

The Effect of Financial Development to Energy Intensity in China

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The upsurge in energy demand fuelled by global economic growth has resulted in growing concern regarding the environmental impact of using fossil fuels, and the need to reduce emissions and protect the environment. Along with these environmental concerns, there is an increasing awareness that universal access to sustainable energy plays an essential role in promoting economic development, protecting ecosystems and reducing inequality. In response to these concerns, the UN Sustainable Energy for All (SE4All) initiative was launched to make universal access to sustainable energy for all a reality in 2030. Although advanced economies have generally achieved a low level of energy intensity, for the majority of developing countries using energy more efficiently is a challenge. The improvement of energy efficiency will require large amounts of investment, especially from the private sector, implying that the degree of development of the financial system will play a critical role to meeting these objectives.

In this paper we analyze the effect of financial development on energy intensity in China. China is an interesting case among the developing countries

due to its size population and its rapid economic growth coupled with an intense energy consumption. Our contribution is twofold. First, we investigate how financial development can help to improve energy intensity, using a wide selection of financial development indicators; we consider not only those most commonly-used in the relevant literature but also those that might capture the degree of government intervention and the transition to a more market-oriented economy. Second, we use provincial-level data to capture the geographic dimension of the analysis. The distribution of energy resources, the concentration of firms and of urban populations, as well as the process of economic development itself, all have a significant geographic component.

Our results suggest that the poor state of development of the Chinese financial system can limit incentives to reduce energy intensity once other determinants have been controlled for. Considering the whole sample, our results suggest that investments financed by self-raised funds is the only variable leading to a reduction in energy intensity. However, as the Chinese financial system has been the subject of continuous reforms in recent years, we allow the parameters on financial development to change before and after the Green Credit Policy is put into force. In doing so we obtain evidence that the Green Credit Policy has contributed to a change in the pattern of investment funding and access to finance. More specifically, our estimates suggest that after the introduction of the Green Credit Policy the size of the banking sector, the misallocation of funds and the efficient use of capital each help to improve

energy efficiency. Despite a general agreement that the financial sector in China still needs further reforms, especially related to the participation of foreign enterprises and investors among other things, our results are positive. There are promising signs that the financial sector has developed sufficiently far enough to play a contributing role in China's transition towards a low carbon economy. More generally the results also provide increased confidence over targets announced by the Chinese government to further expand the level of power generation from green energy technologies.