



Whither China? Reform and economic integration among Chinese regions [☆]



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ABSTRACT

This paper investigates the changing nature of economic integration in China. Specifically, we consider business-cycle synchronization (correlation of demand and supply shocks) among Chinese provinces during the period 1955–2011. We find that the symmetry of supply shocks has declined after the liberalization initiated in 1978. In contrast, the correlation of demand shocks has increased during the same period. We then seek to explain these correlations by relating them to factors that proxy for interprovincial trade and vulnerability of regions to idiosyncratic shocks. Interprovincial trade and similarity in factor endowments tend to make shocks more symmetric. Surprisingly, foreign trade and inward FDI have little effect on the symmetry of shocks.

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1. Introduction

Since 1978, China has been undertaking a gradual and largely steady liberalization. The changes were especially profound in the economic sphere although, lately, they have extended also to the political domain. The three decades of economic liberalization have had far-reaching effects on the Chinese economy and society. China has maintained a high rate of growth, recently becoming the second largest economy in the world. Yet, the benefits of this expansion have not been universally shared. Most notably, the coastal provinces of Eastern and South-Eastern China have charged ahead while the inland provinces have lagged behind. There is a similar, though less pronounced, disparity between urban centers and their rural hinterlands throughout China. These regional disparities

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reflect not only differentiated economic regional development but are also further reinforced by the continued implementation of the *hukou* system of household registration which restricts labor and residential mobility.¹

The large regional economic differentials appear on the background of a high degree of economic decentralization. This is highlighted by Xu (2010) who describes China as a *regionally decentralized authoritarian system*. He points out that while the central government controls the key political appointments at all levels, it allows regional governments to run their economic affairs largely unimpeded. This, he argues, has emerged as a product of political upheavals and purges during the Great Leap Forward and, especially, the Cultural Revolution. During these turbulent periods, the Soviet-inspired centralized model was abandoned and instead the regions were encouraged to compete with each other. The resulting inter-regional competition was aimed primarily at maximizing output but it also fostered experimentation with respect to production arrangements and policies. This decentralization continued and was even reinforced during the reform period. Arguably, a particularly dramatic step in this direction was the creation of the special economic zones (SEZs) in the early years of liberalization.² This effectively introduced a two-speed system, allowing selected regions to charge ahead in economic liberalization while the rest of the Chinese economy proceeded more cautiously. In turn, this laid the foundations of the subsequent economic gaps between the coastal areas and the rest of the country.³

In this paper, we document the depth of economic integration among Chinese provinces and analyze the factors that foster such integration. Our analysis proceeds in two steps. First, we use a structural vector auto-regressive (SVAR) model to identify province-specific shocks between 1955 and 2011.⁴ Our methodology allows us to distinguish between shocks that have a temporary vs permanent effect on output, typically referred to as demand and supply shocks, respectively. We compute the correlations between these shocks for all pairs of provinces for four sub-periods: two before and two after the 1978 liberalization. These correlations capture the intensity of integration, and the changes therein, among China's provinces over a period during which the country gradually abandoned central planning, state ownership as well as Maoism. Second, we analyze the determinants of these correlations using a stylized version of the gravity model (broadly in line with Artis and Okubo (2010 and 2011), although they use a different methodology for estimating business-cycle correlations). In particular, we seek to explain the correlations of shocks by relating them to the factors that proxy for the vulnerability of regions to idiosyncratic shocks, and the factors that can facilitate inter-regional transmission of the effects of such shocks. The latter include endowments of physical and human capital, transport infrastructure, structure of the economic activity, openness to foreign trade, foreign direct investment, geography, and economic policy. We also include variables that are likely to be correlated with inter-provincial trade. This analysis is carried out for the same four sub-periods so as to capture the determinants of economic integration in the various periods, and the changes therein.

Our main findings are the following. First, the demand and supply shocks have evolved differently in the course of the Chinese reforms: demand shocks appear to have become more synchronized over time while supply shocks have grown more dissimilar. Second, we find that factors that proxy for interprovincial trade and account for the similarity in factor endowments tend to make shocks more symmetric. Rather surprisingly, foreign trade and inward FDI have had little effect on the symmetry of shocks.

The remainder of the paper is structured as follows. The next section briefly discusses what we know about economic integration and decentralization in China. Section 3 describes the data and empirical methodology. Section 4 reports the main empirical finding and Section 5 states the conclusions.

2. China's economic integration

2.1. Economic decentralization under Mao and Deng

During the period from the communist takeover in 1949 until 1978, the Chinese economy was tightly regulated: output quotas, resource allocations and prices were set centrally according to a plan formulated by the central government. This reflected the initial desire of Mao Zedong's government to follow the Soviet model of organizing the economy. However, as argued by Xu (2010), China started to deviate from the Soviet model during the economic and political upheavals of the Great Leap Forward (1958–1961) and Cultural Revolution (1966–1976). Rather than plan and regulate the economic activity from the center, the central government granted wide-ranging economic autonomy to the provincial governments. This was to encourage the regions to compete with each other in order to deliver or exceed their quota of output. As a result, China became a collection of regional economies rather than a single centrally-planned Soviet-type economy, with the central government in Beijing retaining control over political appointments and decisions while devolving much of economic policy making to the provinces.

The decentralization accelerated further after Mao's death in 1976.⁵ The objective was to reinvigorate the stagnant economy by improving incentives and encouraging local initiative in the production (Tang, 1998). The fiscal and economic decentralization has

¹ More precisely, the *hukou* system divides the population into urban and rural residents, and restricts the access of rural residents to public services including healthcare, education, pension insurance and unemployment insurance in case they move to urban regions.

² On the history of SEZs and the role they have played in Chinese economic development, see Chen, Goh, Sun, and Xu (2011), and the references therein.

³ An especially poignant example of the fruits of this policy is Shenzhen, a city in Guangdong, whose population exploded from around 300,000 to its current 14 million since it became the first special economic zone more than 30 years ago.

⁴ The use of structural VARs to assess the intensity of economic integration between countries or regions was pioneered by Bayoumi and Eichengreen (1993) whose work was in turn motivated by the Theory of Optimum Currency Areas (henceforth OCA; Mundell, 1961). Bayoumi and Eichengreen applied this methodology to assess the merits of adopting the common currency in the European Union. They sought to identify which European countries encounter shocks that are predominantly symmetric or asymmetric in nature, as the OCA theory suggests that monetary integration is less costly if it involves countries that are subject to symmetric shocks. Since their seminal contribution, this method has been used for assessing other countries or integration projects as well, see Fidrmuc and Korhonen (2003, 2006), de Haan, Inklaar, and Jong-A-Pin (2008a), and the references therein.

⁵ For example, the central government's share of expenditures declined from 51% in 1978 to 28% in 1993 (Ma and Norregaard, 1998).

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