



Kent Deng

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Development and Its Deadlock in Imperial China, 221 B.C.–1840 A.D. *

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Kent G. Deng

LSE

I. The Chinese Puzzle

In as early as the 1950s, the historian of science, Joseph Needham, drew attention to a paradox which turned out to be his lifetime devotion: why growth/development in China fell behind the West despite the evident creativity of the Chinese civilization. This paradox, known also as the “Needham’s puzzle,”¹ has probably been the most challenging problem in economic history next to that of the “miracle” of the Industrial Revolution.² To be sure, either the Chinese puzzle or the European “miracle” can be explained in a linear growth pattern.

Since the 1950s, to explain why China was unable to develop the way the West did has become a serious enterprise in scholarship. Methodologically, a comparison between China and the West has developed as more or less the norm. With it, however, there is a danger of a normative approach. Typically, scholars (including Joseph Needham himself) have used the experience of Western Europe as the yardstick against which to measure China’s performance. This approach is problematic as it inevitably changes the issue counter-factually to “why China was not another Western Europe?” In the 1980s, the comparative economic historian, Eric Jones, began to adopt a positive approach and hence departed from

the mainstream comparison between Europe and China. He asked instead why – given that by 1000 A.D. Song China had developed well ahead of other societies in Eurasia – the Song achievement was never repeated in China later.³ Avoiding a universal benchmark, this “Jones question” marks a major step forward in both methodology and historical findings.⁴

Nevertheless, these two approaches share the same spirit of discovering the reasons for China’s early supremacy and its late inferiority, a problem so fundamental to the understanding of the history of the world that the debate about China’s economic past has become a focal point among students of global history. So far, many hypotheses have been put forward in the bet to solve the Needham–Jonesian puzzle.⁵ But there is a common problem: a hypotheses may well explain why China declined, it cannot satisfactorily explain why China rose in the first place, or vice versa. The seeming inconsistency and incompatibility between China's achievement and decline perpetuates China’s paradox.

For the current study, Chin’s paradox is really about how economic dynamics in China turned out to be so limited over the very long term that China fell acutely short of its potential for growth and development. This essay takes a positive and factual approach to tackle this inconsistency and incompatibility and argues that there existed mechanisms within the Chinese socio-economic structure which made a breakthrough beyond the Song or even a recurrence of the Song growth level impossible. The challenge here is how to embrace numerous variables in a theoretical framework to explain how rational choices led a sophisticated economic system to a developmental deadlock during the Imperial period (221 B.C.– 1840 A.D.).

II. A Multi-symbiotic System

To understand the Chinese socio-economic structure, an appropriate starting point is its complexity and sophistication.⁶ From numerous studies of China's past, three distinctive economic types can be identified according to their distinctive mechanisms of resource allocation (customary rule, price signal and government decision): customary, market and command.⁷ In other words, Imperial China never had a single entity but a cluster of entities.⁸ In order to capture the peculiarity of this system and to reflect a mutual beneficial and interdependent relationship, the term of "a system of symbiotic entities" is preferred to that of "a mixed economy."

Evidently, there were three main macro-components in the Chinese system. In rural China there was a symbiosis of "customary" and "mercantile" types (which can be called Component A).⁹ Private in nature,¹⁰ Component A claimed by far the largest GDP/GNP share in China's total. Empirically, the balance between the "customary" and "mercantile" types was changeable. Under some extreme circumstances (such as civil wars and foreign invasions), the rural sector was able to survive without the market. Thus, it makes sense to define the rural sector as a "customary plus mercantile" sector leaning more towards the customary type.

This notion of "customary-mercantile" symbiosis in rural China is supported by several important studies. First, the rural population occupied some 80 percent of China's total and produced some two-thirds of the country's GDP.¹¹ Second, although commercial activities in the rural sector were commonplace as seen from regular fairs,¹² and large quantities of silk and tea for exporting,¹³ and although some regional marketing rates were impressive,¹⁴ at least 60 percent of the total products (70–80 percent being recognized as the norm) were not subject to market sale.¹⁵ This means that the non-commercial proportion of the rural sector accounted for some 40–50 percent of China's total GDP.¹⁶

In the urban private sector, there was also a symbiosis of “customary” and “mercantile” types (which can be called Component B). Compared with its rural counterpart, Component B leaned more towards the market, as the urban sector depended much on the rural sector for food to survive although it did provide itself with products and services. Therefore, it can be defined as a “mercantile plus customary” sector. Despite the fact that some cities in China were massive and even cosmopolitan,¹⁷ this sector was much smaller with a ceiling of 20 percent of China’s total population and some 30 percent of China’s total GDP (as lumped together with the state-run sector). Its productivity measured by per capita GDP was greater than unity and hence had a higher income per head than in the rural sector.¹⁸

The third component was partly rural and partly urban.¹⁹ It was the state-run sector with a symbiosis of “command” and “mercantile” types.²⁰ The Chinese state was responsible for organizing some massive public works for the empire.²¹ It was also involved in production of goods and trade. To show the scale of the state operation, on average the state-owned land occupied 13–14 percent of China’s cultivated total.²² The state was able to control a considerable proportion of “key commodities” and their prices – wine, salt, iron, tea, silk, ingredients for medicine and so forth. The volume of goods that the imperial state was able to maneuver is very impressive.²³ For example, the Tang state had 83,200 metric tons of taxed grain (2 million picul) transported annually through canals (Zhang, *Maritime Technology*, p. 56). The Northern Song increased the shipment to over 278,900 tons (6 million picul).²⁴ The Qing once raised the annual shipment further to 362,450–5,763,920 tons (5–8 million picul) during the mid-seventeenth to mid-eighteenth centuries.²⁵

Even so, Component C was smallest among the three as the state only controlled a small percentage of China’s wealth: government revenue during the Qing was merely 1–2 percent of China’s total GDP.²⁶ In other periods the share was likely to be under 10 percent.²⁷ The

overwhelming financial concern for the state was a balanced budget, a high proportion of which was earmarked for national security and defense.²⁸ This set up the limit for state economic initiatives.

Overall, the commercial proportion of the whole economy would at most be 60 percent (27 percent in the rural sector, 30 percent in the urban sector, and 1–2 percent in the state sector). The three components were linked together by two domestic markets: that for producer and consumer goods/services and that for land properties. The three components were also connected to foreign markets. There were two distinctive price systems: the “free market” price and the monopoly/monopsony price. In addition, there were fiscal links between the two private components on the one hand and the state-run sector on the other through taxation on output and market transactions. Indeed, the commercial link and fiscal link indicate the external or inter-component symbiosis.

It is worth noting that foreign trade was not trivial in Imperial China over the long run. In the late Qing, the ratio of domestic to international trade was 2.3–3.1:1 in volume.²⁹ This reflects the degree of openness to and dependence on the foreign markets during a prosperous period.³⁰

Given its multiple components and symbioses (both internal and external), the Chinese economy can thus be defined as a system of symbioses, or a “multi symbiotic system.” The longevity and stability of the Chinese system implied some kind of structural equilibrium in the economy. But the system had its ups and downs. The complexity, sophistication and the degree of commercialization and urbanization were by no means achieved with ease. It was a result of a lasting process of trial and error, and the level of prosperity was not always maintained. This was closely related to China’s peculiar “dynastic cycle” which was

characterized by a period of prosperity which was followed by economic decline, collapse and recovery.³¹

III. Fluctuations and Limits in Performance

Figure 1 reflects the main aspects of the economy under prosperity.

Figure 1 appears about here

In the figure, each component has its own sphere. Foreign markets can also be regarded as one economic sphere. Exchange and extraction (taxation) take place between the spheres. The foundation of China's prosperity laid in well-established private land-ownership which will be dealt with later.

Broadly speaking, there were four periods of economic prosperity: Western Han (229 years: 206 B.C. – 23 A.D.), Tang (289 years: 618–907), Song (319 years: 960–1279), late Yuan (about 50 years: 1320–68) and Ming–Qing (472 years: 1368–1840). They totaled 1,430 years.³² This should however be regarded as the maximum length. More realistically, the economic decline within the Western Han, Tang, Song and Ming–Qing, roughly 500 years, should also be deducted. Thus, the aggregate length of prosperity was likely to be about 44 percent of the empire's life-span (some 930 years for 221 B.C.– 1911 A.D.).

At the other end of the spectrum, the Qin (14 years: 221 B.C.–207 B.C.), East Han–Sui (593 years: 25–618 A.D.), Five Dynasties (53 years: 907–60), early Yuan (some 50 years: 1271–1320) were commonly recognized as the periods of economic down turn, 710 years in all. They occupied some one-third of the empire's life span. If the afore-mentioned economic

decline within the Western Han, Tang, Song and Ming–Qing are counted, the total non-prosperous period could well be over half the empire's history.

The fundamental reasons for prosperity to end were internal shocks (corruption of the bureaucracy) and external shocks (alien invasions/conquests) which will be dealt with later. Natural disasters could and did lower the threshold for a recession but were not the cause of it.³³ The features of such periods are portrayed in Figure 2.

Figure 2 appears about here

Several points can be made here. First, compared to the period of prosperity the absolute size of the economy reduced due to heavy losses of population, capital and land under cultivation. With it, the balance between the economic types and components changed. Second, the economy was de-commercialized with widespread commodity scarcity. But the market for real estate properties may have increased its proportion due to its increased availability as farming households went bankrupt or were simply wiped out by disasters. Third, the country was de-urbanized as agricultural surplus, or the exaction of it, was no longer able to support the same proportion of non-agricultural population as during good times. Finally, foreign trade became negligible.

Despite the decline in commercial and urban activities, the basic elements/ingredients were still maintained in society. The economy would flower again when the conditions were improved. The secret was again in the Chinese private land ownership (to be discussed later). The Chinese economy therefore oscillated between prosperity and recession like a never ending *legato* movement from the lowest octave to the highest and back. China seems to have had some sort of “floor for commercial development” (or simply “developmental

floor”) and “ceiling for commercial development” (or simply “developmental ceiling”). In terms of commercialization, the situation can be illustrated in Figure 3.

Figure 3 appears about here

Here, conceptually, China’s total output can be portrayed by a single isoquant curve. Given that growth did occur over time, the isoquant curve shifts right-wards; hence from I to II. This can be reversed by major disasters such as wars; hence II back to I. So, the total output can be fluid, as growth is not always guaranteed. Based on the understanding that there was a division between the marketing share and the customary share of the total output of the Chinese economy, a high marketing–customary ratio can be represented by the parallel slop lines (iso-ratio lines) H-H and H’-H’ and a low marketing–customary ratio by L-L and L’-L’. The points of tangency *a*, *b*, *c* and *d* are equilibrium points for marketing-customary ratios and total outputs, showing how the economy with the given output accommodate different degree of commercialization within the predominant customary *entourage*.

There are five possibilities if the model is dynamic. First, the economy begins with Point *a* along Isoquant I. When, say, population growth eats out some of the marketable surplus, the market activities decline and the old equilibrium Point *a* is replaced by a new one of Point *b*. Second, the economy may starts at Point *b*. But as market returns increase with a demand shock, a larger share of the total output can be lured to market exchange. Hence, the economy moves to Point *a*. Third, if the isoquant curve shifts to a higher level due to extensive growth, the same momentum continues. Hence, Point *a* moves to Point *c*; or Point *b* to Point *d*. Fourth, if the shift to Isoquant II is driven be intensive growth and the early equilibrium is at Point *b*, a new equilibrium can be established at Point *c*. Finally, if an early

intensive growth with Isoquant I is replaced by extensive growth and the curve shifts to Isoquant II, Point *a* may shift to Point *d*. Hence, there is no increase in the total volume for trade. Or, if an early extensive growth with Isoquant I is replaced by extensive growth and the curve also shifts to Isoquant II, Point *b* may shift to Point *c* with an increased marketing share.

The real challenge is: Can a new equilibrium be landed beyond Point *c* should it be intensive growth from an early equilibrium at Point *a*? We have to rule out this possibility as it suggests that China could have a commercial revolution and consequently develop fully-grown capitalism. This is counterfactual. In reality, although some elements of proto-capitalism emerged, capitalist mercantilism and industrialization represented but a speculative perspective as the customary core remained unchallenged.³⁴ This is paradoxical: the market economy is conventionally viewed as superior to the customary economy seemed to serve, not to take over, the latter.³⁵ On the other hand the China never dropped beyond the low commercial tendency line (α) so that the market completely lost its significance.³⁶

In the end, the economy oscillated between the high commercial tendency line (β) and the low commercial tendency line (α). The space between the α and β lines is China's commercialization path. The customary core of the economy remained the "center of gravity" and determined how far and how fast commercialization/urbanization orbited.³⁷ Although it is equally puzzling why market did not disappear completely during recession, to understand China's developmental ceiling is a far more challenging task. Limited intensive growth and limited commercialization are at the very heart of the Chinese puzzle.

Most comparative historians have recognized this developmental ceiling either implicitly or explicitly. For example, Mark Elvin speaks of a "high-level equilibrium trap" referring to a situation where resource allocation, market capacity, technology advancement and

population density all reached their premodern maxima in the Qing Period;³⁸ while Pomeranz indicates a “resource endowment plateau” for the same period when China reached its production probability frontier with its given resource bundle.³⁹ Both the “trap” and “plateau” resemble the Ricardian “stationary state.” In that sense, the ceiling itself is known although Elvin and Pomeranz suggest that China reached that ceiling only once while the present study sees China to have experienced that several times, not just during the Qing Period.

Many studies imply that China’s developmental trajectory was a result of a “natural” course in which the Chinese had no control over, either individually or collectively. Thus, no one was truly responsible for China’s fate in the end. Hegel, Marx, Weber, Needham, and Fairbank would agree with this view to some degrees. But, according to the Institutional School (under the banner of Douglass North), any outcome of human society is the product of conscious choices, compromises and trade-offs. Thus, China’s developmental ceiling had to be deliberate. There was thus nothing “natural” about it. Otherwise, it becomes incomprehensible why and how the Chinese were able to prosper and lead the world in many areas for so long. To a great extent, the orthodox classical/neo-classical economists would agree here.

The crucial question here is whether the peasant economy was “free drifting” without a direction. A rational choice-based model rejects such a vision. So far, the “traditional peasant economy” in world history has been defined under three broad categories as:

- a) “Subsistence economy” which produces just enough for the population to survive without market exchange with other economic agents,⁴⁰
- b) “Market economy” which is not different in nature from the urban sector,⁴¹ and

c) “Customary-market dualistic economy” which combines subsistence needs and returns from market exchange.⁴²

Accordingly, in terms of economic rationality, peasant individuals have been regarded as:

d) Non-market agents efficient in resource allocation to maximize utility, or “resource rational but non-capitalist,”⁴³

e) Market agents efficient in resource allocation to profit/returns, or “market rational and capitalist,”⁴⁴ and

f) Dualistic utility and profit maximizers for economic optimization, or “resource-market dualistic.”⁴⁵

Sufficient evidence indicates that China had the last pattern (a “customary-market dualistic economy,” with “dualistic utility and profit maximizers”) and the Chinese peasantry enjoyed the benefits of the two worlds in a symbiotic way: the customary economy produced secured livelihoods; and the market economy, the icing on the cake.

Now, assuming that the Chinese peasantry played the critical role in determining China’s developmental ceiling on condition that individual peasants made similar choices in both the short run and long run, one has to face the following question: “How could similar choices (and thus similar behavioral patterns) be shared by so many relatively independent individuals?” This was only possible if there existed similar economic incentives for these individuals. To have similar economic incentives require similar economic conditions, especially similar institutions, for those individuals. Then, convergency will emerge in an

ocean of rational choice-makers. Such convergency determines the orientation of the economy.

At this point, it is critical to understand that the customary element and the market element within the rural sector were not mutually exclusive but complementary to each other (and hence symbiotic). From the respectable living standards during the Qing period, the symbiotic economy was able to deliver desirable results.⁴⁶

IV. Origin: State-building and Changed Institutions

To understand China's developmental ceiling, it is vital to know how it began. The findings of the present research suggest that what led China to its ceiling had much to do with its state-building process during the Warring States Period (475 B.C.–221 B.C.) which led to a new economic order with a new state, new property rights, a new peasantry and after all a new production function.

China had probably the most developed private landholding systems in the premodern world. Chinese family-cum-farms were created by the seventh century B.C., probably at the grassroots level through trial and error (see Table 1). It was a quiet revolution and did not change the economy dramatically. That was until the new land ownership type encountered with newly emerged state-building during the Warring States Period.

Table 1 appears about here

This state-building process was triggered by a military revolution which was marked by development in three areas (1) the use of iron for lighter and tougher weapons to replace

bronze, (2) the emergence of cavalry with unprecedented speed and maneuverability, and (3) the spread of new military tactics embodied in Sunzi's art of war (*Sunzi Bingfa*, *Master Sun's Art of War*) of the fifth century B.C.⁴⁷ This was a full scale military revolution which eventually tipped the political balance among the numerous units (as many as 160).⁴⁸ So, it is not accident that in the period from 475 B.C. to 221 B.C., the pursuit of hegemony was replaced by the ambition to annex other political units to gain the advantage of size for more resources to get the upper hand in a changed game. Indeed, a case of economies of scale. So, steadily, the number of political units was reduced from three digits to two and a single in the convergent process of political unification.

This process of unification was at the same time a process of state-building as a new type of state began to take shape, develop and replace the old type. The new state was centrally controlled in line with a military command system, manned by salary-paid bureaucrats holding uninhabitable offices.⁴⁹ This suited well with rapid territorial expansion without the constraint associated with personal links under feudalism. Constant wars also change the composition of the military forces. Instead of using professional soldiers, large numbers of new recruits were in high demand from all walks of life. To finance the war, the state needed new and stable sources of revenue.

Among many trades, the agricultural sector seemed to fill the bill the best by supplying labor-toughened and relatively disciplined and simple-minded males. The sector also provided the state food and revenue, crucial for sustaining military operations. In addition, peasant settlers and re-settlers in newly capture areas served as permanent occupation forces, a cheap and effective way to control the new territory.

To encourage and reward the peasantry in an exchange for its support of the wars and territorial expansion, a new institution emerged which was marked by private property rights

with the focus on private land-ownership. The age-old chessboard-field system of a communal land-ownership (*jingtianzhi*) was ended. After that, China's land-ownership as a whole was not changed until the early 1950s when communists decided to copy collectivization from Stalin.

To complete the new institution, a law for equal inheritance of real estate was added together with a law for land registration.⁵⁰ This was a major milestone of institutional change in that the biological or family link was for the first time legally hooked to landholding. This change fuelled the momentum of the new landholding type via human reproduction cycles. With it, the existing practice of ancestral worship and lineage expansion became an economic driving force: as family properties were legally passed on through the bloodline, ancestral worship and lineage expansion began to make economic sense. Chinese lineage helped a great deal in enshrining private land ownership. An institutional chain reaction also followed: the protection of the private land-ownership and equal inheritance remained became the core of civil code under the Tang (618–907), Song (960–1279) and Ming (1368–1644).⁵¹

Therefore, by the fourth century B.C. all the main players in China adopted the new state and new land ownership in a frenzy in the fear that they may have been defeated and annexed. And, private land-ownership was widely spread in established farming zones. It can be assumed that by then private land-ownership had reached the “critical mass” to tip the balance between the agricultural and non-agricultural sectors. Meanwhile, the incentives on the state's part were so strong that tax advantages and private land-ownership were offered to lure farmers from rival kingdoms (called *laimin*, literally “attracting immigrants”). A symbiosis between the landholding peasantry and the fiscal state began to form.

This combination of a landholding peasantry and a fiscal state slowly transformed China during the second half of the Warring States Period. The result of the new state-building was a package of new army, new administration and new economic institutions. They were anything but feudal. Given that the new state was free from the kind of constraints traditional associated with decentralized feudalism, it had a strong tendency to expand across a vast territory: the geographic barrier such as high mountains and seas were the only limits. Because of that, this state-building was at the same time empire-building. The Qin Kingdom successfully combined the two in one and hence ended the lasting Warring State Period.

In this context, early China was far less static and far less homogeneous than one may think; and consequently adopting this choice was far less straightforward and far less smooth than one might imagine. Undoubtedly, state-building (and hence the new state) played the key role in endorsing the new property rights which were designed for the peasantry and not necessarily extended to other strata.⁵² Equally undoubtedly, during the Warring States Period, a new production function with a new production probability frontier became entrenched in the Chinese economy which had profound impact on China's resource allocation and developmental trajectory of the long run.

It is important to understand that the new production function was coupled with a Pareto optimum with which both the peasantry and the state gained. The new ownership type generated incentives for farmers to produce more and better for tangible rewards. It also effectively eliminated free riding under the previous communal systems.⁵³ This in turn attracted re-investment back in the rural sector. The state benefited from more revenue and well-fed soldiers and hence greater economic and military power.⁵⁴ After Shang Yang's reform, the Qin – once a poor kingdom on the marginal land of the northwestern plateau – succeeded in maximizing revenue and fighting men which in turn enabled the Qin to

captured more and more territory.⁵⁵ With Qin's victory, the militia-peasantry was rewarded promptly under a nation-wide scheme launched in 216 B.C. which created a virtuous win-win spiral and eventually paved the way for the establishment of the Qin Empire.⁵⁶ So, Qin's victory in unification was the victory of the peasant-state alliance.⁵⁷ The state-peasant interdependence led to a symbiosis.

Certainly, the new economic order had some unintended consequences in the long run. Firstly, franchised and replicated, the military conquest-backed private land-ownership prevailed on East Asian mainland in the process of empire-building under the Qin.⁵⁸ This created for the first time a high degree of homogeneity in the economy which was seen as agricultural dominance. It also means that the private economy became the dominant type. Secondly, an often-neglected point, the Chinese landholding system was compatible with the "diseconomies of scale" in farming.⁵⁹ This means that large-scale landholding under slavery, feudalism or communism had no productive advantage. Secondly, the new system locked the peasantry in the rural economy as farmers became reluctant to leave land which they had property rights on. China thus had a clear pattern of "personified private landholding" vis-à-vis the Marxian "personified capital" in capitalist Europe. Thirdly, incentives for farmers to produce more and better under the new landholding system allowed the customary-mercantile symbiosis to thrive at the household level, the very cell of the rural economy, to achieve an economic optimum. With it, the aforementioned rural "customary plus mercantile" sector took shape. Last but not the least, as rural males were obliged to serve in the army for national defense, the peasantry had its vote with arms in China's politics.⁶⁰

In terms of state finance, the alliance with the peasantry determined a principle of "jackpot" (similar to a lottery hence the name) that was adopted by the fiscal state: to collect huge aggregate revenue from a large population with a small sum per capita.⁶¹ This principle

was benevolent for individual peasants. It had the obvious benefit of economies of scale from the state point of view (as long as the size of the political unit was big enough to make the jackpot worthwhile).⁶² Indeed, it was the economies of scale that underwrote the benevolent regime of low taxation. Nevertheless, this marked the beginning of the state financial dependence on the rural economy. Such dependence lasted until the end of the imperial period, as seen from the break down of the Qing tax income in 1652–1766. In Table 2, the ratio between direct tax (I) and indirect taxes (II) reflects the symbiotic nature of the economy under the rural dominance as the land-poll tax and grain tax claimed by far the largest share of the state revenue.⁶³

Table 2 appears about here

V. New Production Function and Higher Standards of Living

Now, looking back at the three key factors (the land-holding peasantry, the physiocratic state and supply of land), they almost certainly reinforced and perpetuated a particular type of private economy where decentralized individual rational choices became more or less convergent in society. This ultimately determined a balance between the customary and mercantile activities and thus the developmental ceiling for the economy. In the jargon of economics, what is so peculiar of the Chinese economy is its production function that had self-regulating mechanisms against run-away commercialization and capitalism:

$$Q = f(L, K, R, T, G, M, \dots)^{64}$$

Where Q is the total output with its specific composition for an economy. In post-Qin Imperial China, most of the Q was made of agricultural products in both volume and value. The volume of Q is the function of a set of input variables. L is labor input with its bias of specialization determined by returns. In the Imperial era, this L had strong bias towards farming as the vast majority of population was related to farming. K is capital (including land) input with its preference among different sectors due to returns. In Imperial China, high yielding agriculture remained as the single largest investment recipient among all sectors. This investment bias was incentivized by private property rights. R is the impact of resource endowments with their natural favor towards certain sectors also due to returns. In China, the climatic pattern, hydraulic pattern and soil types are in favor of farming from Manchuria to Yellow River, Yangtze River and Pearl River. T is the input of technology with its bias due to relative prices of resources. China's resource endowments, labor skills and landholding rights steered its technological development in favor of agriculture.⁶⁵ G lumps together the input/impact of the state and other institutions including law, order and property rights which secure returns from economic activities for certain sectors. In Imperial China, there was a package of a state-peasant alliance, physiocratic government (or simply "agrocraacy") and landholding property rights. M is the impact of the scale and scope of market exchange activities among different sectors.

Figure 4 portrays how Chinese population was benefited from the establishment of the new production function.

Figure 4 appears about here

Evidence suggests that China had a mixed economy before the Qin Period.⁶⁶ To show that, Figure 4 has Point *a*, a 50-50 combination of agricultural output (at *f*) and non-agricultural output (at *g*), as the starting point. It is reasonable also to assume that (1) the resource allocation at Point *a* was optimal. Thus Point *a* sits on the first production-probability frontier marked by P-P. Such an economy offers an income at the level of I-I where the population consumes the combination of *f* and *g*.

The new production function, which can now be defined as the “Qin production function,” provided China with a new development horizon and promised a new production-probability frontier marked by P’-P’ where a greater total output of goods of both sectors could be produced. But it normally takes time for an economy to reach optimal resource allocation. So, we suppose that in the beginning, the economy with the Qin production function only managed to reach Point *b* with the bias towards agriculture (at *f*’ where the agricultural output increased in both relative and absolute terms) but within the production-probability frontier. So, the full potential of the Qin production function was yet to be fully realized.

The new growth is undoubtedly achieved at the expense of the non-agricultural sector (as its output drops from *g* to *g*’), hence incurring considerable social and private costs in society. However, as long as such costs were generously offset by social and private benefits with net social and private gains, the change was unstoppable. This was resulted in higher standards of living at II-II where the bundle of consumer goods for the general public was enlarged. This was not all: material life could be improved further by better resource allocation by moving Point *b* to Point *c*. With trade,⁶⁷ the income level reached III-III despite the fact that the economy went further towards agricultural dominance (from *f*’ to *f*’’). From the Tang Period on, especially during the Ming–Qing Period, the strong growth in China’s

tea and silk export to feed the world demand and China's respectable standards of living support our claim.⁶⁸

Here the key issue is not commercialization (which at most is a means) but standards of living (which is the ultimate end for all economic activities). In other words, a high living standard justifies the *raison d'être* of the Qin production function.⁶⁹

All this is completely compatible with Figure 3, as the mechanisms demonstrated in Figure 4 dictate those in Figure 3.

VI. From Incentives to Equilibrium

Given that in Imperial China, the economy was fundamentally private and autonomous, we must assume that any equilibrium could only be reached voluntarily by the choices of the majority in society. If voluntary, such choices had to be rational. If rational, choices had to be guided by economic incentives. These incentives had to be derived from particular institutions.

First, the Chinese landholding system generated strong incentives for the farmer to stay in agriculture as his lifetime employment, income, pension, returns from investment (including skills and materials) and the sense of control over his own life depended largely on land. As a result, even in commercially prosperous eighteenth-century, as much as 92 percent of the registered land in China was privately owned.⁷⁰ Among these property owners, smallholders were the majority.⁷¹ The hangover of this system can be felt strongly in modern times: up to the 1930s, at least 70 percent of rural households still belonged to the category of freeholders,⁷² although the acreage of landholding varied.⁷³ This explains well why in Imperial China owning land was such an essential agenda among the ordinary Chinese that it

became a national obsession (at least from a Western European viewpoint). To conceptualize this hyper propensity for land ownership, the opportunity costs for peasants to lose land (and hence to leave agriculture) must have been very high; so high that only extra-economic force was able to separate him from his land.

Second, the Chinese landholding gave the peasantry strong incentives to produce more and better in order to improve their material life. China's premodern high-yield farming is well known. As a result, surplus was produced regularly and regular market exchange became both feasible and necessary. Agricultural seasonality, which dropped the marginal product of labor in farming to zero during low seasons, created a strong incentive for peasants to take up sideline to produce for the market to increase income rather than to idle for pleasure.⁷⁴ Instead of harming his farming, peasant sideline skills and occupations reinforced his customary-mercantile existence as he maximized his utility and income with evenly distributed resources to match the farming seasonality. Thus, as long as he had a sideline, his marginal product of labor avoided the "zero trap." Therefore, persistence of rural sideline undertakings simply means that the peasant marginal product of labor remained positive all the year round. This was most obvious in North China. In South China where multiple cropping was practiced, agricultural seasonality became blurred, as farming became an all-the-year-round occupation. This also encouraged sideline production, not because of the rational avoidance of the "zero trap," but due to an increased agricultural surplus which supported a wide range of non-farming economic activities.⁷⁵ In essence, what supported commercial activities in Imperial China was agricultural surplus, either spare time-driven (as seen in the northern seasonality) or spare produce-driven (as seen in the southern high yield). Here, what the peasant aimed at was not economies of scale but "economies of scope." Chinese peasants were no doubt economic optimizers.

Third, although the amount of surplus produced by the rural sector was technology-elastic, technological development took time in the premodern world. The chance to have a surplus windfall was thin. Without imports of foreign food in large quantities, the limited margin of surplus from the rural sector ultimately dictated the degree of urbanization. Therefore, an urbanization-driven commercialization model did not work for China. After all, historically, although agricultural surplus could “automatically” lead to market exchange (common in many civilizations), market activities would not “automatically” lead to capitalism (only in part of Western Europe).

Fourth, as the peasant made economic decisions and the rural market network served him well,⁷⁶ there was a phenomenon of “entrepreneurialization of the peasantry” in China: an ordinary peasant participated regularly and actively in the market by trading a considerable percentage of his output.⁷⁷ The aggregate trading of millions of individual peasants accounted for about half China’s total marketing in a prosperous period.⁷⁸ But there was a catch: the existence of millions of amateur peasant marketeers (or simply semi-merchants) put a formidable check on the growth of the professional merchant class: since in the rural sector entry to the market was low and the market seemed to be cleared most of time in the hands of ordinary peasant-traders, a professional merchant faced a crowding-out effect.⁷⁹ A check also came from the state that effectively controlled key commodities.⁸⁰ The market share (in value traded) left for the professional merchants was only about half of China’s total during commercial heydays, a fact that has been badly overlooked.⁸¹ The growth of professional merchants was sandwiched, as their services were by-passed and marginalized by the state and peasantry. The merchant activities tended to concentrate on four areas: luxuries, wholesale, long distance trade (between internal macro-regions and beyond China’s territory) and money dealing (including trading government licenses).⁸² These were the areas that

peasants could not afford and the state had no will to control. Even so, things like long distance trade were successfully hijacked by the state under the service-license system (called *yinfu*).⁸³ Obviously, the business behavior of the Chinese merchant class behaved was the result of the unique sandwich effect. It is thus no exaggeration that commercialization in China was constantly under siege.

Not surprisingly, therefore, merchants constantly sought alternative areas to invest in to stretch out their business a little.⁸⁴ Such alternative investment areas did exist. Apart from land property, Confucian education and official titles were purchasable.⁸⁵ In either case, merchants' sector suffered capital drain, although it did not necessarily harm individual merchants who simply saw this drain as investment diversification to optimize returns.⁸⁶ Indeed, as openings into the professional merchant class were limited due to the limited market opportunities, it was probably easier to leave the professional merchant class than join in. The merchants' investment diversification in turn strengthened the merchants' own market rivalries, the state and the peasantry, perpetuating the three rivalry model for the next round of market expansion.

Fifth, the entrepreneurialization of the peasantry explains why China had loosely connected, localized markets which were not convergent enough to integrate into a single market. There was practically no single currency in China.⁸⁷ For China's multi-symbiotic system, a local currency (*quanhuo*, literally "commodity to help circulation") was all that was needed to facilitate the local market.⁸⁸ Indeed, China's stubborn divergence in dialects was a symptom of the same market fragmentation. In other word, the market fragmentation was a reliable indication of the commercial influence of the peasantry.

Sixth, although a few peasant sons (1–3 percent of the rural population) managed to climb up to join the bureaucracy (and thus represent rural interests in authorities),⁸⁹ their savings, if

any, were often invested in land. Retired officials, well informed as they were, often returned to home villages.⁹⁰ With stable returns from farming (thanks to the peasant production incentives),⁹¹ the land property became an investment safe haven for the merchant class. This is illustrated by the market for properties in Figures 1 and 2. The end result was predictable: China's urbanization was constantly under check by "ruralization."⁹²

Last but not the least, there was an environmental and ecological consequence of the Chinese system, a vital factor that has been often overlooked: the Chinese family-based private landholding and the state-peasant alliance generated strong incentives to achieve sustainable farming and avoid ripping off nature for short-term benefits. Indeed, Chinese traditional farming technology evolved – as much in the hands of ordination peasants as in those of the literati – entirely around this issue of environmental and ecological sustainability.⁹³ Thus, it was no accident that by 1900 China's agricultural land remained on the whole very productive after several millennia long intensive cultivation, the only case of this scale in world history.⁹⁴ This long-term environmental and ecological sustainability ultimately determined the very life span of China's customary-mercantile sector and thus the longevity of Chinese civilization. No doubt, such long-term sustainability itself incurred great opportunity costs for giving up farming. Also, there was a biological check on the demand for land. Over the long run, the short life expectancy and widely practiced infanticide among the Chinese (commonly agreed at 35–40 years) helped keeping the population, and thus the aggregate demand for land, relatively stable.⁹⁵

In sum, the impact of the Chinese land ownership was double-edged. It encouraged production, supported commercialization and induced urbanization, but only to a degree. The ordinary Chinese peasant was market active and may have earned substantial income from the market. But he/she very rarely moved any further. So, the Chinese land ownership

resulted in a barrier to fully-grown commercialization in the rural sector, not to mention the technological constraint on surplus windfall and the crowding-out effect on the merchant class. As the Chinese peasant did not behave like a “Lewisian being” who abandons farming for higher salaries in the urban sector (despite the fact that a farmer and a craftsman were normally not interchangeable parts), it also put a brake on urbanization. In the peasant choice equation, there was a balance between mercantile incentives and customary considerations. As the peasantry formed the vast majority of the society, such a balance had profound impact on China’s growth trajectory in both the short run and long run.

This was an equilibrium created by peculiar socio-economic dynamics in Chinese society. Now, going back to the point of the Qin production function, in theory as long as all (or some of the) variables among L, K, R, T and G work against a high degree of M in a sustainable way, the economy may have a ceiling for commercialization. This did not necessarily lower China’s standards of living. This was the reality in premodern China where an equilibrium was reached and maintained among these variables in the Qin production function. Among all variables, the state (G) and peasantry (L) both played crucial roles.

Once this equilibrium and growth trajectory were maintained China entered a developmental deadlock compared with post-Renaissance Western Europe and Meiji Japan. But question is: How was the equilibrium maintained?

VII. Maintenance and Safeguard of the Equilibrium: the Role of the State

The creation of the development ceiling may have well been accidental and consequential. But to maintain it required a lot of readjustment because economic conditions changed over time. Particularly, the problem of supply of land loomed large. If the peasantry run out of

land, the rural sector, the pillar of the Chinese economy, would collapse and so would the Chinese empire.

From the state's point of view, other than the peasantry, it had no groups to turn to for the amount of revenue and soldiers it required. So, to care about the peasant welfare (and hence land supply) was a product of the state's military-financial dependency on the peasantry rather than a result of the noble-mindedness, thoughtfulness or sagacity of the authorities as romanticized by the elite. This military-financial dependency-driven alliance differed from the conventional patron-client relationship which widely existed in premodern Eurasia. Rather, it resembled in many ways the modern electorate-government relationship.⁹⁶ In this context, it was natural that farming became a symbol of China's wealth and strength, and that the state protected and promoted farming in all possible ways, ideological, technical, and institutional. So, for the sake of the political and financial health of the artificially built empire,⁹⁷ the Chinese state was necessarily to be "agriculture and peasantry-friendly" state (or "agocracy");⁹⁸ and one of its key functions was to maintain land supply to the peasantry through a lasting process of territorial expansion commonly called "internal colonization."⁹⁹ On the other hand, powerless peasant individual depended on a powerful state to get more land. This was the deal for the peasants from the state-peasantry alliance. This was particular evident in the phenomenon of military-farming colonies.

In the newly-captured regions, military-farming colonies (*tuntian*) were systematically established as the first step of "internal colonization." This was feasible because the vast majority of the soldiers had a peasant background, a legacy of the militia-peasantry of the Qin. In these colonies, land and capital (including seed, animals and other equipment) were provided by the government.¹⁰⁰ A network of agricultural supervision was established, attached to the agricultural board of the central government.¹⁰¹ Often, land in these colonies

was privatized for migrants or retired soldiers as the frontiers moved outwards. These farming enterprises continued to exist most of time until the Qing.¹⁰² During the Three Kingdoms period (220–280 A.D.), in the Wei Kingdom alone 80 percent of soldiers were involved in such colonies.¹⁰³ Later, under the Tang Dynasty, there were 1,147 agricultural colonies occupying a total area of 307,800 hectares (57,000 *qing*), and sometimes two-thirds of the Tang soldiers were employed.¹⁰⁴ Agricultural colonies became larger under the Song, Yuan, Ming and Qing dynasties.¹⁰⁵ For instance, by 1887 Qing agricultural colonies had been established in 18 of the 23 provinces and occupied 3,412,310 hectares (509,300 *qing*), about 6 percent of the total cultivated land of China.¹⁰⁶

As military-farming colonies served the purpose of land distribution in a transient way, the state directly contacted farmers and allocated land to them. This often took place when land supply was abundant, especially after wars. Proper law was established for such purposes. The best example are the practices of “land allowed to citizens” (*zhantian*), “land allocated to citizens” (*shoutian*), and “land equalization scheme” (*juntianzhi*). The first such system was set up in 280 A.D.¹⁰⁷ The most influential system of all was the “land equalization” scheme.¹⁰⁸ In 485 A.D the system allowed each married couple to till 80 *mu* of land, 60 *mu* for grain and 20 *mu* for 50 mulberry trees, five jujube trees and three elm trees.¹⁰⁹ This system was inherited for the next 300 years before universal land privatization took place.¹¹⁰ The distributed land was either under lifetime leasehold or inheritable leasehold, the second best thing to freehold. Under Tang law, for example, such land was recognized as the “ever-holding land” (*yongyetian*). The government had no right to take it away as long as it was under cultivation. So, practically, unlike the land in military-farming colonies, these granted land plots were virtually privatized at the moment of redistribution.

The state interference with land supply also took the forms of nation-wide land equalization schemes (*juntian zhi*), common from the fifth to tenth centuries, and large-scale internal migration for farming resettlement under nationwide schemes of “moving farmers from over-crowded regions to thinly populated regions” (*yizhai bukuan*), common from the fourteenth to the nineteenth centuries.¹¹¹ These schemes aimed at eliminating unemployed labor and idle land and thus clearing the labor and land markets. To take the farming resettlement schemes as an example, the first recorded government-sponsored migration scheme took place during the Qin, and half a million people benefited from moving to the south.¹¹² The most effective schemes in later periods included mass migration to marginal lands in the western region of Sichuan (from the Yuan to Qing) called “populating Sichuan from Hubei, Hunan and Guangdong” (*huguang tian sichuan*) and offshore Taiwan (during the Ming–Qing).¹¹³ Its effectiveness can be testified by the Sichuan case. From 1661 to 1753, Sichuan’s share of land under cultivation in China’s total increased 28 times (from 0.22 to 6.25 percent).¹¹⁴ This undoubtedly contributed to the overall expansion of the rural sector. The Taiwan scheme began with the initiative of Zheng Zhilong (1604–61), an official in Fujian, who organized several tens of thousands of emigrants from Fujian to Taiwan to take up farming as part of an effort in famine relief.¹¹⁵ Later, the Qing government resumed the scheme. In the 1680s, registered able-bodied men in Taiwan numbered 16,000. By the early eighteenth century, that population had increased over 60 times to one million people.¹¹⁶ With the Chinese landholding system, such population growth also implies rapid expansion of the rural sector. As internal migration inevitably loosened up the existing kinship-lineage ties, it is clearly that kinship and lineage were largely exogenous for perpetuating the Chinese landed family-cum-farms.¹¹⁷

To stabilize the landholding situation and thus the rural economy, the state sometimes imposed restrictions on land sale. Land transaction, under the military-farming colony programs and land equalization schemes, was barred sometimes even after privatization. Under the Ming, subject to official approval, land transactions were limited within the local district to prevent run-away market speculations.¹¹⁸

More over, despite the state initiatives in increasing land supply, from time to time, the expansion of China's territory came to a temporary halt. With the relative scarcity of land, China's landholding pattern began to evolve with a main line of freehold of a sole owner with complete rights over the land together with a supplementary line of divided rights between ownership of the land and long-term leaseholding for tilling the same land (*yongdianquan*, literally "permanent leaseholding rights"). Under long-term leaseholding, the landowner had no power to interfere with the production process and marketing activities of the leaseholders as long as the rent was paid. It was a second best choice over freehold and many of the favorable incentives were preserved. A secondary market was developed simultaneously to trade/ mortgage leases.¹¹⁹ By the tenth century under the Song, law was established to protect and regulate leaseholding rights called "permanent leaseholding rights."¹²⁰ Similar laws were passed during the Ming-Qing.¹²¹ Thus, the split of the free holding and leaseholding rights of the same land became institutionalized. As a result, the door for further splitting property rights was wide open. Gradually, during the Ming-Qing, fixed rent (*tiebanzu*, literally "iron-hard rent") replaced sharecropping to accommodate multiple partial landholders. Also during the Ming-Qing, the split of rights occurred in leaseholding itself in the form of a multi-partial landholding rights of "surface or topsoil cultivation rights (*tianmianquan*)," "subsoil or base land rights (*tiandiquan*)" and numerous other sub-rights.¹²² All the partial ownership rights were subject to trade and mortgage. The

emergence of division in land property rights had a knock-on effect on water rights for irrigation.¹²³

Most interestingly, in many areas the leaseholding property rights took over free holding rights and became the prime rights. They were in high demand in trade and market speculation. This situation is shown from the return-yielding ratio between the free holding property rights (for the primary rent) and the leaseholding property rights (for the secondary rent) which, for example, was about 0.75 at the end of the sixteenth century in Fujian, a mountainous region known for land scarcity.¹²⁴ Accordingly, the market price for free holding rights was sometimes much lower than that of the leaseholding rights for the same land. So much so, there was a strong trend for large landholders to divide their properties into smaller plots, sell the free holding rights but retain the leaseholding rights in order to capture the economic benefits. In such a twist, free holding rights became inferior to leaseholding.¹²⁵ But a new Pareto optimum was reached among various landholding rights in different regions.

When the land supply was given, the geographic distribution of various landholding patterns and rights was ultimately determined by the total factor productivity of different regions. So, generally speaking, the higher the multiple cropping index the further divided were landholding rights. Thus, in the Yellow River Region, where the multiple cropping index was at best 1.5 per year, freehold prevailed. In the Pearl River Delta where 3–4 crops a year could be expected, multiple rights were common.¹²⁶ Here, new technology effectively delayed the onslaught of diminishing returns. With it, the “diseconomies of scale” in farming underpinned China’s landholding evolution. Regardless of the nuances of landholding rights under historical evolution, the very nature of the peasantry (as a landholding class) and the rural economy (as a private economy) remained unchanged. So did the center of economic gravity and the developmental ceiling.

Finally, given the constant threat from external invasions, the Great Wall was purposely built to shield China's farming zones from plunder by northern nomads, which made China the first and only "walled empire" in the entire history of the world. This was undoubtedly an effort to safeguard land supply within. The astronomical inputs of capital, labor and materials in the wall may be viewed as evidence of power abuse by the Qin emperor. However, they also manifested the unprecedented political commitment for the state-peasantry alliance, an extremely important but often totally ignored fact in Chinese history. After all, the wall was built, maintained and guarded by peasants and their soldier sons until the Ming.¹²⁷

So, overall, the Qin physiocratic approach and formula – land ownership and Great Wall – continued to be valid for more than two millennia although the Qin itself was a short régime.¹²⁸ The result is stunning: China's territory expanded in all possible directions: from its northern core to much of the south, west and Korea during the Western Han (206 B.C.– 23 A.D.), to Fujian, part of Turkistan (Xinjiang) and Vietnam during the Tang, to Taiwan and Sichuan during the Ming and to Mongolia, Manchuria and Turkistan during the Qing (1644–1911).¹²⁹ Considering that before the late Qing China's population fluctuated between 20 million and 80 million vis-à-vis a land-mass as big as Europe or the US, the overall land supply was favorable thanks to the overland expansionist policy.

The second parameter associated with the Chinese agrocracy was its tax régime. Heavy taxation can cancel the benefit of an increase land supply by lowering peasant net returns and sending the negative signal for future production and investment. To moderate the state's rent-seeking propensity and appetite is a worldwide challenge in history. In the West, much has been depended on modern democracy. In premodern China, it was Confucian code of conduct for statesmanship. Since the Western Han (206 B.C.–8 B.C.), Confucian ideology was officially chosen to nurture and massage this state-peasant relationship because of the

political disaster caused by the Qin's ruthless Legalist approach.¹³⁰ Unlike Legalism, Confucianism gave the imperial state a human face which theorized the need for protecting people's livelihood for the sake of the rulers' own interest: if a ruler practiced physiocracy, he achieved "sage-like humanity" (*ren*), and his reign was secure.¹³¹ Confucius never preached to the peasantry only to the ruling, mainly the literati.¹³² This is clearly stated in Mencius' well-known maxims that "food is the people's god" (*min yishi weitian*) and "people are the foundation of a régime" (*minben*). The essence of Confucian economic values of is simply "benevolent rule over an egalitarian economy." Confucian ideology did not create the state-peasantry exchange.¹³³ It only moralized the state's military-financial dependency on the peasantry and thus moralized the state-peasantry alliance.¹³⁴ All these led to the moral economy of taxation in China. Taxes on agriculture were normally low (barely over 10 percent of total output) and predictable.¹³⁵ Later, the Manchu Qing state, which managed to reduce the resistance from the Chinese to the minimum,¹³⁶ went as far as freezing for good the total tax revenue from agriculture despite the trend of increasing land reclamation and yield level (*yongbu jiafu*, literally "never increase tax"),¹³⁷ a policy which was carefully observed in 1715–1840.

If internal colonization and land distribution were not physiocracy-specific enough, there was a repertoire of policies to assist landholding farmers with farming technology, including the recording and accumulation of farming knowledge, the publication and circulation of agronomic books, provision of farming advisory services, distribution of new equipment and seed varieties.¹³⁸ The most celebrated economy-wide government initiatives were probably the introduction of (1) heavy iron ploughshare for dry farming during the Han, (2) early-ripening rice during the Northern Song, (3) cotton during the Yuan, and (4) and sweet potatoes during the Ming.¹³⁹ Public works for flood control in farming regions, which made

China known to the outside world, should be also added. What these activities did for the economy was (1) to push local production towards the “production probability frontier” (in the case of diffusion of the “best practice”) and (2) to out-stretch the frontier itself (in the case of new seed varieties and new tools). The impact was undoubtedly positive in the short run. In the long run though, it helped shaping skill intensive farming which proved double-edged.

Furthermore, by the Ming (r. 1368-1644), disaster prevention (such as water control) and famine relief were both regarded by society as citizens’ entitlements and routine duties of the state.¹⁴⁰ The peasantry was undoubtedly the main targeted beneficiary. Government rescue projects often provided the poor with low interest loans to cover difficult periods of temporary shortage so that the poor did not have to sell their land. The best example was the “green-sprout loan scheme” (*qingmiaofa*) during the eleventh century under the administration of Wang Anshi (1021–86).¹⁴¹

Also since the Western Han, as part of the routine physiocratic “house-keeping,” the state was committed to confining merchants, a package called “looking after farmers and confining merchants” (*zhongnong yishang*). Undoubtedly, measures such as state monopoly and profiteering with some “key commodities” (salt, iron and wine for example), strict licensing control (often applied to long-distance trade) and occasional bans (on maritime trade) created disincentives among professional merchants and were helpful in consolidating the state-peasant alliance. But, this check on the growth of merchants was secondary and its importance should thus not be overplayed as many have. Considering that the interests of the peasantry and those of the merchant class were often mutually exclusive, much of the effective constraint on merchants came from the peasantry itself, as indicated by

“entrepreneurialization of the peasantry” and “agrarianization of the merchants,” a process in which merchants joined the landholding club through investing in land.

VII. Maintenance and Safeguard of the Equilibrium: the Role of the Peasantry

A great number of scholars believe that China’s problem was related to the upper and minority classes. They usually ask the following questions: were China’s “inefficiencies” rooted in the Chinese mindset established by the elite? Were they the consequences of a coercive, rent-seeking state, or a weak merchant class, or a strong landlord class? Or, were they the consequences a combination of several or all such variables?¹⁴² This is approach compatible with the view that China’s developmental ceiling was a deliberate and calculated result. But, could it be possible that the developmental ceiling was set up by millions of ordinary Chinese instead of the upper and minority classes? In other words, could it be the case that there was no “leadership” issue (a key concept for many social historians) regarding China’s developmental ceiling in light of the multi-symbiotic system and its function?

The findings of the present research strongly indicate affirmative answers to this question. Although it is a widely accepted cliché that decisions and choices were the preserve of the rulers – the Chinese monarch and his bureaucracy – and that the peasantry only had the obligation to obey, evidence shows that overall the monarch and bureaucracy did not in effect have the resources nor the will to monopolize those decisions and that the peasantry often disobeyed.¹⁴³ So, the economic decision-making in traditional China was by and large a decentralized process (including what to produce, how to produce it, when to produce it and for whom to produce it). This was due to the private and non-feudal nature of the Chinese economy in general and the rural economy in particular. Under the multi-symbiotic system

the ordinary Chinese were categorically individualistic, making far more decisions than one might think.

If so, the question is who these “ordinary Chinese” really were. Indeed, some scholars pay more attention to China’s population itself as a whole and typically view China’s problem as that of the biomass of the Chinese race, discarding class division (or anything similar) in Chinese society. This echoes the aforementioned opinion that China’s developmental trajectory was a result of a “natural course” and thus no individual or group was truly responsible for China’s fate. In other words, the population was mindless, making decision randomly. But, could it be possible that millions of ordinary Chinese had something in common economically so much so that they made similar rational choices. Could it also be possible for these private rational choices to steer the economy and maintain China’s developmental ceiling?

From the analysis of the state-peasant alliance, private land ownership, agricultural dominance and agocracy, the peasantry was not at all a passive factor. And, the peasant economy was not at all “free-drifting” without a direction. Like the Chinese state, the peasantry had the same vested interest in maintaining the agricultural dominance in the economy. The peasantry was also responsible for the creation of the Chinese empire.

But due to its seemingly humble and unorganized status, the role of the peasantry has been notoriously neglected. As a result, numerous works have been done on the subject of how anti-commerce and anti-merchants the Chinese state was in a school of thought called “buro-determinism.”¹⁴⁴ This “buro-determinism” has a basic flaw: it ignores the political and economic bargaining power of the legally free, landholding peasantry in a predominantly private, autonomous economy. In particular, it completely overlooked the phenomenon of frequent rebellions by armed peasants in Chinese history. It was these rebellions that

ultimately determined China's growth path in the very long term. In other words, China's equilibrium with the Qin production function was not maintained by the minority but by the majority. It was not maintained by peaceful administration and manipulation, but by violence to veto and weed out an undesirable government, including the unwanted alien régime of the Mongols. This was imperative when the Confucian state became corrupt and its policy deviated from the physiocratic norm.

A new view developed in this study introduces two elements in the model of maintaining China's equilibrium: (1) rational choices among the seemingly powerless and voiceless majority, and (2) the collective bargaining power of the landholding peasantry in determining state affairs.

The truth is although the state-peasant alliance was in normal circumstances able to transcend power-abusive emperors/officials,¹⁴⁵ things did go wrong. When a deviant state harmed the rural sector too much through, for example, excessive taxation (in kind, cash or labor services) affecting the critical mass of the peasantry, the seemingly docile peasants showed their original militia color and rose up in arms to topple unpopular régimes. The glorious Qin was the first to go. Indeed, all the main dynasties after the Qin – Western Han, Eastern Han, Jin, Sui, Yuan and Ming – suffered this fate. The rule of the Tang and Northern Song was seriously weakened by peasant rebellions, which greatly contributed to their collapses. In the Qing case, the Manchus only managed to save its neck under attacks from the Taipings and Nians thanks to military and financial aid from the West. All this demonstrates the effectiveness of peasant rebellions in Chinese history.¹⁴⁶

Seven characteristics of Chinese rebellions can be identified. First, the Chinese peasantry easily qualified as the most rebellious among all known farming classes in world history. From 210 B.C. to 1900 A.D. there were in all 2,106 major peasant rebellions in China, each on

average lasting for seven years with 226,000 participants. Rebels were responsible for establishing at least 48 régimes.¹⁴⁷ The sheer number of rebellions in China suggests that socio-political and socio-economic controls under the empire system were rather loose, enough to allow separate power centers to rise and attract large number of followers. It also implies that, compatible with private land-holding, the peasantry enjoyed a considerable degree of political freedom and mobility. Most important of all, it indicates that common interests were shared among peasant individuals. Second, Chinese peasant rebellions were clearly institution-driven and incentives-motivated. The political programs of the rebels always included land distribution and private land-ownership. Third, it was the well-to-do regions that were most ready to rebel against state deviation from the physiocratic norm. The reason was that well-to-do peasants had a much lower threshold of tolerance for economic hardships and they had the necessary resources to rebel.¹⁴⁸ Fourth, Chinese rebellions had little, if at all, to do with natural disasters. The alleged stereotype causality between rebellions and natural disasters is faulty. Fifth, the Chinese rebels were no revolutionaries. What they fought for was to maintain or re-establish the old socio-economic structure instead of changing it. There was no exception throughout Chinese history, including the Taiping despite its Christian-communist camouflage. The rebels were not even “class-strugglers” as the door for class mobility was wide open. This explains why after their victories, peasant rebels often passed the state power on to Confucians. In this context, Chinese peasants were die-hard “physiocratic fundamentalists” and their rebellions “physiocratic uprisings.”

Peasant rebellions had the moral support and justification of Confucianism which openly supports the peasants’ right to rebel and maintains that a bad government does not deserve to last.¹⁴⁹ Confucians themselves, including Confucius’ own descendant Kong Fu (c. 264 B.C.–208 B.C.), played an important part in rebellions.¹⁵⁰ As a result, the expectation of a well-

behaved physiocratic state was very high among ordinary peasants. Thus, in China the peasantry always had its political-economic agenda, while merchants never managed to have their own. This is again paradoxical: (1) docile and scattered individual peasants were able to take on the centralized state and weed out a bad government; (2) the guru of Chinese statecraft (all of which was about order) was on the rebel's side.

The impact of rebellions was obvious. Apart from the deadly consequence to a corrupt régime, they functioned as a haunting deterrent to policy deviation from the physiocratic norm.¹⁵¹ Indeed, the correlation between a heavy tax burden on the rural sector and armed rebellions was so obvious that increasing taxes became a taboo.¹⁵² With such a double check, militarily (rebellions) and morally (Confucian values), even when the state did drift away from physiocracy, it never lasted long. Therefore, it was sheer accident that the Song commercial adventure ended with the coming the Tartar–Mongol invaders before it was ended by Chinese rebels, as public resentment built up against the deviant Song state.¹⁵³

Rebellions also effectively reduced population density and increased the supply of land at the very least (see Table 3). With the heavy loss of lives who can be seen as “physiocratic martyrs,” the pre-rebellion political-economic deterioration was reversed for the short run.

Table 3 appears about here

There is no exaggeration to state that since *c.* 100 B.C. the Confucianism-backed, landholding, rebellion-ready, militia-peasantry became a principal “shaper” of China's state policy as well as the chief pacemaker of China's growth.

VIII. Conclusion

The overall convergent system of the political economy of Imperial China can be sketched in Figure 5 which more or less explains itself.¹⁵⁴

Figure 5 appears about here

Now it becomes clear that Imperial China had a well-established, carefully-balanced and jealously-guarded incentive system (centered by private landholding rights) upon which a functional economic structure was built (a multi-symbiotic economic system under the dominance of the rural sector). The initial drive for institutional changes state-building triggered by a military revolution. By granting the militia peasantry private landholding rights, the Chinese state let the genie out of the bottle who was able to inflict damage as well as create wealth for a régime. After the Qin, the state's military-financial dependency on the peasantry continued under the constant pressure of nomadic invasions from the north.

On the other hand, from the economic point of view, as the Qin system continued yielding handsome dividends for society, a winning formula was developed: together with the proliferation of landed farming households, the advantage of the *diseconomies of scale* (and indeed the *economies of scope*) in farming and handicrafts was exploited to the full;¹⁵⁵ and with it, paradoxically, the benefit of the *economies of scale* in empire building was achieved. China expanded to its physical limits while its family-cum-farms thrived and well distributed across a vast territory. In the process, the peasantry obtained more land properties, and the state more revenue: a Pareto optimum.

To allow the Qin system to continue in the long run, a balance between the market economy and customary economy and a balance between a seemingly mighty state and an ocean of powerless smallholders needed to be maintained. China did just that thanks to a set

of self-regulating mechanisms developed despite market penetration, state malfunction and individual emperor's megalomania.¹⁵⁶ The most important developments were the elasticity in land supply, adoption of Confucian code of conduct for statesmanship and peasant rebellions.

These self-regulating mechanisms led to a structural equilibrium among three interlocking components. There was no institutional barrier to the maintenance of the equilibrium. The Qin system proved to be compatible not only with the market but also with those "Chinese-specific" factors such as Confucianism, kinship and lineage. After some eight centuries' practice, by the Tang, the social, political, economic and ecological convergence in China was so strong that it fundamentally changed the landscape of East Asian mainland for good.

China's multi-symbiotic system was sophisticated, efficient and flexible enough to generate economic growth, military power and political influence for China which remained unchallenged for one millennium in Asia from the Tang until the Opium War. Until the early nineteenth century the developmental ceiling had no severe negative impact on China, a civilization which possessed the largest population in the world, the greatest land mass in Asia, an impressive literacy rate, respectable material life and indisputable comparative advantage with a number of commodities in great demand world-wide. China's multi-symbiotic system was thus a premodern success story: it did not show any disadvantage in per capita income until 1700. A "Ricardian world" (in the orthodox sense with a perfect or nearly perfect market, tangible comparative advantages and extensive division of labor), China on its own did not automatically develop capitalism or capitalist industrialization even given sufficient time.¹⁵⁷ So, China's structural equilibrium proved to be dynamic and recurrent: a developmental ceiling resulting in a lasting economic optimum. What made China so remarkable was thus not the multi-symbiotic system but its long-term sustainability.

In this context, the Chinese state was never “too strong” or “too weak:” it was just the right kind/degree that China’s symbiosis needed. The same can be said about China’s market, technology and Confucian ideology. It is unfair to label them as detriments to indigenous growth.

Fundamental changes had to wait until China lost its supremacy in a century’s long, repeated defeats until 1940.¹⁵⁸ The “weakness” of China’s rational, harmless developmental ceiling suddenly loomed large.¹⁵⁹ This raises the issue of just how the Chinese system should be judged by a new world standard, a standard which emerged after the Industrial Revolution and qualitatively differed from any previous ones.¹⁶⁰ One thing is sure, considering its humiliating, all-round defeat, China’s developmental ceiling, which accommodated so much growth before, appeared to be a deadlock in the end.¹⁶¹ Although it may have been able to compete sometimes with the West in qualitative terms, China lost out in qualitative terms.¹⁶² In a final twist, China’s growth asset now became its liability – a paradox of its ultimate form.

Undoubtedly China can be judged by dual standards, normative (Needham’s) or positive (Jones’s). The Chinese puzzle itself is, however, methodologically neutral. It can be taken in either relative terms (compared to Western Europe) or absolute terms (to measure China’s actual achievement against its own best performance). The present study shows that, with logical and factual consistency and a positive, institutional framework the puzzle can indeed be solved.

Notes

* I wish to thank Professors Eric L. Jones, Ramon H. Myers and Patrick K. O'Brien for their invaluable comments related to all the important issues which are discussed in this article.

1. Lin, J. Y., "The Needham Puzzle: Why the Industrial Revolution did not Originate in China," *Economic Development and Cultural Change*, no. 1 (1995): 269–92.

2. Needham often referred to the Renaissance as the watershed. But this only pushed the timing of the breakthrough back three centuries, which does not change the view that there was a sudden kink in the growth trajectory for parts of Europe.

3. Jones, E. L., *Growth Recurring: Economic Change in World History* (Oxford: Clarendon Press, 1988); Jones, E. L., "The Real Question about China: Why Was the Song Economic Achievement Not Repeated?" *Australian Economic History Review* 30, no. 2 (1990): 5–22.

4. In Chinese historiography the Tang, rather than the Song, is commonly regarded as the pinnacle of China's economic, military, diplomatic, and cultural influence in Asia. Shiba, a Japanese economic historian, first suggested that there was a Song commercial revolution. However, neither those Chinese scholars nor Shiba views China's growth in the Eurasian context in terms of intensive growth during the premodern era.

5. Deng, "Survey."

6. The Opium War in 1840 has been commonly recognized as the end of China's "traditional era" although the empire survived until 1911.

7. Hicks first conceptualized this situation, see Hicks, J., *A Theory of Economic History* (London: Clarendon Press, 1969). However, Hicks saw the three types as mutually exclusive landmarks in a linear development pattern for the world, a view fashionable in his time. A

more recent work by Myers and Wang recognizes peaceful coexistence of the three economic types in China, see Myers, R. H. and Wang, Y. C., “Economic Developments, 1644–1800,” in *The Cambridge History of China* (Cambridge: Cambridge University Press, Forthcoming), vol. 9, pt. 1.

8. Marx’s fantasy world of “Asiatic Mode of Production” is thus completely unsuited for China.

9. Here a concept of “commercialized” or “marketized” customary economy is avoided because (1) it does not capture the nature of China’s rural economic symbiosis; and (2) such a concept suggests a linear progression, or a possibility of such progression, towards a fully-grown market economy which was counterfactual in China.

10. It is worth noting that despite its controlled façade, until Mao’s era, the bureaucracy never directly governed villages, and they enjoyed virtually all-round autonomy. Such autonomy was highly compatible with China’s landholding institutions.

11. Based on Perkins, D. H., *Agricultural Development in China, 1368–1968* (Edinburgh: Edinburgh University Press, 1969), p. 115; Feuerwerker, A., *State and Society in Eighteenth-Century China: the Ch’ing Empire in Its Glory* (Ann Arbor: University Michigan Press, 1976), p. 86; Liu R. Z., “Shiba Shiji Zhongguo Renjun Guomin Shouru Guji Jiqi Yu Yingguode Bijiao (China’s Per Capita Income during the Eighteenth Century and A Comparison With England),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 3 (1987): 113. By the 1930s, the rural population still occupied 73 percent of China’s total and the rural sector provided 82 percent of the country’s total employment (Liu W. and Liu W. L., “1927–1936 Nian Zhongguo Kebu – Daogelasi Shengchan Hanshu Chutan (Analysis of China’s Cob-Douglas Production Function, 1927–1936),” *Qiushi Xuekan (Facts)*, no. 3 (1998): 50–3. This pattern continued: during 1949–78 China’s urban-

rural population ratio moved from 10:90 to 18:82, see Xu D. X., ed., *Dangdai Zhongguode Renkou (Contemporary China's Population)* (Beijing: People's Press, 1988), p. 493. It improved slightly to 30:70 in February 2000 after 20 years of reform, but had yet to reach a point of no return, see Liu D. K., "Zhongguo Nongcun Renkou Bizhong (Share of China's Rural Population)," *Renmin Ribao Haiwaiban (People's Daily, Overseas Edition)* (February 18, 2000): 2.

12. On Skinner's account, Qing China's multi-regional, multi-layered trading network consisted of 45,000 local market-places, each affecting 15–20 villages, see Skinner, G. W., "Chinese Peasants and Closed Community: an Open and Shut Case," *Comparative Studies in Society and History*, no. 13 (1971): 272–3; Skinner, G. W., "Marketing and Social Structure in Rural China," *The Journal of Asian Studies*, no. 24 (1964–5): 3–44, 195–228, 363–400. Earlier, Song China had 29,765 regular fairs in all, including 27,607 grassroots fairs (*caoshi*), 1,871 county markets (*xianshi*), 287 prefecture markets (*zhoushi*) (see Zhou, "Grassroots Markets"). The frequencies of those fairs were determined by customary rules, varying from daily, twice a week, weekly, and bi-weekly under two main categories – major fairs (*daji*) and minor fairs (*xiaoji*), which in turn depended on the sizes of the affected market hinterland. In addition, there were yearly and bi-yearly market carnivals. Overall market activities were well spread out over the year, see Xu H., "Qingdai Huabeide Nongcun Shichang (Rural Markets in North China under the Qing)," *Xuexi Yu Tansuo (Study and Research)*, no. 4 (1999): 131–6.

13. In the nineteenth century China's annual tea output reached 179,100 metric tons (3 million picul). An average of 107,460 tons of tea (1.8 million picul) was exported from Fujian Province alone, see Dai Y. F., "Shilun Mingqing Shiqi Fujian Linye Jingji (On Forestry Economy in Fujian during the Ming–Qing Period)," *Zhongguo Nongshi*

(*Agricultural History of China*), no. 4 (1991): 13; Deng, G., *Chinese Maritime Activities and Socioeconomic Development c. 2100 B.C. – 1900 A.D.* (New York, London and West Port: Greenwood Press, 1997), pp. 131–2.

14. In the early eighteenth century, the Yangtze–Han Plain, some 400,000 km², was able to produce 2.21 million metric tons of grain of which 62 percent was marketed, see Zhang J. Y., “Mingqing Jiangnan Pingyuande Nongye Kaifa Dui Shangren Huodong He Shizhen Fazhande Yingxiang (Impact of Agricultural Development in the Yangtze-Han Plain on Commercial Activities and Urbanization during the Ming–Qing Period),” *Zhongguo Nongshi (Agricultural History of China)*, no. 4 (1995): 42.

15. Myers, R. H., *The Chinese Peasant Economy: Agricultural Development in Hopei and Shangtung, 1890–1949* (Cambridge [Mass.]: Harvard University Press, 1970), pp. 12–13; Perkins, *Agricultural Development*, p. 115; Feuerwerker, *State and Society*, p. 86. A recent study shows that different farming groups had different marketing rates for their products: the grain-growers had 30–35 percent, the grain-cotton growers 35–40 percent and the cash-coppers (a minority) 60–70 percent, see Li W. Z., “Lun Mingqing Shidai Nongmin Jingji Shangpinlü (Marketing Rates of the Peasant Products in Ming–Qing Times),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 1 (1993): 21–42. A recent government document admits that in 1954 China’s rural Engel coefficient was 0.69, indicating that the population consumes a large proportion of what it produces. It also reveals that in 1998 the coefficient was still as high as 0.53, see News Office of the State Council, “Zhongguo Renquan Fazhan Wushinian (Fifty Years of Human Rights Development in China),” *Renmin Ribao Haiwaiban (People’s Daily, Overseas Edition)*, (February 18, 2000): 6. Thus, China’s marketization will be a painfully slow process.

16. This had some profound impacts on the economy. For example, the limited marketing of food produce made the grain market fragmented and highly sensitive to local supply fluctuations (given that food is income and price inelastic). The fact that the government became so involved in monitoring and minimizing regional price changes so early on in Chinese history only means a lack of market integration among different regions in the long run.

17. For example, the Tang capital Chang-an had some one million residents (with 40–50 million taxpayers), see Feng, T. Y., He X. M. and Zhou J. M., *Zhonghua Wenhushi (A Cultural History of China)* (Shanghai: Shanghai People's Press, 1990), p. 588. During the Song, the northern capital Kaifeng and southern capital Hangzhou had 1.4 million and one million inhabitants, respectively (Feng, *et al.*, *Cultural History*, pp. 694, 696). Tertiary industry rose strongly including restaurants, hotels, clinics, and money-dealers to support business and the urban life-style. A considerable number of foreigners lived in urban China. In 879, rebels under Huang Chao allegedly massacred in Guangzhou alone 120,000–200,000 foreigners (Muslims, Jews, Christians and Zoroastrians) which reflected sizeable foreign diasporas), see Sima G., *Zizhi Tongjian (Comprehensive References for State Management)* (1084 A.D.; Beijing: Zhonghua Books, 1956, reprint), vol. 232. Under the Song, one such group was known as the “Kaifeng Jews” whose Arab counterparts concentrated in ports along the Fujian coast (Deng, *Maritime Activities*, pp. 151–5; Goldstein, J., ed., *Jews of China* (Armonk, New York and London: M. E. Sharpe, 1999), ch. A.2.

18. The rural sectoral productivity measured by GDP-to-population ratio was low (67%:80%), and so was the income per head. This could be taken as a start for Lewis's dualism. See Lewis, A., “Economic Development with Unlimited Supplies of Labour,” *The Manchester School*, no. 22 (1954): 139–91.

19. The Chinese state ran a considerable proportion of handicrafts industry, typically in major cities. It was also responsible for running large farming colonies, often along the frontiers. The Chinese army was thus often heavily involved in farming and thus quasi-rural. Civil officials did live in towns but their number was small. During the Song, officials made up some 20 percent of the capital's total population (Feng, *et al.*, *Cultural History*, p. 697). If their dependants are counted, the proportion could have been as high as 60–70 percent. But overall, the share of officials in China's total was tiny: averaging 0.26 percent, see Deng, G., *Development versus Stagnation: Technological Continuity and Agricultural Progress in Premodern China* (New York, London and West Port: Greenwood Press, 1993), app. 1. With officials' dependants the share was less than 5 percent of China's total population most of time.

20. Here, a command type should be understood as the one with which resources are allocated by government orders regardless of customary rule and price signals from the market.

21. Good examples are public projects such as the Great Wall, Grand Canal and national highways. Under the Ming Period, the overhauled Great Wall stretched over 7,300 kilometers (14,000 *li*), see Yu J. ed., *The Great Wall* (4th Edition, Beijing: Cultural Relics Press, 1986), pp. 81–2; Guo R. G., Deng Z. Z., Tan Q. J., Yao Z. H. and Liang M. Q., *Zhongguo Junshishi (A Military History of China)*, vol. 4 (Beijing: PLA Press, 1988). Earlier, during the Sui Dynasty, the Grand Canal (2,500-kilometre long) and a national highway (1,500-kilometre long) were constructed within one generation's time (Han L. Q., *Xianqin Lianghanshi Luncong (On History of Pre-Qin to Han Times)* (Jinan: Qilu Books, 1986), pp. 14–15; Cressey, G. B., *China's Geographic Foundations, A Survey of the Land and Its People* (New York: McGraw-Hill Book, 1934), pp. 24–6.

22. Liang F. Z., *Zhongguo Li Dai Huko Tiandi Tianfu Tongji (Dynastic Data of China's Households, Cultivated Land and Land Taxation)* (Shanghai: Shanghai People's Press, 1980), pp. 351, 384; also Wu J. G., "Lun Wudai Shiguode Fengjian Tudi Guoyouzhi (On State Land-ownership in the Ten Kingdoms during the Five Dynasties Period)," *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 1 (1996): 128–39; Cao S. J., "Hongwu Shiqi Hebei Diqude Renko Qianyi (Immigration in Hebei during the Hongwu Reign, 1368–98)," *Zhongguo Nongshi (Agricultural History of China)*, no. 3 (1995): 12–27.

23. For the Tang see Zhang X. (ed.). 1991. *Zhongguo Hanghai Kejishi (A History of Chinese Maritime Technology)*. Beijing: Maritime Press, p. 56; for the Northern Song see Blunden, C. and Elvin, M., eds., *Cultural Atlas of China*. (Oxford: Phaidon Press, 1983), p. 104; for the Qing see Zhou B. D., *Zhongguo Caizhengshi (A Financial History of China)* (Shanghai: Shanghai People's Press, 1981), pp. 419–21, 426.

24. Blunden and Elvin, *Atlas*, p. 104.

25. Zhou, *Financial History*, pp. 419–21, 426.

26. Perkins, D. H., "Government as an Obstacle to Industrialization: the Case of Nineteenth Century China," *The Journal of Economic History*, 27 (1967): 478–92.

27. Feuerwerker, "State and the Economy," pp. 300, 322; Will, P., *Bureaucracy and Famine in Eighteenth-Century China*, translated by Elborg Forster (Stanford: Stanford University Press, 1990); Deng, G., *The Premodern Chinese Economy – Structural Equilibrium and Capitalist Sterility* (London and New York: Routledge Press, 1999), app. 7.

28. Zhou, *Financial History*; Sun X. G., *Jianming Zhongguo Caizhengshi (A Compact History of Finance of Premodern China)* (Beijing: China's Finance and Economy Press, 1988); Xing T., "Woguo Gudaide Zhuanzhi Jiquan Tizhixiade Caizheng Yusuan He Juesuan

(State Budget and Revenue under the Centralized System in Premodern China),” *Zhongguoshi Yanjiu (Study of Chinese History)*, 4 (1996), pp. 92–100.

29. Rawski, T. G., *Economic Growth in Prewar China* (Berkeley: University of California Press, 1989), p. 193; Deng, G., *Chinese Maritime Activities and Socioeconomic Development c. 2100 B.C. – 1900 A.D.* (New York, London and West Port: Greenwood Press, 1997), ch. 5; Deng, G., *Maritime Sector, Institutions and Sea Power of Premodern China* (New York, London and West Port: Greenwood Press, 1999), ch. 2.

30. Deng, *Maritime Sector*, pp. 80–96.

31. Fairbank, J. K., *The United States and China* (Cambridge [Mass.]: Harvard University Press, 1965), ch. 4.

32. Deng, *Premodern Chinese Economy*, ch. 3.

33. *Ibid.*, pp. 228–9.

34. There were numerous cases: (1) China’s maritime trade centers (Deng, *Maritime Activities*, chs. 5–6); (2) inland trading hubs, see Xu T., “Mingqing Shiqide Linqing Shangye (Linqing: A Commercial Center of the Ming–Qing Period),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 2 (1986): 135–57; and (3) the Song trade boom, see Deng, *Premodern Chinese Economy*, ch. 6.

35. This paradox is based on a linear growth model to judge a non-linear universe.

36. In Chinese history, only the Stalinist–Maoist command economy eliminated the market. But it backfired to discredit communism.

37. The customary economy in China was dynamic, versatile, flexible, accommodating, rewarding and not necessarily depressing and seldom at mere subsistence level. So much so, its residual and impact can still be felt after the Qing: the rural sector succeeded in preserving the customary economy under heavy bombardment from the capitalist world market and

bloody wars. Mao's notorious tactic of "encircling cities by the countryside" to seek power (*nongcun baowei chengshi*) and his later murderous "Great Leap Forward" for a growth miracle (*dayuejin*) were both based on this center of gravity. Nothing new.

38. Elvin, M., *The Pattern of the Chinese Past* (Stanford: Stanford University Press, 1973).

39. Pomeranz, K., *The Great Divergence* (Princeton: University of Princeton Press, 2000), chs. 5–6.

40. Marx, K. (with Engels, F.), "Manifesto of the Communist Party," *Karl Marx and Frederick Engels, Collected Works* (London: Lawrence and Wishart, 1976), vol. 6, pp. 477–519; Marx, K., "Economic Works," in *Karl Marx and Frederick Engels, Collected Works* (London: Lawrence and Wishart, 1976), vols. 28–33; Chayanov, A. V., *The Theory of Peasant Economy* (1925; Madison: University of Wisconsin Press, 1986, reprint); Scott, J., *The Moral Economy of the Peasant Rebellion and Subsistence in Southeast Asia* (New Haven: Yale University Press, 1976).

41. Lewis, "Unlimited Supplies of Labour;" Skinner, "Marketing" and "Peasants;" Gates, H., *China's Motor, A Thousand Years of Petty Capitalism* (Ithaca and London: Cornell University Press, 1996); Kelly, M., "The Dynamics of Smithian Growth," *Quarterly Journal of Economics*, no. 3 (1997): 939–64.

42. Perkins, *Agricultural Development*; Feuerwerker, *State and Society*; Myers, *Peasant Economy*.

43. Chayanov, Theory; Dalton, G., "Theoretical Issues in Economic Anthropology," *Current Anthropology*, no. 1 (1969): 63–102; Scott, J., "The Erosion of Patron–Client Bonds and Social Change in Rural Southeast Asia," *The Journal of Asian Studies*, no. 1 (1972): 5–38; Scott, *Moral Economy*; Feeny, D., "The Moral or the Rational Peasant: Competing Hypothesis of Collective Action," *The Journal of Asian Studies* 42 (1983): 769–89.

44. Schultz, T. W., *Transforming Traditional Agriculture* (New Heaven: Yale University Press, 1964), pp. 37, 72; Popkin, S. L., *The Rational Peasant, the Political Economy of Rural Society in Vietnam* (Berkeley: University of California Press, 1979).

45. Ellis, F., *Peasant Economics, Farm Households and Agrarian Development* (Cambridge: Cambridge University Press, 1988), p. 13; Huang, P. C. C., *The Peasant Family and Rural Development in the Yangzi Delta, 1350–1988* (Stanford: Stanford University Press, 1990), pt. 1.

46. Until 1700, China's per capita income remained comparable to England's (see Liu, "Per Capita Income") and Europe's, see Maddison, A., *Chinese Economic Performance in the Long Run* (Paris: OECD, 1998), p. 25. Also see Pomeranz, K., "Rethinking Eighteenth-Century China: A High Standard of Living and Its Implications," Paper for All-U. C. Group in Economic History Conference (Davies, California), November, 1997 and his *Divergence*.

47. Wei Z. F., Tian Z. L., Yi X. L. and Huang Y. B., *Zhongguo Junshishi Fujuan Shang* (*A Military History of China*), vol. 1 (Beijing: PLA Press, 1993), pp. 10–11; Wang S. H., Wang T. D., Fang R. X., Tian Z. L., Shi S. B., Bai T. C., Chen X. J., He S. H., Shao Q., Zhao G. S., Zhao X. K., Guo R. G., Tao W. H. and Cao Y. X., *Zhongguo Junshishi Fujuan Shang* (*A Military History of China*), vol. 2 (Beijing: PLA Press, 1986), p. 37; Tian Z. L., Tao W. H., Chen X. J., Zhao X. K., Shi S. B., Chen Y. P., Deng Z. Z., Yao Z. H. and Yang Q., *Zhongguo Junshishi Fujuan Shang* (*A Military History of China*), vol. 5 (Beijing: PLA Press, 1990), pp. 79–90.

48. Wang S. S., Wang T. D., Fang R. X., Tian Z. L., Shi S. B., Bai T. C., Chen X. J., He S. H., Shao Q., Zhao G. S., Zhao X. K., Guo R. G., Tao W. H. and Cao Y. X., *Zhongguo Junshishi Fujuan Shang* (*A Military History of China*), vol. 2 (Beijing: PLA Press, 1986), p. 89.

49. In China, the prerequisite for a centralized bureaucracy and thus an empire was undoubtedly the rise of the *shi* in Spring and Autumn Period (770 B.C.–476 B.C.), a stratum of well-educated non-inheritable meritocrats who specialized in statecraft (Deng, *Development*, pp. 18–22). Without the *shi* China was prone to feudalism as during the Western Zhou (c. 1030 B.C.–771 B.C.).

50. This was the deed of Shang Yang (c. 390 B.C.–338 B.C.), a policy adviser to the Qin authorities, who aimed at ensuring and enlarging the tax base for revenue and as well as army recruits, see Sima, *Book of History*, “Biography of Shang Yang;” Xing T., “Woguo Gudaide Zhuizi Pingjun Xichan Wenti (Equal Inheritance among Sons in Premodern China),” *Zhongguoshi Yanjiu (Study of Chinese History)*, no. 4 (1995): 3–15.

51. Shi F. Y., *Zhongguo Gudai Hunyin Yu Jiating (Marriage and Family in Premodern China)* (Changsha: Hunan People’s Press, 1987).

52. See Deng, *Premodern Chinese Economy*, ch. 2; Li G. P., “Zhongguo Xiaonong Jingjide Qiyuan Jiqi Zaoqi Xingtai (Origin and Early Form of Rural Household Economy in China),” *Zhongguo Jingjishi Yanjiu (Study of the Chinese Economic History)*, no. 1 (1998): 69–86. In fact, the first known land transaction occurred as early as in the mid-tenth century B.C., see Zhao Y. Q., “Zhongguo Tudi Maimai Qiyuan Wenti Zaitantao (Origin of Land Transaction in China),” *Xueshu Yuekan (Academia Monthly)*, no. 1 (1999): 81–7.

53. The best-known early communal landholding system was that of the chess-board fields (*jingtian*). In Chinese tradition, the problem of free-riding is known as the “dilemma of three thirsty monks” (*sange heshang meishuichi*), indicating that communal activities without private ownership is the hotbed of free-riding which in turn jeopardizes communal welfare.

54. As highlighted by Sun Wu (? –512 B.C.), the forefather of Chinese military strategists, “Soldiers are critical in state affairs and determine life and death of a nation,” but “armies

will not survive without sufficient food in storage;” see Sun W., *Sunzi Bingfa (Master Sun’s Military Strategy and Tactics)* (n.d.; Beijing: Zhonghua Books, 1995, reprint), pp. 19, 81; and by Shang Yang (c. 390 B.C.–338 B.C.), “Once attracted by farming, men become simple-minded and thus reliable to fight the war.” Shang specified that to build a strong political unit the ideal proportion of land-holding peasants should occupy 90 percent of the total population, a target well achieved under his administration, see Shang Y. *Shangjun Shu (Master Shang’s Book)* (338 B.C.; Beijing: Zhonghua, 1986, reprint), ch. “Agriculture and War.”

55. Qin was so unimportant that Confucius ignored its existence in his China-wide tour (called *xixing budao qin*).

56. The policy was called “allowing commoner-farmers to claim and own land” (*shi qianshou zishitian*) (Sima, *History*, ch. “Emperor Qin Shihuang”). Qin’s militia-landholder combination was unique as other kingdoms had the two components, a professional army and an un-armed farming class, separate.

57. Revisionist historians in China have recognized such alliances, see Zhang J., “Erchong Jiegou Yu Zhidu Yanjin (A Duel Structure and Structural Evolution),” *Shehui Kexue Zhanxian (Social Science Front)*, no. 6 (1998): 12–25. But they maintain that the state was always in the driving seat, which did not match the factual capacity of the weak and passive state in China. Unfortunately, most Western literature has missed this phenomenon completely. Even worse, there has been in the West a worrying trend to view *ad hominem* the premodern Chinese state from the model of the Stalinist–Maoist dictatorship, a totalitarian police state that premodern China never had. Among other things, the indigenous Chinese state never claimed that it obtained all the truth for and rights over the people and that the ordinary citizens only had obligations to serve the state. The main concern for the indigenous

Chinese statecrafts was not how to divide society up according to political correctness and how to manipulate resource allocation for the benefit of the ruling but how to rule benevolently under the underlying assumption that the citizens were always right with the full recognition of state's dependency on citizens' support (called *minben*). Indeed, Mao's teleological state was a product of total alienation from the Chinese tradition.

58. Under the Qin, the process of state-building, nation-building and empire-building closely entwined.

59. Buck, J. L., *Chinese Farm Economy* (Nanking: The University of Nanking and the China Council of the Institute of Pacific Relations, 1937).

60. In the end, it was the powerful land-owning militia-peasantry, institutionally motivated and incentive-driven that facilitated the Qin's ambition to unify China in 221 B.C. The caliber of this peasantry was fully manifested in as late as the 1940s–50s. With the minimum modern inputs, the army of Chinese peasants fought two top modern war machines: it completely destroyed the ferocious Japanese (in China) and ended in a draw with the US (in Korea), not to mention the communist PLA's victory over its better-equipped rival of the nationalist KMT.

61. A low tax rate was not necessarily applicable to other strata.

62. The size of the jackpot was determined by the physical limit of the amount of surplus that could be produced. It was also determined by the moral limit of the proportion of surplus to be extracted. Thus a low tax rate may mean either a low-level surplus capacity (and thus low productivity) or a benevolent state, or both. In premodern China, the moral limit seemed to be the main factor considering the room left for population growth and trade, domestic and foreign (see Deng, *Premodern Chinese Economy*).

63. The position of the rural (mainly agricultural) sector as the main tax payer remained unshaken until 1903, see Liang, *Dynastic Data*, pp. 10, 253–4, 256–7, 264–7, 380, 400–1, 414–18, 426; Tang X. L., *Zhongguo Jindai Haiguan Shuishou He Fenpei Tongji (Statistics of Customs Revenue and its Distribution in Early Modern China)* (Beijing: Zhonghua Books, 1992), pp. 126–8. The Southern Song was probably the only exception (Deng, *Premodern Chinese Economy*, ch. 6).

64. There was no fixed set of variables/factors. Hence, the function can be open ended.

65. Deng, *Development*.

66. Deng, *Premodern Chinese Economy*, pp. 128–34.

67. The mechanism of and gain from foreign trade is not shown in the diagram.

68. Deng, G. “The Foreign Staple Trade of China in the Premodern Era,” *The International History Review* (May 1997), pp. 253–83; Pomeranz, *Divergence*.

69. Judging from material life, if China was so comparable with the wealthy part of Western Europe (see Pomeranz, *Divergence*), the need for industrial revolution becomes highly questionable. This indeed has opened a Pandora’s box for economic history.

70. Feuerwerker, A., “The State and the Economy in Late Imperial China,” *Theory and Society* 13, no. 3 (1984): 313.

71. In the Qing dynasty, for example, the average farm size was 20–30 *mu* (1 Qing *mu* = 0.67 ha) in the North and 12–15 *mu* in the South (Feuerwerker, *State and Society*, p. 81).

72. Tawney, R. H., *Life and Labour in China* (New York: Octagon Books, 1964), p. 34; Chao, K., *Man and Land in Chinese History: An Economic Analysis* (Stanford: Stanford University Press, 1986), ch. 8.

73. Fei, H. T., *Peasant Life in China; A Field Study of Country Life in the Yangtze Valley* (London: Paul, Trench, Trubner, 1939), pp. 191–4; Tawney, *Life and Labour*, pp. 34–5, 38,

71; Buck, J. L., ed., *Land Utilization in China* (New York: Paragon Book, 1968), pp. 194–7; Myers, *Peasant Economy*; Chao, *Man and Land*, p. 107.

74. See Deng, *Premodern Chinese Economy*, app. 4. The common conception of “negative marginal product of labor” in farming is groundless, assuming that a peasant will destroy his crop or kill himself. This is completely irrational from the peasant point of view and only occurred briefly under Mao’s “teleological” regime full of miscalculations, see Li B. Z., “Mingqing Jiangnan Nongye Ziyuande Heli Liyong (Rational Application of Agricultural Resources in the Yangtze Delta during the Ming–Qing Period),” *Nongye Kexue (Agricultural Sciences)*, no. 2 (1985): 150–63; Wang J. G., “Jindai Huabeide Nongye Shengtai Yu Shehui Bianqian (Agro-ecology and Social Change in North China during Early Modern Times),” *Zhongguo Nongshi (Chinese Agricultural History)*, no. 1 (1999): 46–58. By the same token, Huang’s “involution hypothesis” does not reflect the general trend in Ming–Qing China, see Huang, P. C. C., *The Peasant Economy and Social Change in North China* (Stanford: Stanford University Press, 1985).

75. From the widely practiced household production pattern known as “husband tilling and wife weaving,” it is clear that in much of South China, the labor input of one adult male was sufficient for farming so that the labor of the wife was devoted to handicrafts, see Li B. Z., “Cong Fufu Bingzuo Dao Nangeng Nuzhi (From ‘Husband and Wife Tilling Together’ to ‘Husband Tilling and Wife Weaving’),” *Lishi Yanju (Research in History)*, no. 3 (1996): 99–107.

76. Skinner, “Marketing,” “Peasants;” and Skinner, G. W., *The City in Late Imperial China* (Stanford: Stanford University Press, 1977).

77. For peasant marketing, see Latourette, K. S., *The Chinese, their History and Culture* (New York: Macmillan, 1964), p. 575; Myers, *Peasant Economy*, pp. 12–13; Skinner,

“Peasants,” pp. 272–3; Gates, *Motor*. In terms of trade autonomy, with an average of some 125,000 officials in the bureaucracy (Deng, *Development*, app. 1), to monitor the Song fairs (29,765) or the Skinnerian fairs (45,000) would mean 2.8–4.2 officials per fair on the watch all the year around. This was an impossible task for the empire’s limited resources, not to mention whether 2.8–4.2 officials were sufficient for the job. Market autonomy was inevitable. Not surprisingly, during the Northern Song, of the total of 29,765 regular fairs/markets, only 3.4 percent (1,013) paid tax and merely 1.2 percent (369) were administered by officials. In addition, it was a common practice to set up fairs/markets outside country/prefecture town walls with a symbolic distance of some 100 paces (\pm 50 meters) to mark their autonomy, see Zhou B. Z., “Shilun Caoshi Zai Songdai Chengshi Jingji Fazhangzhongde Zuoyong (Role of Grassroots Markets in the Growth of Song Urban Economy),” *Shixue Yuekan (History Study Monthly)*, no. 2 (1998): 79–87.

78. So much so Imperial China is portrayed as a world of (1) “petty capitalism” (Gates, *Motor*) although the term does not capture the essence of capitalism as an economic system – wage labor and profit pursuit; (2) “economy-wide market” (Kelly, “Dynamics”) despite the fact that the degree of marketization was at best half of China’s GDP.

79. A recent study indicating that during the mid-nineteenth century in the northern farming province of Shandong the annual aggregate value of commodities traded was 55–60 million *liang* of silver (2051.6–2238.1 metric tons) with the following composition: grain (31.7%), cotton products (25.0%), land property (8.3%), livestock (8.0%), silk (6.7%), tobacco (6.7%), salt (4.0%) and others (9.6%). Among them, salt and “others” (\pm 14% combined) were the items exclusively for merchants to trade with, see Xu T., “Mingqing Shiqi Shandong Jingjide Fazhan (Economic Growth of Shandong during the Ming–Qing Period),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 3 (1995): 40–

63. This challenges two dogmas (1) that ordinary peasants were price-takers and thus subject to merchant exploitation and (2) that the Chinese state was able to curb the merchant class single-handedly thanks to its efficiency. First, price-taking had no causal connection with exploitation. As merchants were never imperative in China's "pan-peasant" market, merchant exploitation was never definite. Second, the bureaucracy was poorly manned for the size of the empire and government economic surveillance was at best inadequate. Beside, the Confucian state was never blindly anti-merchant, not even condemning mammon although it was concerned at the formation of merchant monopoly (Deng, *Maritime Sector*, pp. 150–3; Mann, S., *Local Merchants and the Chinese Bureaucracy, 1750–1950* (Stanford: Stanford University Press, 1987), pp. 42–5).

80. Undoubtedly, the state control over these key commodities relied heavily on services of the merchants. However, only a tiny proportion of the merchant class became chartered traders. For ordinary merchants, the entry was very difficult.

81. This was clearly the case of government indirect taxes from cities during the Song economic revolution, see Lin L. P., "Tangsong Shiqi Chengshi Shuishoude Fazhang (Development in Urban Taxation during the Tang–Song Period)," *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 4 (1988): 36.

82. To take family-based pawnshops (which functioned as loan providers) as an example, in 1812, China had a record number of 23,139 pawnshops with an estimated total investment of 1,157 million *liang* of silver (43,154.2 metric tons) vis-à-vis a total population of 361.7 million at 119.3 grams of silver per person which was not trivial, see Wang S. H., "Mingqing Huizhou Dianshangde Shengshui (Ups and Downs of the Pawnshops of the Huizhou Merchants)," *Qingshi Yanjiu (Study of Qing History)*, no. 2 (1999): 62–70.

83. Under the service-license system (from the Song to the Qing), in return for their supply services to the frontiers merchants were granted licenses to trade state-controlled commodities such as salt. As these controlled commodities were usually income inelastic, the scale of the operation was limited. Even so, the state deliberately blocked the formation of small, privileged merchant groups by granting licenses to a large number of merchants. During the early eighteenth century in coastal Shandong, for example, 1,226 merchants obtained salt licenses with an average of 400.5 loads (normally 200 *jin* per load, or 119.4 kg) vis-à-vis a tax at 100 *liang* of silver (3,730 g) per merchant, see Liu M., “Mingdai Zhaoshang Yunyande Jiben Xingtai (Basic Model for Salt Dealership in Ming–Qing Times),” *Yanyeshi Yanjiu (Study of Slat Trade)*, no. 4 (1996): 32–3. The total FOB price for the 400.5 loads was at most 1,600 *liang* of silver (at 4 *liang* per 200 *jin*), see Xu T., “Mingqing Shiqi Shandong Jingjide Fazhan (Economic Growth of Shandong during the Ming–Qing Period),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 3 (1995): Table 9), which means that the total investment required was not prohibitive for any middle-rank merchant although the merchant had to bear transport and storage costs.

84. In effect, land property, education and official titles can be viewed as items for consumption instead of investment. Or, at least they were investment-consumption combined.

85. It was also fashionable, under the Song and Qing for example, for merchants to purchase official titles at ridiculously high prices. But it had far less impact on commercial capital than investment in land considering the purchased titles were merely honorary.

86. For the early Qin period, see Zhang, “Merchant Capital;” for the Ming–Qing, see Xiao M. S., “Luelun Guangdong Shangbang Shangren Zibende Fazhan Qushi (Growth Trend of Guangdong Merchants’ Capital),” *Xueshu Yanjiu (Academic Study)*, no. 5 (1999): 67–71. It

is worth noting that to divert commercial wealth to land and official titles was not uniquely Chinese. What was unique though was its long-term prevalence in China. Given the variable of natural disasters in the Chinese rural production function, such investment propensity simply suggests that the risk of natural disasters in the rural sector was considerably lower than disasters associated with the market. Moreover, a low risk is in this context a synonym of stable, sizeable returns and thus stable and sizeable surplus from the rural sector.

87. As the norm, apart from a currency specimen issued by the central mint to each provincial mint for replication, provinces often issued their own local currencies. Many types of currencies were circulated simultaneously at any given time. This practice continued during the first half of the twentieth century. In 1911–46 there were 124 currencies from 20 provinces, see Sun Z. H., Shi X. B., Zhou X., Hu W., and Huang X. M., *Jianming Qianbi Cidian (A Dictionary of Currencies in Chinese History)* (Shanghai: Shanghai Classics Publisher, 1991); also Wang J., “Tongbao Bizhi Yanjiu Lungang (Outline of the Bronze Currency System),” *Xuzhou Shifan Daxue Xuebao (Bulletin of Xuzhou Normal University)*, no. 3 (1999): 86–9. Private communities were equally able to take initiatives as seen from the invention and use of paper currency and silver (Xiao, *History of Currencies*; Li, “Currency Systems”).

88. Skinner, “Peasants,” “Marketing;” Zhang Z. M., “Xiaoshengchan Daliutong: Qian Jindai Zhongguo Shehui Zaishengchande Jiben Moshi (Petty Production at the Household Level and Great Circulation of Commodities in the Economy – A Basic Production Model in Traditional China),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 2 (1996): 42–9.

89. Wang D. Z., *Qingdai Keju Zhidu Yanjiu (A Study of the Civil Examinations of the Qing Dynasty)* (Hong Kong: The Chinese University Press, 1982), pp. 65–6; also see Chang, C. L.,

The Chinese Gentry: Studies on their Role in Nineteenth-century Chinese Society (Seattle: University of Washington Press, 1955) pp. 83–92; Fairbank, J. K., *Chinese Thought and Institutions* (Chicago: University of Chicago Press, 1957), pp. 251–68; Ho, P. T., *The Ladder of Success in Imperial China* (New York: Columbia University Press, 1962), p. 262; Deng C. Y., *Zhongguo Kaoshi Zhidu Shi (History of the Chinese Imperial Examination System)* (Taipei: Xuesheng Books, 1967), pp. 163–4.

90. Some retired rank officials certainly joined urban rentiers. But, as the norm, bureaucrats were usually poorly paid and few were able to live on their salary savings after retirement, as government pensions did not exist. To take Qing times as an example, many bureaucrats working for the ministries in Beijing were rather poor and some could hardly make a living without a second income and were often in debt, see Zhang D. C., *Qingji Yige Jinguande Shenghuo (Life of a Qing Official in Beijing)* (Hong Kong: The Chinese University Press, 1970), pp. 46–50. When the financial situation went bad, officials had to leave their positions and return to the rural sector (*ibid.*, p. 54). Thus, the fact that the retired officials had to live on rent from farming land generated incentives for them to return to villages. The incentives were enhanced as retired officials were highly respected in villages but faced status depreciation in cities.

91. China was not natural disaster-free. However, in the long run, the land yield level increased steadily (Deng, *Development*, pp. 160–1). Agricultural surplus remained at least stable judging from the increased export volumes and in particular by the increased population (Deng, *Maritime Activities*, p. 132). It is another matter completely of whether the Chinese should have used their food surplus to feed more pregnant women and babies instead of adding more value on it for marketing: it is a question of how the existing surplus was used not of whether surplus was available.

92. Evidence suggests that about two-thirds of the total investment in traditional pawnshops were made in villages and one-third in urban centers, which was highly compatible with the center of the economic gravity, see Liu Q. G., “Qingdai Chengshi Gaolidai Ziben (Usurious Capital in Qing Cities),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 4 (1996): 83–4.

93. See Deng, *Development*; Wang J. G., “Xiaonong Yu Huanjing – Yi Shengtai Xitongde Guandian Toushi Chuantong Nongye Shengchande Lishi Guocheng (Family Farms and Environment – An Ecological Viewpoint on Long-term Sustainability of Traditional Agriculture),” *Zhongguo Nongshi (Agricultural History of China)*, no. 3 (1995): 83–93.

94. By 1900, China’s farming frontier was still expanding, especially in Manchuria despite the fact that the old farming region along the Yellow River suffered regular flooding. Even along the disaster-stricken Yellow River Valley, land remained habitable despite soil erosion and deforestation. There is no secret that severe and systematic environmental damage in China’s farming zones was a direct result of Mao’s communes which aimed at short-term gains countrywide. This was not the case in the Imperial era.

95. Liang, *Dynastic Data*, pp. 1–14; Pomeranz, *Divergence*, pp. 37–8.

96. Under the patron–client relationship, the ruler has more control over his weaker client partner. Under the modern electorate–government relationship, the electorate has more power than the clients and is able to rebel frequently.

97. From the evidence of pre-Qin times (say, from the Neolithic Period to the end of the Spring and Autumn Period, c. 7500 B.C.–476 B.C.), internally there was no sign or need to unify the East Asian mainland under an empire. The original push to build such an empire had to come from outside forces.

98. Here, the physiocratic state not only supported agricultural production but protected individual landholding rights. Its influence was felt in recent Chinese history, see Lai, C. C., “Types of Economic Ideas in Late Imperial China and the Role of Western Economic Thought,” *The Journal of European Economic History*, no. 2 (1991): 372.

99. In the beginning, the newly-emerged physiocratic policy was designed to serve the purpose of empire-building, a rather short-term goal. Nevertheless, it marked the beginning of an agrocracy. Numerous Chinese classics available on the physiocratic state and statecrafts, see Wu F., ed., *Zhonghua Sixiang Baoku (Treasure-House of the Chinese Ideology)* (Changchun: Jilin People’s Press, 1990), ch. 18; Ke, M. C. and Zhang F. X., *Zhongguo Gudai Jingji Mingzuo Zhuyi (Annotated Economic Classics of Premodern China)* (Beijing: Economics Press, 1993).

100. Ban, *History of the Han*, vol. 69: “Zhao Chongguo.”

101. Zheng X. M., Jiang Z. C. and Zhang W. Q., *Jianming Zhongguo Jingji Tongshi (A Brief Panorama of Chinese Economic History)* (Harbin: Heilongjiang People’s Press, 1984), pp. 114, 119; Zuo S. E., “Mingdai Ningxia Tuntianlun (Ming Agricultural Colonies in Ningxia Province),” *Ningxia Shehui Kexue (Ningxia Social Sciences)*, no. 3 (1986): 85–90; also see Cao G. Y., *Zhongguo Nongye Jingjishi (An Agro-Economic History of China)* (Beijing: China’s Social Sciences Press, 1989), pp. 256–9, 349–51, 407–8, 465, 579, 676, 723.

102. Ban, *History of the Han*, vol. 24: “Economy;” also see Fu Z. F. and Wang Y. H., *Zhongguo Jingjishi Ziliao Qin Han Sanguo Bian (Materials on Chinese Economic History during the Qin, Han and Three Kingdoms Periods)* (Beijing: China’s Social Sciences Press, 1982), pp. 319–36; Cao, *Agro-Economic History*, pp. 137, 220–4, 256–9, 347–52, 406–9, 465–9, 579–86, 674–7, 721–5, 803–10.

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103. Chen S., *Sanguo Zhi (History of the Three Kingdoms)* (c. 280 A.D.; Beijing: Zhonghua Books, 1982, reprint), vol. 28: “Deng Ai.”
104. Zheng, *et al.*, *Chinese Economic History*, p. 172; Lee, M. P., *The Economic History of China* (New York: AMS Press, 1969), p. 68.
105. Lee, *Economic History*, pp. 73, 85–6, 104, 113, 117; Liang, *Dynastic Data*, pp. 322–8, 360–4, 420–2, 464.
106. Liang, *Dynastic Data*, pp. 384–5.
107. Fang X. L., *Jin Shu (History of the Jin Dynasty)* (646 A.D.; Beijing: Zhonghua Books, 1989, reprint), vol. 26: “Economy no.16.”
108. Wei S., *Wei Shu (History of the Wei Kingdom)* (554 A.D.; Beijing: Zhonghua Books, 1974, reprint), vol. 7: “Emperor Gao Zu.”
109. Wei, *History of the Wei*, ch. “Economy.”
110. Li L. J. (Emperor Xuanzong) *Tang Liudian (Law of the Tang Dynasty)* (738 A.D.; Beijing: Zhonghua Books, 1991, reprint), vol. 3; Liang, *Dynastic Data*, pp. 476–85; Du S. S., “Tangdai Juntianzhi Pingmin Yingshoutian Biaozhun Xintan (A New Insight into the Land Distribution under the Tang Land Equalization System),” *Zhongguo Jingjishi Yanjiu (Study of Chinese Economic History)*, no. 3 (1996): 132–8.
111. Zheng, *et al.*, *Chinese Economic History*.
112. Weng D. J. ed., *Zhongguo Minzu Guanxishi Gangyao (A Compact History of Relationships among Ethnic Groups in China)* (Beijing: China’s Social Sciences Press, 1990), p. 180.
113. Private schemes also existed. The most well-known cases were “populating Hubei, Hunan and Guangdong from Jiangxi (*jiangxi tian huguang*)” from the tenth century till the sixteenth century and “advancing to Manchuria (*chuang guandong*)” during the Qing (which

alone involved a staggering 14 million migrants) (Zhang L. M., “Chuang guandong Yiminchao Jianxi (On Advancing to Manchuria),” *Zhongguo Shehui Jingjishi Yanjiu (Study of Chinese Socio-Economic History)*, no. 2 (1998): 57–64.

114. Liang, *Dynastic Data*, p. 382. In 1743–8 alone, some 243,000 new migrants settled in Sichuan, see Anon., *Qing Gaozong Shilu (Veritable Records of Emperor Gaozong of the Qing Dynasty)* (1799; Taipei: Hualian Press, 1964, reprint), vol. 311, Entry “Shisannian Sanyue.”

115. Wei Y., *Shengwu Ji (A History of China’s Military Glory)* (1842; Beijing: Zhonghua Books, 1984, reprint), vol. 8.

116. Weng, *Compact History*, p. 772.

117. Indeed, in later dynasties, Chinese kinship and lineage became “portable” to serve migration.

118. Luan C. X., “Mingdai Tudi Maimai Tuishou Guoge Zhiduzhi Yanbian (Evolution of the Ownership Transfer Pattern in Land Transactions during the Ming),” *Zhongguo Jingji Yanjiu (Study of the Chinese Economy)*, no. 4 (1997): 119–29.

119. Peng W. Y., “Qingdai Fujian Tianchan Diandang Yanjiu (Mortgages on Land Properties in Fujian During the Qing),” *Zhongguo Jingjishi Yanjiu (Research in Chinese Economic History)*, no. 3 (1992): 79–91.

120. Tuo T., ed., *Song Shi (History of the Song Dynasty)* (1345; Beijing: Zhonghua Books, 1985, reprint), ch. “Economy.”

121. Zhou Y. L. and Xie Z. H., *Qingdai Zudianzhi Yanjiu (Study of Tenancy in the Qing Period)* (Shenyang: Liaoning People’s Press, 1986), ch. 7; Yang G. Z., *Mingqing Tudi Qiyue Wenshu Yanjiu (A Study of Documents of Land Deeds of the Ming–Qing Period)* (Beijing: People’s Press, 1988), ch. 2.

122. Marsh, R. M., *The Mandarin: Circulation of Elite in China, 1600–1900* (New York: Free Press of Glencoe, 1961), p. 62.

123. Xiao Z. H., “Lishi Shiqi Guanzhong Diqu Nongtian Guangaizhongde Shuiquan Wenti (Water Rights for Irrigation in Shaanxi Regional History),” *Zhongguo Jingjishi Yanjiu* (*Research in Chinese Economic History*), no. 1 (1999): 48–64.

124. Li S. M., “Lun Mingqing Nanfang Zhudianzhide Teshuxing (On the Characteristics of the Ming–Qing Tenancy System in South China),” *Zhongguo Nongshi* (*Agricultural History of China*), no. 2 (1995): 46.

125. Many scholars are confused by the opposite price trends for freehold and leaseholding rights and misinterpret the landholding reshuffling as evidence of a high bankruptcy rate and concentration of land-ownership, which is utterly misleading.

126. This was reflected by the degree of irrigation (Buck, *Farm Economy*, p. 187). To take contemporary China as a proxy, cultivated land in the well-irrigated south occupied 36 percent of China’s total (with 81 percent of China’s total water for framing) which implies roughly the geographic distribution of freehold and multiple rights, see Chen Y. W. and Zhang Y. J., “Zhongguo Shuide Kunhuo (China’s Water Puzzle),” *Xinhua Wenzhai* (*Xinhua Compilation*), no. 10 (1994): 181–2.

127. The maintenance of a standing army could have some positive impact on the rural sector as it delayed the decline of marginal produce of labor by taking labor out of farming.

128. The fate of the Qin indicates two important forces in Chinese society: the monarch and the peasantry. A “wise” and strong emperor could have more than his “fair share” in history-making. But there was a limit if his input eroded the state-peasant alliance. The militia-landed peasantry proved to be far more powerful than the emperor and his state apparatus combined: the peasantry was able to reset the clock by overthrowing unpopular

régimes through rebellions. So, Qin represented a legitimate “teething period” for the new institution.

129. Deng, *Development*, p. xxiii.

130. Confucianism was established in around 500 B.C. (by Confucius: 551 B.C.–479 B.C.) and was officially adopted in around 100 B.C. (under Emperor Wudi: r. 140 B.C.–87 B.C.). This 400-year time lag says much about the “second order” nature of the philosophy as a factor.

131. Mengzi, *Mengzi (Book of Mencius)* (n.d.; Beijing: People’s Literature Press, 1957, reprint), chs. “Gongsu Chou Shang” and “Lilou Shang.” The essence of Confucius’ statecrafts in his *Daxue (Great Learning)*, *Zhongyong (Doctrine of the Mean)* and *Lunyu (Analects)* is three-fold: (1) benevolent rule is the optimal goal (*ren*); (2) rulers’ self-cultivation is the least costly way to reach the goal (*xiudao yiren*); and (3) such cultivation is based on self-discipline (*keji*).

132. If one carefully reads the Confucian classics, the ideal situation is that the literati were in charge to make the monarch *roi fainéant*.

133. Like Christianity, Confucianism is to a great extent an exogenous factor and thus can be adopted by various societies with very different growth trajectories (as seen in Singapore, Taiwan, Hong Kong and South Korea).

134. Deng, *Premodern Chinese Economy*, chs. 2–3. One must admit that some of the Confucian syntaxes are open for debate since classical Chinese contains a range of linguistic possibilities. For example, in Chapter “Taibo” of Confucius’ *The Analects*, it reads *min ke shi youzhi buke shi zhizhi*. There are at least three ways to understand it. First, “if the masses approve, let the policy go ahead; if not, let them know more about the policy (*min ke, shi youzhi; buke, shi zhizhi*).” Second, “if the policy is useful to the masses, continue on; if not,

let them know more about the policy (*min ke shi, youzhi; buke shi, zhizhi*)." Third, "the masses are allowed to follow orders, not allowed to know too much (*min ke shi youzhi; buke shi zhizhi*)." But if one reads the same sentence in the immediate context (on the issue of cultivation by poetry, rites and music with the aim of benevolence), the first and second interpretations are more relevant. Thus, the core of Confucianism is very stable. Modern speculations (especially the ahistorical style) are distortional.

135. Deng, *Premodern Chinese Economy*, app. G.

136. The elite Manchu Eight Banners (*baqi*) had only 20,000 members vis-à-vis approximately 52 million Chinese, see Hong Z., Er E. T., Fu M. and Xu Y. M., *Baqi Manzhou Shizu Tongpu (The Complete Genealogies of the Manchu Eight Banners)* (n.d.; Shenyang: Liaoshen Books, 1989, reprint); Liang, *Dynastic Data*, p. 10. The Bannersmen–Chinese ratio was shockingly low at 1:2,600.

137. Zhao Erxun. *Qingshi Gao (Draft of the History of the Qing Dynasty)* (1927; Beijing: Zhonghua Books, 1977, reprint), p. 467.

138. Deng, *Development*.

139. Deng, *ibid*.

140. Will, P., *Bureaucracy and Famine in Eighteenth-Century China* (Stanford: Stanford University Press, 1990); Song X. S., *Lidai Zhishui Wenxian (Essays and Documents on Water Control of Premodern Periods)* (Taipei: China's Cultural Publication Committee, 1954); Zheng Z., *Zhongguo Shuili Shi (History of Water Control in China)* (Taipei: Taiwan Commercial Press, 1970). See also Elvin, M., Nishioka, H., Tamura, K. and Kwek, J., *Japanese Studies on the History of Water Control in China, A Selected Bibliography* (Canberra: ANU, 1994).

141. Wu H., *Zhongguo Gudai Liuda Jingji Gaigejia (Six Outstanding Economic Reformers in Chinese History)* (Shanghai: Shanghai People's Press, 1984).

142. Deng, "Survey."

143. Deng, *Premodern Chinese Economy*, chs. 2–4.

144. Deng, "Survey."

145. From the 25 official histories of the empire, there are in total 224 monarchs whose dates of birth and death are traceable. It is known that a half of these monarchs were crowned under the age of 20, of whom a half were crowned under the age of 10. It is also known that their average life span was only 39. Thus, the policy input from emperors had to be very limited. It was the norm that the empire was run by older bureaucrats.

146. In Chinese history, urban unrests, army mutinies and coups d'état took place but often ineffective unless they had a ride on peasant rebellions.

147. Deng, *Premodern Chinese Economy*, app. 10.

148. This challenges the Marxist–Leninist–Maoist prejudice that the poorer were the more ready to rise against the state because they had nothing to lose. Such a view is logically flawed: people rebel only because they have much to lose.

149. Deng, *Premodern Chinese Economy*, ch. 4. Thus, despite its bias to a perfect social order Confucianism was designed not for an elitist, divine civilization but for a populist, mundane society.

150. One should never under-estimate the effect of Confucianism as an informal institution to empower the ego, psyche and behavior of the Chinese peasantry: about 10 percent of the public were literate and educated peasant sons were granted priority to enter officialdom. See Rawski, E. S., *Education and Popular Literacy in Ch'ing China* (Ann Arbor: University of

Michigan Press, 1979); Deng, *Development*; app. 1; see also Goody, J. ed., *Literacy in Traditional Societies* (Cambridge: Cambridge University Press, 1968).

151. Deng, *Premodern Chinese Economy*, ch. 4.

152. This was to a great extent not applicable to merchants as they were taxed with a higher rate which is often viewed as the hard evidence for an anti-merchant tradition in China. But if one agrees that the utility of the same amount money is often lowered for merchants, a higher tax rate was well justified as in any modern progressive taxation.

153. Deng, *Premodern Chinese Economy*, ch. 6.

154. This rebuts the Marxian hypothesis that “power of production” determines “mode of production.” China’s past shows unmistakably the other way round.

155. Mao tried to break this by creating “large-scale production (*dashengchan*)” with his “people’s communes (*renmin gongshe*)” which failed completely.

156. One must bear in mind that the Chinese “authoritarian” bureaucracy differs *toto caelo* with modern Stalin–Mao’s dictatorship in terms of the scale and scope to control over resources as well as how far irrational decisions could go/last.

157. During the whole millennium from the Song till 1900 China did not change its trajectory. In comparison, during the same period, Western Europe followed a different orientation, flirting with capitalism and eventually made the industrial revolution in the eighteenth-nineteenth centuries. This rebuffs the Maoist fantasy that China was already well under way with capitalism under the Ming but the process was hijacked by Western imperialism, e.g. Xu D. X. and Wu C. M., eds., *Zhongguo Ziben Zhuyide Mengya* (*Sprouting of Capitalism in China*) (Beijing: People’s Press, 1985); Yin J., “Guanyu Zhongguo Nongyie Zhong Ziben Zhuyi Mengya Wenti (A Historical Research on the Sprouting of Capitalism in Chinese Agriculture),” *Lishi Yanju* (*Research in History*), no. 2 (1980): 107–17; Li W. Z.,

“Lun Zhongguo Dizhu Jingji Yu Nongye Ziben Zhuyi Mengya (Landlord Economy and the Sprouting of Capitalism in Chinese Agriculture),” *Zhongguo Shehui Kexue (Social Sciences of China)*, no. 1 (1981): 143–60.

158. Deng, *Premodern Chinese Economy*, ch. 5.

159. But, so far, few have asked why the use of military force was the only way to make a point to China. Even fewer have noticed the unilateral change of rules in the game by the West in the Opium War. Hegemony does not necessarily mean supremacy in market dealings (Deng, *Maritime Sector*, chs. 5–6).

160. There is a common “deficit approach” in judging China by listing what China did not have in comparison with what Western Europe did, ignoring China’s own “balanced account.”

161. No doubt, China can be and often is taken as a case of “path dependency.” However, such an explanatory framework is problematic and is thus avoided: first, it often overlooks the dynamics of the path-forming, path re-adjustment, path recurrence and path perpetuation; second, path dependency is the result, not the cause of a developmental status. The framework runs into the real danger of a circular argument.

162. For quantitative similarities, see Pomeranz, *Divergence*.