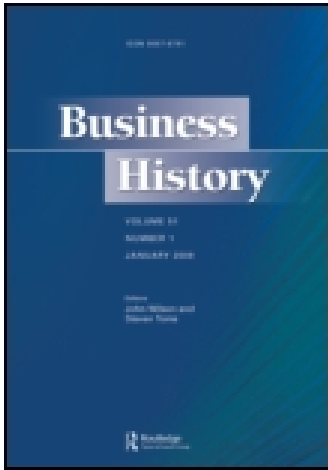


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Regulating and deregulating the public utilities 1830–2010

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History can provide invaluable insights into important issues of the economic and social regulation of utilities, and offer lessons towards future debates. But the history of utility regulation – which speaks of changing, diverse and complex experiences around the world – was, unfortunately, sidelined or marginalised when economists and policymakers enthusiastically embraced the question of how to reform the utilities from the 1970s. This paper provides an overview of the three, overarching, ‘waves’ of utility regulation from the nineteenth century to the present, documenting how, when and why the ways in which the roles of the state, the market and firms altered over time. It then contextualises and explains the main contributions of each of the papers included in this special issue of *Business History*, which cover energy, communications, water, transportation and other urban infrastructure regulation, across Western Europe, the United States and Australia.

Keywords: utilities; regulation; economic history; state; market; firms

In recent years, path-breaking studies which map out the evolution of the regulatory frameworks which have governed public utilities over the nineteenth and twentieth centuries have been produced by business and economic historians. Of particular importance is the volume by William J. Hausman, Peter Hertner and Mira Wilkins (2008), which focuses on the financing of the electrification process around the world from the 1870s to the present, and that by Robert Millward (2005), which analyses regulation of energy, telecommunications and transport in Western Europe from the 1830s to the 1990s. These studies coincide in their argument that utility regulation has taken many diverse forms in different geopolitical, economic and sectoral contexts, but that it is of intrinsic interest to other business and economic historians to attempt to gauge overall patterns of utility regulation over time, wherever possible. Both studies argue that utility regulation can be organised, generally speaking, into three successive ‘waves’, whilst also recognising that many alternative paths to utility organisation and regulation were pursued simultaneously. In general terms, they argue that a ‘first wave’ can be identified, particularly when infrastructure is initially constructed, where the high amount of investment required

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in sectors such as electricity, telecommunications and railways, as well as perceptions of great risk, made private alliances of entrepreneurs and families with banks and holdings essential as financiers. The state was involved in its capacity of adjudicating and granting rights of way, as well as regulating prices and service quality (Millward, 2005). Nevertheless, on occasions, the state acted as financier, especially when there were shortages, as in the case of the railways in France and Scandinavia, but also for strategic reasons, such as in Belgium (Millward, 2005, p. 59).

The following 'wave' of infrastructure regulation occurred gradually, from the end of the nineteenth century, being consolidated from the interwar period, and was characterised by the growing role of the state in infrastructure finance, management and, often, ownership. During this period, regional and national networks were becoming technologically possible and, as new nation states were emerging, the importance of national security questions intensified (Millward, 2005, p. 91). Focusing on electricity, Hausman, Hertner and Wilkins (2008, p. 31) provide impressive quantitative data on ownership to show a process of what they call 'domestication' rather than the more commonly used 'nationalisation' for this period, since, though the state did not always assume ownership in all countries, the role of international finance in infrastructure was substantially reduced worldwide. At the same time, the state increased its involvement in utility regulation. Then, just as this stage was nearing completion, during the 1970s, the third wave began, which bore much in common with the first wave as regards the increased role of the domestic and foreign private sector and of market forces. One fascinating difference though, comparing the first and third stages is that now it was the public utility enterprises themselves who were the protagonists of this development. The upshot of this was that a significant number of former utility monopolies – particularly those based in the European Union – emerged in a short time span to become some of the world's largest multinational corporations (Clifton, Comín, & Díaz-Fuentes, 2007). These three waves of infrastructure regulation clearly reflect broader changes in the world economy and economic policy, whereby ideas, ideologies and policymakers assign different weights to the participation of the state and the market in governance (Toninelli, 2000). In the contemporary period, we are still in the third, market-driven phase, though there is by now substantial evidence that all is not perfect. During this period, there have been important cases of successes in infrastructure reform, but also instances of privatisation and regulatory failures and reversals, as well as issues of under-investment in infrastructure around the world due to cream-skimming, particularly affecting developing regions (UNCTAD, 2008). Moreover, in the context of the financial and economic crisis, policymakers in the United States and Europe have called for more investment and better regulation of infrastructure as part of a possible exit strategy.

The central argument we wish to make here, in the light of this mixed evidence during this third wave, is that history can provide invaluable insights into important issues of utility regulation, and provide lessons towards future debates, but that history was sidelined or marginalised when economists and policymakers enthusiastically embraced the question of how to reform the utilities from the 1970s. Each of the papers included in this special issue of *Business History* reflects this same argument, in different ways. Utility regulation from the 1970s tended to be founded on assumptions or ideologies which directly countered those underpinning regulation in the previous phase. In particular, proponents of reform in the third phase tended to argue that the foundations structuring previous regulation were increasingly irrelevant and obsolete. More recently, there has been recognition that

the dismissal of previous concerns about the special role of utilities in society and the economy went too far, and there has been some back-tracking or reconsideration of the issues, as shall be discussed. Before turning to the discussion of the papers, the main tenets underpinning, and some of the practical experience of, the second and third waves of regulation are discussed.

From the end of the nineteenth century, the state's role gradually increased in the management and ownership of utilities. This intervention was justified by a complex mix of economic, military, political and social arguments. Firstly, from the economic perspective, utilities were understood as exhibiting particular features such as market failures (particularly due to the problem of the natural monopoly), high sunk costs and network economies. It was therefore sustained that services of this nature should be provided by a single enterprise or organisation, such as an electricity central board, at the local or national level. Secondly, from the military perspective, utilities were responsible for providing communication, energy and transportation, all critical services in the defense of the nation. In the context of the aftermath of two, recent, world wars, the vital physical as well as psychological role played by infrastructure in defending the nation were still at the forefront of policymakers' minds (Taylor, 2003). Ultimate government control over infrastructure services, whether through ownership and/or regulation, was therefore seen as essential. Thirdly, from the political perspective, a government's interest in regulating the utilities stemmed from its interests in influencing network development as geopolitical spaces themselves changed. Prior to the construction of modern nation states, it may have been adequate to provide services provided by utilities on a 'club' basis. The lack of connections between networks served to defend providers against competition, but also helped to defend designated areas from attack, by restricting movement across borders or spaces, for example, by blocking easy access to local networks. However, as nation states came into their own, particularly from the nineteenth century, it became more important to integrate citizens into this national space. State regulation was often aimed at encouraging, or forcing, multiple, individual enterprises to inter-connect across territory to forge a national network. This emerging national network took various forms: in countries such as France or Spain, emphasis was on imposing a single political centre, where the network hub would be established, whilst the peripheries were like spokes on a wheel, connected to the hub, but less so to each other (Flichy, 1995). In contrast, in federal systems, such as the United States or Germany, several hubs were established across the territory, and linked to their respective peripheries. In addition, state policy on utilities was often connected to their interest in linking the nation to their empire. States thus became managers and, often, owners of large technical systems (Bijker, Hughes, & Pinch, 1989). A government was also well positioned to drive network development as rights of way often needed establishing. Finally, socially motivated influences on regulation of public utilities, understood as public services, included governments' will to shape national redistributive policies. General welfare considerations were prioritised over and above individual benefit, since the latter was associated with fragmenting society and regions, and of being regressive, potentially undermining national and social collective action (Reynolds, 2004). In the case of the utilities, policies included the subsidisation of important loss-making utilities with more profitable ones, hence sustaining jobs and services for communities across the whole range of services, as well as cross-subsidisation policies, where network take-up and use in lower socio-economic households or in geographical peripheries was facilitated through subsidised prices, extracted from

more profitable parts of the service, such as services more usually used by richer segments of society or from the hub (Clifton, Comín, & Díaz-Fuentes, 2003). The practical outcome of state intervention in utilities was varied. Despite this, towards the end of the second wave, utilities increasingly came under fire for inefficiency, corruption, poor service quality and sometimes, their generation of enormous losses (Toninelli, 2000). Momentum increased for a new approach to governing utilities, and views on how to do this converged during the 1970s. To sum up, in most countries around the world, it was held that the state should assume a predominant role in the regulation of utilities, very often as regards ownership, and nearly always, as regards its responsibilities as overseer. But this approach was soon to change substantially.

With a view to addressing what had been identified as some of the key problems of utility performance in the second wave, proponents of reform stressed that new policies were needed to ensure utilities attained superior performance results, delivered better service quality and choice to users at lower prices (Kessides, 2004). Now, utility regulation would be supported by policies including privatisation, liberalisation and deregulation. The push to the new policy paradigm was partly fuelled by technological change, which was particularly significant in telecommunications due to convergence and digitalisation, relevant in the cases of electricity, gas and transportation, though less so in sectors such as water. Technological change in the telecommunications sector, it was argued, eroded the argument that infrastructure was characterised by natural monopoly and economies of scale, since sunk costs were less significant and the market became more contestable (Bauer, 2010). Indeed, technological change in the telecommunications sector, particularly the increased importance of new customer premise equipment (fax, telex terminals, multiple telephone handsets and so forth) which had no claim to monopoly status, resulted in growing pressure from business groups in the mounting challenge to the telecommunications sector's continued monopoly privileges (Millward, 2005, p. 252).

But the change in policy paradigm was also associated with a renewed attention by policymakers and scholars to particular economic and managerial theories, particularly those influenced by public choice, which held that publicly-owned bureaucracies represented an inevitable obstacle to efficiency due to the incentive problem (Osborne, 1993). To rectify this, services provided by utilities, just as other industrial goods and services, should be increasingly subject to pressures from competition from the market, even if unbundling policies to separate competitive and non-competitive elements were required, or the government had to find other means of promoting competition in markets that were essentially monopolistic. Whilst government ownership of utilities had been the norm around most of the world, policy recommendations from the international economic institutions now widely recommended the virtues of private ownership. Exposing the former monopolies to private-firm styles of management in a competitive or non-competitive environment was proposed as the solution to improving their efficiency and performance by many international economic organisations, including the World Bank and the OECD (Clifton & Díaz-Fuentes, 2011). The beneficiaries, it was claimed, would ultimately be the consumers, who would obtain a greater choice of services, at a better quality and a lower price. Welfare was understood as an aggregation of individual benefits, rather than as a social outcome. Gradually, the so-called 'Washington Consensus' (Williamson, 2004) emerged about this new direction of policy. Arnt Aune (2000) traced the ways in which policies based roughly on neoclassical economic theory were diffused from think tanks and specific universities based in the United States to government

departments and the mass media around the world. Stiglitz (2003) later criticised this one-fits-all approach to policy as amounting to an act of faith when he described it as 'market fundamentalism'. Others have observed how the push toward deregulation was presented as being 'one-way', meaning that the benefits of deregulation were supposed to be so sure that reversals, in the form of re-nationalisations, contracting back in and re-regulation, were not predicted (Hefetz & Warner 2004). The fact that reversals had been common across the history of utility regulation seemed to have been forgotten (Comín & Díaz-Fuentes, 2005). What is clear is that the promoters of the reform of utilities adopted an *aspecific* and an *ahistorical* approach. Utilities were thought to be just as suitable a candidate for reform as other business from industrial sectors. Previous justifications for utility regulation based on their specificities and complexities had been largely dismissed by those enacting reform from the 1970s onwards, so that the essential roles of utilities in economic, technological, political and social terms were underestimated, or overlooked, whilst an oversimplified vision of the future of policy on utilities was promoted.

Hindsight, provided by over three decades of experience of utility privatisation, liberalisation and deregulation, accompanied by a growing body of empirical studies on the effects of reform, reveals that the experience of utility reform across different sectors and countries worldwide was mixed. Utilities, it turned out, were a much more complex set of objects to reform than had been assumed by proponents of reform in the third wave (OECD, 2002). If utility deregulation was complex in the developed countries, it often proved even more problematic in the developing nations where discontent with utility reform inspired by the Washington Consensus increased dramatically (Checci, Florio, & Carrera, 2009). Antonio Estache, a leading World Bank economist specialising in utility reform, stated that 'the most dramatic lesson the international infrastructure community may have learned is humility', recognising the limits and weaknesses of policy advice from the international organisations to developing countries (Estache, 2006). Admitting the difficulties utility reform was having, the World Bank even began commissioning reports into emerging, or re-emerging problems, such as massive corruption in the privatised utilities (Kenny & Soreide, 2008).

Problems caused by infrastructure reform were multiple and complex. Privatisation policies brought in sorely needed investors, but inevitably on an uneven scale around the world, since the location, sector and related prospects for profit, mattered. In other words, profit-oriented private firms, sometimes in collaboration with governments, cream-skimmed infrastructure projects. So, whilst the sale of former telephone monopolies in both developed and developing regions, such as BT in the United Kingdom and TELMEX in Mexico, blazed the trail of ambitious privatisation programmes (Clifton, 1999), it proved much more complex to attract inward foreign direct investment into certain utility sectors in poorer regions. Indeed, under-investment into infrastructure was deemed of such importance that the United Nations Conference on Trade and Development (UNCTAD) dedicated its annual *World Investment Report* to this issue (UNCTAD, 2008). Neither was privatisation one-way: in the United Kingdom, where privatisation had been early, deep, and rapid, reversals occurred, as in the case of the re-nationalisation of British railways. Privatisation reversals also occurred across the developing world, for instance, in the water sector (Hall & Lobina, 2008) as well as in the United States, especially when cost-savings failed to materialise, whilst alternatives to privatisation grew, such as inter-municipal cooperation and government entrepreneurialism (Warner & Hebdon, 2001).

As regards introducing competition into the utilities, this proved, again, easier in some sectors, such as telecommunications, than in others, such as energy and water. In the context of the European Single Market, concern about the concentration of market power has increased in recent years (Clifton, Díaz-Fuentes, & Revuelta, 2010). Stephen Thomas (2003) argued that market integration was leading, instead of to greater competition, to greater concentration, and labelled the remaining energy companies in the European Union the ‘seven brothers’, though even this irony may have been over-optimistic since only five or six major companies now remain. The policy of unbundling proposed to separate the organisation of firms into two constituent parts: those that could be exposed to competition in some form, and those that could not. Hence, in the case of electricity, generation and supply to final customers could become competitive, but high-voltage transmission and local distribution could not (Gonenc, Maher, & Nicoletti, 2001). Another problem was associated with regulation. What was supposed to be ‘deregulation’ actually turned out to be ‘re-regulation’, in that numerous independent regulatory agencies were established. It was thought initially that these bodies could be transitory, until the industry had been consolidated. Instead, this gave rise to a complex, seemingly permanent, new set of regulatory arrangements (Thatcher & Coen, 2008).

Downplaying – or ignoring – the lessons of history on the complexities of utility regulation came at a cost, most dramatically, during the 2000s, when new forms of terrorism used public utilities to organise (mobile telephony, internet) and attack (postal services, airlines, metros and buses) citizens and organisations around the world. The way in which governments believed their control over utilities had become less important from the 1970s has since been subject to re-examination. In the United States, following September 11th, the Committee on Foreign Investment in the United States introduced new restrictions on inward foreign investment into the so-called ‘strategic sectors’, including communications and transportation infrastructure. In the European Union, similar concerns about identifying and protecting ‘critical infrastructure’ are re-surfacing in debates among policymakers (European Commission, 2006), whilst France and Germany have introduced new measures at the national level to restrict investment (Clifton & Díaz-Fuentes, 2010). While policymakers were far from advocating a return to the second wave of utility regulation, there was a generalised perception that proponents of the third wave had gone too far in their claims that utilities could be regulated just as any other sector of the economy. This is the starting point from which the papers in this special issue can be read. Each paper examines and rethinks utility regulation from a long-term, international perspective, with special emphasis on the Western world. Authors were requested to place emphasis on the historical complexities of utility regulation, in terms of instruments, objectives and results, across sectors and countries, with a view to extract insights and lessons from history for the appropriate regulation of utilities in the future.

The Special Issue papers

Robert Millward, Germà Bel and Jock Given, authors of the first three papers in this special issue, adopt a long-term perspective on how utilities have been regulated with a view to determining what the relative weight political and economic factors played in the different institutional settings. Millward’s paper is comparative, across multiple European countries and sectors; Germà Bel focuses on transport

infrastructure in Spain, including road and rail, whilst Given analyses the communications sector in the context of Australia. Interestingly, all three authors coincide that, though the economic characteristics of networks mattered, as did technological change, political influence over regulation was decisive. Millward's paper can be read as part of his ongoing work to synthetically explain the commonalities and differences in the regulation of the utilities across Western Europe from the middle of the nineteenth century to the present, with the aim of identifying which factors were most influential in shaping regulation (Millward, 2005). Focusing on the period 1830–1939, Millward's paper stresses how a mix of economic, military, political and social factors shaped utility regulation in Western Europe, but asks in particular why state intervention into the utilities was more intense across Continental Europe than in Britain during this time. His answer is that Continental Europe consisted of a set of contiguous and often hostile nation states, and that the perception of the geo-political importance of utilities predominated over perceptions about their economic characteristics, such as the problem of natural monopoly. In contrast, in Britain, an island economy with a strong navy and merchant fleet, disruptions to the communications and trade systems were less of a concern than on the Continent. Moreover, as a first-mover in shipping, coal, and international telegraphy, the informal management of utilities was deemed to be sufficient, and preferable to outright control. Thus, he argues that this heightened concern about the role of utilities in defense in the Continent explains governments' more intensive intervention vis-à-vis their British peer. Meanwhile, the main thrust of state intervention was qualitatively different: in Britain, the emphasis was on price and service quality; in contrast, on the Continent, regulation was more related to security issues.

Continuing with the question of the relative weight of the importance of political versus economic rationales as the predominant logic driving the design of infrastructure regulation, Bel argues that the evolution of infrastructure policy in Spain from the eighteenth century to the present was dominated by political interests, over and above commercial or other economic interests. The fundamental explanation, he argues, is the drive to centralise the Spanish mainland with Madrid as its hub. On these grounds, subsidies were used to sustain this centralising policy, despite projects lacking at times solid commercial or economic justifications. A long-term drive to nation-building is examined for road building during the eighteenth century, and railway construction and expansion during the nineteenth century. During the twentieth century, motorway expansion was subsidised to enhance Spain's radial organisation, again, with Madrid at the centre, repeating the pattern applied to the rail system. Finally, this century, the high-speed train, whose first branch linked Madrid to Seville (home town of former President Filipe González!) cannot be justified by cost-benefit analysis, but rather, by political interests. Bel critiques this policy observing that Spain has the second best high-speed train network in the world after China, though it has a much smaller percentage of users than its French neighbour.

Some of the deepest reform of utilities is found in the communications sector. Jock Given's paper also seeks to identify the relative weight of economic and political factors driving utility regulation, but does so from the perspective of the individual firm. His paper comparatively explores the establishment, evolution and eventual demise of three communications enterprises in Australia: Pacific Cable, which started in 1912; Amalgamated Wireless Australasia, which launched wireless

telegraphy services in 1927; and AUSSAT, a satellite system established in 1985. In each enterprise, the state participated in significant, but different, ways. Given's general argument in all cases is that the state got involved in regulation above all for a mix of political and pragmatic reasons. The first two projects were international in reach, and were predominately driven by empire-building ambitions; in particular, improving communications was seen as a critical means of closing the huge distance between Britain, its territories, and Australia. The third project was regional in nature, and was motivated by nation-building objectives. In all three cases, the enterprises were established in order to compete with an incumbent. State participation was crucial in that this was seen as the only way to forge competition. Though, in all three cases, the government insisted that the generation of competition would be a profitable business, reality indicates they were motivated by other policies, such as trying to bring down prices, setting up alternative infrastructures, and making services more widely available. All three enterprises came to their eventual demise, which usually involved Cable & Wireless; tellingly, an enterprise which merged technologies retained clear advantages over the single-technology firms.

Utilities providing electricity have been subject to deep, though complex and sometimes, controversial reform, whilst less has been achieved by policymakers in the field of water. The next two papers, by William J. Hausman and John L. Neufeld, and Martin Chick, respectively, vividly highlight the complex long-term evolution of the political economy of utility regulation in different settings, the United States, and Britain and France. Both papers use this rich historical background in order to contrast how the deregulation and restructuring of utilities from the 1970s was inevitably going to be far from a 'panacea'. Hausman and Neufeld focus on analyzing the organisation of the electricity sector from its beginnings to the present in the United States, deploying explanations for regulation based on the economic and technological characteristics of the electricity sector, including the processes of generating and distributing electricity, as well as political features of the country. Against this background, the authors discuss one of the most controversial of deregulatory experiments; that pioneered by the Californian government, which, in retrospect, has been classified by most observers as a 'big mistake'. Towards the end of their paper, the authors discuss what went so wrong in the California debacle. They find blame in abuses of market power, corruption and flawed (de)regulation, among other factors. Then, they show the consequences of these occurrences in the way that, from 2001, electricity utility restructuring has been frozen or reconsidered in a total of twenty-nine states; eight have still not embarked on reform, and a total of only eleven states have opted to continue. That deregulation was no panacea is a common thread with Chick's paper, which analyses the ways in which three concepts, regulation, risk and responsibility, shifted across the twentieth century in the organisation of two utilities, electricity and water, in the United Kingdom. Drawing on his previous work, Chick contrasts the ways in which price and rates of return regulation was computed for nationalised industry and then during the run-up to and aftermath of privatisation (Chick, 2007). His discussion is informed by an interest in the socio-economic consequences of such a shift, with the result that by the 1990s, restructuring meant that, whilst prices for electricity to consumers increased, those for industrial users fell, a trend confirmed by Florio (2004). Moreover, increased electricity prices fell harder on the elderly and the poorer whilst increased water prices occurred on a regional basis. Privatisation and liberalisation

caused, or exacerbated, fuel and water poverty, Chick argues. The new regulatory paradigm re-introduced risk and uncertainty into industries that had not really endured these for decades, and inadequate attention was paid to how this new risk would affect prospective sunk investment. Finally, he argues that a new approach was taken as regards responsibility: poverty came to be increasingly dealt with as an outcome (such as the 'cold weather payment scheme' for pensioners), rather than through policies seeking redistribution.

From the 1990s onwards, some utilities, many of which were state-owned and run as monopolies for decades, emerged rapidly to occupy leading positions in the ranking of world multinational corporations (UNCTAD, 2009). The two final studies in this special issue take up this rather surprising and still under-researched development. European-based utilities are leading the pack around the world, largely, as a consequence of service liberalisation in the Single Market. The paper by Judith Clifton, Francisco Comín and Daniel Díaz-Fuentes seeks to identify whether and how the regulatory framework that governed utilities over the long term could be an important part of the story explaining their internationalisation. To do so, they examine the long-term regulatory experience and more internationalisation experiences of two large telecommunications firms: BT and Telefónica. Both are based in large European countries but, whereas BT became one of the least internationalised of all large European telecommunications incumbents, Telefónica became the most internationalised of all. The authors find explanations for the divergent internationalisation strategies in historical differences in ownership, management style, capital access and exposure to liberalisation. Telefónica was unique in the European context, born a private company and controlled by a foreign multinational, ITT. Its nationalisation was never completed, and its management was closer to that of a private firm than the traditional General Office of Post and Telegraph, and it enjoyed fluid capital access. Finally, despite privatisation and liberalisation elsewhere, Telefónica's early acquisitions in Latin America were conducted from its privileged monopoly position, whilst, post liberalisation, the firm continued to enjoy a high market share. BT, in contrast, was organised under state ownership early on, and controlled by the public administration from the end of the century. BT was sold as an integrated monopoly in 1984, and the government had to sponsor a rival, Mercury, in their duopoly policy. Liberalisation in the UK was well ahead of the European average, and BT was not 'pampered' by the government, as incumbents were in some Continental countries. Its strategy to pursue global alliances, rather than foreign direct investment, failed time and time again; then, to protect eroding home markets, BT partially de-internationalised, shrinking, becoming the least international of the major European telecoms operators. The final paper, by Dominique Barjot, also explores the relationship between utility regulation and internationalisation over the long term in the case of France. Here, the author asks why this country has produced some of the contemporary world's most important and successful enterprises from the public works and public utilities sectors, including urban services, such as water, energy, transportation and other infrastructure. The key reason, he argues, lies in the distinct legal traditions and definitions that existed for centuries which defined public works and public utilities. This legal tradition allowed for, and actually encouraged, substantial private sector involvement. In this context, the private sector participated in a variety of ways, along with the public sector, in different forms, towards the construction, operation and management of these services. In other words, the French legal system stimulated the development of 'network capitalism' by establishing

financial and managerial systems which allowed for the long-term participation of private capital in the development of major infrastructure projects. After presenting the historical evolution of the legal framework governing infrastructure and the role of private capital therein, he explores the development of four, major multinational corporations based in France: Vinci, Bouygues, Générale des Eaux and Lyonnaise des Eaux. Their dramatic internationalisation particularly from the 1990s was also facilitated by the growing role of cities in contemporary capitalism. As the CEO of Veolia Environnement claimed recently in an interview, he ‘dreams of US urban cities’ – the growth of huge, complex urban cities is precisely where utilities can sell their decades of specialist management experience (Amiel, 2011). Indeed, in the face of greater urbanisation, the shift towards economic growth to the East and the South, depletion of natural resources and issues of global climate change, new forms of terrorism and war, the sustainable, safe and fair regulation of utilities constitutes a key, future task for governments and business around the world. Let us hope the historical idiosyncrasies of infrastructure are not marginalised in the next wave of their regulation.

Utilities over the long-term: a scholarly network

This last section contains a final few words about the scholarly network around utilities over the long term. From the 1990s, we were working in two, parallel, groups. Judith Clifton was introduced to the World Economic History Conference (WEHC) network by Francisco Comín, who had served previously as General Secretary of the Spanish Economic History Association, and Daniel Díaz-Fuentes, during the 1990s. This group was working together on the privatisation and nationalisation of public enterprises in the European Union. Towards the end of that decade, they applied to a pre-session of the WEHC to be held in Trois-Rivières, Canada, organised by Pierre Lanthier. In the event, it turned out that the pre-session was held on 11–12 October 2001, just one month after September 11th. In truth, the idea of taking a transatlantic flight was not a very attractive one, especially as Clifton had to travel with her new-born son. Temptation to call everything off was resisted and then finally celebrated due to the excellent organisation of the Trois-Rivières pre-session. Not only did Pierre put participants up in the most exquisite of hotels, he also fed us with the best of *haute cuisine*. Conference attendees included Dominique Barjot, Claude Bellavance, Alain Beltran, Martin Chick, Lina Gálvez, Pierre Mounier-Kuhn, H. Vivian Nelles, Pedro Pablo Ortúñez, Aron Shai, Pier Angelo Toninelli, Nuno Valerio and Warren Young. The result of this most enjoyable pre-session was presented at the WEHC in Buenos Aires in 2002 (Chick & Lanthier, 2004). The expert for this session was Patrick Fridenson, and the time, energy and dedication he paid to our session marked the beginning of a strong academic and intellectual friendship. From this session two special issues were published in scientific journals: firstly, an issue edited by Alain Beltran, Martin Chick and Pierre Lanthier entitled ‘Nationalisations et dénationalisations de l’électricité’ in *Annales historiques de l’électricité*, no. 1, June 2003, and, secondly, Martin Chick and Pierre Lanthier (Eds.), ‘Nationalisations et dénationalisations’ in *Entreprises et histoires*, 37 (3), December 2004.

In parallel, another team was working on the long-term evolution of the process of electrification around the world, particularly, as regarded the changing ways this had been financed. William Hausman, Peter Hertner and Mira Wilkins organised

a pre-session on that topic in Wittenberg, Germany, and then a session at the WEHC in 2002, followed by several more meetings, including one held in May 2003 on the invitation of EDF, organised by Dominique Barjot and Peter Hertner, and then in June 2003 at a panel at the Business History Conference under the organisation of William Hausman. The outcome of these meetings was the important volume *Global electrification: Multinational enterprise and international finance in the history of light and power, 1878–2007* (Hausman, Hertner, & Wilkins, 2008) to which Dominique Barjot, Jonathan Coopersmith, Kenneth E. Jackson, Pierre Lanthier, H.V. Nelles, John L. Neufeld, Harm Schröter and Luciano Segreto, also contributed.

Because the utilities examined from the perspective of nationalisation and denationalisation were emerging as some of the world's leading multinational corporations from the 2000s, and that this had clear historical precedents, Judith Clifton, Francisco Comín and Daniel Díaz-Fuentes applied for a session at the WEHC on the internationalisation of utilities. After session acceptance, they held a pre-session at the University of Cantabria inviting country experts to analyse this perhaps surprising development: Lena Andersson-Skog, Sean Barret, Carlos Bastien, Frans Buelens, Candra S. Chahyadi, Patrick Fridenson, Marina Klinova, Lina Gálvez, Carlos Marichal, William Megginson, Robert Millward, Ana Bela Nuñez, Tomas Pettersson, Jesús Salas, Pier Angelo Toninelli, Julien van den Broeck, Michelangelo Vasta, Nuno Valério and Hans Willem. After the successful pre-session, the main concern was that Germany was missing from the analysis, so Harm Schröter accepted to step in. At the same time, Schröter was organising his pre-session for WEHC in Milan on the emergence of a European enterprise. This was published as *The European enterprise: Historical investigation into a future species* (Schröter, 2008). Because work from the other project, on the internationalisation of utilities based in the European Union, could be interpreted as leading to a European-based firm, the interest of the two projects converged.

Positive reception of the session on the internationalisation of utilities led to the publication of *Transforming public enterprises in Europe and North America* (Clifton, Comín, & Díaz-Fuentes, 2007) after the WEHC in Helsinki in 2006. In addition, Mira Wilkins kindly recommended Judith Clifton and Daniel Díaz-Fuentes as experts for the preparation of the *World investment report*, which was to focus on infrastructure (UNCTAD, 2008). Here, they met Peter Buckley, John Dunning, Hafiz Mirza, Anne Miroux and Rajneesh Narula, among others, and helped towards the establishment of the UNCTAD-academic network where close contact with policymakers in developing countries helped clarify new, urgent issues, such as under-investment and asymmetrical investment negotiation in infrastructure. Other, new colleagues and friends were made on the basis of common research interests, including Andrea Goldstein, OECD Investment Division, Karl Sauvart, of the Vale Columbia Centre on Sustainable International Investment and Louis Brennan, Professor of International Business at Trinity College, Dublin, who is currently managing an important COST project on the rise of multinationals from the South and their impact on Europe.

For the WEHC in Utrecht in 2009, the issue of how utilities had been regulated, or de-regulated over time became the question under study, particularly as it started to become apparent that the new regulatory model for utilities was proving far from perfect, and more difficult than many policymakers had thought to apply. Indeed, partly as a result of regulatory failure, the financial and then economic crises made funding complex in order to prepare for the World Congress. The Plan B, the virtual

pre-session, had to suffice on this occasion. Meeting at Utrecht in 2009, Patrick Fridenson and Robert Millward, the session's experts, coincided that the question of regulation and deregulation of utilities was still an open one, and that far more thinking needed to go into future regulatory models, particularly, as regards the environment and the generational question. Thanks for the successful outcome are due, as usual, to many individuals, including the Clifton and Gardner families, who cared for Judith's children whilst we were working! After the session, over lunch, plans were made to split the papers into two – those papers which dealt with one country and a single sector over a shorter time period, and those which dealt either with multiple sectors in one country or one sector across a large country over a considerable time-period. The first batch of papers would be organised into a special issue for *Entreprise et Histoire* (forthcoming); the latter, after an additional open call for papers, to *Business History*, this volume. From 2011, some members of our team were part of a consortium which successfully won a competitive bid launched by the European Investment Bank to analyse 'The History of European Investment Finance' from 2011 to 2014 under its EIBURS scheme. This publication is one of the first to come out in relation to this project.

Next, following the priorities established in the call for sessions by the WEHC organisers for Stellenbosch, South Africa, our team has an accepted session (number 109) which will focus on questions of international investment in infrastructure and the consequences of that for development based on experiences from the post-war to the present. The ideas for this session were inspired by the experience with the team in the UNCTAD, particularly regarding issues of asymmetry between investors and host countries, problems of under-investment and so on. The call for papers is still open! We encourage you to get in contact with your ideas and abstracts, as we strive to expand, strengthen and improve continuously, our network.

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