The Role of the State in Global Value Chains

Lukas C. Brun (Duke University, Durham, United States)
Joonkoo Lee (Hanyang University, Seoul, South Korea)

Abstract:

A consistent critique of global value chain (GVC) theory is its limited attention to the role of the state in understanding industry governance and upgrading. Despite addressing the role of the state in industrial policy (Gereffi and Sturgeon 2013) and a growing emphasis on the role of public governance in complementing private governance (Mayer 2014), the GVC literature has yet to provide a framework to categorize and explain the different roles governments take in promoting the participation of local firms in GVCs and their economic, social and environmental upgrading. We argue that the role of the state in GVCs is an important concern for scholars in light of an increasing number of GVCs shifting to South-South trade, and relatively strong and capable emerging economy governments in the Global South willing to exercise their power vis-à-vis global lead firms.

We find that the state acts in five major ways on value chains: 1) as a rule-setter for competition (i.e., the institutional foundation), which is consistent with the original insights in the global commodity/value chain theory; 2) as the formulator and executor of GVC-oriented industrial policy; 3) as a network facilitator, in which the state acts as a match-maker between domestic and foreign firms; 4) as a buyer of goods and services for government procurement, which changes the role of the state from taking a supportive role in the value chain to being a quasi-lead firm in a buyer-driven commodity chain; and 5) as an active participant in the creation and development of state-owned enterprises (SOEs). We explore these roles using case examples from our research and draw implications to GVC theory and analysis. We examine the network facilitation role of the state using the example of the
South Korean animation industry from 1990-2011. The procurement role of the state is examined using the case of water infrastructure construction in the United States from 2009-2013. The SOE role of the state is exemplified by the steel industry in China from 2001-2013. Thus, we find that states take multiple roles in value chains, ranging from laissez-faire to activist approaches, which are determined by the political economy in which they reside.
1. Introduction

The ability of the state to direct its national economy has been challenged by economic globalization (Brady, Beckfield and Zhao 2007, Evans 1997a, Guillén 2001, Ó Riain 2000). Technological innovations, increased foreign direct investment, and the rise of global production networks in the post-Cold War era have resulted in an increasingly integrated global economy, in which states compete for foreign investors, global producers and buyers. In a globalized economy, firms are key actors in economic development, and the intentions and regulations of corporate actors matter as much as, if not more than, those of state planners (Ellison and Gereffi 1990, Mayer and Gereffi 2010). The attention given by the global commodity chain (GCC) and global value chain (GVC) literature to the rise of global buyers and their role in shaping national economic development outcomes challenged both neoliberal economic thinking rampant during the Washington consensus era that pure markets are the key determinants of national economic development, and the developmental state perspective in Political Science emphasizing the role of the state in shaping economic development outcomes (Gereffi 2001).

Yet the state still matters. The literature on the role of the state in even a neoliberal world recognizes that the state serves key roles in providing public goods such as regulations, education, and national defense and otherwise facilitate the operation of free markets (Gore 2000, Williamson 1994). In addition, decentralized, network-based production and innovation keep the state vital in multiple roles: as a principal provider of location-specific assets, such as regulations (Shin and Chang 2005); as a facilitator in linking local firms to global networks (Ó Riain 2004); and as a protector from any potential network deficiencies or failures (Whitford and Schrank 2011). Industrial policy, once perceived dead, appears to have been resuscitated and even in vogue (Cimoli, Dosi and Stiglitz 2009, Wade 2009, Whitford and Schrank 2011). Scholars call for a renewed form of industrial policy in the era of post-Washington Consensus (Block 2008, Rodrick 2004, Rodrik 2008). The state’s active role in economic and social upgrading has drawn attention to emerging economies like South Africa (Edigheji 2010).
Our purpose in this article is to revisit the topic of the role of the state in global value chains. A consistent critique of GVC theory is its limited attention to the role of the state in understanding industry governance and upgrading (Leslie and Reimer 1999; Cramer 1999; Ponte and Gibbon 2005; Bair 2009; Thomsen 2007). However, we consider this characterization of the GVC literature inadequate because it does not take into account the recent theoretical developments regarding the role of the state in industrial policy (Gereffi and Sturgeon 2013), the role of public governance in complementing private governance (Mayer 2014), and the empirical evidence gathered over the past decade from applying the GVC framework to address economic, social, and environmental upgrading in developed and developing countries. Using case examples from our research, we find that the state acts in five major ways on value chains: 1) as a rule-setter for competition (i.e., the institutional foundation), which is consistent with the original insights in the global commodity/value chain theory; 2) as the formulator and executor of GVC-oriented industrial policy; 3) as a network facilitator, in which the state acts as a match-maker between domestic and foreign firms; 4) as a buyer of goods and services for government procurement, which changes the role of the state from taking a supportive role in the value chain to being a quasi-lead firm in a buyer-driven commodity chain; and 5) as an active participant in the creation and development of state-owned enterprises (SOEs). We explore these roles and draw implications to GVC theory and analysis.

We organize our article in four sections. In the next section (Section 2), we discuss the literature on the developmental role of the state and how the rise of GVCs has either weakened or strengthened that role. In particular, we examine how the literature has critiqued GVC theory as providing insufficient attention to the role of the state in development and review how GVC theory has to date conceived the role of the state in global value chains with regards to the first two types: the state as institutional support and state as formulator of GVC oriented development policy. In Section 3, we provide our case evidence for the other three roles states have taken on in GVCs. We examine the network facilitation
role of the state using the example of the South Korean animation industry from 1990-2011; the procurement role of the state is exemplified by the case of water infrastructure construction in the United States from 2009-2013; the SOE role of the state is exemplified by the steel industry in China from 2001-2013. In Section 4, we develop a framework for understanding the role of the state in GVCs, discuss the strengths and weaknesses of each type, and summarize the findings of our paper. We argue that the role of the state in GVCs is an important concern for scholars in light of an increasing number of GVCs shifting to South-South trade, and relatively strong and capable emerging economy governments in the Global South willing to exercise their power vis-à-vis global lead firms.

2. The State, Development, and GVCs
As pointed out by Gereffi (2005), the scholarship on national economic development is divided into two distinctive streams of ideas; one is institutional, highlighting the effect of the state on economic development (Evans 1995) notably the varieties of national institutional configurations (Hall and Soskice 2001), and the other is organizational, focusing on organizational configurations like GVCs and global production networks (Gereffi, Humphrey and Sturgeon 2005, Henderson et al. 2002). The two streams of scholarship were developed somewhat separately, the former in Political Science and the latter in Sociology, yet each purports to explain important causes for national economic development. We discuss these separate literatures regarding the role of the state and GVCs on development in the two subsections below.

2.1. The state and development in the globalization era
As the global economy has become tightly integrated and capital can ceaselessly move across national borders, scholars have questioned whether the nation-state can maintain its power to regulate its national economy and promote economic development (Brady, Beckfield and Zhao 2007, Evans 1997a, Guillén 2001, Ó Riain 2000). One group of scholars contend that the coming of “borderless world” (Ohmae 1999) and the spread of neoliberalism would restore free market through deregulation
and privatization and keep the role of the state at minimum to facilitate the operation of free markets (Gore 2000, Williamson 1994). In contrast, others argue that the decline of the state is premature, finding that despite the globalization challenges, the developmental role of the state, and specifically developmental states, whose defining feature is to lead economic development and industrial upgrading, are neither in crisis nor destined to decline (Fourcade-Gourinchas and Babb 2002, Walter 2006, Weiss 2000, Whitford and Schrank 2011, Woo 2007a).

Globalization, according to the decline of state argument, poses challenges from several different fronts to the nation-state. First, FDI, globalized production networks, and intensified international competition limit the effectiveness of the state’s economic and industry policy that is contained within its sovereignty. Nation-states are increasingly forced to compete for foreign investors and buyers, which often turns into a “race to the bottom.” Second, the rapidity and uncertainty of technological innovations hamstring the state’s ability to pick the national champions and manage a national R&D system, which is not attentive to globalized, flexible, open innovation networks. Third, nation-states are facing challenges from financialization. This hampers their ability to control financial flows across borders and uses financial measures to reward or discipline domestic producers. Finally, international institutions, such as the World Trade Organization (WTO) regime under the neoliberal agenda privileging free trade, liberalization and privatization, reduce the autonomy of sovereign states to govern their national economy.

Challenges do not stop at the border. Domestic forces also confront the authority of the state. Rent-seeking and collusive and corruptive practices have been the perennial problem of state-led industrialization, even though they are not exclusive to developmental states (Lee and Schrank 2010). The rise of the private sector as a result of economic growth increasingly changes the power balance between the state and the business (Evans 1997b). Democratization in many formerly authoritarian
developmental states has posed another challenge (Hyun-Chin and Jin-Ho 2006, Kim 1999, Wong 2005). State policies often turn into a subject of political contention among interest groups where new political rules have yet to be set up. Instead of old, informal policy networks between bureaucrats and private firms, the states are forced to rely on an open, transparent, formal policymaking process with increased accountability inside and outside of governments, which would include a wider and more diverse set of social actors, such as labor unions and NGOs, than in the past. All these external and internal changes, therefore, force developmental states to redefine their role in the economy.

The scholars who stress the weight of globalization pressures argue that developmental states are disintegrated and turn into neoliberal, regulatory, competitive states, whose main role is “the provision of regulatory framework within the economic order” (Jayasuriya 2005:384) instead of directing the economy and spearheading industrial development. Developmental states, as “an artifact of a particular Cold War-and Bretton Woods-based regime of international governance” (Jayasuriya 2005:383), are destined to retreat from the stage in the face of neoliberal, market-driven governance. This transition, therefore, is perceived as a rational (or inevitable at least) response to structural changes in the global economy as outlined above (Pirie 2005).

However, other scholars argue that the death sentence against developmental states is premature. Despite manifold challenges, developmental states are neither in crisis nor destined to decline. Pressures from globalization and neoliberalism are not equally strong across countries, and nations take divergent responses to these challenges, reflecting their own historical, political, and social specificities (Dobbin 1994, Fourcade-Gourinchas and Babb 2002). Decentralized, network-based production and innovation, in fact, keep the state vital in multiple roles: as a principal provider of location-specific assets, such as regulations (Shin and Chang 2005); as a facilitator in linking local firms to global networks (Ó Riain 2004); or as a protector from any potential network deficiencies or failures.
External pressures for institutional reform do not necessarily lead to the same anticipated outcome since actual practices are decoupled or loosely coupled from institutional norms (Meyer and Rowan 1977) and plagued with the persistence of discretionary state actions, be it attributable to institutional inertia or entrenched interests (Walter 2006). Cross-national cultural flows do not necessarily erase a national boundary, but rather they may facilitate the rediscovery of national identity and cultural resources (Iwabuchi 2010).

Scholars of East Asian developmental states find that state-led development has not disappeared but remained strong, if not gotten stronger, over the last couple of decades despite regional economies being affected by globalization and economic crises (Jomo 1998). They also find a critical role played by the state, albeit in different forms than in East Asia, in the rapid economic growth in Ireland, Israel and India based on IT sectors (Breznitz 2007, Levi-Faur 1998, Ó Riain 2004, Parthasarathy 2004). Alternative models of developmental states have been proposed, such as developmental network states (Block 2008, Ó Riain 2004). China’s impressive economic growth, based on an authoritarian regime but assisted by global production networks, has posed another conceptual challenge: to what extent can the Chinese state be conceived as developmental or neoliberal or both? Finally, industrial policy, once perceived dead, appears to have been resuscitated and even in vogue (Cimoli, Dosi and Stiglitz 2009, Wade 2009, Whitford and Schrank 2011). Scholars call for a renewed form of industrial policy in the era of post-Washington Consensus (Block 2008; Rodrik 2008; 2004). And an active role by the state in economic and social upgrading has drawn attention in emerging economies like South Africa (Edigheji 2010).

2.2. The State and GVCs

In contrast to the literature focusing on the role of the state on development, the GVC literature examined how the rise of fragmented production across geographic space and the rise of global buyers
and producers affects the development opportunities of regions. Global value chains (GVCs) refer to the "full range of activities that firms and workers bring a specific product or service from its conception to its end-use and beyond" (Gereffi and Fernandez-Stark 2011). The key insight of the concept is that production is increasingly fragmented to a narrow range of tasks in many industries, and these tasks are organizationally decentralized to multiple firms through outsourcing and geographically dispersed through offshoring (Arndt and Kierzkowski 2001, Timmer et al. 2014). As a result, global industries are characterized as a complex web of inter-firm relationships and coordinated cross-national transactions between a series of buyers and suppliers (Gereffi and Lee 2012).

Four key dimensions of GVCs are defined as follows (Gereffi 1994, Lee 2010): 1) input-out structure: a set of products and services linked together in a sequence of value-adding activities; 2) geography: spatial distribution of value chain activities; 3) governance structure: authority and power relationships that determine how resources are allocated and flows within a chain; and 4) institutions: the rules, norms and standards in which the value chains is embedded. Multinational enterprises (MNEs) and suppliers, big or small, are major actors in GVCs. Particularly, lead firms like global buyers play a key role in driving the chains and how they govern the creation, capture and distribution of value is critical to understand GVCs and upgrading therein. Also, supporting sectors (e.g., financial service and logistics) and institutional actors (e.g., nation-states and sub- and supra-national organizations) affect the operation of GVCs in direct or indirect ways (Dicken 2011).

The GVC literature has been mainly focused on governance structures, i.e., whether and how different forms of governance, producer-driven or buyer driven (Gereffi 1994), or hierarchy, captive, relational, modular or market (Gereffi, Humphrey and Sturgeon 2005), affect the economic upgrading of a country or firm integrated into GVCs (Lee 2010). Economic upgrading is defined as moving up the value chain to capture higher added value by making production process more efficient, developing a better
product or service, or advancing to a more profitable node in the chain or to other industries (Humphrey and Schmitz 2002). In comparison to the state led development and varieties of capitalism literature, the GVC literature has paid less attention to the formal institutional dimension of GVCs, despite acknowledging its significance. The theoretical and empirical gap in the literature has been subject to a persistent critique of the GVC approach for failing to systematically address the role of the state as one of the key institutional actors in GVCs (Bair 2009, Cramer 1999, Leslie and Reimer 1999).

The reasons for the gap in the GVC literature can be understood in several dimensions. First, the existing literature contrasts the nature of GVCs cutting across national geographic and institutional boundaries with the state’s inability to regulate such transnational economic exchange by MNEs. Therefore, the role of the nation-state is largely conceived to be limited to the provision of basic institutional arrangements to facilitate the functioning of GVCs, such as a range of national laws and regulations. Despite the focus of the GVC approach on sector-level dynamics, systematic inquiries into sector-specific or ‘vertical’ forms of industry policy and their relevance to GVCs have been limited. A second reason for limited attention to the role of the state in GVCs is related to the global economic context facilitating the expansion of GVCs in the post-Cold War era. Repeated rounds of liberalization and deregulation on trade and investment in the global economy reduced the role of the state in trade and development. As part of the neoliberal recipe, or the Washington Consensus (Gore 2000), the state in many developing countries retreated from active industrial policy and market intervention, dismantling related agencies (Ponte and Gibbon 2005).

However, two developments in the global economy since 2000 have led to increased attention to the role of the state in GVCs in the GVC literature. First, emerging economies have become the key locations for many GVCs, and governments in these countries have taken a more active approach to industrial policy as they seek greater participation in GVCs (Gereffi and Sturgeon 2013, Gereffi 2014).
The growing concentration of GVCs in a few emerging economies like BRICS (Brazil, Russia, India, China, and South Africa) and the rising bargaining power of these governments vis-à-vis MNEs (Lee & Gereffi 2013) has led to a renewed interest in the role of states in GVCs. Greater interest in the role of the state is also associated with the renewed interest among scholars and policymakers in industrial policy that goes beyond “picking winners”, and the diverse forms of direct and “hidden” interventions by the state (Block 2008, Cimoli, Dosi and Stiglitz 2009, Rodrik 2008, Whitford and Schrank 2011). Gereffi and Sturgeon (2013), for example, outline a GVC-oriented industry policy as a new breed of industrial policy characterized by: 1) focusing on the interaction of global and local actors and the interaction of global, regional and local markets; 2) taking seriously the role of lead firms and global suppliers as the governor of GVCs; 3) accepting international business networks as the field of play; 4) addressing pressures from international NGOs; 5) pursuing supply-side regional integration strategies to take advantage of capable suppliers abroad; 6) paying attention to the differences among sectors of their governance and institutional structures and upgrading opportunities.

Second, the renewed interest to the role of the state is also related to a growing attention to public governance and its role in addressing social upgrading. In the midst of rising concern about wrongdoing in developing countries integrated in GVCs, private labor standards like global buyers’ voluntary codes of conduct emerged as a solution. However, it became clear that private governance has its own limitation in advancing labor standards (Lee, Lee and Park 2016, Locke, Rissing and Pal 2013, Mayer 2014), and more attention is paid to the complementary or synergistic role of government regulations and enforcement with private governance in improving the effectiveness of labor laws and regulations and regulators’ capacity and capability (Amengual 2010, Amengual and Chirot forthcoming, Coslovsky 2014, Locke, Rissing and Pal 2013). Furthermore, strengthening state regulations may prompt local producers to pursue a more labor-inclusive strategy while engaging and upgrading in GVCs, thereby rewarding socially and economically (Schrank 2013). Despite this renewed attention, the GVC literature
has not incorporated additional roles of the state in GVCs beyond the rule setting and industrial policy roles. The primary purpose of this article is to describe additional roles of the state in GVCs.

In the next section we summarize three additional roles of the state in GVCs which go beyond the rule-setting and industrial policy roles described in the literature. We examine the network facilitation role of the state using the example of the South Korean animation industry from 1990-2011. The procurement role of the state is examined using the case of water infrastructure construction in the United States from 2009-2013. The SOE role of the state is exemplified by the steel industry in China from 2001-2013.

3. Case Evidence

3.1. The facilitative role of the Korean state in animation GVCs

The state in South Korea (Korea hereafter) has long been known for its active interventionist role in the post-war economic development (Amsden 1989, Evans 1995). However, increasing liberalization and deregulation from the early 1990s, and particularly after the Asian economic crisis of the late 1990s, fueled an intensive debate over the fate of the developmental state (Chu 2009, Kalinowski 2008, Pirie 2008, Woo 2007b). Three strands of argument emerged from the debate. The ‘eclipse’ argument suggests that a series of post-crisis neoliberal reforms undermined the state’s ability to exercise autonomous power to guide and discipline local producers (Pirie 2008) By contrast, the ‘entrenchment’ view emphasizes the persisting relevance of the developmental state, pointing to the fact that the state played a key role in turning the country’s economy around based on old recipes, such as export orientation and strong state capacity to drive the reform (Kalinowski 2008, Weiss 2003). Finally, the ‘reconfiguration’ approach suggests that the developmental state has invented itself through new forms of state intervention to navigate the challenges from economic globalization and guide post-industrial transition (Chu 2009, Wong 2004). This case study, supporting the reconfiguration argument,
examines the role of the state in the Korean animation industry, focusing on its supportive role in local producers’ efforts to participate in animation GVCs through creating networks with foreign firms.

For much of the second half of the last decade, Korea was known as one of the leading locations for offshore outsourcing for Western and Japanese animation studios for low-cost, labor-intensive tasks (Lent 1998, Lent and Yu 2001, Vallas 1997, Yu 1999). Integrated into foreign buyers’ GVCs, Korean suppliers experienced a rapid rise of exports in the 1980-1990s. However, a drastic decline of outsourcing exports in the early 2000s as a result of shifting geographies of animation production to lower-cost countries such as India suddenly brought the entire industry to a crisis, putting pressure on Korean suppliers to upgrade or exit. Some of the Korean producers chose to move up the value chain by focusing on original production for global markets. And, this coincided with the government’s effort to promote cultural industries and entrepreneurship in many post-industrial sectors. The new administration inaugurated amid the crisis pressed hard the country’s industrial transformation into knowledge-intensive sectors. It paid its attention to start-ups and venture capitals in post-crisis recovery and its long-term economic plan. A series of government policies ignited a start-up boom in the post-industrial sectors, including cultural industries.

Therefore, in addition to broad, functional support policies for start-ups, the government elaborated its industry-specific policies for animation and cultural industries. Back by a growing public support for the state to jumpstart the crippled economy (Kalinowski 2008), the government initiated a series of new policies for boosting the export potential of local cultural producers. First, it strengthened the institutional foundation of cultural industry policy with a new Basic Cultural Industry Promotion Law in 1999. Compared to the 1995 law focusing on the film industry, this law has expanded the scope of government support to the entire cultural industries. It also mandated the Ministry of Culture and Tourism (MCT) to formulate five-year development plans and outline policy goals and specific measures
for the entire industry and major sub-sectors. The first five-year plan for animation was announced in 2001. This sectoral and sub-sectoral planning was assisted by an effort to collect industry-level statistics. The first cultural industry survey by the government was first conducted in 1999, since which annual sectoral surveys have followed.

In animation, government policy pinpointed on the two major bottlenecks in the value chain for local producers: financing and distribution. Small studios tend to lack financial resources and distributional channels necessary to produce and market their original animation. To help finance local cultural production, the Ministry established the Cultural Industry Promotion Fund (CIPF) in 1999 with a 50 billion won of seed contribution by the government. By 2004, the government had contributed 250 billion won in total, and combined with other public funds, the CIPF reached to 301 billion won in amount. It was used to support a wide range of activities, including product development and oversea marketing as well as setting up cultural start-ups. Animation was the biggest beneficiary of the Fund’s loan program, representing 21 percent of the total loans to local firms for cultural product development in 1999-2003 (Pak and Nam 2003). The Ministry also invested in Special Funds dedicated to support projects creating cultural content. These public-private joint Funds were mandated to put the majority of their investment in cultural industries. Private venture capitals administered the Funds, and private investment specialists made investment decisions. By 2004, 14 special funds of this kind had been set up with a total of 185 billion won, and 43 billion won was invested in 31 different animation projects in 2002-2005, representing 30 percent of the fund available for animation (MCST/KOCCA 2008).

The other frequently noted obstacle for local firms was oversea distribution. Distribution in the global market is generally controlled by a few big broadcasters and distributors, and many of the Korean studios have little experience in overseas sales and marketing. Early experiences from oversea marketing made it clear the importance of a home market. A success at home, they learned, is critical
for global sales because it bolsters the confidence of foreign buyers in the quality of the product. This renewed local producers’ interest in redressing the distribution system at the local value chains. The industry demanded the government for a quota system on television for local animation. After a long debate, the quota system was installed in 2005 to mandate national TV broadcasters to allocate a certain amount of their airtime to newly produced local animation (MCT 2007). In addition, to assist local producers in overseas sales and marketing, the Korean Cultural Content Agency (KOCCA) opened overseas offices in Japan, China, United States, and Europe in 2001-2003. The government-funded support agency also subsidized local firms participating in major international media market events, such as MIP-TV and MIPCOM, and establishes a country pavilion in such events to promote the collective presence of and boost foreign buyers’ interest in the Korean animation (MCST/KOCCA 2008).

Finally, the Korean government facilitated the partnering of Korean animation studios with foreign producers. And, international coproduction has increasingly been considered an effective path to address financial and distribution challenges in bringing Korean animation abroad. In collaborating with foreign creators, producers and distributors through such cross-national, joint projects, Korean firms are expected to tap into foreign partners’ financial resources and sales and distribution networks and to learn on their weakness in the value chains, such as creative development and pre-production, in exchange of bringing strong production skills to the collaboration. While many of early coproduction arrangements were explored and initiated by local producers, the government played a key role in the country’s growing presence in the global coproduction market. It signed an international coproduction treaty first agreed with Canada for TV programs in 1995, and later with France in 2006 and New Zealand in 2008 (KOCCA 2009). These arrangements helped put Korean firms on advantage over competitors as more attractive partners for foreign studios and distributors, and this advantage has become strong in animation production and distribution as cross-national partnership is increasingly made between firms from the countries tied through such treaties.
To support this elaborated supportive system, a specialized government agency was established. In 2001, KOCCA was set up to support cultural-content industries, including animation. It mainly focused on the operation of various government-funded support programs. In addition to support for financing and distribution, KOCCA has developed a variety of programs for nurturing the creative capabilities of local studios, which has become critical as the industry shifted from offshore outsourcing toward original production. Each year, it supported up to 100 million won of production costs per project to approximately 20 pilot animation projects that have potential to attract foreign investors. It also funded selected animation studios working on original projects on the full scale, from production costs, equipment and studio space to the project management consulting by specialists. Finally, KOCCA run professional training programs to foster specialists in the segments in the value chains where local firms were relatively weak in capabilities, such as creative development, pre-production and international marketing (MCST/KOCCA 2008).

In short, the Korean state’s industrial policy for animation has been focused on the sector level and strategically engaged on the value chain level. It was customized for cultural industries and each sub-sector, as exemplified by a long-term policy plan and specific measures dedicated to animation. Furthermore, state intervention had a different face on the different nodes of the animation value chain; it was concentrated on two major bottlenecks for local producers, that is, financing and distribution while the production mode was left to individual producers. And, the effort has been made to create a beneficial linkage between global chains and local chains, as exemplified by using the local market as a springboard for exports (e.g., domestic animation quota system) and leveraging foreign resources to fund and market local projects (e.g., international coproduction). In the end, although Korea’s animation exports have never recovered to the historical high of the late-1990s, much of the loss caused by declining offshore outsourcing exports has been compensated by the rise of local and internationally coproduced original animation. Internally, more government resources have been
distributed through the support system build around KOCCA, and many programs are implemented on a competitive basis and rely on the inputs from private sectors.

3.2. The procurement role of the State: the dual purpose of water infrastructure investments in the U.S.

Governments are powerful forces in industries. Not only do governments have the power to regulate industries, but the sale of goods and services to governments represent large end markets for many companies. Public procurement represents 10-15% of GDP for developed countries and up to 20% for developing countries (Harvard 2003). In 2015, public procurement represented 10% of U.S. GDP ($1.6 trillion), of which 64% (~$1 trillion) was used by state and local governments, with the remainder being used by the federal government (OECD 2015). As large purchasers, governments influence quality standards and performance criteria of goods and services, which affect the level and type of technology adopted, and the production and maintenance standards used in an industry.

Governments also establish public policy goals for procurement that are ancillary to their receipt of a good or service at a specified time, price, and quality. The goals provide for additional public benefit to be derived from the procurement activities of governments, such as increasing innovation, economic development, workforce development, or improved environmental sustainability. To provide a specific example of this dual role of procurement policy, the U.S. has long recognized, and established legislation supporting, the use of Department of Defense procurements to develop technology (Weiss 2014) and to assist with the development of small businesses (Hardin, Lanahan and Brun 2015). The “public procurement for innovation” (PPI) literature, examines how the U.S., in particular, and other countries use public spending as part of their national and regional “innovation systems” for technological development (Lember, Kattel and Kalvet 2014).

A second way governments use public procurement to achieve ancillary policy goals include i) local content requirements to ensure that companies within a specified geography (national or subnational)
receive a designated percentage of public procurement dollars as a way to help support economic
development efforts, ii) the requirement that a percentage of the total contract value be designated for
targeted businesses, as a way to assist small companies and companies owned by historically
disadvantaged groups (minority, women, and disabled persons) to bid on government contracts and to
broaden the base of qualified firms to bid on government contracts, and iii) the requirement to evaluate
the lifecycle costs of products purchased by governments, as a way to reduce the environmental
footprint of the government. Combined, these preference policies help achieve the economic, social,
and environmental sustainable development goals (“triple bottom line”) (Elkington 1997) of
governments. The “sustainable procurement” (SP) literature examines how public procurement is used
to achieve sustainable development through the purchasing and supply process by balancing
environmental, social, and economic objectives (Walker and Phillips 2008). Examples of governments
using public procurement to achieve both categories (innovation and preferences) of policy goals can be
found at the national and subnational levels in both developed and developing countries.

This case study focuses on how local U.S. governments use procurement preference policies to
achieve sustainable development goals, resulting in a different set of actors in the value chain than what
otherwise would have occurred if these policies were not in place. The case proceeds by describing
relevant background about water infrastructure procurement and our findings about how governments
use procurement to achieve economic and social goals.

Many large and small U.S. municipalities have made capital improvements to their wastewater
infrastructure in recent years. Municipalities are making these investments because of the age of
existing infrastructure, population growth, and EPA mandates to reduce combined sewer overflows
(CSOs), which pollute waterways with stormwater and sewage during heavy or prolonged rain events. As
local governments weigh potential investments, they employ a number of different strategies to
evaluate alternatives. While engineering performance and financial cost are traditionally the largest considerations that guide the process, local governments and regional authorities have attempted to take more holistic approaches in recent years that incorporate social benefits into the process. The Triple Bottom Line (TBL) framework introduced by Elkington (1997) is one model that has gained widespread adoption. Industry professionals around the country have used that framework as a foundation to develop procurement preference policies that, importantly for this study, incorporate local economic and social development targets into the goals of projects.

Regions vary—sometimes quite significantly—in the presence of targeted businesses and workers skilled enough to help build wastewater infrastructure as contractors or sub-contractors. The result of this variation is that the economic benefits of wastewater infrastructure investments to targeted businesses and workers are uncertain. One way governments have sought to reduce the uncertainty is to enact procurement policies to ensure that local, disadvantaged, or other targeted businesses are included as contractors or sub-contractors. This case study summarizes how six local governments investing in wastewater infrastructure have successfully incorporated targeted businesses in capital improvements while also identifying which segments of the value chain have the highest levels of opportunity.

Wastewater infrastructure incorporates a complex set of activities, actors, and policies across pre-construction, construction, and post-construction phases. Figure 1 illustrates the set of actors needed to coordinate the construction of wastewater infrastructure.
Firms in the Wastewater Infrastructure Value Chain

**Lead Firms**: Multinational corporations (MNCs) in the Design & Planning and Construction & Installation segments act as the lead firms in the water infrastructure value chain. Lead firms in the value chain share a number of common characteristics. Most have at least 1,000 total employees and annual revenues exceeding $500 million. These companies all offer a range of services and are vertically integrated to various degrees—the Design & Planning firms have a comprehensive range of engineering expertise as well as construction management capabilities, while the Construction & Installation companies have engineering competencies. However, their focus most frequently revolves around particular segments of the chain (engineering or heavy and civil engineering construction). Lead firms in the value chain had the most lucrative contracts, capturing between 65-80% of the total value of the contract, and controlled much of the rest of the chain by dictating which contracts were distributed to
smaller sub-contractors. Table 1 lists the top 10 firms in the Design & Planning and Construction &
Installation segments of the wastewater infrastructure value chain.

**Table 1: Lead firms in the Water Infrastructure Value Chain**

<table>
<thead>
<tr>
<th>Design &amp; Planning</th>
<th>Company</th>
<th>Headquarters</th>
<th>Employees</th>
</tr>
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<tbody>
<tr>
<td>CH2M Hill</td>
<td>Englewood, CO</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>MWH Global</td>
<td>Broomfield, CO</td>
<td>7,000</td>
<td></td>
</tr>
<tr>
<td>AECOM</td>
<td>Los Angeles, CA</td>
<td>43,400</td>
<td></td>
</tr>
<tr>
<td>CDM Smith</td>
<td>Cambridge, MA</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Tetra Tech</td>
<td>Pasadena, CA</td>
<td>14,000</td>
<td></td>
</tr>
<tr>
<td>HDR</td>
<td>Omaha, NE</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Brown &amp; Caldwell</td>
<td>Walnut Creek, CA</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>URS Corp.*</td>
<td>San Francisco</td>
<td>54,000</td>
<td></td>
</tr>
<tr>
<td>Black &amp; Veatch</td>
<td>Overland Park, KS</td>
<td>9,600</td>
<td></td>
</tr>
<tr>
<td>Hazen &amp; Sawyer</td>
<td>New York City</td>
<td>1,500</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction &amp; Installation</th>
<th>Company</th>
<th>Headquarters</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layne Christensen</td>
<td>Woodlands, TX</td>
<td>4,100</td>
<td></td>
</tr>
<tr>
<td>Kiewit Corp</td>
<td>Omaha</td>
<td>14,700</td>
<td></td>
</tr>
<tr>
<td>Garney Holding</td>
<td>Kansas City</td>
<td>950</td>
<td></td>
</tr>
<tr>
<td>The Walsh Group</td>
<td>Chicago</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Balfour Beatty</td>
<td>Dallas</td>
<td>1,496</td>
<td></td>
</tr>
<tr>
<td>Skanska</td>
<td>New York</td>
<td>7,400</td>
<td></td>
</tr>
<tr>
<td>Tutor Perini</td>
<td>Sylmar, CA</td>
<td>10,206</td>
<td></td>
</tr>
<tr>
<td>Granite Construction</td>
<td>Watsonville, CA</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>American Infrastructure</td>
<td>Worcester, PA</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Primoris Services Corp</td>
<td>Dallas, TX</td>
<td>1,279</td>
<td></td>
</tr>
</tbody>
</table>

Note: *URS purchased by AECOM in 2014
Source: (Tulacz (2014a), Tulacz (2014b))

**Targeted Businesses:** For the sample of projected reviewed, targeted businesses received approximately
17% of the total contract value. Specialty engineering and consulting, concrete contracting, public
relations and advertising, and trucking were the areas with the highest participation rates. Medium
levels of targeted business participation were found in surveying, architecture, construction materials
manufacturing, nursery and garden wholesale, construction materials wholesale, construction
management, some heavy & civil contracting, electrical sub-contracting, fence installation, sheet metal
sub-contracting, sewage treatment monitoring, landscaping, administrative services, publishing,
photography, and security guard services.

**The Role of Government Policies:** Governments enact a number of policies to increase the participation
of targeted business in the water infrastructure value chain. These policies can be divided into two
categories: policies that help shape the procurement process (demand-side); and programs that attempt
to nurture fledging businesses or help develop the skills of the workforce (supply-side).
Demand side policies that increase targeted business participation in the water infrastructure value chain are bid discounts, set-aside targets, and incentivizing joint ventures. Bid discounts refer to preferences local governments provide targeted businesses by evaluating their proposals at a lower price. Two of the cities studied—Philadelphia and San Francisco—provide bid discounts to local businesses in order to help them be more competitive on proposals. Set aside targets require a percent of the contract to be reserved to targeted businesses. Three of the cities studied reserve a pool of contract for the targets of their targeted business program. In San Francisco, the maximum amount of these set-asides varies depending on the NAICS codes of the business—the threshold for engineering firms is $50,000, while construction set-asides can go as high as $400,000. In Omaha, the city looks to disaggregate contracts into smaller components and reserve those smaller tasks for the Tier I firms and the Tier II ESB pool. The priority for set-asides in Omaha is Tier I ESBs, Tier I SBs, Tier II ESBs and then Tier II SBs. In Seattle, contracts under $25,000 do not require a public solicitation. Joint Ventures offer valuable opportunities for technology transfer and knowledge sharing that can help targeted businesses upgrade their position in the wastewater infrastructure value chain. The SFPUC incentivizes the formation of JVs between LBEs and non-LBEs in the Design & Planning segment of the value chain by awarding a ratings bonus of 7.5% to JV proposals where the LBE is slated to perform at least 40% of the work and 5% for proposals where the LBE is schedule to perform at least 35% of the scope. Partly as a result of that policy, JVs are common between lead firms and LBEs for engineering services. On average, the eight LBE firms had 10.9 employees and $2 million in annual revenue compared to the billion-dollar enterprises they collaborated with. The SFPUC is the only local government studied that incentivizes JVs between targeted businesses and lead firms. Officials with NEORSD and Philadelphia both said they have discussed implementing similar policies but that there are legal impediments.

Supply side policies to boost targeted business participation include Project Labor Agreements (PLAs), capacity building, and matchmaking assistance. In large, heavy civil construction projects such as
wastewater infrastructure improvement programs, a key barrier for targeted business participation is the lack of relevant skills and certifications among individuals and companies that comprise the workforce. Surmounting such challenges requires major stakeholders to engage in workforce development programs in addition to the sorts of “demand-side” policy initiatives discussed in the previous paragraph. The project labor agreement in San Francisco provides a structure to facilitate the partnership and information-sharing between the SFPUC, unions, and contractors while also providing for peaceful settlement of labor disputes. First, the SFPUC and contractors work together to establish apprenticeship targets for disadvantaged workers. Second, PLA staff work with referral agencies and training programs in order to provide notification of upcoming job opportunities. Contractors work with these agencies in order to identify and dispatch workers to job sites. Third, contractors are expected to make a “good faith effort” to engage in local hiring. Fourth, PLA staff monitors the performance of contractors, unions, referral agencies, apprentices and local workers, and the agency reports back out to these participating actors. Finally, PLA staff may choose to engage in a Grievance and Arbitration proceeding if it determines that the prime contractor, sub-contractors and/or one or more of the signatory unions have failed to show good faith in meeting local hiring goals.

Capacity building often takes two complimentary forms—enhancing skills of the existing workforce, and developing the skills of those who are outside the system. On the first point, all cities studied devote resources to help would-be sub-contractors on the procurement process. The SFPUC’s Contractors Assistance Center is an example of this practice. The center attempts to provide businesses not only with assistance on how to comply with the SFPUC’s regulations and certifications, but also offer training on broader topics such as how to implement business development plans and secure access to capital. The SFPUC has also engaged with a number of training programs in order to promote relevant skill formation among residents. The primary training program for connecting local residents—particularly those from disadvantaged backgrounds—is CityBuild, a collaborative program between the
municipal government, the City College of San Francisco (the local community college), and unions. Beyond CityBuild, the SFPUC supports a handful of youth training programs in order to both create job opportunities and internships for youth, particularly in disadvantaged neighborhoods.

All of the cities we studied provide matchmaking assistance through online databases that prime contractors can utilize to search for targeted businesses. Most cities also arrange pre-bid meetings that serve as chances to network between companies, something identified above as an important step in entering relational business networks, and for all sides to get more information about a particular project. If the prime contractor is having difficulty finding qualified sub-contractors or if the sub-contractor that was included in a proposal is not performing, the cities, counties or regional authorities we studied intervene to help locate a suitable option or replacement from the targeted business database.

3.3. “State Capitalism”: The role of China’s SOEs in the global steel industry

China’s remarkable growth in steelmaking capacity occurred since the early 1990s when the sector became a “strategic” industry in national planning documents. As a targeted industry for growth, the industry received subsidies and other special incentives from the national government to encourage its development. The policies encouraged “self-sufficiency” in steelmaking capacity and resulted in turning China from a net importer until 2005 into the largest steel exporter in the world by 2013. Twelve of the top 25 steel producing companies in 2014 were Chinese firms, including the world’s third largest steel producer, Hebei Steel. Figure 2 illustrates the growth of global steel production from 1980-2013, which is largely attributable to the growth of China’s sector.
Market forces, in addition to state subsidies and incentives, had an important role in developing China’s steelmaking capacity. Chinese demand for steel for domestic infrastructure, commercial, and residential construction was strong, as was demand for steel from manufacturing industries, particularly for machinery and automotive manufacturing. Existing demand (and future demand expectations) led to high capacity utilization rates and steel prices, which led both state-owned enterprises to expand steel production capacity and smaller steel companies to enter the market.

The Chinese government assisted the development of strategic sectors by providing financial and regulatory advantages to SOEs that are not available to other companies (Du 2014). These steps broadly outline China’s “state capitalism” model, which at times sits uneasily with the liberal market economies of Western developed countries. State capitalism is the “widespread influence of the government in the economy, either by owning majority or minority equity positions in companies and/or through the
provision of subsidized credit and/or other privileges to private companies.” (Musacchio and Lazzarini 2012).

- **Tax reductions and exemptions** – lower tax rates to incentivize SOEs and subsidiaries to invest and procure goods and services
- **Direct subsidization** – direct transfer of funds in the form of grants and other capital injections
- **Low cost capital from state controlled banks** – state owned commercial banks provide loans to SOEs at preferential terms and rates, writing off loans, or continuously rolling over the principal. The practice appears independent of creditworthiness.
- **Monopolies** – industries within ‘strategic’ and ‘pillar’ industries are protected from anti-trust enforcement and limitations exist on the degree of foreign investment in these industries.
- **Captive equity** – the transfer of shares in state-owned firms are not enforceable or valid unless previous approval is received by the SASAC, even if it does not have veto power as a shareholder under Chinese Company Law. The inability to transfer ownership results in the ability of SOEs to generate losses for a long period without fear of bankruptcy, including the ability to engage in anti-competitive practices such as below-cost pricing without fear of falling equity prices or bankruptcy.
- **Favorable dividend policy** – The State Council in 1994 exempted China’s SOEs from paying dividends during the 1990s and 2000s. Low dividend requirements keep the cost of capital for SOEs low.
- ** Preferential access to raw materials and other inputs** – the government ensures that SOEs and other domestic manufacturers have access to low-priced raw materials, often below market prices. This preferential access of raw materials results in Chinese companies having an unfair competitive advantage over non-SOEs and foreign firms, which Du (2014) notes is particularly true in the state dominated steel industry.
- **Government procurement** – the large state procurement market is used by the Chinese government to support SOEs and creates “national champions” in key industries. The government procurement market, which is 20% of GDP (~ US$1 trillion) is closed to foreign firms by law.
- **Informational benefits** – Chinese SOEs have access to government information and data, which are not available to non-SOE companies or available to a limited extent.

Our review of subsequent publications and reports supports the finding that China has used subsidies and favorable lending policies to help develop China’s steel sector. We summarize our findings below.

**Energy subsidies:** A 2009 study on industrial overcapacity found that China’s gasoline, water, and industrial electricity rates are between 50-66% lower than world average prices and lower than in many
developing countries. It finds that although coal prices in China are somewhat sensitive to market dynamics, other energy prices, including prices for electric power, natural gas, and refined petroleum products are priced by the government, not the market.\textsuperscript{ix}

A 2013 study determined that subsidies for energy from 2000 to midyear 2007 reached $27.1 billion, $25 billion of which were provided after China’s WTO entry. [Please see Table 2]. Subsidies for coal to the Chinese steel industry from 2000 to midyear 2007 reached $10.9 billion for thermal coal and $15.3 billion for coking coal. Electricity subsidies amounted to $916 Million, and natural gas subsidies totaled $54 million. The authors note that subsidies for coal-fired electric power generation by the national government, which began in 2005 to mitigate the effects of increased coal prices, are not included in this calculation and “dwarf” the recorded provincial subsidies. \textsuperscript{x}

Table 2: Energy subsidies to Chinese Steel, 2000-2007 (US$)

<table>
<thead>
<tr>
<th>Period</th>
<th>Coking coal</th>
<th>Thermal coal</th>
<th>Electricity</th>
<th>Natural gas</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>551,246,600</td>
<td>-151,500,000</td>
<td>1,638,432</td>
<td></td>
<td>401,385,032</td>
</tr>
<tr>
<td>2001</td>
<td>855,538,270</td>
<td>796,180,000</td>
<td>1,778,568</td>
<td>-12,635,220</td>
<td>1,640,861,618</td>
</tr>
<tr>
<td>2002</td>
<td>1,147,718,590</td>
<td>-604,240,000</td>
<td>2,024,079</td>
<td>-31,604,300</td>
<td>513,898,369</td>
</tr>
<tr>
<td>2003</td>
<td>963,957,200</td>
<td>-991,200,000</td>
<td>2,415,480</td>
<td>-984,520</td>
<td>-25,811,840</td>
</tr>
<tr>
<td>2004</td>
<td>1,358,887,600</td>
<td>3,423,090,000</td>
<td>3,021,990</td>
<td>9,794,480</td>
<td>4,794,794,070</td>
</tr>
<tr>
<td>2005</td>
<td>3,932,915,270</td>
<td>1,772,030,000</td>
<td>304,193,760</td>
<td>91,783,920</td>
<td>6,100,922,950</td>
</tr>
<tr>
<td>2006</td>
<td>4,702,413,750</td>
<td>731,250,000</td>
<td>385,436,992</td>
<td>25,271,520</td>
<td>5,844,372,262</td>
</tr>
<tr>
<td>2007 (midyear)</td>
<td>1,774,456,060</td>
<td>5,878,100,000</td>
<td>215,875,881</td>
<td>-27,510,200</td>
<td>7,840,921,741</td>
</tr>
<tr>
<td>Total</td>
<td>15,287,133,340</td>
<td>10,833,710,000</td>
<td>916,385,182</td>
<td>54,115,680</td>
<td>27,111,344,202</td>
</tr>
</tbody>
</table>

Source: Haley and Haley (2013)

\textit{Land subsidies:} A 2010 study conducted by two Chinese scholars found that land was being provided to Chinese steel companies by provincial governments at below market prices. Their case study of Jiangsu Tieben Steel Ltd, a privately-owned firm, found that it bought land from the local government at 28% of the prevailing market rate, equating to a RMB 2 billion ($322M) subsidy.\textsuperscript{xii} The case is not an
individual incident but characteristic of a practice used by local governments to generate revenue. The sale of land by local governments displaced rural population which has led to “significant unrest” according to the study. The central government responded by putting in place new regulations limiting land use rights sales by local governments. The restrictions were effective, but local governments lost a major stream of income. xxii The authors of the study recommended that local officials be evaluated on a more diverse set of indicators than simply local GDP growth, which led them to attract investment and business development at almost any cost.

Access to capital: The Chinese steel industry has received access to financial capital at extremely favorable terms. State credit subsidies have historically incentivized building added capacity in the steel industry. The RMB 4 trillion (~USD 600 billion) stimulus package in 2008-2009, coupled with increased demand for steel used in construction in 2009, led large SOE steel producers in China to construct new lines, especially for new steel sheet production. xxiii The stimulus package also led smaller, privately-owned mills to resume production after being idled during the dramatic reduction in demand during the third quarter of 2008. The EU Chamber of Commerce in China report covering the stimulus and its effects noted that pouring credit into the sector increased direct and indirect subsidies to the industry.

In addition, the ability of SOEs to finance capacity expansions from retained earnings rather than borrowing due to the historical prohibition of dividend payments to investors has made access to capital easy for state-owned steel companies. To the extent that borrowing from commercial banks occurs, major state-owned steelmakers have their loans rolled over or refinanced regardless of their financial health. xxiv Today, the Chinese steel industry has $480 billion in outstanding loans, half of which is held by banks. xxv In addition, it is common practice for local officials to provide implicit lending guarantees to companies as a mechanism to attract investment. xxvi
China’s development of its steel industry has implications for other regions as former net importers of steel are developing domestic steelmaking capacity to supply their export-oriented product markets and domestic development objectives. xxvii Large steel importing countries are seeking greater “self-sufficiency” in order to reduce their dependence on imports, and despite market conditions, and a large number of steel mills are being planned and constructed, contributing to increased global steelmaking capacity (OECD 2015). Just as China changed from being a net importer before December 2004 to being the largest exporter by the first half of 2006, countries are seeking to substitute steel imports with domestic production. Planned steel capacity additions in China and other developing countries, notably India, Vietnam, and Indonesia are increasingly seeking to develop indigenous steelmaking capacity, and are using China’s development model to develop their industry.

4. Discussion and Conclusion

Based on the case studies presented above, we develop a framework to understand various roles played by the state in GVCs, depending on two dimensions: (1) participatory and institutional roles; and (2) direct-active and indirect-passive intervention. The framework is illustrated in

Figure 3: The State’s Role in GVCs: A framework

<table>
<thead>
<tr>
<th>Direct-Active</th>
<th>Indirect-Passive</th>
</tr>
</thead>
<tbody>
<tr>
<td>[B] Industrial policy formulator/executor</td>
<td>[D] Buyers (procurement)</td>
</tr>
<tr>
<td>[B-1] Network-builder</td>
<td></td>
</tr>
<tr>
<td>[C] Ownership (SOEs)</td>
<td></td>
</tr>
</tbody>
</table>

Institutional Participatory

Source: Authors
The first dimension (institutional vs. participatory) involves whether the state is part of the input-output structure (participatory) or playing a role in providing a variety of different institutional arrangements (institutional). The other one (direct-active vs. indirect-passive) focuses on the mode of engagement in GVCs, in other words, whether the state plays a direct and active role a hands-on approach or steps back and focuses on setting the rules and environment necessary for the operation of GVCs. By juxtaposing these two dimensions, four different role spaces are specified.

Our study highlights, first, that there are more roles the state plays than a provider of basic institutional arrangements ([A]). The state can participate in some parts of global value chains as one of the value chain actors through its procurement activity ([D]) or by owning an enterprise ([C]). Second, the recent literature pays more attention to a more active institutional role of the state by formulating and implementing GVC-oriented industry policies. According to our framework, the role is located in the institutional and direct-active dimensions ([B]). Finally, within the upper-left space, we have highlighted the role of the state particularly as a network-builder ([B-1]).

The Korean animation case offers an interesting example of GVC-oriented industrial policy. Korea had a long history of active state intervention for export-oriented growth and industrial upgrading. Although not always explicit, many of the interventions were designed to link its domestic producers to global and regional markets in sectors like textile and apparel and automobiles (see Lee, Lee and Park 2016). And, as presented above, its post-crisis approach to the animation industry and the cultural sector as a whole clearly shows that the state’s action was grounded on the awareness that upgrading in GVCs needs a tight linkage between local and foreign firms and a close interaction between local, regional and global value chains. Therefore, the state’s action focused on removing key bottlenecks in the local animation value chains, such as creative development, financing and distribution. A wide range of sector-specific supportive measures were devised and implemented to
assist local producers to access foreign resources in these areas and combine them with their existing local capabilities, mainly production. Network-building became a centerpiece of the government policies by facilitating international coproduction and overseas marketing. The interconnected nature of local, regional and global markets was taken seriously. The local market was considered as a springboard that helped Korean producers participate in regional and global value chains through sales and joint projects. The state’s action, therefore, focused on helping Korean firms find the right mix of local and global capabilities and effectively manage global-local linkages. The importance of the state playing a matchmaker between local and foreign firms has been suggested as a distinctive feature of developmental states. For instance, Ó Riain (2000, 2004) argues that a new breed of developmental states, or “developmental network states,” in countries like Ireland and Israel emphasizes their role in helping local producers to upgrade through forming a relationship with foreign firms or to international networks of finance or production. While he contrasts these states with older bureaucratic developmental states in East Asian countries, we have found that the Korean state turned itself to a match-maker for local animation studios with foreign investors and distributors through a variety of sector-specific industry policy measures.

The water infrastructure case study illustrates the procurement role of the state, in which it acts as a buyer with the power to specify requirements to which others must produce. The specifications are not only technical requirements, but process requirements regarding how the procured item is produced, and as such becomes a “credence good” (Feddersen and Gilligan 2001, Vetter and Karantininis 2002). The dynamics between large multinational engineering and construction and their much smaller local partners demonstrated how governments use public procurement to achieve a variety of public policy goals. These goals include economic development, as in the case of local business preference policies, social equity goals through the requirement to include businesses within specified categories in government contracts, and reducing the environmental impact of the organization through
specifying preferences for greener products. Not addressed in the case is the innovation effects of procurement, in which public spending is seen as part of the national and regional “innovation systems” for technological development (on national systems, see (Lundvall (1992), Nelson (1993)); on regional systems, see Cooke, Uranga and Etxebarria (1997)). Although we demonstrated that governments use their procurement power in this manner, and thus the practice has implications to how we conceive the role of the state in GVCs, the practice is not without controversy. The critique to the use of government power to achieve ancillary policy goals is that procurement rules can be seen as a non-tariff barrier, since local and social content requirements restrict the participation of firms not meeting local, social, or environmental standards established by governments. Governments using their procurement power to achieve these goals violate, according to some observers, basic principles of efficiency established by neoclassical economics and legal principles established at various levels of government for the legitimate use of public funds. These include U.S. Constitutional protections established in the privileges and immunities clause, commerce clause, equal protection clause (Cantrell and Jain 2013) and the World Trade Organization’s (WTO) Government Procurement Agreement (GPA), the voluntary international agreement governing government procurement for WTO member nations (Arrowsmith 2003).

The SOE role of the state, exemplified by the development of China’s steel industry, developed “national champions” who now comprise many of the top companies in global steel industry. As illustrated by the case study, SOEs and aligned subsidy policies assist in the rapid development of industry. However, because SOEs are largely isolated from market forces, trade frictions can arise when SOE production enters the international trading stream based largely on price competition. Steel, solar cells, and many other industries are examples of increased trade frictions caused by the rise of China’s SOEs. Although the development model is exemplified by China, Vietnam and India are keeping a close eye on China’s development and have, at least within steel, signaled their interest in following a similar
development path. How the international trading system deals with the production of heavily state subsidized production is one of its most important challenges (Musacchio and Lazzarini 2014).
Bibliography


Amengual, Matthew and Laura Chirot. forthcoming. "Reinforcing the State: Transnational and State Labor Regulation in Indonesia." Industrial & Labor Relations Review.


Lember, Veiko, Rainer Kattel and Tarmo Kalvet. 2014. "Public Procurement, Innovation and Policy."


NOTES


Overcapacity, major state protests

Steel industry capacity grew from 150 million metric tons in 2000 to 1,106 million metric tons in 2013, an average of 74 million metric tons per year (German Steel Federation 2014, Statistische Jahrbuch der Stahlindustrie).


Source of data for statement is the World Steel Association’s annual World Steel in Figures, World Steel Trade by Area. China’s crude steelmaking capacity grew from 150 million metric tons in 2000 to 1,106 million metric tons in 2013, an average of 74 million metric tons per year (German Steel Federation 2014, Statistische Jahrbuch der Stahlindustrie).

As noted in Du 2014, a recent article [Wooldridge (2012) ’The Visible Hand’ The Economist 4] found that Chinese SOEs borrowed at 1.6% compared to 4.7% for other companies. 85% of the $1.4 trillion in 2009 bank stimulus loans went to SOEs.


In 2007, the State Council instituted a policy to collect dividends from national SOEs and put them into a State Capital Management fund on an experimental basis.


See Du (2014), 425.

EU Chamber of Commerce (2009).

Subsidies to Chinese industry: state capitalism, business strategy, and trade policy. Oxford University Press. Ch. 3. An updated calculation of subsidies by the authors is not publicly available.

In 2002, Jiangsu Tieben Steel Ltd, a privately-owned firm, was expanding production capacity and bought land from the local government at a price of RMB 110,000 per Mu, compared to a market price of RMB 400,000 per Mu at the time. Wang, Guoli and Rixu Zhang. “An Analysis of China’s Excess Capacity Problem Under Fiscal Decentralization – An Empirical Analysis of China’s Steel Industry.”(财政分权背景下的产能过剩问题研究—基于钢铁行业的实证分析), Research on Financial and Economic Issues, no.12, (December 2010).

Why Chinese Steel Exports Are Stirring Protests Wall Street Journal March 15 (available at http://www.wsj.com/articles/why-chinese-steel-exports-are-stirring-protests-1426466068) “While there has been some tightening of new lending to Chinese industries that face overcapacity, major state-owned steel makers continue to have their loans rolled over or refinanced.”
Lingling Wei and Bob Davis (2014) “In China, Beijing Fights Losing Battle to Reign in Factory Production” WSJ, July 16. Authors note that debt has doubled in the past five years.

EU Chamber of Commerce (2009), 10.

OECD 2015 (p.9) notes that large steel importing countries are seeking greater “self-sufficiency” in order to reduce their dependence on imports, and despite market conditions, a large number of steel mills are being planned and constructed, contributing to increased global steelmaking capacity.