Introduction:
Transport, Economic Growth,
And Market Integration

In 1776 the economist Adam Smith argued that human beings have a natural inclination to engage in trade, to move goods from one place to another for the purpose of barter or exchange. Since exchange was a human propensity, he reasoned, markets would develop naturally in places where transport was relatively easy, such as along rivers.¹

More recently, Karl Polanyi pointed out that trade is actually a highly artificial activity. He studied primitive tribes in Central Australia and found that they did not have a propensity to transport goods for barter or exchange, but to hunt or loot other tribes to get what they needed. The "propensity" to trade did not appear until a truce had been struck between two tribes of equal strength.²

Far from occurring naturally, Polanyi wrote, long-distance trade required even more effort than local trade, given the problem of transporting goods. Addressing the problems of long-distance trade went beyond building roads and canals, and included removing arbitrary trade barriers set by local bullies or officials. Contrary to the laissez-faire policy advocated by classical economists in the wake of Adam Smith, Polanyi suggested that long-distance trade was hardly possible without some form of state intervention.³ As we shall see, in eighteenth-century China the state was instrumental in developing inter-regional, long-distance trade.

In the study of Chinese history, the significance of long-distance trade was not a focal point until the 1980s. In the sixteenth-century discussion of the "sprouts of capitalism", many

³ Karl Polanyi, The Great Transformation, pp. 60-3.
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writers were interested in such subjects as: the presence of wage-labour relations in agriculture and handicraft industries; the prevalence of partnership and shareholding in coal mine management; the emergence of managerial landlords; and the negative impact of the lineage on the development of capitalism. But long-distance trade was mentioned only occasionally, and only as an adjunct to local trade. It was not until the work of Wu Chengming in the early 1980s that long-distance trade was perceived as indispensable to economic growth.

According to Wu there were many levels of commodity exchange, not all of which developed into capitalism. Exchange in

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7 Fu Yiling, Ming-Qing shehui jingjishi lunwen ji (Beijing: Remin chubanshe, 1982).

8 Shang Yue, “Zhongguo ziben zhuyi shengchan yinsu de mengya ji qi zengzhang,” and Han Dacheng, “Mingdai shangpin jingji de fazhan yu ziben zhuyi de mengya,” in Ming-Qing shehui jingjii xintai de yanjiu (Shanghai: Renmin chubanshe, 1957), pp. 1-102.
local markets, for instance, where money circulated within such small scopes that hardly enough of it was accumulated to form capital, could not produce capitalism. Capital was formed only in long-distance trade, as between the powerful Huizhou and Shanxi merchants who traded across provinces in the Ming and Qing periods. Wu shifted the centre of the discussion on the beginnings of capitalism to long-distance trade.

Transportation difficulties and costs must be taken into account in any discussion of long-distance trade. In the literature on economic development in China, transport costs were first mentioned by G. William Skinner in his discussion of the nineteenth century. Dividing China into eight macro-regions (north China, northwest China, upper Yangzi, middle Yangzi, lower Yangzi, southeast coast, Lingnan, and Yungui), Skinner showed that transactions between distant regions were impeded by the high cost of unmechanized transport. Natural barriers effectively divided one region from another, so that each macro-region was connected only tenuously to its neighbours. The result was a national economy comprised of fragmentary regional markets. Since each regional market operated independently, commodity prices between them were not correlated, or had no clear relationship to each other, not even for the same product. Market integration, or the law of one price, is the reverse of this. In an integrated market, price changes at any point are reflected by other points in the same market.

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To Barbara Sands and Ramon Myers, Skinner's work seemed to suggest the prevalence of macro-regional economic independence in the nineteenth century. Sands and Myers took issue with such a suggestion: the literature was clear that inter-regional trade in rice, salt, copper, and cotton cloth was common even in the eighteenth century. (They also cited the work of Loren Brandt to show that grain prices were highly correlated between the middle and lower Yangzi by the early twentieth century, evidence for an integrated market along the Yangzi.\(^\text{12}\))

Daniel Little and Joseph W. Esherick, on the other hand, defended Skinner's macro-regions theory, arguing that it did not rule out inter-regional trade, but implied that such trade occurred only between the high-level, central locations in each macro-region.\(^\text{13}\) This was indeed the way that Skinner described inter-regional trade networks in late imperial China, with "centrality" determined by proximity to the Grand Canal and the Yangzi River:

Because of the overwhelming importance of water transport in inter-regional trade, its spatial structure was dominated by the great sideways T that tied together five of China's eight regions. The Lower Yangtze [Yangzi] was the cross of the T whose leg to the west was the Yangtze [Yangzi], whose arm to the north was the Grand Canal, and whose arm to the south was the sea route to the major ports of the

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Southeast Coast and Lingnan. Along these routes flowed the bulk of China's inter-regional trade.\textsuperscript{14}

Along the waterway T formed by the Yangzi River and the Grand Canal, the most important trade route in Ming and Qing China, cities grew and flourished, linked by the junk trade. (See Map 1.)

Market Integration And The Rice Trade

During the Qing empire rice, at least in central and southern China, was the most important long-distance commodity. Han-sheng Chuan and Richard A. Kraus showed that every year in the early eighteenth century a sizable volume of rice was shipped down the Yangzi into Suzhou prefecture and then distributed in southern Jiangsu province through river networks, and to Zhejiang province and Fujian province via the coast. The prosperity of the rice trade protected these provinces from sudden food shortages. When a province faced famine, the high price of its rice immediately attracted merchants with rice to sell from other provinces, until price levels in these provinces became similar, with differences reflecting only transport costs. In such a market, which is usually called a self-regulating or integrated market, prices in different places were correlated. Therefore, correlated prices may be taken as a sign of a self-regulating or integrated market. In their study, Chuan and Kraus postulated that the prices of rice in these central and southern China provinces were self-regulating, and that the provinces in this vast territory formed a self-regulating market.\textsuperscript{15}

Chuan and Kraus's work was extended by Yeh-chien Wang, who applied the Pearson correlation coefficient of prices to examine trade links. A commonly employed measure of market integration, the correlation coefficient of prices is used to compare

\textsuperscript{14} Skinner, \textit{The City in Late Imperial China}, p. 234.

\textsuperscript{15} Han-sheng Chuan and Richard A. Kraus, \textit{Mid-Ch’ing Rice Markets and Trade: An Essay in Price History} (Cambridge: Harvard University East Asian Monographs, 1975). Their analysis was based on contemporary official memorials as well as on rice data from price memorials.
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the price series in different places. (A price series being a sequence of prices for a particular commodity over a period of time.) The higher the correlation coefficient between two price series, the better integrated two markets are. Wang found that the major prefectural cities in central and southern China, including Hanyang, Suzhou, Hangzhou, Quanzhou, and Huaian (see also Map 1), all had the relatively high correlation coefficient of 0.6.¹⁶ Chuan and Kraus’s theory of a self-regulating market was thus further supported.

In another essay, Wang included north China in this integrated rice market, stressing that the rice consumed in north China came from the Yangzi delta: North China produced little rice, and most people there ate wheat, millet, and kaoliang [gaoliang or sorghum] instead. Almost all of the rice that the well-to-do consumed in the North was shipped from the South.

Wang argued that as a result of the long-distance rice trade, rice prices in different regions along the Grand Canal merged gradually into one another, making an integrated market.¹⁷ However, he did not support his argument with an analysis of correlation coefficients along the canal; and, as we shall see later, he did not consider the effects of the grain tribute on the northern rice market.

Although built to transport tribute tax grain from the Yangzi delta to Beijing in the north, the Grand Canal facilitated transport for all goods, greatly reduced transport costs between north and central China, and prompted the growth of long-distance trade between Hangzhou on the southeast coast and Beijing in the North China Plain. The prosperity of the canal trade has been corroborated by many studies. According to Kōsaka Masanori 32 percent of the customs duties in 1753, a whopping

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1.37 million taels, came from the canal trade.\(^{18}\) The prosperity of the canal trade was also reflected in the economic growth of cities along the canal. Fu Chonglan showed that cities such as Tianjin in Zhili, Linqing in Shandong, and Huaian in Jiangsu, grew and flourished from the Yuan to the Qing.\(^{19}\)

Some scholars argued that long-distance trade flourished on the canal because the state played a major role. Nakahara Teruo, Xu Tan, and Zhang Zhaodong pointed out that the canal trade was in fact subsidized by the Qing state. In the first place, the government had built the Grand Canal to deliver the grain tribute. During the eighteenth century, 4.5 million \(\text{shi}\)\(^{20}\) of grain tax were transported to the capital as salaries for metropolitan officials and soldiers. Secondly, in order to transport this massive amount of grain, the government recruited thousands of transport soldiers, known as bannermen (qiding), to man about 7,000 government grain boats. Bannermen received salaries, but also a free shipment allowance for goods carried on the grain boats.\(^{21}\) Goods transported as part of the bannermen's allowance were not charged the usual transit duties; for this reason, as Nakahara, Xu, and Zhang have shown, it was common for bannermen to sell their

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\(^{19}\) Fu Chonglan, Zhongguo yunhe chengshifazhanshi (Sichuan: Sichuan renmin chubanshe, 1985).

\(^{20}\) A shi equaled 103.55 liters. Note that shi (bushel) is now read as dan (picul), but they were two different measuring units in eighteenth-century China. While dan represented a weight, shi was actually a measure of volume. See Han-sheng Chuan and Richard A. Kraus, Mid-Ch’ing Rice Markets and Trade: An Essay in Price History (Cambridge: Harvard University East Asian Monographs, 1975), pp. 79-98.

\(^{21}\) For a detailed introduction of the grain tribute transport in the Qing, see Harold C. Hinton, The Grain Tribute System of China, 1845-1911 (Cambridge: Chinese Economic and Political Studies, Harvard University, 1956); Hoshi Ayao, Mindai sōun no kenkyū (Tokyo: Nihon gakujjustu shinkōkai, 1963), pp. 401-52; and Li Wenzhi and Jiang Taixin, Qingdai caoyun (Beijing: Zhonghua shuju, 1995).
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shipment allowance to merchants.\textsuperscript{22} Takino Shijiro showed that the practice was so rampant that the amount of duty-free goods thus transported far exceeded the allowances, with the result that the Huaian Customs often lost revenue.\textsuperscript{23} Since the court was aware of the situation, this amounted to a further subsidy of the grain tribute. These studies clearly show that state intervention was a factor in eighteenth-century economic growth.

When I began my research on the rice trade, building on the work of Yeh-chien Wang, I thought it might be worthwhile to discover whether or not transport of the government grain tax on the canal was related to market integration. As Beijing, the capital, was a great consumer of grain, I assumed that bannermen would take advantage of their shipping allowance to transport rice from the south to sell in Beijing. As expected, I came across many contemporary scholarly writings and government documents detailing malpractices in the grain tribute transport; I found that the bannermen had transported many southern products, including timber, silk cloth, and cotton cloth, to the north on government grain boats. Yet I could not find any sign that rice, even in small amounts, had been taken to be privately sold in the capital. The reason became obvious when I found that the price of rice in Beijing was surprisingly low, even lower than in Suzhou at the southernmost tip of the canal, which was much closer to where the rice was grown. The reason merchants didn't send rice from the lower Yangzi to Beijing was because they couldn't sell it for a profit there.

As I shall show in Chapter One, the grain market in Beijing was heavily subsidized by the state, and this kept prices low. Every year the Qing court distributed millions of shi of Yangzi rice, collected as the grain tribute tax, and used it to pay officials and soldiers in Beijing their wages. These same officials


and soldiers sold much of their rice on the Beijing market, in return for money to buy other goods. Because its price in the market did not reflect either production or transport costs, having been given to the soldiers and officials as wages, this rice was much cheaper in Beijing than in the Yangzi delta, where it was grown.

While the sale of "rice wages" in Beijing inhibited the growth of an integrated market along the Grand Canal, the grain tribute strengthened Qing dynasty government finances, a subject that I discuss in Chapter Two. As an in-kind tax, the grain tribute was free from the price fluctuations of a monetary tax. Furthermore, reserves from the tribute, and the tribute itself, could be diverted to or retained in provinces suffering from famine, to "feed the people" and maintain social stability.

Chapters Three to Five will investigate the rice trade along the Yangzi river for signs of an integrated market in the south, unaffected by rice wages in the capital. Thanks to the work by Kishimoto Mio, Han-sheng Chuan, and Yeh-chien Wang, we now have a clear picture of rice prices in the early Qing. Kishimoto showed that prices slumped during the late seventeenth century due to the imperial sea blockade against Ming loyalists in Taiwan.\(^\text{24}\) Chuan argued that after the blockade, Qing China took in large quantities of foreign silver through its export trade, experiencing a sharp rise in commodity prices by the eighteenth century. Taking the price of rice in Suzhou as an example for the whole century, the inflation rate seemed to be about 400 per cent.\(^\text{25}\) Chuan's argument prevailed until recent work by Wang,


working from a more substantial collection of price data, proved that for most of the eighteenth century rice prices increased by only 25 per cent. But a new problem arose from Wang’s data: after following an upward trend for more than eighty years (1700-1787), rice prices decreased suddenly and drastically in the last decade of the century. This price drop was difficult to explain. Wang attributed it to the unreliability of price reports for those years, and speculated that a satisfactory explanation would be impossible without as-yet-undiscovered data.

In Chapter Three, then, I re-examine the arguments of Kishimoto, Chuan, and Wang by examining the connection between the inflow of foreign silver and the secular trend of rice prices. I show that when China’s relationship to the world economy is taken into account, the drastic decline in prices at the end of the century is explicable.

When working on this area, I had to confront the popular view in the literature that demand from the growing population was outstripping supply, and that China was becoming over-populated. Ping-ti Ho argued that when the population in the Qing empire rose from 150 million in 1700 to 313 million in 1794, diminishing returns in agriculture occurred, and the country began to become impoverished. While massive migration to the frontier alleviated the population pressure in agricultural regions, Dwight H. Perkins stressed that that was not enough to counter the effects of overpopulation.

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26 Yeh-chien Wang, “Food supply and grain prices in the Yangzi delta,” p. 433. Wang collected the data from contemporary price memorials held at the First Historical Archives in Beijing and the National Palace Museum in Taipei.


29 Dwight H. Perkins, Agricultural Development in China, 1368-1968
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The imbalance between population and resources in the Yangzi delta before the mid-nineteenth century was the basis of Mark Elvin's argument that China's economy had fallen into a "high-level equilibrium trap", in which the abundance of cheap labour prevented any need for technological advances in agriculture and industry.\(^\text{30}\) Although Kenneth Pomeranz did not believe that the stagnation and decline of industrial development in the Yangzi delta was due to population pressure, he agreed that the population was so dense that the delta had to import copious amounts of rice from its upstream provinces every year during the eighteenth century.\(^\text{31}\) The demand for rice in the Yangzi delta, according to Chuan and Kraus, was a consequence of the rapid growth of urban populations in the surge of eighteenth century commercialization, when cities became too large to subsist on local rice production.\(^\text{32}\)

Although the growth of urban populations in the Yangzi delta undoubtedly led to greater rice consumption, I found that the volume of the delta's rice import was determined by other factors as well. In Chapter Four, by examining the rice harvests in the Yangzi delta, I challenge the theory that there was not enough rice in the delta to feed its own population. When analysing this problem, it became clear to me that the literature overstated the degree to which the rice market was integrated. The idea of market integration, as supported by comparing price series, did not take into account the flow of trade. In this chapter, I describe market

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\(^\text{31}\) Kenneth Pomeranz argued that the Yangzi delta imported 15-22 per cent of all its food from other provinces in the mid-eighteenth century; but in later decades such long-distance trade declined. According to Pomeranz this was not because the delta no longer needed the food, but because rice-exporting provinces like Hunan had developed their own handicraft industries and therefore needed fewer industrial goods from the delta. See Kenneth Pomeranz, *The Great Divergence: Europe, China and the Making of the Modern World Economy* (Princeton, New Jersey: Princeton University Press, 2000), pp. 246-51, 289-90.

integration as "sporadic" and argue that it is a better description of the market at that stage.

Certainly another factor affecting the rice trade on the Yangzi was the government. In this respect, many scholars have emphasized the impact of official shipment, storage, and sale of grain on the free operation of the market: Chuan and Kraus discussed how the Qing government used the rice tribute, storage of the tribute (the granary system), and direct official purchase and movement of grain between provinces to stabilize prices. Pierre-Etienne Will showed how these institutions functioned to relieve famines in Zhejiang province in 1743 and 1744, and R. Bin Wong investigated the spatial and temporal impact of granaries. Other studies have explored the role of local officials in the commercial grain flow. For example, Yamamoto Susumu and Norimatsu Akifumi’s study showed that when rice prices were high, provincial governors in the middle Yangzi usually prohibited rice exports, while Kishimoto Mio’s study showed that during times of price increase some provincial governors advocated a non-interventionist policy in the grain trade, arguing that a free inter-regional grain flow was the best way to assure price stabilization and achieve the goal of social stability. Helen Dunstan even suggested that a rudimentary form of economic liberalism operated in eighteenth-century China.

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33 ibid., pp. 28-37.
38 Helen Dunstan, Conflicting Counsels to Confuse the Age: A
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Building on all of these studies, in the last chapter I demonstrate that though the imperial government inhibited the growth of the rice trade in the capital, it disallowed provincial officials, especially in rice-exporting provinces, from erecting artificial barriers to the outflow of grain, and thus played a decisive role in maintaining a free inter-provincial grain flow outside Beijing. In the eighteenth century the long-distance rice trade prospered in China, especially along the Yangzi River, owing to positive interventions from the imperial government. Furthermore, the transport of the grain tribute, through the bannermen's allowances of duty-free goods, stimulated the long-distance trade of other goods between Beijing in the north and the Yangzi provinces.

This book investigates the grain tax, canal transportation, and market integration, to give a complete picture of the long-distance rice trade in China during the eighteenth century.

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