



Professional Associations and the Diffusion of New Management Ideas in Shanghai, 1920-1930s: A Research Agenda

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In this paper, I examine the role business, professional, and academic networks played in diffusing new management ideas, such as scientific management, in China during the inter-war years. At the core of these associations were Chinese who had returned from overseas studies to take positions in academia, business, and government. There was much overlap in the association memberships and crossing between industry, government, and academic employment. While institutional theorists, business historians, and others have studied the role of professional associations in the growth and diffusion of modern management, there has been little work on “modern” professional bodies in China, in particular the “network linkages” or “interlocks” among the associations and their memberships that facilitated the transfer and diffusion of managerial ‘know-how’ across borders. Data are primarily archival and other Chinese sources. This paper is part of a larger project on the development of management ideas and business organization in China.

A distinguishing feature of Chinese business is the network ties between people and organizations. Chinese business networks arise due to the failure of bureaucratic governance, the failure of markets, or both. They are a means to reduce uncertainty and lower transaction costs in the presence of either type of failure. Their social basis is in the dense and particularistic relationships that stem from dialect or native place affiliations that have long been the glue that binds Chinese business. To the extent that they assist in organizing the conduct of business, these business networks also serve as a specific type of inter-firm governance arrangement between the market and the internal hierarchy of the firm. As an institutional device to reduce transaction costs, Chinese business networks allow firms to search for partners, monitor and enforce contracts, and acquire information about new market opportunities and

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new ways to conduct business. Their role as a vehicle for the transmission of new management ideas to China, however, is under-researched.

My aim in this paper is to explore the role of networks in the transfer, reception, and adaptation of new managerial technologies—ideas about management and organizational forms—during the interwar years in China. The focus is not on Chinese business networks in general, which are largely viewed as networks of traders that have been present for centuries in China, particularly among the Overseas Chinese. Rather, my focus is on networks new to China in the 1920s and 1930s, such as the associations consciously formed by bankers, lawyers, accountants, engineers, scientists, and others as modern associations to give voice to a new breed of industrialists, financiers, and professionals. Although I intended this paper as an empirical examination of the transfer process, I have insufficient archival data, and, therefore I set out the research framework, introduced some of the empirical data, and invited conference participants to suggest approaches and methodologies to advance the study. I want to avoid an approach that is primarily a case study of one or several firms or professional associations. Instead, my aim is to employ quantitative methods informed by theory to enable a complex mapping of interpersonal and inter-organizational relationships. As such, I intend this paper to be explicitly grounded in the theories that inform the discussion of the firm, networks, innovation, and information in the diffusion of knowledge and technology. I conceptualize managerial knowledge or know-how in this paper (as in a previous paper on scientific management in China) as a soft technology, with the implication that we are discussing the transfer of tacit knowledge that involves complex processes of learning and adaptation.¹

Networks, Firms and Diffusion of Management Ideas

We can approach the role of business networks from two directions. We can assume the existence of the network, a set of firms or business people linked in various ways, ostensibly for the purpose of conducting transactions, and look inward to examine how the network modified the activity of the constituent member firms. Alternatively, we can begin with the individual firm and move outward to examine the network construction, the strength and character of ties, and the network feedback on constituent member firms. I take the latter approach.

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¹ Stephen L. Morgan, "China's Encounter with Scientific Management in the 1920-30s," *Business and Economic History On-Line* 1 (2003), <http://www.thebhc.org/publications/BEHonline/beh.html>.

Chinese firms exist for much the same reason as firms elsewhere: they arise in response to the cost of transacting in the market or via intermediate contracts.² The firm is an authority structure designed to overcome market imperfections that increase transaction costs. When the cost of buying an input or service on the market is greater than the cost of coordinating the process within the firm, the firm will internalize that activity to reduce the cost of the transaction.³ Firms may also be viewed as a bundle of resources and capabilities that are valuable, rare, imperfectly imitable, and not substitutable, the possession and use of which distinguishes the competitive strength of one firm from another.⁴ An important resource of the firm is its stock of knowledge, especially tacit and learned technology, often bundled in the heads of managers and employees.⁵ Neither the resource-based view nor transaction-cost view of the firm, however, takes sufficient account of the historically-situated agency of managers or the unique institutional environment. Both transaction costs and the deployment of resources reflect market organization and the structure of firms, as well as the social organization of production relationships within and outside the firm: that is, the activities shaped by owners and managers, and the workforce they employ.

Networks based on dialect and native-place affiliation historically have been important for the growth and survival of Chinese firms.⁶ These

² Ronald H. Coase, "The Nature of the Firm," *Economica* 4 (Nov. 1937): 386-405; Oliver E. Williamson, *Markets and Hierarchies: Analysis and Anti-Trust Implications* (New York, 1975); Oliver E. Williamson, *The Economic Institutions of Capitalism: Firms, Markets and Relational Contracting* (New York, 1985).

³ Both markets and hierarchies incur transaction costs. The ultimate reason for the existence of transaction friction (costs) is information and trust, usually the insufficiency or lack of one or both, such as search costs related to price and quality, the costs of monitoring agents and employees, and bureaucratic coordination costs. Williamson, *The Economic Institutions of Capitalism*; Mark Casson, *Information and Organization: A New Perspective on the Firm* (Oxford, U.K. 1998).

⁴ Jay B. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management* 17 (March 1991): 99-120; Margaret A. Peteraff, "The Cornerstone of Competitive Advantages: a Resource-based View," *Strategic Management Journal* 14 (March 1993): 179-91.

⁵ Barney, "Firm Resources"; Bruce Kogut and Udo Zander, "Knowledge of the Firm, Combinative Capabilities and Replication of Technology," *Organization Science* 3 (Aug. 1992): 383-97.

⁶ There is a very large literature on Chinese business networks, most of it focused on the networks among the Overseas Chinese of Southeast Asia. For a recent study see Kwok Bun Chan, ed., *Chinese Business Networks: State, Economy and Culture* (Singapore, 2000). Other important studies from the sociological-cultural perspective include Gary Hamilton, ed., *Business Networks and Economic Development in East and Southeast Asia* (Hongkong, 1991), re-issued as *Asian Business Networks* (Berlin, 1996); S. Gordon Redding, *The Spirit of*

networks make the boundaries between firms malleable, and modify the access to and sharing of resources. Networks can be likened to “club-like institutions” that reduce information uncertainty and lower the costs of transacting in a hostile environment, especially where the State is unable or unwilling to protect property rights, or worse, is even predatory.⁷ They are founded on a web of social relationships that transcend the transaction-cost economics “nexus of contracts” to configure a “nexus of treaties,” alliances that are imbued and underpinned by interpersonal and intra-cultural processes.⁸ Networks are dynamic, often in a state of flux, forming and reforming frequently in ways that are contrary to the concept of the firm as a “nexus of contracts.”

Networks can be defined further (after Mark Casson) as “high-trust relationships” that fashion linkages through which information flows.⁹ Trust (*xinyong*) is central to Chinese business networks.¹⁰ Particularistic personal relationships that sustain trust shape interpersonal information flows. Governance in this type of network-conditioned environment—the basis of sanction and cohesion within the network—is extra-economic or trans-economic, rooted in the social relationships that form part of both business and community lives. Network membership sets the horizon of possibilities, and may proscribe what is not permitted. Managers are exposed to new ideas and challenges from within the network,¹¹ an argument that can lead us into the “social capital” debate.¹² Whether the

Chinese Capitalism (Berlin, 1990); Richard Whitley, *Business Systems in East Asia: Firms, Markets and Societies* (London, 1992).

⁷ Avner Greif, “Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi Traders,” *The Journal of Economic History* 49 (Dec. 1989): 857-82; Janet T. Landa, “A Theory of the Ethnically Homogenous Middleman Group: An Institutional Alternative to Contract Law” in *Trust, Ethnicity and Identity: Beyond the New Institutional Economics of Ethnic Trading Networks, Contract Law and Gift-Exchange*, ed. Janet T. Landa (Ann Arbor, Mich. 1994), 101-114.

⁸ The description is drawn from the title of the volume by Masahiko Aoki and Oliver E. Williamson, eds., *The Firm as a Nexus of Treaties* (London, 1991).

⁹ Mark Casson, “Entrepreneurial Networks in International Business,” *Business and Economic History* 26 (Winter 1997): 811-23.

¹⁰ Trust for Chinese business is personal trust rather than system trust. System trust, the creation of rational and impersonal institutions that safeguard and enhance transactions and social exchange, was lacking in China and many of communities outside of China in which Chinese business operated. See Siu-lun Wong, “Chinese Entrepreneurs and Business Trust,” in *Business Networks*, ed. Gary Hamilton (Berlin, 1996), 13-29.

¹¹ Mark Granovetter, “Economic Action and Social Structure: The Problem of Embeddedness,” *American Journal of Sociology* 91 (Nov. 1985): 481-510.

¹² Social capital is an ill-defined concept. After Steven N. Durlauf and Marcel Fafchamps, “Social Capital,” Working Paper 10485, National Bureau of Economic Research (May 2004), <http://www.nber.org/papers/w10485>, the traits of social capital are defined to include a) a capacity to generate positive externalities for membership of the group, b) these externalities are achieved through shared

social capital framework advances analysis of Chinese networks beyond the existing discussion is a moot point. Managers' choices of how, in practice, to appropriate new managerial ideas may be constrained by what is acceptable action within the network, although contrary to contractual economic efficiency, as well as by their access to knowledge of new managerial processes.

The network, then, institutionally structures, mediates, and constrains the managers' reception of new knowledge and how to implement that knowledge in a specific business environment. Managers make their decisions in historically specific institutional and cultural context. This context is constituted endogenously, in the sense of pre-existing nativist ideas and practices, such as the Chinese partnership (*hehuo*) form of firm organization and the reliance on particularistic relations to recruit employees. The context is also modified through exogenous influences, the transfer from outside the nativist tradition of new ideas and new practices, such as learning from translations or press reports, or as observed practices that arise from competition with other firms, foreign or domestic, that have adopted "foreign" practices. Knowledge is transferred, absorbed, and adapted in an iterative process with the Chinese business network serving as a conduit.

Moving from a conceptualization of the network to its mapping, how might we quantify the network relationships, rather than simply describe their manifestation through a thick narrative of cases and anecdotes? Advances in social network analysis offer an approach to exploring Chinese business networks and estimating specific information flows.¹³

Network analysis focuses on the relations between actors within a network, not simply the attributes of the actors who comprise the network: "the priority of relations over categories."¹⁴ The approach has produced a large literature on the interlocks among corporate directors that may guide

trust, norms and values that influence behavior, and c) shared trust, norms and values arise from informal forms of organizations based on social networks and associations. This definition, though, neglects unproductive or negative behaviors that might arise in networks. The commonality in the definition of social capital is "the focus on interpersonal relations and social networks and their effect on the efficiency of social exchange" (p. 7), from the provision of public goods to the organization of the market. An important role of social capital is its ability "to ameliorate potential inefficiencies caused by imperfect information" (p. 7) through facilitating search and fostering trust.

¹³ For an introduction to network analysis, see John Scott, *Social Network Analysis: A Handbook*, 2^d ed. (London, 2000); Stanley Wasserman and Katherine Faust, *Social Network Analysis: Methods and Applications* (New York, 1994).

¹⁴ Mustafa Emirbayer, "Network Analysis, Culture and the Problem of Agency," *The American Journal of Sociology* 99 (May 1994): 1411-54, quote at p. 1414.

a study of Chinese business networks.¹⁵ Corporate interlocks may be vertical, horizontal, or financial. Implicit in the presence of interlocks is the potential for the exercise of power; these indicate an opportunity for information flows between firms that comprise part of an interlocked network. Studies of social or business networks often draw on graph theory. The concept of a graph involves the idea of points (or nodes) connected by lines, the formal properties of which can be analyzed through representation as a matrix.¹⁶ The relevance of graph theory to network analysis can be grasped if the point is seen as equivalent to the agent (subject) and the line as equivalent to the social relationship (links). The number of points, the number of connections, the distance between separate points, and so on, can be used to make mathematical statements about the connectivity of agents, the intensity of their connections, and the centrality of a particular agent within a network of linked agents, and so forth. My concern is how to best advance a study of Chinese elite business-affiliated networks, physically manifest in business relationships and professional associations, as a mode of knowledge diffusion using social network analysis techniques rather than narrative alone.

Emergence of Chinese Professionals and Their Networks

Guilds, commercial and trade associations have a long history in China.¹⁷ Merchant guilds (*huiguan*) were mostly established to provide lodging and welfare services to merchants resident in distant cities. They also regulated merchant activity. In 1904, the Qing Imperial Government promulgated a law to allow the establishment of modern chambers of commerce (*shanghui*), part of a series of belated reforms in the wake of

¹⁵ For example, Johannes M. Pennings, *Interlocking Directorates* (San Francisco, 1980); John Scott and Catherine Griff, *Directors of Industry: The British Corporate Network 1904-76* (Cambridge, U.K. 1984); Frans N. Stokman, Rolf Ziegler and John Scott, eds., *Networks of Corporate Power: A Comparative Analysis of Ten Countries* (Cambridge, U.K. 1985); Mark S. Mizaruchi, *The American Corporate Network, 1904-1974* (London, 1982). There have been several interlock-based studies of Chinese business: Gilbert Wong, "Business Groups in a Dynamic Environment: Hong Kong 1976-1986," in *Business Networks*, ed. Gary Hamilton (Berlin, 1996), 126-54; Xiaowei Zang, "Research Note: Personalism and Corporate Networks in Singapore," *Organization Studies* 20 (June 1999): 861-77; Kevin Au, Mike W. Peng, and Denis Wang, "Interlocking Directorates, Firm Strategies, and Performance in Hong Kong: Towards a Research Agenda," *Asia Pacific Journal of Management* 17 (April 2000): 29-47.

¹⁶ See Scott, *Social Network Analysis*, chapter 4, for brief discussion of graph theory.

¹⁷ Hosea Ballou Morse, *The Gilds of China, with an Account of the Gild Merchant or Co-hong of Canton* (London, 1909); He Bingdi [Ho Ping-t'i], *Zhongguo huiguan shilun* [A Historical Survey of *landsmannschaften* in China] (Taipei, 1966); William T. Rowe, *Hankow: Commerce and Society in a Chinese City, 1796-1889* (Stanford, Calif. 1984).

the humiliating defeat in the first Sino-Japanese War of 1894-95.¹⁸ Another consequence of the treaty that concluded the war was that foreigners were allowed to set up factories, which spurred development of modern industry in China, both foreign-owned and, later, by Chinese private capital, where previously Chinese modern industry had been joint State-private enterprises (*shangban guandu* or *shang-guan heban*).¹⁹

Many Chinese also sought western education at home and abroad. From the late nineteenth century, young Chinese went abroad to seek education and skills to strengthen China, at first mostly to Japan, but increasingly to the United States and Europe.²⁰ Abroad they formed associations, both student-focused and professional-oriented bodies, and frequently maintained these links upon their return to China to take up positions in academia, business, and government. One of the most influential student associations was the Science Society of China (*Zhongguo kexue she*) founded at Cornell in 1914 by Yang Quan (Yang Xingfo), Hu Shi, Zhao Yuanren, Ren Hongqun and others.²¹ By the 1930s, it had become “the largest and most comprehensive scientific organization in China” with members employed in the social, biological, physical, and engineering sciences.²² Many of its key activists were also prominent members of other professional associations and became leaders of industry or senior government officials. From the late 1910s, the returnees made their presence felt in new organizations and increasingly took a role in the older merchant-run chambers of commerce.

Some of the new professional associations included:

Chinese Institute of Engineers (*Zhongguo gongchengshi xuehui*)
1913

National Medical Association (*Zhonghua yixue xuehui*) 1915

Shanghai Bankers' Association (*Shanghai yinhang gonghui*) 1917

Chinese Economics Society (*Zhongguo jingji xuehui*) 1923

¹⁸ The Shanghai General Chamber of Commerce was established in 1902 before the enabling law. See Joseph Fewsmith, *Party, State, and Local Elites in Republican China: Merchant Organizations and Politics in Shanghai, 1890-1930* (Honolulu, 1985); Yu Heping, *Shanghai yu Zhongguo zaoqi xiandaihua* [Chambers of Commerce and China's Early Modernization] (Shanghai, 1993).

¹⁹ Albert Feuerwerker, *China's Early Industrialization: Sheng Hsuan-huai (1844-1916) and Mandarin Enterprise* (Cambridge, Mass. 1958); Stephen C. Thomas, *Foreign Intervention and China's Industrial Development* (Boulder, Colo., 1984).

²⁰ About 100,000 Chinese studied abroad during the seven decades prior to 1949. Y. C. Wang, *Chinese Intellectuals and the West, 1872-1949* (Chapel Hill, N.C., 1966).

²¹ James Reardon-Anderson, *The Study of Change: Chemistry in China, 1840-1949* (New York, 1991), 97-98.

²² Reardon-Anderson, *The Study of Change*, 99; see 183, Table 8.1, for membership of the society by discipline.

Institute of Chartered Public Accountants (*Zhonghua kuiji gonghui*) 1924

China Society of Chemical Industry (*Zhonghua huaxue gongye hui*) 1924

Chinese Statistical Society (*Zhongguo tongji xueshe*) 1926

Chinese Institute of Scientific Management (*Zhongguo gongshang guanli xiehui*) 1930

Chinese Society of Chemical Engineers (*Zhonghua huaxue gongcheng xuehui*), set up 1930 in the USA, later merged with the chemical industry society

Chinese Personnel Management Institute (*Zhongguo renshi guanli xiehui*) 1934

What particularly distinguished these organizations from other occupation-linked or industry associations—some also newly established during the same period—was an emphasis on setting professional standards, educating members, and providing a forum for the exchange of ideas both in person and through the pages of the journals that many of these societies also published. The Shanghai Bankers' Association (SBA), for example, performed many above-market functions of education and standardization, issuing guidelines for business activities, setting standard terminology, and promoting standardized accounting procedures among bank members.²³ Many of the activists in these associations had studied abroad, motivated by patriotic ambitions summarized in such slogans as “science as the savior of the country” (*kexue jiu guo*), “industry as the savior of the country” (*shiye jiu guo*), “education as the savior of the country” (*kexue jiu guo*), and so on. Upon their return, they consciously sought to build a “new China” through personal industry and zealous promotion of ideas and programs they perceived might remedy the failings of the country and their compatriots.

The Shanghai industrialist Mu Ouchu, who studied in the USA and who translated Frederick W. Taylor's *Principles of Scientific Management*, wrote in his preface to the translation:

Despite [our country's] abundant resources and people, Chinese industry has failed to develop along a prosperous track for the reason that industrialists lack practical skills and knowledge. They lack scientific [technical] skills, and they lack managerial [organizational] skills. ...the undeveloped state of our industry is due ultimately to insufficient management skills²⁴

²³ Linsun Cheng, *Banking in Modern China: Entrepreneurs, Professional Managers and the Development of Chinese Banks* (New York, 2003), 193. The SBA also published one of the most important economics periodicals of Republican China, *Yinhang zhoubao* [Bankers' Weekly].

²⁴ Mu Xiangyue [H. Y. Moh], “Preface,” in Daierluo [F. W. Taylor], *Gongchang shiyong' xueli de shiye guanli fa* [‘Applied Factory’ Scientific Industry Management Methods], Mu Xiangyue trans. (Shanghai, 1916), 1-2. Zhang Jian,

Mu hoped the introduction of Taylorism would alleviate this deficiency.²⁵ Nearly 20 years later, He Qingju, one of the founders of the Chinese Personnel Management Institute and a publicist for scientific management who had also studied in the United States, reiterated Mu's sentiments in his primer on personnel management:

While reasons for China's backwardness are many, among the biggest is that in the management of industry we do not know how to apply scientific methods. ...in recent years, Chinese industrial leaders have looked at the European-American experience, have become conscious of this failing, and so have begun gradually to promote scientific management.²⁶

While the publishing of books and articles may reach many entrepreneurs and managers, and can shape their business practices, they acquire their knowledge of management from a wide variety of sources: formal training, popular media, and the observation of competitors. My interest here is to consider the process of diffusion of management and organizational knowledge that came through the interpersonal and professional ties among managers. I do not intend to privilege one mode of transfer over another; I doubt that we could ever disentangle the complex processes by which managers observe, learn, adapt, and transfer what is essentially tacit knowledge, the acquisition of which is complex, uncertain, and fraught with difficulties. However, it would seem from knowledge that in the Chinese business world interpersonal relations play a particular and perhaps even more central role than among business people in other societies that these personal affinities must loom large in the diffusion of new ideas and new business practices. As Haldor Byrkjeflot observed, management is "embedded in historically shaped institutional and conceptual frameworks."²⁷ These frameworks circumscribe the formation and transfer of management strategies and organizational forms. We can presume Chinese networks were one of those institutional frameworks that played a significant role in the diffusion of new managerial knowledge, but where to begin our analysis?

A tabular classification can begin to bring order to the chaos of social relationships. First, we examine one restricted network and then

then the Minister for Agriculture and Industry and the founder of the Dasheng Enterprise Group, wrote the forward extolling the need for "principled [scientific] management" (*xueli guanli*). For Zhang's enterprises, see Elisabeth Köll, *From Cotton Mill to Business Empire: The Emergence of Regional Enterprises in Modern China* (Cambridge, Mass., 2003).

²⁵ Morgan, "China's Encounter with Scientific Management."

²⁶ He Qingju, *Renshi guanli* [Personnel Management] (Shanghai, 1934), 1.

²⁷ Haldor Byrkjeflot, "Management as a System of Knowledge and Authority," in *The Diffusion and Consumption of Business Knowledge*, ed. José L. Alvarez (London, 1998), 58-80, quotation at p. 58.

join several to see the overlap.²⁸ This highlights the complexity of making sense of obvious overlaps because many data are omitted from such simplistic cross-tabulations. This leads us to ask how best to map these relationships quantitatively and analytically.

The first table (see Table 1) shows the Chief Executive Officers (CEOs) and selected managers of the seven major banks that dominated the inter-war years who were active in the SBA. Provincial origin mattered to the bankers. The overwhelming proportion of bank entrepreneurs and senior managers came from the lower Yangzi provinces of Jiangsu and Zhejiang irrespective of if their bank was based in Shanghai or the northern cities of Beijing and Tianjin.²⁹ At the time, people spoke of the Jiangsu-Zhejiang financial clique (*jiang-zhe xi*), although they would distinguish between the two within the SBA. The Zhejiang clique comprised the Bank of China (Zhang Jia'ao [Chang Kia-ngau]), the Bank of Communications (Qian Yongming), the China Commercial Bank, the National Commercial Bank, the Zhejiang Industrial Bank, the Siming (Ningbo) Bank, and the New China Savings Bank. The Jiangsu clique comprised the Shanghai Commercial and Savings Bank (Chen Guangfu), the Yien Yieh Bank (Wu Dingchang), the Jincheng Bank (Zhou Zuomin), the Continental Bank, the Yonghang Bank, the Xinhua (Sin Wah) Bank, the Jiangsu Bank, and the Shanghai Trading Bank.³⁰ The prominence of Jiangsu-Zhejiang natives in Chinese banking reflected in part the prosperity of the lower Yangzi region: the greater Shanghai economy and the prominence of this region's merchants in the Chinese economy.

²⁸ Here I use network loosely as bounded by the actors' membership of a particular association, committee or invitation-only conference, though formal membership carries potential for membership rather than actual membership of a network.

²⁹ Wu Jingping and Ma Changlin, eds., *Shanghai jinrong de xiandaihua yu guojihua* [The Modernization and Internationalization of Shanghai's Financial Sector] (Shanghai, 2003); Cheng, *Banking in Modern China*.

³⁰ Wu and Ma, *Shanghai jinrong*, 87, Table 4.

TABLE 1
Chinese banking CEOs and the Shanghai Bank Association

Name	Bank	Founded	Position	Years	Province	Education	SBA director
Zhang Jia'ao	Bank of China	1912	CEO	1917-35	Jiangsu	Japan	1917 (founder)
Song Hanzhang	Bank of China	1912	Manager	1917-28	Zhejiang	China English school	1917, 1925, 1927
Qian Yongmin	Bank of Communications	1908	CEO	1922-25	Zhejiang	Japan	
Hu Mengjia	Bank of Communications	1908	CEO	1926-33	Zhejiang	Britain	1927-33
Ye Kuichu	National Commercial Bank	1907	CEO	1915-50	Zhejiang	China Juren*	
Chen Guangfu	Shanghai Commercial and Savings Bank	1915	CEO	1915-49	Jiangsu	USA	1917 (founder), 1925, 1927-31, 1933-37
Li Ming	Zhejiang Industrial Bank	1923	CEO	1923-49	Zhejiang	Japan	1917 (founder), 1925, 1927-33, 1935-38
Tan Lisun	Continental Bank	1919	CEO	1919-33	Jiangsu	Japan	
Hu Bijiang	China & South Seas Bank	1921	CEO	1921-38	Anhui	Tradition (home tutor)	1925, 1931-33
Zhou Zuomin	Jincheng Bank	1917	CEO	1917-49	Jiangsu	Japan	
Wu Yunzhai	Jincheng Bank	1917	Manager	1917-38	Jiangsu	--	1925, 1927-33, 1935-38
Wu Dingchang	Yien Yieh Commercial Bank	1918	CEO	1918-37	Zhejiang	Japan	

Sources: Cheng, *Banking in Modern China*, 201; Wu and Ma, *Shanghai jinrong*, 84-87, 126-33; Henry G. W. Woodhead, ed., *China Year Book*, 1 (1912)-20(1939), 1923, chapter 26; 1934, chapter 24.

Notes:

* Juren is the highest grade of the former imperial examination, equivalent to a modern Ph.D. in standing.

--" indicates missing or unknown data.

Natives from Jiangsu and Zhejiang were also prominent among those involved in the promotion of management and economic reform. In the Appendix (see Table 2) I list the members of three business-related meetings: The July 1930 preparatory committee to establish the Chinese Institute of Scientific Management (ISM: *Zhongguo gongshang guanli xiehui*), the November 1930 First National Conference of Industry and Commerce (CIC: *diyici quanguo gongshang huiyi*), and the 1927 Shanghai Commerce Federation (SCF: *Shanghai shangye lianhehui*).³¹

Twelve of the 15 members of the ISM preparatory committee were natives of Jiangsu and Zhejiang (Table 2, ISM column). More than two-thirds of the academics, business, and government delegates to the CIC came from Jiangsu and Zhejiang (Table 2, CIC column), with representation from Hunan and Guangdong provinces, too.³² At the time, the prominence of Jiangsu-Zhejiang natives in senior management was not unusual. Were we to examine the Chinese National Railway workforce in the early 1930s, we would find that the majority of the salaried managerial grades were Jiangsu and Zhejiang natives, whereas two-thirds of the manual grade employees were from the northern provinces of Hebei and Shandong.³³ In 1948, among the members of the Academia Sinica (the premier research institution in China at the time), 53 percent of those born after 1895 were from Jiangsu and Zhejiang, compared with 41 percent of those born before; many came from better-off backgrounds, often studying abroad without government scholarships as was more common earlier.³⁴

This preponderance of Jiangsu and Zhejiang natives in academia, banking, government and industry is a product of the opportunities for education and advancement that came with the prosperity of the most advanced region in China for several centuries.³⁵ However, this argument

³¹ The Chinese is literally translated the “Chinese industrial and commercial management association,” but the official English name was the Chinese Institute of Scientific Management. See Morgan, “China’s Encounter with Scientific Management.”

³² Xu Kang and Lao Hansheng, *Zhongguo guanli kexuehua de licheng* [The Course of Management Sciences in China] (Changsha, 2001), 149-50

³³ Stephen L. Morgan, “Personnel Discipline and Industrial Relations on the Railways of Republican China,” *Australian Journal of Politics and History* 47 (March 2001): 24-38.

³⁴ Reardon-Anderson, *The Study of Change*, 178.

³⁵ The “Californian school” has argued the Lower Yangzi River valley region was an advanced region analogous to the centers of early capitalist development in northern Europe. See Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton, N.J., 2000) and R. Bin Wong, *China Transformed: Historical Change and the Limits of European Experience* (Ithaca, N.Y. 1997). Recent research highlighting the relative advance level of per capita income and human welfare in the Shanghai region includes Debin Ma, “Modern Economic Growth in the Lower Yangzi Valley

smacks of geographic determinism, and is insufficient to explain the processes of exchange and dialogue that took place, creating the opportunities for new businesses, and bringing forth new practices. After all, these professionals were largely motivated by national and professional/discipline concerns that Xiaoqu Xu argued transcend the parochialism associated with native place associations (*tongxianghui*) of the past.³⁶ We need to look at the “organizational spanners” that held people together and linked academics, business people, and government officials, fashioning an environment in which new ideas about management were aired, received, observed and adapted. The word “spanners” has a rich ambiguity here, in the first sense conveying spanning or bridging a gap, as in a link between two or more nodes, persons or organizations; and second, conveying the sense of the tool that tightens the nut and bolt that locks together two steel girders of a bridge span. The linkages between actors are enablers of the transfer of “know-how”; as Kogut and Zander observed “a firm’s knowledge consists also of the information of the other actors in the network.”³⁷

I conclude this discussion with several vignettes that hint at the dialogues and network linkages. Chinese students in the United States formed many associations and societies, some, such as the Science Society and the Chinese Society of Chemical Engineers, were to become lasting organizations of significant influence. Others were less prominent fraternities, with inward looking goals of self-fulfillment and individual welfare. These student fraternities were also conduits for employment back home. For example, the founder of Nankai University Zhang Boling was a member of the *Chengzhihui* (Society for the Fulfillment of Life’s Ambitions). So too were many of the faculty he recruited in the 1920-30s, including historian and diplomat Jiang Tingfu (Ph.D., Columbia University, 1932), economists Franklin Ho (Ph.D., Yale University, 1921), Li Zhuomin (Ph.D. University of California, Berkeley 1936), Chen Guoping (Ph.D., Yale University, 1937), Ling Bing (Ph.D., Clark University, 1919), Xiao Gongquan (Ph.D., Cornell University, 1926), among others.³⁸

in 1911-1937: A Quantitative, Historical and Institutional Analysis,” paper presented to the Foundation for the Advanced Studies on International Development meeting, Tokyo, Japan, April 2004; and Stephen L. Morgan, “The Biological Standard of Living in China, 1880s-1930,” *Economics and Human Biology* 2 (July, 2004): 197-218.

³⁶ Xiaoqu Xu, in *Chinese Professionals and the Republican State: The Rise of Professional Associations in Shanghai, 1912-1937* (New York, 2001), 5, 8 and 14, asserts that native place ties were “manifestly unimportant to professional associations” (p.5) in contrast with other urban organizations such as chambers of commerce among merchants and the labor organizations among the working class.

³⁷ Kogut and Zander, “Knowledge of the Firm,” 390.

³⁸ Yung-chen Chiang, *Social Engineering and the Social Sciences in China, 1919-1947* (New York, 2001), 83.

Our knowledge of these fraternities, which were often informal and short-lived, is limited, but they appear to have opened up possibilities for later career developments. Franklin Ho (He Lian), who was a member of the *Chengzhihui* fraternity, was able through introductions during his employment at Nankai University to make contacts in Shanghai and Tianjin business circles to support his research agenda at the Nankai Economics Institute. In time, such connections led him into government and business activities somewhat remote from his original research into consumer price index numbers. Ho became an executive director of the Jincheng Bank (run by Zhou Zuomin) and an outside director of the Minsheng Industrial Corp (run by Lu Zuofu), the Dacheng Textile Corp (run by Liu Guojun), the Tongcheng Corp (run by Zhou Zuomin) and the Pacific Steamship Co (run by Dai Zimu), among other interests.³⁹ The Jincheng Bank involved Ho in a rural finance project in the 1930s and supported Ho's China Institute of Economics in the 1940s.⁴⁰ These businesspersons were all also delegates to the 1930 CIC.

Liu Dajun (D. K. Lieu) is another economist of the interwar years whose career spanned academia, business, and government in China (see Table 2). He became one of the foremost economists and statisticians of Republican China, and as the Director of the Bureau of Statistics in the Ministry of Industry oversaw the industrial census in 1933 that provided the baseline data for the first estimate of China's national income. The following vignette illustrates the interconnections that were important for his career and for the diffusion of modern economic and business thought. Upon graduation from Michigan (Bachelors of Arts, 1915), Liu returned to take the post of professor of economics at Beijing University just at the time that academician Cai Yuanpei became president, hiring a great number of young intellectuals who were to change China.⁴¹ In 1923, Liu joined J. B. Tayler, the professor of economics at the Yale-supported Yenching University, to establish the Chinese Economics Society. He was the foundation president and subsequently served several terms as the society president.⁴² About the time of the industrial census, in addition to

³⁹ Chiang, *Social Engineering*, 133.

⁴⁰ Chiang, *Social Engineering*, 124, 134-35.

⁴¹ A list would read like a "Who's Who" of China's intellectual and political leaders of the interwar years. Among those recruited under Cai's leadership was Chen Duxiu, Li Dazhao, and Hu Shi (Ph.D., Cornell University, 1916). Chen founded *Xin Qingnian* [New Youth Magazine] that spearheaded the May Fourth Movement, and with the University librarian Li Dazhao founded the Chinese Communist Party in 1921. Hu Shi, who was instrumental in the creation of modern vernacular Chinese, was a leading liberal critic and later Nationalist Chinese ambassador to the United States.

⁴² With membership restricted to graduates in economic specializations or those whose employment required the use of economic theory, the society aimed to research Chinese economic problems, transfer foreign economic theory, publish

his post as director of the Bureau of Statistics, he was again president of the Economics Society; he was also a member of the Chinese Statistics Society, the Shanghai Institute of Chartered Public Accountants (he practiced part-time as an accountant from 1932) and the Institute of Scientific Management, and he served on the National Resources Commission, the Nanjing Government's economic planning body.⁴³

The Economics Society and its annual meetings must have been a fertile forum for exchange of ideas. Other prominent early members were Chen Da (Ph.D. Columbia 1922), Ma Yinchu (Ph.D., Columbia University, 1919), and Wei Tingsheng (Masters of Business Administration, Harvard University, c.1925). Important to my argument is the fact that prominent business people served on the society's executive board at various times, including Qian Yongmin (CEO Bank of Communications), Wu Dingchang (CEO Yien Yieh Commercial Bank), Zhou Zuomin (CEO Jincheng Bank), Wang Yunwu (CEO Commercial Press), Pan Yulun (Shanghai accountant; Ph.D. Columbia University, 1924), Li Zhaohuan (President Jiaotong University; Masters in Economics, Columbia University, c.1910), and Shou Jingwei (Hangzhou Manager Bank of China; Ph.D. Columbia University, c.1925). In addition, links were maintained with prominent personalities outside of economics, such as the appointment of Cai Yuanpei and Hu Shi to the board of the Chinese Social Science Research Commission established at the society's 1932 annual meeting as a joint project with the Chinese Statistical Society.⁴⁴

The interchange between academics and business also took place in hiring of returnees and the sponsorship of research endeavors. Pioneers of the Chinese chemical industry, Fan Xudong and Wu Yunchu each formed research institutes and recruited from among those educated overseas to fill positions. Fan set up the Golden Sea Research Institute (*Huanghai huaxue gongye yanjiushe*) in 1922, the first privately sponsored industrial research agency, and Wu established the Chinese Industrial Chemical Research Institute (*Zhonghua gongye huaxue yanjiusuo*) in the late 1920s.⁴⁵ Both institutes were application-oriented, motivated by the search for better and higher quality processes to enhance production of consumer products.

books and essays on economics, and exchange economic knowledge among members. See Xu and Lao, *Zhongguo guanli*, 117.

⁴³ Xu Youchun, ed., *Minguo renwu dazidian* [Biographical Dictionary of Republican China] (Shijiazhuang, 1991), 1404; Xu and Lao, *Zhongguo guanli*, 117-18, 150; Shanghai Municipal Archive (Shanghai shi danganguan, SMA): Q447-2-260, "Shanghai shi kuaijishi gonghui huiyuan minglu" [Membership Directory of the Institute of Chartered Accountants, Shanghai Municipality], 1926-1948.

⁴⁴ Xu and Lao, *Zhongguo guanli*, 117.

⁴⁵ Reardon-Anderson, *The Study of Change*, 239, 261.

Entrepreneurs also engaged in sophisticated learning by experimentation and observation. Fan Xudong's chief engineer at the Yongli plant, Hou Depang (Bachelor of Science, Massachusetts Institute of Technology, 1917; Ph.D., Columbia University, 1921), reversed engineered the Solvay process for making industrial grade soda and later wrote the classic text in English on the topic.⁴⁶ The bankers to the project were Zhou Zuomin (Jincheng Bank) and Chen Guangfu (Shanghai Bank), both of whom had seats on the Yongli board. Another example, also from the chemical industry, is Wu Yunchu, who got his start in business setting up the first Chinese factory to make potassium chlorate, a key ingredient for matches, and then moved on to produce adhesives that bind the combustible materials to the match stick.⁴⁷ At the time the largest Chinese producer of safety matches, the so-called "match king" was Liu Hongsheng. One can presume (although I have yet to find the archive document) that Liu as a major buyer must have played some part in Wu's early business progress. Certainly, we need to explore supplier-buyer relationships as a means for knowledge transfer or knowledge acquisition. By 1922, Wu was sufficiently successful to obtain a \$50,000 loan from Zhou's Jincheng Bank to set up the Tien-ch'u Monosodium Glutamate (MSG) Factory (*Tianchu weijing chang*) that soon outsold imported Japanese MSG in the China market.⁴⁸ In the 1930s, both Liu and Wu were activists in the Institute of Scientific Management. Liu served on the board of directors and Wu in March 1937 assumed the head of the institute following the death of Cao Yunxiang, who has sometimes been called "China's Taylor."⁴⁹

Conclusion

My aim in this paper was to set up a research agenda to explore the role of networks among academics, business people, and government officials in the diffusion of management "know-how" in China during the interwar years. Family and business networks have long played an important role in Chinese business. As a form of inter-firm governance, these networks increased the flow of information concerning market opportunities and the reliability of trading partners, enhanced the ability to monitor business transactions, and enforced compliance with the contractual terms of exchange. In short, within a Coase-Williamson framework we understand the function of the Chinese business network is to overcome problems of asymmetric information, opportunism, and shirking, and to reduce the

⁴⁶ Reardon-Anderson, *The Study of Change*, 166.

⁴⁷ Reardon-Anderson, *The Study of Change*, 167-68.

⁴⁸ Reardon-Anderson, *The Study of Change*, 168-69.

⁴⁹ Xu and Lao, *Zhongguo guanli*, 120; Xu Kang and Lao Hansheng, "20 shiji 30 niandai 'Zhongguo de Tailuo'—Cao Yunxiang shengping yu shiye" [The Life and Career of Cao Yunxiang, "China's Taylor" of the 1930s], *Ziran bianzhengfa tongxu* [Journal of Dialectics of Nature] 21 (Dec. 1999): 68-76.

cost of transacting in market environments where there exists a high degree of uncertainty and inadequate mechanisms to enforce contracts through formal institutional means sanctioned and maintained by the State.

Such a framework is, however, static, and does not account for the activity of the entrepreneur or the role of innovation in developing firm resources and capabilities. Nor can it account for the reception and adaptation of new ideas about management and organizational forms. A resource-based view of the firm, extended in an information or knowledge-control perspective of the firm, expands our focus beyond the “nexus of contracts” to the nexus of inter-firm ties or collaborative arrangements. These beyond-hierarchy forms (call them alliances or collaboration or partnering) have become increasingly important in the contemporary world of technological reduced-information costs that post-Chandlerian firms find themselves. This observation was even more applicable to Chinese firms in the past.

Chinese firms in the early twentieth century were in a sense infantile Chandlerian firms, attempting to shrug off the organizational forms of family and partnership structures. In their place, they developed managerial hierarchies capable of supporting firms that required large amounts of capital, sophisticated technology, and a large workforce in a highly competitive environment. As Sherman Cochran has argued, Chinese firms of the interwar years relied on both hierarchies and social networks, rather than on one form to the exclusion of the other.⁵⁰ Elisabeth Köll recently emphasized the primacy of hierarchical forms over networks that Zhang Jian (mentor to some of those discussed) imposed on his Dasheng group of companies, while nevertheless exploiting his complex network of social and political ties to advance his economic interests.⁵¹ Both Cochran and Köll, while acknowledging and documenting the role of networks, challenge the Culturalist framework that emphasizes the network form of organization as the decisive trait of Chinese business in contrast with the hierarchical mode of the western firm.⁵² Networks are important, Köll writes, but “we need to pay more attention to hierarchical and institutional aspects of the firm, based on analyses of company records, in order to fully explain the institutional, financial and managerial structures of modern enterprises.”⁵³ At issue in looking at the choices

⁵⁰ Sherman Cochran, *Encountering Chinese Networks: Western, Japanese, and Chinese Corporations in China, 1880-1937* (Berkeley, Calif., 2000).

⁵¹ Köll, *From Cotton Mill to Business Empire*.

⁵² The Culturalist framework is associated with business sociologists that include Gary Hamilton, Gordon Redding, Richard Whitely, and Siu-lun Wong. See, for example, the various chapters in the edited volume, Hamilton, *Business Networks and Economic Development*, or the re-issued version *Asian Business Networks*.

⁵³ Köll, *From Cotton Mill to Business Empire*, 283.

entrepreneurs and managers made about a particular technology, organizational form, or managerial practice is the source of their knowledge and the processes by which they acquired it.

While I do not deny the importance of culture in Chinese business, especially in negotiation and structuring of contracts, and inter-personal relationships, the network-oriented business-system approach cannot articulate the dynamics of inter- and intra-firm relationships that may explain the transfer, acquisition, learning, and implementation of new managerial know-how in the life of a specific firm. We need a framework that enables us to appropriate the insights of Coase-Williamson, Barney-Peteraff, and Kogut-Zander-Casson to understand the historically-situated context of Chinese entrepreneurs and managers. Their reception and use of new managerial know-how were shaped by the competing influences of markets, hierarchies, and networks as well as the role of the State in imposing political-specific societal governance. Knowledge was diffused through individuals working for foreign-run firms, direct observation of competitors, recruitment of foreign (and later, Chinese) specialists, the popular and professional media, and information flows via networks of personal and professional ties established in modern business and professional associations. Mapping those ties to move beyond mere description, anecdotes, and case study vignettes is the next task.

What data are needed? We need both relational and attribute data, and these are probably best organized into periodic panels, rather than single years, not only to capture interconnections that span several years, but because personal and associational data for any one year are likely to be incomplete. Three periods are proposed. These are circa 1917-26, corresponding with the “golden age” of the Chinese bourgeoisie; circa 1929-32, the early Nanjing Decade and the development of the corporatist state; and circa 1933-37, the later years of the Nanjing Decade. The years 1927-28 are excluded because the Northern Expedition, the Nationalist military campaign to rid China of the warlords, severely disrupted previous alignments within the Shanghai business elite and saw State terror against those who had not supported the Nationalists.⁵⁴

Next, the boundaries of the social networks need to be defined for manageable data collection, despite the danger that arbitrariness may exclude important relations.⁵⁵ A boundary constructed around Shanghai-centered organizations and firms does not mean that all the key actors are necessarily located within the Shanghai or the greater Shanghai region. Key actors in government who influenced decisions of Shanghai financiers and industrialists might be part of networks in the Beijing-Tianjin region during 1917-26 and in Nanjing, the seat of the Nationalist Government, during 1928-37, while the wider Lower Yangzi (Jiangsu-Zhejiang-Anhui)

⁵⁴ Fewsmith, *Party, State, and Local Elites*, chapter 5.

⁵⁵ See discussion about defining the boundaries of social networks in Scott, *Social Network Analysis*, 53-54.

region was the ancestral home to most Shanghai entrepreneurs. Are actors to be included in the network because of their home region (native place) even though they may not have been involved directly in industry in that region, but elsewhere? For example, the Zhejiang banker Bian Baimei was the manager of the Bank of China in Tianjin, the second-most important industrial city after Shanghai, from 1916 to 1938. Bian headed the Tianjin Bankers Association for many years, and was often in close contact with Zhang Jia'ao of the Bank of China in Shanghai and many other activists in the SBA during the 1920-30s who were owners or managers of banks previously based in North China.⁵⁶ Similarly, the professional associations may have been headquartered in Shanghai, but many, such as the Shanghai Institute of Chartered Public Accountants, had members throughout China.⁵⁷ My initial boundaries to test the viability of social network analysis will include the directors of the SBA, Tianjin Bankers' Association, ISM, the Shanghai General Chamber of Commerce, the Shanghai-based Chinese Cotton Mill Owners Association, and delegates to the CIC. I will also require membership lists of professional associations, such as the Chinese Economics Society and the Institute of Chartered Public Accountants. Later I will extend the boundary to include the boards of directors of the major listed banks, cotton mills, and other businesses, and try to identify major suppliers and buyers for these firms.

Finally, for each individual we will need a range of attribute data, much of which also contains implicit relational data. These data include details on their ethnicity (native place or ancestral home), education in China and abroad, occupations or positions held; their membership in trade, business, and professional associations; and their social relationships including clubs, religious affiliations, and spousal background (marriage ties were often important, linking families into wider networks of social and political patronage).

⁵⁶ Brett Sheehan, *Trust in Troubled Times: Money, Banks and State-Society Relations in Republican Tianjin* (Cambridge, Mass., 2003).

⁵⁷ SMA: Q447-2-260, "Shanghai shi kuaijishi gonghui huiyuan minglu," 1926-1948.

TABLE 2
Restricted cross-tabulation of business sector affiliations of selected persons

Name	Province	Education	Position	ISM 1930	CIC 1930	SCF 1927
Kong Xiangxi (H.H. Kung)	Shandong	USA	Minister of Industry and Commerce; brother in law of Chiang Kai-shek and T.V. Soong.	x		
Mu Ouchu (Xiangyue; H.Y. Moh)	Jiangsu	USA	Textile industrialist (three mills), Chairman of the Cotton Exchange, Vice-minister of Industry, former director of Shanghai Chamber of Commerce (mentored by Zhang Jian)	x		*
Liu Hongsheng (O.S. Lieu)	Jiangsu	Shanghai St John's University	Industrialist (diversified), promoter of cost accounting, CEO China Merchant Steam Navigation Co., Shanghai Cement Co., Hongsheng Match Co., etc; formerly agent for British-run Kailan Coal Co.	x	3	*
Rong Zongjing	Jiangsu	Traditional	Entrepreneur and industrialist (textile, flour), CEO of the Rong Family Enterprise Group, China's largest industry group.	x	6	*
Rong Desheng (Zongquan)	Jiangsu	Traditional	Industrialist and educator, younger brother of Zongjing, and general manager of group factories		3	*
Shou Jingwei	Zhejiang	USA (Ph.D.)	Hangzhou Manager Bank of China; formerly secretary SBA, business editor of Shen Bao newspaper, chief editor at the Bureau of Foreign Trade, Ministry of Industry	x	3	
Pan Xulun	Jiangsu	Shanghai St. John's University and USA (Ph.D.)	Accountant, founder of the Lixin School of Accounting, executive member of the economics society and the accountants society; formerly Dean of Commerce at Jinan University (Guangdong)	x	3	
Pan Gongzhan	Zhejiang	Shanghai St John's University	Commissioner of Social Affairs for Greater Shanghai; formerly editor of the Shen Bao newspaper, the largest circulation daily in China.	x	6	

Yang Xingfo (Quan)	Jiangxi (raised in Zhejiang)	USA (M.Ec, MBA)	Secretary-General of Academia Sinica and editor at large for Commercial Press; formerly secretary to President Sun Yatsen, founder of the Science Society, chief accountant for Hanyang Iron & Steel Co., Dean of Business Nanjing Normal University, etc	x	3	
Li Quanshi	Zhejiang	USA (Ph.D.)	Professor and dean of commerce Fudan University	x		
Hu Shuhua	Hunan	Germany	President Tongji University; former CEO Shanghai Iron and Steel and the Hanyang Iron Co.; terms as presidents of the Chinese Institute of Engineers and the Chinese Economics Society	x		
Lu Fei Bohong (Joseph Lo Pa Hong)	Zhejiang	China modern schools	CEO China Books (Zhonghua shuju) in which Kong Xiangxi had an interest; formerly teacher, magazine editor and director Commercial Press before China Books.	x	3	*
Wang Yunwu	Guangdong	China modern schools	CEO Commercial Press, China's largest publisher and director for legal matters at Academia Sinica; formerly a teacher (taught Hu Shi), 1911-14 assistant to education minister Cai Yuanpei, opium-suppression commissioner	x	3	
Zhao Jinqing (Xi'en)	Jiangsu	Shanghai Nanyang School	Vice-minister of industry; managing director Tung Yieh Land & Estate Co., and China Industrial Corp.; former councillor Shanghai Municipal Council 1928-30.	x	4	
Xu Jiqing	Zhejiang	--	senior executive posts with the Bank of Communications, Zhejiang Industrial Bank, the Central Bank, the National Commercial Bank	x	4	
Qian Chengdu	--	--	Member 1927 of the diplomatic subcommittee of the Shanghai Commerce Federation	x	3	*

Cao Yunxiang	Zhejiang	USA (MBA)	Director of the Institute of Scientific Management; formerly counsellor, Ministry of Foreign Affairs, Chinese director of British America Tobacco, president of Qinghua University	y	3
Chen Zongcheng (C.S. Chan)	Guangdong	France (docteur en droit)	Director, China Branch, International Labour Organization; former section member ILO Geneva and member of M. Albert Thomas staff Far East Mission.		3
Chen Da	Zhejiang	USA (Ph.D.)	Professor of sociology Qinghua [Tsinghua] University, well known author on labor and migration		3
Ma Chaojun	Guangdong	Japan	Career labor and political activist; Mayor of Nanjing, Head of the Guomindang Central Peasant and Workers Department		3
Yan Zhuang	Shaanxi	USA	Section chief Ministry of Industry; former engineer Taiyuan Mines Bureau, Director Shaanxi Construction Bureau, China delegate to ILO 1925		3
Nie Yuntai	Hunan	Modern education by private tutor	CEO of Dazhong Textiles; with Kung Xiangxi, Zhang Jian, Rong Zongjing and Chen Guangfu set up various textile, metals and trading companies; former head Shanghai Chamber of Commerce		3
Xie Lin	Jiangsu	Japan	Professor Shanghai Commercial College; former company secretary Bank of Communications		3
Li Fusun (Li Ming)	Zhejiang	Japan	CEO Zhejiang Industrial Bank; member of the Shanghai Bankers Association		4
Wu Yunzhai	Jiangsu	--	Manager Jincheng Bank; member of the Shanghai Bankers Association		4 *
Lin Kanghou	Zhejiang	--	Gen Man Sin Wah (Xinhua) Bank, administrative vice-minister of Finance, secretary-general Shanghai Bankers Association		4
Hu Bijiang	Anhui	traditional	CEO China & South Seas Bank; member of the Shanghai Bankers Association		4
Hu Mengjia	Zhejiang	Britain	CEO Bank of Communications; member of the Shanghai Bankers Association		4 *

Chen Guangfu	Jiangsu	USA	CEO Shanghai Commercial and Savings Bank; member of the Shanghai Bankers Association; major financier of industrial projects	4	*
Zhou Zuoming	Jiangsu	Japan	CEO Jincheng Bank; member of the Shanghai Bankers Association; major financier of industrial projects	4	
Xu Yongzuo	Zhejiang	Shanghai St John's University	Accountant and editor of Accountancy Magazine; former accounts head for Shanghai Stock Exchange, editor of the <i>Yinhang zhoubao</i> [Bankers' Weekly].	4	
Wu Dingchang	Zhejiang	Japan	CEO Yien Yieh Commercial Bank, one of the most powerful bankers of the interwar years.	4	
Fan Xudong	Hunan	Japan	CEO Jiuda and Yongli Group of companies; director of Jincheng Bank, China Books, China Ship Building, Nankai University Council and advisor to Academia Sinica.	5	
Wu Yunchu	Jiangsu	Modern technical school	CEO Shanghai Soda and Chemical Group; former technician at Shanghai Arsenal and Hanyang Iron and Steel companies; executive member of China Chemical Engineering Institute.	5	
Wu Chengluo	Fujian	USA	Director of the standards and testing services of the Ministry of Industry; former professor of chemistry, terms as president Chinese Institute of Engineers and the Chinese Chemical Society.	5	
Ren Hongqun	Sichuan	USA	Vice-president Southwestern University Nanjing; former founder of the Science Society (with Yang Xingfo and others).	5	
Mao Yisheng	Jiangsu	USA (Ph.D.)	President Beiyang University; former president of the Tangshan Engineering College.	5	
Zhang Xianglin	Jiangsu	Shanghai St John's University and USA	Divisional head of the Foreign Trade Bureau, Ministry of Industry.	6	

Ma Yinchu	Zhejiang	USA (Ph.D.)	Economist, department chief Bank of China; active in the Chinese Economics Society.	1	
Yu Qiaqing	Zhejiang	Traditional	One of Shanghai's most prominent merchants; chairman of Shanghai Chamber of Commerce 1926, chairman of Chinese Ratepayers Association, chairman of the Shanghai Commerce Federation, director of the Shanghai Stock Exchange and broker, Managing Director San Bei Steam Navigation Co., Shanghai Municipal Councillor.	1	*

Sources: Woodhead, *China Year Book*, various issues 1920-34; Xu and Lao, *Zhongguo guanli*; Xu, *Chinese Professionals and the Republican State*; Wu and Ma, *Shanghai jinrong*; H. L. Boorman, ed., *Dictionary of Republican Biography*, 4 Vols. (New York and London, 1967-1971); Xu Youchun, ed., *Minguo renwu dazidian* [Biographical dictionary of Republican China], (Shijiazhuang, 1991).

Notes: ISM 1930: Executive planning committee to establish the Institute of Scientific Management, June 1930; "x" in the column indicates membership.

CIC 1930: the First National Industrial and Commercial Conference, November 1930; a number 1-6 in the column indicates membership of one of the six committees.

SCF: Members of the Shanghai Commerce Federation, March 1927; the "*" in the column indicates membership of the federation and one of its executive committees.

"--" indicates missing or unknown data.