

1

Introduction

Kath Wellman and Marcus Spiller

Introduction

The motivation to write this book comes from a fascination with the complex, dynamic, interactive nature of cities and recognition of the critical role that urban infrastructure plays in this. Why is infrastructure so important in cities? Cities, simply defined, are concentrations of people, resources, information, and activities. Clever and skilled people in close proximity with each other generate many benefits due to the diversity of interactions of people and ideas and the potential for economies of scale and scope from agglomeration. Where interaction is fluid, dense, and diverse, there emerges potential for innovation and creativity. Although we realize that people and ideas are fundamental to successful cities, these people and the processes they put in motion need support from urban infrastructure to ensure that cities remain healthy, safe, and accessible and to support cultural, economic, and social systems. Efficient, effective urban infrastructure does not lead in itself to competitive, innovative cities, but the lack of it would strongly impede their development or sustainability. Through infrastructure's enabling function, complex, dynamic cities come alive.

Understanding the economic nature of urban infrastructure is critically important to any analyses of the contributions infrastructure may make to the efficiency of human interaction in the urban economy. In contrast to the fluid, dynamic nature of human transactions in healthy cities, urban infrastructure is characterized by high capital investment costs in assets which are inflexible, often location and function specific, exhibit network characteristics, and typically require low but steady maintenance and reinvestment. Once committed, the capital is essentially sunk, difficult, or

impossible to retrieve. Additionally each city has a legacy of infrastructure from past investment which can either support or inhibit the efficiency of future infrastructure investment. The longevity and essentially path-determining nature of urban infrastructure investment influences urban development patterns and cost structures for decades, as urban infrastructure services are usually inputs to further production or to end consumers. These are important reasons why such inputs have to be efficient—positive or negative efficiency effects are cumulative. Thus a flexible but conservative approach needs to be taken to major investment decisions due to the locational, sunk nature of costs and the long-term impacts of such investment.

The economic benefits generated by urban infrastructure investment follow a well-known pattern over time. Direct returns from infrastructure investment are highest at the early stages of a city's development when the stock of infrastructure is small and basic networks are incomplete, with returns on infrastructure investment falling as a city's legacy of infrastructure grows. Arguably the highest efficiency gains both in terms of resources (such as energy) and finance are thus likely to be made in small to medium sized rapidly developing cities over the next two decades. Having said that, there is the potential to accrue further large productivity gains in established major metropolitan areas from agglomeration (see Chapter 9), intelligent merging of existing grids and networks (see Chapters 6 through 8), development of new facilities management techniques, and efficiency enhancing technologies.

Urban economic infrastructure needs to be robust and flexible enough to deal with changing conditions and demands, which is why a long-term approach to investing in infrastructure is necessary. Flexibility is not inherent in the infrastructure itself, but greatly depends on intelligent planning and incremental enhancement of existing networks. Selective, strategic investment in infrastructure that supports this flexibility may generate high positive developmental impacts and long-run returns. It is likely that urban futures will depend to an even greater extent on wise infrastructure investment policies, given fiscal constraints, climate uncertainty, and an increasing awareness of the necessity to consider sustainability in all human—now mostly urban—activities.

Of course, urban economic infrastructure is hardware and merely represents the most recent physical manifestation of humanity's culture and economy. But cities are about software, about people. Thus, additional to economic infrastructure (sewerage, water supply, transport, electricity, gas, communications, etc.) is social infrastructure. Social infrastructure comprises the institutions and built structures that support such services as health, education, law, and justice. For efficiency at a city level, both economic infrastructure and social infrastructure need to be coordinated. How investment decisions are coordinated and made on urban infrastructure and how this infrastructure is managed is therefore critical to cities, and increasingly to nations dependent on these cities.

Global Challenges of Urban Growth, Climate Change, and Finance

The growing international interest in cities, and the urban infrastructure that supports them, arises from a realization that globally there is rapid urban growth (UNFPA, 2007, 2011) and that cities contribute significantly to human well-being and to national economies (World Bank, 2009; Glaeser, 2011). Currently the world population is estimated to be over 7 billion of which approximately half, about 3.5 billion, now live in urban areas. If we look at how this urban population is distributed, about 0.93 billion (27%) now live in cities in the more developed regions of the world, 1.9 billion (54.5%) live in less developed regions excluding China, and about 0.64 billion (18.5%) live in cities in China. The growth rates for cities (2005–2010) varies from an overall growth rate of 1.92% for world urban populations, to a growth rate of 0.68% for more developed regions and 2.33% for less developed regions excluding China. China has an urban growth rate of 2.62% (UN, 2010). We can see from this that over half of the world's urban population is living in developing regions and these populations are growing at a much faster pace than populations in developed regions. These developing regions have the lowest stocks of existing infrastructure and have potentially high efficiency and productivity benefits from effective and efficient investment in infrastructure and management.

Fertility rates impact on infrastructure investment and management. Countries with high fertility rates will generally sustain higher population growth rates requiring more services and facilities. A relatively large proportion of the population being young will put demands on education and employment. Low fertility rates also have impacts. The proportion of young people will decline relative to the proportion of old people due both to low fertility and the greater life expectancy of old people. This will impact on urban services, increasing the demand for health, aged care, and income support, perhaps on a smaller tax base. It will particularly impact on urban infrastructure where finance is dependent on government budget appropriations (such as in the transport sector in Australia, see Chapter 8). Fertility rates vary across developed and developing regions, with many countries within developing regions, particularly in Africa, having high fertility rates. All countries in Europe (with the exception of Ireland and Iceland) and countries such as Thailand, Iran, Australia, and China have low fertility rates. Intermediate fertility rates are found in countries such as India, United States, Indonesia, Mexico, and Bangladesh. Low fertility rates and an aging population are already of substantial concern in Europe and Australia (Productivity Commission, 2005) where a very high proportion of the nation's population live in the cities. Strong rural urban migration flows in nations, such as China, add further complexity.

How the urban population is distributed is also of concern. Much has been written about mega cities with populations of over ten million people, such as Tokyo, Delhi, New York, Mumbai, Sao Paulo, Mexico City, and Shanghai and on national and regional cities of 5 million and above. These

cities already have a large legacy of infrastructure and are important drivers of their countries or regions' economies. Cities of 5 million inhabitants and above account for about 15.5% of the total world urban population (aprox. 37% of the population of cities greater than 750 000 inhabitants). Much of the impact of urban growth is going to be felt in smaller and intermediate cities of below five million inhabitants which now support 84.5% of the world urban population. Currently cities of 750 000 up to 5 million inhabitants support 26% of the world urban population (aprox. 63% of the population of cities 750 000 or greater). The remaining 58.5% of the world urban population live in cities of less than 750 000 people.

The large number of small- to intermediate-sized cities involved becomes evident if we plot the number of cities that have greater than one million population within each of three size categories based on population; those between one and five million inhabitants, those between five and ten million inhabitants and metropolitan areas with over ten million inhabitants (see Figure 1.1). With globalization and the scale of urbanization, there is intense competition for resources between these cities. Thus getting efficient, effective infrastructure where investment occurs is important, particularly where the existing infrastructure stock is small and networks are incomplete, for here investment is likely to have substantial returns. Getting it wrong will leave a legacy that may well impede not only the present efficiency of urban infrastructure but also future investment in infrastructure. The scale of the challenge is daunting and much will be gained from developing cities benefiting from the lessons learned in developed cities rather than playing catch up on outmoded systems.

This urban growth and the increasingly competitive environment for cities are occurring at a time when the limits of the biosphere to produce resources and absorb waste are evident. The supply of water and climate change are of particular concern and both are interlinked (for a description of climate change see Box 1.1). To mitigate climate change, governments internationally are negotiating amelioration strategies, with two frequently advocated strategies being a 'carbon tax' or a 'cap and trade' system for emissions (see Chapter 7 on Energy Systems). Both strategies would have a marked impact on the energy and transport sectors (Chapters 7 and 8) and a flow through effect on other urban infrastructure and services that have a heavy reliance on energy, such as manufactured potable water (particularly desalinization).

Limitations of natural systems have increased pressure on governments to develop urban infrastructure that is not only efficient in an economic sense and equitable, in that the outcomes are distributed transparently and fairly, but also environmentally sustainable, protecting long-term environmental assets and mitigating climate change.

The complexity of financing and managing urban infrastructure is further heightened by the financial environment in which investment decisions are made. Historically, the financial environment has been intermittently volatile and will seemingly continue to be so into the foreseeable future. An increasingly globalized and interconnected financial world has triggered a series of recent financial crises (the Asian Financial Crisis of 1997, Dot-Com

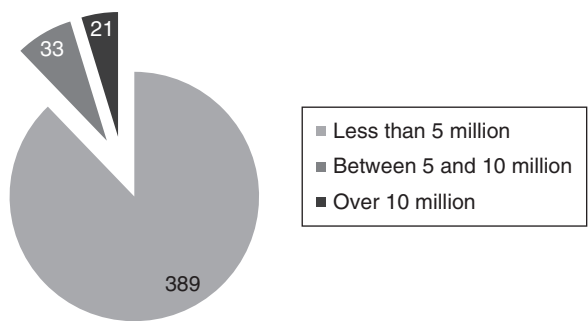


Figure 1.1 Number of urban agglomerations with more than one million inhabitants in 2009.
Source: United Nations, 2010. *World Urbanization Prospects: The 2009 Revision*. Department of Economic and Social Affairs, Population Division, File 12 population of urban agglomerations with 750,000 inhabitants or more in 2009 by country, 1950–2025.

Box 1.1 Climate change, adaptation, and mitigation.

The Intergovernmental Panel on Climate Change (IPCC) has issued four major reports (IPCC, 1990, 1996, 2001, 2007a) which review findings on atmospheric change and its likely causes. The latest report states that warming of the climate system is unequivocal, evident in the observations of increases in global average air temperatures, widespread melting of snow and ice, and rises in global average sea level. There is growing evidence to support the thesis that climate change is induced by recent changes in the atmosphere caused through carbon emissions from human-centered activity. This has a direct impact on the financing and management of urban infrastructure, both in terms of its effects on infrastructure, the need to adapt infrastructure to withstand the impacts of change, and the need to mitigate infrastructure contribution to carbon emissions.

Climate change is predicted to have impacts on rainfall and runoff in urban water catchments as well as an increased frequency of storm events, with associated cyclones and flooding (see Chapter 6). There is a predicted rise in sea level of between 18 and 59 cm by 2100, with a possible additional contribution from ice sheets of 10–20 cm (IPCC, 2007b). This rise, coupled with an expected increase in storm surges, will have a direct effect on low-lying infrastructure in coastal areas and estuaries, including major infrastructure facilities, such as airports. Particularly at risk are low-lying natural resources such as land and coastal ecosystems as well as freshwater aquifers. The coastal nature of many Asian and Oceania cities makes them vulnerable. Managing urban infrastructure for climate change requires strategic planning and governance at a metropolitan level (see Chapter 9) to ensure the effective coordination of infrastructure (both social and economic), adapting cities to changing environments such as rising sea levels, and retrofitting cities to improve energy outcomes and reduce carbon emissions.

Crash of 2000 and Global Financial Crisis (GFC) of 2008, European Debt Crisis of 2011). Although there is strong interest globally for heavier regulation of the financial institutions that have played a role in these crises, it is probable that the interconnectivity of global financial systems will facilitate further financial ‘epidemics’ in the future, impacting upon investment decisions and the structured provision of infrastructure.

Technological Change

These are indeed large global challenges, but along with these challenges we are making improvements not only in the technologies of infrastructure (more diversified, better client fit, smaller scale, higher energy efficiency, better communication technologies, more efficient use of materials, etc.) but also in the institutions and financial products to invest in this infrastructure and support its effective maintenance and management. Microeconomic reform has been particularly important in supporting this innovation, by opening markets for contestability and supporting third-party access in distributive networks which have monopoly characteristics. This third-party access to existing distributive networks has the potential to support continuous modification and growth of these systems increasing their efficiency through renewal and innovation. There is still some way to go. This book tracks some of these improvements, both in the infrastructure itself and the institutions, policies, and financial packages that support these (see Chapters 2, 3, 6, and 7).

Microeconomic Reform and Productivity

Microeconomic reform has been a key formative factor in the finance and management of urban infrastructure throughout the developed world. The aim of microeconomic reform is to increase the efficiency of the economy by directing resources to highest value use. Thus, major objectives of the microeconomic reforms in urban infrastructure have been to create flexibility and contestability in infrastructure service provision to support differentiation and innovation in both technology and service delivery. In many countries, this has been subject to social safeguards on public facilities (whether managed by the public or private sector) to meet social obligations. This reform process has at its core the need to structure transparent and accountable processes so that costs, benefits, and risks are identified, allocated, and managed by those who take them on. Here it is important to differentiate the objectives of the reform agenda from the mechanisms (such as unbundling to increase contestability and privatization) utilized for reform, as the mechanisms can change depending on the circumstances and should not be considered ends in themselves.

The push for microeconomic reform started in the 1970s and 1980s when inflation and slow economic growth led to unemployment among a number of developed nations. It was hard for governments to expand

expenditure to stimulate the economy without growing the tax base and there was considerable political opposition to doing this. It was also thought at this time that monopoly power was being used in the public and the private sector to obtain unfair profits, particularly where tariffs restricted trade and markets were small (King *et al.*, 1996). Pressure on the private sector to reform and the high service fees and monopoly powers of many public services, including economic infrastructure utilities, placed substantial pressure on the public sector to undergo similar reforms.

At this time, institutional arrangements for delivering and managing urban infrastructure were characterized by a traditional bureaucratic model. This often had a technocratic bias in investment planning and operations, with engineers and social planners tending to dominate the managerial ranks of these institutions. These institutions, generally public monopolies, were ordinarily afforded a degree of statutory independence to facilitate a focus on their explicit social mission—*clear slums and build decent housing, build more roads to stimulate regional economic development, deliver clean water, etc.*

Some nations moved faster along this reform process than others. From 1984 to 1994, the New Zealand Government led the rest of the world in transforming the role played by government and its agencies in the broader economy. Starting with significant deregulation of financial markets and the removal of input subsidies, the Government progressively reformed state-owned enterprises, many of which had been delivering infrastructure services. The central departments were next reformed, followed by the budgeting process and the separation of accountabilities for inputs, outputs, and outcomes. Since 1994, there has been some critique of these reforms; however the comprehensive nature of these reforms has served New Zealand's productivity well (Box 1.2).

Over the past three decades, most developed nations have followed New Zealand's lead and liberalized their economies, unleashing productivity growth through flexible labor markets, financial innovation, and greater competition in utilities, transport, and other production inputs (for Australia see Hilmer, 1993; National Competition Council, 2007). Although much has been achieved by microeconomic reforms at a national level, microeconomic reform of urban infrastructure sectors is a continuing process with still much that can be achieved within urban economic infrastructure sectors such as water, energy, and transport (see Chapters 6 through 8). Here there is also the potential for lessons in efficiency learned in one sector to be applied in another, though care needs to be taken on the context in which the reform mechanisms have been used. Thus networked grids used in energy distribution are now used for water and principles from the electricity pool market might also be used for water supply. Due to the productivity benefits of these reforms it is likely that these reforms will be continued and followed in developing economies.

Because economic and social infrastructure supports the delivery of essential services, there is a need to identify distributional consequences of these reforms to ensure that vulnerable segments of the urban population have equitable access to these services. The benefits of this fairness accrue not

Box 1.2 New Zealand reforms: 1984–1994.**1984 Market principles to replace administrative control**

- Deregulation of financial markets
- Float of exchange rate
- Removal of input subsidies
- Phasing out of export tax concessions

1986 State-Owned Enterprise Act

- Separation of policy, regulation, and production/trading
- Managerial focus on business performance, inputs, pricing, marketing
- Adoption of principles of competitive neutrality
- Private sector–based boards, government shareholding

1988 State Sector Act

- Senior management accountability
- Contract employment, competitive rewards
- Harmonization of industrial rewards

1989 Public Finance Act

- Defining of Ministerial and Chief Executive accountabilities for inputs, outputs, and outcomes
- Reduction of input controls
- Adoption of accrual accounting
- Consistency of reporting across corporate plans, performance agreements, budgets, and financial statements

1992 Public Finance Amendment Act

- Expansion of whole-of-government reporting

1994 Fiscal Responsibility Act

- Use of commercial accounting principles, including for the management of assets and liabilities
- Annual statement of 10 year fiscal objectives covering expenditures, revenues, the fiscal balance, and public debt
- Six monthly economic and fiscal updates, with 3 year forecasts
- Economic and fiscal updates prior to elections

only to the poor and marginalized, but also, through public health, labor participation, less crime, and the like, to the rest of society as well.

Turning to the specifically urban application of these issues on sectoral efficiency reforms, we should note that simply endeavoring to increase

economic efficiency within individual sectors will not sufficiently facilitate the creation of efficiencies across all sectors at a city level. Due to the connectivity and interactivity of cities, urban development is characterized by a range of externalities (both positive and negative). The challenge for urban managers is not only to drive efficiencies within individual sectors but also to capture these wider efficiencies through the coordination of the provision of urban infrastructure (both economic and social), with land development and redevelopment, leveraging where possible off positive externalities and minimizing negative impacts.

There is also an added complexity. Microeconomic reforms are conceptualized and implemented within largely aspatial models of the economy. However spatial distribution and connection are important in how cities work. Recent research and policy development has revived interest in how connectivity, agglomeration, and place-based synergies can generate powerful competitive advantages for firms and indeed cities, particularly through the stimulus given to innovation (World Bank, 2009; Glaeser, 2011). Land development and infrastructure decisions do shape the metropolis, and can determine a city's liveability and affordability. This in turn affects who wants to live in the city and whether they can afford to do so. Thus through people and the physical connection between people and their activities these urban management decisions impact on the city's capacity for innovation. For mature economies and for the more astute developing economies, the challenge is to understand how urban structure and management can drive or impede productivity growth, not just in a logistical sense, but also in terms of creativity and new enterprise formation and what role governments should play in this.

The major challenge for the future is to retain the efficiency and innovation benefits generated from microeconomic reform within urban infrastructure sectors, while extending this reform process across sectors and across urban metropolitan regions. This has the potential to drive further spatial and economic efficiencies and foster innovation through spatial agglomeration.

Australia as Case Study

The book draws particularly on the experience of Australia in both finance and management of urban infrastructure, recognizing that the concepts explored in the Australian context have international applicability. Australia has much to offer. Australia is a developed nation which has been undergoing substantial reform in infrastructure finance and management over the past 30 years. The need to do this has been driven largely by its geography. Two thirds of its urban population is found in its widely separated capital cities. Low to medium density housing characterizes these capitals. Large distances between cities and the diffuse nature of housing in these cities have placed a heavy financial burden on government for infrastructure provision and management. Since 1970, the total level of investment in economic infrastructure in Australia as a proportion of GDP has averaged

4.8% and has stayed in the upper quartile of a group of developed countries (New Zealand, France, Germany, Canada, United States, and the United Kingdom) whose proportion of infrastructure investment to GDP averaged 3.5% (Chan *et al.*, 2009). This relatively large financial share of the national economy (GDP) and government budgets that is represented in economic infrastructure has placed substantial pressure on Australian governments and government business enterprises to achieve reform and has encouraged an interest in private sector participation in infrastructure provision (see Chapter 4 on Public–Private Partnerships).

Australia is also a federated State, with individual States taking primary responsibility for infrastructure services delivery. This has led to a variety of approaches to infrastructure finance and management at a State level and an effort at federal level to coordinate reforms, which has been carried out through a Council of Australian Governments (COAG). The focus of these reforms has been centered on economic efficiency: the utilization of resources effectively to support highest value use. Competition has been used as a key mechanism to improve economic efficiency and provide the potential for innovation. The overall microeconomic reform process in Australia has generated substantial increases in productivity (PC, 2005). From 1995 to 2008, there were 13 years of uninterrupted output growth—one of the longest phases on record; the rate of growth in real per capita incomes in the second half of the 1990s was as high as at any time during the twentieth century and unemployment remained low until the Global Financial Crisis of 2008. The reform process and the issue of intergovernmental coordination in this reform process are of interest to other countries, particularly democratic, federated States.

Australian cities currently have populations below five million. Sydney, the largest, has a population of 4.58 million, with Melbourne, Brisbane, Adelaide, and Perth having populations of 4.08, 2.04, 1.20, and 1.70 million, respectively. Hobart, Canberra, and Darwin have populations of less than 750 000 (ABS, 2011). As noted earlier, these intermediate to small-scale cities, particularly in developing nations will create the greatest challenges for, and have the potential to generate high productivity returns from, efficient and effective infrastructure finance and management.

As a liberal democracy and a federated State, Australia has a complexity in governance at a metropolitan scale involving three tiers of government, the private sector, and the community. The moderating characteristics of these checks and balances have benefits; they stop the heavy application of power and inhibit corruption, but they can also cause frustration and reduce efficiencies where supply lags demand. Here inefficiencies are caused not only by congestion but by lost opportunities in shaping the development of the city. As a liberal democracy, Australia has much in common with countries, such as the United Kingdom and the United States (DiGaetano and Klemanski, 1999) in the need to develop strategic alliances across government and between government, the private sector and the community to proactively manage the metropolis toward required outcomes, particularly where forward investment in infrastructure is required to shape the city (see Chapters 2 and 9).

But care needs to be taken to understand the context in which decisions are made. How responsibilities and powers are allocated across government can affect the distribution and quality of infrastructure across the metropolis. This can be illustrated by a comparison of Australian and US local government responsibilities. Both Australia and the United States have three tiers of government: federal, State, and local. In both nations, local government is not mentioned in national constitutions and is a construct of State governments, resulting in variations in the detailed arrangements of local government between States and even within States between city and rural areas. Despite these variations, there are defined differences between the two nations that have an effect on infrastructure and the delivery of services.

In Australia, city governments have responsibilities for managing the land development and assessment process, through local development plans approved by the States. Responsibilities include local roads, parking, waste management, and small local facilities such as swimming pools. Taxes are collected through a property tax. Where this differs markedly from the United States is that Australian local governments are not responsible for funding schools and the police force. These responsibilities rest with the States. In the United States, responsibilities for funding schools and the police force from property taxes impact on peoples' locational choice. Parents of school age children seek good schools in safe environments. Poor local governments cannot provide these to the same standard as their rich counterparts and those parents that can afford it shift to richer neighborhoods, further depleting the tax base of poorer local governments and their ability to fund infrastructure and services.

Understanding where similarities exist (here the need to build strategic alliances for metropolitan governance) and the affect of differences (here local government responsibilities) are fundamental to the effective application of principles drawn from case studies.

It is evident here also that cities abound with interconnections and there is seldom any interception in city urban infrastructure finance or management which does not generate externalities (either positive or negative) on parts of the city. Urban management is an emerging discipline which endeavors to structure an integrated approach to these issues. Policies and principles for urban management are described in Chapter 2 and the utilization of infrastructure to shape the city and coordination for urban governance are described in Chapter 9.

References

- Australian Bureau of Statistics, 2011. Regional population growth, Australia, 2009–10. <http://www.abs.gov.au/ausstats/abs@.nsf/Products/3218.0~2009-10~Main+Features~Main+Features?OpenDocument#PARALINK17>. Accessed November 20, 2011.
- Chan, C., Forwood, D., Roper, H., and Sayers, C., 2009. Public infrastructure financing—An international perspective. Productivity Commission Staff Working Paper, March 2009, Productivity Commission, Canberra, Australian Capital Territory, Australia.

- DiGaetano, A. and Klemanski, J.S., 1999. *Power and Governance: Comparative Perspectives on Urban Development*. University of Minnesota Press, Minneapolis, MN.
- Glaeser, E., 2011. *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier and Happier*. Macmillan, London, U.K.
- Hilmer, F., Rayner, M., and Taperell, G., 1993. National competition policy. <http://ncp.ncc.gov.au/docs/Hilmer-001.pdf>. Accessed November 29, 2009.
- Intergovernmental Panel on Climate Change, 1990. Climate Change: IPCC First Assessment Report http://www.ipcc.ch/ipccreports/1992%20IPCC%20Supplement/IPCC_1990_and_1992_Assessments/English/ipcc_90_92_assessments_far_overview.pdf. Accessed May 8, 2012.
- Intergovernmental Panel on Climate Change, 1996. Climate Change 1995: IPCC Second Assessment Report <http://www.ipcc.ch/pdf/climate-changes-1995/ipcc-2nd-assessment/2nd-assessment-en.pdf>. Accessed May 8, 2012.
- Intergovernmental Panel on Climate Change, 2001. Climate Change 2001: IPCC Third Assessment Report http://www.grida.no/publications/other/ipcc_tar/. Accessed May 8, 2012.
- Intergovernmental Panel on Climate Change, 2007a. Climate change 2007: Impacts, adaptation and vulnerability. *Contribution of Working Group 11 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. E. Parry, O. Canziani, J. Palutikof, P. van der Linden, and C. Hanson (Eds.). Cambridge University Press, Cambridge, U.K.
- IPPC, 2007b. Climate change 2007: Synthesis report; summary for policymakers. http://www.ippcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf. Accessed November 23, 2009.
- King, S. and Maddock, R., 1996. *Unlocking the Infrastructure: The Reform of Public Utilities in Australia*. Allen and Unwin, Sydney, New South Wales, Australia.
- National Competition Council 2007. National competition policy: Major areas of reform. <http://ncp.ncc.gov.au/pages/reform>. Accessed November 29, 2009.
- Productivity Commission, 2005. Review of national competition policy reforms. Report no. 33. Canberra, Australian Capital Territory, Australia.
- United Nations Population Fund (UNFPA), 2007. State of world population 2007: Unleashing the potential of urban growth. UNFPA, New York.
- United Nations Population Fund (UNFPA), 2009. State of world population 2011: People and possibilities in a world of 7 billion. <http://foweb.unfpa.org/SWP2011/reports/EN-SWOP2011-FINAL.pdf>. Accessed November 20, 2011.
- United Nations Population Fund (UNFPA), 2011. State of world population 2011: People and possibilities in a world of 7 billion. <http://foweb.unfpa.org/SWP2011/reports/EN-SWOP2011-FINAL.pdf>. Accessed November 20, 2011.
- United Nations, 2010. World urbanization prospects: The 2009 revision. <http://esa.un.org/unpd/wup/index.htm>. Accessed November 2, 2011.
- World Bank, 2009. World development report 2009: Reshaping economic geography. World Bank, Washington, DC.