Resource Boom, Factor Allocation Efficiency and Dutch Disease Effect: Theory and Evidence from China

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Overview

Traditional theory about Dutch disease only concerns the influence of production factors' mobility in quantity on resource boom. There is not only a neglect of factors' allocation efficiency which actually mirrors the quality of factors' use, but also a limitation in model specification for not giving the endogenous technological progress. Therefore, this paper firstly modifies the Dutch disease theory by including the factors' allocation efficiency, based on the framework of endogenous growth and learning by doing. And then an empirical examination is being taken.

Methods

We use the endogenous growth theory and learning by doing to verify conditional Dutch disease effect. Then, we calculate precisely factor allocation efficiency for 30 provinces in China in 1996-2015, with the method of Stochastic Frontier Analysis(SFA) based on Trans-log Production Function. Finally, we employ a dynamic panel data model with the system Generalized Method of Moment(SGMM) to test the theoretical propositions obtained in this paper strictly.

Results

Firstly, in the theoretical model, we explain a flexible mechanism of how the resource boom impacts on manufacturing development, which provides a normative proof of conditional Dutch disease effect. Secondly, the Dutch disease effect is obvious in China provincial level. Thirdly, the improvement of allocation efficiency is good medicine for Dutch disease.

Conclusions

The main and interesting conclusions are as follows. First, there is a conditional but not certain Dutch disease effect. Specifically, when factors' allocation efficiency is higher than the rate of returns to scale, the manufacturing sector can elevate marginal returns rate of factors through learning by doing to avoid the deindustrialization caused by resource boom, thus evading the Dutch disease. Secondly, the Dutch disease effect is obvious in China provincial level. And the improvement of allocation efficiency is good medicine for mitigating or freeing from the Dutch disease. Thirdly, higher resource tax may lower the profit of resource sector and motivate the resource-based regions to concentrate on technology innovation. That is helpful for manufacturing development and preventing from the Dutch disease effect. While higher prices of resources are failed to restrain the development of manufacturing.