Economic transformation in the Tang-Song transition (755 to 1127)

The outbreak in 755 of the An Lushan rebellion, led by a disgruntled frontier general of Sogdian descent who turned against the imperial court, dealt a shattering blow to the Tang dynasty. The reigning emperor was forced to flee Chang'an, which was seized by An Lushan in 756 and later sacked by a marauding Tibetan army, and seek refuge in the southwest. By the time the rebellion was quelled in 763 the rich agricultural heartland of the Central Plain lay in ruins and hundreds of thousands had perished. The Tang was restored to power only through the crucial support of Uighur mercenaries and by ceding effective control of most of the northern provinces to regional warlords. The Tang polity emerged from the rebellion only a shadow of its former self, its basic institutions irreparably broken.

The period from 750 to 1250, which scholars commonly refer to as the “Tang-Song transition,” is widely recognized as the crucial watershed in the economic history of imperial China. Over the course of this period the rice economy of the Yangzi River valley supplanted the traditional heartland of the Central Plain as the Chinese economy’s center of gravity. The shift of population from north to south inaugurated a series of profound transformations in agricultural productivity, technology, industrial growth, transport, finance, and international trade. Sustained economic growth fueled unprecedented demographic expansion. By 1100 the empire’s population reached 100 million, far surpassing the peak levels (roughly 60 million) of the Han and Tang. The new foundations of the Chinese economy laid during the Tang-Song transition would endure throughout the rest of China’s imperial era.

The extraordinary sweep of economic change during the Tang-Song transition bespoke fundamental institutional transformations. Following the collapse of the equal-field system, private ownership of land became the rule. Progressive taxation based on household assets of villagers and town dwellers alike replaced the principle of uniform taxation that underlay the Tang zu-yong-diao tax regime. The abolition of statutory labor obligations for most of the population and the long-term decline in personal bondage eliminated key constraints on the allocation of household labor. The steady trend toward monetization of taxation—and the sharply reduced scale of tax payments in cloth in particular—likewise allowed households greater freedom to invest their labor and resources as they saw fit. Sustained population growth, rising agricultural surpluses, rapid development of water transport, and urbanization expanded the reach of markets, encouraging greater specialization of labor. A vast increase in the money supply, new forms of financial intermediation, and more reliable mechanisms for pooling capital, enforcing contracts, and resolving commercial disputes lowered transaction costs. Still, the fiscal policies of the state exerted a powerful impact on all spheres of economic activity, which brought both benefits and costs to the economy as a whole.

These changes took place at a time when the imperial might of the Chinese empire had greatly diminished. The Song was founded by military men, survivors of the incessant warfare that wracked North China throughout the first half of the tenth century. When Zhao Kuangyin (Emperor Taizu, r. 960–76) declared the founding of his Song dynasty in 960, the northern portion of the Central Plain, including the region around modern Beijing, remained in the hands of the Khitan Liao kingdom. Conquest of the independent states in South China and reunification of the empire was not achieved until 1127. The Liao, who inflicted humiliating defeats on Song armies in 979, 986, and 1004, and the Tangut kingdom on the northwestern frontier continued to pose ominous threats to the Song. A tense truce along the northern borders was purchased at the cost of maintaining an enormous standing army and forfeiting substantial indemnities of silver and silk. In 1127 an upstart Manchurian kingdom, the Jurchen Jin, overwhelmed the Song defenses and captured the Song capital of Kaifeng. Once again North China fell under the rule of foreign conquerors. The Song dynasty reconstituted its government at a new southern capital, Hangzhou. The vigorous economy of South China played a vital role in the survival of the Song dynasty until it was finally overwhelmed by the Mongol onslaught in the 1270s.

\[1\] The concept of a “Tang-Song transition” as a crucial turning point in Chinese history derives from the work of the early twentieth century Japanese scholar Naotó Kôhô, who posited that the Tang-Song era marked the beginning of a precocious “modern age” in China (and indeed in world history). Naotó’s hypothesis was reconceptualized with an explicit focus on economic history by his student Miyazaki Ichisada (1950). On Naotó’s ideas and their influence, see Miyakawa 1955; Fogel 1984; von Glahn 2003a: 37–42. The Tang-Song transition concept, particularly as formulated by Miyazaki, has remained central to Japanese scholarship on Song history (see Satake 1996; Maruiishi 2001). The Tang-Song transition paradigm also has been highly influential in Western scholarship, as can be seen in the seminal studies of Mark Elvin (1973) and Robert Hartwell (1982) (for an analysis and critique of Hartwell’s model, which stands as the most comprehensive analysis of the socio-economic changes engendered in the Tang-Song transition, see Luo Yinan 2005). The Tang-Song transition paradigm has had far less impact among historians in the PRC, where it conflicts with official historiographic dogma on the periodization of Chinese history. Since the late 1990s, however, historians in China have gradually incorporated some features of the model in their work. For a notable application of the concept to economic history, see Lin Wenxun 2011.
Economic consequences of the An Lushan rebellion

In the course of the An Lushan rebellion, whose aftershocks reverberated for decades afterward, millions of families in North China had been uprooted. Many migrated to the south, settling in Jiangnan and the still largely frontier areas of the Middle Yangzi River valley. This shift in population, a dramatic acceleration of a trend underway since the steppe nomad invasions of the fourth century, marked a key turning point in the demography of China. Before the An Lushan rebellion approximately two-thirds of the population lived in the dryland farming regions of North China, with the densest concentration in the Central Plain heartland. By 1100 that ratio had reversed: two-thirds of the population inhabited the rice-growing regions of South China, and only one-third lived in the north, a distribution that has remained roughly constant down to the present (see Maps 6.1 and 6.2).

Among the principal casualties of the An Lushan rebellion were the equal-field land allocations and the zu-yong-diao tax system that was integrally linked to it. After the turmoil of the rebellion the registered population fell by more than three-fourths, and the regional military governors who held sway in the northern provinces either refused to submit the tax revenues ordinarily forwarded to the central government (shanggan 上供) or were excused from doing so (Map 6.3). The fiscal base of the central government was reduced mainly to the southern provinces where the equal-field system had never taken root. The household tax (hushui) became a major source of revenue, but indirect taxes on consumption and trade, most importantly on salt, emerged as the mainstays of imperial fiscal administration.

In the 720s, when the Tang fiscal system had begun to show serious signs of strain, the court appointed a number of plenipotentiary commissioners, officials with special expertise in fiscal matters, to deal with problems such as vagrancy, tax evasion, transport of tax grain, and coinage. At that time proposals were floated to restore the monopolies on salt and iron that existed during the Han, but no action was taken. In 758, after experiments conducted...
on the local level for several years, the court established a monopoly on the production and sale of salt under the authority of a newly established Salt Commission. All salt producers were made state employees and compelled to deliver their salt to government directorates (jian 监), which sold salt to wholesale merchants at a substantial markup. Liu Yan, who occupied the post of salt commissioner from 760 to 779, transformed the Salt Commission into a supremely powerful organization. Salt revenues rose ten-fold over the course of Liu’s tenure as salt commissioner, and by 779 provided the central government with more than half of its annual income. Liu Yan also gathered mining, coinage, and the transport of tax grain from the south to the capital under the purview of the Salt Commission. Subsequent salt commissioners enacted additional consumption taxes on wine and tea, though these levies generated only modest revenues.

The virtually unchecked power wielded by Liu Yan provoked great dismay among other officials. In 779 a bitter rival of Liu, Yang Yan, took office as chancellor determined to wrest control of the state’s fiscal administration away from the Salt Commission and return it to the Finance Ministry. Yang also launched a sweeping reform of the tax system that sought to restore direct taxation as the main source of state revenue. Although Yang’s attempt to abolish the Salt Commission was aborted, the new tax system he created would endure throughout the rest of the imperial era.

Yang Yan’s reform acknowledged that the equal-field system of landownership was defunct, and along with it the zu-yong-diao taxes that had been the centerpiece of the Tang fiscal regime. Yang’s plan formally abolished the zu-yong-diao assessments while incorporating the household (hushui) and land (dishui) levies into a new tax structure that came to be known as the twice-a-year tax (liangshui 兩税). In keeping with the procedures for the existing hushui levy, households were ranked into nine property grades and assessed a tax measured in coin. Given the endemic shortage of coin, however, the household tax generally was commuted to commodities, primarily cloth. The land tax as before was assessed in grain. The household tax was collected in late summer and the land tax after the autumn harvest; hence the name twice-a-year tax.

In essence, the twice-a-year tax was simply a rationalization of what had become the status quo. But it marked a fundamental and lasting change in economic philosophy. The principle of equity that underlay the equal-field system and earlier measures to restrict the concentration of landholding was abandoned, never to be resurrected in any serious way before the land collectivization policies carried out by the communist leadership of the People’s Republic of China in the 1950s. Instead, the state and its cadre of Confucian officials, conceding the reality of the uneven distribution of landownership, focused on implementing a progressive land tax based on the amount of land under cultivation. In addition, the new tax system eliminated the universal statutory labor service owed to the central government. Local officials continued to conscript taxpayers for ad hoc public works projects (zuyao) and assigned village officer duties to the highest-ranked – that is to say, most affluent – households. Coupled with the cessation of universal military conscription in the 730s, the suspension of regular labor service duties had the salutary effect of freeing up considerable labor resources for private purposes.

The twice-a-year tax was an instant success from the perspective of fiscal planners. In its first year of operation it generated greater income than the central government’s revenue from all sources, including the salt monopoly, in the previous year. But as time wore on the provincial governors became increasingly independent of central government control and forwarded less revenue to the capital. In general, only about one-third of revenues collected at the local level were transmitted to the central government, although these proportions varied by region (see Table 6.1 for actual figures from a Yangzi Delta prefecture). The remainder was divided between provincial governors and prefectures. The military governors controlling the Central Plain were largely independent of the imperial government and forwarded little revenue to the capital. Nearly all of the central government’s revenues were obtained from the southern provinces, especially in the Lower Yangzi Basin and Sichuan (Map 6.3). Although the average tax receipts generated by the twice-a-year tax (4.3 guan per household) were essentially unchanged from the zu-yong-diao levy (4.2 guan per household), total per capita revenues increased by 60 percent, driven largely by consumption taxes on tea, liquor, and above all salt.

The twice-a-year tax, intended more as a measure to increase state revenues than to promote equity, contained several serious flaws. By focusing exclusively on cultivated land as the basis of taxation, it failed to capture revenues from urban real estate and commerce. The central government assigned permanent tax quotas to local prefectures regardless of the actual amount of land under cultivation, which led to significant disparities in the tax burden among households.

2 The actual title, Commissioner of Salt and Iron Monopolies (Que yantie shi 業鹽鐵使), harked back to the salt and iron monopolies of the Han, but in the Tang this office was solely charged with control of the salt market. No effort was made to restore a state monopoly on iron.

3 Twitchett 1954, 1963: 49–53. The data on salt revenues is from ibid.: 264, n. 20.

4 Twitchett 1963: 39–43.
Table 6.1 Suzhou prefecture tax revenues, c. 861

<table>
<thead>
<tr>
<th>Cantons</th>
<th>194</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>143,261</td>
</tr>
<tr>
<td>Revenues (guan)</td>
<td>692,885</td>
</tr>
<tr>
<td>Average tax burden per household (guan)</td>
<td>4.84</td>
</tr>
<tr>
<td>Central government (shanggong)</td>
<td>306,830</td>
</tr>
<tr>
<td>Provincial governor (liushi)</td>
<td>207,720**</td>
</tr>
<tr>
<td>Prefecture (Suzhou)</td>
<td>178,349</td>
</tr>
</tbody>
</table>

*Revenues from the twice-a-year tax, salt, liquor, and tea excises, and other taxes.
**Emending what appears to be a clerical error.

Source: WDJ: 1–3.

different regions. Commutation of the household tax into cloth also created inequities due to regional and temporal variations in the price of cloth.6

The shift to taxes paid in money rather than in kind, resulting from the institution of the salt monopoly and the twice-a-year tax, further exacerbated the shortage of currency. Lack of coin was a principal cause of the deflationary trend that began in the 780s and lasted until the middle of the ninth century. Deflation in effect increased the real cost of taxes denominated in coin, spurring commutation of the household (summer) tax to payments of silk and other textiles. By 821 the summer tax had been converted entirely to payments in textiles.7 The Tang court also attempted to make compulsory the use of silk as means of payment in large commercial transactions. Counterfeiting flourished in the early ninth century, as did the use of short strings of fewer coins to represent the token value of a full string of coin (coins usually circulated in strings of 100 coins at this time), a practice that had appeared earlier in South China during the Liang dynasty. The imperial proscription of Buddhism and confiscation of monastic properties in 845 provided some short-lived relief. Large quantities of bronze statuary, bells, and other religious paraphernalia were melted down to provide raw material for minting coin. At least twenty-three local mints were established to issue new coin. But the interdiction against Buddhism was rescinded within a year and the confiscation of monastic property halted. The sudden spurt in minting ceased as well.8

Despite the limited supply of coin, commerce thrived in the post-An Lushan era. Many of the constraints on merchants and trade weakened along with the waning influence of the central government. The largely autonomous provincial governors built up their own fiscal administrations and readily recruited merchants to staff them. Provincial capitals became magnets for tax and tribute goods as well as private commerce. Yangzhou, at the intersection of the Grand Canal and the Yangzi River, emerged as the most prosperous entrepôt in the south, a center of shipbuilding, textiles, leather

7 Shimasue 1990: 338–44.
making, and iron and bronze metallurgy as well as the largest salt market and a major port for overseas trade. Chengdu prospered as a center of fine silk manufacture, papermaking, and a rapidly growing tea trade. Merchants in Chang'an and other cities began to develop credit and banking services. Safe-deposit firms (guifang 櫃房) provided financing for commercial transactions and loans to the government in military emergencies. Bills of exchange known as “flying cash” (feijian 飛錢) were issued by a state agency to enable merchants to transfer funds from the capital to outlying cities without carrying away precious coin. As we saw in Chapter 5, Buddhist monasteries played an important role in providing credit to wealthy patrons as well as the desperate poor.

This commercial efflorescence was vividly etched in the physical and economic morphology of cities and towns. The confinement of commerce to designated markets and residential segregation inside self-enclosed wards began to wither in the late Tang, and vanished altogether in the Song. Shops and marketplaces burst onto the main streets and lined the canals within and without the walled cities, while faubourgs of inns, warehouses, and the shops of wholesale merchants and brokers mushroomed outside the city walls. Although no longer under close official surveillance, merchants and artisans in the same trade often clustered together, creating specialized marketplaces for gold and silver smiths, silk goods, and booksellers as well as butchers, grain merchants, and lumber dealers. Night markets proliferated in defiance of government curfews. Marketplaces and fairs sprang up in the countryside as well. Rural markets typically were held periodically, perhaps once or twice during the ten-day Chinese week, and catered mostly to a local clientele. Larger temple fairs attracted worshipers and merchants alike from more distant areas. Most famous of all were the “silkworm fairs” of Chengdu, which date from at least the late eighth century. By Song times these fairs had grown so popular that they rotated among fifteen sites within Chengdu and the surrounding counties. Held in the early months of the New Year before the onset of the sericulture season, the silkworm fairs showcased equipment for raising silkworms and reeling and weaving silk. Local farmers could also buy agricultural tools, seeds, carts, lumber, medicines, and other sundry goods at the fairs.

China’s international trade also experienced momentous change in the wake of the An Lushan rebellion. The Arab conquests in Central Asia – including Sogdiana – and Tibetan depredations in the Gansu Corridor disrupted the Sogdian trade network and Silk Road trade in general. The markets at Dunhuang, starved of coin, reverted to grain and wool as means of exchange. Most decisively, trade with India and the Islamic world via maritime routes gradually eclipsed the overland caravan traffic. By the beginning of the eighth century the Srivijayan princes of Sumatra had established way-stations at Palembang and other ports where ships traveling to and from China awaited the seasonal shift in the monsoon winds. Muslim merchants, both Arab and Persian, dominated these trade routes. Arab geographers of the mid-ninth century describe a thriving trade between Sıraf in the Persian Gulf and the southern Chinese port of Guangzhou (Canton), where foreign merchants reportedly vastly outnumbered native Chinese. The Belitung shipwreck, an Arab vessel that sank off Sumatra c. 825–50, is believed to have embarked from Yangzhou and was making intermediate stops at Southeast Asian ports before heading for its final destination of Sıraf. The vessel’s cargo principally consisted of 60,000 ceramic pieces – nearly all lead-glazed wares from Changsha – in addition to lead ingots, gold and silver plate, bronze mirrors, and jars of spices. Over the next several centuries maritime trade through Southeast Asia boomed, and China’s international trade underwent a permanent reorientation away from the overland Silk Road.

The An Lushan rebellion thus signified a major turning point in Chinese economic history. Some of these changes, such as the transition from a fixed head tax to a progressive land tax as the basis of the fiscal system, were triggered by the rebellion itself. Landholding was no longer subject to the constraints of the equal-field system, but at the same time the aristocratic families that had dominated landholding since late Han times also became exposed to the vicissitudes of the market economy. Private enterprise flourished in both agriculture and commerce. Although some sectors of the economy - most notably the salt industry - became subject to direct control by the state, the system of regulated urban markets began to break down and in general merchants enjoyed greater freedom. The most important change, however, was not a direct result of the rebellion but an acceleration of a trend that had been long underway: the shift of population to the southern rice-growing regions, which had far greater productive potential than the arid north.

9 On Yangzhou’s commercial prosperity in the Tang (and its subsequent decline), see Quan Hansheng 1972. The most comprehensive study of these financial institutions and "flying cash" bills is Hino 1982: 15–230. See also Miu Kunhe 2002: 15–27.


11 On the demise of the Sogdian trade network after the Arab occupation of Sogdiana, see de la Vaissière 2005: 261–330. Although some scholars (e.g., Zheng Binglin 2004) portray post-An Lushan Dunhuang as a vibrant center of Silk Road trade, in fact commerce at Dunhuang had become localized (Hansen 2012: 196). Moreover, Dunhuang’s external trade became oriented more toward Turfan and Central Asia rather than China (Trombert 1995: 106).

Rise of the rice economy

Following the demise of the equal-field system, private ownership of land became the rule throughout China. Even after the restoration of a unified empire by the Song no effort was made to reverse this basic economic fact. The Song state generally sold off lands that came into its possession (as a result of lack of heirs, for example), and in 1082 state-owned lands amounted to only 1.4 percent of total registered land. The privatization of landholdings spurred the commodification of landed property, and the rapid expansion of rice agriculture accelerated the formation of competitive markets for land and agricultural products.

A trend toward concentration of landholdings emerged in the late Tang period, most notably in the areas of North China devastated by the An Lushan rebellion. Contemporary sources frequently remark on the formation of landed estates (zhuangyuan 庄園) by imperial kinsmen, officials, and wealthy families. It was once thought that the proliferation of zhuangyuan gave birth to what Mark Elvin described as a manorial social order, similar to that of medieval Europe, “based on the enserfment of much of the peasant population and exerting a dominant influence over most of the rest.” The current consensus, however, rejects the equation of zhuangyuan with manorial serfdom, and instead recognizes wide variation in the nature of landholdings and tenurial relations across - and within - regions. Zhuangyuan typically were comprised not of large tracts of contiguous landholdings, but rather dispersed plots acquired in piecemeal fashion. In most cases zhuangyuan were worked by tenant farmers and hired laborers. This was particularly true in the south, since rice agriculture was more suited to intensive small-scale farming.

It is difficult to determine the prevalence of tenancy, especially since many small landholders also rented some of the land they farmed. Tenant farmers usually were economically independent of their landlords. Although there was wide variation in the terms of tenancy across regions, contractual tenancy largely superseded personal bondage except in lightly populated frontier regions in the interior, such as Hunan and Sichuan. The most common form of tenancy was sharecropping, in which the tenant owed half of the harvest (or 60 percent if the landowner provided seed and tools) in kind to the landowner. Bondservitude generally took the form of indentured labor by indebted persons, commonly known as “tenant servants” (dianpu 佃僕).

23 Most scholars (e.g., Li Bozhong 1990: 253; Zhang Guoguang 2012: 36) concur with Yoneda (1989) that the two-crops-in-three-years rotation was widespread in the Tang (practiced by two-thirds of farm households, according to Li). But Osaka (1996: 91-94) has reservations, suggesting it was not widely used before the Song, or perhaps even later.

Such bondservants were bound to their masters, not the soil, for lengthy periods of time, but under terms governed by contract and imperial law. The Song repealed older laws that had subjected tenants and hired laborers to the arbitrary control of landowners. Nonetheless the servile character of hired labor and tenancy was not wholly effaced. For example, landlords retained the right to choose marriage partners for hired laborers and bondservants, and tenants were subject to various legal discriminations in disputes with their landlords. Although tenant servants were prominent in newly settled regions of South China such as Jiangxi and southern Anhui, they were uncommon in the more densely populated regions of the Yangzi Delta and Fujian. As a rule, coercive labor arrangements entailing a high degree of personal bondage were confined to the frontier regions of South China where labor was in short supply.

Agriculture in North China reached an optimum level of efficiency during the Tang dynasty. Wheat decisively displaced millet as the dominant food grain. Cereal cultivation was complemented by a variety of winter crops – soybeans, snow peas (an import from West Asia), broad beans, rape, and clover (for animal fodder) – utilized in the increasingly common two-crops-in-three-years rotation. Even the larger landholdings of zhuangyuan estates were divided among small household units of production rather than operated under unitary management. Osaka Masaaki suggests that in the late Tang a typical North China zhuangyuan comprised 240–300 mu, the maximum amount that could be cultivated with two oxen, and a total workforce of ten or so farmers. But the estate workers (zhuangke 莊客) most often were tenant farmers who, although subject to certain kinds of personal subordination to the landowner (for example, providing sundry labor services when the latter demanded), were responsible for their own subsistence.

Li Bozhong has calculated that on average a farm family in North China with an ox could cultivate 77 mu, or, if the family shared an ox with others, only 50 mu, generally regarded as the minimum amount of land required to meet subsistence needs. Data from tenth-century tax registers in Dunhuang – where population pressure on the land was less intense than in the Central Plain – indicate an average of 68 mu per household, but this figure obscures significant variations (Table 6.2). Dunhuang’s agrarian economy was divided into three
strata: a small number of large landowners possessing 300–400+ mu; a broad middle stratum that owned enough land to meet their own needs; and a substantial minority (perhaps 20–25 percent of the entire population) whose meager landholdings obliged them to seek other means of subsistence through tenancy, hired labor, or non-agricultural employment. This depiction of rural society in Dunhuang most likely was broadly true of North China in general.

The fundamental force behind the rapid pace of commercial and urban growth during the Tang-Song transition was the maturation of the rice economy in the Yangzi River Basin. Irrigated rice cultivation was far more labor intensive than dryland crops (Table 6.3). But the higher productivity of intensive rice cultivation, including continuous planting without fallowing, yielded at least five times as much food per unit of land as wheat or millet. Many of the advances in rice cultivation – such as improved tools, transplanting, irrigation techniques, frequent weeding, and the double-cropping of rice with winter dryland crops (usually wheat) – already appeared by the late Tang era, but their use was confined to upland valleys above the flood plains (see Map 6.4). Nonetheless, already in the Tang the intensification of rice agriculture had produced substantial increases in yields compared to the Period of Disunion. According to Li Bozhong, in the Tang most rice farming households possessed an ox, although interplanting rice and winter crops was still rare. Even though farms were much smaller than in the past, Li calculates that by the late Tang Jiangnan household income from rice agriculture had

The most significant development in Song agriculture was the expansion of rice cultivation through the reclamation of the marshlands of the Yangzi Delta and the building of terraced fields on hillsides in the mountainous regions of the interior. Farmers in the upland alluvial valleys of Zhejiang, Anhui, and Jiangxi pioneered many of the innovations in rice cultivation. Irrigation ponds, terraced fields, and labor-intensive techniques such as deep tilling and frequent weeding were first adopted in these areas. 29 The introduction of Champa rice, a hardy, fast-ripening seed variety from Southeast Asia, shortened the growing season and reduced the risk of crop failure. Over the course of the Song, however, the impetus for the expansion of the rice economy gravitated to the lowland plains of the Yangzi Delta. In this region the main priority was not storing irrigation water but rather draining marshes and lakes to make the land suitable for agriculture. Construction of polders (diked enclosures) — initially to drain swamps, and then to provide irrigation to rice fields — required substantial investments of labor and capital. The Wu-Yue kingdom in the tenth century and Wang Anshi’s administration in the eleventh invested heavily in such land reclamation projects. It has been estimated that polder projects reclaimed at least 35 million acres of land in the two circuits of Liangzhe and Jiangdong during the last half century of the Northern Song alone. 30

The proliferation of polder fields in the Yangzi Delta continued in the Southern Song, but the initiative for land reclamation came from private landowners rather than the state. 31 The rapid advance of polders not only greatly expanded cultivated land in the delta, but also radically altered the delta’s ecology, as the example of Jian Lake in Shaoxing illustrates. Jian Lake had been artificially created as a source of irrigation water in the Han dynasty (Chapter 4). In the early eleventh century farmers along the lakeshore began to build diked enclosures to convert the lake bed into arable land. By the 1060s some 700 qing of land had been reclaimed in this fashion. At the end of the twelfth century, when more than 2,000 qing practices that probably were utilized by only a minority of farm families. Moreover, the difference in net income per labor day was considerably lower (a 250 percent rather than 540 percent increase for a family with an ox practicing single-cropping). Given the greater labor intensity and longer work-year of families that combined rice agriculture and sericulture, it is not surprising that the twice-a-year taxation system shifted from extraction of labor services to payment in goods. Since the spring planting season for rice coincided with the peak season for highly labor-intensive sericulture tasks, this combination also encouraged a gendered division of labor, with women performing almost all of the sericulture work. 28

Table 6.4 *Cultivated land and grain output in Jiangnan rice agriculture*

<table>
<thead>
<tr>
<th>Period of Disunion (without ox)</th>
<th>Tang</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without ox</td>
<td>With ox</td>
<td>Double-cropping rice and wheat (with ox)</td>
<td></td>
</tr>
<tr>
<td>Average cultivated land per household (mu)</td>
<td>77</td>
<td>22</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>Total grain output (shi)</td>
<td>55</td>
<td>66</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>Total grain output (hectoliters)</td>
<td>32.5</td>
<td>38.9</td>
<td>54.9</td>
<td>54.3</td>
</tr>
<tr>
<td>Grain output per mu (liters)</td>
<td>42.1</td>
<td>177</td>
<td>177</td>
<td>236</td>
</tr>
<tr>
<td>Value of grain output in bolts of silk tabby (pi)</td>
<td>19.8</td>
<td>23.8</td>
<td>33.5</td>
<td>33.1</td>
</tr>
<tr>
<td>Index of value (Period of Disunion = 100)</td>
<td>100</td>
<td>120</td>
<td>169</td>
<td>167</td>
</tr>
</tbody>
</table>

*Source: Li Bozhong 1990: 212, table 6–14.*

Table 6.5 *Estimated net income of Jiangnan rice-farming households* (all figures in bolts of silk)

<table>
<thead>
<tr>
<th>Period of Disunion (without ox)</th>
<th>Fixed capital costs</th>
<th>Variable capital costs</th>
<th>Total income</th>
<th>Net income</th>
<th>Net after-tax income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5</td>
<td>27</td>
<td>29.8</td>
<td>2.3</td>
<td>-2.9</td>
</tr>
<tr>
<td>Early Tang (without ox)</td>
<td>0.3</td>
<td>27</td>
<td>35.4</td>
<td>8.1</td>
<td>3.4</td>
</tr>
<tr>
<td>Early Tang (with ox)</td>
<td>8.5</td>
<td>27</td>
<td>45.1</td>
<td>9.6</td>
<td>4.9</td>
</tr>
<tr>
<td>Middle Tang (without ox)</td>
<td>0.3</td>
<td>27</td>
<td>37.0</td>
<td>9.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Middle Tang (with ox)</td>
<td>8.5</td>
<td>27</td>
<td>47.5</td>
<td>12.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Late Tang (with ox, single cropping; sericulture)</td>
<td>8.5</td>
<td>27</td>
<td>47.9</td>
<td>12.4</td>
<td>5.0</td>
</tr>
<tr>
<td>Late Tang (with ox, double-cropping; sericulture)</td>
<td>8.6</td>
<td>27</td>
<td>47.5</td>
<td>13.4</td>
<td>6.0</td>
</tr>
</tbody>
</table>

*NB: Before the late Tang, income from cloth production was derived from ramie fabrics; in the late Tang, from silk.*

*Source: Li Bozhong 1990: 227, table 6–18, 244, table 6–25.*

risen 70 percent compared to the Period of Disunion (Table 6.4). Including cloth manufacture, Li finds that net household income increased by more than five-fold (Table 6.5). To be sure, Li’s calculations are based on stylized contemporary estimates, rather than actual output data, and reflect best
224  The Economic History of China

Map 6.5 Land reclamation of Jian Lake in Shaoxing
Source: Chen Qiaoyi 1962.

were under cultivation, the lake had been reduced to scattered marshes amid a vast expanse of rice paddies (Map 6.5; cf Map 4.3). The depletion of lakes and increased sedimentation resulting from erosion in upstream areas rendered the coastal plains more vulnerable to flooding. Efforts to expedite the discharge of water to the sea by dredging channels and straightening rivers had contrary results, increasing the pressure on dikes and allowing ocean tides to surge inland. Moreover, the polders remained prone to water-logging that reduced fertility and inhibited double-cropping with winter dryland crops. During the Song, the yields from polder lands were no greater than the more intensively cultivated upland rice fields.

Despite the trend toward concentration of landholdings following the demise of the equal-field system, great estates became increasingly rare during the Song dynasty. Rice agriculture was more suited to small-scale farming. Under the household ranking system established by the Song in 1033, approximately 10–15 percent of all registered households were classified as “upper households” (shanghu 上户) owning more than 100 mu (5.6 hectares) of land, while 50–60 percent were registered as “lower households” (xiahu 下户) with average landholdings of less than 25 mu. The remaining one-third of all households owned no land. Although the superior households accounted for 80 percent of total landholdings, landownership was much more broadly dispersed than in the past. A survey conducted in Wenzhou prefecture (Zhejiang) in the thirteenth century found that only 1.5 percent of landowning households owned more than 400 mu (the largest single holding amounting to 2,600 mu), while 85 percent of landowners owned between 30 and 150 mu. The average amount of farmland per household in rice-growing regions in the twelfth century ranged from 30–40 mu in lowland areas to around 10 mu in the rugged upland regions. Farm size, including lands worked by tenant farmers, in Song Jiangnan probably was in the range of 30–40 mu. Conjugal families numbering 5–6 persons constituted the basic unit of agricultural production.

The transformation of Chinese agriculture during the Tang-Song era was more gradual and incremental than Mark Elvin’s formulation of a “revolution in farming” suggests. The productivity of polder fields in Song Jiangnan probably did not much surpass the high levels already achieved in the Tang, and many of the best practices described in Song agricultural handbooks were not widely employed before Ming-Qing times. Nonetheless, the shift from millet and wheat to rice as the principal food crop dramatically raised aggregate grain output and made possible the doubling of China’s peak population levels between the eighth and twelfth centuries. The number of registered households tripled between 980 and 1110 alone, although registered acreage grew at a far more modest pace, roughly 50 percent from 1000 to 1080 (Figure 6.1). Most importantly, the progressive commercialization of agriculture favored specialization of production, both across the empire and within the household. Wholesale merchants, brokers, hostellers (didian 店), commission agents, and retail shopkeepers constructed regional and national markets not only for grain and other foodstuffs but also for salt, tea, timber, textiles, lacquer, paper, and pottery.

32 Honda 2000b: 51. On the struggle to preserve Xiang Lake, an artificial lake constructed in the western part of Shaoxing in the early twelfth century as an irrigation reservoir, from such encroachment, see Schoppa 1989: 9–27.
34 These estimates are based on the data assembled in Yanagida 1986: 192–97.
38 Li Bozhong 2003: 147–53. However, Li’s caution about the limited productivity of rice agriculture in Song Jiangnan relies on questionable assumptions about the relationship between land rents and harvest yields. For an important critique of Li’s analysis, see Ge Jinfang and Gu Rong 2000.
The Economic History of China

Figure 6.1 Northern Song registered population and lands, 980–1110

The return to mercantilist fiscal policies

After the final collapse of the Tang dynasty in 907, China once again was divided into northern and southern political spheres. In the north, a series of five successive dynasties rose and fell during the period 907–960 (thus this period is generally known as the Five Dynasties era). Amid this instability, actual power devolved to dozens of local warlord regimes. In the south, however, a relatively stable multistate system of seven regional kingdoms emerged, the last of which submitted to Song rule only in 978. In sharp contrast with the expansive, cosmopolitan empires of Sui and Tang, the rulers of this era focused on building a political base at the local and regional levels. The multistate system in South China fostered a regional pattern of economic development. This framework of regional states was preserved in the structure of the Song dynasty’s territorial administration and later in the provincial units of the Ming and Qing dynasties.

The preeminence of military rule that prevailed during the late Tang continued in the Five Dynasties period. Already before the An Lushan rebellion the fubing system of soldier-farmer militias had seriously decayed, forcing the Tang to rely on large professional armies to defend its frontiers. The power of the Five Dynasties’ rulers likewise rested on standing armies. Provisions of food and clothing and pay (in coin) for several hundred thousand troops consumed the lion’s share of state revenue. Cadstral surveys conducted by the northern regimes of Later Tang (in 929) and Northern Zhou (in 958) extended the reach of the central government’s fiscal authority at the local level. As in the late Tang, shortages of coin compelled government officials to commute the summer tax portion of the twice-a-year tax to in-kind payments in cloth.

The emergence of independent regional states stimulated robust economic growth in southern China. Regional specialization in the production of tea, salt, timber, paper, copper, silver, and textiles accelerated as the various states sought to capitalize on their comparative advantages in resources. Although political fragmentation and hostile relations posed obstacles to interregional trade, the rulers of these states also depended on commerce to obtain vital supplies—notably iron, salt, sulfur, and alum—as well as now-indispensable consumer staples such as tea. The southern states developed cordial trading relations with the remote foreign states on the northern frontier, the Tanguts and the Khitans Liao, principally based on the exchange of tea for war horses. The coastal kingdoms of Wu-Yue, Min, and Southern Han actively promoted overseas trade with the Khitans, the Koryo kingdom in Korea, and Japan as well as Southeast Asia. The direct role of the Southern Han state in maritime trade is evident in the cargo of the Intan shipwreck, which sank near Java c. 920–60. The ship, of Southeast Asian construction, carried Chinese and Southeast Asian ceramics; incense; copper and tin ingots and gold jewelry of Southeast Asian origin; Southern Han lead coins; and nearly 190 kg of silver ingots. Inscriptions indicate that the silver ingots had been deposited in the Southern Han state treasury as payment for salt excise levies, and presumably disbursed to purchase aromatics, spices, and other exotic goods the vessel had delivered to Guangzhou.

The tenth century also witnessed the first flourish of private maritime commerce between China and Japan. Diplomatic exchanges between the Tang and Japanese courts had ceased after 838. Subsequently Japan’s contact with the continent was mediated by Chinese and Korean merchants. Ningbo and other Zhejiang ports dominated the trade between China and Japan at this time, displacing Yangzhou and rivaling Guangzhou as the major emporia of maritime commerce.

40 Sudo 1954a.
41 For a synopsis of the fiscal administration and policies of the Five Dynasties’ regimes, see Hino 1980: 87–124.
42 Miyazaki 1943: 83–117. For an overview of economic policies of the southern regimes, see Clark 2009.
43 On state promotion of maritime trade in the Wu-Yue (Yangzi Delta) and Min (Fujian) kingdoms, see Hino 1984: 17–248; Yamazaki 2010b.
44 Twitchett and Stargardt 2002. The vessel also may well have carried perishable goods such as textiles.
45 Yamazaki 2010a.
(near Ningbo) was by far the most common type of Chinese ceramics imported to Japan in the ninth–tenth centuries, followed by cream-colored Xingzhou wares and the Changsha pottery found on the Belitung shipwreck. Apart from ceramics, Chinese merchants brought textiles, books, and exotic goods from Central and Southeast Asia to Japan; their principal return cargo was gold from Mutsu in northern Japan.

The rulers of the South China states adopted explicitly mercantilist policies intended to strengthen their national economies and prevent the drain of hard currency – copper coin, gold, and silver – to neighboring rivals. Northern courts, lacking any domestic supplies of copper, suffered from critical shortages of money. Northern rulers repeatedly issued bans against the export of coin and non-monetary uses of copper. When the Later Tang vanquished the Former Shu state in Sichuan in 934, the victors brought back great quantities of gold and six billion copper coins to Luoyang. A new proscription against Buddhism enacted by the Northern Zhou in 955 was a thinly disguised ruse to seize bronze statues and other religious ornaments held by monasteries and private devotees for use as raw material for coinage. Even states with ample copper supplies such as Wu-Yue and Southern Tang ultimately resorted to minting iron coins to discourage the export of coin abroad. Other southern states such as Min, Southern Han, and Chu issued even cheaper lead coins. These monetary policies contributed to a pattern of regional monetary autarky that persisted after the Song reunification.

The precarious military situation of the Song cast a long shadow over fiscal policy. From the outset the Song emperors sought to reverse the trends of the late Tang by recentralizing military power and economic resources in the hands of the central government. Most fiscal matters came under the purview of a new Finance Commission (Sansi 三司), an autonomous agency – comprised of the three departments of revenue (Duzhi 度支), salt (Yantie 盐鐵) and census (Hubu 戶部) – that reported directly to the emperor rather than the chancellors. First created by the Later Tang in 930, the Finance Commission institutionalized the shift toward functional specialization in the central government fiscal bureaucracy that originated with the proliferation of plenipotentiary commissioners in the mid-Tang period. The structure of the Finance Commission encouraged the development of professional expertise in fiscal matters and the emergence a distinct career track within the Song bureaucracy for officials who acquired such knowledge and experience. The Song also divided the empire into regional circuits (lu 路) – a total of twenty-one in 979 – to coordinate policymaking between the central government and the empire’s 300-odd prefectures. The various circuit intendants – supervising military, fiscal, judicial, and educational affairs – reported to different authorities at the court. Fiscal Intendants (Juanyunshi 轉運使), acting as arms of the Finance Commission, were chiefly responsible for the allocation and transportation of locally generated revenues, above all for provisioning the armies.

Since the Great Wall no longer served as a bulwark against invasion, the Song was forced to maintain large standing armies of professional soldiers along its long borders with the Tanguts and Khitan kingdom of Liao. In the early Song some 400,000 soldiers manned the garrisons along the northern frontier. Defeat in war with the Liao in 1004 forced the Song to pay large annual indemnities of silver and silk to the Liao rulers. During the Song offensive against the Tangut Xixia kingdom in 1040–44 – which ended in another devastating defeat and indemnities owed to Xixia as well – the Song armies swelled to 1.4 million soldiers. In the 1060s–70s, 700,000–800,000 troops were stationed in the northern border circuits of Hebei, Hedong, and Shaanxi. Supplying these frontier armies imposed heavy fiscal and logistical burdens. Military expenditures consumed more than 80 percent of the central government’s budget. The Song retained the twice-a-year tax system, but also sought to capture some of the profits generated by the rapidly expanding commercial economy to meet the ever-increasing costs of national defense.

Logistical considerations had figured significantly in the Song founder’s choice of Kaifeng, the northern terminus of the Grand Canal, as his capital. Kaifeng became the hub of a system of waterways and roads that facilitated the delivery of goods from all corners of the Song realm. In the eleventh century state-operated convoys each year carried 4.89 million shi (464 million liters) of grain obtained as tax revenue from South China to Kaifeng. But nearly all of this grain was allocated to officials and soldiers stationed in and around the capital. Feeding the armies on the frontier required an additional 25 million shi (2.37 billion liters) per year, only half of which could be supplied by land tax revenues from the northern provinces. The remainder had to be obtained through the market through what was known as the “harmonious purchase” (hedi 和糾) policy. Most hedi grain was obtained locally in the northern

---

46 Kamei 1992: 120.
47 Miyazaki 1943 remains the classic study of fiscal and monetary strategies in this era. See also Elvin 1973: 150–55; Miyazawa 2008.
48 Hino 1980: 46–47.
provinces, but each year the government purchased 2–3 million shi of rice in the south to provision the frontier armies.\(^{53}\)

Like its predecessors, the Song relied heavily on profits from commodity monopolies to augment the relatively static income generated by direct taxation. In addition to the lucrative salt monopoly, the Song retained the monopoly on commerce in tea in the Huainan region that had been established by the Southern Tang. In 965 the Song created a Commodity Monopoly Bureau (Quehuowu \\(_{\text{元和務}}\) ) to sell licenses that enabled merchants to purchase tea in Huainan and market it in designated market regions. Like the Southern Tang, the Song initially used the tea monopoly as a weapon in its economic warfare with rival states. After the conquest of Wu-Yue in 978, however, the purpose of the tea monopoly changed along with the strategic goals of the Song leaders, now focused on recovering the region around modern Beijing from the Liao. Under the “frontier delivery” (ruzhong \\(_{\text{供職}}\) ) policy, the state offered lucrative incentives to entice merchants to provision the frontier armies. In 985 the Song began to tender exchange vouchers, known as jiaoyin \\(_{\text{交引}}\), as payment for shipments of grain, fodder, money (coin and silver), and other supplies to the frontier. These vouchers could be redeemed at the capital for coin, exotic imports such as incense and ivory, or the coveted licenses to procure and market tea and salt.\(^{54}\)

The tea monopoly encountered intractable obstacles.\(^{55}\) The government was unable to maintain a balance between its stocks of tea and the tea licenses it issued, resulting either in spoilage of unsold tea or lengthy delays for merchants seeking to redeem their licenses. Merchants often inflated the values of the supplies they delivered to the frontier, deflating the state’s revenue. Above all, a monopoly on tea production proved impossible to enforce, since tea was widely grown by small producers across all of South China. In 1059 the government abandoned the monopoly and allowed free trade in tea. The salt monopoly, in contrast, was more successful, primarily because the state could more easily control the sources of supply.

Although the salt and tea monopolies were staple sources of revenue, in the early decades of the eleventh century they yielded less revenue than other indirect levies on trade (Table 6.6). Commercial taxes (on the shipment and sale of goods) became a major source of income, generating 20–25 percent of the state’s cash revenues.\(^{56}\) A new liquor monopoly produced nearly as much revenue as the commercial taxes. The state directly operated breweries in major cities while licensing private producers in smaller towns and rural areas who paid franchise fees to the state. A network of revenue depots (liuyi \\(_{\text{利義}}\) ) blanket the empire, collecting revenues from commercial taxes and the liquor monopoly. In 1077, a total of 1,993 commercial tax stations and 1,861 liquor revenue depots were in operation.\(^{57}\) Another revenue device employed by the Song court was a system of loan advances to finance purchases from silk producers (heiyouai \\(_{\text{和預買}}\) ). The state made cash advances to families engaged in sericulture who repaid the loans with finished silk cloth. The amount of silk obtained through advance purchases rose from 1 million bolts in 1005 to 3 million in 1047.\(^{58}\)

After the rapid escalation of frontier defense costs during and after the Tangut war in the 1040s, the Song leadership desperately sought to increase its revenues. The most successful innovation was decoupling the salt licenses

---

\(^{53}\) Ibid.: 234–44. In principle – as the designation “harmonious purchase” implies – the state purchased grain at market prices, but in times of emergency the government might provide little or no compensation. From the late Northern Song onward “harmonious purchases” increasingly became a form of confiscatory taxation.

\(^{54}\) On jiaoyin exchange vouchers and their use in the frontier delivery system, see Miu Kunhe 2002: 47–90.

\(^{55}\) On the shifting fiscal strategies employed in the operation of the Song tea monopoly, see Lamouroux 1991.

\(^{56}\) On the commercial tax system, see Guo Zhengzhong 1997: 123–233.

\(^{57}\) Qi Xia 1999, 2: 1142; Li Huani 1995: 151.

\(^{58}\) Sogabe 1941a; Shimase 1990: 354–57. The advance purchase system was also employed in tea cultivation; see Smith 1992: 68.
Table 6.7 Principal state revenues in the Northern Song

<table>
<thead>
<tr>
<th>Revenues</th>
<th>997</th>
<th>1021</th>
<th>1065</th>
<th>1086</th>
</tr>
</thead>
<tbody>
<tr>
<td>(all figures in millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coin (貫)</td>
<td>16.93</td>
<td>29.93</td>
<td>36.82</td>
<td>48.48</td>
</tr>
<tr>
<td>Silks (緑綾 only) (匹)</td>
<td>4.23</td>
<td>10.97</td>
<td>8.75</td>
<td>1.51</td>
</tr>
<tr>
<td>Grain (石)</td>
<td>21.94</td>
<td>29.83</td>
<td>26.94</td>
<td>24.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Value in silver (figures in 1,000 kg)</th>
<th>997</th>
<th>1021</th>
<th>1065</th>
<th>1086</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin</td>
<td>794</td>
<td>1,112</td>
<td>1,381</td>
<td>1,818</td>
</tr>
<tr>
<td>Silks</td>
<td>203</td>
<td>350</td>
<td>473</td>
<td>74</td>
</tr>
<tr>
<td>Grain</td>
<td>322</td>
<td>362</td>
<td>689</td>
<td>1,298</td>
</tr>
<tr>
<td>Total</td>
<td>1,319</td>
<td>1,824</td>
<td>2,543</td>
<td>3,190</td>
</tr>
</tbody>
</table>

Sources: Revenues from Wang Shengduo 1995: 2: 687-92, appendix tables 1.1, 1.4, 1.6, 1.8; silver equivalents derived from Peng Xinwei 1965: 503-09.

Total government income rose substantially over the first half of the eleventh century (Table 6.7). Cash revenues soared amid the Tangut war in 1040–44, and by the 1060s payments in coin comprised 60 percent or more of the state’s total income. Although the creation of the office of Finance Commissioner in 1003 unified the fiscal administration under a single executive, the Finance Commission’s control over state finances increasingly was usurped by the emperor and his coterie of eunuchs. Emperors Zhenzong (r. 997–1022) and Renzong (r. 1022–63) greatly enlarged the sources of income garnered by the Privy Purse, and thus at their personal disposal. In addition to the emperor’s traditional claims over “the mountains and the marshes” (income from mining and coinage) and domestic and foreign tribute, the Song emperors appropriated significant shares of revenues from maritime customs and commodity monopolies, and also required the Finance Commission to remit a portion of its annual receipts to the Privy Purse. Consequently, the Privy Purse’s share of total revenues rose from 10 percent c. 1000 to 23 percent in the 1050s (Table 6.8). Originally the Privy Purse had been intended to serve as an emergency reserve in preparation for times of war and famine. The Finance Commission incurred chronic budget shortfalls – and massive deficits during the war years of the 1040s – that required regular infusions of revenue transferred from the Privy Purse. The Finance Commission’s dependence on subsidies from the Privy Purse impeded centralized control and coordination of the state’s fiscal regime.

Monetization of revenue collection required an ample supply of coin. In addition, commercial expansion intensified the demand for a reliable means of exchange. One of the main priorities of the early Song leadership was to restore a standard currency to replace the heterogeneous and cheaply made currencies that proliferated during the Five Dynasties interregnum. Currency unification proved impossible, however. The Song preserved the iron currency zone in Sichuan inherited from the Later Shu state, and from the 1040s created another separate currency zone along the northwestern frontier where a mix of iron and bronze coins as well as salt licenses served as currency.

The inconvenience of transporting bulky iron coins – a pound of salt cost 1½ pounds of iron coin in Sichuan – prompted merchants in Chengdu to issue their own paper bills of credit, known as jiaozi 交子. Like the state’s “flying money,” jiaozi bills were issued in varying amounts but could be transferred to third parties. In 1005 local authorities in Chengdu attempted to rein in the reckless issue of jiaozi by creating a standardized format for the bills and restricting their issue to a consortium of sixteen Chengdu merchants. Finally, in 1024 the government stepped in and took over the issue of the jiaozi bills. By fixing the value of the bills in standard denominations of iron coin with a three-year term of circulation, the state transformed the jiaozi into the world’s first genuine paper money. But the circulation of jiaozi remained confined to Sichuan.

In the rest of the empire bronze coin prevailed as the principal form of currency. The Song succeeded in dramatically increasing the money supply. By the early eleventh century the annual output of bronze coin was five to six

---

62 On the origins and development of paper money in Song China, see von Glahn 2005.
Table 6.9 *Issue of bronze currency in Northern Song*  
(figures in millions of coins)

<table>
<thead>
<tr>
<th>Period</th>
<th>Average annual coinage</th>
<th>Total output for period</th>
<th>Accumulated output*</th>
</tr>
</thead>
<tbody>
<tr>
<td>976–82</td>
<td>70</td>
<td>490</td>
<td>490</td>
</tr>
<tr>
<td>983–96</td>
<td>300</td>
<td>4,200</td>
<td>4,690</td>
</tr>
<tr>
<td>997–99</td>
<td>800</td>
<td>2,400</td>
<td>7,090</td>
</tr>
<tr>
<td>1000–15</td>
<td>1,250</td>
<td>18,750</td>
<td>25,840</td>
</tr>
<tr>
<td>1016–48</td>
<td>1,000</td>
<td>33,000</td>
<td>58,840</td>
</tr>
<tr>
<td>1049–73</td>
<td>1,600</td>
<td>40,000</td>
<td>98,840</td>
</tr>
<tr>
<td>1074–85</td>
<td>4,500</td>
<td>54,000</td>
<td>152,840</td>
</tr>
<tr>
<td>1086–1125</td>
<td>2,800</td>
<td>109,200</td>
<td>262,040</td>
</tr>
</tbody>
</table>

*These figures do not account for the existing stock of coin or the loss of coin due to wear, melting, etc.

Source: Gao Congming 1999: 103.

According to Table 6.9, the issue of bronze currency in Northern Song times greater than the Tang average, and at their peak c. 1080 Song mints cast 6 billion coins per year, the highest recorded output in Chinese imperial history. There is a general consensus that during the Northern Song the state minted approximately 260 billion coins (see Table 6.9), but opinion differs sharply on the function of coin in the Song economy. Miyazawa Tomoyuki contends that the use of coin in the private market remained limited and local. In his view, coin functioned chiefly as a means of tax payment, and most coin remained stored in state treasuries. Miyazawa postulates that c. 1077, when the state's coin revenues reached their peak of 73 million guan, only 30 million guan of coin was circulating in the private market; thus coin figured far more significantly in revenue extraction than in commerce. Gao Congming, while acknowledging the importance of what Miyazawa calls “fiscal trade” (state procurement and long-distance transport of goods, primarily for military supplies), arrives at the virtually opposite conclusion. Based on the earlier work of Qi Xia, Gao estimates that the total volume of private trade c. 1077 was 150 million guan, in contrast to average state revenues in coin of 60 million guan. I am inclined to agree with Gao that the money supply was sufficiently large and elastic to meet the demands of both commerce and the state.
Wang Anshi’s new policies

The Tang-Song transition also witnessed crucial changes in the nature and composition of the political elite. The old aristocracy, whose fortunes fell along with those of the Tang court in the wake of the An Lushan rebellion, largely disappeared after the Song instituted rigorous merit-based civil service examinations as the principal means of recruiting government officials. The examination system also fostered a rejuvenated political culture imbued with a reawakened Confucian commitment to improve both the spiritual character and the material welfare of the people. During the Northern Song period many leading officials expressed bold confidence in using the authority and institutions of the central government to engineer transformative social change. The humiliating military defeat inflicted by the Tanguts in the 1040s and the many leading officials expressed bold confidence in using the authority and institutions of the central government to engineer transformative social change.

The humiliating military defeat inflicted by the Tanguts in the 1040s and the chronic deficits in the state budget resulting from, in Sogabe Shizuo’s words, a “perpetual wartime fiscal regime” intensified the urgency of action. The opportunity for radical reform came two decades later with the ascension of a young monarch, Emperor Shenzong (r. 1067–85), who swiftly promoted an ambitious and brilliant statesman, Wang Anshi (1021–85), to the position of chief minister in 1070. Wang immediately embarked on a program of sweeping institutional reforms known as the New Policies (xinfa 新法).

Above all, Wang implemented far-reaching changes in fiscal policy, seeking to free up productive energies in an economy undergoing rapid monetization by converting labor services to cash payments and pumping vast amounts of currency into the economy. The New Policies on one level were consistent with the trends toward monetization of fiscal administration and growing state intervention in the markets that had been underway since the An Lushan rebellion. Yet Wang Anshi also displayed a commitment to mercantilist principles of fiscal governance unseen since the time of Emperor Wu of the Han.

Under Wang Anshi’s leadership, fiscal management—literally, “regulating wealth” (licai 理財)—displaced ethics, ritual propriety, and literary mastery as the defining feature of the art of government. Wang aimed to strengthen frontier defense while reducing the burden of military expenditures on the state budget; increase the state’s income from monopoly commodities and foreign trade; streamline taxation by reducing or eliminating in-kind payments and labor services; and revitalize the agrarian base of society through state investments (the central government initiated over 11,000 irrigation and flood control projects), making low-cost loans to farmers, and expanding the reach of public relief in rural areas. Above all, Wang saw himself as the defender of family farms and small shopkeepers against rapacious rentier landowners and the great merchant houses, whom he castigated as “aggrandizers.” Wang feared that unbridled market exchange created imbalances in the distribution in wealth and was vulnerable to manipulation by merchant cartels. To forestall such inequities he advocated state intervention in commerce and moneylending. Wang created new state agencies to manage wholesale trade at the capital and provide credit for retail businesses, turned private brokers into government agents, tightened the state’s control of foreign trade, and extended the existing monopoly on salt production to include much tea cultivation as well.

When Emperor Shenzong proposed restoring the equal-field system as a means of resolving economic inequality, Wang Anshi curtly dismissed the prospect of seizing lands from the wealthy as impractical. Instead, Wang attributed the distress of family farms to their predicament of perpetual indebtedness and lack of access to capital for investment. The centerpiece of Wang’s plan for reinvigorating the smallholder economy was his “Green Sprouts” (qingmiao 青苗) program, which sought to free family farms from the usurious moneymoon of “aggrandizers” by providing them with low-cost loans in coin at the beginning of the spring planting season. Borrowers were required to join mutual-responsibility groups of 5–10 households, and could repay the loans in grain rather than coin if they wished. The Green Sprouts loan program was intended to be self-financing, and thus charged interest (usually 20 percent per annum) to keep the program solvent. However, as with many of the New Policy initiatives, the imperative to generate revenues eventually obscured the original goal of promoting economic welfare.

Wang Anshi’s Hired Service (muyi 募役) program replaced conscription for local government service duties with professional clerical staff paid from the proceeds of a new tax assessed not only on affluent landowners, but also on groups previously exempt from the service obligation, such as the families of officials and townsmen. In addition, most village officer posts were abolished and subsumed into newly established local militias (baojia 保甲). Initially, the baojia militias were intended to relieve the professional soldiers who manned local garrisons and thus economize on military expenditures. Baojia headmen soon began to serve concurrently as village officers in charge of civil matters such as household registration, tax collection, and famine relief in addition to their public security duties. Although remuneration for baojia headmen was quickly discontinued, the tax created for this purpose remained on the books; the income it generated was simply merged into general revenues.

---

66 On the transformation of political culture in the Song, see Bol 2008; Kuhn 2009.
67 Sogabe 1941b: 3.
68 The following synopsis of Wang Anshi’s New Policies is based on Smith 2009; Qi Xia 1979. See also the massively detailed study by Higashi (1970).
70 McKnight 1971: 31–37, 73–94.
Determined to recruit a cadre of loyal officials committed to his goals ("united in one mind and common moral purpose"), Wang Anshi proposed a new civil service examination curriculum centered on public policy and current affairs that deemphasized literary skills such as poetry composition. Wang also sought to circumvent a sclerotic bureaucracy by creating a host of "bureaucratic entrepreneurship" by one modern historian. In its brief existence during 1069–70, Wang's Finance Planning Commission (Zhizhi Sansi 制置三司條例司) — filled with hand-picked sympathizers of low official rank — became the incubator for many of his reform proposals. Subsequently Wang bypassed the Finance Commission, which staunchly opposed his fiscal innovations, by delegating the drafting of the New Policies to an obscure office, the Exchequer of Imperial Lands (Sinongs 聖農寺). Implementation of the New Policies was entrusted to a new corps of circuit-level officials such as the Intendants for Ever-Normal Granaries, Husbandry, and Water Control (Tiju changping nongtian shuili shi 撫督办常平農田水利使) and to ad hoc institutions such as the State Trade Bureau (Shiyiwu 市易務) in Kaifeng and the Tea Marketing Agency (Chachangsi 茶場司) in Sichuan. The dynamic role Wang Anshi envisioned for the state in managing the economy necessitated a substantial expansion in the size of the bureaucracy, which increased from 24,000 officials in 1067 to 34,000 by 1080. To deter peculation, Wang also boosted the salaries of public officials, increasing the budget for civil service personnel ten-fold.

Wang Anshi’s principles of “bureaucratic entrepreneurship” — recruiting men with fiscal and managerial expertise, granting them long-term appointments unfettered by regulatory surveillance, and allowing wide latitude for experimentation — were most cogently articulated in his initiatives for direct government intervention in private commerce and finance. The State Trade Bureau (STB) originally was intended to eradicate what Wang perceived as monopolistic price manipulation by merchant cartels and usurious moneylenders. In addition to seizing control of wholesale marketing in Kaifeng and other cities (itinerant merchants were obliged to sell their stock to the bureau’s agents), the STB engaged in a wide range of fiscal operations, such as trading in salt certificates, supplying the court and government agencies with the goods they requisitioned, and provisioning frontier armies. The STB also extended credit to petty retail shopkeepers such as fruit-sellers and butchers. Soon it branched out into more generalized financing, offering low-cost loans (the interest rate varied from 12 to 20 percent per annum) of coin, goods, and precious metals to individuals or groups. To ensure the solvency of this loan program, borrowers were obliged to provide guarantors and to pledge collateral as security. The bureau recruited not only “officials knowledgeable about finance” but also merchants to serve as the examiners who determined the creditworthiness of borrowers and authorized loans, a circumvention of civil service prerogatives that provoked heated protest. The repeal of the New Policies abolished the STB and direct government intervention in wholesale commerce, but the bureau’s credit operations were spun off to a separate Collateral Lending Office (Didangsuo 抵當所) that endured into the Southern Song period.

When the Tea Marketing Agency (TMA) was first established in Sichuan in 1074, its purpose was to generate revenues for procuring war horses from Central Asia and provisioning armies stationed on the northwestern frontier. Initially the TMA had no exclusive rights to the tea grown in Sichuan and simply bought tea in the private market at competitive prices. After tea production surged in tandem with rising TMA purchases, the TMA successfully lobbied to obtain monopsony rights to Sichuan’s entire tea output. Like the STB, the TMA diversified into a wide range of commercial and financial enterprises, including lending grain to tea cultivators and trading in commodities such as silk, paper, furs, and medicines. The TMA proved a resounding fiscal success, generating several million guan 年入 as well as supplying the military with 15,000–20,000 horses a year. Following the loss of North China in 1127, however, the economic logic of the TMA, notably its role in horse procurement, atrophied. The agency still retained its control over Sichuan’s tea industry, but “bureaucratic entrepreneurship descended into confiscatory taxation.”

From the outset the New Policies aroused fierce opposition. Orthodox Confucians condemned the intrusion of state power into the private economy both on principle and because of the deleterious effects of Wang’s initiatives. Perhaps the most vilified initiative was the Green Sprouts program. Critics charged that local officials forced farmers to borrow money from the state, turning the loan program into a regressive tax. It seems that fiscal goals indeed superseded commitments to social welfare. Revenues from the Green Sprouts loan program — which in its early years yielded roughly 3 million guan 年入, or a net profit of 27 percent on its capital — were appropriated to finance flood control and famine relief and to provision frontier armies. Despite the lower interest rates, defaults — even after repeated deferrals — were common, and by the 1080s the program began to suffer deficits. The state’s injection of new credit into the rural economy


apparently reinforced rather than remedied the perpetual cycle of indebtedness that afflicted many farming families.

Certainly the New Policies increased government revenues substantially, by at least 18 million guan annually. Tax receipts in coin rose by nearly 40 percent, primarily as a result of the monetization of labor services and the income generated by the Green Sprouts program; commercial sources, apart from the Sichuan tea monopoly, yielded only modest revenues. Although we lack complete figures for national accounts, estimates suggest that money payments reached a peak of 81 percent of central government revenues during the New Policies era, compared to 48 percent c. 1000 (Table 6.6). At the same time tax receipts in cloth, a staple of state finance since the Eastern Han, virtually disappeared (Table 6.7). From this time forward silver essentially replaced textiles in the Song fiscal system, and silk ceased to serve any monetary functions. 76

The New Policies leaders also succeeded in maximizing control of fiscal resources by bringing the Privy Purse within their purview while sharply constricting the authority of the Finance Commission. After Wang Anshi's retirement in 1076, Shenzong himself took control of the reform agenda. In 1082 the emperor initiated a sweeping restructuring of the state bureaucracy that restored the Tang model of central government organization centered on the Six Ministries (Liubu 六部). Both the Finance Commission and the Exchequer for Imperial Lands were dissolved and replaced by the Ministry of Revenue (Hubu 戶部). At the same time Shenzong created the Yuanfeng Treasury (元豐庫) to mobilize funds in preparation for a new offensive against the Tanguts, one that would end in another ignominious defeat. 77 More broadly, the Yuanfeng Treasury became the depository for the revenues generated by the New Policies in addition to various commodity monopolies. Robert Hartwell's reconstruction of central government finances for 1093 indicates that the income of the Yuanfeng Treasury was equal to that of the Ministry of Revenue (Table 6.10). Thus the new Ministry of Revenue, like the Financial Commission before it, exercised only partial control over fiscal resources.

Wang Anshi's reforms did, however, transfer a greater share of revenues collected at the local level to central government agencies. At the local level the fiscal reorganization provided local government with more secure funding and replaced most labor service requirements with a money tax. In order to meet this escalating demand for cash, Wang Anshi's administration also accelerated mint output, which soared to an annual average of 4.5 billion coins during the New Policies era (Table 6.9). Despite this growth in the money

---

supply, many of Wang’s critics complained that the state’s monetization of taxes resulted in severe shortages of currency – “coin famines” (qianhuang 銀荒), in the idiom of the day – and falling rural incomes.

Following the deaths of Wang Anshi and Shenzong in 1085, Wang’s enemies came to power and began to dismantle his reforms in the name of fiscal austerity. In 1093, however, proponents of the New Policies regained control of the court and revived the reform agenda. But incompetent leadership, a deteriorating military situation, and factional struggles at the court resulted in increasingly erratic fiscal policies and predatory taxation that inflicted enormous damage on the economy. The rapid collapse of the Song state in the face of the Jurchen invasion in 1126 was widely blamed on the fiscal mismanagement and private venality of Wang Anshi’s self-anointed disciples. The refugee court that reconstituted Song rule in South China after the fall of Kaifeng in 1127 repudiated Wang Anshi’s political philosophy and repealed most of the New Policies. But the powerful presence of the fiscal state endured. 78

The great leap forward in economic productivity

The Song period witnessed unprecedented progress in market growth and economic productivity. Wet-rice agriculture became the mainstay of the national economy, but the cultivation of cash crops such as tea, sugar, mulberry (for silkworms), and indigo also expanded rapidly. The vast timber resources of South China were harvested to supply the burgeoning construction, shipbuilding, lacquer ware, and paper and printing industries. Iron and coal production, chiefly centered in the north, also experienced prodigious growth. Regional ceramics industries, invigorated by the invention of true porcelain and soaring demand in overseas markets, flourished. In the ceramics and silk industries as well as in agriculture we see a steady shift in the centers of production from north to south. The ready availability of water transport and the growth of maritime trade also contributed to the rise of industry and commerce in South China. The monetization of the economy expanded through vigorous growth in the money supply and the development of new credit and financial institutions. Finally, this commercial efflorescence stimulated urbanization and transformed the character of cities. Market towns sprang up in the countryside, while the walled cities became thriving hubs of commercial activity in addition to their traditional administrative and military functions.

78 For a forthright affirmation of the emergence of a “fiscal state” based on indirect taxation, monetized taxes, and professionalization of fiscal administration in Song China, see William Liu 2015, which appeared too late for me to address its arguments here.
Among the other southern crops that became important commercial goods during the Song period we can include sugar, indigo (for making dyes), tung oil (used to waterproof ships) and fruits such as oranges and other citruses, longan, and litchi. Crystallized sugar was widely used as a preservative for southern fruits, which had become popular delicacies in the cities of northern and central China. Chinese techniques for sugar extraction and refinement were efficient but labor-intensive. At least 10–20 laborers were needed to operate a sugar mill, using rotary mills – probably adapted from oil presses – powered by oxen to extract juice from sugar cane. A treatise of 1142 devoted to the Sichuan sugar industry claimed that in some counties of Suining prefecture 30 percent of households cultivated sugar cane and manufactured sugar candy. But the scale of these operations remained small – Suining’s candy-makers produced at most several tens of juggs per year, with some households producing only one or two. Because the crystallization process was slow and subject to vagaries of weather, many growers merely extracted juice from sugar cane to sell to candy-makers. Most likely, sugar milling was confined to private and monastic estates with ample capital and labor resources that leased their facilities to small growers. Even after the adoption of more sophisticated extraction and crystallization technologies in the Ming dynasty, China never developed the kind of plantation economies that accompanied the rise of sugar production in the West.85

During the Song period industrial enterprise also attained unprecedented levels of output and organizational sophistication. Coal and copper mining, iron metallurgy, alum making, shipbuilding, salt processing, papermaking and printing all experienced exponential growth, leading to larger scales of operation and managerial innovations. Textile manufacture, previously confined mostly to domestic needs and tax payments, became reoriented to production for the market. The formation of national markets for luxury goods such as fine silks, paper, lacquer, and porcelain encouraged regional specialization of handicraft production.

Technological innovation and market demand drove the expansion of iron production.86 Most iron mines were located in North China, where by Song times deforestation had sharply reduced the availability of charcoal as fuel for foundries. The invention of a coking process using bituminous coal produced the fuel needed for large blast furnaces employing the direct decarbonization (Bessemer technique) steel-making process. Coking and steel-making operations required substantial capital resources but also yielded significant economies of scale. The thirty-six private foundries at Liguo in northern Jiangsu employed an average of 100 wage laborers engaged in mining, coking, smelting, and refining tasks, and together produced nearly 7,000 tons of iron and steel per year. Total annual output of iron and steel in the late eleventh century has been estimated at roughly 125,000 tons.87 Many of the major iron-producing areas, including Liguo, were close to the capital of Kaifeng, the largest urban market, whose population possibly reached 750,000 in the late eleventh century. Kaifeng’s state armories and workshops alone employed more than 13,000 ironworkers engaged in

---

87 Hartwell 1967: 104–06. Hartwell’s method of calculation has been questioned, but it is generally agreed that his estimate is basically sound. See Wagner 2001a, 2008: 300.
manufacturing swords, armor, lances and other weapons as well as saws, hammers, stoves, nails, boilers, locks, lamps, and needles among numerous sundry utensils. While large-scale ironworks produced bar and cast iron for government armories and urban iron-finishing workshops, small rural forges employing seasonal labor continued to supply local blacksmiths and farmers with tools and utensils.

The sharp decline in silk and hemp as items of tax payment and the growth of consumer demand led to major changes in the structure of the textile industry. New fashions in dress favored lightweight silk gauzes, which required more complex looms, over the heavy polychrome fabrics and tabbies that predominated in the Tang. Government factories and the private workshops that catered to this segment of the market employed male workers, and the production of fancy textiles largely became the preserve of highly trained male artisans. Rural women working at home still produced tabby weaves. North China remained the center of silk production both in terms of technical skill and output until the Jin invasion and the conquest of the north in the 1120s. During the Southern Song period the refugee capital of Hangzhou became the nucleus of the national economy, and the region around Hangzhou rapidly achieved dominance as the new center of China's sericulture industry. In his treatise On Husbandry (1149), Chen Fu—a native of the Yangzi Delta—observed that rural inhabitants in the western part of the delta, an area less favorable to rice cultivation, depended on silk cultivation, and rural women working at home still produced tabby weaves.

North China remained the center of silk production both in terms of technical skill and output until the Jin invasion and the conquest of the north in the 1120s. During the Southern Song period the refugee capital of Hangzhou became the nucleus of the national economy, and the region around Hangzhou rapidly achieved dominance as the new center of China's sericulture industry. In his treatise On Husbandry (1149), Chen Fu—a native of the Yangzi Delta—observed that rural inhabitants in the western part of the delta, an area less favorable to rice cultivation, depended on silk cultivation, and rural women working at home still produced tabby weaves. North China remained the center of silk production both in terms of technical skill and output until the Jin invasion and the conquest of the north in the 1120s. During the Southern Song period the refugee capital of Hangzhou became the nucleus of the national economy, and the region around Hangzhou rapidly achieved dominance as the new center of China's sericulture industry. In his treatise On Husbandry (1149), Chen Fu—a native of the Yangzi Delta—observed that rural inhabitants in the western part of the delta, an area less favorable to rice cultivation, depended on silk cultivation, and rural women working at home still produced tabby weaves.

The middle-income households of Anji county in Huzhou rely entirely on sericulture to make a living. A family of ten persons raises ten frames of silkworms, obtaining 12 jin of cocoons from each frame. Each jin of cocoons yields 1.3 ounces of silk thread. It takes 5 ounces of thread to weave one small bolt of silk tabby, which has a market value of 1.4 piculs of rice. The prices of silk tabby and rice usually move in tandem, so it is eminently feasible to provide for the family's annual needs for food and clothing by means of sericulture. One month of intensive labor is superior to a full year of diligent toil (in agriculture).

The renowned quality of Anji's silk goods—not only simple tabbies, but also more complex silk fabrics such as gauzes (sha 紗) and twill weaves (ling 綾)—made this specialization possible. But many rural households abandoned silk weaving to concentrate on raising silkworms and reeling raw silk for sale to urban weaving workshops. A gazetteer of Huzhou published in 1201 recorded that rich families raised as many as several hundred frames of silkworms in addition to hiring weavers, which suggests large workshops with dozens of artisans. Chains of contractors, brokers, wholesale dealers, and long-distance merchants linked raw silk producers in the countryside with urban manufacturers and consumers.

Similar developments in technical refinement and market growth spurred industrial development in porcelain, paper manufacture, and printing. During the late Tang–early Song period Chinese craftsmen perfected the technique of making true porcelain, in which the pigments and glaze as well as the vessel body were vitrified. Regional styles of ceramic production flourished in all parts of China, but the southern city of Jingdezhen (Jiangxi) achieved particular distinction for its lustrous bluish-white (Qingbai) porcelains. Like metallurgy, porcelain manufacture featured a complex specialization of labor and substantial capital investment. Some kilns and ceramic workshops were operated as joint-capital enterprises. Jingdezhen was said to have numbered more than three hundred kilns in the Song period, which would have employed a labor force of 12,000 skilled workers, and probably an equal number of unskilled laborers. Smaller ceramic centers exhibited a similar concentration of kilns, capital, and skilled labor. Yonghezhen in Jizhou prefecture (Jiangxi) emerged as a center of pottery manufacture in the mid-twelfth century, and was formally recognized as a town by the Song state at the turn of the eleventh century. A Song local historian boasted that Yonghezhen's "six boulevards and three marketplaces" (a poetic metaphor for a bustling metropolis) were home to a population of several thousand households. In the twelfth century Jizhou's dark-glazed wares briefly gained international repute, but subsequently they were eclipsed by Jingdezhen's porcelains.

Porcelain and celadon wares displaced silks as China's chief export during the Song period, and surging demand in overseas markets reshaped the geography of ceramic manufacture. Fine porcelains from Jingdezhen, Dingzhou (Hebei), and Longquan (Zhejiang) were in great demand within China, but relatively few of these wares (except for Longquan products) were exported. Instead, new centers of ceramic manufacture developed in coastal areas.

89 NS: xia.18. Chen's figures translate into a household income from sericulture equivalent to 43.7 piculs (shi 斤) of rice, compared to contemporary estimates that the minimum consumption requirement for a family of five was 18 shi of rice per year (see Chapter 7).
90 WXZ: 20.5b.
91 Ho (2001: 269) estimates that each kiln represented forty to fifty workers directly engaged in ceramic manufacture (potters and kiln workers); while So (2000: 194) asserts that each kiln supported a minimum of 100 households employed in all aspects of pottery manufacture, merchandising, and transport.
92 The Song state accorded the designation of "market town" (chén 鎮) to commercial centers that lacked a county magistrate and appointed Town Supervisors (Jianzhen 監鎮) to take charge of public security and collection of commercial taxes. See Chen Zhiping 1993.
93 Otaki 1987: 272–74. Archaeological surveys have identified twenty-four Song-Yuan era kilns in Yonghezhen, suggesting that the ceramic industry there was less than one-tenth the size of Jingdezhen's. See Liu Yang and Zhao Ronghua 2001: 11.
areas where potters had ready access to export markets, first in Guangdong and then in Fujian. In the late eleventh century, nearly fifty large-scale kilns manufacturing sophisticated ceramic wares abruptly appeared on the outskirts of Quanzhou, where a Maritime Customs Superintendency (Shibosi) was established in 1087. Initially the Quanzhou potters imitated the prestigious Qingbai wares of Jingdezhen, but by the mid-twelfth century they produced their own distinctive styles that achieved great popularity in overseas markets, especially in Japan. The Quanzhou region ceramic industry required a high degree of specialized skills, managerial expertise, and capital resources as well as informed knowledge of overseas markets. The success of Quanzhou potteries in dominating foreign markets—older centers in Guangdong and Shaoxing atrophied, and their wares disappeared from the export trade—attests to the intense competition faced by entrepreneurs in this industry.94

The invention of woodblock printing dates back to the early Tang period, but before the Song printing was mostly confined to the reproduction of Buddhist texts and ephemera such as calendars, almanacs, and religious charms. The institutionalization of the civil service examinations and the proliferation of schools during the Song period created a booming market for books. The Song government itself issued authorized versions of the Confucian classics, histories, administrative handbooks, and legal manuals as well as medical works and technological treatises. During the Southern Song schools and private commercial firms became major forces in publishing. Commercial firms printed inexpensive editions of many of the same types of books issued by government agencies, but also published works that received scant attention from the state, such as poetry, memoirs, and informal writings. Kaifeng and Sichuan dominated the printing industry in the Northern Song period, but in the Southern Song Hangzhou and Fujian emerged as the new centers of printing and publishing.95

Rising consumption of consumer goods such as silk, liquor, tea, porcelain, and books attested to the commercial efflorescence of the Song era. The dramatic surge in the money supply, innovations in finance and credit, and advances in the technology, management, and financing of water transport all nourished the growth of the market economy.96 Government procurement

94 Ho 2001: So 2000: 186–201. Archæological evidence from Japan attests to the abrupt rise of the South Fujian ceramic industry in the late eleventh century, and its dominance (tailed by Longquan wares) in the Japanese market by the late twelfth century. See Tanaka and Satsuki 2008. Billy So’s comparative analysis of the Fujian and Guangdong ceramic industries (Su Jilang 2004) concludes that Fujian potters were better capitalized, had lower costs, and reaped higher profits than their competitors in Guangdong.


97 Zhang Jinpeng 2003: 312–13. The nineteenth-century estimate for the volume of domestic trade—which is more conjectural, a projection based on estimates of per capita consumption rather than on actual data like the 1077 commercial tax receipts—is from Wu Chengming 1985: 253, table 2.

from 3 percent in an upland interior area like Huizhou (Anhui) to 25 percent in the booming maritime trade center of Quanzhou (Fujian). The imperial capitals of Kaifeng and Hangzhou of course represented exceptional cases. Nearly 175,000 civilian households (46 percent of the prefectural total) were classified as urban residents in Hangzhou in the mid-thirteenth century, to which must be added the families of approximately 10,000 officials and 100,000 soldiers. Including the capital’s suburban non-agricultural population, Hangzhou’s total population may have been as large as 1.5 million persons. 100 Although some scholars have postulated that the proportion of town-dwellers in the Southern Song reached as high as 20 percent of the total population, a more likely estimate would be in the range of 12 percent. 101 The degree of urbanization in the Southern Song thus was roughly equal to that of early modern Europe, for which Jan de Vries has proposed urbanization rates of 9.6 percent in 1500 and 13 percent in 1800. 102

Commercial growth was the primary force driving urban development in the Song, but the effects of commercialization on urbanization varied. The rugged terrain of Huizhou was poorly suited to agriculture, which constricted urban growth. Although Huizhou flourished as an exporter of tea, lacquer, lumber, and paper to Hangzhou and other Jiangnan cities, the prefecture numbered fewer than 4,000 urban households (3 percent of the total) in 1227, roughly half of whom lived in the city of Huizhou. 103 In the Yangzi Delta prefecture of Huzhou, in contrast, a fertile agricultural base sustained a dense network of cities and towns, although we lack data on the size of its urban population.

103 Data from Shiba 1988: 396; Wu Songdi 2000: 616, table 13-3. The figure for the Huizhou city population (1,931 households) is from 1172, but the total prefectural population in 1172 (122,014 households) is virtually identical to that for 1227 (124,941 households, of whom 3,887 were urban households).
As noted above, Huzhou became the leading center of silk manufacture in the Southern Song, and much of the sericulture industry as well as tea and ceramic production were located in the hilly western portion of the prefecture (Map 6.8). The population of Huzhou and its eleven market towns was evenly distributed between the western highlands and the eastern lowlands. But the largest market towns (Xinshi, Nanxun, and Wuqing) – which had commercial tax revenues far greater than the average county seat – as well as numerous smaller towns were concentrated in the eastern lowlands, which generated substantial rice surpluses, enjoyed ready access to water transport, and developed a highly skilled urban workforce. In the post-Song era commercial and urban growth became concentrated in the eastern half of Huzhou, while the western portion of the prefecture regressed into a poor, lightly populated hinterland.104

Conclusion

The Tang-Song transition engendered far-reaching institutional changes in both the public and private sectors that transformed the economy and the state. More competitive factor markets for land, labor, and capital, new productive resources, and rising public and private demand provided the impetus for sustained economic growth. Nearly universal private landownership, monetization of tax payments, and the release of most of the population from statutory labor obligations fostered a more rational allocation of economic resources. Growth in the money supply and the proliferation of both public and private financial intermediation lubricated trade and investment. Marked increases in the output of staple foods, textiles, shipbuilding, and metallurgy resulted not so much from new knowledge but rather the application of existing technologies on a much wider scale, and especially the transfer of these technologies to the far richer resource base of South China. The great leap forward in food production made possible by the shift to wet-rice agriculture, rising consumption of new comestibles such as tea and sugar, and vigorous demand from the shipbuilding, paper, printing, and lacquer industries for the products of South China’s ample forests all contributed to commercial growth, rising incomes, and the diversification of consumer demand. Market expansion fostered regional specialization, especially for high-quality silks, porcelain, paper, lacquer wares, and tea, but also for cheaper versions of these goods intended for mass consumption.

The relationship of the state to the private economy changed as well. The weakening of state control over land and labor in the aftermath of the An Lushan rebellion compelled the Tang court to resort to indirect taxation, especially consumption taxes, in a desperate effort to boost revenues. This trend accelerated during the tenth century, after the final collapse of the Tang dynasty. Warfare among rival regimes, especially in South China, promoted mercantilist fiscal and monetary strategies for strengthening state power. The Song dynasty restored firm state control over the population and resources, but from the beginning the Song also faced dire threats to its existence from strong nomad-based states on its northern frontiers. The Song leadership chose to continue to rely chiefly on indirect taxation of commerce to meet the escalating costs of provisioning massive standing armies of professional soldiers. State income from land taxes remained static throughout the eleventh century, even as the population tripled and registered lands increased by 50 percent. The New Policies enacted by Wang Anshi and his followers were dedicated to the twin goals of capturing greater revenues from an expanding commercial economy and alleviating the economic inequality that commercialization entailed. Despite some promising initial achievements, in the long run the New Policies failed to achieve durable success in meeting either of these objectives.

Notwithstanding the repeal of the New Policies in the Southern Song period, the reconstruction of the imperial state during the Tang-Song transition marked a dramatic departure from the original conception of the military-physiocratic state formulated under the Qin-Han empires. At times – during the tenth century interregnum, and again under the New Policies regime – state fiscal policy revived the mercantilist principles of Pseudo-Guanzi and the interventionist policies devised by Emperor Wu of Han’s coterie of advisors. Like Sang Hongyang, Wang Anshi and his acolytes were charged with the odious sin of fiscalism, of wielding state power to usurp the wealth of the people for their own power-mongering ends. But the fundamental feature of the military-physiocratic fiscal state, the presumption of economic equality established through state land allocations and ratified by uniform taxation and conscription imposed on all adults, was irreparably defunct. Landownership had become thoroughly privatized, and the principle of progressive taxation embedded in the twice-a-year tax system conceded to the reality of sizable disparities in land and wealth. Song fiscal administration adhered to some of the interventionist policies of Emperor Wu’s mercantilist regime, such as the state monopoly on trade in salt and Wang Anshi’s State Trade Bureau, modeled after Sang Hongyang’s “balanced standard” system. But, in contrast to the Qin-Han states, the Song revenue system relied heavily on indirect taxation, and its fiscal policies for the most part sought to harness market forces rather than suppress them. Thus the ruzhong policy offered merchants incentives to deliver provisions to frontier armies in lieu of an inefficient state-run procurement and transportation system. A significant share of the profitability of the

salt monopoly derived from the utility of salt certificates as negotiable financial instruments in the private economy. The lucrative liquor monopoly – further evidence of the central place of consumption taxes in the Song fiscal regime – combined state-run breweries with franchising of brewing and sales rights in places where small economies of scale favored private entrepreneurship over government operations. This legacy of maximizing revenues in concert with market growth continued to prevail during the Southern Song, when the dynasty faced equally dire challenges to its survival.

7 The heyday of the Jiangnan economy (1127–1550)

The Jin conquest of North China in 1127 once again sundered China in two, just as in the Period of Disunion that followed the nomad invasions of the early fourth century. For the next two and a half centuries North China was ruled by foreign conquerors, first the Jurchen and then the Mongols, while the refugee Song court retained control of the southern half of the empire. The military and fiscal dilemmas that had bedeviled the Northern Song leadership persisted unabated throughout the Southern Song. Yet ambitious programs of state-led reform, exemplified by Wang Anshi’s New Policies, lost favor after the debacle of 1127. During the Southern Song period, the ascendant Neo-Confucian political philosophy stressed moral rejuvenation and community-based reforms under local leadership rather than state-driven institutional transformation. Nonetheless, the turn toward monetization of taxes and procurement of military provisions through market mechanisms continued and even intensified during the Southern Song. In any event, in the early thirteenth century the state’s ability to manage its fiscal affairs abruptly deteriorated. The outbreak of renewed war with the Jin and civil war in Sichuan in 1205-08 utterly bankrupted the central government, forcing it to resort to ruinous fiscal and monetary policies. The Mongol conquest of the Jin in 1234 only heightened frontier tensions. After the Mongol invasions of the Southern Song began in earnest in 1257, the Song leadership again attempted radical reforms, such as an ill-fated program of confiscating lands from great landowners in the Yangzi Delta, with disastrous results. In 1276 the Mongols under the leadership of Qubilai, grandson of the great khan Chinggis, seized the Song capital of Hangzhou, and in 1279 the Mongols deposed the last Song emperor.

The loss of the Central Plain and the relocation of the Southern Song capital to Hangzhou reinforced the preeminence of Jiangnan as both the agricultural and commercial heartland of the Song Empire. Swelled by refugees from the north, Jiangnan’s population grew by nearly 50 percent between 1102 and 1223, in contrast to an estimated 9 percent increase for the Southern Song