



AN ANALYSIS ON THE REGIONAL SUSTAINABLE ENERGY TRANSITION IN CHINA

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INTRODUCTION

Energy security and environment protection are becoming critical issues worldwide. Energy development centred on sustainable transition has attracted the attention of governments, enterprises and academics. In order to balance the multiple objectives, China must pioneer a sustainable transition aligned with its market dynamics. However, due to a variety of possible factors, such as unbalanced resource endowments, inadequate financial subsidies, high technology costs and imperfect regulatory mechanisms, various regions in China are in different situations and face different uncertainties in the process of sustainable energy transition. This could affect the overall process of sustainable energy transition in China. In this context, a study on the different characteristics of the sustainable energy transition in the various regions of China has become necessary.

Methodology

In order to know the differences in sustainable energy transition capacity among regions in China, we selected indicators to define three basic capacities for sustainable energy transition: dependency, instability and innovation. The specific formulae are as follows.

$$Dependency_i^E = \frac{IE_i}{P_i}$$

where $Dependency_i^E$ is the dependency of sustainable energy transition in region i ; IE_i is the investment in the energy industry in region i ; P_i is the population in region i .

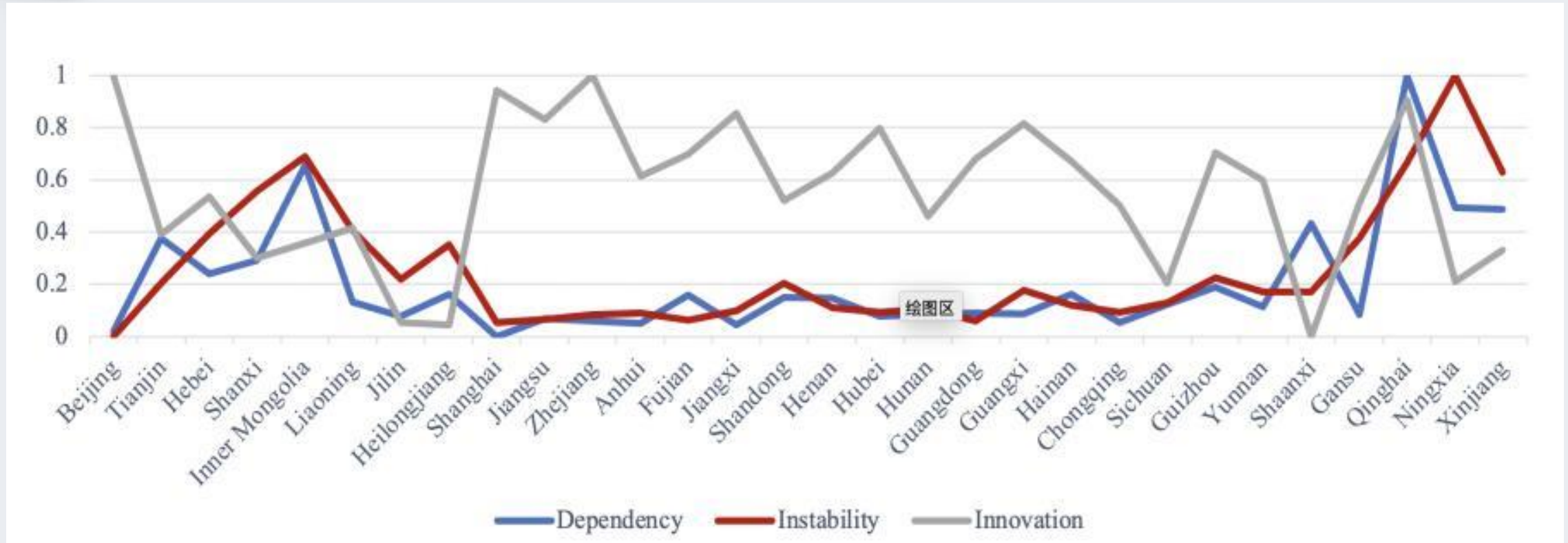
$$Instability_i^E = \frac{CE_i}{GRP_i}$$

where $Instability_i^E$ is the instability of sustainable energy transition in region i ; CE_i is the total energy consumption in region i ; GRP_i is the gross regional product in region i .

$$Innovation_i^E = \sum_{e \in E} \left[\left(\frac{I_i^e}{IE_i} \right) \cdot \ln \left(\frac{I_i^e}{IE_i} \right) \right]$$

where $Innovation_i^E$ is the innovation of sustainable energy transition in region i ; I_i^e is the investment in subsector of energy industry in region i ; IE_i is the investment in the energy industry in region i

Analysis



In general, most regions in China already possess a good basis for a sustainable energy transition. Some resource-based regions in China are characterised by high dependency, low instability and low innovation, which makes it more difficult to realise a sustainable energy transition in these regions.



THANK YOU.