

PAUL ROMER AND THE SUEZ AND PANAMA CANALS

Lessons for Charter Cities from
Big Historical Infrastructure

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The Future of Development

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Contents

1. Introduction.....	4
2. An Introduction to Charter Cities.....	7
3. Two Surprising Charter City Projects: The Suez and the Panama Canals...	10
4. Romer's Sovereign Guarantor.....	12
5. The Infrastructure Charter and Using PPP Model.....	16
6. New Cities and the Inevitable Distributional Implications.....	21
7. Conclusion.....	25

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1. *Introduction*

The global pace of urbanization has accelerated. In today's developed countries, it took up to 150 years for the urban share of the population to increase from 10-20% to 60-85%. This process is now occurring in 30 years (Henderson, 2010). The UN has estimated that in the 40 years after 2010, an extra 2.6 billion people will move into cities. This will mark the culmination of a process that began 10,000 years ago when the first humans gathered into cities. In 1950, 30% of the world's population (746 million people) were urban, rising to 54% (3.9 billion) by 2014. By 2100, the UN predicts the urban population share will reach and stabilize at around 75% (Castle-Miller, 2012; Carmody and Owusu, 2016). Within this global story, the most dramatic regional urbanization story has been that of China. From 1978 to 2006 the urban population of China increased by around 700 million, the vast majority of which were rural to urban migrants (Dercon et al, 2019). The share of the population living in urban areas increased from 18% to 44% China consumed 54.7% of the world's concrete and 36.1% of its steel over the three decades to 2006. It is estimated that the urban population of China will grow by another 500 million people over the next 30 years (Xue et al, 2013). The epicentre of new urbanization is moving elsewhere. Estimates in 2010 predicted that India's urban population will increase by almost 600 million people by 2030 (Datta, 2012). Over the past three decades, urbanization in Africa has increased faster than anywhere else in the world (Carmody and Owusu, 2016:62). In the 35 years after 2015, the urban population of Africa is forecast to almost triple to 1.3 billion (van Noorloos and Kloosterboer, 2018).

There are two striking features of this last phase of urbanization. The first is that much of it is occurring in completely new cities. China has been the long-standing centre of the global new city construction trend, with 600 new cities constructed since 1949. Since the early 2000s, construction has started on hundreds of new cities across Africa and Asia. Indonesia alone is building 27 new cities (Shepard, 2017). Over a dozen countries in Africa are building more than 70 new cities (Cote-Roy and Moser, 2019). New cities have become central to politics. During his election campaign for Prime Minister of India in 2014, Narendra Modi called for 100 new Smart Cities to be built (Datta, 2015). New cities are also becoming an expression of national identity. The city of Putrajaya is the new federal administrative capital of Malaysia and the planned home for all federal-level government ministries and civil servants. The city drew on architectural inspiration from the Middle East as Malaysia sought to find a modern, but non-western, national identity (Moser, 2010). New cities are seen as crucial to promote economic development and technological change. Konza Techno City (Technopolis), 60 kilometres from Nairobi, Kenya contains a 5,000-acre technology park and is promised to become a Kenyan Silicon Valley (Watson, 2013). King Abdullah Economic City (KAEC) in Saudi Arabia was launched in 2005, aiming to diversify the economy beyond the export of crude oil, to help Saudi Arabia become a global hub for industry, R&D, education, and tourism (Moser et al, 2015).

The second striking feature is that whereas in the past the state was largely responsible for city construction, today these cities are being built for profit by private investors and urban developers. The state has assumed a more indirect role as a facilitator of private investment, assisting, for example, with land acquisition (Shatkin, 2011). This has been labelled a new 'Scramble for Africa' conducted by multinationals, foreign financial institutions, and large-scale property developers (Moser et al, 2021) and Africa as being the 'last development frontier' (Watson, 2013). Rendeavour, an African subsidiary of the Russian investment firm Renaissance Group, owns more than 30,000 acres of land across Africa

and is involved in the construction of at least seven new cities (Cote-Roy and Moser, 2019). Chinese companies are actively engaged in constructing new African cities in Egypt, Morocco, South Africa, Ethiopia, Nigeria, and Angola (Moser et al, 2021). Moroccan firms have established partnerships to build new cities in Senegal, South Sudan, and Ivory Coast (Moser et al, 2021).

Economic theory and history offers ample evidence that this future urbanization is good news. There is space for hundreds of cities to grow larger and thrive. To house an extra one billion people would require that the share of arable land devoted to cities rise from its current 3% to 4% (Romer, 2009c). In the past, urbanization has worked to promote economic development and alleviate poverty on a vast scale (Romer, 2015b). Cities have not made people poor, they have attracted poor people with the prospect of improving their situation in life (Glaeser, 2012:70). However, retrofitting cities, where cities already exist, can be up to three times more expensive than planning for infrastructure in advance of settlement (The Conversation, 2019). Many leaders in Africa see the construction of whole new cities as part of the solution to failures of existing urbanization and as a way to relieve the pressures on African primary cities (The Conversation, 2019). Pritchett (2014) provides evidence that urbanization passes what he calls a four-fold “smell test” that he uses to evaluate the impact of a development strategy on economic development. Firstly, he shows that there is a clear correlation between the level of urbanization and GDP per capita in a global cross-country sample. Secondly, over time income per capita and the urban population share increase together. Thirdly, countries that became more developed historically also became more urbanized. Fourthly, countries that have experienced an acceleration of economic growth, such as China after 1980, also experienced an acceleration in the rate of urbanization.

There is a substantial body of empirical evidence, grounded in economic theory, to explain the causal link between urbanization and economic growth (Glaeser, 2011). Empirical work shows that increasing local industry size leads to higher productivity of workers (i.e. economies of scale) (Henderson, 2010). Productivity increases when large numbers of workers are in close contact (i.e. knowledge spillovers), especially with other skilled workers (Bertaud, 2014). Proximity reduces the cost of moving goods, people, and ideas in the US manufacturing sector (Ellison et al, 2010). Wages increase with urban population density (Pierre-Phillips et al, 2010:15). There is a caveat in that the link between urbanization and economic development is not automatic. Across much of sub-Saharan Africa after 1970, urbanization failed to boost per capita incomes (Henderson, 2010). Poverty, deprivation, and crime undermined the potential economic benefits of urbanization (Carmody and Owusu, 2016). The productivity benefits of urbanization are linked not just to population density but to the share of the population with college degrees (Glaeser, 2012:27) and the number of college-educated workers (Henderson, 2010). Innovative activity is an urban phenomenon and more than 20% of corporate patent applications cite older patents developed in the same metropolitan area (Glaeser, 2012:36). This evidence demonstrates that good public policy, here education and intellectual property rights, is crucial to ensure that urbanization generates economic benefits.

Alongside this optimism about economic growth there is a widespread concern about the likely distributional impact of these new cities. Many scholars have noted that the new cities tend to target an existing wealthy and growing middle class, offering them an escape both from existing dysfunctional urbanization and sometimes from the tax obligations to support the urban poor (van Noorloos and Kloosterboer, 2018). In Ghana for example, gated communities are often targeted at the wealthy and educated diaspora. One surveyed gated community was targeted to high-income

earners overseas such as international footballers, financed by mortgages obtained overseas, and had an occupancy rate of around 15% (Grant, 2005). In countries such as Mozambique, Angola, and the DRC, where the natural resources sector (often oil) is the driver of national development, new city construction reflects this dynamic. The extractive sector typically generates patterns of extreme inequality, which is then reflected in the creation of a number of isolated, high-security, private urban enclaves that bypass most of the rest of the country (van Noorloos and Kloosterboer, 2018). Some of these cities are built on already populated land and require eviction of the poor to construct elite housing (Watson, 2013).

This paper looks in detail at an innovative idea for new city governance promulgated by Nobel Prize-winning economist Paul Romer, that of charter cities. Charter cities, Romer has argued, are timely (they offer a model to facilitate the contemporary new 'greenfield' city construction), practical (the necessary reforms to governance can be undertaken by most developing countries), and desirable (they mitigate the distributional concern about new cities by promoting both economic growth and reducing poverty). The main methodological conundrum in evaluating Romer's advocacy of charter cities is that there is no existing charter city to which he or others can use to demonstrate the developmental success or otherwise of the concept. This paper uses two innovative case studies to test Romer's idea. These case studies are the Suez Canal Company and the Panama Canal Company. As noted in Section 2 these two companies received charters, were tasked with building cities (and infrastructure), were given long-term leases over land, and had sovereign guarantors – the two canals were in effect Romer-esque charter city projects.

The most controversial aspect of Romer's 2009 TED Talk was his idea of a 'sovereign guarantor' for charter cities. Drawing from the example of Hong Kong, Romer suggested that in *some* cases the management of a charter city could be delegated by the host to another country. Romer argued that this would help provide credible promises to long-term investors through the reputation of the guarantor (Romer, 2009a). The historical experience of the Suez Canal and Panama Canal illustrates the profound long-run problems that can emerge with the presence of a sovereign guarantor. This paper argues that in financing new cities, the public-private partnership (PPP) model is preferred to the sovereign guarantor model. There are two historical warnings for contemporary charter cities. First, what starts as a PPP may implicitly acquire a fraught sovereign guarantee. Second, big infrastructure projects are inherently financially fragile. The combination of these two factors is likely to induce close (foreign) government involvement beyond the mandates of the PPP model. The canals were each financed by a combination of land taxes and land grants. These innovative financing mechanisms provide practical evidence to engage with the claim made by the new city movement and practitioners of charter cities that land taxes and grants offer an ideal means to fund infrastructure building. The canals also illuminate what has been termed a technocratic naivety; that new greenfield cities can be built so as to avoid distributional impacts. In reality, big infrastructure and new cities do make it easier to write new rules, but even if constructed in virgin wilderness they will always have political-distributional impacts. New city developments or charter cities must consider politics from the outset, not just good rules – as the ongoing political controversy related to charter city legislation in Honduras makes so apparent.

This paper is organized as follows: section 2 introduces the idea of charter cities, section 3 introduces the case studies of the Suez and Panama Canals, section 4 discusses Romer's concept of the sovereign guarantor, section 5 discusses the use of the PPP model to fund charter cities, section 6 examines the distributional implications of charter cities, and section 7 concludes.

2. *An Introduction to Charter Cities*

A charter city has been defined in terms of its “special jurisdiction”, under which a city government is delegated authority by a host country to write new laws of governance for an existing or prospective city (Mason and Lutter, 2020). Some view charter cities in a minimalist manner, as an extension of the long-established special economic zones (SEZs) project. SEZs refer to a delimited geographic area of a country to which special economic regulations (typically tax incentives, customs incentives, and easy access to land) apply and are distinct from the rest of the country. SEZs are usually intended to attract foreign investment. Charter cities in this view build on the SEZ model, “increasing its size to the scale of a city and expanding the scope of its reforms,” (Cao, 2019:721). Others see charter cities as much more. SEZs reform laws at the margin, while charter cities they argue re-write an entire legal framework to encompass labor, taxes, business registration, customs, immigration, land administration, dispute resolution, and more. While the geography of an SEZ tends to be quite small, charter cities focus on a much larger geographic area, enough to accommodate an entire city (Mason and Lutter, 2020).

Paul Romer became the leading global advocate of charter cities with his 2009 TED Talk which generated much debate, both laudatory and highly critical. The talk offered a deeper vision for charter cities as a ‘meta-rule’. Charter cities, Romer argued, were rules about making good rules. Charter cities were a mechanism for helping a country change its rules towards those that support rapid and inclusive economic growth (Romer, 2010a). Innovation in rules is best served by the presence of laboratories for experimentation to permit the observation and evaluation of diverse rules operating in different contexts (Fortes, 2020). Those laboratories argued Romer were newly built greenfield cities (Romer, 2010a). Pennsylvania in the seventeenth century (and its main charter city, Philadelphia), as well as Hong Kong after the 1840s, and the various SEZs in early 1980s China all served as laboratories that tested the efficacy of new rules and in turn inspired wider reforms in governance in neighbouring political jurisdictions (Castle-Miller, 2015:178). Romer hoped for charter cities to proliferate and so provide a market of rules.

Dubai, Singapore, Hong Kong, and Shenzhen are all cities on the edge of much larger sovereign entities, all four offered special rules and have thrived economically. All are commonly drawn upon for lessons and inspiration by advocates and critics of charter cities. Dubai has no charter that establishes a framework of rules independently of its government. Rules are made and implemented at the behest of the Makhtoum dynasty that has ruled Dubai since the 1830s. The Makhtoum rulers inaugurated the free trade port in the 1980s, the Internet City in the 1990s, and permitted foreigners to buy homes in 2002, a decision that turned Dubai into ‘the world’s biggest construction site’ (Krane, 2010). In 2004, the Dubai International Financial Centre (DIFC) was introduced as a free zone with British common law and court procedures, along with British, Singaporean, and other foreign judges. The DIFC Courts became an international arbitration destination for global investors (Krishnan, 2018). The Singapore story is similar, being founded as a colonial trading post in 1819 and free port, attracting traders from

throughout Southeast Asia. To guarantee the credibility of its legal system, Singapore allowed the British Privy Council to serve as its appeals court until the late 1980s (Yew, 2011), over 20 years after independence. Hong Kong provides a similar story, again with origins as a trading post-colony of Britain. The interesting twist for the charter city story came in 1984 when Britain agreed that Hong Kong would return to China's sovereignty. In 1984, China and the UK signed the Sino-British Joint Declaration. This was the charter under which Hong Kong would operate for 50 years after the handover to China in 1997 (Romer, 2009d). Shenzhen was one of the first four SEZs that the Chinese government authorized in 1980. Starting as a handful of fishing villages with a population of around 100,000, in 40 years it became a metropolis of 20 million residents. The city was granted autonomy by political fiat not by the creation of a legally enforceable charter. This autonomy allowed the city rulers an opportunity to make deep governance reforms in labour law, price controls, housing, and the land market. Many of these reforms then spread throughout China (Yuan et al, 2010).

There are charter city-esque features in the four historical examples, but none offers a convincing demonstration of the charter-city model in practice. None of the four cities was built on greenfield land. Dubai, Singapore, and Shenzhen were initially small villages. Hong Kong was a city at the moment of its hand-over in 1997. Three of the sample never really exercised freedom of choice, being colonies of Britain. Three of the four did not have a charter. Without such legal protection, the rules can always be changed, by the hereditary rulers in Dubai, by the Singaporean government, or for Shenzhen by the Chinese Communist Party. Colonial-era Hong Kong had autonomy from Britain but acquired something like a charter in 1984. There was always a doubt about whether China would respect that autonomy, hence its limited credibility. The post-1984 reading of Hong Kong is argued to be historically rather selective. It fails to account for the fact that Hong Kong remained something of a backwater for the first century of its existence and only really thrived after 1950 when skilled migrants flooded in to escape communism in China (Cheong, 2010:166). The focus on Hong Kong is also argued to be 'strangely quiet' on the fact that there were numerous cities in nineteenth century China (the Treaty Ports) that were similarly dominated by foreigners and that took on charter city-like features though none of them boomed like Hong Kong (Chakraborty, 2010).

In July 2008 Romer visited Madagascar, where the government was interested in creating two charter cities. The idea of giving up land to foreigners, rather than the charter cities legislation per se, proved unpopular, was denounced as treason and exacerbated anti-government protest that was already swelling for other reasons (Mallaby, 2010). The involvement of Romer and his TED Talk generated global interest in charter cities. Romer announced that the government of Honduras was interested in setting up a charter city, the President had heard and liked the TED Talk (Castle-Miller, 2015). The government amended the constitution to allow for the creation of special development regions (known as REDs and later ZEDs). The amendment won the cross-party support of 126 members of the 128 member Congress. It was hoped that charter cities would help reverse the annual migration of an estimated 75,000 people to the US, many of whom would live in the US undocumented and in fear of deportation (Romer, 2011).

The President of Honduras appointed leading US economists, Paul Romer and George Akerlof (both Nobel Prize winners), and Nancy Birdsall of the Center for Global Development, among others to a Transparency Commission established by the initial legislation to oversee the integrity of governance in the newly constructed charter cities. The Constitutional Court rejected the law, saying it violated Honduran sovereignty. The government dismissed four judges who had opposed the government on this and other reforms. A revised version of the law passed in 2013 (Economist, 2017). The new laws faced continuing opposition from various civil society organizations (Castle-Miller, 2015). The Transparency Commission was never legally constituted and was unable to play its oversight role, its members resigned in 2012 (Romer, 2012). Within a few years, Romer was decrying the government of Honduras for having passed new laws that removed “all possibility of electoral accountability for the people who run the zone” and denouncing the effort: “I can’t imagine a thoughtful investor would go in and invest under these circumstances, in a place controlled by a crony aristocracy. I predict that this effort will collapse on its own,” (Romer, 2015a). The cases of Madagascar and Honduras offer a sobering check on the practical implementation of building ‘real-world’ charter cities today under Romer’s sovereign guarantor model. Both have been criticized as illustrating the profound problems of passing sovereign control of a geographical chunk of territory to a foreign corporate entity.

3. Two Surprising Charter City Projects: The Suez and the Panama Canals

The conventional history of charter cities feels a bit flat (Section 2) relative to the bold claims made by Romer about the potential efficacy of charter cities in promoting economic growth and reducing poverty. As a developmental intervention, the idea of charter cities therefore remains vulnerable to the criticism of tractability. This section introduces two charter city experiments that have been forgotten in this debate; the Suez and Panama Canal companies. This section introduces the two case studies and shows that they acquired all of the key attributes of charter cities as Romer conceived of them. They were tasked with building cities (and infrastructure), were given long-term leases over land, and had sovereign guarantors.

The Suez Canal began with the dreamy inspiration of Ferdinand Lesseps, a French engineer who regaled the Pasha (ruler) of Egypt, Mohammad Said in 1854 with tales of the ancient glories of Egypt and the canal of the pharaohs. A canal in Egypt, said Lesseps, would connect Europe to Asia and so place Egypt at the centre of the world (Karabell, 2003:4). Lesseps obtained the original concession from Said and formed the *Compagnie Universelle du Canal Maritime de Suez* (the Suez Company) to build and run the canal. The company was given a 99-year concession to operate the canal. The concession also granted the company control over land, including mineral rights, around the canal. The Canal was subject to Egyptian law but conflicts between the Canal Company and locals came under jointly administered courts (Piquet, 2004). The Constantinople Conference of 1888 established the neutrality of the canal. This led to the Suez Company claiming a new 'international' identity, not subject to Egyptian laws (Piquet, 2004). The Suez Company became a government-bureaucracy with the powers of a small state (Karabell, 2003).

The 195km Suez Canal was opened in 1869 to link Port Said in the North of Egypt to Port Tawfiq/Suez in the South. The journey of 11,560 nautical miles from Bombay to Liverpool was reduced to 5,777 nautical miles (Fletcher, 1958). The canal survived the Great Depression of the 1930s with traffic even increasing over the decade (Turekulova et al, 2020). The canal company had initially hoped for up to 5 million tonnes traversing the canal annually. By the mid-1950s, this figure reached 122 million tonnes of cargo annually (75 million of which was oil). In recent years almost 80 percent of all seaborne trade between Asia and Europe has gone through the Suez Canal (Øiestad, 2019). In the 2010s the government of Egypt initiated a significant expansion of the Suez Canal to permit its use by much larger oil tankers and other ships (Ahmed et al, 2018).

The Panama Canal project was deceptively simple—a 40-mile straight line from tidewater to tidewater (McCullough, 1977:21). However, the engineering problems along the canal were formidable. One of the most serious was how to contain and cross the river Chagras. During a storm in May 1884 the river rose 10 feet in a few hours and rose again in July by 14 feet (McCullough, 1977:165). Suez was flat and no more than 50 feet above sea level, whereas Panama had steep mountains rising to 330 feet above sea level (McCullough, 1977). Lesseps tried to repeat his Suez success but his French-backed endeavor went bankrupt in 1889. The Canal project was later taken over by the US government. The Hay-Bunau-Varilla Treaty was signed on November 18th, 1903, and formed the basis of the Panama Canal charter. Panama granted to the United States within the canal zone “all the rights, power, and authority...which the US would possess and exercise if it were the sovereign of the territory...to the entire exclusion of the exercise by the Republic of Panama of any such sovereign rights, power, or authority,” (McCullough, 1977:393). The Canal Zone encompassed 10 miles of land to either side of the canal which was granted to the US in perpetuity. The Isthmian Canal Commission (ICC), reporting to the US Secretary of State, was set up to run the Canal Zone. The US was given rights to intervene to restore order if necessary. The US had the right to expropriate any additional land or water areas “necessary and convenient” for construction, operation, or defense of the canal. The US made a \$10 million up-front payment and \$250,000 annually to the Government of Panama (McCullough, 1977:393). The Panama Canal was built by the US government at a cost of \$352 million and opened in August 1914 to tremendous celebration (Greene, 2010). The route from New York to San Francisco was 7,873 nautical miles shorter using the canal rather than traveling around the southern tip of South America (Huebner, 1915).

Both canal projects were intimately bound up with city building. The cities were not governed by individual charters but operated according to the rules in which the canal companies were incorporated. The earliest work on the Suez Canal was to construct huts around Port Said for 2-3,000 workers. The population of the Canal Zone then grew from 10,000 in 1865 to 34,000 in 1868. In 1868 both Port Said and Ismailia each had a population of 10,000 and had acquired all the standard urban amenities including churches, butchers, bakers, and restaurants (Karabell, 2003:154). The initial construction efforts on the Panama Canal were likewise focused on urbanization. In May 1881 the jungle was cleared for new towns at Gatun and Emperador (McCullough, 1977:133). By 1882, there were 2,000 people working on the canal and 13,000 by 1884 (McCullough, 1977:147). During the later American construction efforts, the Canal Zone became dotted with towns. The greater US attention to public health (including yellow fever eradication and malaria control) acted as an extra stimulant for migration and urbanization. At each end of the canal the US built a town, Cristobal alongside Colon and Ancon alongside Panama City. With the construction of a water supply, police and fire departments, and a post office, the rudiments of a modern state were created. The construction of canteens, churches, roads, bridges, waste disposal plants, streetlamps, and hotels added the infrastructure of modern cities (Greene, 2010:37). The 1912 ICC census showed that the Canal Zone had a population of 62,000 (Greene, 2010).

4. *Romer's Sovereign Guarantor*

This section introduces the idea of the 'sovereign guarantor' for charter cities, introduced by Paul Romer. The idea has generated much controversy. The historical experiences of the Suez and Panama Canals confirm the profound long-run problems that can emerge with the presence of a sovereign guarantor.

4.1 The Sovereign Guarantor: An Enduring Controversy

The most controversial aspect of Romer's 2009 TED Talk was his idea of a 'sovereign guarantor' for charter cities. Drawing from the example of Hong Kong, Romer suggested that in *some* cases the management of a charter city could be delegated by the host to another country. Romer argued that this would help provide credible promises to long-term investors through the reputation of the guarantor (Romer, 2009a). Romer was clear enough, a sovereign guarantor was a possibility in some special cases, and he discussed the idea less in future work. Another option was to follow the Chinese example of entirely locally managed Shenzhen (Romer, 2010a).

Commentators seized on the notion of the sovereign guarantor for the case of charter cities. It has been labelled "not merely neo-medieval, in other words. It is also neo-colonial," (Mallaby, 2010). In Madagascar the idea of giving up vast swaths of territory to foreigners was unpopular. The arrangement was denounced as treason and added momentum to public protests which eventually turned violent. The riots appeared as a clear demonstration of the explosive sensitivities surrounding sovereignty and land (Mallaby, 2010). The loss of Hong Kong to Britain in the 1840s is remembered in China as a national humiliation. A development model "seeking to create 100 Hong Kong's" means for one journalist that the charter city idea "stinks" (Chakraborty, 2010). There are unresolved problems with the idea of a sovereign guarantor. Romer did not fully explain how a charter city will be able to monitor and punish self-dealing by its foreign guarantor (Sagar, 2016:516). What would happen if the host country reneged on the charter and sought to take over the charter city once it became wealthy? Would a charter city need foreign military support to protect its charter? (Mallaby, 2010; Cheong, 2010).

Romer's response has been to stress that the establishment of a charter city will be a voluntary act. "Only a country that wants to establish a charter city will do so," he writes, making a charter city "very different from colonial occupation," (Sagar, 2016:515). A charter must contain "a commitment to the equal treatment of all residents under the law" and guarantee "choice, backed by both voluntary entry and free exit for all residents, employers, and investors." Romer also emphasizes that charter cities should create an oversight body with the power to audit and dismiss corrupt officials (Sagar, 2016:511).

4.2 The Suez Canal: A Sovereign Guarantor Emerges from Geo-politics

The Suez Canal financing was dominated by French shareholders (Karabell, 2003:82). The dreams that Egypt would dominate the eastern Mediterranean and re-create the great civilization of the pharaohs turned out to be illusory (Karabell, 2003). France did not offer a formal sovereign guarantee to the Suez Canal zone but exercised de facto sovereignty. When a great power finances a globally important infrastructure project, that project inevitably becomes drawn into great power politics. After the Indian Mutiny in 1857, the need for a canal to improve access to India seemed more apparent to Britain as a geo-political objective. The canal became central to the Franco-British global rivalry (Karabell, 2003:82). Khedive Ismail succeeded Said in 1863 as the Pasha of Egypt and insisted that the conditions under which the Canal was being constructed were incompatible with Egyptian sovereignty. Ismail called for more Egyptian control over land and mineral rights around the Suez Canal, and that the Corvée (forced labor) system be abolished. The complaint went to arbitration by Napoleon III, the ruler of France, demonstrating where sovereign decisions regarding the canal were made. On July 6th, 1864, Napoleon ruled that mineral rights in the Canal Zone could revert to Egypt but also that the concession was legally binding. In compensation, the Canal Company received 130 million francs as compensation for surrendering those concession 'rights' (Ogen, 2008). Egypt had to raise new loans to pay the compensation. The debt induced Egypt to sell assets at knock-down prices. In November 1875, the British government bought the Egyptian shares for £4 million. In 1880, the right to 15% of canal income was sold to the Crédit Foncier de France for 22 million francs. The Egyptian government was effectively ostracized from canal management (Piquet, 2004). By 1878, control of Egyptian government finances passed under Anglo-French control. In 1882 Egypt was effectively colonized by Britain (Ogen, 2008).

The twentieth century saw the gradual growth in Egypt of a nationalist reaction in anger to the sovereign abrogation of the Canal Zone, first led in the 1930s by trade unions and Islamic groups. In 1947, the law was changed to force the Canal Company to employ more Egyptian workers and managers (Piquet, 2004). The 1952 military coup was motivated in part by the desire to remove British troops from the Canal Zone, which was achieved by treaty in 1954 (Ogen, 2008). France and Britain had maximized their short-term gains and ignored the impact of this on the long-term political sustainability of their physical presence in Egypt. Between 1880 and 1950 it is estimated that only about 3% of canal revenues were transferred to the Egyptian state (Turekulova et al, 2020). The Canal was finally, perhaps inevitably, nationalized to enormous popular acclaim in 1956. Only after 1956 did the Egyptian state again earn significant revenues from the Canal. In 2017 17,000 crossings of the Suez Canal generated \$5.3 billion in revenue for Egypt (Øiestad, 2019).

4.3 The Panama Canal: A Sovereign Guarantor and 9,000 Marines

Signing the Panama Canal treaty was a 'voluntary' act by the new government of Panama. There is good evidence that the US utilized its military prowess to obtain a better deal than it could otherwise have negotiated. The 1903 treaty gave the US a far higher share of the economic benefits than earlier agreements negotiated between the French-owned New Panama Canal Company and Colombia, or between the United States and Nicaragua, or in the first treaty between the US and Colombia (Maurer and Yu, 2008:688). The Panamanian President had a portrait of Roosevelt on the wall behind his desk. The treaty has been called an "imperial land grab" (Greene, 2010:6).

The Panama Canal Zone faced constant conflict in the functioning of its own legal system, which borrowed from Colombian and Panamanian law, as well as US legal traditions (Greene, 2010:269). There were wider conflicts, whether the Canal Zone was subject to Panamanian law or via the sovereign guarantee to the US constitution. There were constant discussions and conflicts over sovereignty (Greene, 2010:73). Did those in the Canal Zone, for example have a right to trial by jury as in the US (Greene, 2010)? Hovering over all this was, by 1911, nearly 9,000 US soldiers who were stationed in the Canal Zone. US forces did not remain confined to the Canal Zone but exercised a much wider right as a sovereign guarantor. US soldiers were often sent to aid the government of Panama to suppress strikes, riots, and popular uprisings. In 1904, US soldiers entered Panama City to prevent a feared coup (Greene, 2010). After riots in Panama during July 4th celebrations in 1912, US citizens were arrested, the ICC disputed the legality of those arrests. Problems continued into 1913 and 1914 and the US threatened to take over the policing of Panama (Greene, 2010:332). The ICC and US diplomats were deeply involved in Panama, acting as advisors to the government of Panama, overhauling the police and administering Panamanian government finances (Greene, 2010:308).

Panama took almost a century to extricate itself from US sovereign claims. The Carter Treaty in 1977 gave a permanent US right to intervene to defend neutrality of the canal but not to interfere in the internal affairs of Panama. Between 1977 and 1999 the US continued to manage the canal and ignored the provisions of the 1977 treaty by invading Panama in 1989 to depose President Noriega (who had been indicted in the US for drug trafficking). In 1999, US bases were finally shut down and the Panama Canal became the sole responsibility of the Republic of Panama (Greene, 2010).

4.4 Lessons for Charter Cities: Volunteering and Great Power Politics

The Romer 'voluntary' principle was upheld in the initial charter of both canal case studies but they were signed in the context of an overwhelming power asymmetry between a poor developing country (Egypt and Panama) and a global great power (France and the US). The initial tough negotiating stance of Colombia for example (who were the initial colonial rulers of Panama) was met with US backing for the independence of Panama. The great powers leveraged their power to maximize benefits to themselves. The Suez Canal illustrates that foreign control of land remains sensitive as witnessed by the rising tide of nationalist protest throughout the first half of the twentieth century. This lesson was not learned by Honduras, where after 2009, the legitimacy of the ZEDE was undermined by a lack of transparency and suspicion that charter cities would become an entry for foreign occupation. The experience of the Suez Canal illustrates that even without a formal

sovereign guarantor, big infrastructure can become a site for the exercise of great power politics and the emergence of de facto sovereign guarantees. Another lesson for charter cities is that the charter city must ensure that pre-existing political elites benefit from the success of that city. The lack of elite benefits was key behind much of the domestic political opposition to both Canal Zones in the twentieth century. The Suez Canal cut almost all sources of payment to the host country and the Panama Canal Treaty did make an annual payment but only a derisory \$250,000 per year. Possible mechanisms include a fixed proportion of annual tax revenues being transferred to the host government or through the host government being given an equity stake in the city development company (or both).

Despite the warnings from these two historical examples, there are many examples of more limited and time-limited technocratic delegation to domestic or even foreign entities that have worked. Central banks are frequently given independence and a mandate to control inflation without political interference. The independent Bank of England was run by a Canadian banker (Mark Carney) between 2013 and 2020. Politicians decide the mandate and hold central bankers accountable for achieving it (Romer, 2010a). Panama and Ecuador have gone further and declared the US dollar to be legal domestic tender, so delegating monetary policy to the US (Mallaby, 2010). In 2003, to combat rising crime the Governor General of the Solomon Islands requested Australia to take over its law enforcement. Australia sent 2,000 troops, who departed in 2013 (Sagar, 2016:524). The Supreme Court of the Republic of Mauritius agreed to serve as a court of appeal for the proposed charter cities in Honduras (Cao, 2019:749). Despite the apparent 'national humiliation' of Hong Kong, in 1994 China allowed Singapore to build and run the Suzhou Industrial Park (SIP) in Jiangsu. Facing conflict with the local authority, Singapore withdrew in 2001 (Cheong, 2010:167). Certain parts of the operation of a charter city could be subject to some similar form of sovereign guarantee.

5. *The Infrastructure Charter and Using a PPP Model*

This section looks at the question of financing new cities and shows that the public-private partnership (PPP) model is preferred to the sovereign guarantor model. The section comes with two historical warnings for contemporary charter cities. First, what starts as a PPP may implicitly acquire a fraught sovereign guarantee. Second, big infrastructure projects are inherently financially fragile. The combination of these two factors is likely to induce close (foreign) government involvement beyond the mandates of the PPP model.

5.1 New Cities and the PPP Model: A Practical and Acceptable Alternative

Practitioners and policymakers have moved on from the external guarantor model. For example, the Charter Cities Institute (CCI), “support[s] the core of Romer’s model, a new city with new rules, [but] we reject the guarantor country approach as neither desirable nor politically feasible.” (Mason and Lutter, 2020). CCI instead advocates for a public-private partnership (PPP) between a real estate developer and the host country. The World Bank defined PPPs as joint ventures between public agencies and private parties for providing public goods and services, which neither of them could complete alone (Jiao and Yu, 2020).

In his original TED Talk Romer argued that infrastructure construction and public service provision could be paid for from gains in land value (Romer, 2009a). A PPP for new city construction is likely to revolve around the state facilitating access to land for the city developer. Unlike his controversial sovereign guarantor idea, this argument from Romer has become more influential over time. The developer generates revenue from leasing or selling the land in a charter city, while the city government generates revenue from taxes and fees. Because the city developer owns (or has a very long lease over) the land, they are incentivized to create an effective administration, to abide by good economic rules, and to provide public goods in order to increase economic activity and increase the value of that land (Mason and Lutter, 2020). If the city created a well-functioning education system that developed residents’ capabilities, the residents would be able to work in higher-skilled occupations and boost firm productivity and profits. A more educated pool of workers would attract new and diverse employers. Together these would raise the value of the land and allow the city developer to collect more revenue from its leases (Castle-Miller, 2015:277).

Early efforts in China in the 1990s loaded too much risk onto governments who then faced financial burden (Zhang et al, 2015). China took twenty years of trial and effort to devise its successful PPP model. The theory eventually worked in practice, saving some ‘ghost city’ disasters. China has utilized the model of leasing urban land to developers. In 2000, land sales on average made up 9.3% of China’s municipal government revenue. By 2011 this had ballooned to 74.1%. One survey showed

that China's local municipalities were making 40-times more money per acre of land than they were paying to acquire it for development (Romer, 2013b). Between 2003 and 2006 in Jiangsu, Zhejiang, and Guangdong provinces land tax revenues accounted for 40% of government budgetary revenue (Qun et al, 2015:432). The price of land in Zhengdong New District City in Henan increased ten-fold between 2003 and 2010 which generated massive revenues for the local government (Xue et al, 2013). Such optimistic projections need to acknowledge the more recent travails of the Chinese property market, including the bankruptcy of the large developer Evergrande. When three-quarters of revenue comes from one-off land leasing – that is a clear indication of precarious over-dependence. There are valuable lessons for other countries. In Ahmedabad, India the public sector owns 32 percent of the developable or developed land area. By selling unutilized or underutilized public land, the city could raise up to \$10 billion. This would pay for the city's infrastructure needs for the next 10-20 years (Romer, 2013b).

The historical canal case studies reveal the concern that what starts out as a PPP (involving a foreign firm) may turn into something more like a sovereign guarantee. The Suez Canal was originally an entirely private venture with the Suez Canal Company holding a 99-year concession. While the Egyptian government purchased nearly half of the total shares, the fact that the bulk of the remainder were purchased by French nationals and the central role of the Canal in international geo-politics turned the private deal into something resembling a sovereign guarantee, first by France and then by Britain (Karabell, 2003:79). Likewise, the Panama Canal was originally a private venture. The government of Colombia awarded the original concession to the Societe Civile Internationale du Canal Interocéanique de Darien (McCullough, 1977:66). When the firm went bankrupt and the importance of the Canal became more apparent for the geo-political vision of the US, the private deal was taken over by a sovereign US guarantee. When there are 700,000 Chinese nationals living in Forest City, Malaysia or when the port of Gwadar in Pakistan becomes a key route for Chinese oil imports, the government of China will inevitably be drawn into the politics of these regions.

5.2 Financing the Charter City PPP: The Rise of Private Finance

Economic theory has long accepted an important financial role for the state in the provision of big infrastructure and by implication, city construction. There are various economic rationales such as the long gestation of certain infrastructure investments, the limited size of domestic capital markets, the risk of large investments without precedent in a country undergoing the initial uncertainties of industrialization, coordination problems (such as the need to ensure the availability of workers with relevant skills), and the fact that much of the benefit from such projects is external to the original investment. Investment in roads may not in itself be profitable, but the social benefits of creating profitable investment opportunities in private sector industry may be enormous (Hirschman, 1958). There is good empirical support, across different contexts, time periods, and geographical regions for the link between public investment in infrastructure and economic growth (Aschauer, 1989; Crescenzi and Rodriguez-Pose, 2008). At first glance the vast sums being raised to finance long-term private city construction would appear to suggest that the public sector is no longer indispensable.

The last decade has seen the emergence of Private City Operators (PCOs) who plan, finance, build, operate, and manage the infrastructure and public amenities of a new city. One example is the China Fortune Land Development Co., Ltd. (CFLD) who are reputed to manage 125 new cities or towns. The group was founded in 1998 and grew into a Chinese Fortune 500 company (Jiao and Yu, 2020). KAEC in Saudi Arabia is privately financed and run by a company called Emaar, a subsidiary of a Dubai-based

public joint stock company. Emaar has been involved in many high-profile real estate developments across Asia, the Middle East, and North Africa. In 2006, Emaar had a very successful IPO and more than half of all Saudis bought shares (Moser et al, 2015). PCOs have proved successful in raising enormous sums. The predominantly private developments Dholera in India (Datta, 2015) and Waterfall City in South Africa (Murray, 2015) were scheduled to cost \$9-10 billion and \$5.8 billion respectively.

This easy conclusion is misplaced. Real estate is an inherently vulnerable business proposition, involving massive-upfront costs in a sector that is notoriously vulnerable to macroeconomic fluctuations. The 2008 Global Financial Crisis, for example, was spurred by falling property prices in the US. Even under normal macroeconomic conditions, big infrastructure is subject to 'forecast danger'. Using a database of 258 major infrastructure projects across five continents, one study finds that 90% of projects experienced cost-overruns and overruns of 50%+ in real terms were common and 100%+ not uncommon. Demand and benefit forecasts of the utilization of the infrastructure were frequently wrong by 20-70% (Flyvbjerg, 2009:346). Governments are frequently compelled to rescue city-building real-estate projects. The \$3.5 billion Kilamba City project in Angola, for example, had to be rescued by the Angolan government who created a rent-subsidy scheme to make the property affordable for local civil servants to save the city from turning into a ghost-town (Cain, 2014).

The canal case studies offer repeated examples of the financial fragility of big infrastructure projects. The financing of the Suez Canal was much less successful than its associated engineering triumphs. Lesseps initially tried to ensure the financing was an international effort, which failed. The 85,000 shares reserved for Britain, Austria, and the US were unsold (Karabell, 2003). France held around 200,000 shares, or half the total. Said's personal stake was 60,000, which he increased to 177,000 after buying the still unsold shares in 1858. The international reticence was fully justified. The first year of the operation of the Suez Canal was a commercial disaster. In 1870 fewer than 500 ships, or only 40,000 tonnes, crossed through the canal, compared to the 5,000,000 tonnes promised by the canal company. The company's share price collapsed (Karabell, 2003:260).

The initial attempt to build the Panama Canal by Lesseps was a resounding failure as less than 10% of the 800,000 shares were taken up (McCullough, 1977:102). Lesseps travelled to and from Panama and fired up the imagination of investors. The second sale attempt in Paris was a huge success. The early skepticism was justified. By the 1880s the canal company was resorting to repeated new loans and bond sales, paying \$15 million a year in interest. The company went bankrupt in 1889 (McCullough, 1977:232). The second construction attempt of the Panama Canal was lengthy and expensive. Work on the canal continued for six years past the estimated completion date due to unexpected landslides and geographical hindrances. The canal did not fully open to civilian traffic until July 12th, 1920. Cost overruns were 2.6 times the initial estimate (Maurer and Yu, 2008:689). The aggregate start-up costs came to \$788 million (1925 dollars) to which can be added \$125 million in defence-related costs to protect the canal. The total start-up costs came to approximately 1.8% of 1930 US GDP, though spread over 18 years, 1903-1921. An equivalent cost in 2006 nominal GDP would be \$242.5 billion (Maurer and Yu, 2008:690).

5.3 The Benefits from Big Infrastructure: Lost to the Construction Company?

Much of the benefit of big infrastructure, such as the two canals cannot be captured by a private construction company, which has long been held as a key rationale for state financing of big infrastructure.

The Suez Canal generated significant economic benefits, mainly though for Great Britain not for the French financiers – explaining why the country gradually increased its sovereign political control over the project (see Section 4). By 1891, Great Britain accounted for about 75% of the shipping crossing the Suez Canal and still about 60% by 1913 (Turekulova et al, 2020). One study tried to estimate the gains to world trade and found that Britain, together with its colonies (mainly India), accounted for 64% of the estimated total benefits from the canal (Hugot and Dajud, 2016). Almost a century later on June 5, 1967, at the beginning of the Six Day War, Egypt closed the Suez Canal. The canal remained closed to everyone for eight years, reopening on June 5, 1975. The largest trade and economic shocks were experienced by a small set of countries, including Djibouti, Pakistan, India, Kenya, Somalia, Tanzania, and Sri Lanka (Feyrer, 2009). By 2018 Pakistan and India were the major beneficiaries of the canal (Akakura and Onon, 2020).

A contemporary commentator forecast that the benefits of the Panama Canal would not lie in “the amount of tolls that can be pinched from passing merchandise” but the influence it would have on trade and production in raw materials and manufacturing (North, 1900:122). The construction of the Panama Canal generated linkages to US manufacturing. All the hardware for the locks, including the lifting mechanisms for the steam valves, special bearings, gears and struts for the gate machines, and 92 bull wheels was made by a single manufacturer in Wheeling, West Virginia. The still comparatively small General Electric Company won a large government contract. GE would attract worldwide attention with its display of the virtues of electric power and creative resources of electrical engineering (McCullough, 1977:597). There were 50 factories in Pittsburgh making rivets, bolts, and steel plates for the canal. Schenectady, New York produced the tugs that pulled ships into the canal (Greene, 2010:56). A study estimates that the Panama Canal was responsible for an \$864 million increase in net exports from the US, equivalent to 1 percent of 1924 GNP (Hutchinson and Ungo, 2004).

A large proportion of the gains from the Panama Canal accrued indirectly to US consumers of transportation. With the opening of the Panama Canal, Melbourne, and other Australian ports which had previously been between 900 to 1800 miles nearer to London than to New York would be closer to New York by several hundred miles (Kirkaldy, 1913). By the 1920s and 1930s, 75% of the cargo transiting the canal was US in origin (Maurer and Yu, 2008:691). The canal boosted East Coast textile mills which increasingly imported wool directly from Australia rather than via Great Britain; sugar refineries imported directly from Hawaii; and iron and steel mills could import ore from the west coast of South America (Huebner, 1915). One study shows how much of the benefit of the Canal was reaped by the US using county-level population data between 1880 and 2000. The study computes shipping distances with and without the canal from each US county to every other US county and to each international port. The results show that the opening of the canal had a significant positive effect on urbanization in the US up to 2000, but most strikingly in the years 1900 to 1920 (Maurer and Raunch, 2019). By 2018 almost 70% of ships using the Panama Canal still had their origin or destination in the

US (Maurer and Raunch, 2019). The Panama Canal gave a major boost to economies in western Latin America and boosted trade by at least 10% in Ecuador, El Salvador, Peru, Bolivia, and Chile (Hugot and Dajud, 2016). This effect on Latin America was still evident in 2018 (Akakura and Onon, 2020). Much of the benefit came from shortening sea-travel distances for internal US trade; from the US East to US West from 13,277 to 6,146km (Maurer and Yu, 2008:691). Key commodities were the transportation of petroleum products from California to the East Coast and lumber from the Pacific Northwest (Maurer and Yu, 2008:687). Intra-US transcontinental traffic averaged 41 percent of the cargo passing through the canal (by tonnage) in 1923–1937 (Maurer and Yu, 2008). Social benefits can be calculated by estimating the reduction in shipping distance and costs relative to the cost by railway. In 1921, the canal's first full year of operation, the estimated social rate of return was 2.9%; less than the inflation-adjusted rate on U.S. federal 10-year bonds. The social rate of return exceeded 10% by 1923 and remained above 8% throughout the difficult 1930s (Maurer and Yu, 2008:697).

5.4 Lessons for Charter Cities: Avoiding a Slide into Sovereign Guarantees

Global capital markets are large and efficient enough to raise the large sums required to build new, private cities. City building will always be financially fragile and faces the constant risk of requiring state support. Much of the benefit of big infrastructure like canals cannot be captured by private developers which creates a further rationale for state involvement. To avoid private ventures or PPP projects from transforming into sovereign guarantees a key lesson for charter cities today is the importance of using, where possible, a local city developer.

6. *New Cities and the Inevitable Distributional Implications*

Paul Romer suggested, and advocates of charter cities have concurred, that charter cities should ideally be built on greenfield land. This they collectively argue will preserve the ideal of choice – no one will see their existing city and home turned into a charter city against their wishes. Only those wishing to live in a charter city will migrate there. Greenfield cities, they argue, can create benefits for existing elites rather than threaten whatever gains they are accruing from existing patterns of corruption, governance, and rules. Using canals as our case study, this section casts some doubt on this greenfield optimism. Greenfield cities do make it easier to write and implement new laws but even the greenest of greenfield cities will create at least some issues of land displacement, distributional impacts in the domestic economy, and political consequences for ruling elites.

6.1 The Greenfield Promise: An Oases of Technocratic Sanity?

While resolutely in the development mainstream in stressing the importance of good institutions, advocates of charter cities depart in their thinking about how to achieve good institutions. Advocates agree that the first-best solution to global poverty is the national-scale creation of good institutions but argue that it is more politically tractable to create a new city with new rules in a delimited geographic area than to change an entire country's basic institutional framework (Freiman, 2013). To create good institutions and governance Romer (2009a) argued that charter cities should be built on greenfield—that is, uninhabited or sparsely populated—land. Because greenfield land is undeveloped, setting up a new jurisdiction does not force anyone to live under it involuntarily, nor are there any entrenched special interests that may work to block economic and political reforms in order to protect their rents. This allows a charter city to overcome the collective action problems that make major reform at the national level difficult (Mason and Lutter, 2020).

There is a question mark about the presence of any 'truly greenfield' land. Others have called the 'greenfield' idea or 'building urban oases of technocratic sanity' as a naïve effort to avoid vested interests, resistant politics and, by doing so, create technocratic rationality (Mallaby, 2010). People have already populated almost the entire globe (van de Sand, 2019:185). One study divided the globe into grid cells of roughly 55km², Africa contains more than 10,000 such cells. On average, a cell contains 110,000 people. The most populous cell contains Cairo and inhabits almost 18 million people. Globally only 212 cells are uninhabited (Graff, 2019:10). India has a population density of 464 persons per km² compared to a global average of 25, which is widely dispersed as only 35% of India's population live in cities. The problem in India is exacerbated as landholding is very fragmented, held by multiple owners and there are few legally verifiable certificates of

ownership (Khan, 2010). The 2006 construction of the Tata car factory in West Bengal on 1,000 acres, for example, required compensation be paid to 12,000 different landowners (Mohanty, 2007). This means that we need to consider new cities from the perspective of displacement of established, pre-existing populations. It is not surprising that new city construction has become associated with large-scale population displacement. Eviction, resettlement, and compensation often fail to protect the poor. Without adequate compensation households lose a generational asset and their source of livelihood that cannot easily be replaced. It disrupts social networks and livelihood sources that are used as survival strategies (van Noorloos and Kloosterboer, 2018). There are examples of successful compensation mechanisms, which could be replicated, such as guaranteeing a member of a displaced household a job in a new city construction (in some Indian examples) or, as in the case of Enyimba Economic City, Nigeria giving prior residents of the land an equity stake in the new city.

6.2 The Distributional Consequences of Existing Cities

The canals offer a warning that urbanization may exacerbate inequalities, particularly when driven by foreign investment.

The opening of the Panama and Suez Canals had a significant impact on existing business. The Suez Canal route was opposed by Egyptian merchants who lobbied for a more indirect route, a canal linking up to the Nile. This would preserve the importance of both the merchant community in Alexandria and the Alexandria to Cairo railway (Karabell, 2003). The Panama Canal rendered the Panama railway irrelevant for international trade. The railway was built between 1850-55 at a cost of \$8 million but earned \$6 million in profits in just its first six years of operation. The railway was once the highest price stock on the New York Stock Exchange (McCullough, 1977). The opening of the Panama Canal had a significant impact on railways in the US which were forced to cut prices on their Atlantic-Pacific transcontinental routes (Huebner, 1915).

The central role of foreign investment led to a consistent pattern of domestic inequalities between foreign and national workers. The construction of the Suez Canal entrenched inequalities between well-paid European workers and poor Egyptian laborers. The Europeans of Ismailia lived in grand mansions and the local workers lived in mud huts (Karabell, 2003). The Canal Company refused to reinvest its profits back into the country to develop a qualified local workforce or a local elite of technicians who could operate the canal after the end of the concession period (Piquet, 2004:110). During construction of the Panama Canal segregation was rigid among canal workers. Gold (usually American) employees had high wages, six weeks paid leave per year, and clubhouses, reading rooms, bowling alleys, and gymnasiums. Silver (foreign) employees had lower wages, worse shops, and substandard shacks. West Indian canteens had no chairs or tables and were under open air even during rain (Greene, 2010:151). After completion of the Panama Canal within the Canal Zone, an American-style company town flourished, planned along 'garden city' ideals and providing workers with access to swimming pools, golf courses, parks, social clubs, churches, and schools (Sigler, 2016). The adjacent barrios of El Chorrillo and Calidonia featured dense, tenement-style residential quarters (Sigler, 2016). The gold and silver system lasted until 1955 and was then replaced with a single wage, though almost all high-level jobs were reserved for Americans. Americans retained tax and travel privileges and schools within the Zone remained segregated (Greene, 2010:371). This dynamic reduced poverty, the jobs in both the Suez and Panama Canals were better paid than the alternative,

mainly subsistence agriculture. The disparities also contributed to a growing political resentment, particularly as patterns of inequalities were closely associated with the division between domestic and foreign workers.

The Panama Canal did generate huge gains for the US, but Panama did not have to incur large debt in its construction and over time clearly enjoyed its own benefits. In 2019 GDP per capita in Panama (current US\$) reached around \$16,000, marking it as almost a high-income country. The Colon Free Zone adjacent to the canal was established in 1948 and has since become one of the most important distribution centers for Central, South, North America, and the Caribbean for wholesale food, textiles, household domestic goods, construction materials, machinery, and motor vehicles. The zone also provides docking facilities for cruise ships, an international airport, and a railroad terminal. National prosperity remains closely tied to the Canal as 87% of Panamanian GDP originates from the Canal Zone. Expansion plans for the canal to allow its use by larger ships are predicted to generate large increases in GDP for Panama up to 2025 (Pagana et al, 2012; Pagano et al, 2016). The canal created less than 10,000 jobs in 2010 (and a multiple of that number through indirect linkages) which was only a small fraction of Panama's 3.4 million people. The rest of Panama's population was squeezed into the remaining fraction of GDP and production (rather than import and re-export from the canal zone) in Panama remained concentrated largely in agriculture and mining, particularly bananas and gold (Hausmann et al, 2016). Though the Panama Canal has been successful in spurring a dynamic service sector that has generated high-productivity, high-wage jobs, this service sector has been relatively concentrated. Moreover, the Canal has not fostered country-wide industrialization and the associated growing middle class of industrial wage workers that typically arises from it. As a result, income inequality has been a persistent political issue in Panama. Despite some decline since 1990, inequality as measured by the Gini coefficient was 49.2 in 2019, higher than any other Central or South American country (with data) except Brazil, Colombia, and Belize (World Bank, 2022).

6.3 Lessons for Charter Cities: Greenfield Promises and Political Realities

Romer emphasized the role of charter cities in reducing poverty, of important political salience will be the impact of charter cities in generating inequality. While the Suez and Panama Canals created better paid employment there was resentment about resulting inequalities, particularly because it was foreign workers who enjoyed the best paid jobs and conditions. Though there are smaller parcels of uninhabited land available (than the 55km² in the statistical study noted above) the expansion of small cities or the desire to build new cities near existing cities will run into existing populations and so into the thorny question of displacement. The idea that charter cities can be built on greenfield land without causing some displacement of an existing population (and some new poverty) would be better served by a policy of actively incorporating compensation for displacement as part of a charter city plan from the outset.

The success of a charter city will have political consequences beyond income inequalities. Once established, a successful charter city may create a potentially dangerous dynamic for established elites. Political elites could easily lose interest in fostering a competitor whose success starts to undermine support for the rules that benefit them at home (Sagar, 2016). If a charter city was successfully implemented, the old elite would be exposed as superfluous (van de Sand, 2019:185). The ZEDE legislation was vehemently opposed by Honduran municipalities, “which feared competition from the new entities,” (Cao, 2019:749). Despite a near unanimous parliamentary vote in favour of charter cities, political elites in Honduras sought to retain political influence over new charter city projects – leading to Romer’s interjection about crony capitalism (quoted earlier) (van de Sand, 2019:185).

This concern seems ameliorated by the recent history of new city creation. A striking feature of the wave of new city creation is that almost none of the successful projects engage in the discourse of political decentralization, reform, or liberalization (Milton, 2018). The SEZs and new cities in China, as an experiment for economic openness were created by the Chinese Communist Party. The SEZs were part of an effort to decentralize governance to province and city level but were intended to strengthen the monopoly rule of the CCP. SEZs and new cities created new employment opportunities for CCP cadres and provided means to test aspiring candidates for higher political office. Dubai and KAEC in Saudi Arabia were both created by non-democratic Islamic monarchies. Each of these projected was backed by an established host government who was both able to guarantee the new institutions and to benefit from the project. China was able to reap the benefits of the open commercial and financial system in Hong Kong, while cordoning off Hong Kong’s political liberalism from the rest of China. New cities have not weakened and decentralized nation-state governments, but rather legitimized and strengthened them (Milton, 2018). An important rationale for KAEC is to create employment for young people in Saudi Arabia and so strengthen the legitimacy of the monarchy (Moser et al, 2015). A deeper sense of history may contradict this authoritarian optimism as economic growth, urbanization, and rising incomes (whether spurred by a charter city project or any other means) have a close historical association with a society becoming more democratic (known as the Lipset hypothesis) (Barro, 1999). But Saudi Arabia has become a high income country with no obvious sign of emerging political democracy. China has sustained growth in recent years under President Xi Jinping and arguably reversed earlier signs of incipient political freedoms. Do charter city developers face a difficult choice of choosing to build new cities in liberal-democratic regimes where opposition to emerging inequalities is likely to grow or else building them in more authoritarian countries where their construction may bolster regime legitimacy? Or do charter cities accord with the Lipset hypothesis and by advancing economic growth and urbanization they will drive a wider process of democratization?

7. Conclusion

Much of the contemporary international development discourse around charter cities is pessimistic or dismissive. Charter cities were an idea that flared into brief, widespread debate after 2009, largely based on the allure of their Nobel Prize winning publicist, Paul Romer. The model ran into the sobering realities of two failed practical efforts (in Madagascar and Honduras) and the inability of the often noted ‘success stories’ of Hong Kong, Dubai, Singapore, and Shenzhen to be charter-city enough to give widely accepted support to the model. In fact, the outlook for charter cities is more positive than suggested by this narrative. There are hundreds of new cities being built across (predominantly) the developing world, many of which feel very close (absent an explicit sovereign guarantor) to the charter city model. The charter city model, shorn of the problematic notion of the sovereign guarantee can and should be revived to help understand this process.

This paper contributes to the growing literature around charter cities and new city developments and makes a case for the salience of the charter city model from two surprising case studies – the Suez and Panama Canals. A characteristic feature of the charter city model or new city construction is to start off with a plan of the city’s physical design and a written framework for the city’s legal governance. The infrastructure required is a secondary matter, based on the projected population and economic growth of the city. This paper takes a starting point that reverses this order or precedence. This paper looks at the history of how companies empowered by charter to build and operate big infrastructure projects inevitably end up running new or expanded cities under those new charter rules.

The main finding of this paper is that we can learn a lot from historical big infrastructure—canals—and that these lessons are relevant to contemporary charter cities. The most controversial aspect of Romer’s 2009 TED Talk was his idea of a ‘sovereign guarantor’ for charter cities. The historical example of the canals confirms the real political danger of this sovereign guarantee model. In more recent discussion, the PPP model is preferred to the sovereign guarantor model. The canals offer three historical warnings for contemporary charter cities. First, what starts as a PPP may implicitly acquire a fraught sovereign guarantee. Second, big infrastructure projects are inherently financially fragile. The combination of these two factors is likely to induce close (foreign) government involvement beyond the mandates of the PPP model. Finally, this paper questions the argument that greenfield cities are either possible and that building such a city, while making the writing of new rules easier, will create issues of land displacement, distributional impacts in the domestic economy, and political consequences for ruling elites.

An important implication of this paper is that where private firms are given something like a charter to build and operate infrastructure, charter cities are likely to emerge. There is currently a huge global effort to build infrastructure that spans borders and continents, dominated by the Chinese Belt and Road Initiative (BRI). The BRI was planned as a vast network of road and rail connections, seaports, energy, and manufacturing investment across Eurasia (Asia, Europe, Central Asia and the Middle East) and Africa. The BRI was first announced by Chinese President Xi Jinping during a 2013 visit to Kazakhstan. The BRI comprises six economic corridors spanning an estimated 80 countries, containing more than two-thirds of the world's population and costing between \$1 and \$8 trillion, depending on the source of ever more excitable estimates (Dawn, 2018). Chinese construction companies are engaged in building new cities across the BRI (Moser, 2018). In Africa, Chinese companies are constructing new cities in Egypt, Morocco, South Africa, Ethiopia, Nigeria, and Angola (Moser et al, 2021). Kilamba City in Angola, completed in 2012 at an estimated cost of \$3.5 billion, included 750 apartment buildings, schools, and more than 100 retail units (Cain, 2014). In Malaysia a Chinese corporation is building Forest City, a private gated city to house up to 700,000 Chinese nationals started in 2014 and is expected to cost \$100 billion (Moser, 2018). The G7 group of rich countries, has made a response and in June 2021 promised to promote the Build Back Better (B3) World initiative to construct infrastructure in the world's low income countries. The initiative was labelled by the US government as 'strategic competition with China', (White House, 2021). Japan is also backing a Southern Economic Corridor – that links cities in four countries – Ho Chi Minh City (Vietnam), Phnom Penh (Cambodia), Bangkok (Thailand), and Dawei (Myanmar) (Hillman, 2018). This paper has argued that where there is big infrastructure, there are new cities being built under charter city like rules. This global renaissance of big infrastructure investment gives Romer a striking contemporary relevance.

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