Domestic Flying Geese: Industrial Transfer and Lagged Policy Diffusion in China*

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Abstract
This study illuminates the important yet under-studied phenomenon of industrial transfer in China: the migration of capital and investment from wealthy coastal areas into poorer central and western provinces, beginning in the 2000s. By 2015, the value of domestic investment in five central provinces alone was 2.5 times that of foreign investment throughout China. Compared to the original “flying geese” model of tiered production in Asia, China’s experience is distinct in three ways: (1) industrial transfer occurred domestically, rather than across nations; (2) sub-national transfer followed cross-national transfer; and (3) capital migration is accompanied by a lagged diffusion of government policies. While coastal locales today resolve to expel low-end industries, inland governments cannot afford to be selective and have only recently adopted aggressive investment promotion tactics that coastal cities abandoned years ago. Policy diffusion is lagged, as policy adoption depends on economic conditions, which varies widely across China and changes over time.

Keywords: Industrial transfer; flying geese model; policy diffusion; industrial policy; domestic investment; regional development

China’s stock market meltdown gripped headline news around the world in the summer of 2015. Its impact reverberated across the globe, putting a dent on stock markets in Asia, Europe, and America. While the causes of the panic are complex and multiple, one of the deepest fears behind the sell-off is the impression that export-manufacturing—the engine of China’s hyper-growth over the past three decades—has hit the doldrums.¹

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¹ Pessimistic media reports abound. For example, see “Slide in Manufacturing Continued in China Last Month,” The International New York Times, October 1, 2015; “China manufacturing sector shrinks at fastest rate for more than three years,” Guardian, January 31, 2016.
Manufacturing output fell worryingly to a 3-year low in 2015 and continued to shrink in 2016.²

While the aggregate picture appears bleak, it must be stressed that only a thin geographic slice of China—concentrated in the coastal cities—makes up the factory of the world. In 2006 the five coastal provinces of Guangdong, Jiangsu, Zhejiang, Shanghai, and Shandong accounted for 76 percent of the value of total exports.³ Undoubtedly, manufacturing has taken a hit in coastal China. Factor and labor costs are rapidly rising, eroding profits and competitiveness among export manufacturers. This dire situation, reflected in gloomy statistics and media reports, fanned worries about the weakening of the entire Chinese economy.

This ongoing hype about the manufacturing crisis on the coast, however, has obscured discussion in both scholarly and popular literature of a significant new trend: the migration of capital and investment from wealthy coastal areas into poorer central and western provinces, beginning in the early 2000s.⁴ This is termed “industrial transfer” (chanye zhuanyi 产业转移) in Chinese. Industrial transfer is much harder to define and quantify than industrial output because transfer (or relocation) is a dynamic and multifaceted phenomenon. Nevertheless, official statistics on “domestic investment” (shengwai zijin 省外资金), a relatively new terminology, indicates a steady surge of investment from the coastal to inland regions. To illustrate, the combined value of domestic investment that flowed into five central provinces of Jiangxi, Henan, Hunan, Hubei, and Anhui was 836 billion Yuan in 2008. Seven years later, it ballooned to 3,760 billion Yuan.⁵ This was 2.5 times the amount of foreign direct investment (FDI) that flowed into China in 2015.⁶ Furthermore, this figure only includes domestic investment in five central provinces, excluding the Western provinces and industrial transfer within the coastal region.⁷

Despite the fact that domestic investors are assuming an economic role as formidable as that of foreign investors in the earlier decades,⁸ it has received scant mention in the scholarly literature. The purpose of this research report is to lay a macro-historical foundation for further empirical investigation into the trend of industrial transfer. I address a few basic questions: What were the historical processes leading up to industrial transfer today? Why did this pattern emerge only in the early 2000s but not earlier? What

³ Author’s calculation using statistics from China Data Online.
⁴ There has been a growing literature on industrial restructuring and upgrading in China (Brandt & Thun, 2016; Chen, 2014). This article focuses on the phenomenon of coastal-to-interior industrial transfer, a process that is essential for coastal industrial restructuring.
⁵ These figures are culled from the annual work reports of the respective provincial governments, including the guomin jinji he shehui fazhan tongji gongba 国民经济和社会发展统计公报. The reported amount of domestic investment is an under-estimate because only investment projects above a certain size were included in the statistics of Anhui and Jiangxi province.
⁶ According to the World Bank Indicators, the value of FDI to China in 2011 is US$331 billion. Taking the USD to Chinese yuan exchange rate as 6.46, the value of total domestic investments in the five central provinces would be US$251 billion.
⁷ Industrial transfer also occurs within coastal provinces, such as from Southern Jiangsu to poorer parts of Northern Jiangsu.
⁸ Foreign direct investment (FDI) was a major driver of China’s growth in the early decades of market opening. Hence, the literature on FDI has been huge (Gallagher, 2005; Huang, 2003; Thun, 2006; Wang, 2015), but little attention has been paid to domestic investment.
are the economic and regulatory forces that have accelerated industrial transfer? What are the implications of industrial transfer for the reshaping of China’s national competitive advantage? Addressing these questions will help us see the big, evolving picture of China’s economy and enable us to identify micro-level questions for study.

From a comparative perspective, China’s industrial transfer is unique in that it manifests a *domestic* version of the “flying geese” model. Coined by Japanese economist Akamatsu, the term “flying geese” refers to a tiered system of development in Asia.\(^9\) Like the lead goose in a V-shaped formation, Japan was the first to launch late industrialization and hence the most advanced economy in the region. It occupied the highest end of the regional supply chain, while other nations took on lower-level production. In exchange, lead economies transferred capital and technology to laggard economies, thereby assisting them in the process of industrial catch-up. In other words, the flying goose model describes a division of labor that can generate mutual benefits among unevenly endowed nations.

China’s experience departs from the original theory of flying geese in three significant ways. First, China displays a pattern of differentiated production and industrial transfer across sub-national regions *within* a nation, rather than *across* nations within a region. This occurs because China’s vast size renders it more like a continent than a country. Compared to other countries in East Asia, such as Japan and South Korea, China is many times larger and displays far wider sub-national inequality. This calls for a rethinking of Michael Porter’s classic theory of national competitive advantage. In his influential book, *The Competitive Advantage of Nations*, Porter names four factors that affect national competitiveness in the global market: endowed factors, home demand for products and services, structure of supporting industries, and structure of domestic enterprises.\(^10\) Treating nations as homogeneous, Porter’s theory completely ignores regional economic relations.\(^11\) For a large country like China, promoting regional complementarity and niches—in addition to competition—\(^12\)—is key to national competitive advantage.\(^13\)

Second, in China, cross-national and sub-national transfer of industries are sequentially linked. Following market liberalization in 1978, scores of factories from East Asia, especially Hong Kong and Taiwan, moved to China’s coastal areas to exploit the region’s competitive advantage in low-cost, labor-intensive, export-oriented manufacturing,\(^14\) fueling rapid industrialization and trade expansion. But while coastal provinces grew wealthier by leaps and bounds, central and western provinces lagged behind by several

\(^11\) The developmental state literature highlights the role of the state in “picking winners,” but like Porter, it does not consider the role of regional heterogeneity and complementarity in the making of national competitive advantages (Amsden, 1989; Evans, 1995; Johnson, 1982; Wade, 1990). This is likely because the East Asian developmental states, unlike China, did not feature wide regional inequality.
\(^12\) The role of regional competition in China’s development has been widely noted (Montinola, Qian & Weingast, 1995; Coase & Wang 2012). Regional complementarity, however, has received far less attention.
\(^13\) Ang, 2016, Chap 2 and 6.
\(^14\) Leng, 2013; Naughton, 1997.
orders of magnitude.\textsuperscript{15} By the 2000s, the coastal cities switched roles from recipient to investor, bringing opportunities of late industrialization to laggard provinces.

Third, departing from the original flying geese model, which highlighted only the transfer of capital and technology, China is now experiencing a transfer of government policies and practices, in addition to capital, across regions. While coastal locales today can afford to pick winners and resolve to expel low-end industries, inland governments have little choice but to welcome virtually all investment projects, regardless of quality. Interestingly, the latter has also belatedly adopted aggressive investment promotion tactics that were earlier practiced but abandoned on the coast ten to twenty years ago.\textsuperscript{16}

In other words, within China, there exists a lag in the diffusion of government practices across regions. This lagged pattern has not been picked up in the existing literature on policy diffusion, which assumes that any experiment, once proven successful, can be replicated across the country at the same time.\textsuperscript{17} My study, on the other hand, reveals that the diffusion of government practices and experiments is dependent upon economic conditions in each region, which changes over the course of development. Strategies that worked on the coast did not work in the interior during the 1980s and 1990s, as inland governments simply could not compete against coastal cities in attracting foreign investment. It was not until the mid-2000s, when coastal investors turned inward, that interior regions received a new lease of growth opportunity. Therefore, future studies on policy diffusion must take into account the effects of economic conditions on policy replication. What works in one region may not work in other regions until a later point in time.

The rest of my discussion proceeds as follows. The first section traces the evolution of cross-national industrial transfer from East Asia to coastal China in the 1980s and 1990s to domestic industrial transfer from the 2000s onward. The next two sections zoom in respectively on the cost and regulatory pressures that push traditional manufacturers to relocate from the coast. The third section simultaneously reveals the late institutional changes that have occurred within local governments in the interior, as well as different levels of selectivity and policies made with regard to evicting low-end industries. Finally, I conclude with the implications of industrial transfer for the remaking of China’s competitive advantage and suggestions for future firm-level research on industrial transfer.

\textbf{The Scale of Industrial Transfer}

Estimating the scale of industrial transfer is tricky because, according to officials at the National Development and Reform Commission (NDRC), there is no consensus, even among central planners and policy experts, on the definition of “transfer” (\textit{zhuanyi} 转

\textsuperscript{15} Kanbur & Zhang, 2005; Li, Satō, & Sicular, 2013.  
\textsuperscript{16} Ang, 2016.  
\textsuperscript{17} Florini, Lai, & Tan, 2012; Heilmann, 2008; Teets & Hurst, 2015.
Compared to output, transfer is a dynamic, multi-faceted concept, which makes measurement difficult. A common translation of 产业转移 is “industrial relocation,” but this term fails to capture the fact that transfer can take many forms at the firm level, including establishment of new production facilities, creation of new distribution chains and R&D (research and development) facilities, outward investment, and physical relocation of corporate headquarters to another province or city within the home province. Note that relocation is only one aspect of transfer.

As a result of its ambiguous definition, systematic data on the scale of industrial transfer within China are not available in official yearbooks. Nevertheless, multiple sources and case studies attest to a dramatic movement of investments from the coast to the interior. One indicator is the term “beyond-province investment” (省外资金), i.e., investment from beyond a given province but within national borders and excluding Hong Kong, Taiwan, and Macau. More simply, it may be understood as domestic investment.

Figure 1: **Domestic Investment in Five Central Provinces (billion Yuan), 2003-2016**

Source: Figures tabulated from provincial government work reports (starting 2003). Note that figures from Jiangxi only include investment projects over 50 million and Anhui, from 2010 onward, only counts investment projects over 100 million. Therefore, the reported figures undercount the total amount of domestic investment in these provinces.

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18 Author’s interviews with officials at the NDRC, 2015.
19 NDRC Industrial Economy Research Center, 2013, p. 212.
Since 2004, the central provinces have seen a steady rise in domestic investment, as illustrated in Figure 1. Domestic investment only appeared in the annual work reports of these provinces from the early 2000s onward, as early as 2003. In Hubei province, it appeared later than the rest, in 2008. Anhui Province held the top spot in the central region.

Shifts in the geographic distribution of manufacturing over time provide another indication of industrial transfer. Drawing on a study by the NDRC, Table 1 indicates a consistent decline of the coastal region’s geographic share of manufacturing vis-à-vis central and western regions. This decline occurred between 2005 and 2010 across all four major industries: energy and mining, labor-intensive, capital intensive, and even technology-intensive sectors (including telecommunication products, such as cell phones, and electronics).

Figure 2 highlights the temporal and geographic patterns in Table 1. As the coastal region’s share of manufacturing decline, it was gradually taken over by central and western regions. In 2010, central provinces registered a larger share of manufacturing in labor-, capital-, and technology-intensive industries than Western provinces. Coastal provinces today command less than 50% of production in energy and mining sectors. Though they continue to dominate in technology-intensive industries, even this share has declined over time.

Table 1: Geographic Share of Manufacturing in 2005 vs. 2010

<table>
<thead>
<tr>
<th>Type of industry</th>
<th>Year</th>
<th>Coastal region</th>
<th>Central region</th>
<th>Western region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total output</td>
<td>Share of total</td>
<td>Total output</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(billion yuan)</td>
<td>(%)</td>
<td>(billion yuan)</td>
</tr>
<tr>
<td>Energy &amp; mining</td>
<td>2005</td>
<td>1723.7</td>
<td>51.02</td>
<td>987.11</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>4101.88</td>
<td>46.11</td>
<td>2577.26</td>
</tr>
<tr>
<td>Labor-intensive (e.g., food processing, textiles, paper, furniture)</td>
<td>2005</td>
<td>5759.38</td>
<td>76.76</td>
<td>1077.07</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>14835.33</td>
<td>68.84</td>
<td>4394.45</td>
</tr>
<tr>
<td>Capital-intensive (e.g., chemicals, smelting, heavy equipment)</td>
<td>2005</td>
<td>6506.52</td>
<td>67.21</td>
<td>1934.41</td>
</tr>
</tbody>
</table>
Importantly, the scale of domestic investment has far outstripped that of FDI in China, a fact that has received surprisingly little attention. Figure 3 compares the volume of domestic investment in five central provinces (Anhui, Jiangxi, Hebei, Hunan, Henan) to that of FDI that entered China from 2011 to 2015. During this period, FDI fluctuated between 240 and 300 billion USD, whereas domestic investment in the central region steadily grew from 251 to 603 billion USD. By 2005, domestic investment in this region was almost 2.5 times that of FDI in all of China combined. Clearly, the role of domestic investment in China’s current and future economic development demands more notice.
Historical Processes Leading up to Industrial Transfer

Industrial transfer did not emerge out of the blue. Rather, the seeds of this process may be traced back to central policies since market opening. This section traces the evolution of regional development policies and patterns during the following periods: 1978-1993; 1993-2000; 2000s; and 2010 onward. One common thread that emerges from this historical review is that the central government did not foresee, let alone engineer, industrial transfer at the beginning of reform. That said, earlier central policies unintentionally contributed to industrial transfer, first, by widening regional inequality over the years, and second, by expanding transportation infrastructure in the interior through fiscal transfers, which later enabled industries to move inland. It was not until 2010 that industrial transfer was officially elevated to the status of a national development strategy.

20 Data on FDI was accessed at http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD.
From the 1950s to 1970s, Mao chose to promote heavy industrialization in the interior and suppress growth on the coast. Fearing foreign invasion, Mao believed it was necessary to create autarkic regions for self-sufficiency to defend China. The central government funneled industrial projects and funds into interior provinces like Hubei and Sichuan, but most of these projects either failed or were left unfinished. As Justin Lin underscores, Mao’s policies were destined to fail because they defied natural comparative advantages.

Once Deng Xiaoping took over the reins and declared “reform and opening” in December of 1978, he reversed Mao’s policies. Deng encouraged the coastal regions to leverage their geographic proximity to global export markets to attract foreign investment and thereby stimulate industrialization. The leadership approved the establishment of special economic zones (SEZs) in several coastal cities, including Shenzhen, Xiamen, and Zhuhai. These zones attracted the first waves of FDI (foreign direct investment), predominantly from Hong Kong, Taiwan, Macau, and later, Singapore, South Korea, and Japan.

During the 1980s, central planners in Beijing urged the regional governments to develop economic specializations according to their factor endowments, dictated primarily by location and availability of natural resources. During the Seventh Five-Year Plan (1986-1990), the central government enjoined the regions to “leverage their respective advantages.” Specifically, the Seventh Plan stated that the coastal regions should engage in “the restructuring of traditional industries, new industries, and consumer goods production,” the central regions should focus on energy, construction, and mining, and the western regions should specialize in agriculture production and processing.

During this period, central policies were overtly biased toward letting the coastal region “get rich first,” to use Deng’s phrase. The interior regions were of course unwilling to accept a disadvantageous arrangement. As the dual-track pricing system of the 1980s underpriced raw materials and overpriced processed goods, each province sought to prevent the outflow of raw materials from its borders and to maximize the production and export of manufactured goods to other provinces. This resulted in a “commodity war,” marked by local protectionism, duplicative industries, and over-capacity.

The year of 1993 was a structural break in China’s reforms. The post-Deng leadership under President Jiang Zemin and Premier Zhu Rongji announced the party’s historic decision to shift from partial to full-fledged market liberalization. Market liberalization

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21 Yang, 1997, p. 19
22 Lin, 2012.
23 One distinctive feature of China’s FDI is that it came primarily from the Chinese diasporic community and neighboring East Asian countries, rather than from Western multi-national companies (Naughton, 2007, pp. 413-419).
26 Young, 2000.
forced uncompetitive enterprises protected by local governments to shut down, ushering in a wave of industrial consolidation.\textsuperscript{28} Soon after, the coastal region consolidated its advantage in processing industries and services,\textsuperscript{29} while the central and western regions were relegated to supplying raw materials and cheap labor to the coast. From then onward, the economic gap between the coast and the interior widened even further.

\textbf{2000s: Central campaigns to redistribute wealth to the interior}

Although the central leadership had begun to express concern for growing regional disparities during the 1990s,\textsuperscript{30} it was not until the tenth five-year plan (2001-2005) that it made a decisive policy shift from privileging the coast to redistributing wealth to the disadvantaged interior. During the ninth NPC in 1999, President Jiang Zemin proposed the “Great Western Development”,\textsuperscript{31} a campaign to stimulate investment and economic growth in the impoverished western provinces. Massive fiscal transfers from the central government poured into the west to finance infrastructure projects. But as attention shifted westward, from 2002 onward, growth in the central regions fell behind the West.\textsuperscript{32} In 2004, Premier Wen Jiabao inaugurated “The Rise of the Central Regions,” a campaign to narrow the regional imbalance in development between the coastal and central regions.\textsuperscript{33}

When these campaigns were formulated in the early 2000s, the focus was to help the central and western regions catch up economically by providing fiscal grants and building infrastructure,\textsuperscript{34} not by promoting industrial transfer. At that time, industrial transfer had not been elevated to the highest policy agenda, and the idea of pairing coastal businesses with inland destinations had not entered the minds of policymakers. That said, infrastructure investment made during this period paved the physical foundation for subsequent industrial migration by connecting inland and coastal economies through the construction of highways, high-speed railways, bridges, and other facilities.\textsuperscript{35}

Meanwhile, as the central authorities adjusted its policies in response to widening disparities, changes in market conditions were unfolding across the coastal cities. As the coast industrialized and prospered, factor inputs (e.g., electricity, land, and manufacturing facilities) spiked in costs. Most significantly, labor, which used to be abundant and cheap, became costlier as the pool of young labor shrank.\textsuperscript{36} At the same time, local governments in the coastal regions grew increasingly hostile toward low-end, labor-intensive manufacturing, as they sought to make room for more valuable and non-polluting investments (more in the next section). In other words, by the 2000s, low-end

\textsuperscript{28} Naughton, 2003, p. 223; Wedeman, 2003.
\textsuperscript{29} Bai, Du, Tao, & Tong, 2004; Naughton, 2003; Xu & Liang, 2004.
\textsuperscript{33} Lai, 2007.
\textsuperscript{34} Lai, 2002; Shih, 2004.
\textsuperscript{35} Omit, 2016b, p. Chapter 6. “Taxless public financing” played a similar role in facilitating inter-state commerce during the early days of state-building in America (Wallis, 2005).
\textsuperscript{36} Gallagher, 2014.
manufacturers on the coast felt the same market and policy pressures that drove factories to relocate from East Asia to coastal China in the wake of market liberalization.

**2010 onward: Industrial transfer elevated to national development strategy**

Central planners in Beijing did not plan in advance, much less engineer, this ongoing wave of domestic investment and industrial migration. Instead, they reacted belatedly to it. In 2010 the State Council, the highest organ of the administrative hierarchy, issued a circular titled “Guiding Principles on Industrial Transfer to the Central and Western Regions” (guowuyuan guanyu zhongxibu diqu chengjie chanye zhuanyi de yijian 国务院关于中西部地区承接产业转移的指导意见). In contrast to the policies of the 1980s that endorsed an asymmetrical economic relationship between the coastal and the interior regions, the 2010 circular underlined room for mutual gain among the regions.

The central and western regions offer an abundant supply natural resources, low factor costs, and huge potential for market growth. The enthusiastic take-over of domestic and international industries will not only accelerate the process of new industrialization and urbanization in the interior, enhance harmonious regional development, but will also promote economic restructuring and upgrading on the coast. This will ultimately contribute to a refined division of labor in the national economy.

Additionally, central policy-makers felt an urgent need to evolve China’s niche in the international market. The 2008 global financial crisis that first erupted in the United States inflicted a painful lesson upon Chinese leaders. After the crisis broke out, manufacturing orders from the U.S. and other developed economies abruptly declined, hitting low-end, export manufacturers on the coast especially hard. These producers, who made wafer-thin profits, could not survive a sudden drop in demand. In the first half of 2008, it was estimated that 67,000 factories shut down, threatening to put millions of workers out of jobs, plunge the economy into recession, and spark political unrest.37

The leadership responded with an unprecedented fiscal stimulus package, totaling 4 trillion Yuan. The package plugged the recession temporarily but left distorting downstream effects on the economy, including a frenzy of local state borrowing that led up to the current financial bubble.38 The 2008 crisis alerted the leadership to the dangers of continued reliance on low-cost export manufacturing on the coast. They also saw the urgency of buffering China’s domestic economy from the vicissitudes of the global market. This experience is likely one of the motivating factors behind the one-belt-one-road plan to diversify China’s growth sources.

The issuance of the 2010 Circular from the State Council heralded a host of concrete ministerial-level policies to promote industrial transfer. Important ministerial bodies were enlisted to come on board, including the NDRC, Ministry of Commerce, and Ministry of Industry and Information Technology. In the same year as the State Council circular was issued, the central government established several “model zones” (shifanqu 示范区) in selected cities of central provinces. These zones received special preferential policies

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38 Lardy, 2012.
from the center and infrastructural funding, enticing businesses to invest in these locations. In 2012, the NDRC approved Jingzhou City in Hubei to set up one of these zones. Other concrete resources were offered to facilitate industrial transfer, including loans, exemption of interest payments, priority land quota allocation in the model zones, and priority approval of targeted investment projects.39

In short, the processes leading up to industrial transfer today may be summed up in the following steps: market liberalization in 1978 → influx of foreign investment (particularly from East Asia) to coastal China, stimulating early industrialization and growth on the coast → as coastal markets grew and saturated, costs rose and local regulations stiffened → coastal manufacturers pressured to migrate and invest inland.

A Closer Look at Cost Pressure

Having outlined the macro historical processes leading up to domestic industrial transfer in recent years, this section now zooms in on the cost pressure that face coastal manufacturers. In the past decades, manufacturers in China served as outsource manufacturers for major retailers in wealthy capitalist economies. Traditionally, the former produced consumer items like textiles, shoes, furniture, paper, and toys. Low cost was their competitive advantage. Intense competition among producers kept profits thin. Hence, export manufacturing is highly sensitive to cost pressure, especially land and labor cost.

In China land cannot be sold to private parties; instead, businesses can lease the right to use parcels of land by bidding for and paying a one-time land use fee (tudi churangjin 土地出让金).40 Table 2 compares the average price per hectare of land in 2011 across four major regions—coastal, central, western, and northeastern—according to the amount of land use fees collected. The average price of land in the coastal region, 18.36 million yuan per hectare, is three times higher than in the other regions. Within the coastal region, there is also wide variance. Land is most expensive in Shanghai, costing an average of 45.51 million yuan per hectare, making the city prohibitively expensive for building factories.

Next, consider the increase in labor cost from 2000 to 2013, as detailed in Table 3. Across the regions, the coast consistently registered the highest manufacturing wage. Converted to U.S. dollars, in 2000, average annual wages per worker on the coast was US$2,393 per annum; and by 2013, this grew to US$11,443. Compare this rate to the United States, where the average hourly wage of manufacturing workers was US$24.34 in 2013.41 Assuming 8 hours of work per day and 20 days per month, average annual earnings adds up to US$46,732. Evidently, even though the cost of labor in coastal China was only a quarter of that in America, the immense labor cost advantage that China’s coastal cities used to enjoy has drastically shriveled within a span of only 13 years.

39 Xinhua, July 2, 2009.
40 Man & Hong, 2011.
Table 2: **Average land price across regions, 2011**

<table>
<thead>
<tr>
<th>Regions</th>
<th>Provinces included</th>
<th>Average price per hectare of land (million yuan)</th>
<th>Ratio to coastal region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>Fujian, Guangdong, Jiangsu, Zhejiang, Shanghai, Shandong</td>
<td>18.36</td>
<td>1.00</td>
</tr>
<tr>
<td>Central</td>
<td>Anhui, Henan, Hunan, Hubei, Jiangxi, Shanxi</td>
<td>6.63</td>
<td>0.36</td>
</tr>
<tr>
<td>Western</td>
<td>Gansu, Guangxi, Guizhou, Inner Mongolia, Ningxia, Qinghai, Sichuan, Tibet, Yunnan, Chongqing</td>
<td>5.57</td>
<td>0.30</td>
</tr>
<tr>
<td>Northeastern</td>
<td>Heilongjiang, Jilin, Liaoning</td>
<td>6.51</td>
<td>0.35</td>
</tr>
</tbody>
</table>

Source: Author’s calculation from *China Land Resources Yearbook*

Table 3: **Average manufacturing wage across regions, 2000 vs. 2013**

<table>
<thead>
<tr>
<th>Regions</th>
<th>Average manufacturing wage per worker in 2000 (Yuan)</th>
<th>Average manufacturing wage per worker in 2000 (USD)</th>
<th>Average manufacturing wage per worker in 2013 (Yuan)</th>
<th>Average manufacturing wage per worker in 2013 (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>19,811</td>
<td>2,393</td>
<td>72,092</td>
<td>11,443</td>
</tr>
<tr>
<td>Central</td>
<td>4,103</td>
<td>496</td>
<td>27,771</td>
<td>4,408</td>
</tr>
<tr>
<td>Western</td>
<td>4,926</td>
<td>595</td>
<td>30,288</td>
<td>4,808</td>
</tr>
<tr>
<td>Northeastern</td>
<td>6,809</td>
<td>822</td>
<td>37,196</td>
<td>5,904</td>
</tr>
</tbody>
</table>

Source: Author’s calculation from *China Labor Yearbook, 2001 & 2014.*

Table 4 further summarizes a comparison of average manufacturing wage across regions and over time. On average, wages in China have increased by 450% from 2000 to 2013. From 2000 to 2013, wages in the coastal region increased by 264%. This rate of increase was actually less compared to the central (577%), western (515%), and northeastern (446%) regions. Indeed, in my fieldwork and interviews conducted in the central provinces of Hubei and Jiangxi, local officials lamented that wage costs are on the rise even in inland China. In 2000, the average manufacturing wage in the central, western, and northeastern regions was 21%, 25%, and 34% respectively of that on the coast. Thus, for

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42 Following the World Bank Indicator, the exchange rate was 6.2 Yuan to 1 USD in 2013, and 8.3 Yuan to 1 USD in 2000. Source: [http://data.worldbank.org/indicator/PA.NUS.FCRF](http://data.worldbank.org/indicator/PA.NUS.FCRF).

coastal factories, relocation to the interior provinces still provided attractive cost savings. However, the cost gap between the coast and the other regions has narrowed since 2000. By 2013, the average wage in the central, western, and northeastern regions increased to 39%, 42% and 52% respectively of that in the coastal region.

Table 4: **Comparison of average manufacturing wage across regions and over time**

<table>
<thead>
<tr>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>264%</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Central</td>
<td>577%</td>
<td>0.21</td>
<td>0.39</td>
</tr>
<tr>
<td>Western</td>
<td>515%</td>
<td>0.25</td>
<td>0.42</td>
</tr>
<tr>
<td>Northeastern</td>
<td>446%</td>
<td>0.34</td>
<td>0.52</td>
</tr>
</tbody>
</table>

These numerical trends point both to the economic promise and perils of industrial transfer within China. On the one hand, there remains a significant gap in factor cost between the coastal and interior regions, making it potentially cost-effective for coastal factories to transfer production inland. Furthermore, the central government has recently tried to shift the sources of economic growth from export and investment to domestic consumption.44 Some coastal producers relocate inland to capture growing consumer markets in the interior. On the other hand, the cost advantage of the interior vis-à-vis the coast is shrinking. Even in the central, western, and northeastern provinces, the supply of blue-collar workers is declining. This stems both from China’s one-child policy and from increased enrollment of the young labor force in universities. Additionally, as China’s workforce enjoys more political freedom and exposure to ideas about labor rights, it is also become increasingly assertive, as evident from high-profile labor protests in recent years.45

**A Closer Look at Policy Pressure**

While cost pressure is amply reported in the media, it is less known that policies and regulations made by local governments constitute another push-or-pull factor for manufacturers. Since the launch of market reforms, local governments have played a conspicuously active role in local development, prompting some observers to characterize China as a local variant of the East Asian developmental states.46 Yet although local governments in China are generally pro-growth, I stress that they do not pursue the same

44 Naughton, 2015
45 Gallagher, 2014
46 Oi, 1995, 1999; Walder, 1995
types of growth at the same time. Nor do they employ identical development strategies. As I will show here, the content of local developmental policies, including the targets of investment recruitment and eviction, varies tremendously across regions and evolves over time.

In a separate work, I document the evolution of industrial promotion policies among locales on the coast and in the interior. Briefly described, in the years following 1993 (when the central party announced the decision to pursue full-fledged market reforms), local governments in the coastal region were keen to attract any type of investment, regardless of sector, value, or complementarities. During the early years of market-building, the focus of these local governments was on maximizing the quantity—rather than quality—of growth. Over time, however, as investments poured in and markets expanded, coastal local governments became less financially desperate and hence increasingly selective in the quality of investment they sought to attract. Today, these governments enact high entry barriers for manufacturing projects. Many go further to implement concrete, forceful policies to expel low-end, polluting industries from their jurisdiction.

By contrast, inland locales are on the receiving end of an influx of domestic investment coming from the coast, particularly industries that are expelled by coastal local governments. This burst of new opportunities has stirred inland local governments into an ongoing frenzy to attract investments, dubbed “investment fever” (zhaoshang rechao 招商热潮). My field research in the central provinces of Hubei and Jiangxi finds that starting from the mid-2000s, local governments assigned investment recruitment targets to all agencies within the party-state apparatus. In other words, all local bureaucrats participate in recruiting investors. For these inland locales, domestic investors from the coast—rather than foreign investors from overseas—are their prime target of recruitment.

In other words, inland governments today are belatedly replicating the developmental approach adopted in the coastal region in the 1980s through early 2000s. Coastal locales had abandoned such tactics of en masse, aggressive, and indiscriminate investment promotion as their markets grew and became saturated. In laggard provinces like Hubei and Jiangxi, however, local governments are still desperate to attract any investment project. Thus, they willingly offer generous tax breaks, subsidies, and loose regulations to do so. Pressures to “race to the bottom” are more prevalent in fiscally poor cities.

The replication of economic strategies and practices described here departs from the “point to surface” policy experiments discussed in earlier studies. First, such a pattern of replication was not designed and imposed top-down by central policy-makers but rather was evolved bottom-up. Second, diffusion was lagged, with coastal regions moving first in the evolutionary process. They were the first in the nation to successfully industrialize and now seek to expel low-end industries to the interior, which has become a recipient of

47 For an abbreviated account, see Ang, 2017.
48 “Investment fever is restarted” (zhongguo zaixianqi zhaoshang hechao), The People’s Daily, December 25, 2009.
49 Ang, 2016, Chapter 2.
51 Heilmann 2011.
domestic investment. This lagged policy diffusion reflects underlying variance in growth endowments (both geographical and historical) between coastal and inland regions.

To illustrate the variation of developmental policies and degree of selectivity among local governments in the coastal and central regions, I compare three cities: Ningbo City (Zhejiang), Sanming City (Fujian), and Huangguang City (Hubei). Among the three cases, Ningbo, which is situated right on the coast and close to Shanghai, is the wealthiest and first to embrace foreign investment. Sanming is situated in the interior of Fujian province. It is less geographically advantaged than Ningbo and thus less wealthy, but has nevertheless industrialized heavily. Huanggang is located in the central province of Hubei. Compared to Zhejiang and Fujian, locales in Hubei were unable to attract foreign investment in the 1980s-1990s, so many were stuck in poverty throughout the previous decades.

I compared the amount and content of regulations related to the “eviction of backward industries” on the official government websites of the three cities. Official government websites provide a rich source of information about the policies and priorities of local governments. One should not be quick to dismiss these websites as mere vehicles of propaganda. It is quite certain that materials had to be vetted by senior executives within the local governments before they can be publicly posted online. Thus, information posted on these sites offer useful clues on the primary concerns of local authorities and the policy stances that they are willing to openly express.

Table 5 below summarizes the number of relevant hits under the search term “eviction of backward industries” on the official websites of the three city governments. Though imperfect, the number of hits is a useful indicator of attention paid by local authorities to the policy issue. For a more precise indicator, I sub-divided the hits into city-level state documents and regulations posted on the websites and other links (e.g., media reports). While it is easy for local governments to post media links related to the eviction of backward industries, crafting, vetting, and then posting state documents online indicates serious efforts at policy implementation, rather than plain talk.

Consistent with my earlier discussion, among the three cities, Ningbo has the highest number of hits (126), twenty times more than Huanggang (only 6) and seven times that of Sanmen (17). Although both Ningbo and Sanmen are cities located on the coast, Ningbo posted more information and number of state documents on industrial eviction than Sanmen. Clearly, there exists economic and policy variance even within the coastal region, as some cities are more developed than others. Ningbo, the most prosperous, also named a larger number of industries for eviction (21), compared to Sanming (9) and Huanggang (6).

Next, let us compare the type of industries targeted for eviction. Steel and cement manufacturing were targets of eviction in all three cities. Other overlapping targets of eviction in Ningbo and Sanming were paper, ferro-alloy, textile, and coal-fired electricity, while Huanggang’s list overlapped with Ningbo’s list only in printing and dyeing. All five targets in Huanggang were mandated by central policies, and Sanming listed only textiles.

52 Pan, 2014.
and silicon in addition to the five centrally-mandated targets.53 This suggests that industrial eviction in the less developed cities was motivated primarily by compliance with central policies. By contrast, the most prosperous city of Ningbo went far beyond central demands. Among the three cities, it identified the longest list of industries for eviction, including cement, paper, chemicals, batteries, stainless steel, plastic processing, and even textiles (which used to be a major manufacturing sector in Zhejiang). Apart from its concern for environmental protection, the Ningbo city government also underscored “promoting economic restructuring and altering the method of economic development” as a motivation for phasing out backward industries.54

Table 5: Local State Policies on Eviction of Backward Industries

<table>
<thead>
<tr>
<th></th>
<th>Total relevant hits (no. of posted state documents in brackets)</th>
<th>Number of industries targeted for eviction</th>
<th>Industries targeted for eviction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ningbo, Zhejiang Province</td>
<td>126 (43)</td>
<td>21</td>
<td>Cement, steel and Ferro-alloy, foundry, bricks and tiles, paper, non-ferrous metal, home appliances, machinery, chemicals, textiles, printing and dyeing, chemical fiber, electroplating, waste plastic processing, thermal power, lead-acid batteries, coal-fired boiler, S7 transformer, brick kilns, stainless steel smelting, steel-rolling</td>
</tr>
<tr>
<td>Sanming, Fujian Province</td>
<td>17 (6)</td>
<td>9</td>
<td>Steel making, paper, ferro-alloy, coal mining, cement, electricity (coal-fired), textiles, silicon industry</td>
</tr>
<tr>
<td>Huanggang, Hubei Province</td>
<td>6 (5)</td>
<td>6</td>
<td>Steel-making, leather, glass, cement, printing and dyeing</td>
</tr>
</tbody>
</table>

Source: Author’s tabulation based on official websites of the local governments.

Policy decisions to evict selected industries appear backed by regulatory teeth, especially in the two coastal cities of Ningbo and Sanming. As part of the city’s plan to “empty the cage and change the bird” (tenglong huanniao 腾笼换鸟), Ningbo set up an earmarked fund to subsidize and reward local enterprises for restructuring or relocation. For example, subsidies are provided to enterprises that terminate production of goods on the evicted list and thereby “free up more than 300 tons of carbon emissions” for other manufacturing

sectors. Enterprises are entitled up to 200,000 Yuan (about US$32,000) in subsidy for the elimination of every unwanted product line. For particular sectors such as equipment production, one-time subsidies are also provided per machinery item (e.g., 20,000 Yuan per steam boiler), to encourage these sectors to close down or move away. Apart from giving incentives, the city governments also issued penalties. 55 Both Sanming and Huanggang required targeted enterprises to shut down by stipulated deadlines. 56 Enterprises that refused to comply could have their licenses revoked or electricity and water supply cut off.

While all three cities have formulated policies to evict backward industries, the content of the policies and the government’s ability to implement them varies across the cases. Compare Sanming and Huanggang. The city government in Sanming employed more sophisticated market mechanisms, in addition to brute closures, such as by differentiating the price of electricity in backward and preferred industrial sectors to incentivize market actors to restructure.57 The Sanming government also laid out plans to facilitate mergers among enterprises in backward industries.58 Moreover, in Sanming, both the city and county governments pledged funds to reward targeted enterprises that succeed in terminating their production on time. 59 In Huanggang, however, the government modestly stated that it was only “trying to apply for rewards and supporting funds from the provincial and national governments.”60

The city governments even turned the eviction of backward industries into mandatory bureaucratic targets.61 For example, Huanggang announced its decision to close two printing and dyeing enterprises in 2014, and specifically marked two production line, 68 machines, and 5400 square meters of factory space as part of the targets.62 Eviction tasks were assigned to specific local government offices, such as the Development Zone Committee. Bureaucratic targets in Sanming were even more comprehensive than in Huanggang. One of the targets was to assign monetary rewards for evicting backward industries.63 Moreover, the city government signed “contracts” with its county and district governments, specifying their responsibilities for evicting backward industries,64 a target included in cadre evaluation. Such targets pushed local officials so hard that the number of backward industries shut down exceeded assigned targets in some cases. 65 Although Ningbo appeared less harsh in its approach than Sanming and Huanggang, it also applied

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57 “Exceeded last year’s targets for evicting backward industries,” Sanming.
58 “Principles for distributing rewards from the national government,” Sanming.
61 On the proliferation of bureaucratic targets among local governments that I characterized elsewhere as “mission creep,” see Ang, 2016, Chapter 4.
numerical targets. One document stated that the city should subsidize about 20 “empty the cage and change the bird” projects each year.\(^66\)

Yet despite apparently strong measures taken by these local governments, they cannot in fact achieve desired outcomes by command. Some enterprises are resistant to eviction, particularly if these companies contribute to local employment and tax income.\(^67\) It is especially difficult to expel enterprises that were earlier brought in through the personal connections of local officials.\(^68\) It remains to be seen whether market forces will trump policy forces in driving away backward industries from the coast. If costs keep rising and factories are no longer able to make profits, then they will have to close down or move away.

Variation in policies across these cases should be understood not simply as variation across space, but more specifically, as variation across locales at different stages of development. Ningbo represents the wealthiest and most institutionally advanced of the three cities. It is already at a stage of development where it wants to select industries and is determined to expel low-end, polluting manufacturers. For Ningbo, the priority is to free up space for the entry of higher-end producers. By contrast, as a newcomer in the industrialization process, Huanggang city cannot afford to be as picky. Thus it welcomes or does not explicitly shun industries that wealthy locales like Ningbo no longer want to have.

**Conclusion**

This research report brings attention to the important phenomenon of industrial transfer in China. One key measure of industrial transfer is domestic investment, which in the central region alone, is already 2.5 times the total volume of FDI in China. That FDI played a major role in China’s early reform and development is already well-known. By contrast, domestic investment and industrial transfer has received little attention.

With the aim of laying a macro-historical foundation for further research into this subject, this report has traced the processes leading up to industrial transfer in the present day, illuminated the costs and policy pressure pushing manufacturers away from the coast, and revealed a pattern of lagged policy diffusion from coastal to inland regions. Inland governments today receive an unprecedented flow of investment from the coast. Intense competition have prompted these governments to belatedly adopt aggressive, en masse investment recruitment tactics that were phased out on the coast in the 1990s and 2000s. While coastal cities like Ningbo (in Zhejiang) are determined to evict backward industries, inland cities like Huanggang (in Hubei) cannot afford to be selective. The latter’s formulation and enforcement of eviction policies are clearly and deliberately weak.

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\(^67\) On large local enterprises as an obstacle to environmental reforms, see (Lorentzen, Landry, & Yasuda, 2014).

\(^68\) Ang, 2016, Chapter 2 & 4.
The pattern of lagged policy diffusion identified in this study deserves greater attention in the study of China’s policy making and experimentation process. Teets and Hurts identifies three different modes of policy diffusion: top-down (from central to local), bottom-up (from local to central), and horizontal (from region to region without Beijing’s intervention). While usefully pointing to different directions of policy diffusion, this existing discussion fails to note the important role of timing and sequence. Lagged replication of investment strategies is one among other instances in which policy adoption is conditional upon economic conditions. A policy that fits coastal cities may not fit laggard interior regions. Later on, however, as economic conditions change, what used to fail may work. Beyond China, lagged policy diffusion has been studied through interdependent spatial models and event history analysis of different rates of policy adoptions. Future studies of China’s policy diffusion should take into account the interaction of space and time.

Industrial transfer will play a critical role in the remaking of China’s national competitive advantage. For the coast, the migration of labor-intensive, low-end manufacturing inland frees up room for higher-end production and tertiary economic activities, a strategy that Chinese policymakers term “emptying the cage to change the bird.” For inland economies, the domestic migration of industries brings a flow of investment and growth opportunities that previously did not exist. Hypothetically, if an effective division of labor according to regional comparative advantages emerges, then China can command a powerful edge over other national competitors. After all, few nations boast of having the lowest to highest ends of production within a single common market.

The above scenario, however, projects a policy ideal. Actualizing it is far from easy, much less assured. The central leadership cannot command regional governments to specialize in particular manufacturing sectors according to their cost and competitive advantage. Nor can state authorities compel private- and foreign-owned businesses to move to desired locations. Even at the grassroots level, local governments’ efforts to expel low-end, polluting industries are sometimes resisted or circumvented. In the past years, the central government has launched programs and model sites to promote industrial transfer, but the migration of production remains a largely bottom-up, market-driven process that cannot be precisely controlled by central or local authorities.

Many questions remain for future empirical research. Evidently, there is need to collect more data about the scale of industrial transfer. As discussed, however, this is challenging because “transfer” (a movement) is much harder to capture than output. Firm-level surveys and case studies presents one promising step. It remains to be known how firms respond to cost and regulatory pressures and choose their location of migration accordingly. One may further investigate the challenges that companies face when moving into the interior, and whether they move in isolation or together with an entire supply chain. Moreover, the central and western provinces is not the only possible destination;

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69 Teets & Hurst, 2015.
70 Boehmke & Branton, 2014.
71 See Ang, 2016.
one may study whether manufacturers choose to close down or relocate beyond China. As a first step, this report brings attention to the fact that domestic manufacturers are moving in large scale from the coast to the interior. By first understanding the origins, drivers, and distinctive features of industrial transfer, we may then take further steps at unpacking this process.

摘要：本文旨在分析中国产业转移这一重要却未被深入研究的现象。该现象出现于21世纪初期，指资本与投资从发达的沿海地区向贫穷的中西部省份转移。2015年，仅中部五个省份吸引的国内投资就已经是全中国外国投资的2.5倍。与经典的亚洲“飞鹅模式”相比，中国独特的经验体现在以下三个方面：（1）产业转移发生于国内，而非跨国；（2）国内转移紧随国际转移的步伐；（3）资本转移伴随着地方政府政策复制上的滞后。当现今沿海发达地区努力驱逐低端产业时，内陆省份地方政府却无法选择，最近已采纳了沿海地区多年前就已弃用的激进招商策略。换而言之，由于政策的采纳取决于地方经济条件，而中国各地经济条件差异很大，随着时间的推移变化，导致政策扩散滞后。

关键词：产业转移；飞鹅模式；政策扩散；工业政策；省外资金；区域发展；腾笼换鸟

References


