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Land Prices and Intracountry Industrial Relocation in China

Theory and the Yangtze Delta Area Case

Abstract: *This article investigates the major role of high land prices in the current massive intracountry industrial relocation from coastal to inland areas in China. A conceptual model is developed to explore the causalities of urban expansion, land prices, and coastal-to-inland business relocation. It demonstrates that relocation is mainly driven by high land prices resulting from urban expansion. Research is based on in-depth field studies of several representative relocated firms in the Yangtze Delta area. The findings derived from the case studies support the theoretical model and empirically validate the hypothesis.*

A massive industrial relocation is taking place in China from coastal to inland areas. In 2010 alone, coastal companies relocated more than RMB2

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trillion worth of value-added production to inland regions. For example, the electronic giant company Foxconn is relocating its manufacturing operations and more than 300,000 employees from the coastal city of Shenzhen to an inland city, Zhenzhou (Chanag 2010). This industrial relocation on a grand scale is reshaping the map of resource allocation and economic structure in China.

Conventional explanations for firms relocating their manufacturing operations are: easy access to markets, proximity to supply chains, transportation and communication convenience, established infrastructures (e.g., water, energy, transportation), abundant labor supply at lower wages, and preferential soft conditions such as taxes, government management, education, culture, economic freedom, and agglomeration (Blair 1987). However, the current massive intracountry relocation in China from coastal areas to inland areas cannot be fully explained by, and sometimes is in contradiction to, these conventional wisdoms. The coastal areas enjoy almost all of the above advantages: low transportation costs, better infrastructure, proximity to global markets, more open-minded local government, and a better-educated workforce. The only exception is no abundant labor supply at low wage rates. Normally, labor costs and labor supply are two main considerations for Western manufacturers to relocate their operations to low-cost developing countries overseas. Yet there is a major difference between intercountry and intracountry relocation in respect to labor mobility. For intercountry relocation, labor is not mobile across international borders, and therefore Western companies have to relocate their production to developing countries to take advantage of low labor costs. For intracountry relocation, especially within China, labor is mobile. Firms operating in coastal areas can draw needed labor from rural areas because labor is mobile across different regions in China. For instance, about 150 million migrant workers now located in coastal areas are originally from inland areas. If there is a shortage of labor in the coastal areas, as long as higher wages are offered market forces will bring inland labor to coastal areas to reach an equilibrium. Hence, coastal firms do not have to resort to relocation to solve the labor supply problem.

In this article, we argue that the major and ultimate determinant for the current coastal-to-inland industrial relocation observed in China is the high price of land. High land prices are, in turn, a result of economic growth and urban expansion in the coastal areas. The price of land as a determinant for business location has not gone unnoticed in prior

studies (Ding and Zhao 2011; Hansen 1987). However, it has never been considered as the major or the ultimate reason for grand-scale intracountry relocation. We extend this line of research by developing a conceptual model with which to explore the linkage between land prices and the intracountry industrial relocation movement currently observed in China. The conceptual model is then empirically examined using case studies due to the exploratory nature of the phenomenon (Yin 1981). We selected several representative firms in the Yangtze Delta area as our research setting and conducted on-site in-depth interviews with their senior managers. Our findings support the model and the hypothesis.

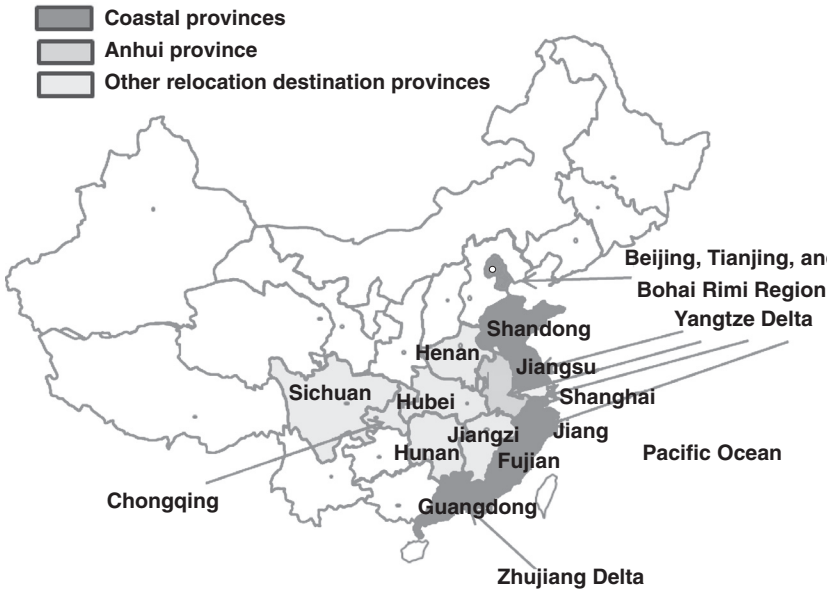
Conceptual Model

Foreign Direct Investment in Coastal Regions

In the 1990s, after Deng Xiaoping called for more radical reform and further opening of China to the rest of the world, the Chinese government implemented a series of preferential policies to attract foreign direct investment (FDI), including tax exemption, tax holidays, and subsidized rent for ready-to-move-in industrial parks (Li, Hou, and Chan 2008). The period also marked a time when the industrial economies of the United States, Western Europe, and Japan, and newly industrialized countries such as Taiwan, Hong Kong, Korea, and Singapore were experiencing economic structural upgrading. Facing rapid increases in labor costs at home, manufacturing companies in these industrial economies and newly industrialized countries moved production overseas, where labor costs were low and labor supply was abundant. Because of its geographic convenience, low labor costs, and lack of organized labor unions, China became a popular destination for industrial relocation, particularly for Western companies. During the six-year period from 1992 to 1997, China received a total of US$205 billion of foreign direct investment, about half of the total FDI received by developing countries.

The influx of FDI into China concentrated in coastal areas, in particular the Three Coastal Belts: the Yangtze Delta, the Zhujiang Delta, and the Bohai Rim region, as shown by the map in Figure 1. The Three Coastal Belts include China's largest and most industrialized cities: Shanghai, Beijing, Tianjin, Shenzhen, and Guangzhou. The province of Guangdong alone has received more than US$40 billion

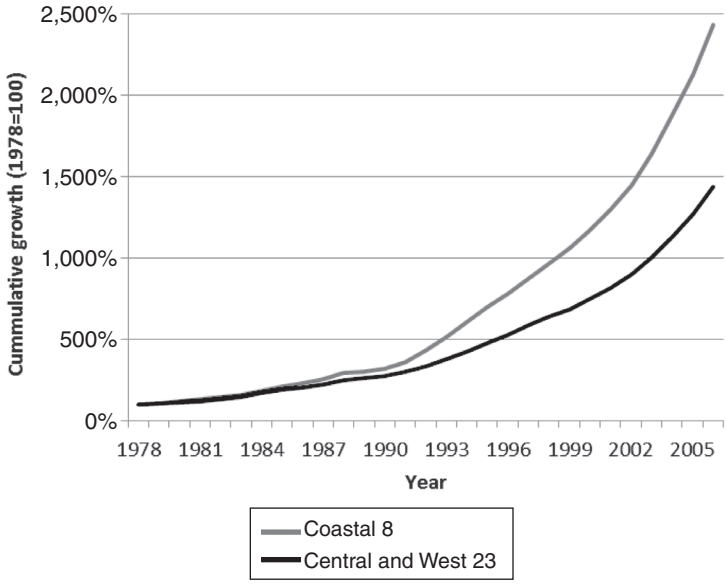
Figure 1. Intracountry Relocation in China



worth of FDI during the period of 1992–96, about 40 percent of the national total in the same period. The FDI flowing into China chose these coastal areas rather than inland areas for the usual reasons: easy access to ocean navigation, geographical closeness to the relocating origins (e.g., the province of Guangdong is adjacent to Hong Kong), better infrastructure, more cultural openness (Bao et al. 2002). In addition, the central government provided more generous preferential policies for FDI in the coastal cities.

As billions of dollars of fixed assets were invested and tens of thousands of new factories and projects were set up each year, the coastal areas grew rapidly, much faster than inland provinces. The cumulative growth of the regional gross domestic product (GDP) of the coastal areas, as compared with the other provinces, from 1978 through 2005 is shown in Figure 2. As can be seen, the regional gap starts to be obvious only in the 1990s. The "Coastal 8" are the eight coastal regions in which FDI concentrated during the 1990s and early 2000s: Beijing, Tianjin, Shanghai, Guangdong, Zhejiang, Jiangsu, Fujian, and Shandong. The "Central and West 23" include all the other provinces. We see that during

Figure 2. China's Provincial GDP Growth, 1978–2005



Source: NBS 1978–2005.

the period, the regional GDP of the Coastal 8 has cumulatively grown by 2,500 percent, while that of the Central and West 23 has grown by only 1,500 percent. If we consider the fact that the 2,500-percent figure of growth in the coastal provinces includes many backward and remote rural areas in Guangdong, Jiangsu, Fujian, and Shandong provinces, it is not hard to conclude that the true gap between the coastal urban areas (or coastline belt) and the rest of China is much greater.

The FDI projects in coastal areas during the earlier years were mainly labor-intensive manufacturing projects. This economic development in the coastal areas caused the demand for labor to increase rapidly. Since the coastal areas did not have enough workers to meet the increasing demand, hundreds of millions of surplus rural laborers from inland China migrated to the coastal areas to find work. Most of the earlier migrant workers were less educated and unskilled. However, in recent years the migrants from inland China have included workers skilled and knowledgeable enough to seek better-paying jobs, better education for their children, and a more colorful urban life in the coastal areas. These migrants, termed "floating population," play an important role in China's economic transition.

Relocation Model

The model in Equation 1 explains the growth pattern found in the coastal area in 1990s. The original model, proposed by Bao et al. (2002), was modified by adding the factor of land:

$$Q = \alpha A(K)F(K,L,T) \tag{1}$$

In this equation, K, L, and T stand for the factors of capital, labor, and land, respectively. Geographic factor α represents convenient transportation facilities and infrastructure. Function F exhibits constant returns to scale with standard properties $F_i > 0$, $F_{ii} < 0$, $F_{ij} > 0$. The productivity factor $A(K)$ is a function of capital stock K, implying the gain in productivity due to agglomeration and learning-by-doing as the capital stock increases.

In the 1990s, China's economy was a Lewis-type dual-sector economy with an unlimited labor supply at subsistence wage $\bar{W}$. Taking advantage of the geographic and other amenities, foreign firms invested in China's coastal areas, enabling the fixed capital stock K to grow in the coastal area. The growth in capital raised the return of labor, so firms hired more workers. As a result, millions of surplus laborers from inland rural areas, where they were paid at the subsistence wage rate, were inspired to move. Further, because productivity A increases due to economies of scale, the return to capital did not fall. Hence, it attracts even more capital, thus absorbing even more migrant workers from inland rural areas. The model leads to the differential Equations (2) and (3):

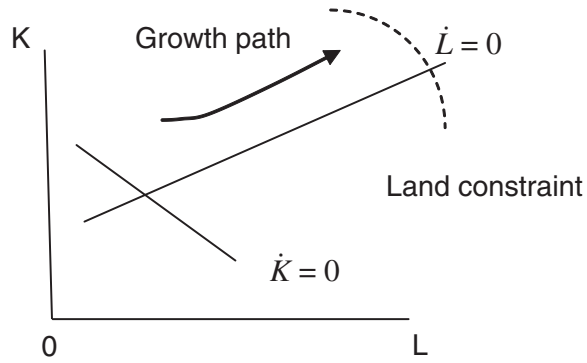
$$\dot{K} = \theta\left(\frac{\partial Q}{\partial K} - \text{depreciation rate} - \text{interest rate}\right) \tag{2}$$

$$\dot{L} = \lambda\frac{\partial Q}{\partial L} - \bar{W} \tag{3}$$

where θ and λ are responsiveness coefficients, which are positive. A phase diagram, as shown in Figure 3, shows a typical growth phase path. If the returns from factors of capital and labor are greater than their costs (i.e., the values within the parentheses in both equations are positive), capital stock and employment will continuously move to the coastal areas until some constraint is reached. The constraint in the Chinese case, as we will demonstrate, is available land.

Growth of economy and population caused the coastal cities to

Figure 3. Growth Phase Path of Coastal Area



expand rapidly. The outskirts of cities were quickly urbanized. Former farming fields became residential areas or industrial parks. Most of the former peasants in the coastal areas no longer worked in the fields, but were engaged in service and manufacturing. Take the prefecture of Suzhou (adjacent to Shanghai) as an example. From 2000 to 2010, the migrant population in Suzhou increased by 3.1 million. By 2010, migrants accounted for 46 percent of the total population.[1] Another example is Shanghai. From 2000 to 2010, the migrant population in Shanghai grew by 37.5 percent, 5.7 times the national average growth rate. About 39 percent of the 23 million residents of Shanghai are now classified as nonpermanent residents (floating population).[2]

While capital stock and labor can continue to grow, the area of land in the coastal area is fixed. Hence, available land becomes increasingly scarce. From the properties of the production function Equation (1), it can be seen that the return to the land $\partial Q/\partial T$ would increase as K or L increases ($F_{ij} > 0$). Thus, land prices rose rapidly in the coastal areas, regardless of whether it was residential, industrial, or commercial land. Housing and rental prices skyrocketed in coastal cities. For instance, the average price of an apartment in the central part of Shanghai, the Jing'An District, was RMB4,500 per square meter in 2000, but RMB27,000 per square meter in 2010. Urban expansion caused the nearby agricultural land area to shrink, resulting in higher prices for fresh food, particularly vegetables. The cost of living increased as the effect of higher land prices trickled down to higher housing and food prices. Because many workers, especially unskilled migrant workers, must receive a subsistence wage in order to stay in the cities, the subsistence wage had

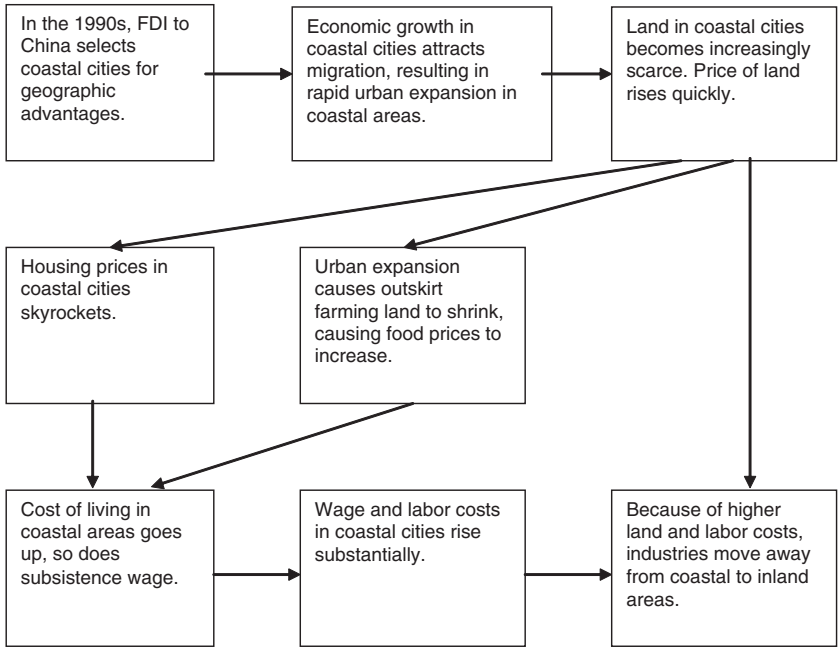
to rise to match the increased cost of living. For example, the minimum wage in Shanghai rose from RMB220 in 1994, to RMB445 in 2000, to RMB1,200 in 2010.

Firms in the coastal areas now face high land and labor costs in production. The higher factor costs quickly eroded the previous geographic advantage of the coastal cities. As a result, land- and labor-intensive industries are now looking for lower-cost locations for their operations in order to stay competitive. Often they prefer to move to the central regions, such as Anhui, Jiangxi, and Hehan provinces. These areas are geographically closer to the existing supply chains and headquarters of the companies. Infrastructure such as roads, water, and energy are acceptable. The local labor supply is abundant at low wage rates. From the firm theory in economics, we know that the optimal demand for inputs is implied in the first-order condition that the input price equals the marginal revenue product. The marginal revenue product of land in the central areas may be slightly lower than in coastal cities due to the geographic disadvantage, but the prices of land and labor are much cheaper. Hence, it is still more profitable for some firms to move production from coastal cities to the adjacent central regions.

While some areas, such as Vietnam and Cambodia, have even lower labor and land costs than the central regions of China, these countries are generally less favorable because, in addition to the problems of spatial distance, supply chain, and infrastructure, there are barriers in language, communication, customs, legal and economic systems, and inconvenient access to the Chinese market. Hence, most Chinese costal firms prefer to relocate their production to China's central regions. The causality relationship is summarized in Figure 4.

The scale of intracountry relocation from coastal to central areas has accelerated since 2005. The Central 7 provinces—Anhui, Jiangxi, Hehan, Hubei, Hunan, Sichuan, and Chongqing—are the major destinations of the relocation. The Coastal 7 provinces from where most firms are outsourcing or relocating are Shanghai, Guangdong, Beijing, Tianjin, Jiangsu, Zhejiang, and Fujian. The change in growth patterns between the Coastal 7 and the Central 7 is illustrated by Figure 5. As can be seen, by 2007 the average growth rate of the Central 7 was catching up to that of the Coastal 7. Since 2008, the Central 7 have overtaken the Coastal 7 in economic growth, with the gap increasing yearly. Currently the trend is continuing. These facts strongly demonstrate the impact of mass industrial relocation.

Figure 4. Causalities of Urban Expansion, Rising Land Prices, and Industrial Relocation

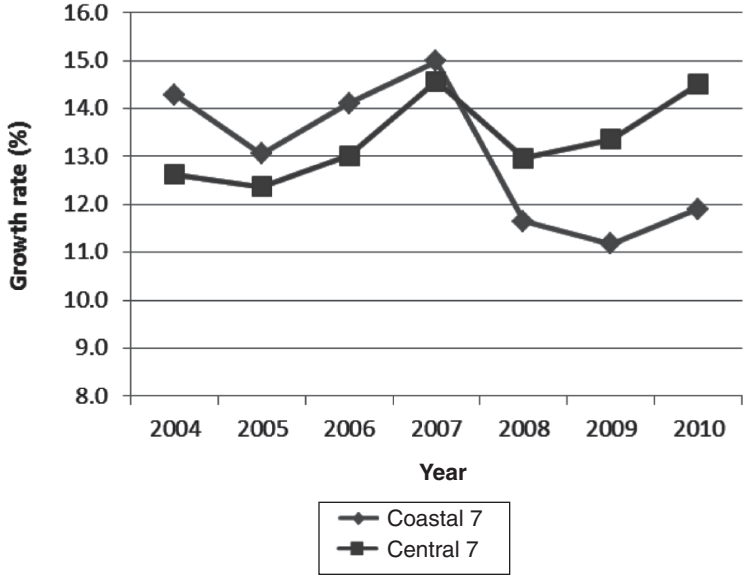


We can see how this happens dynamically in our model, Equation (4). Note that in the production function $Q = \alpha\,(K)F(K, L, T)$, we have the following conditions for land price:

$$p_T = p\ \frac{\partial Q}{\partial T}(\alpha, K, L, \bar{T}) \tag{4}$$

where p_T is the price of land, p is the GDP price, and $\bar{T}$ denotes the limited land available. Note too that capital K and labor L are mobile, but land T is not. As K and L increase in the coastal areas, the return to land $\partial / \partial T$ increases because $F_{ij} > 0$. Thus, under market forces, land prices rise. The subsistence wage rate $\bar{W}$ in the cities is affected by housing and food prices, which in turn are affected by land prices, so we have the subsistence wage rate as a function of land price: $\bar{W}(p_\tau)\ W(p_\tau)$. As more migrants move to the coastal areas, we see that the marginal product of labor $\partial Q/\partial L$ decreases, but the subsistence wage rate $\bar{W}$ increases. Accordingly, at a certain limit as shown in Equation (3), the labor growth in the coastal areas $\dot{L}$ stops. At the same time, if the capital stock continues to increase

Figure 5. China's Provincial GDP Growth Rate



Source: NBS 2002, 2006, 2010.

but land and labor become scarce, the marginal product of capital $\partial Q/\partial K$ will eventually fall, when the positive effect from the economies of scale factor A is exhausted or dominated by the diminishing marginal return from $\partial F/\partial K$. Then the capital inflow to the coastal areas $\dot{K}$ in Equation (2) also stops. From this model we reach one conclusion: Too high land prices in the coastal areas can deter labor migration and fixed capital investment, thus slowing or stopping economic growth.

However, in the central area, the model works in the opposite direction. Here the land price p_T is low. Then the subsistence wage rate $\overline{W}(p_\tau)$ is lower. Marginal products of labor and capital are higher than their costs. Thus, the central areas attract capital and labor inflows, as shown in Equations (2) and (3). This matches what we have observed in recent years: As fixed capital investment increases in the central areas, local workers from the central areas return home to work. Once this trend starts, growth in the central areas can accelerate as the effects of agglomeration and learning-by-doing further reinforce growth. This growth pattern just repeats the same story of what occurred in the coastal areas in the 1990s.

Through our analysis, we have demonstrated the important role

of land prices in industrial relocation. Our model differs from other international outsourcing or relocation models in that labor is mobile in our model but immobile in other international trade models. In our model, there is only one immobile factor—land. Thus it is not surprising that in this model, land price would be the only major determinant for the relocation currently happening in China.

Case Studies

Due to the exploratory nature of the study, we chose to investigate this phenomenon using the case study research method. We conducted in-depth interviews with top managers from a sample of firms in the Yangtze Delta area to examine our theory and test the hypothesis. The narrowly defined Yangtze Delta area consists of the city of Shanghai and the provinces of Jiangsu and Zhejiang. The more broadly defined Yangtze Delta area, which is also called the pan-Yangtze Delta area, would add the province of Anhui. During the recent relocation movement, a large number of manufacturing firms in Shanghai and the neighboring Coastal Belt region have relocated their production to Anhui or other neighboring inland areas.

We made preliminary telephone contact with about 2,000 firms and sent hundreds of survey questionnaires. Only a very small percentage of the firms responded with information and statistics considered reliable and usable. The low response rate was very much anticipated. First, only a few of the contacted firms have been involved in relocation. Second, Chinese firms do not feel comfortable about revealing their statistics to outsiders. Third, there are often great errors in the numbers reported by firms due to variations and difficulties in interpreting the statistical terms. Hence, in addition to circulating the questionnaires, we relied more on onsite in-depth interviews with the managers of sample representative firms to get more accurate information and inside understanding of the reported data.

Case Studies for Relocating Companies in the Coastal Areas

We interviewed three relocating firms, that is, firms in the coastal areas that have relocated or outsourced production to inland areas. We also interviewed a number of relocated firms in inland areas, mainly Anhui, which had relocated from the coastal areas.

The three relocating firms with which we had on-site interviews are

all located in the suburbs of Shanghai. To protect their identities, we do not use their full names. The relevant statistics are shown in Table 1.

Based on the ratio of sales revenue to number of workers, we see that SSYG is the most labor intensive of the three firms and ZHJS the least labor intensive. The three firms relocated their production to the adjacent areas from 2008 to 2010. ZHJS moved part of its production to Jiangxi. TYGG and SSYG moved their production to neighboring areas of Shanghai to maintain convenient communication between the headquarters in Shanghai and the relocated operations. Regarding the major reasons for their relocation, all three companies responded on the questionnaire that low land costs were "very important." As for the remaining reasons, including labor costs, funding, distance to the market, distance to the supply chains, and preferential taxes, ZHJS and TYGG considered them either "unimportant" or "irrelevant." That is, land cost was the only reason for ZHJS and TYGG to relocate their production to inland areas.

Our interviews with the managers revealed some other interesting information. A manager at ZHJS told us that the labor cost is even more expensive in the destination area in the province of Jiangxi than in Shanghai. The reason is that the firm's production plant is located in a small county in Jiangxi. It is more difficult to find young laborers in the local area than in Shanghai, most likely because most young people in these rural areas have already left home to work outside the region. Thus, ZHJS pays the same monthly wage of RMB2,000 to unskilled workers in Jiangxi as to those in Shanghai. Further, because the company cannot find local residents with the skills it needs, it has to send skilled workers from Shanghai to the operation in Jiangxi. The company has to pay an additional RMB2,000 (RMB8,000 a month rather than RMB6,000) compensation to the relocated skilled workers. ZHJS is the least labor-intensive firm of the three firms under study. Land costs were more likely a greater share of its production costs than for the other two firms. The manager also told us the company desperately needed more land space to expand production. Since Jiangxi offered a very competitive land price at approximately one-third the price in Shanghai, the company moved its production there, even though labor costs are higher in Jiangxi.

Land prices reported by the respondents need to be carefully examined and interpreted. It is not just an issue of price, but also of availability. Because land prices are heavily controlled by the

government, they often do not reflect true market equilibrium prices. Here is a brief explanation of the Chinese system. To control land use and slow the decrease in farmland, the Chinese central government has established an annual quota for the area of farmland that each province or local area can rezone for other uses, such as industrial, commercial, or residential purposes. The central government uses satellite remote-sensor technology to monitor changes in agricultural land. It also makes the first secretary of the local government responsible for any violations. Although the local government has an incentive to secretly convert more farmland to other usages, the enforcement of the central government's land policy has a great impact on land availability in the local area. This is particularly true for major cities like Shanghai, where it is easier for the central government to monitor conditions. Because many rich migrants and foreign buyers enter these popular coastal areas, housing prices are extremely high, and the competition to obtain land or to convert farmland for other uses in these areas is more intensive. Hence industrial land in these areas has become increasingly scarce in recent years.

For instance, in the area where TYGG is located, the listed industrial land price is RMB400,000 a mu (1 mu = 667 square meters = 0.165 acre). However, this is not really the market price. A firm with no connection to the local government cannot buy a piece of land at this price or even at a much higher price. The actual land price to the seller is often decided case by case. If a new firm is a large, high-tech icon, environmentally friendly, a good tax resource, with close connections to government officials, it can get the land much cheaper than the listed price. Otherwise, the firm has to pay much higher than the listed price for the land, even if it is available.

The negotiation of land prices is often a complicated issue. The true land price in the transaction can be quite different from what is recorded or reported. Take TYGG as a case. TYGG is a local company with good connections to the township (*xiang*) government. Several years ago, TYGG had an agreement with the government to purchase the 25 mu of land where its plant is located at RMB1.5 million (i.e., RMB60,000 a mu, which was very cheap). So TYGG made a 50 percent down payment (RMB750,000) to the township government. Later the township government changed its mind and refused to honor the agreement, probably because the government realized the price was too cheap when the market price for land skyrocketed in the following years. So a dispute between the two sides started and has yet to be

resolved. The current situation is that the township government refuses to give final approval for the sale, and thus TYGG does not have title to the land. However, TYGG can continue to use the land without paying rent, because it has already paid RMB750,000. In 2010, when TYGG needed more land to expand its production, the township declared that there was no more land available. TYGG moved part of its production to a township in Zhejiang about 100 kilometers away, where industrial land is available, although at RMB170,000 a mu.

Among the three firms, only SSYG reported that factors other than land had influenced its relocation decision. During the interview, SSYG listed preferential taxes as an "important" factor and labor costs as a "very important" factor. SSYG is the most labor-intensive firm of the three, so labor costs are a greater concern for it than for the other two firms. From Table 1 we can see that the wage rates in the relocated destination area are 75–80 percent of those in the original location, the suburb of Shanghai. The difference in the wage rate is largely due to the difference in the cost of living at subsistence level, which in turn is mainly due to the difference in the housing rental costs. Rent and housing prices in the destination area are only 50 percent of those in Shanghai, as shown in Table 1. We can infer that at least a great portion of the wage differential was due to the land price. Findings from the above data and our interviews with relocating firms support the above theory and confirm the hypothesis.

Case Studies of Firms Relocated to Central Areas

What about the relocated firms? We also investigated firms which had already relocated to the province of Anhui to find their reasons for relocation. Anhui is a province in the central region of China, but is adjacent to Jiangsu and Zhejiang, and is considered part of the pan-Yangtze Delta area. The average distance from Anhui to Shanghai is about 500 kilometers, making Anhui a popular relocation destination for firms in the coastal Yangtze Delta belt. Among seventy questionnaires returned, twenty-two firms responded to the relevant questions. Seventeen of the twenty-two firms (77 percent) are in the manufacturing sector. Among the twenty firms that gave answers about their original location before relocating, eight firms (40 percent of the total) are from Taizhou and Wenzhou, a coastal region of Zhejiang; five firms (25 percent) are from the Zhujiang River Delta area; two firms (10 percent) are from Fujian; and

Table 1

Relocating Firms from Shanghai

Company name	ZHJS	TYGG	SSYG
General information			
Year of data	2008	2010	2009
Industry	Manufacturing heating insulation material	Manufacturing steel pipes	Manufacturing household cleaning supplies
Ownership type	Private	Private	Foreign owned
Annual sales (RMB million)	1,000	100	20
Total no. of employees	165	180	70
No. of unskilled operating workers	134	110	60
Relocation information			
Origin of relocation	Suburb of Shanghai	Suburb of Shanghai	Suburb of Shanghai
Relocated area	Jiangxi	Inland Zhejiang	Inland Jiangsu
Distance between origin and destination of relocation	500 km	100 km	200 km
Year of relocation	2008	2011	2009
Is firm considering to further relocate in 1–5 years? If so, where?	Not at this moment	Yes, northern Jiangsu or inland China	Yes, Chongqing or Southeast Asia

Rating major reasons for relocation (very important, important, general, unimportant, or irrelevant)			
Low land cost	very important	very important	very important
Low labor cost	unimportant	unimportant	very important
Easy funding resource	irrelevant	irrelevant	irrelevant
Close to market	irrelevant	irrelevant	irrelevant
Close to raw material supplies	irrelevant	irrelevant	irrelevant
More general tax policy	irrelevant	irrelevant	important
Industrial land price comparison (1 mu = 667 m^2):			
in original area	RMB300,000/mu	RMB400,000/mu	RMB120,000/mu
Industrial land price in destination area	RMB100,000/mu	RMB170,000/mu	RMB76,000/mu
Residential housing price:			
in original area	RMB14,300/m^2	RMB14,000/m^2	RMB14,000/m^2
in destination area	RMB4,000/m^2	RMB7,000/m^2	RMB7,000/m^2
Residential housing rental cost (monthly rent for 60–70 m^2 apartment):			
in original area	RMB1,500	RMB1,500	RMB1,000
in destination area	RMB1,000	RMB650	RMB500
Monthly wage rate for unskilled workers:			
in original area	RMB2,000	RMB3,000	RMB2,400
in destination area	RMB2,000	RMB3,000	RMB1,800
Monthly wage rate for skilled workers:			
in original area	RMB6,000	RMB4,500	RMB3,000
in destination area	RMB8,000	RMB4,500	RMB2,400

two firms (10 percent) are from Shanghai and nearby (Nantong). Table 2 lists how they rank the importance of each factor in their decision to relocate their production to Anhui.

Among all the determinants, availability and price of industrial land is by far the most popular reason for moving to Anhui. For instance, company YYQC is from Yuhuan county, Taizhou prefecture, Zhejiang province. The industrial land price in Yuhuan is RMB750 a square meter, but the land price in the firm's new location in Anhui is only RMB75 per square meter (i.e., 10 percent of that in Yuhuan). Among the twenty respondents, only one firm, KDHS, does not consider land as its relocation determinant. KDHS does e-business and webpage design, and thus is classified in the service sector, which uses very little land. The main reason for KDHS to invest in Anhui is proximity to market (ranked "very important") and labor costs (ranked "important").

Labor supply and cost is the second-most-popular reason given by surveyed firms (72.2 percent of firms listed labor costs as a reason). The local labor supply in Anhui province ranges from adequate to abundant. Among twenty responding firms, only three report that most of their workers are from other provinces. Their nonlocal workers are mostly from Sichuan, Hubei, and Huhan. From the survey we also observe that the differential in wage rate between the original location and relocation destination is quite limited. In fact, the differential in wage costs was largely due to the difference in housing rent, thus being ultimately explained by the difference in land price. For instance, YYQC lists that labor costs are a "very important" reason for it to move from coastal area Yuhuan to Anhui. YYQC also reports that the monthly wage for an unskilled worker in the original region, Yuhua, is RMB1,800, while in the destination area, Anhui, it is RMB1,500, a RMB300 difference. For skilled workers, it is RMB2,200 versus RMB2,000, only a RMB200 difference. In comparison, the housing prices in the original region are RMB4,500 per square meter, while in Anhui they are RMB1,500, merely a third. Even taking into account the likelihood that several workers may share one apartment, we can still infer that the wage differential (RMB300 difference) is largely compensation for the differential in housing costs between the two areas. This again supports our theory that land prices are the ultimate reason for firms to relocate.

Anhui is currently a popular destination for relocation in China because it has several inherent advantages. It is close to Shanghai and the coastline, and thus the local culture is more similar to the coastal

Table 2

Relocated Firms in Anhui

Determinant for move to Anhui	Firms responding "very important" or "important" (no. of positive responses/no. of responding firms)	Firms responding "unimportant" or "irrelevant" (no. of null responses/ no. of responding firms)
Land availability and low price	95% (19/20)	5% (19/20)
Low labor cost	72.2% (13/18)	27.8% (5/18)
Preferential tax policies	70.6% (12/17)	29.4% (5/17)
Local government support services	64.7% (11/17)	35.3% (6/17)
Loan and funding opportunities	61.5% (8/13)	38.5% (5/13)
Close to market	47.4% (9/19)	52.6% (10/19)
Close to supply chain	10.5% (2/19)	89.5% (17/19)

area. The Yangtze River goes through the province, so transportation is convenient and cheap. It has abundant labor and land is less scarce than in some other central provinces. Water supply is adequate for industrial use, whereas the water shortage is very severe in northern and western China. Agriculture is developed, and food is cheaper, so wages stretch further. When coastal firms decide where to relocate, they consider all these related factors. While land prices are even cheaper in the far-western region, the coastal firms do not move there. The reason is obvious. Transportation costs and other costs are much higher in the far-western regions, and lower land prices cannot compensate enough to overcome the transportation cost disadvantage. Relocating firms in the Yangtze Delta area prefer to move somewhere closer to their original location and existing supply chains. Hence, Anhui has become a popular choice, especially for firms from Shanghai, Zhejiang, and Jiangsu.

Conclusion

China is currently experiencing a massive industrial relocation from coastal to inland areas. We found that the main, ultimate determinant for the relocation is land price. A conceptual model was established to explain the process of the change: (1) how growth first started in the coastal areas; (2) how this growth raised land prices in the coastal areas;

(3) how higher land prices directly and indirectly cause firms in land- or labor-intensive industries to relocate or outsource; and (4) why the central provinces are the popular relocation destination, rather than far-western provinces or Southeast Asia.

Case studies were conducted with relocating companies in the original coastal areas, relocated companies in the central provinces, and relevant government officials. The findings confirmed the hypothesis that land is the major and ultimate reason for the current relocation. Labor shortages and costs, widely cited as relocation determinants, are, in general, derivatives of the high land prices. While our investigation was conducted in the pan-Yangtze Delta area, the findings are generally valid for other coastal areas as well.

Economic theory argues that market forces would adjust supply and demand of factors and equalize the factor prices among different regions. This industrial relocation is a natural consequence of earlier economic development; it will promote economic growth in inland areas and reduce the regional gaps in China. In recent years it has been widely reported that more and more college graduates are choosing to work in central areas because of the better opportunities and more affordable living. The phenomenon of returning talent and skilled workers serves as further evidence of reducing the regional gap by flow of factors. In short, relocation is beneficial both for inland areas and for China as a whole. For the coastal areas, however, as they are losing capital and labor, the results can be mixed. More studies about the net gain or loss of coastal areas in the relocation should be conducted and remedial policies can be designed if necessary.

Notes

1. From the national census of 2010, China. Also see http://blog.sina.com.cn/s/blog_597c4f080100ttr1.html.

2. From the national census of 2010, China. Also see http://news.xinhuanet.com/local/2011–05/17/c_121426253.htm.

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