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SPECIAL ISSUE

The Quantification of Chinese Society: Why Did Liang Qichao Ask for Statistics?

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This article seeks to explain the sharply increasing tendency to quantify Chinese society in the twentieth century. It argues that this trend is inherently connected to the passage from a hierarchically stratified society to a one that was more functionally differentiated, which also resulted in the emergence of a new concept of society. The relation between social differentiation and quantification is explored by way of comparing an eighteenth-century essay by Qian Weicheng, which presents a rather typical late imperial vision of social order, with an early twentieth-century article by Liang Qichao, which is one of the earliest texts to lament the lack of numbers and statistics regarding the Chinese population.

本文探討了 20 世紀中國社會在量化管理方面迅速增長的趨勢及其成因。研究發現，這一趨勢與社會結構從傳統的等級分化轉向現代的功能分化密切相關，並促使新型社會概念的出現。通過對比 18 世紀錢維城關於封建社會秩序的論述與 20 世紀初梁啟超對中國缺乏人口統計數據的反思，本文深入分析了社會功能分化與量化管理之間的關係。

Keywords: quantification, society, Liang Qichao, Qian Weicheng, statistics, statecraft, functional differentiation

關鍵詞： 梁啟超，錢維城，社會，統計，經世，量化，功能性分化

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The practice of collecting and registering numbers for administrative purposes has a long history in China. However, it was mostly employed in very limited and selective ways and rarely affected the broader understanding of state and society. Only in the twentieth century, when both Chinese society and the way it was conceptualised changed profoundly, can we observe more widespread tendencies of quantification. It even seemed to become impossible to speak of "society" without relating to numbers. Already in one of the key texts in the formation of the modern concept of society, Liang Qichao's 梁啓超 "New Citizen" (*Xinmin shuo* 新民說), the author laments the lack of numbers and statistics on the Chinese people. Liang clearly anticipated the "avalanche of numbers" that would roll over China in the following decades, when new ways of collecting, classifying, and presenting numerical data were introduced.[1] But what triggered this avalanche? How is the dramatically expanded use of numbers in China during the last century to be explained? And how exactly are the concepts of society and statistics related?

To answer these questions, it makes sense to start not with Liang's arguments but to focus on a very different understanding of society first. I will do so through a close reading of the eighteenth-century essay "On Eradicating Conflict" (*Qu zheng lun* 去爭論), which has been chosen not because it could be seen as a key text in conceptual change in the same manner as Liang's "New Citizen", but to the contrary for the opposite reason. Its arguments are relatively conventional for the late imperial era and can be found in one form or another in many texts. The editors of the influential 1827 statecraft collection *Huangchao jingshi wenbian* 皇朝經世文編 (Collected Writings on Statecraft from the Qing Dynasty) deemed it to be so representative that they included it in a prominent position, namely as the second essay in the section on the "Essentials of Governing".[2] The close reading of this essay serves both as an example of the basic tenets informing views on social differentiation before Liang Qichao and as an introduction to this article's analytical framework, which is then applied to the relevant part of Liang's "New Citizen" series.

The overarching argument presented here is that the increasing demand for numbers in twentieth-century China is directly related to a change in the basic social structure and the perception of Chinese society, namely the transition from a stratified society to one marked by the differentiation of functional spheres. Many researchers have shown that the development of Chinese society was from the late nineteenth century marked by aspects of

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[1] The term "avalanche of numbers" was coined by Ian Hacking (1982). On the introduction of modern statistics to China see Bréard (2008; 2019c) and Lam (2011).

[2] The collection consists of eight parts in total. Part One, which comprises *juan* 1–6, provides texts on "(Confucian) scholarship" (*xueshu* 學術). Part Two, *juan* 7–14 is titled "Essentials of Governing" (*zhiti* 治體) and deals with the basic institutions of the empire. These two parts provide the basis for the more technical discussions of particular problems in the latter six parts, which are arranged according to the Six Ministries of the Qing administration. Qian's essay is the second of the seventh *juan* (the first *juan* of the "Essentials"), which bears the title "The Origins of Order, Part One" (*Yuan zhi shang* 原治上) (*Huangchao jingshi wenbian* 2004, vol. XIII). On the collection's influence see Janku (2004).

differentiation, and have explored the consequences in different fields and forms.[3] This article builds on their work to show that society could only manage the heightened level of complexity inherent to this change by reducing information into quantifiable forms. By way of numbers, especially in the form of statistics, it became possible to make hidden interrelations visible, identify the effects of social structures, and translate information to different parts of society.

The analysis of the two articles in question focuses on three aspects in particular: contingency, visibility, and functionality. They serve well to highlight both the diachronic changes in conceptualising social differences and the relationship between functional differentiation and quantification. The more society is understood as a historically developed and changeable entity, the greater the demand for concrete data about it (contingency); the more one reduces complex phenomena into quantifiable forms, the more possibilities there are for bringing social forces into view that remain hidden to direct observation (visibility); the more information is processed according to functional logics, the less convincing hierarchical differences between humans become (functionality).

Before "Society": the View of an Eighteenth-Century Writer

The short essay "On Eradicating Conflict" by the eighteenth-century literatus and high official Qian Weicheng 錢維城 (1720–1772)[4] provides an illustrative example of traditional views on social order and their justification. It was first published as part of the author's prose collection *Chashan wenchao* 茶山文鈔 in the early 1770s[5] and later included in various collectanea, the *Huangchao jingshi wenbian* probably the most important among them.

In the first sentence of his essay, Qian identifies "inequality" (bu ping 不平) as a basic problem: "All miseries in the world originate from conflict, and conflict originates from inequality" 天下之患皆起於爭，而爭起於不平.[6] He continues, "I cannot eradicate all the conflict under heaven; I can only equal out what is unequal" 吾不能去天下之爭，平其不平者而已矣. The responsibility to make things equal is given to the "superior man" (junzi 君子): "The superior man, by diminishing where there is plenty and increasing where there is little, weighs

[3] For an overview of social change in late nineteenth-century China see Bastid-Bruguière (1980); on the emergence of the modern Chinese concept of society see Vogelsang (2012); on the differentiation of disciplinary knowledge in the humanities, see Chiang (2019).

[4] On Qian's biography see Tu (1943).

[5] The prose collection *Chashan wenchao* has a foreword dated to 1770; it was also included in the author's collected works, first printed in 1776 under the title *Qian Wenmin gong quanji* 錢文敏公全集.

[6] Qian's text is cited here and in the following instances from *Qian Wenmin gong quanji* (1995–2002).

things and levels them out" 君子以裒多益寡，稱物平施. At this point, a modern reader might assume that Qian means to say that socioeconomic inequality is the root cause of social instability and expect an explanation of how to overcome it to follow. His argument, however, moves in a very different direction.

Before getting to the twist in the argument, it is worth noting that Qian's reasoning is entirely based on the intricate interpretation of an image from the *Book of Changes* (*Yijing* 易經). To illustrate the extraordinary character of the "superior man", Qian harks back to the hexagram qian 謙 ("humility") and explains that it is formed by the trigram "earth", which consists of three broken lines, standing above the trigram "mountain", which consists of one continuous line above two broken lines. Then he quotes from the *xiang* 象 commentary on this hexagram to highlight how unusual this image is: "There is a mountain within the earth" 地中有山. Usually, mountains stand on top of the earth, so there is something special about the mountain that is capable of being in the middle of the earth. It is a metaphor for the "superior man", of course, who is so special because, on the one hand, he stands above the "commoners", but, on the other hand, he also knows how to handle this difference in social status.

The same metaphor of the mountain and the earth also allows Qian to push the argument in a direction which may surprise the modern reader. Leaving aside the special case of the superior man, mountains usually stand on top of the earth, which makes the terrain "uneven" (bu ping, using the same characters as "unequal" above), as Qian writes. If the earth stands for the commoners and the mountains for the rulers, it is entirely natural, we are to assume, that some are standing on top of others in the social order. The way to avoid conflict can then surely not be to flatten everything (or everyone) to the same level: "Mountains are higher than the earth, but the earth is broader than the mountains. The height and breadth correspond to one another" 山高於地，而地大於山，大與高相稱. According to Qian's reasoning, commoners need someone they can look up to, who keeps order among them and guides them in their lives. Meanwhile, those on top depend on the common people to materially support them and their ventures. Thus, the image of the mountain and the earth implies that the social difference between rulers and ruled is not contingent but necessary. It is not created by human will but ingrained in the very makeup of the world.

It is important to note that Qian does not speak of "society" as a distinct entity. Until the introduction of the term shehui 社會 in the early twentieth century, no precise counterpart existed in Chinese discourses (see Vogelsang 2012). Instead, Qian thinks about social order in terms of tianxia, which is not only very different from "society", but also somewhat difficult to translate. Tianxia, literally "(all) under heaven", is not the "world" in a cosmological sense (which would rather be a word like tiandi 天地), and also not a geographically limited "dominion" or "state" (which would usually be guo 國). Following Eric Voegelin, it might be rendered as "cultural ecumene", that is, the community of potentially all humans or, simply, humankind (Voegelin 2000, esp. 361ff). In contrast to more modern concepts, tianxia does

not distinguish between "state" and "society" or between different functional parts of society. In practice, however, it does often connotate the idea of an ideal social order brought about by those who understand the essence of human beings and their place in the larger order of things. Usually, it is assumed that the "sages" of antiquity were the first such people. Their knowledge was stored in the Confucian classics, which therefore came to form the essential content of any meaningful education. The concept of tianxia implies a distinction between the common people, who do not have such insight, and the "superior men" who do and, therefore, are destined to rule. Social inequality, in this sense, is not a defect but a feature of the best possible order, as can also be seen in Qian's subsequent line of argument.

Qian diagnoses two weaknesses of human nature that explain why conflict arises, even though order is possible and has existed in the past. First, based on another quote from the *Book of Changes*, he reasons that those on top should care well for those below and must not take too much from them because to do so would guarantee conflict. However, humans are inclined to take advantage of others whenever they can 好利者人之情也. Second, Qian observes that the deferential gestures which make up the "etiquette" (jie 節)—a basic element of social order—are, in most cases, just a superficial cover for all kinds of self-serving behaviour. Giving self-interest the appearance of humility, however, only exacerbates the conflicts arising between individual interests. Unfortunately, the large majority of humans are not only unable to refrain from seeking profit at every opportunity, but even fewer humans are able to practise true humility: "[True] humility is made impossible by humans' natural inclinations" 惟謙者人情之所不能. The sages of antiquity understood this and placed the duty to prevent the chaos resulting from "conflicts" on the only ones capable of resisting such inclinations: the "superior men". So, overcoming conflict "under heaven" is possible, but dependant on having the right people on top: "[...] Therefore, the superior men govern in the following way: in small matters, they give their wealth; in large matters, they give their heart-mind" 故君子之於治也，小則損其財，大則損其心. Giving one's wealth can "equalise the wealth in the world" 平天下之財 and thereby avoid conflicts that spring from material interests. Giving one's heart-mind can "equalise the heart-minds of the world" 平天下之心, and thereby avoid conflicts resulting from false morality. This kind of equalisation will result in "peace throughout the world" (tianxia ping 天下平)—the best order possible—promised in the classic passage from the *Daxue* 大學 (Great Learning).

Three points should be emphasized with regard to Qian's essay, because they are relevant for the comparison with the Liang Qichao text discussed next. First, regarding the absence of contingency and the inability to conceptualise social forces, Qian's arguments clearly rest on basic premises about human nature that are not subject to change in different circumstances or over time. The only alternative to the rule of the "superior men" over the commoners, as instituted by the unquestionable sages of antiquity, was having no order at all, that is, "chaos" (luan 亂). The social hierarchy was not a contingent fact but a requisite if there was to be order at all. Hence, there was also no way in which a structural critique of

this unequal social order was possible; the only possible critique concerned individual moral behaviour, as seen in Qian's remarks on superficial humility merely hiding immoral motives.[7] One could also formulate this point in somewhat different terms: Qian's conceptual framework is almost incapable of capturing any kind of social force or structural logic that works above the level of the individual but below the universal moral-cosmological premises of tianxia. Apart from the hierarchical distinction between the high ("superior men") and the low (commoners), virtually no space remains to think about such groupings as economic classes, professions, political parties or other varied social groups with their own specific interests, impact and outlooks.[8]

The second point concerns visibility. Qian's argument about etiquette—demanding that outer reality *should* correspond to inner moral quality, despite his observation that it most often does not—points toward the importance of visibility in the stratified order of premodern society. The fact that not all people are equal was not unknown to the premodern Chinese. To the contrary, social hierarchies had to be clearly marked and made visibly manifest in any social encounter. This can be observed, for example, in the great care taken to distinguish members of the title-holding gentry from the general populace (and between different ranks within the gentry) in terms of clothing, seating arrangement, ritual function, and so on. Qian mentions the order of sitting and standing and deferential bowing as part of ritual etiquette and markers of distinction. The most important thing to know about ritual propriety, one of the core topics associated with Confucian thought, were the specifics of how to behave in certain social situations and to treat everybody according to his or her status, which is why everybody benefitted from a high degree of transparency regarding each other's social position. The visibility of status distinctions allowed every participant involved in a social encounter to behave according to these distinctions and, thereby, to stabilize and perpetuate the social order. Qian is aware that such visible distinctions might not really accord with an individual's inner moral quality, which is given as a justification for the hierarchical differences. However, this leads him to a moral critique of those individuals who fail to understand the true tenets of social order, and not to question the underpinning hierarchical distinctions themselves.

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[7] For a similar argument see Vogelsang (2012, 161): "Of course, the old order was also characterized by inequality, and in fact was unequal by its very nature. The crucial difference was that these inequalities were legitimized by the social structure itself: the *simin* were a pre-ordained order, instituted by the sage kings of antiquity and authorized by an unquestionable tradition. To criticize inequality would have amounted to criticizing an order to which there was no alternative. This is why disapproval was only possible 'as moral criticism concerning factual behaviour, not as structural criticism and not as the hope for a non-stratified society'".

[8] One might object that there were distinctions made between political groups, for example in the factional battles in the Song dynasty, see Levine (2008). However, the presence of groups with differing ideologies tended not to be conceived in any positive way but rather as a harmful deviation of the good social order.

carrying it suggests, they are bound together by a mutual functional dependency. Rulers guide and protect the ruled, while the ruled support and provide for the rulers and, in this sense, they fulfil certain functions for each other. However, it is important to distinguish this from what is described as functional differentiation.[9] What binds rulers and ruled together here is an integrated functional hierarchy that only works if taken as a whole. Functional differentiation, in contrast, posits all functional systems on the same level, being heterarchical, not hierarchical, and is based on a fundamental difference in their logic of operation. Each differentiated functional system—be that politics, economy, the legal system or any other—applies its basic distinctions to the whole of society and ignores all the rest. That is, the economic system views everything as economic transaction, the political system views everything in terms of power relations, etc. Thus, in a society which is primarily structured according to functional differentiation, there are many different kinds of logic operating at the same time. In a stratified society, in contrast, all is reduced to a single logic which governs everything, from the inner nature of humans to the cosmic order (Luhmann 2013, 87ff). This is perfectly evident in the famous stages of the *Great Learning*, where the same process leads from the inner cultivation of the individual (xiu qi shen 修其身) to the ordering of the family (qi qi jia 齊其家), the state (zhi qi guo 治其國) and potentially the whole world (ping tianxia 平天下). The basic logic of the stratified order reproduces the same hierarchical up/down distinction on every level, from the natural world to all kinds of social relationship; any functional concerns are overridden by this. In practice, this meant that premodern social institutions like the Chinese dynastic states took on very diverse responsibilities (e.g. cosmological, ritual and moral functions), while many social problems of economic or political nature (e.g. peacekeeping) often were left to family institutions (Cf. Luhmann 2002, 78).

A New Understanding of Society: Liang Qichao on Economic Productivity

In 1902, about 125 years after Qian's essay, Liang Qichao began to publish his seminal series on the "New Citizen" in the biweekly *New Citizen Journal* (*Xinmin congbao* 新民叢報).[10] The fourteenth chapter in this series was titled "On Production and Distribution" (Lun shengli fenli 論生利分利).[11] Apparently inspired by Adam Smith's *The Wealth of Nations*

[9] The understanding of functional differentiation as used here essentially follows Luhmann (2013, II: 65ff).

[10] For an introduction to the *New Citizen*, see Chang (1971, 149ff; discussion of this essay 209–214). For a more recent overview of "Liang studies", especially regarding his conceptualisation of citizenship, see Lee (2007).

[11] The text was published in two parts in *Xinmin congbao* 19 and 20 (1902). No. 19 also carried an article on Adam Smith in Liang's series "Shengjixue xueshuo yange xiaoshi" 生計學學說沿革小史 (Concise History of Economic Thought). For a

Yan Fu's 嚴復 translation) and an article by the missionary Timothy Richard,[12] Liang reflects in this essay on how nations grow economically and how different parts of society contribute positively or negatively to this process. More specifically, he explores who "generates profit" (sheng li 生利) and who "takes a share of the profit" (fen li 分利; hereafter translated less literally as "consume"). Although he also starts out with a quote from the abovementioned *Great Learning*, his text could hardly be more different in style and content from that of Qian before him. Obviously, Liang is not interested in the old hierarchy of "superior men" and "commoners" but in a very different kind of social difference. He no longer operates through the conceptual frame of tianxia but takes the "nation(-state)" (guo; guomin) as his main reference.[13] And, what is moreover relevant for our purpose, he proves to be very interested in numbers.

Liang begins his text by asking if China really is a poor country. He answers by quoting one of the last sections of the *Great Learning*, which explains that wealth is based on people and land, and that it is important to have "many who produce and few who consume" 生之者眾，食之者寡. From there, Liang proceeds directly to modern economic parlance:

> 此言至矣。後世生計學家言殖產之術。未有能外者也。夫一國之歲殖者國中人民歲殖之總計也。綜一國之民。無論或勞力或不勞力。勞力矣或生利或不生利。而其待養於地之所產民之所出則均。一國歲殖。只有此數。
>
> This [i.e. the *Great Learning* quote] is precisely to the point! The economists of more recent times, when they speak about production, can also not ignore it. The "value of annual production" of a country is the grand total of everything produced by the people of this country within one year. It takes together all the people of a country and treats them equally, no matter whether they work or not and whether their work is productive or not, and whether their livelihood is produce of the earth or produced by the people themselves. For the entire annual production of one country, there is only this number (Liang 1902, 1).

Liang's series "Shengjixue xueshuo yange xiaoshi" 生計學學說沿革小史 (Concise History of Economic Thought). For a discussion of this essay in the broader context of the *New Citizen* see Chang (1971, 209ff).

[12] On Yan Fu's 1901 translation of Smith's work see Lai (2009). The terms *shengli* and *fenli* were apparently taken from the article "Lun shengli fenli zhi bie" by Timothy Richard, translated by Cai Erkang (Lüxin xianshi 1893). On Timothy Richard in China see Kuo (2020). Liang Qichao must have known this article, as it was republished in his book series *Xizheng congshu* 西政叢書 (Shanghai: Shenji shuzhuang, 1897). A year later, this article, among many others by Liang Qichao, was incorporated into Mai Zhonghua's 麥仲華 (1876–1956) *Huangchao jingshiwen xinbian* 皇朝經世文新編 (New Version of the Collected Writings on Statecraft from the Qing Dynasty). Liang also referred to the distinction between "producers" and "consumers" in an article on the education of women, see Liang (1897) and Bréard (2019a). For Liang Qichao's other sources and his role in the introduction of economic ideas to China see Trescott and Wang (1994).

[13] On the history of *guomin* 國民 see Jin and Liu (2008, 82–83, 494). Liang does not yet use *shehui* (he only once makes the distinction between *shangdeng* 上等 *shehui*, *zhongdeng* 中等 *shehui* and *xiadeng* 下等 *shehui*), which became the standard term for society shortly thereafter (see Vogelsang 2012, 156). Apart from *guomin* or simply *min*, he also uses the term *renmin* 人民 once. When referring to different groups within society, he sometimes employs the term *qun* 群.

This number, the "value of annual production" (modern economists would probably speak of the "gross domestic product"),[14] is very important to Liang, because he sees "the world of the twentieth century" as marked by "economic competition" 二十世紀生計競爭之世界 (Liang 1902b, 17 and 18).[15] At the same time, this number also is a cypher that, in its "averaging" of all production among the entirety of the people, hides a complex interrelation that Liang seeks to unpack. If economic strength, as the *Great Learning* claimed, was simply about land and labour, China, with its size and large population, should be the world's number one, he writes. Yet that was not the case, so its weakness must come from elsewhere. Indeed, there is a third factor the *Great Learning* does not mention. Aside from land and labour,[16] Liang explains, the economists of his day also saw "capital" (ziben 資本) as a decisive factor in economic wealth. The "civilised nations" (wenming minzu 文明民族) were advanced because they understood that production, that is, the use of capital and labour on land, was not supposed to be a zero-sum game, but rather one that ideally produced a "return" (you suo fu 有所復). This did not only mean that one ought to produce more than one consumes, but also that the surplus was ideally invested into the production of higher-value goods, which one could then trade and sell. This would bring in new capital, which constituted the "return" on the initial investment. The return could then be reinvested to increase production and generate further returns; at every round, the total amount of capital increased. Over time, this process could lead to considerable economic growth and a major advantage over those national economies that were not able to increase their capital stock and thus stagnated or even shrunk (not to move forwards was to move backwards, as Liang says):

> 國中之人。雖有善費者，有善殖者。而殖者之人數。不及費者之人數。[...] 今之孱國。比比然也。國之總費既過總殖。則勢不得不蝕及全國之總母財。
>
> Among the people of a country, there might be good spenders and good producers, but the number of producers might not reach the number of spenders. [...] This is the case in all the weak countries at present. Their total expenditure surpasses their total production, so they cannot but erode their countries' entire capital (Liang 1902a, 4).

With this in mind, it is of utmost importance to identify those who contribute to production and those who do not. Liang does so with a long list of different categories of "producers"

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[14] On the history of this concept and its usage by Adam Smith, see Lepenies (2016).

[15] On Liang's thought on "modern civilisation", social Darwinism and the respective influences in the early 1900s see Huang (1972, esp. 55ff). Already Liang's teacher, Kang Youwei 康有爲 (1858–1927), stressed the importance of "comparison" (*bijiao* 比較) among nation-states for their development and their ability to compete, for which purpose he assembled some basic data on different countries' population, population density, number of students, imports and exports, railway network length, etc., in simple tables; see Kang (2007).

[16] This essay is also notable for being one of the first Chinese texts to use "labour" as an abstract economic concept, see Liu (2017).

and "consumers." In the case of the producers, he explains, one can distinguish between "direct producers" and "indirect producers" (like merchants, soldiers, and educators) or between those working with their bodies and those working with their minds (Liang 1902a, 5f).[17] With regard to different tasks, he enlists the different categories of "discovery and invention" 發見及發明, "seizing" (xianzhan 先占) of unclaimed natural resources, "labour used [to obtain] raw materials" 用於生貨之勞力, "labour used to process goods" 用於熟貨之勞力, "labour used for transportation" 用於交通之勞力, "labour used to protect and assist" 用於保助之勞力; like administrators, soldiers, doctors, etc. (Liang 1902a, 6).

Regarding the "consumers", the list is considerably longer, but it is here, of course, that Liang situates the main problem. He distinguishes between two basic groups: those who consume without working and those who consume even though they work. The non-working consumers comprise thirteen groups: beggars, thieves, fraudsters, monks, the "profligate sons of the rich" (wanku zidi 紈絝子弟), wastrels, soldiers, a large portion of the officials and those dependent on them,[18] local strongmen and the gentry, a large portion of women (unless they take care of children or manage the household), the disabled, and convicts (Liang 1902b, 1ff). The "working consumers" are divided into seven groups: (slave) servants, entertainers and prostitutes, scholars, teachers, a small part of the officials, a part of the commercial sector, and a part of the agricultural sector (Liang 1902b, 8ff).

Such lists are not a new phenomenon of Liang's time; they appear in many premodern Chinese texts.[19] There even exists an early nineteenth-century list of "consumers" by Yun Jing 惲敬 (1757–1817) that is based on the same *Great Learning* quote we find at the beginning of Liang's essay.[20] However, what is notable about Liang is his attempt to *quantify* these groups. He seeks to come up with precise numbers regarding their share of the Chinese population, despite immediately running into trouble:

> 吾今日欲取中國民數而約計之。以觀其生利分利之比較。中國無統計。雖有巧算。萬不能得其真率。不過就鄙見臆度而已。然諒所舉者有少無多也。

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[17] The latter is an old distinction that goes back to *Mengzi* 3A.4 but took on new meaning and significance in the early twentieth century. For a relevant discussion in connection with the emerging class discourse see Jiang (2023).

[18] Note that, as Liang stated earlier, politicians, officials, soldiers, teachers, etc., should be counted as "indirect" producers. In the case of China, however, Liang thinks that the majority within these groups did not contribute to society as they were supposed to, which led him to classify them as "consumers".

[19] The listing of politically troublesome groups seems to be a characteristic of political realism ("legalism"); the *Shangjun shu*, for example, lists "six parasites" (*liu shi* 六蝨) (Pines 2017); for a nineteenth-century example see the "seven perils" (*qi huan* 七患) listed by Wei Yuan in his *Mogu xia* ("Zhi pian"), *juan* 11 (*Wei Yuan quanji* 2004, XII: 65). Confucian texts like the *Lunyu* and the *Mengzi* seem to focus on lists of moral virtues and vices (e.g. the "five excellent" (*wu mei* 五美) and "four bad things" (*si e* 四惡) in *Lunyu* 20).

[20] The essay was the fifth part of Yun's work "Sandai yinge lun" 三代因革論 (Continuities and Changes since the Three Dynasties). It was included as the fifth text in *juan* 11 of the above-mentioned *Huangchao jingshi wenbian* (2004, XIII: 472–478). For more on Yun Jing and his "economic" arguments, see Zanasi (2020, 120ff).

> I would now like to take China's population number and make an approximate reckoning of it, to observe the respective share of producers and consumers for comparison. There are no statistics for China; even though there are clever calculations, they do not come anywhere near the true ratio, so all I can do is offer my own rough projections. However, they may rather be too conservative than exaggerated (Liang 1902b, 13).

Acknowledging the lack in data, Liang proceeds to take the widespread number of 400 million Chinese[21] as a basis and then estimates the relative share of each of the "consumer" groups. He does, however, not give any numbers for the groups of "producers". The results of his estimates regarding the "consumers" are presented in a large chart (see fig. 1), a form of graphical representation that, albeit still rudimentary, is associated with the rise of modern statistics[22] and thus constitutes another difference to traditional enumerations.

The chart differs somewhat from the distinctions Liang makes in the text. First of all, it only lists the "consumers", not the "producers". Furthermore, the first step evenly separates men and women, echoing a similar distinction between "productive" men and "consuming" women Liang had made in an essay a few years earlier, although here he only considers sixty to seventy per cent of the women as unproductive. In the next step, adult men (dingnan 丁男) are separated from the elderly and children. In the last step, he lists thirteen groups of consumers that are mostly identical to the categories mentioned above (conflating some of the sub-categories into one), although without the distinction of "working" and "non-working". The chart's key feature, however, is the quantities for the various groups he estimates, from the smallest group, the 200,000 disabled, to the largest, the 130 million non-producing women.

After adding up his estimates, Liang concludes that China has too many consumers: "Of the about 400 million people, more than 210 million are consumers, the rest are producers" 大約四萬萬人中分利者二萬萬一千萬有奇，自餘則為生利者 (Liang 1902b, 14). As expected, the numbers confirm Liang's explanation for China's weakness and imply a bleak assessment of the prospects for Chinese society.

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[21] On the history of the number of 400 million with regard to the Chinese population see Bréard (2019a). For Sun Yat-sen's political usage thereof, see Jasper Roctus's "Sun Yat-sen, '400 million Chinese', and the Fear of Demographic Stagnation in Early Twentieth-century China" in this issue.

[22] The visualisation of statistical data in China is a largely understudied phenomenon; on this topic also see Bréard et al., "Turning Society into Graphs: Early Twentieth Century Undertakings in Shanxi Province" in this issue. For an exemplary study in the European context, see von Oertzen (2018).

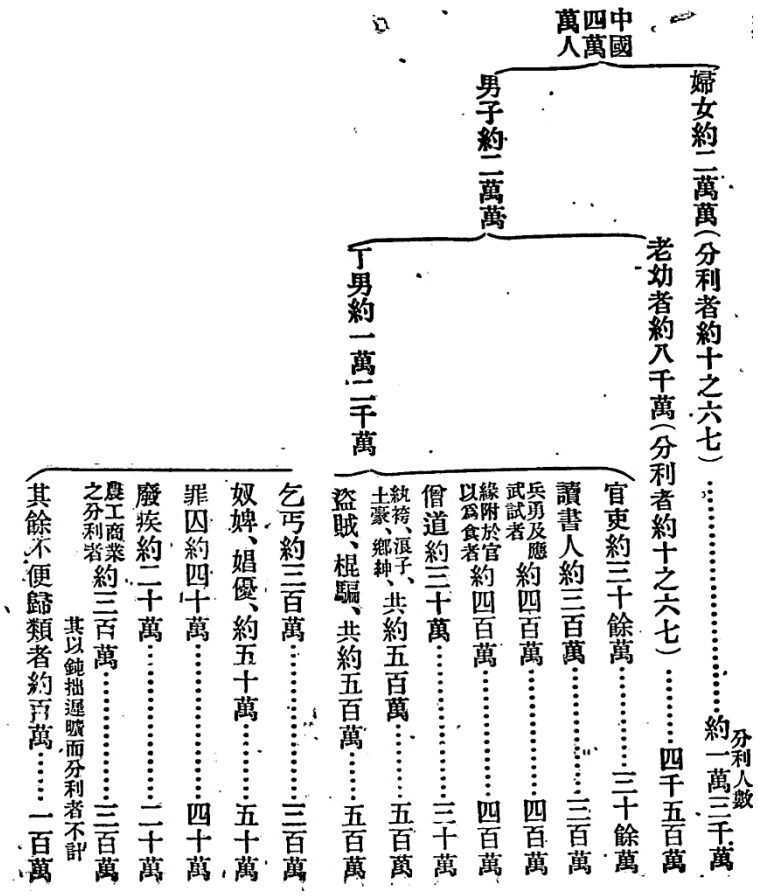

Fig. 1: Chart given in Liang (1902b, 13f).

While it is somewhat pointless to ask if Liang's estimates and calculations are correct (they are certainly not),[23] the more intriguing question, especially considering the context of Qian Weicheng's essay, is: why does Liang seek to come up with numbers at all? Why is he not content, as Qian had been, to distinguish between the good and the troublesome elements of society and to draw his conclusions from there? Why does Liang lament the lack of statistics for China, while Qian (or Yun Jing, for that matter) appears not to not to have even noticed it?

[23] Apart from the dubious number of 400 million, another problem is that the numbers given for the individual groups do not add up to the "more than 210 million" given by Liang, but only to 204.7 million. The problem seems to lie in the ratio of "six or seven out of ten" Liang provides for the share of consumers among both women and the elderly and children. While for the women he actually calculates 6.5/10 (which gives 130 million out of the total 200 million), for children and elderly he seems to have calculated 5.625/10 (which gives 45 million out of the total of 80 million). If in the second case he had calculated equally with a share of 6.5/10, he would indeed have arrived at 52 million "consuming" elderly and children, which would have given him a total for all groups of 211.7 million. Perhaps Liang changed the ratio of elderly and children in his chart when the initial calculation yielded a number that seemed too low, and subsequently did not update the sum below.

Why does Liang Qichao ask for numbers?

The first and most obvious answer is that the decisive factor in Liang's analysis is not the hard-to-measure moral quality of individuals (as with the "superior men" in Qian's argument) but an interplay of various factors—land, labour, capital, levels of production and consumption—which are all quantifiable and whose exact quantities, also in relation to each other, matter very much. While Qian would have been content to have some "superior men" (or even just one) under heaven, for Liang it did not suffice merely to have "some" producers in society. In his case, it matters exactly how many there are, how much they produce, and how many there are in relation to the number of consumers.[24]

This points to an underlying concept of "society" radically different from the notion of "all under heaven", which informed Qian's thinking. To come back to the point of contingency, stressed in the interpretation of the earlier essay, the different social groups and their relationships, as described by Liang, are not the way they are because of the eternal nature of humans or heaven, but because of a particular historical development and the interplay of contingent factors. Liang's arguments are not aimed at reestablishing an ideal moral community under the guidance of the sages but at changing the current state of society, with the ultimate aim of creating a strong Chinese nation. He is not interested in a timeless heavenly order but in how to produce progress for China to become one of the "civilised nations". There is a strong orientation towards measures towards improvement and future development in his thought, which becomes apparent in his appreciation of those "discovering", "inventing", and "seizing" resources specified in his outline of productive labour. The more one reckons with contingency, the greater the demand for concrete data on the actual state of affairs so that one knows where it can and needs to be improved and at what level, a phenomenon that is clearly played out in Liang's essay.

It is not only the heightened awareness of contingency that makes Liang's concept of society different from that of Qian. We also see Liang take into account factors of development that are neither rooted in the individual nor in the all-encompassing nature of the cosmos but in the very structures of society itself. Only on such a mid-level between individuals and the cosmos can one truly speak of social forces and come up with a critique that is not limited to the moral condemnation of individuals. The most obvious example in Liang's essay is how he describes the role of "capital" in the development of society. At one point, he explains that it is not the fault of the poor if they sit idle but that it is the lack of capital which leaves them without opportunities to make use of their labour force and develop specialised skills (Liang 1902a, 4). He approvingly quotes Adam Smith, who in *The Wealth of Nations* also

[24] This last relation was also important for Yun Jing, who nevertheless did not ask for exact numbers.

makes the point that "industriousness" is not an individual trait but determined by the larger makeup of society:

> We are more industrious than our forefathers; because in the present times the funds destined for the maintenance of industry are much greater, in proportion to those which are likely to be employed in the maintenance of idleness, than they were two or three centuries ago. Our ancestors were idle for want of a sufficient encouragement to industry. It is better, says the proverb, to play for nothing than to work for nothing. In mercantile and manufacturing towns, where the inferior ranks of people are chiefly maintained by the employment of capital, they are in general industrious, and sober, and thriving [...][25]

Another argument in the same vein can be found almost at the end of Liang's essay, where, talking about his home province of Guangdong, he laments the self-reinforcing cycle of too many "consumers" exerting pressure on the "producers" and thereby pushing them to become pure "consumers" as well (that is, bandits and the like) (Liang 1902b, 17f). Again, it is not the individual depravity of morally corrupt individuals but a phenomenon on the level of society as a whole that Liang sees as the cause of the problem. Qian might have criticised the higher-ups for lacking the moral quality to justify their elevated position, yet he could not question the social hierarchy in principle, as it formed the basis of all possible order for him. Liang, in contrast, presents a structural criticism of the society that provides the ground for problematising social inequality per se, as was spelled out by Chinese anarchists just a few years after the publication of his essay.[26]

The focus on effects caused by broader social structures leads to the second highlighted point: visibility. According to Qian, the basic foundation for social order was constituted by a hierarchical structure with morally superior men on top of the commoners. As pointed out above, these hierarchies had to be made transparent in any kind of social situation so everybody was clear about his or her position in the overall order of things. Liang's analysis, in contrast, focuses on complex social interrelations that are not directly visible in social encounters. The flows of capital, for example, that he deems so important for the development of the productive forces, his "total value of annual production", or the ratios of producers and consumers, remain totally obscure until uncovered by indirect means. Here we find one of the deeper causes of Liang's lament regarding the lack of "statistics": there is no way to observe and understand the complex makeup of society and the causes and effects of its structures if not indirectly through numbers and tables.

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[25] The text quoted here is the original English by Adam Smith from *An Inquiry into the Nature and Causes of the Wealth of Nations*, Book II, Chapter 3. Liang quotes Yan Fu's translation (Liang 1902a, 4f).

[26] On the idea of equality in Chinese anarchism and socialism see Arif Dirlik's foundational studies (1989; 1991), as well as Zarrow (1990).

As Liang himself recognises, his argument about the shrinking national stock of capital would hold only if he could prove with corresponding numbers that the number of consumers actually exceeded that of producers. This, in turn, requires an investigation of society that measures the total size of the population, the relative share of the different forms of occupation, their relative production of value, and so on. Liang thus rightly points to the fact that "only this number", the "total value of production within one year", could act as a cypher that encapsulated a complex reality that can be observed only by relating different sets of quantified data to each other. What he describes is not a simple phenomenon but rather a complex "pattern" of social development that could be observed only through a numerical representation of the world.[27] More precisely, Liang *anticipated* the observation of such patterns, as he knew he could not work with reliable numbers at the given moment. Nonetheless, his attempt hints at the fact that many further social patterns awaited discovery in statistical tables.

To put it in yet another way, quantifications, such as the ones proposed by Liang, are a way for society to describe and understand itself in the abstract and to visualise relations that otherwise remain hidden to direct observers. Modern sociologists, informed by systems theory in the style of Niklas Luhmann, would speak of "second-order observations" in this context (see Luhmann 2013, II: 102f). When one works with statistical tables, one does not directly observe the environment in the sense of operating with one's own distinctions; instead, one observes the distinctions through the grid of categories defined in the statistics. In this sense, it is the observation of an observation, hence a second-order observation. Whenever the number of elements in a system becomes too large and their interrelations too complex, direct observation becomes impossible. As a result, the coordination and control of many interrelating elements is dependent on second-order observations: this is precisely why the administration of the Chinese imperial institutions had always required the counting and categorizing of population. Liang, however, seems to advocate the broader application of this form of social self-observation.

At this point one must note an important qualitative difference to earlier attempts at data-gathering and thinking about social forces. It is true, of course, that dynastic Chinese institutions frequently collected population numbers as a basis for levying taxes.[28] It is also true that many Qing statecraft thinkers like Hong Liangji 洪亮吉 (1746–1809), Yun Jing, Bao Shichen 包世臣 (1775–1855) and Wei Yuan 魏源 (1794–1857) thought about structural issues like population growth or the role of market dynamics.[29] However, the premodern "censuses" neither had to be comprehensive nor entirely accurate, as the purpose they served was limited. It was enough for the administration to have a few numbers it could work with, so it did

[27] Cf. the description of the "discovery of society" in statistical patterns in Nassehi (2019, 46ff).

[28] For details on Qing census and survey practices, see Lam (2011, 50ff).

[29] On Hong Liangji and Yun Jing see Zanasi (2020); on Bao Shichen see Rowe (2018); on Wei Yuan's statecraft thought see Leonard (1996) and Christ (2021).

not matter that these numbers were gathered on a very irregular basis and in a rather unsystematic way. Once they had fulfilled their main administrative purpose of tax-gathering, they were filed away and never used for further analysis, let alone in combination with other data sets. It was not until the very last years of the Qing dynasty, and years after the publication of Liang's article, that a Statistical Bureau was set up in Beijing, where numbers were not only collected but used to create new knowledge of society.[30] It would be even longer until these statistics were published and could be used by broader parts of society to create new knowledge of itself.[31] Therefore, it was impossible for the Qing statecraft thinkers interested in the dynamics produced by broader social structures to really get a grasp on these phenomena. They could make virtually no second-order observations and instead were mostly reliant on direct observations made by themselves or by friends and colleagues,[32] which they could compare to equally imprecise descriptions in older texts. It is no wonder, then, that they almost invariably lent towards half-mystical talk on cosmological patterns and the moral nature of humans to explain larger connections: Qian's complicated interpretation of the earth and mountain metaphor described above is a case in point.[33] Liang, in contrast, is already very aware that there were other, newer ways to understand society than the hexagrams in the *Book of Changes*. Nevertheless, it is no trivial task to convince readers of the effects of social forces that can neither be directly observed nor based on the time-honoured authority of the Confucian canon. The neatly arranged figures in a chart like the one presented by Liang might have acted as a substitute for some of the rhetorical strength the expressions from the classics had. As Ian Hacking has argued, charts and statistical tables can be understood as a

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[30] See "Data Management and Knowledge Production in Late Qing Institutions", in Bréard (2019c, 169–193). Maura Dykstra has argued that the new bureaucratic practices introduced in the seventeenth and eighteenth centuries allowed the Qing administration to have summary reports "compiled into empire-wide statistics" (2022, 160) and that "the throne could request special statistical analysis by the ministries on topics of particular interest" (161). However, the requests and practices described involve only counting cases and producing long numerical lists, which substantially differs from "statistical analysis" (on the novelty of such analysis in 20th-cent. China see Bréard [2008, 30f; 68f]). Dykstra argues that the new reporting and archival procedures from the mid-eighteenth century allowed the Qing administration "to see more", that is, to gather more information about local conditions, but this did not fundamentally alter their approach to governing. Dykstra concludes that the Qing rulers learned more (and sometimes shocking) things about their own administration, which led to "uncertainty" and an urge for greater control over officialdom. However, this did not lead to a new understanding of society at large; neither did the new practices allow society to learn something about itself.

[31] See Bréard (2008, esp. 37; 52).

[32] See, for example, Wei Yuan's remark in the editorial notes of the *Huangchao jingshi wenbian* (2004, XIII: 2): "Everybody's experience is limited to a certain perspective, so one has to be thankful for the contributions of friends and acquaintances".

[33] For another example, see the argument by Yun Jing on the historical changes in land property patterns in his "Sandai yinge lun" (see footnote 20): "In antiquity, the ruler owned the fields, and the people tilled them. In later times, the rich people owned the fields, and the poor were hired [to till them]" 古者，上有田而民耕之。後世富民有田，寡貧民為佣. This observation is framed in very general terms, and is therefore utterly imprecise. Yun also explains the superiority of the older system by the supreme moral character of the "sages", who were able to safeguard the order of the "four estates" (*simin* 四民) and to keep the "excesses" of the literati (*shi* 士) under control: "What was the way of the sages? I say: It was simply not to harm the four estates. How did they not harm the four estates? I say: Simply by not harming peasants, artisans and merchants, and by keeping a watchful eye on the literati" 聖人之道奈何？曰：不病四民而已。不病四民之道奈何？曰：不病農工商而重督士而已。

self-authenticating "style of reasoning" (1990, 6f) that purports to deliver objective observations of a complex environment. The more Chinese society developed structures that were independent of personal contacts in close circles of interaction, the more such "technologies of intersubjectivity" —like statistics—grew in importance.[34]

This leads to the third point of difference between the two essays. While Qian's vision of a well-ordered society hinged on an integrated functional hierarchy, Liang's discussion of different social groups' productivity reflects a radical reduction of complexity characteristic of functional differentiation. Qian's perspective was holistic, in the sense that it conceptualised humanity as a whole and in firm connection to the natural order of the cosmos. Derived from this order, he postulated leadership by individuals of superior moral quality. Liang's argument, in contrast, is not interested in any of that. In the article discussed above, he reduces all social relations to a purely economic aspect and only distinguishes between humans on the basis of their capacity to produce economic value; all is reduced to the simple binary code of productive/non-productive. This reflects the emancipation of economic logic from all other social concerns, be they moral, political, scholarly, or otherwise.

The emancipation of functional logic has considerable consequences for understanding social relations. Although Liang's perspective is a partial one, largely limited to economic logic, it is applied to the whole of society, regardless of any hierarchies or valuations based on different kinds of logic. As a result, functional differentiation creates entirely new rifts through society. Liang's group categorisations perfectly illustrate how he cuts right through the hierarchical layers of the stratified order. See, for example, what he has to say about the "literati" (dushuren 讀書人), who, in Qian's social order were supposed to be the morally superior humans ruling over the common populace:

> 謂其導民以知識耶。吾見讀書人多而國日愚也。謂其誨民以道德耶。吾見讀書人多而俗日偷也。四體不勤。五穀不分。偷懦憚事。無廉恥而嗜飲食。讀書人實一種寄生蟲也。
>
> You say they have the knowledge to guide the people? The way I see it, when there are many literati, then the country gets dumber by the day. You say they have the moral virtue to educate the people? My view is that when there are many literati, then more people steal by the day. The literati "neither move their four limbs nor are able to tell the five cereals apart"; they are "evasive, timorous and shirk their duties; they lack any sense of modesty and shame and have an inordinate fondness for food and drink".[35] The literati truly are a kind of parasite! (Liang 1902b, 9).

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[34] Cf. Cevolini (2014, 26). Liu (2009) raises a similar point, albeit in a different historical context.

[35] Liang quotes *Lunyu* 18.7 and *Xunzi* 2 here. The *Xunzi* quote uses Knoblock's translation (1988, I: 157).

It is not only social groups that are seen differently under functional differentiation, but also individuals. In fact, functionally differentiated structures do not consider humans as a whole, much less their social rank, and rather only in terms of their contribution to the functional system. Liang is interested in people exclusively as contributors to the national economy and ignores all other aspects. The idea of seeing all humans as equals would probably have seemed ridiculous, if not outright offensive, to Qian Weicheng, but precisely this indifference to humans as a whole has the paradoxical effect of making everybody appear equal. While a stratified society is characterised by the essential inequality of ranks and estates, a functionally differentiated society is marked by the equal functional integration of all persons, regardless of their social status or rank.

The reduction of complexity is typical of functional differentiation but also serves to build up new complexity within these limited functional perspectives. By excluding all aspects that are not relevant, functional structures gain in capacity and effectiveness in handling large amounts of information. Here, the aforementioned "second-order observations" come into play: functional systems can often ignore much of their environment by relying on previously made observations; they do not look directly at all aspects of society but instead at data that has already been aggregated and processed. Only by reducing society to economic relations could economists discover the interrelations between "labour" and "capital" that matter so much to Liang. If businesses concentrated on matters other than producing "returns", they would soon fail, as Liang also writes. It was by focusing on profits that companies could create ever more and better products, that labour could specialise and improve its efficiency, and that countries could get wealthier. Economists do not see much, and companies have a hard time making decisions without second-order observations: they all need data on production, prices, trade volumes, available labour force and much more. The same is true, of course, in the political sphere, where the same process of operational closure offers governments more possibilities for management and control.[36] The numbers and statistics demanded by Liang aid in both steps of the process. The quantification of data supports the reduction of complexity by cutting down idiosyncratic differences to standardised numerical distinctions. Aggregated in statistical tables, numbers enable second-order self-observations of society and thereby also help to build up new complexity within functional systems. This is probably the most important reason for the enormous increase in quantification observed in China throughout the twentieth century.

The limitation of certain structures to one task, as we have seen in the example of the economic system, might also speak to the use of numbers under the conditions of functional differentiation, for it means that other tasks (e.g. handling legal disputes, making generally

[36] Cf. Malcolm Thompson's description (2018) of how statistics in the Republican era changed "the very logic and form of governing itself". Although he uses somewhat different terms and his arguments develop in a different direction, his analysis of how statistics reduce complexity in that they introduce "a matrix of formal identity and interchangeability into a field of dissimilar objects", and create "social formations" like "population" and "capital" that become "objects of government", resonate very much with this article.

binding decisions, offering spiritual guidance) must be left to other functional systems in society such as the legal and political systems, and religious organisations. Their perspectives and operational logic claim universality in the same way as the economic system. Thus, different functional logics will create very different perspectives on the same subject matter (or the same person). In a stratified society, there is a clear centre, which grounds all different angles from different parts of society, and there is a singular truth, which must be grasped in order to have the singular "correct" perspective. In a functionally differentiated society, the dao gets lost; there no longer is a single "correct" perspective, no centre, no absolute truth. Instead, there is a sometimes-disorienting simultaneity of multiple perspectives which are no longer necessarily mutually compatible or supplementary. Furthermore, there is no straightforward or natural switch from one perspective to the other. On the contrary, what might seem necessary from the viewpoint of economic logic may well be wholly undesirable from a political perspective and vice versa. Rather than communicating with each other, the best different functional systems can hope for is to irritate and thereby change their environment. In Liang Qichao's essay, it is clear from the beginning that he wants his socio-economic analysis to have political consequences: at the end, he explicitly demands policies to address the problem he describes. However, he also notes that the political will of a number of people in the government alone would not be enough to turn the situation around, neither could his analysis be directly converted into policies, nor could politics have a direct impact on the economy (Liang 1902b, 18). While direct communication between different functional systems is impossible, the presentation of seemingly neutral and abstract statistics can facilitate translations between them. Modern sociologists have described the process of quantification as breaking down a multifarious reality into a homogeneous form, that is, numerical elements. Numerical data itself is devoid of particular meaning. Its significance lies in the relationship between the numbers: "A number does not designate a property of what is distinguished, but rather the relational context of the distinction – its referential horizon, its potential variance".[37] A world represented in numbers is only numbers; whatever relations exist between the numbers only has meaning beyond these relations when placed into a meaningful context.[38] In this sense, it is the use of a statistic in a particular context and for a particular purpose that invests it with meaning beyond sheer numerical relations. The meaning might differ according to the functional system in which the statistic is used, but the numerical form eases the acceptance and further processing of the information across different systems. Even though political actors might not necessarily have drawn the same conclusions from the ratios of consumers and producers as Liang, it was nonetheless possible that his numbers provoked

[37] Lehmann (2014, 42), translated by author.

[38] Cf. Armin Nassehi's description of "data processing": "Data sets, the connection of data sets, the internal static-statistical and dynamic-statistical description of regularities and patterns must then, in a second step, be translated into a processable form, namely into a meaningfully processable form" (Nassehi 2019, 79; translation by the author).

political reactions.[39] Thus, quantification might not only respond to the need for second-order self-observation of a complex society, but it could also be a useful mediator between the functionally differentiated systems of such a society, especially around the moment it began to understand itself in these terms.

Conclusion

The close reading of Qian Weicheng's essay "Eradicating Conflict" has shown how, in the eighteenth century, the main social difference was still conceptualised as hierarchical and in terms of moral quality and cosmological imagery. About a century later, however, this view was no longer considered plausible. Society was now conceived of as contingent and ruled by invisible structures and forces, a view that demanded new, quantified forms of social self-observation. As was the case for so much else, it was a text by Liang Qichao that heralded this seismic shift in understanding society and its relation to numbers. Even though Liang did not have any accurate statistics to hand, he anticipated that statistical charts would be the place one would have to look for crucial information on the past, present, and future of China's people. Many years before the quantification of Chinese society by modern statistical means really gained steam, Liang seemed to acknowledge that these were indispensable in enabling the observation of crucial social structures and interrelations hidden to the direct observer.

Certainly, Liang's reception of new ideas from Adam Smith and other foreign thinkers played a role in his demand for numbers, as well as his experiences in Japan, where the use of statistics was already much more widespread.[40] But this can only be part of the explanation. Momentous changes in the structure of Chinese society itself fuelled new ways of thinking about it. The way Liang followed a purely economic logic in his argumentation was congruent with China's passage from a hierarchically stratified society to a more functionally differentiated one, and it is functional differentiation that plays an essential role in the spread of quantification. At the same time, the mere expectation of statistics to play a more important role in the future had already started to alter Liang's outlook, as it gave him new categories for observation and argumentation and new criteria by which to evaluate different parts of society.

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[39] This is meant as a general point; the author is at present unaware of any direct political reactions to this particular essay. Both Trescott and Wang (1994) and Lee (2019) see the importance of Liang's economic writings mainly in terms of their dissemination of Western economics in China and view Sun Yat-sen's economic ideas as having been more influential politically.

[40] Bréard (2019a, 217f). Broader context can be found in Fogel (2004).

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