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*Making American Infrastructure Great Again: high-speed rail  
development in the United States and China*

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Abstract

*China has built the largest high-speed rail network in the world within just a few years and it will eventually connect all the country's major metropolises. The project has not only rested upon political commitment within the different tiers of government and fiscal capacity but also on the structural character of the contemporary passenger travel market, the nature of land ownership, the rapid accumulation and concentration of technical expertise and the demands of the freight shipment sector. Yet, despite developments in countries such as China and although there has been a recent turn to infrastructural development across much of the globe, the US is likely to remain a laggard in terms of high-speed rail development whether it be through either the building of dedicated high-speed tracks or the upgrading of existing provision. Although construction is taking place in California and there have been proposals for projects in other states, there is little prospect of sustained or widespread development. It is tempting to explain this by simply pointing to limited federal and state budgets, distances or the nation's reliance upon automobiles. The article looks instead at the broader political, structural and institutional obstacles that projects face and argues that earlier "infrastructural moments", when for example (i) the railroads were initially built, (ii) public works schemes were initiated during the New Deal era and (iii) the interstate highways were constructed, were only brought about by exceptional confluences of forces and processes. The striking contrast between the prospects for high-speed rail*

*development in US and China says much about state capacities and the overall ability of the two systems to lay a basis for sustained economic growth through infrastructural provision.*

More than twenty countries in both Asia and Western Europe now boast high-speed rail systems. Indeed, China quickly established the world's most extensive network thereby reconfiguring the country's geography. Within just a decade, more than 13,000 km of track had been built. Services not only connect urban hubs separated by distances considered appropriate for high-speed development in Europe and Japan (usually estimated as being between 400 and 800 km) but also include a ten hour journey between Beijing and Guangzhou, a distance of 2,298 km. The goal is to connect China's major economic areas through the construction of four north-south and four east-west high-speed corridors (Smith and Zhou, 2014: 932).

### **Constructing the Chinese high-speed network**

The pace of construction inevitably created major challenges. The crash between two high-speed trains in the Wenzhou suburbs on the Yongtaiwen line in July 2011 cast a shadow over development processes and led to a slowing of speeds. The centralized character of political direction can foster corruption. Urbanization has already reached a point whereby there are structural obstacles to the building of lines within or across cities and high-speed stations have therefore had to be located on the edges of urban areas creating connection difficulties. The difficulties may have been exacerbated by stresses between different tiers of government. This may explain lower-than-anticipated passenger numbers on some services. Furthermore, whereas there has been economic growth around newly-constructed stations, some of the areas in-between stations appear to have experienced negative growth. There are also financial implications. At the least there will be challenges meeting operating costs. Indeed, high-speed rail construction may have added substantially to overall levels of indebtedness much of which is seen as subject to implicit government underwriting.

Nonetheless, the sheer scale of high-speed rail development represents a very major feat. How and why has it been achieved? Structural factors provide part of the answer. The bulk of the population is concentrated in the east of the country in large conurbations (Smith and Zhou, 2014: 926). Furthermore, given the demands, the resources and commitment of central government are pivotal. Even where high-speed rail projects have been initiated as a private scheme, governments have had to step in. In 1998, for example, the UK government agreed to underwrite debt for *Eurostar* services (Nash, 2013: 15). In China, funding was found on the back of

very high economic growth rates through budget allocations (high-speed rail has taken about 60 per cent of the infrastructural spending since the mid-2000s) bond issuance and income from the existing railways (Rongfang, Lv and Zhaodong, 2016).

Government strategy was also significant. Although there had been early experiments based upon indigenous train technology there were agreements with foreign companies such as Siemens and Bombardier and Kawasaki Heavy Industries that required technology transfer thereby laying the basis for the eventual development of a Chinese brand (Smith and Zhou, 2014: 932). Furthermore, the Ministry of Railroad handled all purchasing negotiations with foreign suppliers thereby gaining an important bargaining advantage. The delays that arose as certain questions were resolved, principally whether to base development on Maglev technology or the use of dedicated but conventional rail tracks, were overcome.

There were other factors. Land acquisition issues which have plagued developments in many countries and can be a barrier to the construction of the long, straight tracks required by high-speed trains were largely absent as the Chinese state owns all land and usage rights are devolved. Local government generally saw high-speed stations as an opportunity for urban development rather than a challenge to existing urban centres. Furthermore, the Chinese states has a polymorphous character and there are processes of economic competition at sub-national level. Indeed, it has been described as "hyper-rivalistic" (Howell, 2006: 290). Such competition may have driven demands for incorporation within the burgeoning high-speed network. At the same time, the construction of high-speed passenger lines boosted the freight sector that could secure greater efficiency and speed on the older rail network. High-speed travel was moreover launched at a time when large numbers of people still used rail transport. They had not migrated to either cars or planes and there was thus a very large potential market. There were also ideational and strategic processes at work. High-speed rail development offered the prospect of greater national cohesion (Smith and Zhou, 2014: 925). It was also tied to nation-building as the country made modernization its primary national goal while laying a basis for the building of networks and the 'export' of infrastructure through the launching of *One Belt, One Road*.

Chinese high-speed rail technology has reached a point where it is poised to become a significant export industry. In part, this has been a response to the saturation of the Chinese market but it is also tied to China's efforts to establish infrastructural ties stretching across Asia and Europe through the 'One Belt, One Road' strategy. There are also suspicions that the export of high-speed technology in this way is designed to boost Chinese political influence and might at some point serve a military purpose (Zoellner, 2016).

## US infrastructure

In very sharp contrast, the exhausted state of much US physical infrastructure has been widely noted.<sup>1</sup> A Council on Foreign Relations background briefing report concluded: “.. Americans’ international peers enjoy more efficient and reliable services, and their public investment in infrastructure is on average nearly double that of the United States” (McBride, 2017). The OECD spoke in similarly critical terms:

“The gradual deterioration of US infrastructure contributed to declines in overall wellbeing in a wide variety of respects, including long commutes, congestion, shortages of suitable water, poorer school resources, and vulnerability to natural disasters ..” (Organisation for Economic Co-operation and Development, 2016: 89).

The discourses around infrastructure have become tied to other questions. Inadequate infrastructural provision, it was argued contributed to the US’s low productivity growth record. While the country is still amongst the world’s highest in terms of labour productivity levels, annual productivity growth has only averaged about 1.5% since 1970 except in late 1990s and early 2000s, about half the rate achieved in the post-war decades. Indeed, since the last three months of 2007, labour productivity has grown at an annualized rate of just 1.1 per cent (Sprague, 2017: 3). Infrastructural questions also merged with environmental and social concerns. More advanced forms of ‘green’ infrastructure (as opposed road construction) would, it was argued, lead to reductions in carbon emissions. Furthermore, the consequences of decaying infrastructure were highlighted by the lead contamination of the water supply in Flint, Michigan.

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<sup>1</sup> There are some significant methodological considerations in drawing comparisons between China and the US. Indeed, in part because of these, China has rarely figured in cross-national comparative research (Kennedy, 2011: 6). Nonetheless, China’s emergence as a leading economic power increasingly lays a legitimate basis for comparative studies with the world’s other “advanced industrial countries” (Wang, 2016: 518). Even if this is not accepted as a framework for comparison, and China and the US are instead seen as “most different” systems that yield different outcomes some conclusions can be still be drawn. Alexis de Tocqueville’s accounts of the ante-bellum US were for example informed by comparisons with eighteenth century France although they were very different countries that yielded different political outcomes. studies were for example based upon very different societies (the US and France) that gave rise to very different forms of politics. While there are methodological challenges if “specific historical events” are examined on a comparative basis (which Tocqueville purposively avoided) it is still useful and legitimate to study “general comparative categories” (Smelser, 1976: 33).

Against this background, the case for high-speed rail development alongside other forms of infrastructural modernization has been promoted particularly by those associated with the Democrats and the left. Air and road provision particularly along the most intensively used corridors and the increasing size of cities strengthened the argument. There was also ample evidence from both China and some European countries that high-speed rail could serve as a development tool (Machalaba, 2018: 30).

At times it was described as President Obama's "signature transportation project" and in his 2011 State of the Union address Obama announced: "Within 25 years, our goal is to give 80 percent of Americans access to high-speed rail ... This could allow you to go places in half the time it takes to travel by car. For some trips, it will be faster than flying - without the pat-down" (quoted in Nixon, 2014). Senator Bernie Sanders's 2016 insurgent primary campaign drew comparisons between the US and the countries of Europe and Asia:

"When we built out our state-of-the-art rail system in the early 1860's we became global leaders. But now our rail system pales in comparison to Japan, Germany and even China in terms of our high-speed passenger and cargo rail systems. Bernie will invest in interstate and intercity high-speed rail systems to bring people and commodities to their destinations more efficiently to save time and money" (Bernie, 2017).<sup>2</sup>

Donald Trump's ascendancy in 2016 held out the promise of a restructured Republicanism that owed as much to economic nationalism and populism as US conservative traditions. While earlier Republican presidential platforms had briefly referred to infrastructural development (although the emphasis had been on the roads and docks), Trump spoke of infrastructure in a much broader way, tying it to his vision of economic nationalism, and as a corollary represented it as an overriding national priority. At one point, albeit early in his campaign to secure the Republican nomination, he threw his weight behind high-speed rail. In what *Time* magazine described as a "freewheeling" speech in March 2016, Trump said: "It's sad ... that the American rail system is so dilapidated while China's is now slicker than ever. They have trains that go 300 miles per hour ... We have trains that go chug ... chug ... chug" (quoted in Edwards, 2016).

## Initiatives and projects

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<sup>2</sup> Hillary Clinton was more cautious and generally talked in looser terms about infrastructure more generally but in a Florida campaign address seemed to press the case for rail: "... we're going to have to do high-speed rail if we're going to have a competitive economy" (Hillary Clinton Speeches, 2016).

High-speed rail development can take one of two forms. First, construction can rest upon improvements to existing tracks and signalling so as to allow trains to achieve speeds of up to 200 kilometres per hour (kph) although for some this is not sufficient in terms of speed to be regarded as truly high-speed). Second, 'high-speed' can refer to the building of new dedicated tracks which would permit trains to travel at speeds of 250 km per hour or more (Peterman, Frittelli and Mallett, 2013).

Alongside the rhetorical commitments and visions, there have been sporadic and fitful efforts to begin or at least plan the processes of constructing both the upgrading of current provision or the building of dedicated tracks. The 2009 American Recovery and Reinvestment (ARRA), the large-scale fiscal stimulus agreed just after Obama assumed the presidency, incorporated an appropriation of \$8 billion for grants to states to develop high-speed and inter-city passenger rail provision. However, three of the states that were initially awarded ARRA funding (Wisconsin, Ohio and Florida) then turned it down. Whilst simple partisanship may well have been a factor as polarization processes intensified the states also had fears that they would at some stage almost certainly be left with unfinished and unviable construction efforts. Congress then appropriated a further \$2.5 billion for high-speed and intercity passenger rail grants to states in the Fiscal Year (FY) 2010 Department of Transportation Appropriations Act (Peterman, 2016: 1). This allowed improvements and increases in speed (although in almost every case far from generally recognized definitions of 'high-speed') along existing railroad lines in five corridors: Seattle-Portland; Chicago-St. Louis; Chicago-Detroit; the Northeast Corridor (NEC); and Charlotte-Washington, DC (Peterman, Frittelli and Mallett, 2013).

Some dedicated high-speed projects have also been considered. The most well-known and advanced project is the 200 mph Los Angeles to San Francisco route (taking passengers between the two cities in two hours and forty minutes) which is under construction in the Central Valley. California's voters agreed in 2008 to finance the project through a bond issue. Despite the promise of economic development on the back of the project, it has nonetheless faced very substantial challenges. First, there are immense geographical and physical obstacles particularly given high-speed rail's need for long straight lines, the mountainous terrain, fault lines, and the requirement for tunnelling in conurbations thereby limiting the initial segment to the 119-mile route between Madera and Shafter (just north of Bakersfield). Second, despite the bond issue the project required and sought other sources of funding. It was to receive ARRA funds and benefitted from the refusal of other states to accept a financial allocation under the provisions of the Act. In 2014 Governor Jerry Brown successfully persuaded the state legislature to use funding drawn from its "cap and trade" auctions (intended

to limit carbon emissions) to support the project by granting it 25 per cent of the funds that are raised. The provision will however expire in 2020 and is also open to constitutional challenge (Meacham, 2018: 37). Third, there are challenges in terms of public support and legitimacy. These may have been reinforced by the decision, on cost grounds, to postpone the extension of the project into Los Angeles, indications that speeds will have to be significantly reduced in urban areas for safety reasons and the trailing of more advanced technology, most notably Elon Musk's projected hyperloop, that makes high-speed rail seem not only costly but also outdated (The Editorial Board, 2017). There are suggestions that the project may turn to Chinese investment and technology and Jerry Brown has spoken in positive terms about Chinese technological prowess in high-speed rail development (Zoellner, 2016). In overall terms, California high-speed rail is now an estimated seven years behind schedule and it is projected that it will eventually be 50 per cent over budget.

There are some other proposed initiatives. These include *All Aboard Florida*, a private rail company, which is seeking to operate *Brightline* along the state's east coast between Miami and Orlando. A section opened between Fort Lauderdale and West Palm Beach in January 2018 and further construction is being undertaken. While primarily dependent upon private funds it has had some financial support from state and federal authorities and, for part of its length, utilizes space alongside a state highway. Nonetheless, *All Aboard Florida* only envisages speeds of between 79 and 125 mph and thus although important in terms of railway development cannot be considered "high speed".

In Texas, the Central Railway proposes to operate using Japanese technology between Houston and Dallas / Fort Worth at speeds of up to 205 mph. In 2015 – 2016, XpressWest put forward plans in agreement with a Chinese consortium for a line across the Mojave Desert from Las Vegas to the outer edge of Los Angeles metropolitan area (Zoellner, 2016). Amtrak currently provides the Acela Express in the North-Eastern Corridor (NEC) between Washington DC, New York and Boston and has a \$151 billion proposal to construct separate high-speed tracks by 2030 although this would be dependent upon the availability of federal government funding. Currently, the Acela express service only averages 80 m.p.h. between New York and Washington. There is just a 28 mile stretch of track between New York and Boston where the service briefly reaches 150 mph.

## **The economic argument**

The economic case for high-speed rail rests in part on the claim that construction projects would generate additional employment. The California High Speed Rail Authority has for example claimed that the building of the dedicated railway line would in total create 100,000 construction-related jobs (Peterman, Frittelli and Mallett, 2013: 22). High-speed rail's supporters have also pointed to wider stimulus effects. An 2014 OECD report asserted that alongside increases in transportation capacity, the potential gains include the strengthening of central cities, the ability to plan and structure new areas of economic activity around stations, contributions to overall economic growth and, because productivity growth is positively correlated with large metropolitan areas and increased connectivity, increases in productivity growth rates (OECD / ITF 2014: 36). Empirical data from Asia appears to confirm this. In Japan there has been a historical pattern of agglomeration around high-speed rail stations leading to higher productivity and thereby narrowing the productivity gap between urban and peripheral areas (Cho, Kato and Wetwitoo, n.d: 2). Evidence from China also suggests that local economies have gained significantly from high-speed rail connections particularly in the eastern coastal regions and in the more industrialized cities where the service sector had the capacity to absorb labor and there was sufficient supporting infrastructure (Ke, Chen, Hong, Yongmiao and Cheng, 2017).

In recent years, the case for infrastructural development which had long been associated with the left has been boosted by other constituencies and interests. To a degree at least, international institutions such as the World Bank and the International Monetary Fund (IMF) have shifted their focus away from the pursuit of austerity and reductions in the rate of growth of public expenditure that they pursued from about 2010 towards an infrastructure push. This might be seen as a shift within neoliberal logics as finance has lost some of its former hegemony and a turn towards more sustainable forms of economic growth (Ougaard, 2017). It could also be understood as an effort to match China's 'Belt and Road' initiative and the credit provision offered for projects by the Asian Infrastructure Investment Bank (AIIB). For its part, the IMF argued that public infrastructure investment could increase national output in the short-run through its effects upon demand and then in the long-run through its impact upon the supply-side and overall productive capacity. This conclusion was based on a sample of advanced economies which indicated that an increase in investment spending equivalent to one per cent of GDP could raise national output by about 0.4 per cent in the course of the same year and by 1.5 per cent four years afterwards (Abiad, Furceri, and Topalova, 2014).

### **Limited prospects**

Although high-speed rail has made its mark in Asia and Europe, (the Tokaido Shinkansen was launched as far back as 1964), and China established the world's largest network within just a few years, this article argues



that the prospects in the US for the development of high-speed provision based on either the use of existing track or the construction of new, dedicated lines are very limited indeed and the visions of both candidates and firms seeking contracts are therefore unlikely to come to fruition. While there are some projects, envisaged or under construction, most notably the route that will connect Los Angeles with San Francisco, the development of high-speed rail is hemmed in and stymied by the interplay between different political, structural and institutional variables. The article argues, furthermore, that although there have been celebrated historical moments when gargantuan infrastructural initiatives including the initial construction of the American railroads secured political traction, these moments were brought about by an exceptional confluence of forces at certain critical state-building moments. Thus, although there is a defined public policy problem the US is unlikely to secure the types of high-speed rail that have been constructed, or are under construction, in Asia and Europe.

## Politics

Political processes are of pivotal importance in high-speed rail development because the market and private sector alone are unlikely to undertake or underwrite such long-term and necessarily high-risk projects. Firms generally lack coordinative capacity and the risks attached to very long-term investment, where the returns for an individual company within a particular sector are uncertain, are very high. Thus, if a range of countries is considered, large-scale infrastructural projects have invariably required the intervention of the central state apparatus. That intervention has in some cases been open and overt whereby a developmental state has taken on a coordinative and directing role. Alternatively, in other instances, the state has used its legal powers and resources to facilitate, support or underwrite the private sector. At the very least, the construction of new railroad tracks (with a minimum of curves) requires that the state facilitates and enforces "eminent domain", the ability to purchase land compulsorily. Thus, whether hidden or overt, the part played by the central state apparatus is centre-stage.

In the contemporary US, where domestic policy processes are largely shaped by high levels of polarization in Congress and the state legislatures, projects that seem to require or even imply "big government" inevitably have stark partisan dimensions. As noted, the case for high-speed rail has been very largely associated, at least from early 2009 onwards, with the Democrats and in particular the party's left. Before that, there had been times when Republicans had voiced a measure of support. For example, the party's 2004 presidential election platform said that: "Republicans support, where economically viable, the development of a high-speed passenger railroad system as an instrument of economic development and enhanced mobility" (Cooper,

2012). There were also Republican governors and members of Congress who foresaw a role for high-speed rail in processes of state economic development or at least sought a share of the federal government appropriations that might be made available. Their ranks included Texas Governor Rick Perry who sought backing for a service based around a Trans-Texas Corridor and, despite his close associations with libertarianism, Congressman Ron Paul who joined with others in an effort to secure public funds for studies that might establish “a truly ambitious and world-class high-speed rail network.” (Cooper, 2012). Newt Gingrich, former Speaker of the House of Representatives, was another exception. He also sought to promote his own state (Georgia) but at the same time embraced a vision that was in part informed by the concept of a competition state and national security issues. He supported a study of a potential high-speed line from Atlanta to Chattanooga:

“You can’t talk about American national security in the long run without a fundamental redevelopment of this country economically. It is not possible. And you can’t talk about a competitive American economy without a dramatically more robust and more modern infrastructure” (quoted in Cooper, 2012).

Nonetheless, Gingrich was unusual in this and what Republican backing there had formerly been very largely faded away in the Obama era. While the Republicans made a broad case infrastructural renewal in for example the 2012 presidential election platform, core conservative thinktanks and advocacy organizations did not hide their disdain. A 2011 Cato Institute blog argued that all forms of railway provision simply lay like other forms of interventionism far beyond Washington DC’s constitutional prerogatives: “Subsidizing passenger-rail is no more a proper role of the federal government than education or housing” (Dehaven, 2011). While conservatives and Republicans sometimes accepted that there might be a case for creating a high-speed link in the northeast corridor connecting Boston, New York City and Washington DC they insisted that this should be left to the private sector and the market. Government, particularly the federal government, had no legitimate place.

Furthermore, Donald Trump’s embrace of high-speed rail had little political consistency. Although he had raised the issue in 2015 it seemed to disappear. When he his “contract with American voters” just ahead of Election Day in October 2016 at Gettysburg, he only referred to infrastructure in broad terms. There was to be an American Energy & Infrastructure Act funded in part by cancelling the funding given to the United Nations climate change programmes, tax incentives, and public-private partnerships but there was no direct reference to rail (Kelly and Sprunt, 2016). It appears to have one of many accommodations by the Trump campaign to

established Republican orthodoxies. In sum, therefore, given conservative hostility and the failure of the Trump campaign to embrace high-speed rail in a sustained way, the fate of initial funding provision has been in part, although far from entirely, a function of the Democrats' electoral fortunes.

Nonetheless, the politics of high-speed rail go far beyond partisan allegiances and the results of presidential and Congressional elections. First, there is legislation making federal backing conditional upon the use of US technology although there are no domestic manufacturers. Xpress West's plan for a high-speed link across the Mojave in conjunction with China Railway International was abandoned in June 2016 because the company could not secure authority to proceed. According to the official Chinese state news agency, the decision was protectionist and set "a bad precedent that would retard bilateral cooperation in the area" (Zoellner, 2016). Second, there are obstacles that are inherent within the US political system. In particular, given the structural character of Congress, there are very substantial pressures on policymakers to diversify rather than concentrate benefits, subsidies, or 'tax expenditures' so as to accommodate the demands posed by a plethora of diverse sectoral and geographical interests.<sup>3</sup> Furthermore, the requirements of the legislative process and the structural porosity of the departments, agencies and bureaux that collectively constitute the executive branch at federal level make it difficult to exclude well-positioned interests from a share in the resource benefits that legislation may bestow. Thus, when ARRA and later legislation made funds available for high-speed rail development, the initial plan sought to disperse funds rather than concentrate them in one area where high-speed rail had had the most credible prospect of development such as the North-Eastern Corridor or would yield the most significant economic dividends (Nixon, 2014). Third, when the federal government has been involved in other infrastructural projects there have been difficulties arising from cross-cutting jurisdictions as well as the competing interests and differing outlooks of multiple agencies (such as the Environmental Protection Agency, the Bureau of Land Management and the United States Army Corps of Engineers) (Meier, 2017).

Fourth, infrastructural development, perhaps high-speed rail in particular, are examples of highly visible state activity and thus poses particular political dilemmas. This requires explanation. As Suzanne Mettler has argued, much state activity in the US takes an 'invisible' or 'submerged' form. Rather than direct expenditure programmes, federal government provision is structured through the tax regime or through guarantees that underwrite private provision. These for example effectively subsidize the health insurance policies offered by

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<sup>3</sup> Despite initial intentions, the funds for high-speed rail offered by ARRA ended up being concentrated (in California) because three other states rejected funding.

employers which continue to form the bedrock of health provision or ensure that students secure loans at preferential rates. US social provision has “.. long operated primarily by subsidizing private actors to provide social benefits” (Mettler, 2011a: 10). Although largely hidden, such provision is significantly larger in size than more visible government programmes. The Home Mortgage Interest Deduction, which promotes and supports home ownership, costs four times more than for example the Section 8 Housing vouchers given to those on low incomes (Mettler, 2011a: 21).

Because of their largely hidden character, such benefits are not associated with government. A 2008 Cornell Survey Research Institute poll found that 57 per cent of respondents said they had not “ever used a government social program”. When however a more specific question was asked about whether they had at some point used or drawn upon any of 21 different federal policies, including Social Security, unemployment insurance, the home-mortgage-interest deduction and student loans, the survey found out that 94 per cent of those respondents who had said that they had never used a programme had in fact benefited from at least one. Indeed, the average poll respondent had used four federal government programmes (Mettler, 2011b).

As a corollary, alongside the invisible state, there is also a visible state and in contrast poll respondents readily acknowledge the existence of certain government agencies and departments. There is however wide variance in terms of attitude. Pew polling suggests that those sections of the federal government apparatus that address defence and national security questions, such as the Department of Homeland Security, and those that have come to be wrapped together with national defence and identity issues, for example the National Park Service, are relatively well-regarded (64 and 75 per cent respectively). In contrast, most institutions associated with social provision and regulatory commissions were seen in less positive terms. The Department of Education secured just 44 per cent favourability and the Food and Drug Administration 51 per cent (Pew Research Center, 2015). In sum, the legitimacy of the visible social and regulatory state is variegated and contested. The fractious debates around the passage of ARRA in early 2009 highlight this. Infrastructural projects, in particular those that take a very visible form, can be framed relatively easily as evidence of government excess, ‘pork’ (government spending undertaken to reap electoral rewards) or at the time of the Tea Party movement “tyranny”. Indeed, the conservative radio commentator Rush Limbaugh coined the term “porkulus” to describe ARRA (*The New York Times*, 2009). Certainly, the polling data that are available suggest that high-speed rail projects have only limited public support. A 2015 poll found that 53 per cent of survey respondents in California wanted to cancel the high-speed rail project and shifting and instead assign funding to addressing drought (Zoellner, 2016).

## Structures

Alongside political considerations, the role of structural variables should also be considered. The US's size and low population density in many areas and regions has been held up as a major reason for the failure to develop dedicated high-speed projects built on new tracks. The distances between cities (which also tend to be more structurally compact) in Japan or France are seen as much more suited for high-speed lines. However, it should be noted that although much Chinese high-speed development has been between high-population cities that are within a credible travelling time of each other, some routes now cover very long distances, including the 2,298 km service between Beijing and Guangzhou, a journey taking ten hours, (Mcardle, 2010). Nonetheless, to date at least, the American high-speed connections that have been proposed would serve US cities in regions where the distances would be broadly comparable with those in Europe or Japan. This has created a model that would preclude the development of a web structure akin to that under construction in China. If it came to fruition, development in the US would instead be based on a point-to-point system and therefore inhibited in terms of generating potential network effects.

There are further structural obstacles to high-speed rail development beyond this and long-run processes of path dependence have been at work. The sprawling character of many American cities means that further short-haul transportation would be required once a passenger arrived at a high-speed station. Furthermore, during the decades after the Second World War, the industrial clusters grew up and spread in ways that were detached from the existing railway networks. Roads and other forms of physical infrastructure were built to serve these clusters and thus, years later, constitute major barriers to the development of new high-speed networks that would have to cut across existing infrastructural provision. In some areas these barriers amount to structural sclerosis:

" .. our slow rail network is the price for a lot of great things about America: our limits on government power, our democratic political system, and the fact that we're already rich enough to have an enormous amount of existing infrastructure, in the form of houses, industrial plant, and roads, that would be very expensive to tear up in the name of building rail lines" (Mcardle, 2010).

## Institutions

Institutional factors including the relative porosity of the American state, (there are multiple veto points within the three branches of the federal government and across the different tiers of government), as well as the timing and sequencing of institutional development processes should also be brought into the picture.

As the history of the California high-speed rail project illustrates, the construction of new lines will inevitably be challenged in the state and federal courts showing the limits to powers of eminent domain. Rival lobbies including oil and aviation have an interest in killing off projects at birth or at least impeding them. Furthermore, few individual states will have either the will or sufficient resources to develop high-speed services because projects are generally on a scale that spans more than one state. As noted above, three states doubted the viability of projects even as the feasibility assessment stage and turned down the offer of ARRA funding. If there were to be inter-state projects they would also face major challenges as the eventual fate of the Access to the Region's Core (ARC), which would have created a new rail tunnel underneath the Hudson River for commuter rail traffic and involved both the states of New Jersey and New York, illustrates. New Jersey pulled out in October 2010 a year-and-a-half after construction began.

If the proposed introduction of higher-speed trains using existing rather than dedicated track is considered, there are other institutional obstacles. These stem in part from the timing, pacing and historical sequencing of transportation development. The downward trend in passenger numbers began in the period following the First World War although the Second World War, efforts both before and after the War to increase the speed of train services, the post-war economic boom, the shift to diesel locomotives and the introduction of 'domeliners' for leisure travellers temporarily buoyed passenger rail traffic (Gallamore and Meyer, 2014: 101; Machalaba, 2018: 30; Wolmar, 2012: 5893). Nonetheless, the fall in passenger numbers between 1945 and 1970 was particularly striking. Mass airline travel grew apace and benefitted from the tax concessions and subsidies given to airports. At the same time, luxury travel lost passengers and was very largely abandoned. Long-run industrial decline in the northeast and Midwest, where there was railway concentration, reduced demand. Following a crash in Naperville Illinois crash in 1946 which killed 45 people, the Interstate Commerce Commission (ICC) ruled that trains could not exceed 79 miles per hour unless fitted with cab signals, automatic train control or automatic train stop (Machalaba, 2018: 29). Long-established industrial practices persisted adding to costs. Although it was an era of accelerating inflation, changes in fares in required regulatory approval. This created a "regulatory lag" which reduced revenues (Gallamore and Meyer, 2014: 151 – 154). The construction of interstate highways under the provisions of the Federal Aid Highway Act of 1956 boosted car traffic. Lines were closed or where approval was not given by the Interstate Commerce Commission service provision was deliberately run down (Wolmar, 2012: 6005). Railroad corporations sought

to abandon passenger rail traffic and offer freight provision alone. Thus, by 2012 Amtrak's share of passenger travel was just 0.14 percent, (compared with 87 per cent undertaken in cars and about 12 per cent by air) (O'Toole, 2012). Although there were corporate mergers and takeovers, railroad track ownership remained dispersed and fragmented in the hands of many different freight railroads and, to a lesser extent, the commuter railroads. Amtrak was created in 1971 as a government-funded for-profit corporation. It now operates over 21,356 miles and pays the infrastructure owner for its use by their long-distance passenger trains. <sup>4</sup>

This sequencing a timing of this pattern of development has had important consequences. Following the rapid decline of passenger rail traffic, the railroads developed an infrastructure that was geared very largely around freight. The companies that own the rails structured their commercial operations around very large and slow-moving large freight trains carrying, for example, crude oil, coal and timber. There was an incentive architecture that locked this into place. Very large-scale freight operations are cost-effective and there are higher levels of efficiency in US freight operations compared with those in Europe. Furthermore, freight operations secured a boost from the 1980 Staggers Act that deregulated the industry and allowed corporations to set their own rates, close unprofitable routes, and modernize and invest in intermodal containers that transferred between trains and trucks (Wolmar, 2012: 6218). Thus, the sequencing of railway development since the mid-twentieth century, the logics of path dependence, and the incentive structures that these established have created systems that simply cannot accommodate high-speed passenger provision. Indeed, they face challenges in simply allowing current Amtrak trains to co-exist with freight traffic.

### **Infrastructural 'moments'**

This article has argued that high-speed rail development, whether through new dedicated tracks or through the upgrading of existing provision, faces major political, structural and institutional obstacles. It might however be said that the US has in past eras embarked upon very substantial infrastructural projects spanning the nation with the backing and pro-active engagement of the federal government. Reformers have invoked the

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<sup>4</sup> The current ownership structure is based upon a patchwork of contending interests. For example, Amtrak owns much of track in the North-Eastern Corridor (363 out of 457 miles) as well as a further 260 miles of track outside the Corridor. This includes 18 tunnels and 1,414 bridges. Alongside Amtrak, eight commuter railroads and four freight railroads also operate along the Corridor.

Hamiltonian tradition which they represent in terms of interventionism, an administrative state with “.. vigor in its operations” (Hacker and Pierson, 2016: 312).

Large-scale and systematic infrastructural projects were however only established at exceptional moments.<sup>5</sup> They required the assemblage and mobilization of resources and also depended upon the capacity and ability of the federal government to frame infrastructural projects in ways whereby they were backed or at least accepted by pivotal mass publics. Framing processes have been of particular importance. As has been widely noted, the development of the state took a different form in the US to Europe and while often described as “weak” and “small” the US state has significant strengths and is far larger than might be supposed. It is however hobbled by its porosity and institutional constraints, not least the cross-cutting jurisdictions between departments, agencies, commissions and bureaux. However, as noted above, the size of the state is obscured by its ‘submerged’ character and reliance upon “tax expenditures”, contracting arrangements and public-private partnerships as a form of social provision in place of direct expenditure programmes (Mettler, 2011). The hidden character of the state in turn fuels and bolsters anti-government sentiments: “One reason many Americans might possess a sceptical if not hostile view of the federal government is because, for so many, the federal government is a rather distant force in their lives” (Sheingate, 2009: 11). Those promoting large-scale infrastructural projects must navigate this. Such projects are after all a very visible expression of state expenditure and institutional mechanisms such as eminent domain, even if contested, seem testimony to its powers.

Given this, the federal government has been able to embark upon large-scale infrastructural projects at times of perceived national crisis when such projects can be framed in terms of national purpose or redemption, where there are resource capacities and institutional openings, and when the other tiers of government and the market visibly proved unable to meet the demands that were placed upon them. In other words, the settings and circumstances must take an exceptional form and there has to be a confluence of accommodative processes. Furthermore, such projects have to adjust to, or even bolster, pre-existing power hierarchies rather than challenge or undermine them.

Three episodes in US history, at a time when institutional structures were far less dense than today, illustrate this. First, although the early railroads were constructed during the first half of the 1800s in a localized and haphazard way they quickly came to depend upon state governments. The Commonwealth of Pennsylvania

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<sup>5</sup> The pattern of historical development is thus, in broad and loose terms, structured around punctuated equilibria (Krasner, 1984).



determined routes, sold bonds so as to secure finance, oversaw the construction process, and imposed tight regulatory controls once services began (Wolmar, 2012: 742). They had to grant the necessary charters allowing construction and extend powers of eminent domain. The railroads acquired extensive powers. The states allowed railroad companies to force the purchase of any lands that they required whereas in the UK, railway companies were in a weaker position and had to negotiate with each individual land owner, (although land ownership was much more concentrated in the UK). (Wolmar, 2012: 677).

Nonetheless, as networks began to take shape and distances increased, development beyond the state level required the intervention of the federal government. The states had also become associated with visibly corrupt practices: “.. railways not only bribed administrators to look the other way, they bribed legislators to relieve them of the public obligations they had incurred in exchange for government aid” (Dobbin, 1994: 47). Thus, despite the constitutional limitations imposed on Washington DC and although fragmented and often hidden, the federal government played an increasingly pivotal role (Callen, 2012).

The federal government aided and promoted railroad development through the use of army engineers in undertaking surveys, making land grants available from 1835 onwards and formalized by the 1851 Land Grant Act, and conceding the remission of duties on imported iron during the 1830s and early 1840s (Wolmar, 2012: 786 - 796). The extended engagement with railroad construction was made possible because over time the railroads became a national mission. Indeed, it was increasingly asserted that the US's purpose as a nation and its global role depended upon pace and scale of railroad development: “.. a state lacking infrastructure cannot develop the autonomy to pursue its own goals or compete on the international stage (Callen, 2012: 294). Furthermore, the railroad network in the northern states very visibly contributed to the north's victory in the Civil War (1861 – 1865). In 1869, the first transcontinental railroad was completed providing a coast-to-coast connection thereby contributing much to the nation's sense of 'manifest destiny'.

Second, the circumstances in which public works projects were initiated and undertaken during the New Deal years, and to some degree in the earlier Progressive era, should be considered. Again, there was an exceptional confluence of forces and processes. The National Industrial Recovery Act of 1933 (NIRA) created the Federal Emergency Administration of Public Works which was to become the Public Works Administration (PWA). By March 1939, the PWA had authorized 34,508 projects costing more than 6 billion dollars. Almost all were completed (Smith, 2009: 88). The projects included both the Triboro Bridge and Grand Coulee Dam. There were other New Deal initiatives. The Civilian Conservation Corps (CCC) hired young men, and

employed them on reforestation schemes, marsh drainage and dam building (Cohen and DeLong, 2016: 78). In 1935, the Works Progress Administration (WPA) was established. Whereas the PWA concluded contracts with companies who in turn took on employees in the usual way the WPA hired those on relief schemes directly to work on smaller-scale projects.

Nonetheless, although important in popular representations of the New Deal, the overall impact of public works and infrastructural development should be kept in perspective. There was a rise in income for those who were employed but this does not appear to have led to overall increases in private-sector employment (Fishback and Wallis, 2012: 29). Furthermore, the schemes were never deeply embedded within the US polity. They were vulnerable to rollback and budgets were reduced in 1937 as part of an effort to head off a budget deficit (Brinkley, 1995: 28). The ideational framework within which they were proposed and implemented only represented a limited departure from the established economic policy paradigm. They were not tied to Keynesian or proto-Keynesian intentions –but were instead a form of emergency repair guided by pragmatism (Cohen and DeLong, 2016: 80). Both the PWA and the WPA were shut down towards the end of the Second World War as part of a conservative backlash against New Deal initiatives (Brinkley, 1995: 141).

Nonetheless, despite these limits on the scale of public works during the New Deal period, the reasons for the creation of the projects still have to be explained. First, the projects and indeed much of the New Deal were directed very largely towards the white, male working-class and thus not only accommodated but bolstered existing racial and gender hierarchies. Indeed, it was seemingly this that secured the backing of Southern Democrats for legislation and ensured its passage through Congress (Domhoff and Webber, 2011: 134). Second, the individual states lacked the capacity, particularly given the severity and duration of the depression, to address the crisis. Third, the first months and years of the Roosevelt administration appear to have been a moment when business interests were temporarily weakened. Indeed, “.. the power and prestige of business was at its nadir” (Phillips-Fein, 2009: 9). The passage of the Wagner Act (1935) and the formation of the National Labor Relations Board bolstered the position of workers and unions (Phillips-Fein, 2009: 121).

Furthermore, in the period preceding the depression, the larger firms had considerable structural power insofar as the locus of decision-making was at state level. There was thus always the threat that they could shift production to another state if their interests were not accommodated. The depression of the 1930s, however, transferred the locus of economic policymaking to the federal level thereby weakening the structural power of business interests that had hitherto only mobilized within the individual states (Hacker and Pierson, 2002:

297). They were thus unable to resist measures that they would hitherto have regarded as fiscally profligate. Fourth, given the scale of the crisis and the still largely fluid character of the electoral bloc that had brought the Democrats to power in the 1932 presidential and Congressional elections, there was a need to cement the newly-established electoral coalition through a distribution of benefits across the bloc. Fifth, the New Deal era was in part structured around redefinitions of citizenship and identity. This laid the basis for the legitimization of a more activist central state. The New Deal state was an effort to build upon, elevate and restructure the nation around what Franklin Roosevelt called the “forgotten man at the bottom of the economic pyramid”. He drew parallels between the depression and the armies of the First World War and called for a new political and economic settlement directed towards the “infantry” (The American Presidency Project, 2017). There was thus again, as in earlier ‘infrastructural moments’ a symmetry between large-scale infrastructural construction and changing visions of the American nation.

Third, the construction of the interstate highways criss-crossing the US, (the Dwight D. Eisenhower National System of Interstate and Defense Highways), during the post-war decades should be briefly surveyed. Their building was authorized by the 1956 by the 1956 Federal Aid Highway Act. The federal gas tax was increased allowing the federal government to provide about 90 per cent of the overall funding whilst at the same time the federal authorities set requirements and standards that were applied across the country.

The interstate highways met important economic needs and added to productivity growth. Indeed, it is estimated that the highways contributed about a third to productivity growth during the late 1950s and about a quarter in the 1960s (Hacker and Pierson, 2016: 41). They also did much to open up rural areas. However, like other major infrastructural projects they were tied to representations of the nation’s salvation and mission. They were ‘sold’, promoted and framed at the height of Cold War tensions and amidst fears of a nuclear attack in terms of the country’s defence needs. The highways were designed to permit the rapid mass evacuation of cities and urban areas if a nuclear attack was threatened. They were also constructed so that a fifth of the network was straight thereby providing additional airstrips for national emergencies. Furthermore, during the two world wars, existing roads had proved physically inadequate as military equipment, supplies and personnel were moved. And again state-level governance had proved to be an encumbrance insofar as there was a maze of regulatory standards imposed by the states that set varying standards for trucks and other vehicles and restricted the forms of mobility required by military operations.

## Conclusion

This paper has drawn a contrast between China and the US. The former provides an example of the developmental state in its most strident form. It had the resources and capacity to revolutionize transport provision with a few years. In particular, patterns of land ownership worked to its advantage. In the US however the federal government has only been able to initiate large-scale infrastructural projects at times of seeming national crisis or when projects can be tied to the nation's historical mission. Even then, to be pursued, such projects have had to fit around or strengthen established power hierarchies. Furthermore, patterns of urban development in the US, the history of the railroads since the Second World War, public suspicion of the visible state, and the ability of interests to exploit the state's multiple veto points and thereby block projects all mean that the prospects for the development of high-speed rail are very limited indeed. Whereas the *One Belt, One Road* project may lead China towards aiding high-speed rail construction not only within the country but beyond its borders, the US is in striking contrast almost certain to remain a laggard.

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