

CIRR XXIII (78) 2017, 7-18
ISSN 1848-5782
UDC 321.01:339.1:338.49(510)
DOI 10.1515/cir-2017-0004



State, Market and Infrastructure: The New Silk Road

Peter Nolan

Abstract

Infrastructure development, including transport, energy, buildings, electricity, telecommunications, water and sewage, as well as health and education, have been crucially important for China's growth as well as for Chinese people's welfare. China's role in infrastructure development has the potential to contribute positively to growth and welfare in the countries along the Silk Road.

KEY WORDS:

infrastructure, development, growth, welfare

State, market and infrastructure^{1, 2}

Infrastructure is crucial for development. It is necessary in order to liberate the creative energies of entrepreneurship. In countries at all stages of development, markets often fail to provide the necessary level of infrastructure provision. The requisite extent and nature of state involvement in infrastructure may vary between countries of different sizes and traditions, and at different points in history. The complex relationship between government provision of infrastructure provision and development was captured precisely by Adam Smith's proposition:

“The third and last duty of the sovereign or commonwealth is that of erecting and maintaining those public institutions and those public works which, though they may be in the highest degree advantageous to a great society, are, however, of such a nature that the profit could never repay the expense to any individual or small number of individuals, and which it therefore cannot be expected that any individual or small number of individuals should erect or maintain. The performance of this duty requires too very different degrees of expense in the different periods of society” (Smith 1776, vol. 2: 244).

Infrastructure in China's development

Pre-modern China

Up until the eighteenth century China's technological level was more advanced than that of Europe (Li Bozhong 1986, 1998, and 2000). In the eighteenth century China produced around one-third of global manufacturing output, compared with less than one-fifth in the West (Bairoch 1982). The foundation of China's long-run economic dynamism

1 China Development Forum, 2014.

2 I am grateful to Tim Clissold, Stephen Perry and Zhang Jin for their comments on this paper.

was the force of a competitive market economy. In the eighteenth century, Father Du Halde, the Belgian Jesuit priest wrote:

"[T]he particular riches of every province, and the ability of transporting merchandise by means of rivers and canals, have rendered the empire always very flourishing...The trade carried on within China is so great, that all of Europe cannot be compared therewith" (quoted in Ho Ping-ti 1959: 199).

In order for the market mechanism to function effectively, the Chinese state performed critically important functions. They included the framework of peace and law, famine prevention, commodity price stabilisation, and control of the money supply. However, the most important state function at both the local and the national level was water control. This included massive centrally administered schemes such as the Yellow River Authority and the maintenance of the Grand Canal, as well as a myriad local water control structures. The early Qing scholar-official, Gu Shilian, stated:

"The ideal magistrate is an official who is close to the people. Flood and drought should be of as much concern to him as pain or sickness of his person. He should survey the topography of the region, ask about conditions of drainage, and investigate sluices and locks... All these affect the conditions of the public treasury and the welfare of the people and must be carefully considered by the magistrate" (quoted in Ch'ao Ting-chi 1936: 72).

Modern China

Under China's policies of reform and opening up, the scope of the market economy has steadily expanded. Expansion of China's infrastructure has been a crucially important factor in the release of market forces. Since the late 1970s China has made remarkable progress in expanding its ports, roads, railways, airports, electricity supply, sewage treatment, water supply, and telecommunications network, as well as its schools, universities, hospitals, and housing.

The growth of infrastructure has been essential to the creation of an environment in which both domestic and international capital wishes to

invest. Infrastructure can be compared to the 'cage' within which the 'bird' of market forces can spread its wings as the cage expands. China's local and central governments have performed vitally important functions in stimulating infrastructure expansion, and the state-owned banks have been crucial to infrastructure finance. In the West, less than one-fifth of the total financial stimulus package since 2008 has been devoted to infrastructure repair and expansion. In China most of the financial stimulus package has been allocated to infrastructure expansion, building productive assets that benefit development.

Between 1990 and 2011 China's consumption of electricity increased from 623 b. kwh to 4,193 b.kwh and the volume of freight traffic increased from 2.6 trillion ton-km to 15.9 trillion ton-km (Table 1). In the urban areas, the amount of residential housing space per person increased from 14 sq m. to 33 sq m., the proportion of the population with access to gas increased from 19 per cent to 92 per cent, the proportion with access to tap water increased from 48 per cent to 97 per cent, and the number of public transport vehicles per 10,000 people increased from 2.2 to 11.8. By 2011 China had 74 mobile phones per 100 people and over 500 million internet users.

Infrastructure and the Silk Road

The land route

Old Silk Road

China's Old Silk Road developed during the Han Dynasty, when Europe was united under Roman rule. Following the collapse of the Roman Empire, China's trade across Central Asia to Byzantium continued, operating through a network of intermediary merchants. Trade across the Old Silk Road routes expanded during the Tang Dynasty and flourished thereafter under Muslim rule across much of Central Asia. As well as silk, the products produced and traded along the route eventually included woollen and

cotton textiles, carpets, tapestries, and draperies. In his journey across Asia to China Marco Polo encountered a long sequence of vibrant commercial cities, including Baghdad and Basra (in today's Iraq), Tabriz, Yazd, and Kerman (in today's Iran), as well as Kashgar (Kashi) in Xinjiang:

"Kashgar has villages and towns aplenty. Its inhabitants live by trade and industry. They have very fine orchards and vineyards and flourishing estates. Cotton grows here in plenty, besides flax and hemp. The soil is fruitful and productive of all the means of life. This country is the starting-point from which many merchants set out to market their wares all over the world" (Marco Polo 1974: 80).

Collective action was vital to a vibrant Silk Road. Safe resting places for merchants along the trading routes were essential to thriving commerce along the Silk Road. Up until the eighth century "Buddhist institutions provided the infrastructure all along the Eastern Eurasian section of the Silk Road" (Liu Xinrui 2010: 72). From the tenth century onwards "Islamic institutions, like the Buddhist ones before them, established themselves on all the major trade routes... [providing] the infrastructure for a large section of the Silk Road" (Liu Xinrui 2010: 106).

Trade along the land route remained vibrant throughout the pre-modern era, through to the eighteenth century (Levi 1999). However, under traditional technologies, which mainly used camels and mules, transport costs across the Silk Road routes were high, and trade along the sea route gradually outpaced that along the land route.

New Silk Road

The development of road and, especially, rail technologies and the transformation of political structures in Central Asia opened up the possibility for a new era for the land route. Under the Russian Empire and the Soviet Union, the vast land mass stretching from Europe to the Pacific was unified politically. Between 1891 and 1916 the Russian Imperial state constructed the Trans-Siberian Railway across the vast expanse of the steppes, and built rail links to Kazakhstan and Uzbekistan. Under the Soviet Union the density of rail links in Central Asia was greatly expanded, helping to stimulate the region's economic development.

Technical progress in railways, including electrification, container rail trucks, and modern signalling systems, have facilitated increased efficiency in rail systems. The fastest recorded journey across the Trans-Siberian Railway from Beijing to Moscow is just eight days, with two weeks the normal time taken. This compares with 40-50 days for transport between Europe and China by the modern sea route. As infrastructure investment develops, using modern technologies for both road and rail, including high-speed trains, the times taken to transport goods between China and Europe will fall and the reliability of the links will increase.

The sea route

Old Silk Road

Trade across the South China Sea (Nan Hai) to Southeast and South Asia is of great antiquity, and was already well developed by the Han Dynasty. The trade across the Nan Hai greatly expanded during the Tang Dynasty:

“The South China Sea was the main trade route of what may be called the Asian east-west trade in commodities and ideas. It was the second Silk Route. Its waters and islands straits were as the sands and mountain passes of Central Asia; its ports were like the caravanserais. It became to the southern Chinese what the land outside the Jade Gate was to the northern Chinese” (Wang Gungwu 1998).

Guangzhou was at the centre of the thriving trade with southeast Asia for the next thousand years. In the thirteenth century, Marco Polo wrote of the city of 'Zaiton' (Xiamen) thus:

“Zaiton is the port for all the ships that arrive from India laden with costly wares and precious stones of great price and big pearls of fine quality. It is also a port for the merchants of all the surrounding territory, so that the total amount of traffic in gems and other merchandise entering and leaving the port is a marvel to behold” (Marco Polo 1974: 237).

From the sixteenth century onwards European shipping technologies progressed and European middle class demand increased. Europe's purchase of Chinese tea, porcelain and heavy textiles (e.g. 'nankeens') greatly expanded. The nineteenth century 'clipper' ship represented the apogee of sailing ship technology. It required around 120-150 days to sail between China and Europe, compared with the years required in the pre-modern era by the land route. By the early nineteenth century the volume of maritime trade between China and Europe greatly exceeded that across Central Asia.

In the nineteenth century the Sea Route was revolutionised by the steam ship, owned and operated mainly by European companies. By 1900 the Nan Hai was encircled by European colonies, including Indonesia, the Philippines, Indo-China, and Malaya. In Southeast Asia communities of Chinese people developed gradually up until the eighteenth century, but accelerated thereafter under European colonial rule.

New Silk Road

Large investments in infrastructure in the countries along the sea route are necessary if the New Silk Road is to achieve its full potential.

The G20 meeting in Sydney in February 2014 took the topic of 'finance for global infrastructure' as a central theme. In the high income countries, ultra-low interest rates have stimulated a renewed bubble in the price of equities, property and other 'assets', with the benefits confined to a small section of the population. In most developing countries, development is constrained by lack of infrastructure development.

Infrastructure provision in South and Southeast Asia still lags behind that in China. Compared with other large Asian countries China enrolls a larger share of the relevant age group in higher education, has more hospital beds per 1000 people, and a much higher electricity consumption per person (Table 2). China

also has a higher percentage of the population with access to sanitation facilities and a higher proportion with electricity. China's transport infrastructure is strikingly more highly developed than that in other large Asian countries. The four Asian countries with the highest populations apart from China are India, Pakistan, Bangladesh, and Indonesia, with a combined population of 1.8 billion compared with 1.3 billion in China. However, China's haulage of goods by rail, the volume of container traffic through its ports, the number of passengers and the volume of freight carried by air, are many times larger than that of the other four large Asian countries taken together (Table 3). China's depth of experience in financing, building and operating transport infrastructure is unparalleled in developing countries.

There are large potential mutual benefits from international co-operation in the provision of a wide range of infrastructure projects that can support accelerated growth and improvement of mass welfare in the countries along the sea route of the New Silk Road.

Conclusion

Infrastructure provision is a vitally important instrument for expanding international economic relationships and thereby deepening cultural interaction. In recent decades China has accumulated more experience than any other country in financing, building and operating infrastructure projects. Infrastructure is central to development of the New Silk Road. Peaceful international relations are the fundamental pre-requisite for success of the New Silk Road. Deng Xiaoping's approach of 'setting aside disputes and pursuing joint development' provides an important guide for the philosophy of infrastructure development along the New Silk Road, whether by land or sea.

Tables:

Table 1: Expansion of China's infrastructure, 1990-2011.

	1990	2000	2011
Freight traffic (b. ton-kilometres) of which:-	2,621	4,432	15,932
- Railways	1,062	1,377	2,947
- Highways	336	613	5,137
- Waterways	1,159	2,373	7,452
- Petroleum/gas pipelines	63	64	289
- Civil aviation	negl.	5	17
Electricity consumption (billion kwh)	623	1,347	4,193
Of which:-			
- Industry	487	1,000	3,087
- Households	48	145	512
Cities:-			
- Public transport vehicles (buses, trolley buses etc.) per 10,000 people	2.2	5.3	11.8
- Percentage of population with access to:			
- gas	19	45	92
- tap water	48	64	97
Building construction:-			
Floor space of buildings completed m. sq metres)	196	807	3,164
Residential housing space p.c. (sq metres):-			
- rural areas	18	25	36
- urban areas	14	25	33
Information technology:-			
Mobile phones per 100 people	-	7	74
Number of internet users (m.)	-	23	513

Source: ZTN 2012: 276, 378, 393, 602, 623, and 657-8

Table 2: Selected indicators of China's infrastructure compared with four large Asian developing countries.

	Enrolment in tertiary education (% age group) (2010)	Hospital beds per 1000 people (2005/10)	Percentage of population with access to improved sanitation (2010) urban rural		Percentage of population with access to electricity (2009)	Electricity consumption per person (kwh) (2009)
China	26	4.2	74	56	99	2,631
Bangladesh	11	0.3	57	55	41	252
India	16	0.9	58	23	66	571
Indonesia	23	0.6	73	39	66	590
Pakistan	5	0.6	72	34	62	449

Source: World Bank 2012: 86-7, 101-1, 108-9, 166-7, 288-9, and 324-5.

Table 3: China's transport infrastructure compared with four large Asian developing countries.

	Goods hauled by rail (billion ton-km) (2000-2010)	Container traffic through ports (million TEU) (2010)	Air passengers (millions) (2010)	Air freight million ton-km) (2010)	Population (million)
China	2,451	129.6	268	17,441	1,338
Sub-total for four large Asian developing countries	611	21.7	107	2,775	1,788
of which:-					
- Bangladesh	1	1.4	2	85	149
- India	600	9.8	64	1,720	1,225
- Indonesia	4	8.4	35	660	240
- Pakistan	6	2.1	6	310	174

Source: World Bank 2012: 320.

Bibliography

- Bairoch, P., 1982. International industrialisation levels from 1750 to 1980. *Journal of European Economic History*, Fall, pp. 269-334.
- Chi, C., 1936. *Key economic areas in Chinese history*. New York: Paragon Reprint.
- Ho, P., 1959. *The Population of China*. Cambridge: Harvard University Press.
- Levi, S., 1999. India, Russia and the eighteenth century transformation of the Central Asian caravan route. *Journal of Economic and Social History of the Orient*, 42(4).
- Li, B., 1986. *The development of agriculture and industry in Jiangnan, 1644-1850: Trends and prospects*. Hangzhou: Zhejiang Academy of Social Sciences.
- Li, B., 1998. *Agricultural Development in Jiangnan, 1620-1850*. Basingstoke: Macmillans.
- Li, B., 2000. *The early industrialisation of Jiangnan, 1550-1850*. (in Chinese). Beijing: Shehui kexue wenjian Publishing House.
- Liu, X., 2010. *The Silk Road in History*. Oxford: Oxford University Press.
- Polo, M., 1974. *The Travels*. Penguin Books.
- Smith, A., 1776. *The Wealth of Nations*. Chicago: University of Chicago Press, Cannan edition (1976).
- State Statistical Bureau, 2012. *Chinese Statistical Yearbook (Zhongguo tongji nianjian)*. (ZTN). Beijing: Zhongguo tongji chubanshe.
- Wang, G., 1998. *The Nanhai Trade*. Singapore: Times Academic Press.
- World Bank, 2012. *World Development Indicators*. Washington DC: Oxford University Press.

Peter Nolan (phn21@cam.ac.uk) was the first holder of both the Sinyi Chair in Chinese Management (1997-2010) in the Judge Business School and the Chong Hua Chair in Chinese Development (2011-2016) in the Centre of Development Studies, both in the University of Cambridge. He is the Founding Director of the University's Centre of Development Studies. Peter Nolan's research is devoted to multi-disciplinary analysis of the political economy of development. He has researched on rural reform, enterprise reform, poverty and famine in China, comparative system reform in China and the USSR, transformation of international business since the 1980s, the contradictory character of globalisation and the long-run history of China and the West.