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Factor market distortions across time, space and sectors in China ☆

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ABSTRACT

In this paper, we measure TFP losses in China's non-agricultural economy associated with labour and capital misallocation across provinces and sectors between 1985 and 2007. We also decompose the overall loss into factor market distortions within provinces (between state and non-state sectors) and distortions between provinces (within sectors). Over the entire period, misallocation lowers aggregate non-agricultural TFP by an average of twenty percent. However, after initially declining, these losses increased appreciably beginning in the mid-1990s. This reversal can be attributed almost exclusively to increasing misallocation of capital between state and non-state sectors within provinces, while losses from between province misallocation remained fairly constant. We argue that the recent increase in capital market distortions is related to government policies that encourage investments in the state sector at the expense of investments in the more productive non-state sector.

1. Introduction

Some of the rapid growth that China has enjoyed the last three and a half decades has likely come from reductions in distortions as a result of economic reform. An important feature of China's pre-reform economy was a high degree of local autarky. At the provincial level, self-sufficiency in both agriculture and industry were aggressively pursued, and reinforced through limited investment in transportation infrastructure (Donnithorne, 1972). These policies were coupled with tight restrictions on labour mobility both within and between provinces through the household registration or hukou system and strict control over the allocation of capital through the use of administrative credit plans. With the onset of economic reform in the late 1970s, some of the restraints on resource mobility persisted. In addition to restrictions on the mobility of labour out of the countryside (Chan et al., 2008), local protectionism and trade barriers arose to impede the inter-regional flow of goods (Young, 2000; Poncet, 2003). A credit plan continued to be used to ensure access to new loans by state-owned firms (Brandt and Zhu, 2000), the effects of which were reinforced by barriers to the flow of capital across regions (Boyreau-Debray and Wei, 2005; Dollar and Wei, 2007).

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The general presumption is that many of these barriers have now been significantly relaxed. For example, the stock of non-hukou migrants is currently in upwards of 150 million, half of which have crossed a provincial boundary. In addition, annual hukou migration averages 20 million per year. There have also been significant increases in inter-regional trade accompanying a reduction in barriers (Holz, 2009; Holz, in press). Reform in the banking system dating from the late 1990s, including the development of an inter-bank market, may be allowing a more efficient regional allocation of capital through the inter-bank market and other channels.

Possibly offsetting these tendencies is the fact that the state continues to exercise considerable influence on the allocation of factors of production – land, labour and capital (World Bank, 2012) that is reflected in differences in productivity across regions and forms of ownership. A majority of investment resources continues to be directed by China's highly regulated financial system to state-owned firms and activities in which the local governments are often a beneficiary (Walter and Howie, 2011). Since the late 1990s, there have also been efforts through such policies as Xibu Kaifa (Develop the Great West) to redress perceived policy biases in favour of coastal provinces by reallocating investment resources towards the interior regions. Persistent differences in returns to capital and labour between the state and the non-state sectors have recently been documented by Brandt and Zhu (2010) and Kamal and Lovely (2012).

Given these opposing developments, it is important to measure the overall impact of factor market distortions in China and examine their evolution over time. In a recent paper, Hsieh and Klenow (2009) investigate the impact of factor misallocation across firms within four-digit manufacturing industries on aggregate total factor productivity (TFP) in China and India, using an approach proposed by Restuccia and Rogerson (2008). They found that a more efficient factor allocation contributed to around 2 percent a year aggregate TFP growth in China's manufacturing sector between 1998 and 2005.

In this paper, we follow this approach, but examine factor misallocation and its impact on TFP at a more aggregate level, between provinces and between the state and the non-state sectors in China's non-agricultural economy, which includes both manufacturing and services. We focus on factor misallocation at this level of aggregation because, as we discussed above, there are significant barriers to factor mobility across regions and forms of ownership in China. Our analysis also covers a longer period, from 1985 to 2007, so that we can examine the evolution of factor misallocation over time. Finally, we decompose the overall TFP loss into the losses due to *between-province* and *within-province inter-sectoral* distortions.

Our main results are the following:

- On average, the misallocation of factors across provinces and sectors resulted in a reduction of non-agricultural TFP of at least 20%, with the within-province distortions accounting for more than half of the total loss.
- TFP losses from between-province distortions were relatively constant over the entire period.
- Despite significant inter-provincial labour flows, the TFP loss from between-province labour market distortions remains high due to an increase in the cross-province dispersion in TFP.
- The measure of within-province distortions declined sharply between 1985 and 1997, contributing to 0.52% non-agricultural TFP growth per year, but then increased significantly in the last ten years, reducing the non-agricultural TFP growth rate by 0.5% a year.
- Almost all of the within-province distortions was due to the misallocation of capital between the state and the non-state sectors, which increased sharply in recent years.

The magnitude of average TFP loss due to factor misallocation that we estimate (20%) for the non-agricultural economy is slightly lower than the estimate of Hsieh and Klenow (30%) for the manufacturing sector. A more important difference between our estimate and Hsieh and Klenow's is the trend after 1997. They found that the impact of distortions declined for the manufacturing sector, while we find the impact of distortions increased for the non-agricultural sector as a whole. Hsieh and Klenow only measure the impact of *within-industry* misallocation for the manufacturing sector alone, suggesting two potential reasons for the difference in results: (1) increased *between-industry* distortions for the manufacturing sector; and (2) increased distortions within the service sector and between the manufacturing and service sectors. We do not have data that would allow us to separate services from manufacturing activities. Also note that Hsieh and Klenow study micro-distortions between individual producers while we focus on sectoral and geographic aggregates.

Our result of the increasing impact of factor market distortions (especially the misallocation of capital between the state and the non-state sector) since 1997 is robust to alternative specifications of the model and alternative parameter values that we use to measure the distortions. It provides quantitative evidence for the view that China's capital markets have become more distorted in recent years. Given the rapid growth of the Chinese economy since 1997, this result may come as a surprise. However, the problem has been widely recognized within China, with ongoing debate over Guojin Mintui (the state advances, the private sector retreats), and discussed outside by political scientists and financial practitioners (see, for example, Huang, 2008, and Walter and Howie, 2011).

This paper is part of a recent literature that investigates the impact of misallocation of factors, either across sectors or across firms within sectors or industries, on aggregate productivity. Among many others, Gollin et al. (2004), Restuccia et al. (2008), Vollrath (2009) and Song et al. (2011) analyze the sectoral dimension while Alfaro et al. (2008), Banerjee and Duflo (2008), Guner et al. (2008), Restuccia and Rogerson (2008), Bartelsman et al. (2009) and Hsieh and Klenow (2009) focus on the misallocation across firms within a sector. Adamopoulos and Restuccia (2011) examine the impact of misallocation across production units within agriculture on misallocation between the agricultural and non-agricultural sector. Like us, Song et al. (2011) also emphasize the wedges in the returns to capital between the state and the non-state sectors. However,