

**PUBLIC PROCUREMENT AS AN INDUSTRIAL POLICY TOOL:
AN OPTION FOR DEVELOPING COUNTRIES?**

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ABSTRACT. This article sets out to answer two interrelated questions: is it advisable for developing countries to use public procurement efforts for development, and should more developing countries join the World Trade Organization (WTO) Government Procurement Agreement (GPA)? We survey key arguments for and against joining the GPA, and argue that government procurement should not be seen only as an indirect support measure for development, but also as a direct vehicle for promoting innovation and industries and, thus, growth and development. We also show that using public procurement for development assumes high levels of policy capacity, which most developing countries lack. In addition, we show how the GPA as well as other WTO agreements make it complicated for the developing countries to benefit from public procurement for innovation. The article suggests that the developing countries could apply a mix of direct and indirect (so-called soft) public-procurement-for-innovation measures. In order to do this, developing countries need to develop the policy capacity to take advantage of the complex and multi-layered industrial policy space still available under WTO rules.

INTRODUCTION

Public procurement of innovative products is seen by many as one of the most promising innovation and industrial policy tools of our

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time. The Internet, global positioning technology, the semi-conductor industry and passenger jets are perhaps the most prominent examples that resulted from government innovation-oriented procurement that has had major economic and social impacts. (Cabral et al., 2006; Ruttan, 2006) At the same time, public-procurement efforts are also notorious for under-delivering. Consequently, the obvious question in the development context is whether developing and catching-up countries should include public procurement in their economic policy mix. However, to further complicate the question, many heterodox economists argue that World Trade Organization (WTO) rules which govern investment, trade, intellectual property rights (IPR), services and also public procurement globally have severely limited the economic policy space available for developing countries to devise their own specific policy mixes. In contrast to most other WTO agreements, only 40 countries have to date joined WTO's Government Procurement Agreement (GPA). From the developing world only East Asian (Hong Kong [China], South Korea, Singapore) economies are parties to the agreement. (Via the European Union, ten Eastern European countries are also covered by the agreement.) Thus, we have a two-layered research question: Is it advisable for developing countries to use public-procurement efforts for development, and should more developing countries join the GPA? In fact, the GPA itself provides the context for such research questions. Namely, Article V of the GPA states the following:

Parties shall, in the implementation and administration of this Agreement, through the provisions set out in this Article, duly take into account the development, financial and trade needs of developing countries, in particular least-developed countries, in their need to: (a) safeguard their balance-of-payments position and ensure a level of reserves adequate for the implementation of programmes of economic development; (b) promote the establishment or development of domestic industries including the development of small-scale and cottage industries in rural or backward areas; and economic development of other sectors of the economy; (c) support industrial units so long as they are wholly or substantially dependent on government procurement.

One can conclude that, similarly to other WTO agreements, the GPA supports explicitly – at least rhetorically – developing countries' attempts at catching up through industrial policy.

Using public procurement for developmental goals, in particular for innovation (PPfl hereafter), is seen in the literature as a demand-side policy measure through which governments can generate new markets for companies in order to develop new technological capabilities and solutions (Edler & Georghiou, 2007). More concretely, PPfl is a special form of public procurement that occurs when a public agency acts to purchase, or place an order for, a product – service, good or system – that does not yet exist, but which could probably be developed within a reasonable period of time, based on additional or new innovative work by the organization(s) undertaking to produce, supply and sell the product being purchased (definition based on Edquist & Hommen, 2000, p. 5). Unlike in regular procurement, where governments place orders for ready-made or 'off-the-shelf' products, procurement for innovation involves procuring products that need additional (research and) development work and thereby influences the innovative capacity of providers. (See also Rothwell, 1984, Geroski, 1990; Edquist et al., 2000; Rolfstam, 2009; Uyarra & Flanagan, 2010). Such procurements are used to solve existing as well as emerging economic and social challenges in health, energy, education, transport and the environment.¹

PPfl has recently made it to the agenda of international organizations. In addition to the European Union (ECEG, 2005; European Commission, 2010), the Organisation for Economic and Cooperative Development (OECD) also claims that PPfl has proved to be an effective measure in many countries and suggests developed as well as developing countries introduce their own PPfl policies as part of the demand-side innovation policy mix (OECD, 2009b). Moreover, OECD is of the opinion that PPfl related programs, even in developed countries, must be accelerated and expanded "wherever possible" (OECD, 2009a, p. 9).

However, attempting to change micro-level "learned organizational capabilities" (Chandler, 2005; Nelson & Winter, 1982) for innovation and technological change via public policy is what classical industrial policy used to be about up to the rise of Washington-Consensus policies and WTO agreements in the 1990s.² We will show that in the context of public procurement, classical

industrial policy represents a case of what today can be called soft procurement practices. Indeed, in particular, the East Asian post-WWII industrial policy practices started with a rather clear idea of what kinds of products were wanted and what kind of technological capabilities and know-how was needed to achieve these products, and the government set deadlines and quality standards to ensure continued improvement and productivity increases in the production of these targeted products. At the same time, most policy measures kept competitive pressures alive either via sunset clauses or other similar measures. Thus, through the successive industrial policy measures from one product to the next (from radios and light bulbs in the 1950s to computers and chips in the 1990s), East Asian industrial policy can be seen as a prolonged process of public procurement activity. Today, however, many heterodox economists argue that the assent of WTO substantially restricts the availability of such practices to developing countries.

We argue in this article that following renewed calls in the aftermath of the global financial crisis to redeploy industrial policies for development (Cimoli, Dosi & Stiglitz, 2009; Lin, 2009), these policies should involve public procurement- promoting innovation. At the same time, we show that due to the complex nature of PPfI, the developing countries may lack the policy capacity to implement direct PPfI policies and that they should mix PPfI with soft (or in-direct) public-procurement-for-innovation measures (that is, industrial policy) as the latter allows for policy learning to take place through experimentation and is less open to rent-seeking and capture by interest groups. (See also Rodrik, 2007) While the policy space has become much narrower for industrial policy under WTO rules, we aim to show why it is important to use the still available policy options; in our view, this enables policy learning pivotal for more complex policies such as PPfI. In addition, we show that within the development and WTO context, procurement is today mostly understood from a discriminatory perspective based on neoclassical economics. We show the need to understand procurement from the perspective of evolutionary economics that has deeper understanding of technological change as precisely the latter is key for catching up. We conclude by showing that developing countries are well- advised not to join the GPA, at least not in the immediate future. We aim to synthesize research from various fields that are usually discussed separately. The resulting framework to understand the role public

procurement could play in development under the WTO regime is the main value added of this article.

The article is structured as follows. First, a short overview is given of public procurement and GPA in the context of developing countries. In the second part, a case is made for PPfI as part of industrial policy. This is followed in the third section by the discussion of how industrial policy represents a case of soft procurement practices and how industrial policy fits into WTO agreements. The fourth part is focused on the policy capacity problem. The fifth part presents a public-procurement paradox that arises when developing countries would or would not apply direct PPfI on a large scale. The conclusion summarizes the different perspectives of public procurement on development.

PUBLIC PROCUREMENT AND GPA

The WTO Government Procurement Agreement, which entered into force in 1996, is the only WTO treaty focusing on public procurement and is mandatory only to signatories (40 as of 2010).³ According to the agreement, the parties are required to apply the principles of openness, transparency and non-discrimination (most notably the principles of national treatment and most-favored nation) to their national public procurement laws, regulations and procedures. The treaty applies, from above certain thresholds, for all public goods purchases and only those services that are either positively or negatively annexed to the agreement. The governments are allowed not to follow the GPA rules, for example, on the grounds of high national interests or when procuring military products. In addition, many members have conditioned their market access to that offered by other members. The GPA also regulates the arbitration process, both nationally and on the WTO level.

The GPA agreement is another initiative within the WTO framework that aims at global economic development via liberalizing global trade. Government procurement, which constitutes more than 10% of national economy in most countries, has for a long time been used for supporting national interests and is perceived by many as one of the main barriers to free trade (Arrowsmith, 2003). In accordance to the comparative advantage theory, it is argued that so-called discriminatory government procurement makes states worse-off in the long run because it leads to inefficient allocation of

resources and limits the benefits stemming from free trade. More specifically, the benefits from liberalized government procurement include access to other markets, support for liberalizing countries' own markets, increased competition that leads to increased (international) competitiveness, job creation and budgetary savings (Evenett, 2002; Arrowsmith, 2003, p. 769; Ssenoga, 2006). However, in spite of these claims, only a limited number of developing countries have joined the GPA. Most of the developing countries still oppose the GPA ideas and since 1994, no major developments can be reported regarding GPA.

There are many reasons cited in the literature why developing countries have resisted the idea of joining the GPA. For the sake of simplicity, one can divide these into four: political, technical, secondary policy-related and economic (developmental). From the political perspective, the rationale is to be found in protectionism and nationalism (Evenett, 2002). This logic assumes that local money should be spent locally in order to increase domestic output and assist local employment. This is a politically rewarding argument that can be used regardless of its actual or long-term effects. The argument of free trade is said to be counter-intuitive to many people who deal with national industrial, competition and public-procurement policies because in the short run, market liberalization may lead to job losses (Arrowsmith, 2003). In addition, the political and administrative elite may find it beneficial to use discriminatory government procurement in pursuing personal or political gains. Further, joining the GPA poses several technical challenges for the developing countries. The developing countries may lack resources for implementing all GPA requirements (setting up institutional environment, provision of reliable statistics, fulfilling transparency requirements etc.) (Arrowsmith, 2003). It can be argued that joining the GPA makes it harder to introduce and execute secondary policies through public procurement such as social policy, supporting minority businesses or, above all, industrial policy (discussed under economic arguments).

Most importantly, there are also economic counterarguments to joining the GPA. Trionfetti (2000) has shown that discriminatory or home-biased public procurement is able to influence domestic output, redress the structural cost disadvantages and prevent unfavorable agglomeration. This is, however, dependent on market

structure and sector characteristics. As Trionfetti argues (2000, p. 73):

In particular, home biased procurement is likely to influence international specialization in sectors characterized by increasing returns and monopolistic competition more than in those characterized by constant returns and perfect competition.

As a consequence, if the developing countries with small home markets joined the GPA, their governments would lose the ability to redress the negative effects of their small home markets in terms of higher production costs and to counterbalance the globalization effects where the production of increasing returns and monopolistic competition commodities concentrates in places with larger demand (markets). At the same time, the current GPA framework is based on an “all or nothing” approach, i.e. there is no gradual adaption possible (Arrowsmith, 2003), which according to Trionfetti is inevitable if more developing countries were to join the GPA. If developing governments were to join the GPA under current circumstances, they would put their respective markets in unfair competition (see, e.g., Wade, 2003).⁴ Also, joining the GPA does not solve the question of restrictions on the movement of natural persons, which act as a serious hindrance to developing countries’ service exports in case of public procurement (Arrowsmith, 2003, p. 770). Yet, services have been suggested to be one of the most important parts of the developing countries’ economies (Sennoga, 2006).

In spite of the theoretical claims supporting the global free trade in government procurement, the majority of the developing countries have considered the counterarguments strong enough to opt out from the GPA. The literature on the GPA – when dealing with the question of development – seems to consider this to be problematic for global as well as domestic welfare reasons. This debate stems from the argument of market failure, which sees competitive markets as the main goal for national as well as global economic policies since competition is understood to be the driving force behind innovation and technological change. Evenett and Hoekman (2005, p. 166) have claimed that “in the last 25 years, a small literature has developed focusing on the effects of international discrimination in procurement. Much of this literature considers procurement discrimination in

perfectly competitive markets and, in partial equilibrium settings, typically finds no efficiency rationale for discrimination.”

Under these premises, the implementation of secondary policies such as industrial policy measures can be justified only in case of severe market failures. And even in case of severe market failures, these measures (e.g. infant industry protection) are considered to be mostly ineffective due to expected policy failures (Arrowsmith, 2003).

However, these arguments tend to ignore the recent development experience of the East Asian countries as well as the historic lessons from the now developed countries in the North, where the traditional industrial policy measures (incl. high-level demand created through public procurement) played a central role in the economic development and catching-up strategies. Above all, these treatments fail to differentiate between discriminatory procurement and public procurement aiming at promoting innovation.

PUBLIC PROCUREMENT FOR INNOVATION

Innovation is increasingly seen as the main source of economic growth and development. The conventional public-procurement literature assumes that free markets and tight competition is the primary source for innovations and that industrial policy through public procurement does not have a profound economic rationale (Evenett, 2002; Arrowsmith, 2003; Evenett & Hoekman 2005; Ssenoga, 2006). Moreover, due to political reasons, the developing countries have been accused of overdoing the infant-industry creation aspect (Arrowsmith [2003, p. 10] referring to Krugman & Obstfeld, [2000]). While some key neoclassical thinkers argue for an important role for industrial policy in development (most notably, Rodrik [2007]; also Lin [2009]), there is still one key aspect in which industrial policy is often misunderstood, namely the role of technology in development. While in the context of development and catching-up, we can detect a general overlap between evolutionary and neoclassical thinking, there is a distinct discontent in understanding the role of technology (See further Karo & Kattel [2010a]; Cimoli et al. [2006]; Drechsler [2004]) More specifically, there are strong disagreements as to what causes and stimulates innovations in the private sector. On the one hand, the evolutionary tradition argues that innovations and economic growth in general take place because of knowledge and skill agglomeration and continuous upgrading and

technological change. On the other hand, the neo-classical and also public-choice traditions argue that the main driver behind innovations and growth are trade and competition: the former using the comparative advantage of nations to bring more, better and cheaper goods to consumers (higher efficiency); the latter creating pressures for companies to incessantly innovate and outcompete the competitors, and to push prices down in the process (higher efficiency, again).

This difference goes back to understanding the nature of technological development and its impact on companies and economies. The evolutionary school argues that technological development is almost always path-dependent;⁵ neo-classical arguments assume that technology is essentially freely available to all, competitors and countries alike.⁶ This view also assumes that technological development is more or less linear, towards ever more complex solutions yet with a rather clear path ahead. Thus, while neoclassical economists set out to rectify market failures that prevent the dissemination of technologies and skills, in the eyes of evolutionary economists, entrepreneurs seek technological innovation *in order* to create market failures. For evolutionary economists, technological development is anything but linear and technology is anything but freely available. Path dependencies, linkages, spillovers, externalities, winner-takes-all markets and highly imperfect and dynamic competition make technology an unpredictable, high-risk and possibly high-return endeavour that drives on a tautological logic: technological development feeds on technological development.⁷ (See, e.g., Arthur, 1994; Perez, 2002) These characteristics engender long-term structural changes in the economies in form of technology trajectories, paradigms and geographical agglomerations. In particular since the early 1980s, evolutionary economists have emphasized the latter, long-term characteristics of economic development that are directly related to technology and innovation. (See in particular, Freeman, 1974, 1987; Freeman, Clark & Soete, 1982; Freeman & Louçã, 2001, Dosi, 1982; Perez, 1983, 2002)

As shown earlier, the current debate on WTO and government procurement has been mostly about the relationship between trade and procurement and not so much about public procurement and economic development as such. This perspective assumes that

liberal trade rules and maximum competition will eventually lead to sustainable economic growth both in developed and developing countries. But as Singh (2002) has argued, it is not competition *per se* that is important, but whether and to what extent it is capable of supporting economic development. Thus, a maximum level of competition may not be the best solution for developing countries and, instead, a more strategic policy view could be used that mixes competition with co-operation.

Direct public procurement for innovation represents one possibility that can be used to affect the technology life cycle, promote clusters and innovation systems, and thereby increase urban, regional and national competitiveness. In addition, the role of the public sector could be seen as a facilitator of innovation processes especially in the fluid phase of technology development because both social and economic benefits for the region and/or nation state might follow.

In more concrete terms, there are several ways that public agencies can support innovations through procurement, namely:

- The creation of new markets for products and systems that go beyond the state-of-the-art;
- The creation of demand “pull” by expressing its needs to the industry in functional or performance terms;
- The provision of a testing ground for innovative products (Rothwell, 1984, p. 166);
- The provision of the potential of using public procurement to encourage innovation by providing a “lead market” for new technologies/solutions (ECWG, 2006).

Compared to the supply-side innovation policy measures (see Edler & Georghiou, 2007), the public sector can use PPfI to act as a demanding first buyer by absorbing risks for socially/ecologically demanded products (where significant financial development risks prevail) as well as by promoting learning (where procurement introduces strong elements of learning and upgrading into public intervention processes). The government can be the demander, bear higher entry costs, create critical mass, signal the market and link innovation to production – and not just increase internal capacities of producers (Edler, 2006, p. 8; Geroski, 1990). Geroski (1990, p. 189)

highlights the direct links between innovation and production, showing that – in contrast to supply-side measures such as R&D subsidies – public procurement for innovations leads not only to technological capacities but also to increased production capacities for innovations. In the context of procurement, it is important to note that governments can become important end users via the procurement process. In addition to direct technological or product innovations, quality and other standards (e.g. ecological) set by public agencies also play a key role. In this way, PPfI conceptually differs from discriminatory “off-the-shelf” public procurement.

Although the current GPA debate largely ignores the positive role public procurement can have on development and growth, history demonstrates that countries like Japan, Korea, the US and others took great advantage from PPfI when catching up with more advanced countries (Ruttan, 2006; Singh, 2002; Okimoto, 1989). Moreover, this is a strategy that these and other advanced economies still employ (ECEG, 2005; OECD, 2009a)⁸ and that is also widely used by many developing countries such as China (OECD, 2008).⁹

Today, the advanced economies employ PPfI under the GPA framework. This is perhaps one of the reasons why, for example, the EU countries have used the tool rather modestly (see, e.g., ECWG, 2006).¹⁰ The current literature on WTO and government procurement seems to univocally agree that discriminatory procurement should be abandoned by the developing countries, and instead, as Ssenoga insisted “There is need to ask how other developed nations became world players.” (2006, p. 239) But as history tells us, they have done it mainly through industrial policies (incl. public procurement), which are nowadays hard to implement due to the WTO framework.

INDUSTRIAL POLICY AS SOFT PROCUREMENT

As argued above, at the core of traditional industrial policy, deployed by mercantilistic states ranging from Europe during the 16th to 18th centuries to East Asian countries in the post-WWII era, is the idea of targeting certain industrial sectors for priority development. (For a comprehensive summary, see Reinert [2007; 2009]) Already early theoretical justifications for such policies saw economies of scale, and resulting synergies, as the key reason for differentiating between economies activities. (See, e.g., Serra [1613]; King [1721]) Moreover, from the outset, industrial policies were relatively complex:

Colbert, for instance, used common measurement and quality standards, organizing regional industry associations and other similar measures to push French textiles-industry development during his reign in the second half of the 17th century. (Cole, 1964; Soll, 2009) In particular the cameralist variety of mercantilistic states in Europe often saw it as a key role of the state to become an entrepreneur in new dynamic industries in order to earn revenue (and not to tax industry). (Backhaus & Wagner, 2004) These practices and ideas became a coherent theoretical framework in the works of Friedrich List, who is seen to this day as the key author in infant industry protection: in order to become competitive, a nation needs to go through a phase of protecting its young industry via a tariff system. (See from List, 1827 to Williamson, 2002) This idea of creating first domestic markets for infant industries via tariffs, regulation, licensing and other measures dominated the post-WWII development consensus (Chibber, 2003) and was perfected by the East Asian economies during that era.

One can summarize a stylized industrial policy pursued by East Asian economies during that period as follows: first, policy measures were aimed at a specific product not produced in the given country or done so on a very weak level (from radios to semiconductors); second, government agencies were often actively seeking technology transfer from abroad (usually licensing technology); third, government also provided investment either through direct subsidies, preferential interest rates or public sector lending, at the same time directly controlling or prohibiting foreign direct investments; fourth, most targeted products had a local contents requirement for their production and fifth, this led to investment coordination of downstream supplier activities; sixth, most such measures included either sunset clauses (government support for a specific number of years) or domestic competitive pressures (multiple companies given similar support) or both; seventh, switching from domestic to export markets occurred when domestic producers reached certain previously set quality standards.¹¹

It is relatively easy to see that such an ideal-typical industrial policy has many common elements with PPfI ideas and framework. Thus, traditional industrial policy could be seen as soft procurement. This also explains why PPfI is becoming so popular that it epitomizes a policy potential similar to that of the traditional industrial policy.

However, if development history teaches us that industrial policy is a *conditio sine qua non*, then it is exactly the comparison of two very recent instances of this strategy that can teach us the reasons for success and failure. Indeed, based on two recent historical experiences with industrial policy, East Asia and Latin America, we can create two “ideal types” of classical industrial policy. In Table 1, we distill from the vast and diverse historical data and different contexts two such ideal types.

A comparison of the two clearly indicates that key differences between these “ideal types” rest precisely in the issues that are crucial to PPfI as well; first, the idea that development needs specific economic activities that exhibit long-term potential in terms of learning curves, home-market expansion and exports. Such activities provide dynamic increasing returns that in turn create possibilities for continuous upgrading through educational, labor-market and other policies. This is what East Asian countries did; Latin American countries failed to target windows of opportunities in different activities, and the need for competitive pressure was underestimated.¹² Second, the failure to create dynamic economies of scale led to financial fragility relatively easily, in particular when foreign capital inflows and lending became prevalent elements in the development strategy, as happened in Latin America in the 1980s. (Kregel, 2008b) These lessons, however, were almost completely missed by the Washington Consensus and WTO process. Indeed, it has become one of the most popular arguments among heterodox economists to say that WTO has kicked away the ladder under developing countries in the sense that most industrial policy measures described above and so successfully used in the past have become problematic under WTO treaties and in particular in bilateral trade agreements (See, e.g., Chang [2002], Wade [2003] and Reinert [2007]).

Classical industrial policy assumed that economic activities were fundamentally different in their development potential: at a given point in time, some activities were subject to increasing returns to scale and accompanying synergies, while other activities were not. Targeting activities with increasing returns was the essence of industrial policy (Reinert, 2007). WTO agreements assume the opposite: all economic activities are alike. This is expressed best

TABLE 1
Ideal Types of Industrial Policy Compared

East Asia	Latin America
Temporary protection of new industries/products for the world market	Permanent protection of mature industries/products for the home market (often very small)
Very steep learning curves compared to the rest of the world	Learning that lags behind the rest of the world
Based on a dynamic Schumpeterian view of the world – market-driven ‘creative destruction’	Based on a more static view of the world – planned economy
Domestic competition maintained	Little domestic competition
Core technology locally controlled	Core technology generally imported from abroad/assembly of imported parts/‘superficial’ industrialization
Massive investment in education/industrial policy created a huge demand for education. Supply of educated people matched demand from industry.	Less emphasis on education/type of industries created did not lead to huge (East Asian) demand for education. Investment in education therefore tends to feed emigration
<i>Meritocracy</i> – capital, jobs and privileges distributed according to qualifications	<i>Nepotism</i> in the distribution of capital, jobs and privileges
Equality of land distribution (Korea)	Mixed record on land distribution
Even income distribution increased home market for advanced industrial goods	Uneven income distribution restricted scale of home market and decreased competitiveness of local industry
Profits created through dynamic ‘Schumpeterian’ rent-seeking	Profits created through static rent-seeking
Intense cooperation between producers and local suppliers	Confrontation between producers and local suppliers
Regulation of technology transfer oriented towards maximizing knowledge transferred	Regulation of technology transfer oriented towards avoiding ‘traps’

Source: Kattel, Kregel and Reinert (2009).

perhaps in the very process of negotiations where developed countries argue for access to developing country markets for their high-tech and patent-based products and offer in return access for developing countries’ textiles and similar products to the markets in the North. In other words, WTO agreements assume more or less

static technological capabilities and trade from gains come from using these capabilities.

Accordingly, the establishment of WTO in 1994 and its accompanying treaties such as General Agreement on Trade in Services (GATS), Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), Agreement on Trade-Related Investment Measures (TRIMS) and a host of other multilateral and bilateral agreements regulating trade, IPRs and investment is seen by many heterodox economists as severely limiting the policy space available for developing countries.¹³ As Wade (2003, p. 622) succinctly argues, these international regulations “are not about limiting *companies’* options, as ‘regulation’ normally connotes; rather, they are about limiting the options of developing country governments to constrain the options of companies operating or hoping to operate within their borders.”

However, there is a particularly strong agreement among researchers that BTAs in many cases apply much more stringent IPR regulations, trade liberalizations measures and investment requirements than various WTO agreements proper. While some researchers argue that WTO agreements are asymmetrical (“developing countries’ rights and developed country obligations are unenforceable,” [Wade, 2003, p. 624]), others argue that developing countries should in fact cooperate in the WTO to try to enforce the agreements also on the developed countries.¹⁴

However, WTO agreements leave some, and partially substantial, space for policy: for instance, the agreements leave more or less intact industrial policy ideas settled in the GATT agreement from 1947, which recognized import substitution and infant-industry protection based on increasing returns¹⁵ (see Article XVIII, paragraph 2). WTO’s Article XVIII allows countries to protect themselves from competition from imports in order to restore balance of payments and Articles XIX and VI allow protection from import competition also in individual industries (temporary safeguards) and against unfair trade practices (anti-dumping). Further, as Amsden (2005) argues, TRIMS allow local content requirements to stay in place and has been used by Brazil, Argentina, Chile, Indonesia, Mexico, Malaysia and Thailand; (p. 220) Similarly, Reichmann (2009) shows how countries like China, India and Brazil are using flexibilities under TRIPS for their own developmental agenda. WTO law in fact allows for subsidies in three

key areas: (1) R&D, (2) regional development and (3) environmental protection (Amsden, 2005, p. 221). Clearly, these existing flexibilities should be emphasized in developing country's capacity building exercises (by WTO and other international and non-governmental organizations).

Thus, while the policy space under WTO has become strictly defined and, in contrast to earlier periods, most countries are party to various WTO agreements, the policy space has not been eliminated completely. However, what has become the focal problem under WTO is the policy capacity to develop and implement policies that are conducive to innovation and growth and fit into the WTO rulebook.

THE CAPACITY PROBLEM

Government procurement is notorious for constantly under-delivering the expected results. There are various reasons that explain a poor outcome such as lack of competitive pressure, lack of proper institutional settings in terms of over- or under-regulation and organizational set-ups etc. In addition, a country may suffer from low policy and administrative capacities. Regarding PPfI, the latter argument seems to be of special importance because of the more complex nature of procurement for innovation and because of the need to coordinate different vertical and horizontal policy domains.

Indeed, on the administrative level, there tend to be too many goals to follow in modern public procurement for the public administrators – cost savings, value-for-money, transparency, sectoral policies (e.g. environmental, energy, industrial etc.) – which often contradict each other (Cave & Frinking, 2007; Nyiri et al., 2007). This may lead to a misallocation of resources, where agency goals conflict with wider policy goals (New Zealand Ministry of Economic Development, 2005). There is a dilemma between the micro-cost effectiveness of a contract and the higher costs of R&D-based product/services in order to boost innovation (Cabral et al., 2006). The process itself – procurement for innovation – is a costly and time-consuming effort. Procurement for innovation demands strong coordination between stakeholders and constant evaluation and learning. But coordination and evaluation always involves transaction costs, which have to be taken into account when implementing the process. Cave and Frinking (2007) have pointed to the fact that there exists the potential for expensive coordination

failure. When the payoff is unclear, the innovative solution can be perceived as the more expensive solution (Brammer & Walker, 2007). Therefore, at the end of the day, under the current culture of public procurement, cost savings may still be perceived as the most important goal.

Classical industrial policy, in turn, relied on what Reinert (2009) calls emulation: successful cases of development during the 500 years of capitalism have mostly been based on unrestrained copying from other successful countries, past and present. In essence, successful development has been historically based on policy creation using history as a tool-box. While the latter includes basic principles such as infant-industry protection, policy bias towards increasing returns activities and other activities described above, the application of these principles has been based on context-specific amendments – that is emulation, not simply copying. (See also Karo & Kattel, 2010b) It can be argued that international development debate sought to agree more or less on the rules for emulation up to the 1980s and that the Uruguay round initiated the exact opposite. WTO and its descendants (BTAs) assume universal rules and institutions that should be more or less precisely copied by the developing countries in order to widen markets and allow access for technological and market leaders whose activity should then lead to various spillovers and positive externalities. Thus, while emulation assumed high levels of capacity to choose from a heterogeneous set of policy options, the WTO policy space assumes decontextualization of policymaking (e.g. in what field and for how long to grant patents and to whom versus patents should be granted in all fields anywhere in the world for 20 years). The former assumes an institutional framework for policy learning; the latter in turn assumes the capacity to implement agreed-upon policies. Policy learning is usually associated with high levels of policy competence, strong bureaucratic autonomy and coordination, high levels of embeddedness between economic actors and the state, exemplified by the Weberian state described by Evans and others. (Evans, 1995; Evans & Rauch, 1999; also Rodrik, 2007) Policy implementation and copying in the 1990s, in turn, became associated with decentralization and market-like discipline within the public sector, exemplified by New Public Management reforms. (See Drechsler, 2005) These are, however, similar values emphasized typically in the current procurement literature: cost effectiveness, transparency and enhanced

competition. Both WTO and mainstream procurement literature assume that government failures are usually worse than market failures and thus disciplining governments should bring more return in the terms of developmental intervention.

Consequently, WTO is based not only on a very different set of economic ideas and ideals, but also on substantially different views on policy capacity and how it evolves.

Further, while East Asian developmental states relied on what can be called bilateral embeddedness with industry leaders then, today we arguably need something that can be termed as multilateral embeddedness with various knowledge poles and actors (see also Evans, 2009, and Jayasuriya, 2005 from a public-policy perspective). For instance, the capacity and institutional learning required for negotiating with international financial institutions and local R&D labs tends to be increasingly different and separated from each other as well. As Evans (2009), argues,

In the 20th century developmental state, embeddedness was important both as a source of information and because implementation of shared projects depended on private actors. Insofar as embeddedness aimed at industrialization the logic of constructing it was comparatively straightforward. The key information involved figuring out which industrial projects were feasible and what kind of incentives would be required to engage the energy of the relevant firms. The 'culture' of leading firms had to be reshaped so that competition was seen more in terms of innovation and risk taking. The primary cast of partners was a small set of industrial elites with relatively well-defined interests. Building ties on the basis of personal networks and administrative structure was a feasible project.

In order words, while both PPI and industrial policy assume strong policy capacity, WTO regulations compound the capacity-building through shortening policy-learning cycles: implementing universal rules is more or less the full policy cycle. While experimenting with various industrial policy measures – and often failing – is one of the key elements in East Asia's success story (see, e.g., Okimoto, 1989 for a discussion of sectors in which Japan's industrial policy failed), government failures are seen today in the

WTO framework as the cardinal sin of development policy. Indeed, the Washington-Consensus policy framework prevailing in WTO emphasizes, first, macro-economic competencies (e.g. inflation targeting, fiscal discipline) and, second, the need to transfer policies from the best practice toolbox of the time. (See further Karo and Kattel [2010b] on Eastern Europe in this context and Kattel and Primi [2010] on comparing Latin America and Eastern Europe) Essentially, developing countries have become policy takers with the ascendance of WTO and Washington Consensus in the 1990s. As a result, the respective policies in most developing economies have been converging with the developed countries' policies (in IPR, innovation, R&D, foreign direct investments and other fields). Yet, this convergence in policy is accompanied by the hollowing or non-emergence of the local capacity to analyze and evaluate domestic policy issues because of the de-contextualization of policy making through the very same convergence (Karo & Kattel, 2010b). That is, while developing countries are voluntarily or involuntarily increasingly copying and transferring policies from developed countries and international organizations, their problems are usually aggravated because local capacity development is thwarted as policy experimentation is minimal.

PUBLIC PROCUREMENT FOR INNOVATION AND DEVELOPMENT PARADOX

The innovation theory and the history of economic development demonstrates that public procurement for innovation not only leads to global technology revolutions, but can be used as a systematic tool for catching-up. PPfI is among those economic development measures that developed countries have extensively used in order to gain dominating power in world markets. Moreover, the recent initiatives in the developed world (e.g. the EU "lead-market" initiative) as well as the developing world (e.g. China - OECD, 2008) show that public procurement for innovation has been rediscovered as an economic development mechanism. Therefore, if developing countries used public procurement only for increasing cost-effectiveness through the creation of a level playing field, these countries would voluntarily give up on using one of the most powerful demand-side innovation policy tools to promote innovation, industrial development, competitiveness and economic growth.

In spite of the fact that the GPA rules are not applied to the majority of the developing world, these countries are often not well-positioned for PPfI. Without specific capacities it is problematic to implement PPfI and, for example, conduct proper market intelligence, develop public technology platforms, transform societal needs into functional requirements, tackle corruptive behavior, change risk-averse culture of public procurers towards risk-managing and avoid coordination failures. Also, the developing countries are increasingly becoming part of bilateral trade agreements where, in addition to issues such as IPRs, investments, etc., the question of public procurement is often addressed. These agreements, together with other multilateral and WTO agreements, diminish further the policy space available for PPfI.

The WTO GPA aims at liberalizing world trade in the public procurement markets. It is, however, highly questionable whether the developing countries – after joining the GPA – could avoid short-term or long-term losses in terms of, e.g., lost jobs. As already stated above, if developing countries' governments were to join the GPA under current circumstances, they would put their respective markets under unfair competition due to structural and also institutional imbalances.

Although the developing countries are often advised to join the GPA framework, the treaty makes it complicated to use the direct and indirect PPfI principles together with other innovation policy tools. The GPA framework is targeted towards equal treatment, effective competition and technical efficiency, but effective PPfI policy is not so much about securing maximum competition and level playing field, but about the ability to create positive spillovers.¹⁶ For the latter to happen, the governments need to engage in interactive learning and collaboration with market, which contradicts to the GPA principles. This contradiction is evidenced by the problems some of the European Union member countries face when trying to establish explicit PPfI policies (see Edquist [2009]; Edquist et al. [2000], but also ECEG [2005]).

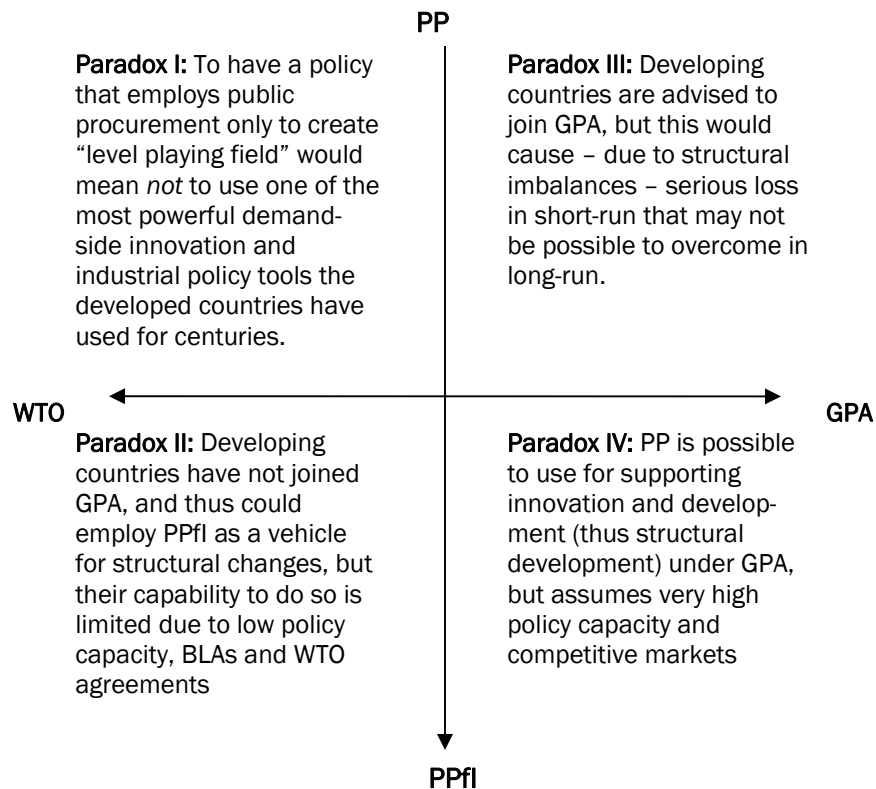
At the same time, PPfI assumes a relatively high level of policy and administrative capacities, which developing countries often lack and which are hard to gain under the prevailing – decontextualized – WTO policy-making principles. Furthermore, PPfI assumes a high level of existing competitiveness in order for the procurement to

become a realistic innovation policy tool (Lember et al., 2011). This, again, is not often the case with developing countries. The developed countries have usually more policy capacity and existing competitiveness on the market to pursue with the large scale PPfI policies, which makes it more probable for them to succeed under the GPA framework. But even in the more developed context PPfI is not easily applicable because of the need to comply with international regulations.

Thus, one can observe that the issue of PPfI and developing countries under the WTO framework is full of contradictions and paradoxes. It can be claimed that the WTO GPA would pose serious limits to developing countries if they were to join the treaty: it would make it much more complicated to implement the PPfI policy in areas critical to national competitiveness and growth. At the same time, implementing PPfI without proper policy capacity is likely to produce no results or negative results. Figure 1 summarizes this.

It has been suggested by many authors that one of the possible strategies to alleviate GPA shortcomings and motivate developing countries to join the GPA is gradual accession (Arrowsmith, 2003; Trionfetti, 2000). At first glance, this strategy seems to be viable. It would give the developing countries the needed time to build up a proper public procurement system and allow them to plan for measures that diminish the negative effects from opening up the government markets. More importantly, while using the discriminatory procurement practices, the developing countries would enjoy immediate access to other markets during the adaption period (Trionfetti, 2000). But the problem is that the gradual adoption of the GPA agreement alone will not suffice. In spite of the fact that the GPA offers the developing countries the possibility to negotiate on exceptions (incl. industrial policy- related ones), the exceptions need to be specified in advance, which diminishes the possibilities for policy experimentation and a trial-and-error approach. As stated by Arrowsmith, "the possibility is subject to the approval of the Committee of Government Procurement, and developing countries may – rightly – fear that this will not be forthcoming when such policies affect important interests of the other parties" (2003, p. 447). The very specific PPfI programs are subject to failures and take time to develop. It is difficult to predict when and how the positive

FIGURE 1
Public Procurement for Innovation Paradoxes



externalities from the PPfl policies will diffuse to the market. Also, large-scale PPfl policies assume that the PPfl principles were adopted across the public sector, but it is highly problematic to create this kind of policy and administrative capacity within a limited period of time.

As a result, the use of more indirect or so-called soft PPfl measures could be suggested as an alternative for developing countries. This, in turn, would mean that developing countries should initially direct their policy-capacity efforts at building competencies, coordination mechanisms and policy networks in order to use the WTO policy space described above. Employing these soft

procurement measures – setting priority activities/products/ technologies with detailed action plans, quality standards etc. – can be viewed as a step-by-step approach towards building capacity for PPfl. This should be seen mostly in the context of gradually building policy capacities where we can argue for a continuum to exist from implementing WTO agreements without any flexibilities and amendments over soft procurement practices deploying classical industrial policy measures still available under WTO, up to full scale PPfl. While it may seem counterintuitive to argue that PPfl demands higher levels of policy capacity than do industrial policy measures, as we have argued above, the margin of error in the PPfl framework tends to be much narrower while industrial policy has always been about trial-and-error and policy experimentation. (Rodrik, 2007) In recent literature, perhaps one of the best examples is the excellent study by Reichman (2009) on policy flexibilities for developing countries under TRIPS. One of the main recommendations – along many detailed flexibilities – is that interagency coordination of the intellectual-property-rights (IPR) policy in a country seems to be the most important factor in determining whether a given country is able to develop IPR policies under TRIPS designed to its needs or not. (See also the study on varying TRIPS implementations among developing countries by Deere, 2009) As a matter of fact, countries like Brazil, India and China are increasingly using (or have been using for a decade) experimentation in industrial policy as a way to enhance policy capacity under WTO rules and indeed stand up against pressures from the US and the EU (See Shadlen [2010] on Brazil's experiments in IPR agencies and policies)

CONCLUSION: TOWARDS UNDERSTANDING PUBLIC PROCUREMENT IN THE CONTEXT OF INDUSTRIAL POLICY AND DEVELOPMENT

If public procurement for innovation is to be seen as part of developing countries' industrial-policy portfolio, the accession to the GPA under current circumstances would not help. At the same time, because of the public procurement paradox, it is likely that the developing world could benefit from direct PPfl only to a limited extent. While the gradual accession to GPA could be seen as a positive step ahead, developing countries should review other opportunities within the WTO framework as well. Therefore, what is needed is more freedom for maneuvering within other WTO agreements for developing countries as in this way it becomes

possible to use more indirect PPfI, which depends less on administrative and policy capacity and market competitiveness. Table 2 summarizes the current policy space for developing countries to use PPfI and industrial policy.

It can be seen from the table that the developing countries have four strategies to choose from when designing and implementing public procurement policies in the context of economic development and catching-up. The first option – public procurement as a level playing field – builds on the assumption of comparative advantage.

TABLE 2
Industrial Policy, Public Procurement and Developing Context

	Goal	Role of competition	Influence of		General problems
			WTO	GPA	
Public procurement as a level playing field	Transparency, non-discrimination, comparative advantage	Maximum competition	E	E	Low equilibrium trap
Discriminatory public procurement	Protectionism, secondary policies (incl. industrial)	No competition	E	R	Universal application, no competition
Public procurement for innovation	Innovation, learning, competitive advantage, diversified economy	Competition dependent on the national level of competence	N	R	Lack of policy and administrative capacity across the public sector, low level of national competitiveness
Soft public procurement	Innovation, learning, competitive advantage, diversified economy	Mix of co-operation and competition, low national competition, competition is regional or global	R	N	Lack of policy capacity of the central government

Legends: E = Enabling; R = Restrictive; N= Neutral.

This view, which is widely supported by the existing GPA literature, underlines the effect of transparent, non-discriminatory and free competition as the only way for promoting innovation and industrial development. The current WTO and GPA frameworks are designed to support this kind of policy approach. However, based on the arguments presented earlier in this article, it can be argued that this approach falls short in creating the needed spillover effects for innovation, technology and development, and may deepen the low equilibrium trap.

The second option – discriminatory public procurement – is based on protectionism ideas and is often used to make the case for or against industrial policies. This is a tool the governments use to exclude competition from the public procurement market, promote secondary policies or pursue hidden personal or political agendas. For the governments that are members of WTO but not GPA, the strategy is relatively easy to use if they had the policy capacity – which developing countries mostly do not have. The idea of GPA, on the contrary, is to limit this kind of policy. The problem with the discriminatory approach is that it minimizes the effect of competition and that it is often used universally, i.e. not in accordance with the actual industrial or innovation policy needs. The third option – PPfI – is about promoting innovation, competitive advantage and diversified economy. It builds on evolutionary economics, which underline the importance of policy learning and use of technology. However, here the competition effect is highly dependent on existing market competitiveness, which is not always the case in developing countries. While the general WTO framework does not directly influence the use of PPfI strategy, the developing countries would face severe restrictions when employing the tool under the current GPA framework. The problem with PPfI is that it may take a long time before a government is able to develop proper PPfI-related policy and administrative capacities across the public sector. The fourth option – “soft” public procurement measures – builds on the same grounds as PPfI, but here the main obstacles are found in the general WTO principles and agreements. Compared to the PPfI, the policy capacity is the main deficiency the developing countries may face, but as the approach itself assumes more robust measures to be centrally applied, the governments can more easily start the learning-by-doing process that is inevitable for this kind of policy making.

In sum, public procurement as part of industrial policy has a lot more to offer for developing countries than the current discussion demonstrates. However, in order to employ public procurement for the sake of innovation and thus economic development, the developing countries should not directly transfer the respective policies from the developed world. Because of international institutional settings and the complex nature of PPfI, the developing countries should first develop more robust innovation policy skills and competences within the current WTO policy space and then gradually move towards specific PPfI policy making.

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NOTES

1. The development of environmental-friendly technologies makes PPfI in many ways similar to the topic of “green” procurement.
2. See Wade (2003), Reinert (2007), and Rodrik (2007); and Cimoli, Dosi and Stiglitz (2009) for most recent discussions.
3. For an overview, see WTO’s GPA web-page http://www.wto.org/english/tratop_e/gproc_e/gproc_e.htm, also Arrowsmith (2003) and Evenett (2002).
4. This holds also in case of trade between bigger and smaller developed countries. As public procurement has become an important asset in international free trade, the governments have become very active in supporting national champions when penetrating export markets, while making sure that the home markets remain protected. See Weiss and Thurbon (2006) as a case study of the USA vs. Australia on the actual impact of the free-trade agreement on public procurement markets.
5. As expressed by Dosi and Soete: “Technology ... cannot be reduced to freely available information or to a set of ‘blueprints’: on the contrary, each ‘technological paradigm’ with its forms of

specific knowledge yields relatively ordered cumulative and irreversible patterns of technical change". (1988, p. 418).

6. See, e.g., Sachs who argues that "the very science and technology that underpin prosperity in the rich world are potentially available to the rest of world as well" (2008, p.205); similarly, the World Bank asks "[w]hy is it that existing proven technologies are frequently not adopted by people who presumably would benefit most from these technologies" (2008b, p. 3; see also World Bank, 2008a, p. 18).
7. As importantly, in evolutionary understanding, technology is a man-made comparative advantage that creates havoc in the Ricardian comparative advantage model (Murmann & Landau, 1998). What technological development shows is that the key is not trade as such but *what kind of trade* and *with whom*. (See Gomory and Baumol [2004], and Palley [2006] for discussion).
8. Korea has a rather long history of large-scale PPfI projects, and since 1996, a special program for small/medium enterprises is pursued (OECD, 2009a).
9. OECD claims that China is actually imitating the respective PPfI policies of the US and Korea (OECD, 2008).
10. Before joining the EU, Sweden and to a lesser extent also Finland used to extensively implement technology-intensive public procurement (OECD, 2005).
11. This list is based on Wade (2004), Amsden (1989), Okimoto (1989), Evans (1995), Rodrik (2007) and Reinert (2007).
12. See similarly the comparison of South Korea and India in Chibber (2003).
13. Wade (2003), Gallagher (2005), Shadlen (2003; 2005), Correa (2000), Li and Correa (2009), and Thrasher and Gallagher (2008) offer excellent summaries and discussions of such arguments. On Financial Services Act and its impact also on current discussions about financial reregulation (see Raghavan [2009] and Kregel [2008a]).
14. See Shadlen (2003), Dreyfuss (2009), and also Cimoli, Coriat and Primi (2009, pp. 514-518) on flexibilities within TRIPS; an even wider discussion is provided by Rodrik (2007, pp. 123-147), and

by Thrasher and Gallagher (2008); the latter also discuss South-South agreements.

15. See, e.g., GATT (1947), Article XXXVI, paragraph 5: “The rapid expansion of the economies of the less-developed contracting parties will be facilitated by a diversification of the structure of their economies and the avoidance of an excessive dependence on the export of primary products. There is, therefore, need for increased access in the largest possible measure to markets under favorable conditions for processed and manufactured products currently or potentially of particular export interest to less-developed contracting parties.”
16. See Cabral et al. (2006) for further discussion about the relationships between innovation and the level of competition.

REFERENCES

- Amsden, A. (1989). *Asia's Next Giant: South Korea and Late Industrialization*. Oxford: Oxford University Press.
- Amsden, A. (2005). “Promoting Industry under WTO Law.” In K. P. Gallagher (Ed.). *Putting Development First: The Importance of Policy Space in the WTO and International Financial Institutions* (pp. 216-232). London and New York: Zed books.
- Arrowsmith, S. (2003). *Government Procurement in the WTO*. The Hague: Kluwer Law International.
- Arthur, W. B. (1994). *Increasing Returns and Path Dependence in the Economy*. Ann Arbor: University of Michigan Press.
- Backhaus, J. & Wagner, R. E. (2004). “Society, State, and Public Finance: Setting the Analytical Stage.” In J. Backhaus & R. E. Wagner (Eds.). *Handbook of Public Finance* (pp. 1-18). Boston, MA: Kluwer.
- Cabral, L., Cozzi, G., Denicoló, V., Spagnolo, G. & Zanza, M. (2006). “Procuring Innovations.” In N. Dimitri, G. Piga & G. Spagnolo (Eds.), *Handbook of Procurement* (pp. 483-528). Cambridge: Cambridge University Press.
- Cave, J., & Frinking, E. (2007). *Public Procurement for R&D*. University of Warwick. [On-line] Available at www2.warwick.ac.uk/

fac/soc/economics/staff/faculty/cave/publications/pp_for_rd.pdf. [Retrieved March 29, 2010].

- Chandler, A. D., Jr. (2005) *Inventing the Electronic Century: The Epic Story of the Consumer Electronics and Computer Industries*. Cambridge, MA: Harvard University Press.
- Chang, H.-J. (2002). *Kicking Away the Ladder: Development Strategy in Historical Perspective*. London: Anthem.
- Chibber, V. (2003). *Locked in Place: State Building and Late Industrialization in India*. Princeton: Princeton University Press.
- Cimoli, M., Dosi, G., Nelson, R., & Stiglitz, J. (2006). "Institutions and Policies Shaping Industrial Development: An Introductory Note." *LEM Working Paper Series*, 2/2006. [On-line]. Available at: <http://www.lem.sssup.it/WPLem/files/2006-02.pdf>. [Retrieved March 29, 2010].
- Cimoli, M., Dosi, G., & Stiglitz, J. E. (Eds.). (2009). *Industrial Policy and Development. The Political Economy of Capabilities Accumulation*. Oxford, UK: Oxford University Press.
- Cimoli, M., Coriat, B., & Primi, A. (2009). "Intellectual Property and Industrial Development: A Critical Assessment." In M. Cimoli, G. Dosi & J. E. Stiglitz (Eds.), *Industrial Policy and Development. The Political Economy of Capabilities Accumulation* (pp. 506-538). Oxford, UK: Oxford University Press.
- Cole, C. W. (1964). *Colbert and a Century of French Mercantilism*. Vols 1-2. New York: Columbia University Press.
- Correa, C. M. (2000). *Intellectual Property Rights, the WTO and Developing Countries: The TRIPS Agreement and Policy Options*. London and New York: Zed books.
- Deere, Carolyn (2009). *The Implementation Game: The TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries*. Oxford, UK: Oxford University Press.
- Dosi, G. (1982). "Technological Paradigms and Technological Trajectories: A Suggested Interpretation of the Determinants and Directions of Technical Change." *Research Policy*, 11 (3): 147-162.

- Dosi, G. & Soete, L. (1988) "Technical Change and International Trade." In G. Dosi, C. Freeman, R. Nelson & L. Soete (Eds.). *Technical Change and Economic Theory* (pp. 401-431). London, UK: Pinter.
- Drechsler, W. (2004) "Natural vs. Social Sciences: On Understanding in Economics." In E. S. Reinert (Ed.), *Globalization, Economic Development and Inequality: An Alternative Perspective* (pp. 71-87). Cheltenham, UK: Elgar.
- Drechsler, W. (2005). "The Rise and Demise of the New Public Management." *Post-autistic Economics Review*, 33: 17-28. [Online]. Available at <http://www.paecon.net/PAERreview/issue33/Drechsler33.htm>.
- Dreyfuss, R. D. (2009). "The Role of India, China, Brazil and Other Emerging Economies in Establishing Access Norms for Intellectual Property and Intellectual Property Lawmaking." Working Paper 2009/5. New York: New York University's School of Law International Law and Justice.
- ECEG (European Commission Expert Group). (2005). *Public Procurement for Research and Innovation: Developing Procurement Practices Favourable to R&D and Innovation*. Expert Group Report EUR 21793 EN. [On-line] Available at: http://ec.europa.eu/invest-in-research/pdf/download_en/edited_report_18112005_on_public_procurement_for_research_and_innovation.pdf. [Retrieved November 12, 2009].
- ECWG (European Commission Working Group) (2006). *Pre-Commercial Procurement of Innovation: A Missing Link in the European Innovation Cycle*. Working Group Report. [On-line] Available at: http://ec.europa.eu/information_society/research/key_docs/documents/procurement.pdf. [Retrieved December 16, 2007].
- Edler, J. (2006). "Demand Oriented Innovation Policy." Paper presented at the ProACT Conference, Tampere, Finland, March 15-17.
- Edler, J. & Georghiou, L. (2007). "Public Procurement and Innovation: Resurrecting the Demand Side." *Research Policy*, 36: 949-963.

- Edquist, C. & Hommen, L. (2000). "Public Technology Procurement and Innovation Theory." In C. Edquist, L. Hommen & L. Tsipouri (Eds.). *Public Technology Procurement and Innovation* (pp. 5-70). Norwell, UK: Kluwer Academic.
- Edquist, C., Hommen, L. & Tsipouri, L. (2000). *Public Technology Procurement and Innovation*. Norwell, UK: Kluwer Academic.
- Edquist, C. (2009). *Public Procurement for Innovation (PPI) – a Pilot Study*. CIRCLE Working Paper No. 2009/13. Lund, Sweden: Lund University.
- European Commission (2010). *Europe 2020. A European Strategy for Smart, Sustainable and Inclusive Growth*. [On-line]. Available at <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-20EN%20version.pdf> [Retrieved May 28, 2010].
- Evans, P. (1995). *Embedded Autonomy: States and Industrial Transformation*. Princeton, CT: Princeton University Press.
- Evans, P. (2009). "Constructing the 21st Century Developmental State: Potentialities and Pitfalls." [On-line]. Available at <http://www.ideiad.com.br/seminariointernacional>. [Retrieved March 29, 2010].
- Evans, P. B. & Rauch, J. (1999). "Bureaucracy and Growth: A Cross-National Analysis of the Effects of Weberian State Structures on Economic Growth." *American Sociological Review*, 64 (5): 748-765.
- Evenett, S. J. (2002). "Multilateral Disciplines and Government Procurement" In B. M. Hoekman, A. Mattoo & P. English (Eds.). *Development, Trade and the WTO: A Handbook* (pp. 417-427). Washington, DC: The World Bank.
- Evenett, S. J. & Hoekman, B. M. (2005). "Government Procurement: Market Access, Transparency, and Multilateral Trade Rules." *European Journal of Political Economy*, 21 (1): 163-183.
- Freeman, C. (1974). *The Economics of Industrial Innovation*. London, UK: Routledge.
- Freeman, C. (1987). *Technology Policy and Economic Performance: Lessons from Japan*. London, UK: Pinter.

- Freeman, C., Clark, J., & Soete, L. (1982). *Unemployment and Technical Innovation: A Study of Long Waves and Economic Development*. London, UK: Greenwood.
- Freeman, C., & Louçã, F. (2001). *As Time Goes by: From the Industrial Revolutions to the Information Revolution*. Oxford, UK: OUP.
- Gallagher, K. P. (Ed.). (2005). *Putting Development First: The Importance of Policy Space in the WTO and International Financial Institutions*. London and New York: Zed books.
- Geroski, P. A. (1990). "Procurement Policy as a Tool of Industrial Policy." *International Review of Applied Economics*, 4 (2): 182-198.
- Gomory, R. E. & Baumol, W. J. (2004). "Globalization: Prospects, Promise and Problems." *Journal of Policy Modeling*, 26 (4): 425-438.
- Jayasuriya, K. (2005). "Capacity beyond the Boundary: New Regulatory State, Fragmentation, and Relational Capacity." In M. Pinter & J. Pierre (Eds.), *Challenges to State Policy Capacity: Global Trends and Comparative Perspectives* (pp. 19-37). Basingstoke, UK: Palgrave Macmillan.
- Karo, E. & Kattel, R. (2010a). "Is 'Open Innovation' Re-Inventing Innovation Policy for Catching-up Economies?" The Other Canon Foundation and Tallinn University of Technology Working Papers in Technology Governance and Economic Dynamics, No. 30. [Online]. Available at www.technologygovernance.eu. [Retrieved March 29, 2010].
- Karo, E. & Kattel, R. (2010b). "The Copying Paradox: Why Converging Policies but Diverging Capacities for Development in Eastern European Innovation Systems?" *The International Journal of Institutions and Economies*, 2 (2): forthcoming.
- Kattel, R., Kregel, J. A. & Reinert, E. S. (2009). "The Relevance of Ragnar Nurkse and Classical Development Economics." In R. Kattel, J. A. Kregel & E. S. Reinert (Eds.). *Ragnar Nurkse (1907-2007): Classical Development Economics and its Relevance for Today* (pp. 1-28). London, UK: Anthem.

- Kattel, R. & Primi, A. (2010). "The Periphery Paradox in Innovation Policy: Latin America and Eastern Europe Compared." The Other Canon Foundation and Tallinn University of Technology Working Papers in Technology Governance and Economic Dynamics, No. 29. [On-line]. Available at www.technologygovernance.eu. [Retrieved March 29, 2010].
- King, C. (1721). *The British Merchant or Commerce Preserv'd*. London, UK: John Darby.
- Kregel, J. A. (2008a). "Changes in the U.S. Financial System and the Subprime Crisis." The Levy Economics Institute of Bard College Working Paper No 530. [On-line]. Available at http://www.levy.org/pubs/wp_530.pdf. [Retrieved March 29, 2010].
- Kregel, J. A. (2008b). "The Discrete Charm of the Washington Consensus." The Levy Economics Institute of Bard College Working Paper No 533. [On-line]. Available at http://www.levy.org/pubs/wp_533.pdf. [Retrieved March 29, 2010].
- Krugman, P. & Obstfeld, M. (2000). *International Economics: Theory and Policy*. (5th ed.). Reading, MA: Addison-Wesley.
- Lember, V., Kalvet, T. & Kattel, R. (Forthcoming). "Urban competitiveness and Public Procurement for Innovation." *Urban Studies*.
- Li, Xuan & Correa, C. M. (Eds.). (2009). *Intellectual Property Enforcement: International Perspectives*. Cheltenham, UK: Elgar.
- Lin, J. Y. (2009). "New Structural Economics. A Framework for Rethinking Development." [On-line]. Available at http://siteresources.worldbank.org/INTMACRO/Resources/NewStructuralEconomics_JLin.pdf. [Retrieved March 29, 2010].
- List, F. (1827 [1996]). *Outlines of American Political Economy: Grundriss der amerikanischen politischen Ökonomie*. Wiesbaden, Germany: Böttinger.
- Murmann, J. P., & Landau, R. (1998) "On the Making of Competitive Advantage: The Development of the Chemical Industries in Britain and Germany since 1850." In A. Arora, R. Landau and N. Rosenberg (Eds.). *Chemicals and Long-Term Economic Growth. Insights from the Chemical Century* (pp. 27-70). New York: Wiley.

- Nelson, R., & Winter, S. (1982). *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.
- New Zealand Ministry of Economic Development (2005). *New Zealand Government Procurement Policy Review Part Two: Realising the Potential for Innovation*. Auckland, New Zealand: Author.
- Nyiri, L., Osimo, D., Özcivelek, R., Centeno, C., & Cabrera, M. (2007). *Public Procurement for the Promotion of R&D and Innovation in ICT*. Luxembourg: Office for Official Publications of the European Communities.
- OECD (Organisation for Economic Co-operation and Development). (2008). *OECD reviews of innovation policy: China*. Paris, France: OECD Publishing.
- OECD (Organisation for Economic Co-operation and Development). (2009a). *OECD Reviews of Innovation Policy: Korea*. Paris, France: OECD Publishing.
- OECD (Organisation for Economic Co-operation and Development). (2009b). *OECD Reviews of Innovation Policy: Mexico*. Paris, France: OECD Publishing.
- Okimoto, D. I. (1989). *Between MITI and the Market: Japanese Industrial Policy for High Technology*. Stanford, CA: Stanford University Press.
- Palley, T. (2006) "Rethinking Trade and Trade Policy: Gomory, Baumol, and Samuelson on Comparative Advantage." Public Policy Brief # 86. Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.
- Perez, C. (1983) "Structural Change and Assimilation of New Technologies in the Economic and Social Systems". *Futures* 15 (4): 357-375.
- Perez, C. (2002). *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. Cheltenham, UK: Elgar.
- Raghavan, C. (2009). *Financial Services, the WTO and Initiatives for Global Financial Reform*. Intergovernmental Group of 25. [On-

line]. Available at <http://www.g24.org/cr0909.pdf>. [Retrieved March 29, 2010].

- Reichman, J. H. (2009). "Intellectual Property in the Twenty-First Century: Will the Developing Countries Lead or Follow?" [On-line]. Available at www.ideiad.com.br/seminariointernacional. [Retrieved March 29, 2010].
- Reinert, E. S. (2007). *How Rich Countries Got Rich and Why Poor Countries Stay Poor*. London, UK: Constable & Robinson.
- Reinert, E. S. (2009). "Emulation versus Comparative Advantage: Competing and Complementary Principles in the History of Economic Policy." In M. Cimoli, G. Dosi & J. E. Stiglitz (Eds.). *Industrial Policy and Development. The Political Economy of Capabilities Accumulation* (pp. 79-106). Oxford, UK: Oxford University Press.
- Rodrik, D. (2007). *One Economics, Many Recipes. Globalization, Institutions, and Economic Growth*. Princeton, NJ and Oxford, UK: Princeton University Press.
- Rolfstam, M. (2009). "Public Procurement as an Innovation Policy Tool: the Role of Institutions." *Science and Public Policy*, 36 (5): 349-360.
- Rothwell, R. (1984). "Creating a Regional Innovation-Oriented Infrastructure: The Role of Public Procurement." *Annals of Public & Cooperative Economics*, 55 (2): 159-172.
- Ruttan, V. W. (2006). *Is War Necessary for Economic Growth? Military Procurement and Technology Development*. New York: Oxford University Press.
- Sachs, J. (2008). *Common Wealth: Economics for a Crowded Planet*. New York: Penguin Press.
- Serra, A. (1613). *Breve trattato delle cause che possono far abbondare l'oro e l'argento dove non sono miniere* [Short Treatise on the Causes that Make Kingdoms Abound in Gold and Silver even in the Absence of Mines]. Naples, Italy: Lazzaro Scorriglio.

- Shadlen, K. (2003). "Patents and Pills, Power and Procedure: The North-South Politics of Public Health in the WTO." Working Papers No 03-42. London, UK: Development Studies Institute.
- Shadlen, K. (2005). "Policy Space for Development in the WTO and Beyond: The Case of Intellectual Property Rights." Working Paper No 05-06. London, UK: Global Development and Environment Institute
- Shadlen, K. (2009). "The Politics of Pharmaceutical Patent Examination: Lessons from Brazil." Paper at MIND Conference in Rio de Janeiro, Brazil, November 4-6.
- Singh, A. (2002). "Competition and Competition Policy in Emerging Markets: International and Developmental Dimensions." G-24 Discussion Paper Series No 18. New York and Geneva: United Nations.
- Soll, J. (2009). *The Information Master: Jean-Baptiste Colbert's Secret State Intelligence System*. Ann Arbor, MI: University of Michigan Press.
- Ssenoga, F. (2006). "Examining Discriminatory Procurement Practices in Developing Countries." *Journal of Public Procurement* 6 (3): 218-249.
- Thrasher, R. D. & Gallagher, K. P. (2008). "21st Century Trade Agreements: Implications for Long-Run Development Policy." The Pardee Paper No. 2. Boston, MA: Boston University.
- Trionfetti, F. (2000). "Discriminatory Public Procurement and International Trade." *The World Economy*, 23 (1): 57-76.
- Uyarra, E. and Flanagan, K. (2009). "Understanding the innovation impacts of public procurement." *European Planning Studies* 18 (1): 123-143.
- Wade, R. (2003). "What Strategies Are Viable for Developing Countries today? The World Trade Organization and the Shrinking of 'Development Space'." *Review of International Political Economy*, 10 (4): 621-644.
- Wade, R. (2004). *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialisation*. (2nd ed.). Princeton, CT: Princeton University Press.

- Weiss, L. & Thurbon, E. (2006). "The Business of Buying American: Public Procurement as Trade Strategy in the USA." *Review of International Political Economy* 13 (5): 701–724.
- Williamson, John (2002). "What Washington Means by Policy Reform." (Updated version of his 1990 article). [On-line]. Available at <http://www.iie.com/publications/papers/paper.cfm?ResearchID=486>. [Retrieved March 29, 2010].
- World Bank (2008a). *The Growth Report: Strategies for Sustained Growth and Inclusive Development*. [On-line]. Available at http://www.growthcommission.org/index.php?option=com_content&task=view&id=96&Itemid=169. [Retrieved March 29, 2010].
- World Bank (2008b). *Science, Technology, and Innovation: Capacity Building for Sustainable Growth and Poverty Reduction*. [Online]. Available at <http://go.worldbank.org/GEYA2NRGW0>. [Retrieved March 29, 2010].