 100% since 1990—the junior secondary school raised from less than 70% to 100% during the past 30 years. Besides China's compulsory school levels, senior secondary levels increased more than 60% of the gross enrollment rate to 80%. Concerning college degrees, a share beyond 40% of the gross enrollment ratio reflected a considerable leap from nearly zero starts in 1990. These incredible fast-growing enrollment rates in different education degrees were not useless. The share of illiterate people in every province in China declined sharply, even in the most rural area. (NBSC 2019)

The overall findings in this part of the research demonstrate an uprising trend in return to years of schooling. Educational attainment estimation in China starts from the early 1990s to the middle of the 2010s. At least one continuous significant boost began in the late 1990s and peaked in 2006. Although the estimates after 2011 show a slight decrease, it is still reasonable to admit the contribution of the long-term education policy since the returns to education maintained a high level compared to the early 2000s. These policies include, among others, the eighth curriculum reform for the compulsory education period started in 1999 and public funds growth to stimulate the vocational education before 2010. The results in this paper are robust to different estimation methods, such as the Lewbel approach, a heteroskedasticity-based estimating method. Meanwhile, we measured the returns to education with varying dummy controls such as gender, work type, and work unit type. We also show that the returns to higher educational attainment grew faster than fundamental education during the whole period, but vocational education became more popular after 2011.

3. Human Capital Index Formation

Human capital is critical for economic development and relates to personal growth nowadays. As an assembly of tangible and intangible assets, estimating human capital comprehensively with limited data resources becomes crucial. An accurate human capital index can help us investigate more social issues thoroughly. From the existing literature, there are several methods have already been developed. On the one hand, from the most traditional way, using regional years of schooling or educational attainment as a proxy, to the indicator featuring approach, this road of estimation combines different human capital indicators to derive the final index.

On the other hand, tracing back the total cost of human capital foster duration is another option.

It aimed to depreciate all categories of investment in human capital or follow the income levels of the areas to represent the performance of the regional human capital development. This part of the research begins with the primary issue of human capital measurement and by providing new attempts at fixing shortages of existing methodologies and offering a comprehensive index-based human capital calculation approach. We also applied the quality-based adjustment method to control education and health components following the learning-adjusted years of schooling approach. The final aggregation of the index is also detailly discussed.

With this newly created human capital index, we can specifically describe the trend of the human capital development for each province in China from 2010 to 2018. We can also utilize the Principal Components Analysis for investigating the development of education, health, and survival within the human capital structure.

4. Examine the Imbalance in Human Capital Development across China

The main method of this part of the research is using a convergence analysis. Convergence analysis developed by Phillips and Sul (2007) can examine the cross-sectional variance ratio of human capital. Some existing literature also assessed human capital convergence status by implementing β -convergence and σ -convergence (Coulombe, 2003; Coulombe & Tremblay, 2001). But these previous studies are limited by the trend stationary or stochastic non-stationarity assumptions to the variables. Fortunately, the regression-based convergence analysis proposed by Phillips and Sul (2007) can ignore those assumptions and take the convergence results according to regions and time. It can furtherly identify the subgroups among the samples and generate different clubs, reflecting the gaps between other areas. To push this inequality analysis forward, we will also use the convergence results on the original human capital index for a decomposition analysis by calculating a Kaya-Zenga index used by Wang et al., (2020) and Mendoza et al. (2022). It can help us clarify policy incentives' directions, which can potentially rebalance the human capital index across China. By using the new human capital index, we created in the previous chapter of this study, we derived new club convergence and decomposition analysis. These analysis offer are critical for pointing out policy directions for China from the sustainable development perspective.

5. Assess Impact of Education and Health Determinants on China's Human Capital

The research on determinants and their effectiveness has been widely investigated for different scenarios for human capital studies. And the similar scale of the literature also comes to additional social or public spending effect research. However, some recent studies have also reminded us of the importance of looking at policy implications through the corresponding spending effect with an aggregated measurement. Learning from the previous research on OECD (Lorenzoni et al., 2018;

Égert et al., 2020), their results have shown the importance of studying human capital determinants through health and education spending. And these studies inspired us to investigate China's policies' policy effectiveness through determinants analysis from public spending effects. Moreover, we implement a predictive importance analysis (Sterck, 2018, 2019a, 2019b) to estimate the determinants' effect by decomposing them with the variance that can reflect good scores on policies' importance to human capital development.

Combining these two analysis results, we can offer an integrated policy suggestions on whether these education or health determinants are adequate to promote human capital development and coordinate limited education and health spending in society. These results can also give suggestions on strengthening the spending efficiency of human capital accumulation through different determinants across China.

6. Conclusion and Policy Recommendations

This dissertation investigated the human capital inequality problems from education and health perspectives. we started from the return to education analysis based on longitudinal data in China. By estimating the return to years of schooling and margins of return to educational attainment from the 1990s to 2010s, we observed the growth in China's education returns with significant results from the analysis of both survey datasets. One step forward, to overcome the singularity of the education proxy on human capital research, we founded our own methodology to form a human capital index with comprehensive components. With the new human capital index, we utilized club-convergence analysis and Kaya-Zenga Index to uncover China's regional human capital disparity issue. Such results lead us to examine the main determinants' impact from education and health perspectives to the human capital development. The findings of demonstrates the potential solutions and policy recommendations to rebalance China's human capital disparity.

To reduce the imbalance of human capital development in China, on the one hand, we suggest further coordination between education and health policies. Meanwhile, limited social spending is also crucial for rebalancing the accumulation of human capital on the subnational level. For those advanced areas, we suggest that a redistribution of educational resources to support counterpart lagging provinces. It should be critical for strengthening education quality in those lagging provinces. On the other hand, medical and health resources stimulation should be emphasized in all areas since medical quantities and qualities are still facing deficit issues because of the population. New technologies and traditional cultivation method should be combined to form a more sustainable healthy human capital accumulation circle. Finally, the suggestion on establishing an inclusive economic growth across China may also consider critical for a virtuous circled human capital development in the future.