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The Politics of Financing the Highway Boom in China

For Whom the Road Tolls Rise

ABSTRACT

Fiscal federalism has provided the institutional basis for the rapid highway boom in China for three decades, creating a close linkage between subnational investment and revenue claims on tolled roads. This model of capitalization is financially unsustainable and undermines the standardization of taxation and contracting of public–private partnership projects.

KEYWORDS: fiscal federalism, highway network, public-private partnership, toll roads, local government debt

> *China's strength is that it can plan and implement. Our system, which is too democratic with too much individual freedom that often disregards the rights of others, has made it difficult for us to build infrastructure. [On the building of toll roads:] As long as individual right is above public responsibility, we will not progress. . . . That's the only problem we have now.*
>
> — Indonesian Vice President Jusuf Kalla, at a press conference after meeting with Chinese Vice President Zeng Qinghong in China, quoted in the *Jakarta Post*, June 10, 2007.

INTRODUCTION

A common narrative circulates among policymakers, news pundits, and media analysts that China's success in rapid economic development is chiefly due to the visible hands of the "strong state" in the People's Republic of China. A post-ideological Leninist party-state, riding atop a largely docile

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Asian Survey, Vol. 58, Number 3, pp. 511–534. ISSN 0004-4687, electronic ISSN 1533-838X. DOI: https://doi.org/10.1525/AS.2018.58.3.511.

bureaucracy, demands individual-level compliance and tough sacrifices toward collective goals to produce phenomenal results. Other developing countries' inability to match China's success is invariably due to a more complicated and less coherent policy process, including a weaker core of reform leadership, contentious political parties, and the democratic process, which brings in grass-roots voices. As illustrated in the quotation above, these political transaction costs are blamed for Indonesia's far slower growth in road infrastructure expansion.[1] From 2001 to 2005, the total length of national expressways in China rocketed from 19,453 km to 41,005 km. In comparison, the cumulative length of expressways in Indonesia rose gradually, from approximately 26,000 km to 34,000 km. By 2009, China surged to 65,065 km, while Indonesia appeared stuck at 34,600 km.[2] This is to say that in the immediate aftermath of the Asian financial crisis, Indonesia had more kilometers of expressways but was quickly overtaken in a few years and left far behind in less than a decade. By the end of 2017, China had 136,000 km of expressways—the world's largest system.[3]

To recoup some of the costs of this extraordinary expansion, various levels of the Chinese government have charged tolls on nearly all existing expressways, as well as numerous provincial and municipal higher-grade highways. In 1998, there were a mere 4,700 km of toll-bearing roads, a total that ballooned to over 171,000 km in 2016, constituting around 70% of the total length of tolled roads in the world.[4] Spending has surged, in tandem. From 1990 to 2006, China invested a total of US$ 20 billion in tolled roads.[5] For the period 2010–2015, China was spending US$ 17 billion–18 billion per year

1. A similar view is expressed by *The Economist* of February 14, 2008: "China's Infrastructure Splurge: Rushing On by Road, Rail and Air. China's race to build roads, railways and airports speeds ahead. Democracy, says an official, would sacrifice efficiency" (<http://www.economist.com/node/10697210>, accessed March 9, 2018).

2. "Toll Road Priority in Infrastructure Development Program," *Indonesian Commercial Newsletter*, August 2, 2005; "Inadequate Infrastructure Remains a Stumbling Block," *Indonesian Commercial Newsletter*, January 9, 2010.

3. Zhang Ke, "Our Nation's Expressway Length Has Reached Number One in the World: The Network Backbone Expands." *Diyicaijing* [First Financial Daily], July 14, 2017, <http://www.yicai.com/news/5316423.html>, accessed March 9, 2018.

4. In 2016, there were 1,575 toll booths in operation on toll roads in China. "Total Number of Toll Booths in China from 2014 to 2016," *Statista*, 2018, <https://www.statista.com/statistics/759639/china-toll-booth-number/>, accessed March 9, 2018.

5. Lukas B. Sihombing, "Capital Structure of Indonesian Toll Road Investor," paper prepared for the 3rd International Conference on Business and Management Research, Bali, Indonesia, August 27–29, 2008, <http://ssrn.com/abstract=1421452>, accessed March 9, 2018.

on the expressway network, and officials have planned annual investments of around US$ 12 billion from 2015 to 2020.[6] This unprecedented expansion of the highway network has earned China the World Bank's praise, singling out the Chinese toll system as "good international practice."[7]

Given China's authoritarian politics and unitary state structure, how does Beijing motivate localities to invest aggressively in infrastructure, and how does it maintain control over the forces unleashed by decentralization? I argue that the close linkage between *subnational* investment sources and residual claimant property rights in China is a major contributing factor to rapid capitalization for road construction, as well as to the financial and governance problems that have ensued from the boom. Through an overview of the political institutions that shape subnational officials' fiscal and financing decisions on road-building, illustrated by empirical data on the financing of highways, I demonstrate the non-unitary structure and disjointed processes of infrastructure politics. These suggest that China's rapid addition of roads should be seen not as an output of top-down resource mobilization capacity unique to China's regime type, as often characterized by outsiders—such as in the above quote from Jusuf Kalla—but rather as a suboptimal outcome of bureaucratic fragmentation and local officials bent on a short-term, opportunistic fiscal calculus. In particular, provincial governments have played a key intermediating role in the financing, construction, and redistributive aspects of highway and rural road expansion, for which they sought rewards through charging tolls, irrespective of legality and the consequences for economic welfare.

This article will analyze the following crucial political economic dynamics driving the remarkable highway infrastructure expansion in China since the 1990s:[8]

6. Zhang, "Our Nation's Expressway Length."

7. Binyam Reja, Paul Amos, and Fan Hongye, "China Road Tolls Policy: Past Achievements and Future Directions," *World Bank News/Opinion*, June 14, 2013, <http://www.worldbank.org/en/news/opinion/2013/06/14/china-road-tolls-policy-past-achievements-and-future-directions>, accessed March 9, 2018.

8. The data cited below draw on research findings discussed by K. C. Lin in "The Development of Road Networks in China: Miscalculations and Inequalities," *Asie.Visions* 24 (February 2010), Institut français des relations internationales, Paris, <https://www.ifri.org/en/publications/enotes/asie-visions/development-road-networks-china-miscalculations-and-inequalities>, accessed March 9, 2018.

- The central government sets quantitative targets for national trunk-line expansion and regional variations on network connectivity.
- Economic decisions and organizational capacities to launch a road project are committed at the provincial governmental level.
- The financial model involves using a small amount of central government funding to draw the bulk of highway capitalization from domestic commercial banks and local governmental fiscal resources, in which international financial institutions (e.g. the World Bank and Asian Development Bank) and foreign investors play a minor role.
- Private investment has grown in importance in the 2000s due to policy support for various public–private partnership (PPP) initiatives.
- National legal and regulatory codification has little impact on how localities conduct their road-building strategies in China, forcing central planners to make concessions on toll terms even since the implementation of a national fuel tax in 2009.

The paper draws on statistical data at national and provincial levels, Chinese journals and industry-related websites, the author's fieldwork in Beijing and the Chinese province of Guangxi, and collaborative research with the Chinese Academy of Social Sciences.[9]

ACTORS AND INSTITUTIONS IN INFRASTRUCTURE POLICYMAKING

In the meta-narrative of new institutional economics, the ruler acts as a "stationary bandit"—working from a longer-term horizon to calculate the

9. The Chinese-language literature on the political economy of roads and road-building is considerably larger in output but not more diverse in perspectives and applied methodology than English-language publications by the World Bank and the Asian Development Bank. Like the English-language studies, their common focus is documenting and explaining the mechanisms of the contribution of roads to rural development. More varied, interdisciplinary, and bottom-up perspectives can only be obtained by careful reading of specialized transport journals such as *China Communications News* and *China Communications* and related industry journals such as *Construction Machinery Technology and Management Journal*, as well as several officially sponsored websites. Provincial and sub-provincial publications also provide a wealth of information, of which I have taken advantage in preparing case studies in this paper. Household surveys and post-project-completion evaluations of road projects have been conducted for most major, higher-class road projects, but they are often held by provincial governments and consulting companies as proprietary documents and thus not readily available to the general public.

returns on policies and capital investments.[10] As the world's most powerful Leninist political party, overseeing the fastest output growth rates since World War II, the Chinese Community Party can be counted on to recognize that a basic level of institutional checks on central state extraction and rent-seeking by its agents is desirable for regime survival. The proper extent of revenue imperative should stop at the marginal point where the scale and unpredictability of corruption and inefficiency in capital usage become high enough to deter further investment—in the context of highway construction, Beijing was willing to tolerate local agents' rent-seeking behavior up to the point that the added length of highways imposed prohibitive transport costs for highway users, fiscal and financial institutional risks, and party-state disciplinary problems.[11] Under Jiang Zemin's leadership of the Chinese Communist Party in the 1990s and early 2000s, China approached this calculus for infrastructure expansion characteristically, emphasizing the principle of local financing of public goods under central government guidelines. In the late 1980s, Beijing institutionalized the de facto revenue claims of local governments over new road construction, hoping that this form of fiscal and administrative decentralization would encourage local officials to make good use of local information and financial resources to increase investment in roads.[12]

To maintain control over the aggregate outcomes of local initiatives, Beijing neither gives localities independent fundraising authority commensurate with the planned expenditure on public works, nor allows them to fully determine their demand for road projects, as in a federalist system such as that of the United States. As a result, subnational officials in charge of meeting the aggregate targets have exploited the revenue potential of the higher grades of roads—in particular Class I and Class II Highways, which are typically under provincial jurisdiction—to create a general fund to build lower-grade and rural roads with little prospect for commercialization. This cross-project fiscal transfer is non-institutionalized and unregulated through

10. Mancur Olson, "Dictatorship, Democracy, and Development," *American Political Science Review* 87:3 (1993), 567–76.

11. Michel Bellier and Yue Maggie Zhou, "Private Participation in Infrastructure in China: Issues and Recommendations for the Road, Water, and Power Sectors," World Bank Working Paper No. 26057 (2003): 7; Zhang, "Our Nation's Expressway Length."

12. For an economic model summarizing the basic arguments, see Yingyi Qian and Chenggang Xu, "The M-form Hierarchy and China's Economic Reform," *European Economic Review,* 37 (1993), 541–48.

the local budgets and the central funnel of the Ministry of Transport. Over the past two decades, this has created entrenched bureaucratic interests that have successfully resisted Beijing's effort to change the decentralized framework, even as it has clearly resulted in poor resource allocation and corruption.[13]

The national bureaucracy overseeing the development of the national highway network has been stable through the reform era. As the functional ministry in charge of road matters, the Ministry of Communications—restructured and renamed the Ministry of Transport in 2009[14]—collects vehicle surcharges and road maintenance fees from new car buyers and local governments for a general fund from which central transfers and subsidies to localities for road-building are drawn. Presumably, the Ministry of Finance also has a hand—if not much of a say—in Beijing's financial allocation. The National Development and Reform Commission—as the latest reincarnation of the State Planning Commission—plays the critical role of approving expressway and higher-grade highway project proposals and reviewing supporting documents, including various impact assessment reports at the proposal stage and post-construction evaluation reports. Finally, the Ministry of Railways and the former Ministry of Construction have influenced the supply of construction capacity as quasi-commercial bidders of road projects.

The collective effort of these ministries under the State Council supplies the architectural blueprint and coordination in the expansion of transport infrastructure. In the 8th Five-Year Plan (FYP, 1990–94), the central government set up the major highway framework for the country—the "five verticals and seven horizontals" (*wu zong qi heng*)—including twelve

13. In the late 1990s Beijing had reversed gears on decentralization, engaging in recentralization of authority and resources in several significant areas, including the financial sector, strategic industries, and social services. For examples, see K. C. Lin, "Macroeconomic Disequilibria and Enterprise Reform: Restructuring the Chinese Oil and Petrochemical Industries in the 1990s," *China Journal* 60 (2008), 49–79; Dali Yang, *Remaking the Chinese Leviathan: Market Transition and the Politics of Governance in China* (Stanford, CA: Stanford University Press, 2004); Dali Yang, "Regulatory Learning and Its Discontents in China: Promise and Tragedy at the State Food and Drug Administration," in J. Gillespie and R. Peerenboom (eds.), *Pushing Back Globalization* (Abingdon: Routledge, 2009), 115–34, 284–88; Barry Naughton, "A Political Economy of China's Economic Transition," in L. Brandt and T. Rawski (eds.), *China's Great Economic Transformation* (New York: Cambridge University Press, 2008), 91–135.

14. For details on the administrative change, see Zhang Na, "Approval of the 'Three Establishments' of the Ministry of Transport," *Caijing Magazine*, March 18, 2009, <http://www.caijing.com.cn/2009-03-18/110123414.html>, accessed March 9, 2018.

high-quality national trunk lines with a total length of 35,000 km. The 9th FYP (1995–2000) initiated the construction of "two verticals and two horizontals" and three important trunk-line sections, with a total length of 17,000 km. These goals were accomplished by the end of the 10th FYP, forming the basis of the 2004 National Highway Network Plan. Under the policy goal of Hu Jintao and Wen Jiabao to achieve more balanced growth, the State Council approved a Rural Road Construction Plan under the 11th FYP (2006–2010), which represented the first national infrastructure construction plan for the rural areas.[15] Since the 18th Party Congress, in 2012, transport networks have been strategically linked to regional and interregional multimodal connectivity and macro-planning ambitions, including the Belt and Road Initiative, the Beijing-Tianjin-Hebei integration initiative, and the Yangtze River Economic Belt initiative.[16]

Central priorities are communicated to local officials through the local bureaus of the Ministry of Communications and planning agencies at each level of the government. The results of local activities are summarized in annual work reports submitted to Beijing and FYP reviews, primarily through three summary indices: nationwide aggregate road length, length of high-grade highways (defined as expressways and highways above Class II in technical specifications[17]), and road density or geographical coverage, as measured by the extent to which townships and administrative villages are connected by roads. At the commencement of reform in 1978, the total length of highways in the country was only 890,000 km, an average density of 9.3 km per 100 km^2.[18] Only 91.5% of townships and 65.8% of administrative

15. "China Will Invest 100 billion Yuan to Promote Rural Road Construction in the Eleventh Five-Year Plan," *Economic Daily*, October 28, 2005, <http://www.gov.cn/ztzl/2005-10/28/content_85849.htm>, accessed March 9, 2018.

16. "State Council Information Office: Development of China's Transport Network," *China Daily*, December 30, 2016. For a holistic interpretation of recent mega spatial planning projects, see Vivienne Shue, "Maps, Dreams, and Trails to Heaven: Envisioning a Future Chinese Nation-Space," in V. Shue and T. Thornton (eds.), *To Govern China: Evolving Practices of Power* (Cambridge: Cambridge University Press, 2017).

17. The classification (on technical grounds) used by the World Bank is based on the width of the road surface and includes Expressways (width 28 m), Class I (25.5 m), Class II (12 m), Class III (8.5 m), and Class IV (7 m). World Bank, "China Study Tour by New Delhi Office Transport Team," October 2007, <http://siteresources.worldbank.org/EXTSARREGTOPTRANSPORT/Resources/579597-1128434742437/1735263-1128434796061/China_Study_Tour_Report_Rev3.pdf>, accessed March 9, 2018.

18. The above data are based on "The Developing Trajectory and Overall Strategies of China's Highways," *China Transport*, March 22, 2005.

villages were connected by roads.[19] In the early years of reform, tightly controlled money supply and credit policy had hampered road-building, leading to widespread urban congestion and transport bottlenecks.[20] After more than a decade of construction, the total length of highways amounted to 1.028 million km by 1990, of which county and town roads accounted for 33% and 36%, respectively.[21] By 1995, the total length of highways reached 1.157 million km, and roads connected 97.1% of townships and 80% of administrative villages. From 1995 to 2000, the percentages of townships and administrative villages connected by roads had increased by 1.2% and 9.5%, respectively.[22] By 1999, all the counties of China were connected by roads.[23] With a highway density of 14.6 km per 100 km^2, the total length of highways reached 1.402 million km by 2000.

The proportion of high-class roads jumped to 13.5% of total roads in 2000, from only 1.3% in 1978. The 10th FYP (2001–2005) saw the completion of 24,700 km of highways, which was 1.5 times the combined length of highways constructed under the 7th, 8th, and 9th FYPs.[24] The total investments in rural road construction during the 10th FYP amounted to 417.8 billion yuan (US$ 50.6 billon), which was three times the investment under the 9th FYP.[25] As of 2005, the cumulative length of highways stood at 1.93 million km, of which county and township roads accounted for 25.6% and 50.3%, respectively. Highway density rose to 20.1 km per 100 km^2, 2.6 km per 100 km^2 higher than at the end of the 9th FYP. The percentages of townships and administrative villages connected by roads reached 99.8% and 94.3%, respectively,

19. "Rural Roads' Development Status, Future Prospects and Countermeasures in China," *Topics in Transport and Development Research*, December 28, 2005, <http://dev.catsic.com/gzdt-show.asp? column_id=80&column_cat_id=11&fileName=gzdt>, accessed October 10, 2012.

20. S. Fan and C. Chan-Kang, "Road Development, Economic Growth, and Poverty Reduction in China," Research Report 138 (2005), International Food Policy Research Institute, Washington, DC: 16–17.

21. "Highway Construction: Total Highway Mileages in China According to Administrative Levels," *China Transport*, April 1, 2001.

22. "General Situation of Infrastructural Construction and Technical Innovation in 2000," *China Transport*, February 26, 2000.

23. "The Developing Trajectory and Overall Strategies of China's Highways," *China Transport*, March 22, 2005.

24. Ministry of Communications, "The Statistic Gazette on the Development of the Transport Sector of Highways and Waterways in 2005," May 22, 2006.

25. "China Has Sped Up Investments on Rural Road Construction in the Tenth Five Year Plan," *Xinhua News Agency*, February 27, 2006, <http://www.gov.cn/jrzg/2006-02/27/content_212584.htm>, accessed March 9, 2018.

representing increases of 1.5% and 4.8% over the figures at the 9th FYP.[26] By the end of the 12th FYP in 2015, China's total highway traffic length reached 4.58 million km, with 99.9% of towns and townships and 99.8% of administrative villages connected by highways.[27] The 2030 Road Master Plan designates 5.8 million km of total road network, including 400,000 km of national highways and over 180,000 km of expressways.[28]

These indicators capture how the infrastructure expansion is seen through the eyes of national politicians and central planners in Beijing. Localities see the projects quite differently. The following analysis of local governmental incentive schemes focuses on their approach to financing toll-bearing highways, which constitute a relatively small percentage of total roads but serve as vehicles for rent-seeking activities of local officials and their private clients.[29] Their fiscal importance is revealed by their faster year-over-year growth compared to the lower-grade roads, and by local officials' resistance to Beijing's repeated attempts to change or enforce the contractual terms of tolls. For the present discussion, I will set aside discussion of rural roads, which are based on a different financing model and typically involve different agencies and interests.[30]

FINANCING HIGHWAYS UNDER QUASI-FEDERALISM

Chinese provinces have been the dynamic players in transport development throughout the reform era. The broad framework for the provision of highway projects can be characterized as *fiscal federalism*. Far from a static institution,

26. Ministry of Communications, "The Statistic Gazette on the Development of the Transport Sector of Highways and Waterways in 2005," May 22, 2006.

27. "State Council Information Office: Development of China's Transport Network," *China Daily*, December 30, 2016. However impressive, the outcome fell short of the ambition of the 11th FYP. "New Starting Point, New Mission, New Transformation: Minister of Transport Lee Shenglin Speaks on Rural Road Construction," *Nongmin Ribao* [Farmers' Daily], March 11, 2006.

28. Praveen Duddu, "The World's Biggest Road Networks," *Road Traffic Technology*, January 12, 2014, <http://www.roadtraffic-technology.com/features/featurethe-worlds-biggest-road-networks-4159235/>, accessed March 9, 2018.

29. The percentage of toll roads in the total mileage of roads in China was around 3.6% in 2016 (*Statista*, "Percentage of Toll Roads"). The notion of rent-seeking applicable to our case study is a broad one covering public–private collusion, manipulation of prices and market entry control, inappropriate lobbying, appropriation of public properly for private gain, misuse of budgetary funds for private gain, arbitrary charges, etc. Tak-Wing Ngo and Yongping Wu (eds.), *Rent Seeking in China* (London: Routledge, 2009).

30. Rural roads and have been handled differently by central planners under Jiang Zemin and Hu Jintao, with the latter explicitly incorporating their lengths into aggregate accounting for the national highway plans. See Lin, "Development of Road Networks in China," for details.

this framework has allowed the terms of decentralization and cost-sharing arrangements to vary over time, mostly in accordance with the central government's interests. In the mid-1980s, central planners began to liberalize constraints on the local states' fundraising. Under the planned economy, road-building had been predominantly financed by government appropriations, profits from the state-owned enterprises, and local government levies.[31] In 1984, the State Council gave the green light to local governments to construct toll roads and seek multi-source funding, including from international organizations, domestic banks, and private investors. During the 7th FYP (1985–89), the government further approved various vehicle surcharges, port construction fees, and so on. More significantly, local transport agencies were authorized to charge tolls on roads for which they had raised funds. In addition, the government continues the policy of expropriating agricultural land for infrastructure development at low, non-market prices. These new financial incentives and options have contributed to the rapid expansion of roads.[32]

Fiscal Federalism

Until 2009, the Ministry of Communications (MOC) had two major sources of finance: a vehicle purchase levy (*chegoufei*, about 10% of the total cost of the car), which is intended for use in road construction; and a road maintenance fee (*yanglufei*, about 100 yuan per ton of goods), mainly levied on transport companies, and collected by local transport authorities on behalf of the central ministry. With the rapid increase in vehicle ownership in China, this vehicle purchase levy shot up from 21.6 billion yuan (US$ 2.6 billion) in 2000 to 116.4 billion (US$ 17 billion) in 2009.[33] The collected levy spent on rural transport development amounted to 1.4 billion yuan (US$ 169 million) in 2001, 10.8 billion (US$ 1.3 billion) in 2003, 22.7 billion (US$ 2.9 billion) in 2006, 36.54 billion (US$ 4.8 billion) in 2007, 22.07 billion (US$ 3.2 billion) in 2008, and 45.4 billion (US$ 6.7 billion) in 2009–10.[34]

31. Fan and Chan-Kang, "Road Development": 19.

32. Based on Vice Minister of Communications, "The Infrastructural Development of China's Highways and Waterways and Investment Policies," *Guanli Shijie* [Management World] 2 (1995).

33. Asian Development Bank report, as cited in "National Funding of Road Infrastructure: China," Law.org, Library of Congress, <https://www.loc.gov/law/help/infrastructure-funding/china.php>, accessed March 9, 2018.

34. "Eight Objectives for the Ministry of Transport Regarding Rural Roadwork in 2009," *Xinhua*, April 17, 2009.

These expenditures represented only around 40% of the total revenue from this levy, which suggests that the remainder was spent on urban infrastructure and higher-grade roads.[35] Although by definition road maintenance fees are exacted not for the purpose of building new roads but for maintaining existing ones, in fact they were a main source of funding for road-building projects at subnational levels throughout the 1980s and 1990s.[36] Vehicles affected by these fees include farm tractors, passenger vehicles, and freight carriers. In rural areas, farm tractors provided the bulk of taxation. The road maintenance fee invested in all types of road construction amounted to 86.089 billion yuan (US$ 10.5 billion) in 2005, which was only a minor portion of the predicted total investment for 2005 of 488 billion yuan (US$ 59.6 billion) in roads.[37] As local highway authorities had collected and managed these fees on behalf of the MOC from 1996 to 2009, in practice the fees first went into the local treasury, and then part of the sum would be submitted to the MOC, while the localities also directly tapped into this fund for their expenditures. Cognizant of the problematic uses of the two streams of revenues collected, the MOC had kept the cash flow largely as a black-boxed internal operation.[38]

The politics of these two revenue streams diverged in the 2000s. While the vehicle purchase levy continued profitably, road maintenance fees were abolished with the introduction of a national, standardized fuel tax in 2009.[39] The

35. Lin, "Development of Road Networks in China": 17. In 2012, vehicle purchase levy made up 17% of the total of 1,112.5 billion yuan (US$ 183.93 billion) in highway construction nationwide. However, it is clear that the sum was not all used for this purpose. Law.org, "National Funding of Road Infrastructure: China."

36. Antonio Postigo, "Financing Road Infrastructure in China and India: Current Trends and Future Options," *Journal of Asian Public Policy* 1:1 (2008): 71–89. Postigo points out that in the last 15 years the main focus of road transport policymakers in China has been new construction, with management of road assets lagging behind. China has spent on road maintenance only a third of actual needs—0.1% of its GDP—and only six of the 31 provinces, all of them in the east, generated sufficient funds for adequate maintenance of their road asset base.

37. Ibid.

38. In 2006, under pressure from various governmental sources, the MOC released the 2003 data on the usage of road maintenance fees. Apparently, 45% of that fund went into maintenance and upgrading of roads, while 15.5% was allocated to the construction of new roads, and another 15% specifically supported the construction and maintenance of rural roads. The remaining 24.5% mostly paid for overhead costs. *Zhongguo Jiaotong Bao* [China Transport Newspaper], November 24, 2006, posted on the official MOC website: <http://www.moc.gov.cn/06jiaotongbaoxw/lishixw/06nian11y/200611/t20061124_125372.html>.

39. Asian Development Bank, *Financing Road Construction and Maintenance after the Fuel* Tax *Reform* (Mandaluyong City, Philippines: ADB, 2012).

cause of the abolition was at least partly political. Over time, road maintenance fees became a significant source of social contention, including tax evasion by certain types of vehicle owners, including farmers with tractors, as well as what transport officials decried as diminishing law-abidingness among drivers.[40] One official stated, "In certain regions, resistance has evolved from the individual acts of disobedience in the past to collective action in resisting, gang beating, and taunting and scolding fee collectors."[41]

Reinforcing the trend of tax evasion was the general fee-to-tax reform initiated in the late 1990s. While widespread implementation of this reform and dramatic tax cancellations were not achieved until 2003, policy pressures to reduce local fees and levies had mounted in prior years.[42] The 1999 revision of the Highway Law officially banned further collection of road maintenance fees: "Drivers no longer need to pay highway maintenance fees, and highway agencies should not ask for such fees from drivers or collect fees in arrears."[43] But localities blatantly ignored the top-down prohibition, at the peril of administrative punishment from Beijing and escalating lawful resistance from vehicle owners. Since the end of the road maintenance tax in 2009, localities have faced a different sort of difficulty in lacking adequate central transfers or alternative financing mechanisms to keep up road maintenance.[44]

Consistent through the reform era is the provincial government's primary role in funding subnational highways, with the latest requirement that provinces raise 35% of the initial capital from their own revenue streams (including tolls) and by selling treasury bonds; the other 65% of the cost may come from bank loans.[45] Even if central transfers (ministerial special funds and treasury bonds) rarely exceed 10% of the total funding of major expressway and highway projects, provincial officials cannot afford to disregard lobbying, since a host of issues that are more important than the subsidies alone are at stake with these central–local co-financing (*peitao*) projects. These considerations include the approval of future projects, routes of national trunk lines,

40. *Renda Yanjiu* [People's Congress Research] 98/99 (2000): 22.

41. Ibid.

42. "Rural Tax Reform's Impact on Financing the Building and Maintenance of Village and Township Roads," *Jiaotong Caihui* [Transport Finance & Accounting] 187:2 (2003).

43. "Road Maintenance Fee Has Been Illegally Collected in the Past Six Years," *Jiancha Ribao* [Procuratorial Daily], August 24, 2006.

44. Asian Development Bank, *Reforming the Financing System for the Road Sector in the People's Republic of China* (Mandaluyong City, Philippines: ADB, 2015).

45. Fan and Chan-Kang, "Road Development": 21.

anti-poverty subsidies, terms of toll roads, credit access, and cadre management assessment of individual officials.

The 1997 PRC Highway Law formulated a series of criteria and regulations on highways financed by loans that were then repaid by fees and levies on road users, on toll roads with domestic and foreign investments, and on the transfer of residual highway property rights. Given the improved legal groundwork, financing sources for highways were becoming increasingly diversified. For instance, during the 9th FYP period, road maintenance fees accounted for 53% of the total funds for road constructions, far less than in the past. A further 36% came from other domestic sources, including vehicle purchase levies, various government transfers, domestic bank loans, and treasury bonds. Beijing started to issue long-term public bonds as a primary means of domestic fiscal stimulus in the aftermath of the Asian financial crisis. Around 87 billion yuan (US$ 10.5 billion) in bonds were issued between 1998 and 2002, providing a major boost to the construction of rural roads.[46] That sum represented 13.2% of the entire bond issuance during the same period.

Under Wen Jiabao, the State Council discussed reducing bond support for highways—to about 10% of the total bond issuance—as part of a less inflationary macroeconomic policy with tempered fixed capital investment.[47] Domestic commercial banks could have pulled back on their lending in view of the reduced bond support. However, these considerations were abruptly and decisively overtaken by the massive stimulus package in 2008–10 to counter the global recession. As a result, China experienced a dramatic infrastructure project boom, which continued under subsequent federal efforts to bolster its economy in the midst of the prolonged global recession, leading to unprecedented highway network expansion. Nearly 40% of China's expressways were built between 2010 and 2015, reflecting an annual growth rate of 51% in length—and they were over 67% debt-financed.[48] It is arguable that the transport sector is now afflicted with the same overcapacity problem of many Chinese industries.[49]

46. Fan and Chan-Kang, "Road Development": 19.

47. "Current State and Developmental Goals of Road Construction in China," *Jianshe Jixie Jishu yu Guanli [Construction Machinery Technology and Management Journal]*, August 2004.

48. "China Chalks Up $667-billion Debt Pile over Toll Roads," *Reuters Business News*, September 21, 2016, <https://www.reuters.com/article/us-china-roads-debt/china-chalks-up-667-billion-debt-pile-over-toll-roads-idUSKCN11R0NX>, accessed March 9, 2018.

49. J. Wang et al., "Determining the Reasonable Scale of a Toll Highway Network in China," *Journal of Transportation Engineering* 140:10 (2014): 04014046.

With increased cash flow and pressure for divestiture of formerly state-owned enterprises, provinces face more actors queueing up for a slice of highway pork. State-owned commercial banks have found highways to be the next best thing to real estate, as politically insured, growth-policy-oriented investments.[50] International financial institutions such as the Asian Development Bank and the World Bank have enthusiastically lent to highway projects consistent with poverty reduction goals, and have been getting deeply involved in documenting the environmental, compensatory, resettlement, and other social externalities of road projects. With increasing participation by international financial institutions and foreign investors, foreign loans and foreign direct investment constituted around 8% and 3%, respectively, of total highway capitalization in the first decade of the 2000s. But the scale of foreign investment in Chinese roads has tapered off since 2010: in 2012, it represented only 0.4% of total investment in highway construction.[51]

More troubling for governance is the provincial governments' sponsorship of hybrid property forms in search of private gains and funding flexibility. Two typical measures are publicly listed stock companies based on highway projects, and privatized construction firms that were spin-offs from provincial highway bureaus (*gongluju*) or communications department (*jiaotongting*) agencies seeking to bid on parts of highway projects. The proliferation of the local government investment vehicle since 2008 was strongly associated with listed highway companies.[52] As will be described later, these well-networked firms maintain significant influence over the provinces' allocation of resources and residual property rights, and in the process, shape the quality of private participation or market forces in the transport sector. From a fiscal standpoint, decentralized fundraising for infrastructure projects has not been consistently found to support positive development expenditure or greater regional marketization.[53] In fact, highway finance has become a major source

50. Author's interview of MOC official, Beijing, July 2005, who claimed that banks did not bother to perform due diligence on the investment risks of highways.

51. Law.org, "National Funding of Road Infrastructure: China."

52. He Yang, Kun-Chin Lin, and Tao Ran, "Local Government Fiscal Imperative and Debt-Financing in China," in P. Arestis and M. Sawyer (eds.), *Fiscal and Debt Policies for the Future,* International Papers in Political Economy Series (New York: Palgrave MacMillan, 2014).

53. Shuo Chen and Xiaobo He, "Road to Success? The Effects of Road Toll on Economic Growth in China," *Applied Economics Letters* 22:2 (2015): 158–62; Pinaki Chakraborty and Yan Zhang, "Economic Reforms and Infrastructure Spending: Evidence from China and India," WIDER Research Paper 2009/43, United Nations University World Institute for Development Economics

of local state indebtedness, negatively affecting a wide spectrum of fiscal behaviors and bureaucratic governance.[54]

Snowballing Indebtedness

Since the mid-1990s local governments in poorer regions have increasingly accrued debt to meet the central government's expectations for transport infrastructure expansion.[55] As the northeastern, central, and western regions of China are predominantly public-sector-driven in the highway boom, local governments bear the brunt of the snowballing debt levels.[56] In 2014, of the total debt of 3.8 trillion yuan (US$ 617.1 billion) accrued to Chinese highways, 2.2 trillion yuan (US$ 357.3 billion, 54.4%) stemmed from government-owned toll roads, compared to 1.6 trillion (US$ 259.8 billion, 45.6%) from commercially operated toll roads. In the face of a dwindling local revenue base and constant central transfers—amounting to around 25%–30% of the total capital needed—Gansu Province became increasingly indebted through bank loans and international organizations and foreign private lenders, incurring about 7 billion yuan (US$ 845.5 million) in loans as of 2000.[57] Henan Province accumulated 32 billion yuan (US$ 4 billion) in debt just for provincial highways, generating an interest payment of 2.5 billion (US$ 313.6 million) per year in 2006. The entire sum of toll collection for the year was only 2 billion yuan (US$ 250.9 million), making repayment impossible. As a result, 87 toll stations in Henan were handed over to creditor banks.[58] Nationwide, in the early 2000s, around 17 provinces were running net deficits on their roads, usurping resources estimated at about one-third of the total central transfers for road projects.[59]

Research, <http://www.wider.unu.edu/publications/working-papers/research-papers/2009/en_GB/rp2009-43/>, accessed March 9, 2018; Postigo, "Financing Road Infrastructure": 71–89.

54. Atif Ansar et al., "Does Infrastructure Investment Lead to Economic Growth or Economic Fragility? Evidence from China," *Oxford Review of Economic Policy* 32:3 (2016): 360–90.

55. M. Xu, S. Grant-Muller, and Z. Gao, "Evolution and Assessment of Economic Regulatory Policies for Expressway Infrastructure in China," *Transport Policy* 41 (2015): 42–49.

56. World Bank, "An Overview of China's Transport Sector: 2007," EASTE Working Paper No. 15, East Asia Transport, Energy and Mining Sector Unit, 2007.

57. *Renda Yanjiu*, Vols. 98 and 99 (2000): 22.

58. "Henan's Total Toll Collection Cannot Pay Off Loan Interests, Problems of Over-Investment Exposed," *Zhongguo Jingji Zhoukan* [China Economic Weekly], September 11, 2006.

59. "The World Bank Says Chinese Highway Toll Is Higher Than the World Mean," *Zhongguo Qingnian Bao* [China Youth Daily], February 13, 2007.

Financial troubles with highway projects reached a crisis level in 2014, when many local government investment vehicles tied to failed highway projects were exposed as the tip of the iceberg of a worrisome trend of snowballing local indebtedness.[60] Nationwide, highways became a net money-losing business from 2011, when the gap between expenditure and revenue was 32.3 billion yuan (US$ 5 billion), and precipitously declined from that point on net losses of 56.6 billion (US$ 9 billion) in 2012, 66.1 billion (US$ 10.7 billion) in 2013, 157.1 billion (US$ 25.5 billion) in 2014, 319 billion (US$ 50.7 billion) in 2015, and 414 billion (US$ 62.3 billion) in 2016.[61] In 2016, the Ministry of Transportation disclosed that toll roads have stacked up a debt pile of 4.45 trillion yuan (US$ 708.2 billion)—a massive jump from 3.8 trillion (US$ 617 billion) in 2014—with almost 80% of the toll income of 410 billion (US$ 65.3 billion) in 2015 going to repay loans.[62]

Ironically, under extreme fiscal duress, local transport officials may be further incentivized to favor additional construction of higher-grade roads to earn tolls, and to charge tolls beyond the legally permitted period. For example, at the end of 2008, 95% of expressways, 60.77% of Class I highways, and 44% of Class II highways nationwide were toll roads. After the introduction of the fuel tax, Class II highways saw a temporary dip in toll level, with the road grade distributions at 99%, 41%, and 18% as of 2010.[63] However, by 2014 the proportion of Class II roads charging tolls had bounced back to 42%.[64] Predictably, the higher-grade highways captured most of the traffic and revenue—out of the total of 391.6 billion yuan in revenue in 2014, expressways made 354.9 billion (US$ 57.6 billion), Class I highways took in 16 billion (US$ 2.6 billion), and Class II highways

60. Hui Jin and Isabel Rial, "Regulating Local Government Financing Vehicles and Public-Private Partnerships in China," International Monetary Fund Working Paper, Fiscal Affairs Department, September 2016.

61. "China's Toll Road Losses Double in 2015," *Xinhua*, September 21, 2016, <http://www.chinadaily.com.cn/business/2016-09/21/content_26848672.htm>, accessed March 9, 2018; 2016 data from Statista. Cai Shenkun, "Tolled Highways: Why do the Losses Mount Even as Revenues Rise?" personal blog post, September 24, 2016, <http://caishenkun.blogchina.com/496797216.html>, accessed March 9, 2018.

62. Ibid.

63. Xiaoxia Yao, "Toll Road Development in China: Highlights in Practice", presented at the 2012 meeting of the International Bridge, Tunnel and Turnpike Association, September 11, <https://ibtta.org/sites/default/files/Yao_Xiaoxia.pdf>, accessed March 9, 2018.

64. "China's New Roads Are Taking a Toll: If Toll Payments Are So High, Why Is China's Highway System Strapped for Cash?" *business.sohu.com*, September 29, 2015.

7.6 billion (US$ 1.2 billion).[65] However, in impoverished Hunan Province, total governmental and private debts relating to Class II highway construction amounted to nearly 30 billion yuan (US$ 4.4 billion) as of 2009, of which 60% can be attributed to the provincial government, and among the Class II highways, 94.25% charged tolls.[66] This suggests an interaction effect between provincial fiscal shortage and state-led investment biases that exacerbates regional inequalities. Facing the pressures of a slowing economy, less developed provinces have sought GDP growth stimulus from public works.[67] A Guizhou provincial government report in 2013 claimed that a 100 million yuan (US$ 16.3 million) investment in roads would create 400 million (US$ 65 million) in GDP growth and an unspecified number of jobs.[68] For these provinces, compared to the more robust and structurally balanced coastal provinces, there is a strong incentive to direct revenue from highway tolls into building more toll-bearing roads rather than to repay existing loans.

PRIVATE INVESTMENT

Public–private partnership in infrastructure provision has been in use in China since the mid-1990s. There have been two main types of PPP: private finance initiatives (PFIs) and build-operate-transfer (BOT), which was the dominant type in 1995–2005 and has shown a poor performance record and faulty corporate governance practices.[69] BOT is a form of concession,

65. Ibid.

66. "Hunan: Starting May 1 the Government Will Discontinue Toll Stations for Class II Roads," *Renminwan* [People.com.cn], April 29, 2009, <http://unn.people.com.cn/GB/14778/21707/9216467.html>, accessed March 9, 2018.

67. According to the MOC, the debts of Class II roads financed by government loans had piled up to 500 billion yuan as of 2009. This figure likely underestimated the extent of damage, as most provinces were still in the midst of debt audits at the time of the report. "What to Do with the Outstanding Debt, Now That Toll Stations Are Discontinued in Hunan?" *Xiaoxiang Chenbao* [Xiaoxiang Morning Post], April 30, 2009, <http://news.csonline.com.cn/hn/200904/t20090430_940258.htm>, accessed October 10, 2012.

68. "China's New Roads," *business.sohu.com*.

69. The types are also distinguished as "government pays" vs. concession or "user pays." Makoto Ojiro, "Private Sector Participation in the Road Sector in China," *Transport and Communications Bulletin for Asia and the Pacific* 73 (2003); Chang C. and Chen S., "Transitional Public–Private Partnership Model in China: Contracting with Little Recourse to Contracts," *Journal of Construction Engineering and Management* 10:1061 (2016); S. Zhang et al., "PPP Application in Infrastructure Development in China: Institutional Analysis and Implications," *International Journal of Project Management* 33 (2015): 497–509; S. Zhang et al., "Critical Review on PPP Research: A Search from the Chinese and International Journals," *International Journal of Project Management* 34 (2016): 597–612.

wherein a private company receives a contract from the provincial government to finance, design, construct, and operate a highway for a specified period, after which ownership is transferred back to the government. During that period the private company has residual rights to charge tolls to enable a speedy recovery of its investment and to pay for operating and maintenance expenses in the project. The Chinese provinces have embraced BOT—historically more popular in Asia than in Western countries—as an appealing alternative to lengthy procedures in public-sector financing of highways.[70] BOT road projects started in 1992 and gathered momentum rapidly. At the height of the highway boom decade up to 2014, about 50–60% of new projects were BOTs, raising alarms in Beijing on management issues.[71] Naturally, BOT projects only concern roads with profit-making potential, but profit could come from genuine commercial opportunities or from rent-seeking possibilities from political licenses. In comparison to entirely publicly financed projects, BOT projects have relatively lax approval procedures and supervision. The private company that wins the bid for a BOT road project obtains a maximum of 30 years in ownership and residual property rights. The BOT firm submits a feasibility report to the provincial Communications Department, which then forwards it to the National Development Reform Commission for review and approval. Beijing also conducts an audit to see whether the responsible party has enough capital to put up the required 35% of the entire project cost for the initial capitalization. Generally, BOT projects receive no government subsidies or direct equity participation, hence the rate of return on investment is set at a higher level of about 17% to reflect the greater risk.

The problem with BOT projects is essentially one of local political entanglements and unreliable actors, emerging from the problematic legacy of reforms in separating the government from enterprises and divesting state-owned enterprises.[72] Private construction firms bidding for road projects are

70. J. Song, L. Jin, and W. Dong, "Excess Revenue Allocation for Build-Operate-Transfer Highway Projects," *Journal of Transport Economics and Policy* 50:3 (July 2016): 304–24.

71. "China's New Roads," *business.sohu.com*; Yelin Xu, John F. Y. Yeung, and Shaohua Jiang, "Determining Appropriate Government Guarantees for Concession Contract: Lessons Learned from 10 PPP Projects in China," *International Journal of Strategic Property Management* 18:4 (2014): 356–67.

72. Since 1997, seventeen director-level provincial Communications Department officials have been convicted of corruption, in provinces including Beijing, Henan, Hunan, Sichuan, Guangxi, Guangdong, Guizhou, Xinjiang, Anhui, Jiangsu, Heilongjiang, and Yunnan. "Name List of 17 Corrupted Provincial Transportation Officials in China since 1997," *Xinhua*, March 31, 2005.

"private" in legal-contractual terms only—in reality, the majority have origins as subsidiaries of various government bodies and ministerial agencies.[73] BOT companies bidding for projects in Guangxi Province in the early 2000s showed significant networking relations with the provincial Communications Department, manifested in troubling forms of exchange relations.[74] For example, the Infrastructure Construction Bureau received payments for project designs before the "winner" of the open bidding process was declared. On winning the bid, the BOT company deposited 240,000 yuan (US$ 29,021) and signed an agreement with the provincial Communications Department. After that point, the firm was largely left to its own devices in pursuing subcontracting and financial transactions.

Deception abounded, as BOT firms commissioned feasibility studies from consulting (*zixun*) companies that were paid to revise costs upward, which helped justify additional loans. This behavior was predicated on rampant collusion and corruption in the construction industry. BOT entrepreneurs often entered into a nominal business partnership with a government work unit (*shiye* or *qiye*). However, when problems arose, the leading cadres of the work unit would understandably be reluctant to help bail out the project. At the same time, the BOT entrepreneurs or their backstage bosses (*muhou laoban*) could not care less about the firm's contractual obligations or loss of money. In fact, it became a common practice for BOT funds to be diverted to real estate speculation and private consumption. In the end, domestic commercial banks and vulnerable private investors (including shareholders for publicly listed BOT firms) shouldered the liability from highway project defaults and road corporation bankruptcies. In effect, the risk of poor governance was transferred to the general public. While data on BOT failures remain sparse, we have been told that about 60% of all BOT highway projects were in ruins as of 2005, which is generally consistent with the published figure of a 50% early termination rate for PPP projects.[75]

73. Unless indicated otherwise, all data below derive from the author's interviews of officials in Beijing and Guangxi in June and July 2005 and Beijing in July and August 2016.

74. They did reveal that only a handful of companies bid on these road projects, and all of them were former state-owned enterprises or their affiliates.

75. "China's New Roads," *business.sohu.com*; J. Song, Y. Hu, and Z. Feng, "Factors Influencing Early Termination of PPP Projects in China," *Journal of Management in Engineering* 34:1 (2018): 05017008.

In 2015, the Ministry of Transportation issued the *Toll Road PPP Guide*, signaling a shift from BOT to PFIs.[76] It offered as reasons for the shift a renewed urgency to find new ways to finance infrastructure growth; at the same time, it stressed the need to reduce toll roads and to stem the financial hemorrhage from failed projects, cost overruns, and local government indebtedness.[77] PFIs in theory place greater control over project specification and budget in the hands of the public agency in contracting private firms to complete and manage public projects, and enable governments to place a great amount of debt "off-balance-sheet."[78] However, for these advantages to be realized—in effect, neatly transferring financial risks to private investors—PFIs assume three conditions: the private contractor accepts the *ex ante* risks of the government-set project specifications, including technical design and one-time payment for relocation of affected population; the contract takes into account normal risks during construction; and once the highway is operational, there are provisions to address higher-than-expected profits or lower-than-expected traffic, which affect the balance of public and private interests in the PPP. Usually the private investors would accept some of these risks by demanding a higher risk premium—which is critical for public accountability as a monetized basis for comparing cost savings to convention procurement—and negotiate the remaining risk-sharing in the contract. However, in China's context, private firms simply do not follow this approach to risk management; state-

76. Li Kaimeng, "A Brief Introduction to China's PPP Application in Transport and Logistics Sectors," presented to UNECE, March 2016, <https://www.unece.org/fileadmin/DAM/ceci/documents/2016/PPP/Forum_PPP-SDGs/Presentations/Kaimeng_LI-UNECE_PPP_Forum_March_2016_A_Brief_Introduction_to_China%E2%80%99s_PPP_Application_in_Transport_and_Logistics_Sectors.pdf>, accessed March 9, 2018.

77. Yong Jiang, "Selection of PPP Projects in China Based on Government Guarantees and Fiscal Risk Control," *International Journal of Financial Research* 8:1 (2017); Chang and Chen, "Transitional Public–Private Partnership Model."

78. Chang and Chen, "Transitional Public–Private Partnership Model": 23. Highway corporations fit under one of the three new categories of projects financed with debt which local governments have been asked to declare since 2016. "Projects in an intermediate category—with significant positive revenues but not enough to service and repay the associated debt—should be restructured into new enterprises which the local government provides with an annual subsidy or other fixed contractual support. Preferably this new firm would be a public-private partnership (PPP), the currently fashionable approach to public service enterprises that aligns with the push toward 'mixed ownership' for state-owned firms." Barry Naughton, "Is There a 'Xi Model' of Economic Reform? Acceleration of Economic Reform since Fall 2014," *China Leadership Monitor* 46 (Winter 2015): 4, <https://www.hoover.org/publications/china-leadership-monitor/spring-2015-issue-46>, accessed March 9, 2018.

owned enterprises and private construction firms typically bid for the lowest cost to win the project. In the interest of rapid procurement to suit political and policy pressures, PFI projects are put in place with poorly defined and poorly assigned risks, in effect leaving the investors to displace risks onto construction companies, suppliers, subcontractors, and users, with liability ultimately falling on the state-controlled financial institutions and markets.[79] This dynamic also undermines the development of the legal framework for contracting in the construction industry, as ad hoc bargaining continues after the contract, mediated by power relations and informal institutions.

CONCLUSION: CONTENTIOUS POLITICS AND REGULATORY WEAKNESS

The World Bank has praised the Chinese road-building experience as exemplary in output and financial approach.[80] This article traces the roots of the cumulative problems of equitable regional development and local state financial sustainability from a decentralized approach to spurring the highway boom. At the heart of the politics of infrastructure lies a tug of war between central and local governments. For Beijing, the critical tradeoff is between GDP and infrastructure network growth for a small direct financial contribution, on the one hand, and significant inefficiency in capital usage and governance difficulties on the other hand. Building this high-power incentive scheme for local states into the transport policy framework inherently undercuts any legal/rational means of governance. Several rounds of revision of the Highways Act of 1988 attempted to clarify fiscal relations such as options for local states to raise funds for roads, as well as residual property rights in terms of duration and terms of toll collection. In this process, the political limitations of Beijing have been exposed by the local officials' rampant disregard for the laws on the books, drawing stern reprimands but little change in behavior. Significant issues such as property rights concerning land reallocation and appropriate compensation for dislocated peasants have been addressed in

79. Yongjian Ke et al., "Preferred Risk Allocation in China's Public–Private Partnership (PPP) Projects," *International Journal of Project Management* 28 (2010): 482–92; Cheng Chen and Michael Hubbard, "Power Relations and Risk Allocation in the Governance of Public Private Partnerships: A Case Study from China," *Policy and Society* 31:1 (March 2012): 39–49.

80. World Bank, *China's Expressways: Connecting People and Markets for Equitable Development* (Washington, DC, 2007); Reja, Amos, and Fan, "China Road Tolls Policy."

vague terms. One is tempted to conclude that Beijing strategically maintains legal and regulatory ambiguities to enable "particularistic bargaining" among bureaucratic actors over locale-specific rent-seeking opportunities.[81] Fundamentally, Beijing has not made progress in setting up a clear regulatory framework that decisively separates out the executive (subnational economic planning), supervisory (highway authority), and ownership (highway corporation and operator) roles of the local government in highway projects.[82] These roles continue to spill over onto each other, causing managerial complications and vulnerability to pressure from interest groups. For example, reacting to a high-level corruption scandal involving BOT agents, the Beijing municipal government annulled the levy of tolls on users of the 5th Beijing Ring Highway two months after it began operation on January 1, 2004. Furthermore, the municipal government unreasonably took over the responsibility for debt repayment, which should have been undertaken by the Beijing Capital Highway Development Corporation, promising to pay it back using the fiscal revenue of the Beijing government.[83] The inherent problems in these ad hoc interventions tend to undermine the institutionalization and legal legitimization of concessionary contracts.

The strongest evidence for the limitations of a top-down, standardized approach to governing public goods and public works is the troubled history of the national fuel tax, first passed as a State Council policy in 1999 but implemented 10 years later, in 2009. Even at the point of legislation, the State Council faced surprising resistance from the National People's Congress, which repeatedly vetoed the fuel tax proposal in the interest of local states as residual claimants of highway tolls. For over a decade, the implementation of the fuel tax was postponed as local officials argued that it would undermine their ability to raise funds for roads under their jurisdiction and thus prevent

81. Susan Shirk, *The Political Logic of Economic Reform in China* (Berkeley: University of California Press, 1993).

82. Xiangrong Du and Tsunemi Watanabe, "Problems and Solution of Identification and Approval of Privately Financed Infrastructure Projects in China," *Proceedings of the First International Conference on Construction Engineering and Management*, Korea Institute of Construction Engineering and Management, Seoul, 2005: 731–36; X. Du and T. Watanabe, "Problem Analysis and Recommendation for Privately Financed Infrastructure Projects in China," *Proceedings of the 2005 International Research Symposium on Advancement of Construction Management and Real Estate*, Chinese Research Institute of Construction Management and Zhejiang University, Hangzhou: 530–41.

83. X. Du and T. Watanabe, "Problem Analysis: Beijing Official Sentenced to Death for Taking Bribes, Embezzling," *Caijing Magazine*, March 25, 2004.

them from fulfilling a key developmental objective. In 2000, a State Council document on traffic and vehicle taxation reform stipulated that before the implementation of the fuel tax, localities could continue to levy various road maintenance fees. In 2004, revisions stipulated maximum periods for charging tolls by region. A year later, the State Council urged localities to use road maintenance fees for their stated purpose of road maintenance—only after that aim had been met could the remaining money be allocated for other uses, such as building new roads.[84] In 2007, a MOC official reiterated: "Facing a huge shortfall in public financing of roads, we have no choice but to accept the continuation of toll roads."[85] This statement arrived on the heels of a central directive that all existing Class II tolls should cease immediately.

In 2009, taking advantage of the global plunge in gasoline prices, Beijing sought to launch the fuel tax on top of existing fees and levies, and to phase out the latter in due time on the availability of transfer payments to provinces to offset existing debt and finance new roads. The 2009 implementation guidelines even included loopholes to accommodate local governments' financial interests, mainly the exemption of expressway and Class I roads from limitations on toll levels and duration. Highways in the central and western regions, which are mostly economically underdeveloped, were allowed to extend toll-charging by five years. Despite Beijing's promise of commensurate central transfers to make up for the shortfall in toll incomes, local governments' initial response was one of distrust and noncompliance. In an egregious case, the Hebei section of the Beijing–Shijiazhuang Expressway obtained provincial government approval to prolong its toll collection by 22 years, despite having charged tolls since 1993.[86] Clearly, localities resented the recentralization of tax collection, which would strip them of de facto control over a major revenue stream. Moreover, without this revenue source, localities would find it even more difficult to obtain credit from commercial banks and foreign sources. Interestingly, officials in the MOC also opposed this reform, since they too stood to lose an undefined but predictably huge tax base in road maintenance fees.[87]

84. *Zhongguo Jiaotong Bao*, November 24, 2006.

85. "Transport Official Promises: Highway Toll Policy Will Not Waver," *Jinyangwan-Xinkaibao* [Jinyang New Express], November 17, 2006, <http://business.sohu.com/20061117/n246450615.shtml>, accessed March 9, 2018.

86. "China's Toll Road Losses Double in 2015," *Xinhua*, September 21, 2016.

87. "World Bank Reports Chinese Highway Toll Rates Higher than International Levels," *Zhongguo Qingnian Bao* [China Youth Daily], February 13, 2007, <http://news.tom.com/2007-02-13/OI27/84574022.html>.

In July 2015, the Ministry of Transport issued amendments to the Regulations on Toll Road Administration, including extension and relaxation of strict caps on operators' concession periods, currently set at 25 years for eastern regions and 30 years for central and western ones.[88] The concession periods could be further extended for "mega" toll roads and when expressways are significantly expanded or rebuilt.[89] Compensation will also be granted to operators for government-stipulated toll-free public holidays, and in cases where operators' concessions are terminated by governments. In a network of roads owned by the same company, if the loans on one road have not been paid off, other roads can continue to collect tolls. Even after the loans have been repaid, tolls can continue for road maintenance.

These serious reductions of Beijing's 2009 commitment to stem the rising and persisting toll levels can be understood as concessions to vested highway interests. Share prices of the biggest public listed highway corporations have dipped due to the economic slowdown in recent years. China International Capital Corp. analysts said in an investment promotion report that the 2015 amendments provided "greater flexibility for toll road operators to apply for an extension of concession periods[, which] could enhance their projects' value by 20 per cent for every five years of extension."[90] In sum, in the ongoing political renegotiations under fiscal federalism, the central government does not appear to be gaining traction. Beijing might have won the day by pushing ahead with the fuel tax in 2009, but it appears to have lost the battle for control over highway capitalization for now.

88. Eric Ng, "Relaxing Constraints, Toll Road Shares Tipped to Shine in China's Protracted Bear Market: Profits Seen as Being Less Sensitive to Economic Slowdown," *South China Morning Post*, February 4, 2016.

89. "China's New Roads," *business.sohu.com*.

90. Ng, "Relaxing Constraints."