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# DEMAND-DRIVEN POLICY INTERVENTIONS TO FOSTER SUSTAINABLE AND INCLUSIVE INDUSTRIAL DEVELOPMENT IN DEVELOPING COUNTRIES

DEPARTMENT OF POLICY, RESEARCH AND STATISTICS

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**Demand-driven policy interventions to foster  
sustainable and inclusive industrial development in  
developing countries**

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## **Abstract**

This paper explores recent demand-driven policy initiatives implemented to foster industrial development in developing countries. The evidence builds on various case studies organized around an analytical framework that draws from the literature on demand-driven innovation policy, sustainable consumption policies and industrial policy. The findings indicate that demand-driven interventions are usually implemented as part of broader policy mixes including supply-driven measures; demand-driven interventions help shape market dynamics and consumer behaviours. We identify the various goals governments in developing countries pursue through demand-driven industrial policy beyond competitiveness and employment creation, to include inclusiveness- and sustainability-related targets. While attention is usually focused on trade and exchange rate policies, the nature and scope of demand-driven policies in support of sustainable and inclusive industrial development is larger than we traditionally think; governments can be consumers of manufacturing but they can also act as regulators, information providers or actual partners in industrial innovation.

**Keywords:** Demand-driven policy, industrialization, developing countries, innovation

**JEL codes:** 014, 025, 038

## **1. Introduction**

The dynamics of industrial development responds to the functioning of systems of supply, systems of demand and to interactions between those two systems. In their study on the interplay of supply and demand as drivers of long-run economic development, Saviotti and Pyka (2013) conclude that the promotion of innovation from the supply side has major implications for productivity growth. At the same time, the creation of adequate demand for new goods and services resulting from innovation and eventually leading to the establishment of new industries, is a necessary condition for long-run economic development to be both possible and sustainable (Saviotti, 2001; Saviotti and Pyka, 2013).

From a policy perspective, novel ideas and approaches are emerging around a new generation of industrial policies – often termed productive development or productivity promotion policies (Aiginger, 2014; IADB, 2014), while there is convergence between innovation policy, technology policy and industrial policy (Warwick, 2013; Breznitz and Cowhey, 2012; Korres 2007). Governments can significantly contribute to the promotion of positive dynamics and interactions between systems of supply and demand to foster industrialization and development; the challenge is to find ways to enhance the efficiency of public intervention.

While traditional economic outcomes—employment generation, productivity and competitiveness in trade and investment—remain key objectives for public intervention, concerns are growing on the need to rebalance domestic productive structures according to an alternative, or perhaps additional, set of priorities. The focus goes beyond GDP growth to (re)consider industrial and other related policies as components of long-term inclusive growth and sustainable development strategies (Aiginger, 2014). Some burgeoning questions refer to the ability of industrial policies to better serve the poor, to address the needs of those lacking purchasing power or excessively high transaction costs of serving (Altenburg, 2011). The challenge is to incorporate segments of the population excluded so far from the consumption of manufactured products due to geographical dispersion, social fragmentation, political disenfranchisement or insufficient consumption capabilities to cope with fast paced innovation. However, improving access to manufacturing does not suffice to address inequalities, as poor consumers often pay more than wealthier ones for the same services, a phenomenon known as “poverty penalty” (Altenburg, 2011).

In a recent contribution to a study on government–business coordination as part of industrial policies in Africa and East Asia, Stiglitz (2017, p.35) summarizes this debate and asserts that demand-side policies are necessary to enhance diversification and promote economic transformation: “The right strategy is, however, more than simply increasing exports and strengthening import competing industries. Strengthening the non-traded sector is necessary, and this, as in the traded-goods sector, requires supply-side measures (e.g., constructing the appropriate infrastructure, providing the appropriate skills through the education system, and ensuring that the financial system is capable of providing finance for small and medium-sized enterprises). But demand-side policies are also necessary: poverty reduction and a larger middle class will increase the size of domestic markets.” In practice, industrial policy interventions tend to concentrate on the supply side—the expansion and upgrading of productive capacities, the promotion of productivity, technological upgrading and innovation performance—while demand-side considerations tend to be somewhat narrower in scope. Considerable attention revolves around policies such as export promotion or exchange rate regimes, which set framework conditions for domestic firms to tap into foreign demand, or for domestic industries to enjoy temporal protection from competition, thereby giving them space to reach sufficient maturity and competitiveness to sustain themselves in global and domestic markets. There is a wealth of literature on how export-oriented versus domestic market-driven strategies may help explain different development paths across developing country regions. It is equally useful to understand the policy space available for governments to actively pursue interventions, such as public procurement, as industrial development tools within internationally acceptable trade and investment rules (Kattel and Lember, 2010). While we agree that these remain very relevant areas for policy and academic debates, in this paper we argue that the nature and scope of demand-driven policies in support of industrial development is larger than we think. Governments can intervene at both the macro- and the microeconomic levels. They can experiment and introduce innovative strategies to influence demand for investment or for intermediate goods by targeting specific firm or investor behaviours. Governments can introduce incentives that are directly linked to final demand and influence the formation of consumer preferences, or enhance consumer capacity to uptake a constant flow of innovative products and services (Saviotti, 2001; Witt ,2001).

From the above, any concern about the extent of saturation in the demand for manufactured products, particularly among OECD countries, and the consequent restrictions on the continued expansion of manufacturing in developed countries is understandable (Aubert et al., 2010). Demand-driven industrial policy has been used by some governments in developed countries to help domestic industries deal with economic crises, allowing firms to undertake the necessary



transformations to ensure longer-term development and sustainability. A prominent example is the US government's decision in response to the economic crisis of 2008, to bail out not only car manufacturers but to include key providers of consumer finance in the auto loan market (Amadeo, 2016; Benmelech et al., 2017). More extreme and often controversial measures include the threats of the Trump administration to sanction firms that fail to retain manufacturing activities and protect employment in the United States (Buttonwood, 2017; The Economist, 2017).

The Republic of Korea is often presented as a case of successful catching up, exemplifying efforts to strategically promote demand and thereby support the country's continuous and sustainable industrial development. Through strategic public procurement, the government of the Republic of Korea sought to support and incentivize innovation by domestic small and medium sized enterprises (SMEs). In parallel, the government experimented with consumer subsidies to promote the dissemination of energy efficient technologies, signalling its commitment to support the development of this market and the creation of business opportunities for firms (OECD, 2011). The Commission on Growth and Development has also identified the capacity to leverage both local and global demand as factors that explain rapid and sustained growth in the most dynamic developing countries, governments have actively steered the functioning of economic systems (CGD, 2008).

The implications for domestic manufacturing firms resulting from the lack of strong demand systems for their products are evident. Firms are forced to turn to export markets, as local production is largely confined to "simple and homogeneous products for low-end markets, which further narrows the scope for product innovations and new business concepts" (Altenburg, 2011, p.43). Aubert et al. (2010) further illustrate this point, building on the experience of cluster promotion policies in sub-Saharan Africa. The absence of a segment of highly demanding consumers keeps firms in such clusters trapped in suboptimal productive capacity levels, serving low-quality, low-income markets. Low domestic demand impedes opportunities to learn and upgrade and meet the exigent standards, scales and quality levels required in export markets (Aubert et al., 2010). In Latin America, the lack of demand for locally generated innovations is frequently portrayed as a major obstacle for the region's enhanced innovation performance (Santiago, 2010).

Based on the above, this paper addresses the following questions: is there a role for demand-driven industrial policies to underpin industrialization in developing countries? What are the features of public interventions that target demand for manufacturing in those countries? Can demand-driven industrial policy interventions contribute to inclusive and sustainable

development? The paper is structured as follows. Section 2 describes the methodology used to collect and analyse the evidence supporting the case studies presented in this paper. Section 3 presents the analytical framework used. The discussion draws extensively from three interconnected strands of literature, namely on demand-driven innovation policies, on industrial policy and on sustainable consumption policies. The framework helps identify the distinct roles governments play and the different goals they pursue through demand-driven industrial policies. Moreover, it allows the analysis to look beyond trade and exchange rate market interventions to focus on other types of demand-oriented industrial policy interventions. The extent to which these can be considered novel approaches or an actual redesign of existing interventions is subject to debate. The core of the paper is contained in Section 4. It presents a series of case studies covering four distinct roles governments can play through demand-oriented policy instruments in line with various intended policy outcomes. Although the cases focus on the specific role governments play for analytical purposes, there is a multiplicity of roles and a variety of outcomes they can pursue through demand-driven interventions. Finally, Section 5 concludes with some lessons learnt on the use of demand-driven innovation policies in developing countries.

## **2 Methodological considerations**

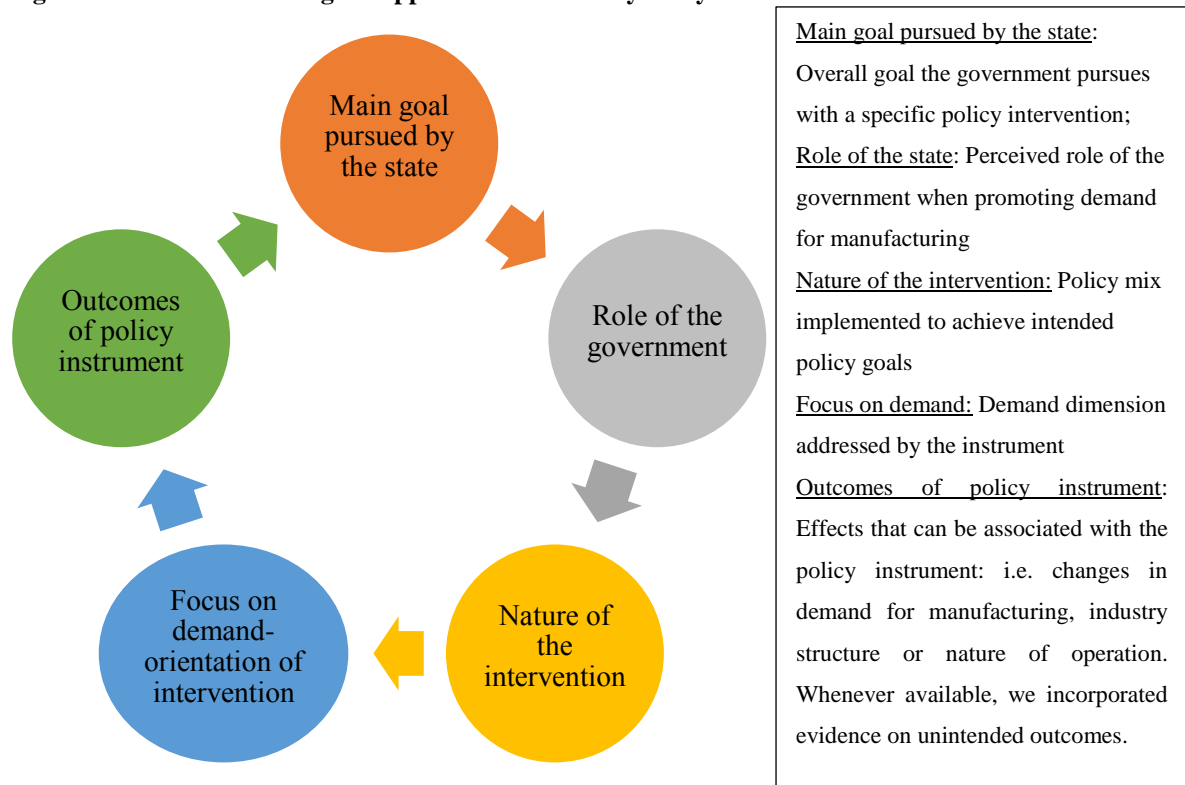
This chapter builds mainly on evidence from secondary data sources. We proceeded as follows: first, we searched scholarly literature for studies on demand-driven industrial policy instruments in low- and middle-income countries. We specifically looked at demand-driven policy instruments implemented either individually or in combination as part of a policy mix with direct relevance for manufacturing. In addition to the literature on innovative approaches to industrial policy, a wealth of literature refers to demand-driven innovation policy instruments and instruments to promote sustainable consumption; we included these studies whenever they related to the countries or activities of interest. Additional evidence on demand-driven industrial policy instruments stemmed from working papers, grey literature, policy briefs and reports produced by government organizations and international organizations with a stake in industrial policymaking, namely the European Union, OECD, various agencies within the United Nations system, the World Bank, etc. We focused on documents that have been published over the last ten years, but looked beyond this time window if necessary.

To identify relevant examples of demand-driven policy instruments implemented in developing countries, we applied some criteria based on our literature review. These criteria included the nature of the problem the policy intervention intended to address and the role or roles governments assumed in the process, the links to demand for manufacturing, and the existence

of evidence on possible outcomes associated with the intervention. We sought to determine the extent to which policy interventions include sustainability and/or inclusiveness considerations in addition to traditional economic goals. The availability of formal evaluations with lessons learnt or recommendations was also considered for case selection. A balance between cases across the global south or across different sectors of economic activity was also pursued. Annex 1 presents the criteria used for the selection of case studies.

Once we had identified interesting cases, we collected additional information on their implementation. The search incorporated government websites or other official sources of information, including direct contact via official email or social media-related sites for specific programmes with government organizations responsible for the management of the specific policy instrument. Figure 1 summarizes the approach for the selection and analysis of individual case studies. Due to the exploratory nature of this paper, there is a trade-off between our ability to identify cases that substantiate our analytical framework and the depth of the analysis of individual case studies. Moreover, the novelty of the interventions or absence of systematic evaluations on their implementation and results meant that, in general, substantive evidence on actual outcomes remains insufficient to draw more definite conclusions on the interventions' efficiency and impact.

**Figure 1** Methodological approach to case study analysis



Source: Authors.

### **3 Analytical framework to analyse demand-driven industrial policies in developing countries**

Developing countries face considerable challenges in promoting the structural transformation of their economies at the pace and depth necessary to improve the contribution of manufacturing and innovation in manufacturing to enhance productivity, employment and economic growth. Disappointing experiences with industrial policies in some developing countries have nurtured the view that policy failures tend to be equally or even more cumbersome than market failures. Practical and ideological reasons fuel denial of the government's ability to endorse and implement active industrialization strategies. Governments shy away from what can be interpreted as a return to "picking winners" types of policies. At best, they tend to favour horizontal interventions<sup>1</sup>, seeking to level the playing field and create framework conditions in which economic activities with proven potential can emerge and thrive.

However, the literature documents a revival of industrial policy in both developed and developing countries, with governments looking for ways to boost local content, support the development of strategic industries, and so on. A relevant feature of these renewed interests in industrial policy is the increasing concern of ensuring the environmental sustainability of manufacturing activities. The result is a broadening in the scope of policy intervention and a challenge to the generally accepted wisdom that government intervention in the economic system is only justified when free market forces fail to perform their allocative function. Policy design and implementation remain open to learning and experimentation, in search of practical ways to use demand-driven approaches to industrial policy as a mechanism to promote structural change, but also inclusive and sustainable development.

#### **3.1 Focus on demand**

Demand-driven policies provide additional tools for governments to address market failures, foster economic growth, industrial development and innovation, to promote the development of specific industries and to address some social and environmental challenges. The instruments can be mandatory or of a voluntary nature, they can operate at the national and international level, and can be implemented using the "carrot or stick method". By deploying demand-driven instruments, governments can pursue multiple objectives alongside or in conjunction with supply-driven policy tools (Edler et al., 2012; OECD, 2011; BIO Intelligence Service, 2012). The logic of targeting final demand reflects the government's ability to influence consumers' willingness to pay and purchase a product which, in the end, is the result of a value system that

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<sup>1</sup> Horizontal interventions provide general support for the creation of framework conditions for industrialization, while vertical measures aim to underpin the development of specific industries or manufacturing activities.

encompasses “all primary and secondary activities, usually conducted by a series of firms, necessary to transform raw materials into products for end users” (Priem et al., 2012, pp.347–348).

Demand-driven instruments can be categorized in many ways. For example, the European Commission (2012) proposes a four-tier classification based on specific stages of the private consumption cycle. The first tier occurs prior to the purchase of the manufactured product (for example, information provision with information tools), the second refers to the time of product purchase (price-based tools may be applied, for instance); the third tier involves the use of the manufactured product (e.g. regulation as a non-financial tool); and the final tier applies to the end of the manufactured product’s life cycle and its disposal (tools targeting waste collection and treatment services may be applied, for instance). Unfortunately, because it focuses on the product being subject to consumption, this classification makes it difficult to identify the broader goals that governments may be pursuing through demand-driven instruments, and to attend to broader economic, social or environmental considerations.

Building on recent contributions to literature on demand-driven innovation policies (Edler, 2013; Edler, 2016; Uyarra, 2010; Flanagan et al., 2011; OECD, 2011), sustainable consumption (UNEP, 2012; OECD, 2008; UNESA, 2010), and industrial policy (Peres and Primi, 2009; Warwick, 2013; OECD, 2012), we adopted a framework better suited to make sense of the diverse and heterogeneous demand-driven industrial policy instruments documented in the literature. In effect, Edler et al. (2012) suggest that demand-driven policies can be divided into four categories:

- Policies to mitigate deficiencies in information flows between buyers and suppliers
- Policies to improve capabilities of consumers
- Policies that subsidize procurement to offset additional risks taken on by purchasers of innovations
- Policies that seek to structure markets for manufactured products (e.g. regulations and standards).

We further posed the question: what goals do governments pursue when they implement specific policy instruments? Table 1 summarizes the four major roles governments can fulfil through demand-driven industrial policy interventions.

**Table 1**      **Typology of demand-driven industrial policy instruments targeting the consumption of manufacturing**

Role of government		Description of intervention	Examples of interventions
As consumer		Promote consumption of certain manufactured products, guide strategic investments in innovation, address societal needs through the provision of manufacturing goods or establish a market for strategic industries or economic activities.	Public procurement
As regulator	Price-based measures (economic tools)	Regulate consumption of manufactured products or influence consumer behaviour through changes in relative prices.	Taxes, tariffs, quotas, subsidies, tax credits or exemptions.
	Non-financial measures (or regulatory tools)	Influence the consumption of manufactured products or guide consumer behaviour through laws, directives and regulations.	Standards and mandatory labels
As information provider / awareness raiser		Measures to influence consumer knowledge, awareness, readiness and capabilities to buy and use certain manufactured products	Communication, education and awareness raising campaigns, national brands, voluntary labelling
As facilitator / co-generator of innovation		Measures to promote / enhance /create demand for innovative products by targeting final users	Grants, subsidies for the consumption of innovation

*Source:* Authors.

**Government as consumer:** governments can play powerful roles in the promotion of consumption of manufactured products and signal strategic directions for investments in or by specific industries; government demand can boost innovation, facilitate the provision of manufacturing goods to satisfy societal needs and/or ensure markets for strategic industries and economic activities to spur competitiveness and economic growth (Peres and Primi, 2009; Edler, 2016; World Bank, 2016). A common tool to promote demand is public procurement, often but not necessarily linked to local content requirements.<sup>2</sup>

<sup>2</sup> In 2016, the World Bank (2016) valued the market for public procurement in developing countries at some US\$ 820 billion a year, roughly equivalent to 50 per cent of government budgets in the region. The share in developed countries was around one-third of government spending (World Bank, 2016; European Commission, 2017); in terms

Various sub-categories attract significant attention: 1) public procurement to promote innovation (PPFI); 2) green public procurement that targets sustainable public consumption of manufacturing goods or innovation, and 3) inclusive public procurement, aiming at inclusive public consumption of manufacturing goods or innovation. Governments can assist firms in the recovery of sunk costs of large and risky investments or innovation projects, they can act as lead users to influence the uptake and diffusion of innovations, address financial problems or stimulate mission-oriented innovation (Warwick, 2013). Green public procurement targets environmental and social goals, supports sustainable companies in reducing production costs, leads consumer education and awareness raising on sustainable consumption and increases the credibility of public authorities (World Bank, 2012; UNIDO, 2011). This paper presents four case studies, of which three—Sri Lanka, South Africa and the Dominican Republic—illustrate how innovative approaches to public procurement can contribute to various policy outcomes in terms of “infant industry” support, enhancing SME capacities to participate in public procurement or benefit specific segments of firms owned by disenfranchised societal groups. A fourth case refers to international policy coordination through public procurement to improve access to medicines in Latin American countries.

**Government as regulator:** governments can regulate the consumption of manufacturing goods by introducing price-based or economic measures commonly used to influence economic activity and industrial performance (BIO Intelligence Service, 2012; Edler, 2016). These tools seek to alter relative prices to promote consumer preference for manufacturing goods over other products, the choice between locally produced or imported products within a specific industry, or between products with distinct characteristics. Governments can choose between positive incentives (subsidies, tax exemptions, etc.) or negative incentives (bans, tax charges, etc.). Regulatory measures can affect performance, for example, product quality, or the actual manufacturing processes and/or the consequence of manufactured products on health, the environment, social conditions and safety (OECD, 2011).

Alternatively, governments can introduce non-financial measures, often referred to as regulatory tools such as laws, directives and regulations that either “reward” or “penalize” the consumption of specific products; these measures target local or national authorities, producers or retailers and to a lesser extent, final consumers (BIO Intelligence Service, 2012). One example of this is the adoption of standards at national or international level<sup>3</sup> to improve the quality of

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of GDP, the figures are up to 14 per cent in the European Union and over 10 per cent in the United States (European Commission).

<sup>3</sup> Standards are usually consensus-based settings on technical specifications that lay out rules, codes, practices, metrics or conventions about technology, trade and society (OECD, 2011).

manufactured products and pursue various other aims, including sustainability, inclusiveness, health, welfare and environmental protection and/or security. These policy tools are the most efficient in banning specific manufactured products or harmful substances from the market and require enforcement and monitoring measures (BIO Intelligence Service, 2012; OECD, 2008). Rwanda, for instance, has banned plastic bags in the entire country (UNEP, 2012).

This paper discusses a series of regulatory reforms implemented by the Mexican government since the late 1990s to restructure the domestic pharmaceutical industry's generics segment, while enhancing access, affordability and quality of drugs available in the private market and the public health system.

**Government as an information provider and/or awareness raiser:** governments can enhance consumers' knowledge, readiness and capabilities to buy and use certain manufactured products (BIO Intelligence Service, 2012). They provide consumers with information on the quality, certification, usage and other characteristics of manufactured products with the goal of changing consumer preferences or readiness to uptake (BIO Intelligence Service, 2012). Policymakers implement communication and awareness campaigns, streamline education, promote the use of social media, introduce voluntary or mandatory labelling, implement marketing measures, promote public or community participation together with data collection, the development of indicators and audits; the scope of these instruments can be at the local, national and/or at the international level (UNIDO, 2011).

Labelling is frequently used to increase transparency (Edler et al., 2012); the most viable labels are those verified by third parties (OECD, 2008). Because information needs to be communicated effectively to avoid overloading consumers, the European Commission suggests limiting the number of indicators used in communicating information, the use of absolute values to ensure transparency or a unique mark or colour logo, while the assessment of products should be possible within a short time (BIO Intelligence Service, 2012).

Some international scale efforts include the Fair-trade label and the Rainforest Alliance Label. The Fair-trade label promotes sustainable consumption by helping consumers identify socially fair and environmentally friendly choices through strict standards (UNESA, 2010; UNEP, 2012).

This paper discusses two cases of eco-labelling in India, namely the Eco-mark label launched in 1991 with the intention of identifying and boosting demand for environment friendly products and the Standards and Labelling Programme, launched in 2006 with the aim to enhance energy efficiency. We explain why the Ecomark label seems to have failed to reach its intended goals,



while the Standards and Labelling Programme seems to be working. Regarding national branding campaigns, we present the recent experience of Primero Ecuador (Ecuador First).

**Government as a generator or co-generator of innovation:** Edler (2016) asserts that the design and deployment of demand-side measures to stimulate innovation is challenging, but can lead to considerable impacts on innovation generation and diffusion. Governments can offer grants, subsidies or other means to facilitate the uptake of innovations. As promoters of innovation, governments pursue diverse objectives, from traditional goals in terms of economic growth, competitiveness and enhanced industrial development, to addressing demands of vulnerable segments of the population (OECD and the World Bank, 2014). Subsidies for innovation can foster the development of manufactured products demanded by specific segments of the population. This paper discusses the case of consumer subsidies introduced by the Chinese government to stimulate demand for locally produced innovative new energy vehicles.

## **4 Demand-driven industrial policy instruments in developing countries**

### **4.1 Government as consumer: the use of strategic public procurement**

Strategic public procurement (SPP) occurs “when the demand for certain technologies, products or services is encouraged to stimulate the market” (Edler and Georghiou, 2007, p. 953). Significant attention is placed on SPP to stimulate emerging industries or to foster the domestic SME scene. As noted in our introductory section, considerable interest in the use of public procurement exists to boost innovation. Examples of SPP as part of industrial- and innovation-driven development efforts range from successful experiences such as Embraer, the Brazilian aircraft manufacturer (Santiago, 2015), China’s auto parts manufacturing industry, stimulated by local content requirements (Rodrik, 2008), or policies on local manufacturing content in Botswana (Ministry of Investment, Trade and Industry Botswana, 2015).

Green public procurement includes national plans for sustainable consumption in Tanzania, South Africa, Ghana, Zambia and Colombia (UNEP, 2012). Examples of green contracts range from energy efficient computers, energy efficient cars and renewable energy electricity to office furniture from sustainable timber, low energy buildings and recycled paper, among others (European Union, 2016). From an inclusiveness perspective, Brazil has implemented public procurement laws through Plano Brasil Maior targeting the domestic pharmaceutical industry to enable universal access to healthcare (Mazzucato and Penna, 2016).

In what follows, we discuss four different case studies. First, we investigate the e-Sri Lanka initiative, which includes the use of SPP to support the development of national production capacities in information and communications technologies. The government enhanced demand for ICT products by placing specific emphasis on fostering the local SME scene. In the second case study, the Governments of South Africa and India sought to increase demand for domestic suppliers of rail rolling stock and locomotives to promote the domestic railway sector through international public procurement conducted by a publicly owned firm. Third, the Dominican Republic represents a case of inclusive public procurement, an attempt to make SPP a tool to enhance women’s empowerment; the government prioritized the purchase of goods produced by women-owned SMEs. Table 2 presents a comparative overview of the three cases of strategic procurement at the domestic level and their main components. Finally, a fourth case study discusses the recent joint purchase of essential medicines by some Latin American countries, tapping into collaboration with the Strategic Fund of the Pan American Health Organization (PAHO) (PAHO, 2017). All these cases show that the government as a consumer can pursue a vast range of targets.

**Table 2 Strategic public procurement in Sri Lanka, South Africa and the Dominican Republic**

Country	Income class	Objective (of strategic intervention)	Local content required	Tenders with special treatment for		Component to facilitate participation in public tenders
				SMEs	Gender	
<b>Sri Lanka</b>	Lower middle-income	Development of national production capacities in the ICT industry	✓	✓		Local SME support programmes
<b>South Africa</b>	Upper middle-income	Fostering the railway industry - rail rolling stock	✓			Competitive Supplier Development Programme
<b>Dominican Republic</b>		Women empowerment through procurement of products from women-owned SMEs	✓	✓	✓	MSME support programmes

Source: Authors.

#### **4.1.1 Support for the development of the ICT industry in Sri Lanka**

The e-Sri Lanka initiative is a US\$ 32 million programme established in 2003, with the World Bank as the primary donor, featuring public procurement as a key policy instrument (UNCTAD, 2013). Through this initiative, the Sri Lankan government has supported the development of the production capacity in information and communications technology (ICT) services, which is a very important domestic industry.<sup>4</sup> To achieve the intended goals, the government introduced various “e-laws” to create an enabling legal environment for using electronic data and documents for official and personal purposes and for carrying out electronic transactions (UNCTAD, 2013) (Information and Communication Technology Agency of Sri Lanka).

- *Electronic Transactions Act No. 19 of 2006*: supports the use of ICT in the government and the establishment of e-government services. The objectives of the act are as follows:
  - To facilitate domestic and international e-commerce by eliminating legal barriers and establishing legal certainty;
  - To encourage the use of reliable forms of e-commerce;
  - To facilitate electronic filing of documents with the government and to promote efficient delivery of government services by means of reliable forms of electronic communications; and
  - To promote public confidence in the authenticity, integrity and reliability of data exchanges and electronic communications.
- *The Computer Crimes Act No. 24 of 2007*: introduced to identify computer crimes; it stipulates the procedure of the investigation and enforcement of such crimes.
- *Data protection rules*: the government has implemented a policy based on the adoption of a Data Protection Code of Practice, which targets the private sector.

*Intellectual Property Act No. 36 of 2003* (IP Act) replaced the Code of Intellectual Property Act No. 52 of 1979, with updates in the fields of protection of software, trade secrets and integrated circuits (Information and Communication Technology Agency of Sri Lanka).

The Information and Communication Technology Agency of Sri Lanka (ICTA) is responsible for implementing the Government’s Policy and Action Plan in relation to ICT as mandated by

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<sup>4</sup> The IT services industry in Sri Lanka has already reached a fair level of development, including various exporters, with qualified technical staff and sufficient trust and recognition of local and international players. The industry can use a wider range of strategies and tools for public contracting (UNCTAD, 2013).

the Information and Communication Technology Act No. 27 of 2003 (ICT Act). ICTA is required to assist the Cabinet of Ministers in the formulation of the National Policy on ICT. The agency is overseen by the Ministry of Telecommunication and Digital Infrastructure and an Inter-Ministerial Committee (Information and Communication Technology Agency of Sri Lanka).

In addition to an enhanced regulatory environment, the use of public procurement became a strategic component of the e-Sri Lanka initiative, including the procurement of software and hardware (eTenders Sri Lanka 2017). The government emphasizes local content promotion and best practice related to contracting and preferential treatment with the intention of increasing the participation of domestic firms in public IT tenders (UNCTAD, 2013). The Sri Lankan experience shows that SPP is a complex tool that requires a sufficient base of capacity, both in the public and the private sector, as well as best practice in contracting. Clear priority setting, based on rigorous evidence, contributes to the effectiveness of the intervention in developing domestic production capacities (Table 3).

A positive ingredient of the e-Sri Lanka initiative was its commitment to leverage opportunities within the framework of international competitive tenders to give preferential treatment to domestic enterprises – these are awarded positive points, up to 15 per cent, in line with World Bank rules during the evaluation of bids. This practice has encouraged joint ventures between local and international enterprises which, over time, have facilitated knowledge transfer and technological learning by local firms. Similarly, based on World Bank guidelines relating to tenders, the Sri Lanka government organized activities to raise awareness and build capacity among local enterprises to promote their participation in public tenders. Box 1 summarizes the lessons learnt and the preconditions that make public procurement work and foster domestic production capacities, drawn from Sri Lanka's experience.

**Table 3 Policy objectives and intended outcomes of the e-Sri Lanka initiative**

<b>Policy objective</b>	<ul style="list-style-type: none"> <li>• To create a regulatory environment supportive of ICT transformation and ICT-based development;</li> <li>• To develop ICT leadership and capacity;</li> <li>• To communicate these initiatives and policies to the wider stakeholder audience.</li> </ul>
<b>Intended outcomes</b>	<ul style="list-style-type: none"> <li>• Promote a more effective, citizen-centred and business-friendly government;</li> <li>• Empower the rural poor, disadvantaged groups, women and youth through increased and affordable access to ICTs;</li> <li>• Developed leadership and skills in ICT;</li> <li>• Enhance employment in the ICT and IT-enabled services (ITES) industry;</li> <li>• Enhanced competitiveness of user industries and services.</li> </ul>
<b>Process/ How?</b>	<ul style="list-style-type: none"> <li>• The government has introduced various “e-laws” to create an enabling legal environment for using electronic data, documents and electronic transactions;</li> <li>• The Information Communication and Technology Agency (ICTA), set up in 2003, assumed responsibility to implement the government’s Policy and Action Plan in relation to ICT;</li> <li>• Surveys and publications on the ICT industry and its workforce were published;</li> <li>• The government maintains formal and informal relationships with various associations within the industry;</li> <li>• Public procurement as a strategic tool together with local content promotion and learning from international best practice.</li> </ul>
<b>Public procurement</b>	<ul style="list-style-type: none"> <li>• Adoption of an assessment mechanism of local IT service firms, their capacities and the degree of coordination between them;</li> <li>• Promotion of best practice in terms of contracting: ICTA tenders build on the World Bank’s contracting procedures;</li> <li>• Local content promotion: preferential treatment for local firms;</li> <li>• Local SME support: ICTA has adopted clear standards for interoperability (modules are smaller and specialized in one area (human resources or finance), which makes it easier for local SMEs to participate);</li> <li>• Awareness raising and capacity building to ensure participation of local firms in public tenders: ICTA organizes training workshops based on World Bank guidelines relating to tenders.</li> </ul>
<b>Outcomes and lessons learned</b>	<ul style="list-style-type: none"> <li>• About 40 per cent of the initial e-Sri Lanka budget (~US\$ 32 million) was disbursed to procure IT services and IT equipment (UNCTAD, 2013);</li> <li>• Of a sample of 13 large-scale e-services contracted by ICTA, only one of these did not include a local enterprise in the winning bid;</li> <li>• ICTA has increased opportunities for local SMEs to participate in public procurement by creating a framework for transparent and competitive tender procedures, capacity building and awareness raising;</li> <li>• ICTA needs to improve its communication strategy to enhance awareness among stakeholders and beneficiaries of ICT; the improvement of monitoring and evaluation systems is crucial for ICTA.</li> </ul>

*Source:* Authors based on Information and Communication Technology Agency of Sri Lanka (2017), UNCTAD (2013), Shoban (2006), Government of Sri Lanka (2013), and eTenders Sri Lanka (2017).

**Box 1 Lessons and preconditions for making public procurement work and foster national production capacities**

- Establish best practice in procurement across the entire contracting process;
- Meet basic conditions: a public procurement policy consistent with firm development policy requires a critical mass of public procurement projects and good knowledge of domestic capacity;
- Provide special and preferential treatment to local providers without compromising the quality of contracted goods or services;
- Design tenders in ways that increase opportunities of local SMEs to participate (for instance, allow room for smaller tenders or establish certain mechanisms that ensure participation of these firms);
- Build capacity among local SMEs to facilitate their participation in public procurement;
- Promote awareness raising and dissemination of information among local firms;
- Ensure information and capacity building among relevant public authorities to raise awareness of the importance of public procurement to enhance innovation;
- Enhance both the institutional framework and the leading agency responsible to implement public procurement.

*Source:* UNCTAD (2013).

**4.1.2 Strategic public procurement targeting the railway industries in South Africa and India: competitiveness and environmental sustainability considerations**

This section presents two cases of strategic public procurement. The first one on the railway industry in South Africa illustrates the use of SPP in supporting the development of an industry with significant potential for the country. The second case on the introduction of energy efficient lighting technologies in the railway in India documents how SPP can be implemented to address some concerns on environmental sustainability. This is made possible given the existence of alternative lighting technologies in the market.

***Railway locomotives in South Africa***

The first case study discussed in this section refers to a recent initiative to use SPP to underpin the development of South Africa's segment of railway locomotives. The main goals pursued by the government were economic, namely to boost competitiveness and the mobilization of domestic productive capacities. This was in line with South Africa's National Development Plan, which proposed developing a more competitive and diversified economy with an increased sophistication of South African exports and stronger domestic linkages; the Industrial Policy Action Plan (IPAP) is considered a pillar for radical transformation and inclusive economic growth (DTI, 2017). The strategy to foster the domestic manufacturing sector included the identification of *key* or *spillover* industries, defined as those with sufficient

domestic demand and export potential; the rail rolling stock manufacturing industry was one of the selected key industries (DTI, 2017; Strachan, 2017). Together with supply-driven interventions such as export credits, the promotion of special economic zones, technology transfer and R&D incentives, the government pursued SPP and local content requirements.

With regard to public procurement, the South African government has developed various tools, including the Competitive Supplier Development Programme (CSDP), which requires global Original Equipment Manufacturers (OEMs) to observe local content requirements and supplier development commitments in bids. Local content rules have been defined within the Preferential Procurement Policy Framework Act (PPPFA) introduced in December 2011 by the Department of Trade and Industry (DTI) with very high local content requirements per industry. For instance, for rail signalling and rolling stock, the minimum threshold for local content is 65 per cent, while for steel products and components for construction the requirement is 100 per cent. To ensure compliance, local content requirements are an integral component of annual audit processes (DTI, 2017; Strachan, 2017). In 2016, DTI stated that government purchasing power through public procurement contributed between 15 per cent and 25 per cent in total towards GDP (Crompton et al., 2016).

### ***The largest locomotive procurement operation in South Africa***

The largest public procurement process took place in the South African railway industry in 2014, with a value of about R50 billion. The process was conducted by the state-owned company Transnet which submitted to a public tender for the procurement of 1064 locomotives, including electric and diesel locomotives. The bid intended to enhance the local rail rolling stock manufacturing capacities and address the country's long-term economic growth objectives.

Contracts were awarded to four global OEMs namely, CSR Zhuzhou Electric Locomotive, Bombardier Transportation South Africa, General Electric South Africa and CNR Rolling Stock South Africa. Of the total 1064 locomotives, all with the exception of 66<sup>5</sup> were expected to be built in South Africa at the Transnet Engineering facilities<sup>6</sup> in Koedoespoort, Pretoria and Durban. This decision responded to the strong local content restrictions and the skills development and training commitments under the CSDP (Transnet, 2014). Of the 994 locomotives to be assembled in Transnet Engineering facilities, the company took over approximately 16 per cent of the total building programme, while around one-third of this 16

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<sup>5</sup> Of the 66 locomotives to be fully built and imported from abroad, 60 were from China and 6 from the US.

<sup>6</sup> Transnet Engineering is the engineering, manufacturing and rolling stock maintenance division of Transnet (Transnet, 2014).

per cent was subcontracted to domestic emerging engineering and manufacturing firms. In terms of local content, the minimum requirement for rolling stock, namely 60 per cent for electric locomotives and 55 per cent for diesel locomotives, were met (Transnet, 2014; DTI, 2017).

### ***Implications for the domestic railway industry***

It is too early to draw definite conclusions from the recent efforts to promote the development of the railway industry in South Africa. However, according to Crompton et al. (2016), there is some evidence of positive results associated with public procurement, particularly because some domestic suppliers and export markets have begun to diversify. Some OEMs have brought higher value added activities into the country through FDI in areas such as propulsion equipment and engines, as well as employment and skill benefits. Enhanced cooperation and assistance has improved manufacturing capabilities, especially in product quality, health, safety and environmental issues, but only weak results have been in technology transfer and skills. Crompton et al. (2016) report that domestic suppliers have upgraded manufacturing processes, while additional investments have been made in machinery, skills, quality controls and new products.

According to DTI, investment has been secured and industry capacity and capabilities have been scaled up in the railway industry. A rebuilding process of South Africa's domestic rail production capacity is ongoing, fuelling aspirations for the country to become a regional rail production hub. The CSDP has helped develop the capabilities of local manufacturers to enable them to supply key sub-components as required by Transnet (DTI, 2017).

Despite these positive signals, constraints remain, with South African producers still facing difficulties to meet international quality standards for certification, thus limiting their integration in global supply chains. DTI expects to identify and support those local suppliers and components that are ready to be integrated into global OEM supply chains (DTI, 2017). This way forward is considered crucial for strengthening domestic manufacturers and reducing the high dependence of the South African railway locomotive and rolling stock industries on the performance of state-owned firms (Crompton et al., 2016). The process will not be easy, as local component manufacturers currently face excess capacity and limited resources to keep companies afloat; DTI highlights the need to consolidate existing capacity and create a robust supply chain based on economies of scale and scope (DTI, 2017).



### *Introduction of energy efficient technologies in India's railway industry<sup>7</sup>*

While no specific law governs public procurement in India, the General Financial Rules issued by the Ministry of Finance set some basic principles to carry out efficient, fair, equitable and competition-based public procurement. Environmental and social criteria are not included in current guidelines, yet the Indian government has started experimenting with the use of public procurement to address growing awareness and concerns about environmental and social goals in the country. This section discusses the procurement of more energy efficient lighting solutions by the Indian Ministry of Railways based on the General Financial Rules and other pertinent Ministry guidelines.

According to its Vision 2020, Indian Railways plans to conserve energy by achieving 15 per cent energy efficiency using a low carbon, energy-efficient approach. One challenge the company faces is that many of its employees reside in railway colonies. Most of these households meet their lighting needs through energy inefficient incandescent lamps (ICLs). Initiatives to introduce more energy-efficient lighting solutions is cumbersome, given low consumer awareness about such alternative products, the quality or poor availability of such products in rural markets; moreover, the use of alternative products, such as compact fluorescent lamps (CFLs), imply high upfront costs for consumers.

In 2008, Indian Railways introduced an initiative to reduce the peak lighting loads in the company's residential quarters by replacing ICLs with energy-efficient CFLs. The life cycle costing methodology was used to demonstrate the potential benefits of this replacement of lighting technology, even though the upfront purchase price in India of a CFL exceeds that of an ICL by about five or six times. The initiative was intended as a multiple stakeholder approach so they could experience the benefits of adopting more energy-efficient products and services first-hand. A secondary objective was to demonstrate the use of the Clean Development Mechanism to finance an energy-efficiency project in an emerging economy such as India. By registering the contract with the United Nations Framework Convention on Climate Change (UNFCCC), the winner of the bid would be able to sell certified emission reductions and recover the cost of distributing up to 4 CFLs to 400,000 households across Indian Railway colonies.

The tender conditions required high-quality certified emission reductions based on the Indian Standard IS: 15111, with 10,000 burning hours. Following an international tender launched in June 2008, a contract was awarded to CQC Malaysia Ltd on 30 October 2009. This company

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<sup>7</sup> This case is a summary of a submission from the Indian government according to the OECD (2014).

assumed responsibility to procure high-quality CFLs and to supply them to designated points determined by Indian Railway. The agreement required CQC to meet all requirements for the project to obtain the Clean Development Mechanism status, and to recover the cost of the CFLs through trading certified emission reductions – including the transfer of 3 per cent certified emission reductions to Indian Railways. The Ministry of Railways, as the project beneficiary, assumed responsibility for the distribution and handling of CFLs in Indian Railway’s housing colonies “on a replacement basis, recordkeeping, storage of the CFLs and disposal at the end of their life as well as the safekeeping of released ICLs until verification” (OECD 2014:11).

The project stakeholders included Indian Railways’ employees residing in the housing colonies, Philips India as the supplier of the lamps, Indian Railways’ employees participating in the project and domestic NGOs. CQC conducted capacity building activities for supervisory staff involved in the distribution of CFLs. Final consumers were briefed on the project during stakeholder meetings; to maximize benefits, consumers were asked to install the CFLs in areas of maximum usage where average lighting was a minimum of 3.5 hours per day. Some key milestones for the project include:

- Project kick-off: 10 July 2009 – signing of the master purchasing agreement by CQC-Philips India.
- Distribution of 1.41 million CFLs across India completed in December 2009.
- Registration as a Clean Development Mechanism project in November 2010.

### ***Outcomes***

Table 4 presents a summary of outcomes associated with the project.

**Table 4 Outcomes associated with the procurement of energy-efficient lighting by Indian Railways**

Type of benefit	Description
Economic	<ul style="list-style-type: none"> <li>• Direct energy savings: 112,500 MWh per annum;</li> <li>• Expected to generate 486,130 units of certified emission reductions equivalent, including a 3 per cent share to Indian Railways.</li> </ul>
Social	<ul style="list-style-type: none"> <li>• 400,831 households directly benefitted as recipients of free CFLs;</li> <li>• Disposal or recycling of the ICLs and CFLs expected to boost recycling activities, which would create additional employment and income.</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Reduced energy consumption by approximately 75 KWh per CFL per annum;</li> <li>• Reduction by ~90,000 tonnes of CO<sub>2</sub> emissions (certified emission reductions equivalent) per year;</li> <li>• Expected positive spillovers on power supply available for agricultural, domestic, industrial and commercial users;</li> <li>• Awareness raised about the benefits of the use of more energy-efficient lighting technologies.</li> </ul>

*Source:* Authors based on OECD (2014).

#### ***4.1.3 Empowering women-owned SMEs in the Dominican Republic***

From an inclusiveness perspective, some ongoing innovative efforts in Latin American and African countries involve the adoption of a gender angle in national legislation governing procurement policies, with preferential support targeting women-owned businesses (Box 2). We discuss the case of the Dominican Republic more extensively, as it has been in place the longest.

In 2008, the Dominican Republic introduced a special public procurement policy that focused on women empowerment, Law 488-08 (2008), in line with national gender policy. The government has committed itself to allocating 20 per cent of public procurement to support women-owned MSMEs (Casier et al. 2015; Ministerio de la Mujer de la República Dominicana, 2007); women need to represent more than 50 per cent of shareholders or social capital (Congreso Nacional, 2008). In parallel, the government runs support programmes to facilitate MSME participation in public tenders (Compras Dominicana, 2012).

**Box 2 National legislation authorizing preferential procurement policies for women-owned businesses in Latin America and Africa**

In Latin America, Guatemala, Dominica, the Dominican Republic and Ecuador have implemented strategies to promote the procurement of goods and services from women-owned businesses. Nevertheless, only Ecuador's Guide for Good Practice in Public Procurement for the Development of Ecuador 2015 makes special reference to women-owned businesses and gender equity. The Guide states that the National Service of Public Procurement in Ecuador must promote the participation of women in all possible areas and facilitate gender equality.

Only in Zambia<sup>i</sup> is the promotion of women-owned enterprises explicitly mentioned. In Kenya<sup>ii</sup>, Namibia<sup>iii</sup> and South Africa<sup>iv</sup>, the public procurement acts include women-owned enterprises in categories such as “disadvantaged groups”, “social, economic or educational imbalances in a democratic society”, “protection or advancement of persons” or “categories of persons, disadvantaged by unfair discrimination” and “economic empowerment of all black people (including women)”.

*Notes:* i. The Public Procurement Act, Act No. 12 of 2008, s. 63(2), ii. Public Procurement and Disposal Act 2005, s. 39(4), iii. Tender Board of Namibia Act, Act No. 16 of 1996, s. 15(5), iv. Constitution of the Republic of South Africa, Act No. 108 of 1996, s. 217 and Broad-Based Black Economic Empowerment Amendment Act, Act No. 46 of 2013.

*Source:* Authors based on ITC (2014), SNCPE (2015) and OECD (2016).

Some evidence suggests that in 2014 alone, this public procurement programme helped increase the participation of women in public procurement by 15 per cent (Casier et al., 2015). In 2015, women-owned businesses received 19 per cent of total public procurement in contracts (Dirección General Contrataciones Públicas Republica Dominicana, 2015). An impact analysis conducted by Escuder (2016) reveals that of 408 interviewed MSMEs, 28 per cent were female-owned, but that they still show a lower probability of participating in tenders and winning them. Nevertheless, the study also showed that a significantly increasing number of women-owned MSMEs has benefitted from public procurement since 2012. According to data from the General Directorate of Public Contracting, the average number of monthly contracted female-owned MSMEs by the public sector nearly doubled, from 287 in 2013 to 551 in 2015. Furthermore, in 2013, for every woman who concluded a contract, 14 men signed one, whereas in 2015, for every woman that signed a contract, ten men concluded one. Women-owned MSMEs also showed increased interest in participating in national tenders (Escuder, 2016). Box 3 presents various policy recommendations to enhance the participation of women-owned businesses in tender processes and to enhance women's empowerment through public procurement.

**Box 3 Recommendations on how to increase women-owned business participation in public tenders**

- *Increase access to information about public procurement opportunities to women-owned businesses*, for instance, via web portals, electronic gateways, women's business organizations and other associations that support female entrepreneurs, etc.;
- *Standardize and simplify tender processes*: public procurement contracts are often complex, burdensome and costly. Women-owned businesses are often disadvantaged because of their lack of experience and fewer resources than other businesses;
- *Rationalize requirements*: pre-qualification requirements may represent barriers to participation in tenders; streamlining and standardizing processes require special consideration; teaming arrangements (e.g. joint ventures, partnerships, etc.) could enhance the possibility of meeting the requirements;
- *Implement specialized agencies for assessing the performance and capabilities of businesses and their qualification of competitiveness in tenders*;
- *Limit contract size*: not bundling multiple requirements in one large contract may help increase the possibilities of small women-owned businesses;
- *Provide sufficient time for tenders*: allowing sufficient time for businesses to prepare for tenders may support women-owned businesses to plan and prepare for upcoming tenders.

Source: ITC (2014).

**4.1.4 International policy coordination to improve access to medicines: pooled procurement in Latin America**

To mitigate the rising trend in health expenditures, OECD countries have actively pursued pharmaceutical cost-containment policies since 2008, including pricing policies, reimbursement policies and policies to exploit the potential of off-patent drugs (OECD, 2015).<sup>8</sup> Based on a comprehensive review of pricing and purchasing policies in low- and middle-income countries, Nguyen et al. (2015) conclude that very little evidence exists that inform strategies to improve medicine affordability and availability in those countries. The authors point out the difficulties in implementing either purchasing or pricing policies at national level, while highlighting some

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<sup>8</sup> According to the OECD (2015), one in every five dollars of expenditure on health goes for medicines; in 2013 alone, OECD countries spent around US\$ 515 per person on average on retail pharmaceuticals. The share of private expenditure in the total purchase value of medicines, i.e. out-of-pocket or private health insurance, amounted to 43 per cent for OECD countries. Comprehensive figures for developing countries are difficult to come by, but the situation is not less dramatic. Nguyen et al. (2017), for example, report that the cost of medicines in Viet Nam can exceed international reference prices by 47 times for originator brands, while the difference relative to generic equivalents in the public sector can be up to 11 times higher.

challenges around policy coordination at the regional and international levels, for example, using international price benchmarking. They also recommend developing countries to bolster their economic power relative to other players in the market by enhancing their position as “dominant monopsony purchaser” (DMP) (Nguyen et al., 2015, p. 275). One way to enhance the DMP position is through pooled procurement, a form of cooperation between buyers, which consolidates purchasing power; the actual modality of this ‘buyer’s cartel’ depends on the degree of cooperation between participants.<sup>9</sup> Two examples from Latin America illustrate how pooled procurement can work within an inter-regional context. The first example is the collaboration established between the Pan-American Health Organization (PAHO) and Mercosur member countries; the second the collaboration between the Council of Health Ministers of Central America and the Dominican Republic (COMISCA). In both cases, participant countries collectively engaged multinational pharmaceutical firms to negotiate better prices for the procurement of innovative essential pharmaceutical products.

### *The case of PAHO-Mercosur*

PAHO has a long tradition of operating as a procurement agent through annual activities with suppliers of vaccines and syringes on behalf of participating member states and institutions following the completion of a bidding process (PAHO, 2011). The mechanism that allows PAHO to fulfil its mandate is the PAHO Revolving Fund authorized by Resolution CD25.R27 of the 25th Meeting of the Directing Council (1977) (PAHO, 2011).

Building on PAHO’s Revolving Fund mechanism, the ministers of health of the six Mercosur countries, Argentina, Bolivia, Brazil, Paraguay, Uruguay, Venezuela, and four associate countries (Chile, Peru, Colombia and Ecuador), successfully negotiated lower prices in 2015 for the purchase of HIV/AIDS and hepatitis C treatments. In the case of HIV/AIDS, the average price reductions amounted up to 83 per cent. The price for the drug Darunavir (Janssen Pharmaceuticals, Inc.), used in eight countries, was set at US\$ 1.26 per unit, which is a reduction of 135 per cent relative to the previous US\$ 2.98 per unit price, using Brazil as a reference market. It is estimated that the participating countries, namely Argentina, Brazil, Paraguay, Peru, Uruguay and Surinam, will accumulate collective savings of about US\$ 20 million; Brazil alone would save US\$ 14.2 million (Ministerio de Salud, 2015; Agência Saúde,

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<sup>9</sup> According to Nguyen et al. (2015, p. 275), there are four possible models for conducting pooled procurement: (1) highest level: “purchasing is conducted collectively by ‘one procurement office on behalf of a group of facilities, health systems or countries’ and ‘group members agree to purchase certain drugs exclusively through the group’ as in a central contracting and procurement model”; (2) Lower levels: purchasing is undertaken individually; (3) Buyers only share information on prices and suppliers; (4) Buyers negotiate prices collectively, select suppliers and agree to procure from those selected suppliers.

2015). Positive spillovers can be expected as the price negotiated by Mercosur members is available to any PAHO member state that participates in the Strategic Fund (Mitchell, 2015).

For the hepatitis C treatment, negotiations were held on three drugs, Sofosbuvir, Daclastavir and Simeprevir (Agência Saúde, 2015). Sofosbuvir (Gilead Sciences, Inc.) is an interesting case as it increases the chance of recovery in about 90 per cent of the cases. The agreement settled on a price equivalent to the lowest current price in the region (Brazil) at US\$ 81.85/unit (Mitchell, 2015). This meant a significant gain relative to the US wholesale price of US\$ 1,000/unit (Rodrigues, 2017). Both Sofosbuvir and Darunavir are part of the WHO's list of essential medicines.

Mercosur member states and associate countries aim to continue collaborating and pool procurement programmes to attain price reductions for about 40 pharmaceutical products with a high incidence in the health budgets, for example, for cancer drugs. From an industrial development perspective, the existence of the PAHO Revolving Fund provides opportunities for Latin American pharmaceutical firms to expand the market for their products (Ministerio de Salud, 2015).

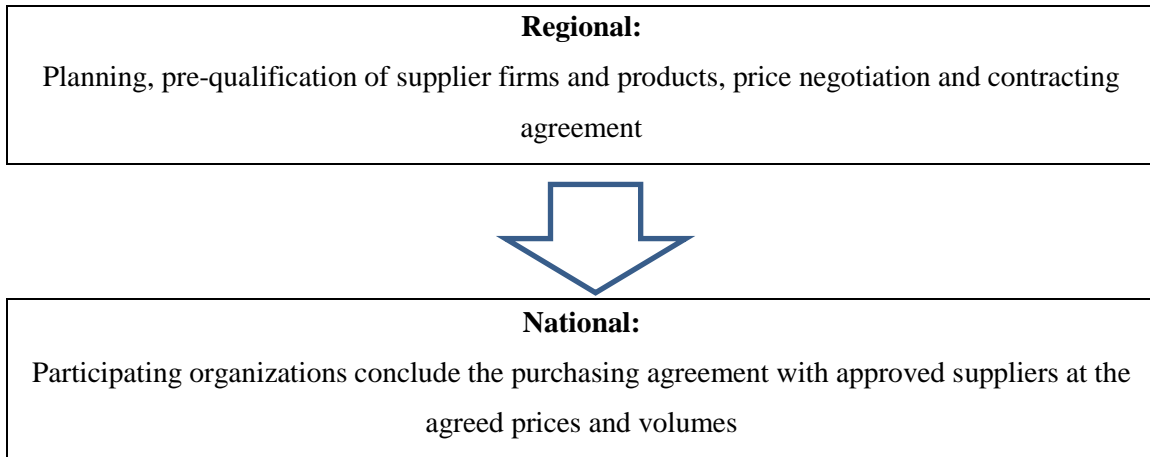
### ***The case of COMISCA***

The Central American Integration System (SICA) is the institutional framework of regional integration in Central America, established in 1991 by Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama; Belize and the Dominican Republic joined later in 2013 (SICA, 2017). Within this regional framework, the Consejo de Ministros de Salud de Centroamérica y República Dominicana (Ministries of Health of the Member States, COMISCA) implemented the Negociación Conjunta y Compra de Medicamentos (Negociación Conjunta COMISCA – NC-COMISCA), which is a pooled procurement mechanism promoting access to quality and to safe and effective medicines at a unified price for the region; this price is lower than what each member state would obtain by negotiating the price on an individual basis.

International agencies including PAHO, the Spanish Agency for International Development (AECID) and the Inter-American Development Bank (IDB) provide technical and financial support to NC-COMISCA. The latter seeks to contribute to the achievement of sustainable development goal (SDG) 3 on access to essential medicines. The mechanism operates based on a model in which buyers negotiate prices collectively, select suppliers and agree to procure from those selected suppliers –contracts are granted when the price offered by the supplier is

acceptable to at least three of the participating countries; the operation is concluded at the national level (Figure 2). SICA guarantees the agreements concluded with pharmaceutical firms.

**Figure 2**      **Operating mechanism of the NC-COMISCA**

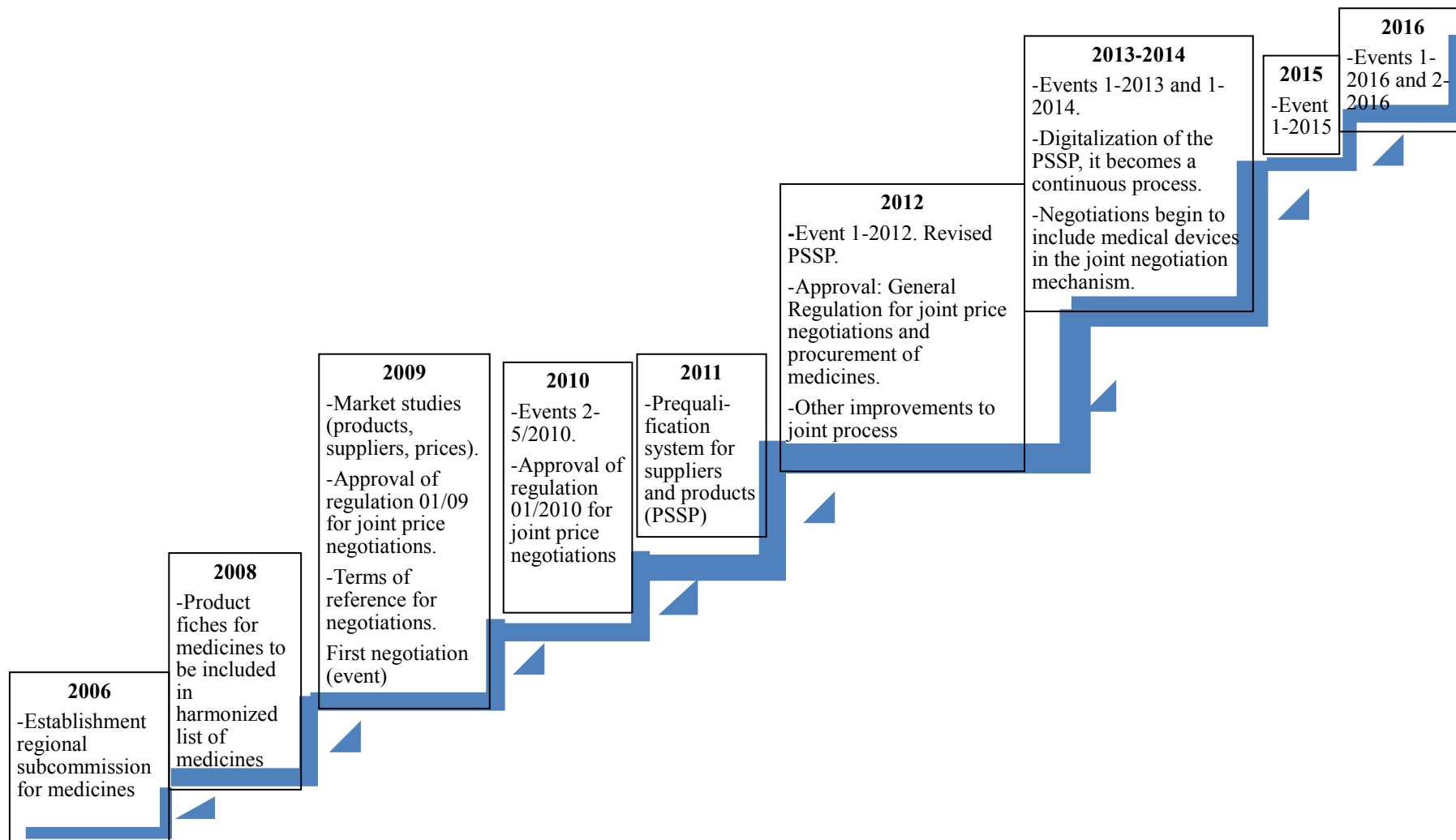


*Source:* Authors.

The establishment of the NC-COMISCA involved a preparatory phase between 2009 and 2014, including the definition of a common regional pharmaceutical policy endorsing the need for price contention mechanisms for the acquisition of pharmaceutical products by member states (Figure 3). This process was followed by determining which products were to be subject to pooled procurement, and the study of the market conditions around those products (suppliers, prices, qualities). The negotiation of contracts with pharmaceutical firms began in 2009.



**Figure 3** Milestones in the development of the NC-COMISCA



Source: Authors based on COMISCA (2017) and COMISCA and SICA (2014).

### ***Outcomes***

To date, a total of nine negotiations have taken place through NC-COMISCA. It is estimated that up to 2016, price reductions had resulted in savings of around US\$ 38.8 million for the participating countries (COMISCA and SICA, 2014). Two negotiations took place in 2016, which are expected to further increase these savings. At the country level, the total savings may be even more significant, as price reductions are in the order of 1,032 per cent (COMISCA and SICA, 2014).

**Table 5** Estimated savings for individual countries participating in the NC-COMISCA 2012-2014

Country	Savings (US\$ million)
Costa Rica	10.9
El Salvador	6.5
Nicaragua	4.2
Dominican Republic	2.5
Honduras	1.5
Guatemala	0.4
Panama	0.2
Total	~25.9

*Source:* COMISCA and SICA (2014).

### **4.2 Government as regulator of non-financial measures: regulatory reform of the pharmaceutical market in Mexico**

Nguyen et al. (2015) assert that because of the large share of private expenditure in total pharmaceutical expenditure in low- and middle-income countries, the balance of power shifted in such a way that governments have transformed from being the dominant purchaser to becoming weak regulators. Their weakened position is exacerbated by the fact that proper regulations to regulate the pharmaceutical market are missing in many of these countries, or even if the institutional setting is solid, there is a low capacity to enforce and implement them. The authors conclude that “[s]trengthening and enforcing the legal systems, including pharmaceutical sector regulation, competition and anti-corruption law to create a level playing

field to ensure a healthy competitive generic market, together with policies that align pro-generic medicine incentives for prescribers, dispensers and patients may be the way forward in low- and middle-income countries.” (Nguyen et al. 2015, p. 267).

The following section describes some of the efforts undertaken by the Mexican government to strengthen its position and its capacity to guide the dynamics of competition in the domestic pharmaceutical market, while achieving progress in improving access to high quality affordable medicines for the population.

Mexico is the second largest pharmaceutical market in Latin America behind Brazil, and it is one of the 15 most dynamic global pharmaceutical markets worldwide (Santiago, 2010). Like many other countries, Mexican health authorities face the challenge of keeping health expenditure, particularly for medicines, in check, while ensuring adequate provision of healthcare services at the highest standards of quality. The domestic market for pharmaceuticals is generally structured in two well-defined segments: first, the “institutional” or public sector market, dominated by demand for mostly generic and technologically mature products; and second, the private market, dominated by commercial trademarks and innovative products. In terms of volume, unit sales favour the public sector; in terms of value, the private sector is far more important (Santiago, 2010).

The marketing of pharmaceutical products requires approval by the local regulatory agency, the Federal Commission for the Protection against Sanitary Risk (COFEPRIS). COFEPRIS issues a sanitary registration to certify that pharmaceutical products, including the ingredients and manufacturing processes from beginning to end, meet strict safety, efficacy and quality requirements. According to past regulation, sanitary registrations were valid indefinitely. This eventually gave rise to outdated registrations for products that frequently failed to comply with the most current sanitary and sanitary-related legislation (Santiago, 2010). The regulation was such that firms could hold sanitary registrations for products they no longer sold on the market. More importantly, it allowed a segment of copy drugs with suspected deficiencies in quality and safety to thrive. The regulatory process was extremely slow. By 2011, the backlog in the issuance of sanitary registrations was ~8,000 registrations (COFEPRIS, 2015a).

Due to these regulatory voids, a three-tier drug market has consolidated in Mexico: (1) innovator drugs sold under a commercial brand name, usually at high prices and enjoying patent protection; (2) interchangeable generic (IG) drugs with bioavailability and bioequivalence tests that certify equal performance relative to innovator drugs<sup>10</sup>; and (3) Similares (copy drugs) that contain the same active pharmaceutical ingredient as innovator products, but that fail to certify bioequivalence and bioavailability tests.

To overcome some of the observed regulatory challenges, the Mexican health authorities have introduced a series of regulatory reforms since 1998, intended to boost the development of the segment of IG drugs (Box 4) and establish a mechanism to promote the manufacturing of cheaper, high-quality and safe products (Secretaría de Salud, 2016). Some core components of the new strategy include:

- Adoption of stricter quality requirements for drugs manufactured and marketed in the country, with emphasis on supporting the generic drugs segment;
- Creation of independent laboratories, Terceros autorizados, mandated to perform the interchangeability tests required to obtain an IG denomination (Secretaría de Salud, 2016);
- The strategy addressed both public demand for drugs and private consumption while tapping into the dynamics of the then-emerging but rapidly growing market for IGs (Santiago, 2010).
  - Public demand: changes in procurement practices<sup>11</sup> and the granting to government of an increased ability to enter more advantageous negotiations with drug manufacturers, particularly for innovator drugs.
  - Private demand: patients were empowered to make more informed choices on the kind of drugs they buy. Medical doctors were required to prescribe medications based on active pharmaceutical ingredients, allowing patients to choose between distinct brands while enhancing quality through a better performing IG market (Santiago, 2010; Sánchez y Tépoz and Francisco Javier).

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<sup>10</sup> Interchangeable generic denomination indicates that the reaction to a generic drug in the human body is exactly the same as that of an innovator drug. This is certified by specific bioequivalence and bioavailability tests.

<sup>11</sup> The regulation governing public procurement considers specific rules for the acquisition of medicines, involving a complex coordination mechanism between various ministries. For a more detailed discussion, see Chapter III in Hernández et al. (2015).

#### **Box 4 Regulatory reform of Mexico's generic drug market**

1997-1998 – Reform of General Health Bill (GHB) and Associated Regulation: introduction of mandatory requirements for a generic designation of drugs sold and used in the local market; generic designation to appear alongside commercial brand name. Only drugs meeting strict bioavailability and bioequivalence tests could be registered, labelled and sold as IGs. A set of third-party, independent laboratories were created and mandated to conduct the required bioavailability and bioequivalence tests.

1998 – New Official Mexican Norm (NOM-176-SSA1-1998) establishing new requirements for the manufacturing of drugs for human consumption.

1999 – Indication of tests required to demonstrate bioavailability and bioequivalence for IGs.

2005 – Amendments to Article 376 GHB limiting the validity of Sanitary Registration for a 5-year period, renewable for a similar period. The authority can withdraw the Sanitary Registration if the owners fail to revalidate or if the product is modified without previous agreement by the authority. Amendments to Associated Regulation published in 2008. By 2010, all non-patented drugs registered and marketed in Mexico were expected to be IGs, as firms were expected to renovate or ensure regulatory compliance of their product portfolio.

2006 – Adoption of official norm NOM-059-SSA1-2006, considered the world standard in terms of the quality requirements for the manufacturing of drugs for human use.

2008 – Amendment to public procurement of innovator drugs and establishment of the Coordinating Commission for Negotiating the Price of Drugs and other Health Inputs (CCPNM). CCPNM helped primary public health institutions consolidate the procurement of drugs. Prior to 2008, every public institution had to individually negotiate prices with each drug manufacturer. Negotiation as a single entity helped establish a single, lower procurement price applicable nationwide, valid for one year to all public institutions, including those not initially engaged in the negotiation.

2011 – Liberalization of the IG market

*Source:* Authors based on Santiago (2010), Hernández et al. (2015), Secretaría de Salud (1997, 1998), CESOP (2010), Presidencia de la Republica (1998), Gómez-Dantes et al. (2012), Sánchez y Tépoz and Francisco Javier (2017).

#### ***Outcomes and lessons learned***

According to Montiel-Castaneda (2017), three factors have sustained the development of the domestic generics market: expiring patent protection, consumer acceptance and COFEPRIS-enhanced performance. Official data on the structure and performance of the domestic pharmaceutical market are scattered and often not sufficiently up to date. However, the evidence suggests that despite some initial difficulties to ensure uptake by the local industry, the mix of supply- and demand-driven policy instruments deriving from the regulatory reform has had

strong effects on the local pharmaceutical industry. A sharp increase in the penetration of generic drugs has been witnessed. Between 2011 and 2017, a total of 15 packages of generic drugs have been introduced to market, accounting for 37 active pharmaceutical ingredients contained in 491 new generic drug registrations and covering 71 per cent of the most prevalent diseases, namely cardiovascular disease, oncology and diabetes, among others, affecting the Mexican population (Radio Formula, 2017). The share of generics in total pharmaceutical sales increased from 53 per cent to 84 per cent; while in value terms, the share grew from 30 per cent to 52 per cent, a figure that is above those reported by several other OECD member states (OECD, 2017b). On average, price reductions for final consumers amount to around 55.0 per cent (Radio Formula, 2017).

While the amendments alone have not completely reverted increasing pressures on health expenditure, the evidence suggests some positive contributions have been made. The share of pharmaceutical expenditure in total health expenditure in Mexico stood at 27.2 per cent in 2015, a level above the 18.9 per cent observed in 1999 at the beginning of the amendments, but on a downward trend relative to the peak of 35.9 per cent in 2003 (OECD, 2017b). Relative to GDP, expenditure on drugs dropped from 2.1 per cent to 1.6 per cent between 2003 and 2015; similarly, the share of out-of-pocket expenditure in total health care expenditure fell from 51.0 per cent in 1999 to 41.4 per cent in 2015 –with a peak of 55.7 per cent in 2003 (OECD, 2017b).

Regarding public procurement, since the establishment of a new Coordinating Commission for Negotiating the Price of Drugs and other Health Inputs in 2011, the government has made significant savings while increasing the volume of purchases. For example, monthly budgetary allocations have dropped more than 48.5 per cent from MX 894 million (~US\$ 50.3 million) to MX 460 million (~US\$ 25.9 million). By contrast, the monthly volumes purchased have increased from 4.4 million units to 18.4 million units (Radio Formula, 2017).

The initiative of Terceros autorizados has favoured the creation of a new market for quality and testing services, which ensures interchangeable generic designations. The expansion has been tremendous, from about 30 laboratories in 2010 to just over 200 in 2016, including verification units, testing laboratories and units to test interchangeability and bioequivalence (COFEPRIS, 2016; Santiago, 2010). These laboratories have helped to reduce the backlog of sanitary registrations and accelerated decisions on product registration (COFEPRIS, 2015b).

### **4.3 Government as awareness raiser and information provider: the use of voluntary and compulsory labels and national branding campaigns**

Standards and labels—either mandatory or voluntary—can improve awareness of the quality, sustainability, inclusiveness and security of manufactured products among consumers. Examples of voluntary labelling include those for sustainable products and social justice in production. They include the Energy Label from Taipei, China to promote the deployment of energy efficiency technologies, the application of market incentive mechanisms and to encourage manufacturers to invest in research and development of high-energy efficiency products. The voluntary initiative was introduced in 1992 and today the energy label is issued for individual products only, in 28 product categories, including 4,336 products of which 258 are brand names (UNESA, 2010).

Regarding standards, the Mexican government's strategy to pair reductions in residential electricity subsidies in 2002, with plans to support the acquisition of energy efficient refrigerators, air conditioners and insulation for consumers in hot regions is a case in point (UNESA, 2010). The adoption of energy efficiency standards and labels for household appliances helped reduce energy consumption by household appliances in more than 50 per cent thereof (OECD, 2008). In China, the Energy Label mandates the inclusion of information on energy consumption according to five energy efficiency categories for air conditioners, household refrigerators, washing machines and unit air conditioners (UNESA, 2010).

This paper presents two case studies that illustrate the role of government as information provider. First, the adoption of Ecomark and the Standards and Labelling Scheme is an example of eco-labelling in India. Ecomark started as a voluntary label (1991) but has attained very limited results up to today. The Standards and Labelling Scheme was implemented in 2006 and converted into a partially mandatory label for certain product groups and shows more usage than Ecomark. A second case relates to national branding campaigns, a form of intervention that has gained presence in industrial development strategies of developing countries.

#### ***4.3.1 Ecolabelling schemes in India***

India faces tremendous environmental stress resulting from rapid industrialization, unplanned urbanization and changing consumption patterns, as income of the wealthier segments of the Indian population have sustained constant expansion; environmental and health risks are high and continue to rise (CPCBI, 2017). To mitigate environmental degradation, the Indian government has introduced incentives for industrial production to become more environmentally friendly and resource efficient. The government has simultaneously promoted

the adoption of voluntary labels to increase consumer awareness and preference for products that are environmentally sustainable.

Ecolabels seek to stimulate more sustainable consumption by improving the reputation of certain manufactured products with environmental benefits. Ecolabels can serve as benchmarking tools for firms to differentiate themselves from competitors, or as a mechanism to reward innovation and leadership in the marketplace (Shingrup, 2013). Some of these elements are found in Ecomark, a voluntary label introduced by the Indian Ministry of Environment and Forests (MoEF) in 1991 –Gazette Notification No. 71 by MoEF (Madhya Pradesh Pollution Control Board India 2017, CPCBI, 2017). Ecomark is a national accreditation and labelling scheme granted to consumer products that meet certain environmental and quality criteria in accordance with Indian standards (Madhya Pradesh Pollution Control Board India 2017, CPCBI, 2017). It is considered an ISO Type I label (see Box 5). The programme is operated by MoEF<sup>12</sup> and the Central Pollution Control Board (CPCB). The Bureau of Indian Standards (BIS) participates as the administrator of the eco-scheme, assessing and certifying products and drawing up contracts with manufacturing companies that can use the label against a fee<sup>13</sup> (Bureau of Indian Standards, 2017).

**Box 5 Characteristics of an ISO Type I label**

ISO Type I labels (often referred to as “ecolabels”) identify the overall environmental preference of a good or service within a product category based upon lifecycle considerations. In contrast to a self-styled environmental symbol or claim statement developed by a manufacturer or service provider, an ecolabel is awarded by an impartial third party to products that meet environmental leadership criteria. They are multi-criteria and multi-sectoral. Some examples include Blue Angel (Germany), EU Flower (European Union), Ecomark (India) and Nordic Swan (Scandinavian countries).

*Source:* UNEP (n.d.).

<sup>12</sup> MoEF has established two different committees: (i) a steering committee to determine product categories for Ecomark and to formulate strategies to promote and implement planning development and improvements of the scheme and coordination with other ministries and industry; and (ii) a technical committee to specify products and criteria to evaluate the environmental impact of products (Madhya Pradesh Pollution Control Board India, 2017).

<sup>13</sup> The application fee, the annual license fee and the renewal application fee amounts to RS 1000 per license (Bureau of Indian Standards, 2017).



According to CPCBI (2017), Ecomark pursues the following objectives:

- Provide incentives for manufacturers and importers to reduce environmental impacts of products;
- Reward firms' initiatives to reduce the adverse environmental impact of their products;
- Assist consumers in becoming more environmentally responsible, providing information on consumption decisions that are mindful of the environment;
- Reduce environmentally harmful consumption; and
- Improve the quality of the environment and encourage sustainable management of resources.

Firms interested in an Ecomark designation need to fulfil various criteria, including different environmental and product requirements. For instance, the product should be recyclable and energy and resource efficient and comply with safety, pollution, quality and performance standards, among others (Table 6). The criteria are based on the cradle-to-grave approach, from raw material extraction through manufacturing to disposal (CPCBI).

Ecomark-eligible products include soap and detergents, paper, food items, lubricating oils, packaging materials, architectural paints and power coatings, batteries, electrical and electronic goods, food additives, wood substitutes, cosmetics, aerosol, propellants, plastic products, textiles, fire extinguishers and leather (CPCBI, 2017).

**Table 6** Criteria for obtaining an Ecomark designation

<b>Environmental requirements</b>	<b>General product requirements</b>	<b>Product specific requirements</b>
Substantially less pollution potential than comparable products (production, usage and disposal)	Compliance with pollution control acts	Production process, including resource materials
Recycling possibilities	Raising of environmental awareness among consumers	Use of natural resources
Increased energy efficiency compared to related products	Compliance with safety, quality and performance standards	Impact on the environment
		Energy conservation in the production of the product
		Disposal of the product; utilization of waste and sustainability for recycling or packaging and biodegradability
		Effect and extend of waste arising from the production process

Source: CPCBI (2017).

***Outcomes and lessons learned***

Systematic evaluations on Ecomark remain scarce. However, studies suggest that it has fallen short from meeting the intended objectives (Table 7). In general, awareness of its existence seems low among producers and consumers, while stronger incentives for industry to participate are missing. A significant constraint is the limited purchasing power of Indian consumers.

**Table 7 Impact assessment of Ecomark**

Authors	Comment	Recommendations
Simi (2013) based on Mehta (2007)	<ul style="list-style-type: none"> <li>• Missing awareness of Ecomark among producers and consumers;</li> <li>• Lack of marketing for Ecomark;</li> <li>• Missing incentives for industries to introduce eco-friendly technologies and products;</li> <li>• Too many product categories need to fulfil the general and product-specific requirements (16 product categories with around 132 sub-categories);</li> <li>• Excessive bureaucracy in its implementation;</li> <li>• Too complex and time consuming process of developing product criteria for the grant of an Ecomark license.</li> </ul>	<ul style="list-style-type: none"> <li>• Introduce a new independent board with an advisory structure comprising consumers, environmental and business groups;</li> <li>• Reduction and priority setting for product categories;</li> <li>• Implement more dynamic and forward looking structures and periodic revisions of criteria to motivate industry participation.</li> </ul>
Singh, Raman, and Waghe (2012)	<ul style="list-style-type: none"> <li>• Lack of awareness of Ecomark;</li> <li>• Compliance with BIS’s quality standards as a requirement to apply for Ecomark is cumbersome;</li> <li>• Indian exporters fail to link Ecomark-eligible product categories with India’s major export products;</li> <li>• Need for greater transparency;</li> <li>• Industry fears that ecolabelled products will cost more, shifting consumer preferences to other (unlabelled) products.</li> </ul>	<ul style="list-style-type: none"> <li>• Improve policy concepts, legal requirements and market strategies to promote product stewardship, producer responsibility and minimize waste;</li> <li>• Government should be role model, preferring green products;</li> <li>• Reorient environmental regime, strengthen with expert mechanisms.</li> </ul>
IGES (2017)	<ul style="list-style-type: none"> <li>• Low purchasing power of consumers (driven by necessity rather than the virtue of the products and their quality);</li> <li>• Brand awareness of environmentally friendly products generally low;</li> <li>• Lacking consumer education;</li> <li>• Lacking communication between manufacturers and consumers.</li> </ul>	<ul style="list-style-type: none"> <li>• Eco label schemes need to be combined with effective consumer education;</li> <li>• Communication among stakeholders needs to be fostered.</li> </ul>
EPA (1998)	<ul style="list-style-type: none"> <li>• Cost of Ecomark can increase production costs by 10 per cent. No guaranteed recovery through additional profits;</li> <li>• BIS standards perceived as cumbersome with few immediate benefits;</li> <li>• No industry involvement in product criteria development;</li> <li>• Industry complains Ecomark inhibits innovation;</li> <li>• Lack of consumer awareness of environmentally preferable products;</li> <li>• Fear that Ecomark sends the “wrong message” to consumers: non-Ecomark products are not environmentally safe.</li> </ul>	

Source: Authors.

In contrast with the Ecomark experience, the Ministry of Power implemented a new, voluntary “Standards and Labelling scheme” in 2006, with the aim of helping consumers make informed choices about energy saving and consequently, about cost saving products. The Bureau of Energy Efficiency (BEE) is responsible for promoting and facilitating the adoption of this scheme; the BEE prescribes minimum energy performance standards that are “validated” through labels affixed on the appliance. An additional objective is to strengthen the domestic industry’s competitiveness via energy efficiency norms (Bureau of Energy Efficiency India, 2016). The label has been converted into an obligatory label for 5 product groups and remains voluntary for 16 product groups<sup>14</sup> (Bureau of Energy Efficiency India, 2016).

A study carried out in 2011 documented that five years after the introduction of the Standards and Labelling scheme, one-fifth of respondents partaking in the study was aware of the labelling programme (with higher awareness in urban areas and among recent purchasers of refrigerators and air conditioning appliances). In addition to consumer and sales executive awareness and educational programmes, the new scheme has been accompanied by robust models for monitoring and verification, continuous and strategic media campaigns, public procurement and payback on the purchase of energy efficient appliances (Alvin, 2011).

A comparison of the production of appliances including voluntary or mandatory labels shows that the manufacturing of voluntary label appliances increased between 2011 and 2017, and that the production of mandatory label appliances has decreased. While in 2011/12, approximately 171.6 million appliances with a mandatory label were produced, this figure decreased to 88.1 million appliances in 2016/17. Within that same period, the production of appliances with voluntary labels grew from 1.2 million to about 10.0 million (Bureau of Energy Efficiency India, 2016).

#### ***4.3.2 National branding campaign Primero Ecuador***

Various developing countries seek to foster domestic industries through local content and the promotion of national branding campaigns. Uganda’s BUBU “Buy Uganda - Build Uganda” policy programme, Rwanda’s “Made in Rwanda” programme and South Africa’s “Proudly South African” programme have implemented these policies in Africa, while in India, the “Make in India” strategy to support industrial development includes measures to close the loop

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<sup>14</sup> The mandatory label includes: frost-free (no-frost) refrigerators, tubular florescent lamps, distribution transformers and room air conditioners (cassette, floor standing tower, ceiling, corner AC). The voluntary label includes direct cool refrigerators, colour TVs, electric geysers, induction motors, agricultural pump sets, ceiling fans, LPG stoves, washing machines, laptops, office equipment, ballast, diesel engine driven moonset pumps for agricultural purposes, solid state inverters, diesel generators, variable capacity air conditioners and LED retrofit lamps.

from the demand side. In Latin America, the national brand Primero Ecuador (“Ecuador first”) is a recent example of a targeted national branding campaign (Table 8).

Primero Ecuador, approved in 2009, was introduced by the Ministry of Production Coordination, Employment and Competitiveness (MCPEC) to foster domestic markets and industrial development and to improve competitiveness and the consumption of domestic products. The brand intends to help consumers differentiate between goods produced with national inputs and/or resources from those including inputs from international sources (MCPEC, 2017a). MCPEC is responsible for granting the Primero Ecuador brand (MCPEC, 2017b). Box 6 presents the main objectives of Primero Ecuador.

**Box 6 Key objectives of Primero Ecuador**

- Promote quality national production in line with the Código Orgánico de la Producción (COP) and the national policy plan “Buen Vivir”;
- Raise awareness among the population of the importance and value of Ecuador’s products;
- Foster national production, commerce and socially and environmentally responsible consumption;
- Recognize goods and services that meet COP quality criteria and the standards adopted by the Ecuadorian Institute for Standardization;
- Provide consumer products of high quality and value added;
- Promote consumption of socially, environmentally and economically responsible products.

*Source:* Author based on MCPEC (2017a).

Primero Ecuador is free of charge and reserved for companies located in Ecuador. The license to use the brand is granted for two years. The products need to be of high quality, high local content and produced in a socially and environmentally responsible manner. Brand holder firms can access various benefits including funding, national promotion via commercial agreements with different distribution channels and long-term profitability, among others (MCPEC, 2017a). The most recent industrial development strategy for Ecuador has identified Primero Ecuador as a suitable instrument to promote the consumption of agro-industry products and thereby the development of this industrial segment in the country (MCPEC and MIP, 2016). The campaign will be used to promote specific value chains rather than specific brands, which may be interpreted as acting against international trade rules.

**Table 8 Overview of national brand campaigns to foster local content and the consumption of domestic manufactured products**

	<b>Primero Ecuador</b>	<b>BUBU</b>	<b>Proudly South African</b>	<b>Buy Made in Rwanda</b>	<b>Make in India</b>
Period	2009 onwards	Approved by the Cabinet in 2014, implemented since June 2016	2001 onwards, built on Australian model	In development since 2014	2014 onwards as an online platform
Main Goal:	<ul style="list-style-type: none"> <li>• Foster national markets and industrial development;</li> <li>• Improve competitiveness and consumption of national products.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase consumption of local products through public procurement;</li> <li>• Encouraging private consumers to buy local products and increase the share of local firms in domestic trade.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage South Africans to make personal and organizational contributions to economic growth;</li> <li>• Developmental goal.</li> </ul>	<ul style="list-style-type: none"> <li>• Boost domestic production and stimulate local consumption habits;</li> <li>• Reduce trade deficit;</li> <li>• Promote growth of Rwandan enterprises.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage domestic companies and multinationals to manufacture their products in India to transform India into a global design and manufacturing hub.</li> </ul>
Strategic Objectives:	<ul style="list-style-type: none"> <li>• Promote qualitative national production in line with Ecuador’s national policy and legislative framework;</li> <li>• Foster national production and commerce;</li> <li>• Foster the national consumption of local socially and environmentally responsible goods;</li> <li>• Maintain quality criteria and standards;</li> <li>• Increase awareness of the importance and value of Ecuador’s production.</li> </ul>	<ul style="list-style-type: none"> <li>• Take stock of local producers and improve their productive capacity;</li> <li>• Enhance the quality and competitiveness of local products;</li> <li>• Increase efficiency and participation of local firms in public procurement;</li> <li>• Increase visibility of local products in local outlets;</li> <li>• Increase awareness of the BUBU policy.</li> </ul>	<ul style="list-style-type: none"> <li>• To promote sustainable job creation;</li> <li>• Ensure fair job standards to protect the rights of workers</li> <li>• Improve production and consumption of quality domestically manufactured goods and services;</li> <li>• Ensure environmentally responsible management practices</li> <li>• Engender pride and patriotism</li> <li>• Buy local activism</li> </ul>	<ul style="list-style-type: none"> <li>• To generate off-farm employment by developing manufacturing;</li> <li>• To promote investment in energy, machinery and ICT to expand domestic value chains and improve doing business climate;</li> <li>• To give preference to local manufacturers in public procurement;</li> <li>• To increase awareness and image of products made in Rwanda,</li> <li>• To educate consumers about benefits of buying Rwandan goods and services.</li> </ul>	<ul style="list-style-type: none"> <li>• To strengthen the manufacturing industry and raise awareness of manufacturing in the country and to foster demand for manufacturing by facilitating investment,</li> <li>• To foster innovation, enhance skill development, protect intellectual property and improve manufacturing infrastructure.</li> </ul>

	<b>Primero Ecuador</b>	<b>BUBU</b>	<b>Proudly South African</b>	<b>Buy Made in Rwanda</b>	<b>Make in India</b>
Benefits for Consumers:	<ul style="list-style-type: none"> <li>• Primero Ecuador products guarantee quality and socially and environmentally responsible products.</li> </ul>	Not specified.	Not specified.	<ul style="list-style-type: none"> <li>• Offer good value for price component.</li> </ul>	<ul style="list-style-type: none"> <li>• Various incentives for consumers, particularly related to environmental goods (renewable energy, green buildings, etc.)</li> <li>• Focus on quality improvement of manufacturing goods.</li> </ul>
Benefits for manufacturing industry:	<ul style="list-style-type: none"> <li>• Enhanced local content;</li> <li>• Improved access for licensee companies to funding, national promotion via different distribution channels, long-term profitability, among others.</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced profitability of local producers and suppliers of domestic products;</li> <li>• Stronger competitiveness of local products;</li> <li>• Higher SME growth;</li> <li>• Employment creation.</li> </ul>	<ul style="list-style-type: none"> <li>• Participation from government, business, labour unions and organized communities</li> <li>• At least 50 per cent of the cost of production must be incurred in South Africa, with substantial processing of imported materials.</li> <li>• Adoption of the Local Procurement Accord intended to create 5 million jobs by 2020.</li> </ul>	<ul style="list-style-type: none"> <li>• Rwandan products enjoy preferential treatment under the revised procurement law;</li> <li>• Campaign aims at fostering image of Rwandan manufacturing goods.</li> </ul>	<ul style="list-style-type: none"> <li>• Focuses on 25 manufacturing industries;</li> <li>• Foreign Direct Investment (FDI) equity inflows and highest ever: FDI inflows at US\$ 55.5 billion in 2015-16;</li> <li>• Various industries opened up for investment: i.e. defence, railways, space, etc.;</li> <li>• Six industrial corridors under development. Industrial cities will come up along those corridors;</li> <li>• The platform is also used to discuss current trends and technical issues with dedicated experts;</li> <li>• Public procurement will grant preferences to units in national investment and manufacturing zones;</li> </ul>

Primer Ecuador	BUBU	Proudly South African	Buy Made in Rwanda	Make in India
				<ul style="list-style-type: none"> <li>Public procurement will enhance requirements of local value addition in specific industries (e.g. solar energy equipment, electronic hardware, fuel efficient transport equipment, IT-based security systems, power, roads and highways, railways, aviation and ports).</li> </ul>

*Source:* Author based on Government of India (n.d.), MCPEC (2015, 2017b), Ministry of Trade, Industry and East African Community Affairs Rwanda (2014, 2015), Rwanda Development Board (n.d.) and Sedibe (2012).



### *Outcomes and lessons learned*

Because it is so new, no substantial evidence was found on any concrete outcomes that can be associated with Primero Ecuador. However, data provided by MCPEC suggests a steady increase in the number of firms authorized to use the brand. While in the years 2009 to 2013, 71 companies obtained authorization to use the Primero Ecuador brand, by 2017, 211 companies had obtained such authorization (Figure 4) for some 6,800 certified products, mainly in the food, textile and crafts industries (MCPEC, 2017 and personal communication with Primero Ecuador).

According to MCPEC, a study carried out in Ecuador in 2014 found that 88 per cent of respondents recognized Primero Ecuador. The level of confidence in the brand was 8 out of 10; the survey found that the product was neither associated with high or low prices and that the products with the label generated a sense of belonging (personal communication).

#### **4.4 Government as facilitator of innovation: consumer subsidies for purchases of innovative new energy vehicles (NEV) in China**

Governments can underpin demand for innovation through: (1) direct procurement of innovations, whereby the public sector buys not yet existing goods in the market; or (2) adoption of incentives for innovation without directly purchasing the resulting product (Kattel and Lember, 2010). We present an example of this second type of intervention. The case study focuses on the new energy vehicle (NEV) in China, which includes all partially or fully powered electric vehicles (EVs) such as plug-in hybrid electric vehicles (PHEV), battery electric vehicles (BEV) and fuel cell electric vehicles (FCEVs)<sup>15</sup> (CAAM, 2016; World Bank and PRTM, 2011).

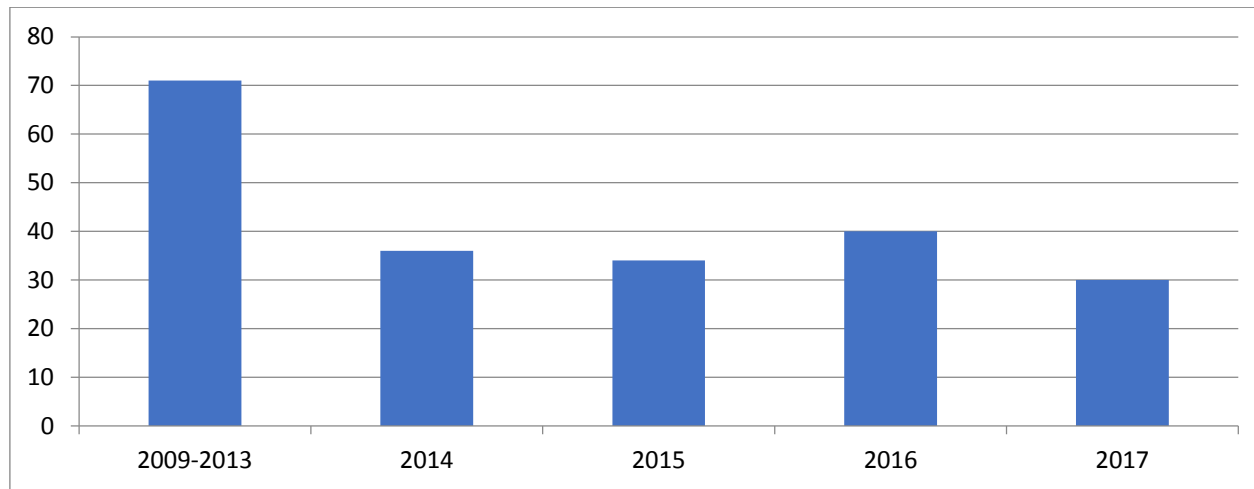
China's 13<sup>th</sup> Five-Year Plan (FYP) 2016-2020 identifies innovation as a key development driving force (State Council of China, 2016). The objective is to create a competitive market environment that incentivizes innovation, improves institutions, compliance with policies, regulations and standards for an innovation-friendly climate. The FYP promotes an enabling industrial policy framework to support the development of various Strategic Emerging Industries. Innovation, the greening of industry, openness and inclusiveness are imperative for the development of those industries<sup>16</sup> (KPMG, 2016).

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<sup>15</sup> The China Association of Automobile Manufacturers only refers to BEV and PHEV when talking about NEV sales and production in China (CAAM, 2016).

<sup>16</sup> Other strategic industries include the new generation information technology, biotechnology, high-end equipment manufacturing, new energy and new materials (CCCPC, 2016).

**Figure 4**      **Number of licenses of Primero Ecuador per year**



Source: Authors based on Primero Ecuador.

With regard to NEVs, the FYP 2016-2020 pursues three main targets: to conserve energy; to transform and upgrade the Chinese automotive industry; and to improve air quality by reducing vehicle pollutant emissions<sup>17</sup> (Zhang et al., 2013). The strengthening of the NEV industry is expected to support China's efforts to lower carbon dioxide (CO<sub>2</sub>) emissions per unit of GDP by 40-45 per cent by the end of 2020. The country has introduced limits on corporate average fuel consumption (CAFC) of newly sold vehicles of 5.0L/100km by 2020 and 4.0L/100km in 2025 (Zhang and Bai, 2017). It is estimated that the NEVs introduced in 2015 can lower CAFC values from 7.02L/100km to 6.67L/100km (Zhang and Bai 2017).

### ***Public support for NEVs***

Support for the local NEV industry began in the 1990s, although the official definition of NEVs was not available before 2006, when hybrid technology became a priority in the 10<sup>th</sup> FYP (Gong et al., 2013). The breakthrough came with the adoption of the 11<sup>th</sup> FYP 2006-2010 and the consolidation of the policy framework around the industry (Box 7). Over time, the Chinese government has implemented a combination of supply- and demand-driven instruments to foster the NEV industry, including consumer subsidies (the focus of our case study), subsidies for producers, tax reductions, research and development investments, infrastructure building investments, etc.

### ***Consumer subsidies to foster local demand for NEVs***

Consumer subsidies were introduced in 2009 as part of the trial TVTC Programme. Six cities, Beijing, Shenzhen, Hefei, Hangzhou, Shanghai and Changchun, were selected to carry out pilot programmes to subsidize private NEV buyers of PHEVs and pure electric vehicles (Gong et al., 2013). The implementation of the NEV consumer subsidy programme became a joint responsibility of the Ministries of Finance, Science and Technology, Industry and Information Technology and the National Development and Reform Commission (Gong et al., 2013).

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<sup>17</sup> China is well-known for its rapid industrialization, growing economy and rising middle class. It is also known, however, for the growing environmental challenges that have accompanied its development process. The fossil fuel vehicle population and density have grown rapidly, China became the largest automotive market in 2009, fuelling additional concerns about urban air pollution and energy security (Gong et al., 2013). Mega cities and city clusters in the eastern part of China and the capitals of the middle provinces are particularly affected by increased vehicle concentration - some 279 million motor vehicles, including 172 million automobiles (Gong et al., 2013; Zhang and Bai, 2017). According to Zhang and Bai (2017), 150 million internal combustion engine vehicles (ICEVs) can consume 230 million tons of fuel oil. In 2014, exhaust pollutants totalled 45.473 million tons (Zhang and Bai, 2017).

### **Box 7 Key elements of the regulatory framework around NEVs**

- China Science and Technology Medium- and Long-term Development Plan adopted by the State Council in 2006, mentioned the term NEV for the first time;
- Auto Industry Adjustment and Renovation Plan issued in response to the global economic crisis in 2009, it was one among 10 industry adjustment and renovation plans. The plan included a series of vehicle annual sales targets. The policy intended to boost NEV sales to exceed 10 million in 2009, at an average growth rate no lower than 10 per cent in 2009-2011.
- The Thousands of Vehicles, Tens of Cities (TVTC) Programme launched by the Ministry of Finance and the Ministry of Science and Technology in 2009 as a NEV demonstration and promotion programme. The TVTC focuses on the demonstration of hybrid-electric vehicles (HEVs), BEVs and FCVs in public service vehicle fleets (buses, taxis, government vehicles and special purpose vehicles). Some 25 cities in China approved to carry out demonstration programmes for NEV.
- Energy-Saving and NEV Industry Development Plan (2012-2020) implemented in 2012, announced intent to adopt 0.5 million NEVs by end of 2015 and 5 million by end of 2020.
- The Guiding Opinions on Accelerating the Promotion of the Application of NEV circulated by the General Office of the State Council in 2014 to implement consumer subsidies.

*Source:* Authors based on Green Car Congress (2012), Gong et al. (2013) and Zhang and Bai (2017).

The subsidies offer a one-time reduction of up to 60 per cent of NEVs' final sale price with support from both the central and local governments – up to CNY 50,000 for each hybrid and CNY 60,000 for each pure electric vehicle (Li et al., 2016). The subsidies are passed through car manufacturers to consumers, while eligibility is restricted to locally produced models listed in a catalogue prepared by the Ministry of Industry and Information Technology (MIIT) (Marro et al., 2015). The subsidy amount depends on the vehicle category, technology type and vehicle efficiency performance, which already suggests that the instrument's management structure is complex (Gong et al., 2013). Box 8 presents various estimates on actual amounts invested by Chinese authorities in the NEV consumer subsidy programme.

### **Box 8 Estimated costs of NEV subsidies show inconclusive evidence**

- Investment of about CNY 37 billion (US\$ 5.6 billion) over the past five years (Bloomberg, 2016).
- National investment of US\$ 7.2 billion, with US\$ 3.12 billion in subsidies (subsidy breakdown not specified) (Feng, 2016).
- According to statistics from the Ministry of Finance, the planned subsidy budget for NEV purchases was CNY 5 billion. However, less than CNY 0.1 billion was used for private purchases of NEVs from July 2010 to July 2011 (Zhang et al., 2013).

*Source:* Authors.

The “Guiding Opinions on Accelerating the Promotion of the Application of New Energy Vehicles” of 2014 endorsed the maintenance of consumer subsidies. However, to prevent dependence of the NEV industry on subsidies and the need to address cases of fraud,<sup>18</sup> the national government has decided to phase out the subsidies by 2020. The Circular on Financial Support Policies for the Promotion and Application of New Energy Vehicles (2016-2020) stipulated a gradual phase out every two years from 2017-2020 at a rate of 20 per cent based on the 2016 level (Zhang and Bai, 2017; The State Council China, 2017).

#### ***Implications of the subsidy on the NEV industry in China***

A systematic impact analysis of the subsidy on the NEV industry in China seems pending. However, available evidence indicates the significance of the subsidy for the development of the industry. NEV car production in China increased from 8,368 units in 2011 to 517,000 units in 2016. Sales of NEVs reported an impressive jump from 8,159 units in 2011 to 507,000 units in 2016, implying that almost all cars produced were sold (CAAM, 2017; REVE, 2012) (Figure 5).

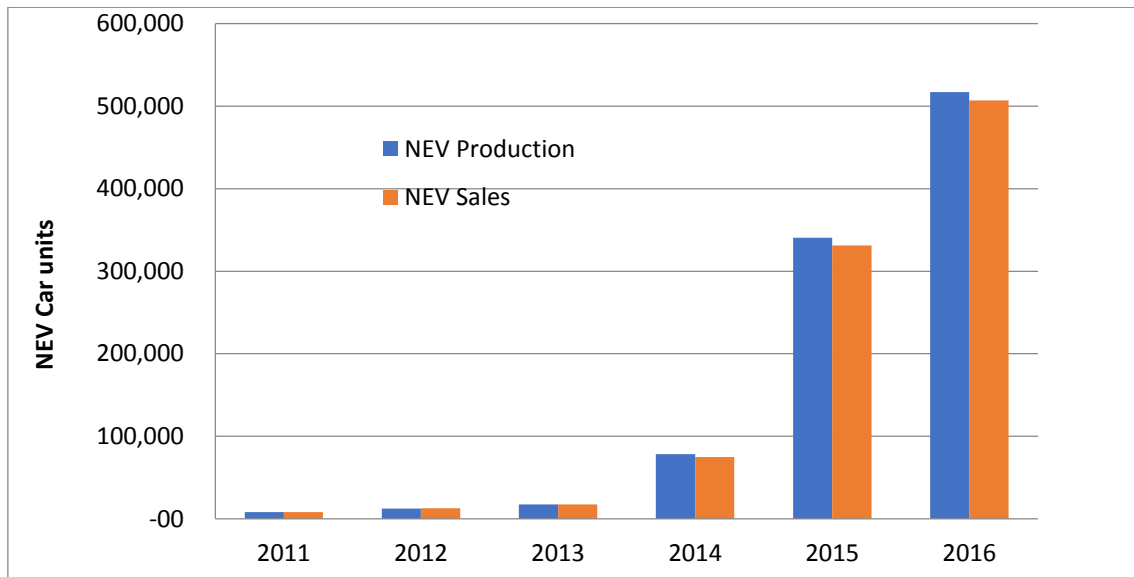
Although China has been the world’s top seller of electric cars since 2015 (China Daily, 2017), sales had dropped by 74.4 per cent in January 2017, coinciding with subsidy reductions, actions against car manufacturers that have committed fraud and a reduced list of models eligible for subsidies<sup>19</sup>; however, the positive pace is expected to remain for the remainder of the year (State Council of China, 2017).

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<sup>18</sup> At the beginning of 2016, Chinese authorities investigated subsidy fraud cases resulting in actions by MIIT. Automakers that had committed fraud were banned from entering the official catalogue of vehicles eligible for subsidies (The State Council China, 2017).

<sup>19</sup> The new list contains only 185 models in comparison to the list of 2,198 models listed in 2016, while the technological standards have been raised, including battery capacity and top speed.

**Figure 5**      **Production and sales of NEVs in China, 2011-2016**



*Note:* Figure displays BEV and PHEV cars.

*Source:* Authors based on CAAM (2017), Cars 21 (2013) and REVE (2012).

#### ***NEV subsidies and international trade rules***

Subsidy programmes are often challenged by international agreements for WTO members. Stewart et al. (2012) highlight some key issues related to the NEV subsidy in China:

- Under the pilot programme, subsidies were only eligible for domestic car producers and therefore discriminated foreign auto manufacturers. However, international pressure eventually led to the withdrawal of some restrictions on the purchase of foreign vehicles.
- In November 2011, the Chinese government confirmed that subsidies for NEVs would be available on an equal basis for foreign-invested and domestic firms. However, the commitment did not appear to extend equal treatment to imported and domestically produced vehicles. To qualify for these purchase subsidies, foreign firms have agreed to produce NEV through joint ventures in China, often including technology transfer conditions (Reuters, 2015).
- The subsidy appears to violate the Agreement on Subsidies and Countervailing Measures, which prohibits government subsidies that are contingent on the use of domestic over imported goods (Stewart et al., 2012).

### ***Outcomes and lessons learned***

Some evidence suggests that the subsidy on NEVs has had positive effects on production and sales; the latter grew at an average rate of 103 per cent from 2006 to 2015 (Zhang and Bai, 2017). China has become the largest market for electric cars since 2015, with a share in the global market of close to 1 per cent compared to 0.7 per cent for the United States. While new registrations for NEVs declined in the United States between 2014 and 2015, China experienced a threefold growth (OECD and IEA, 2016).

Zhang et al. (2013) argue that the policy has had positive moderating effects on the relationship between financial benefits, willingness to purchase and price, but negative moderating effects on the relationship between financial benefits and purchase time. The authors argue that subsidies on NEVs dramatically reduce the purchase price so consumers can afford more expensive NEVs. However, they also suggest that because consumers have been confident about the permanence of the subsidies, they do not feel any urgency to acquire NEVs.

In contrast, Li et al. (2016) assert that although the NEV subsidy is perceived positively by consumers, satisfaction remains low; the subsidy has failed to sufficiently offset price differentials between NEVs and conventional cars, and the upfront purchasing cost of NEVs remains high. Li et al. (2016) further indicate that the structure of the subsidy, divided between the central and local governments, increases transaction costs and makes it difficult for potential NEV buyers to fully understand the benefits of the subsidy. With increases in production volumes, quality problems of NEV have gradually emerged, for instance, battery problems (State Council of China, 2016). Government officials highlight that carmakers need to reduce their costs and improve their products to stay competitive for the subsidy phase-out in 2020 (China Daily, 2017).

## **5 Concluding remarks**

This paper documents various efforts and strategies pursued by developing countries involving the use of demand-driven policy instruments to underpin industrialization. While the more comprehensive evidence pertains to large, upper-middle income countries, some efforts were identified in much smaller economies such as the Dominican Republic, Rwanda or Uganda. Our case studies generally underscore the use of demand-driven instruments as part of policy mixes including several supply-oriented interventions, possibly seeking to capitalize on any complementarities built around these two variables. We concur with Saviotti and Pyka (2013) and Stiglitz (2017) that the promotion of industrial development requires a supply push, coupled

with efforts to ensure that adequate demand for new or improved products and services exist, can be fostered or created.

Confronted with questions on the type of industrialization governments can foster through demand-driven policy instruments, there is room for optimism for those concerned about growing inequalities and environmental sustainability. Yes, the standard economics goals—productivity, productive capacity building, exports, and so on—are top government priorities. However, our findings also lend support to Shadlen and Fonseca (2013), who argue that policy interventions in areas traditionally considered in social or health policy realms can reveal the need for complementary—even unavoidable—industrial policy interventions. The pursuit of social development outcomes may expose weaknesses in domestic industrial activities or mismatches between government goals and firms' capabilities, thereby unleashing co-evolutionary processes where social and industrial policy actions reinforce one another. The authors identify two channels by which social concerns link to industrial policies, namely public procurement—for example, for the purchase of essential medicines—and regulation. Our case studies have documented both these channels.

The analytical framework used in this paper has assisted in identifying the distinct roles developing country governments play and the different goals they can pursue through demand-driven industrial policies. Demand-driven policy instruments are heterogeneous; they can be tailored to suit different roles and policy objectives. For instance, governments can mobilize massive capacity to boost demand through public procurement, yet they can do much more than this. Governments can deploy their regulatory power to introduce financial and non-financial incentives—or disincentives—for consumers to buy certain manufactured products, to shape consumer preferences and boost selectivity between various products, or to openly provide temporary protection and other forms of support as required for the development of specific manufacturing activities. The cases on labelling and country branding campaigns have illustrated how governments act as information brokers, targeting people's values and perceptions, for instance, about consumption that is more mindful of social inequalities and the protection of the environment. Implemented in such a way, demand-driven industrial policy interventions can contribute to equitable and sustainable development.

Demand-driven industrial policies add a new layer of complexity to policy action, developing countries' need to better understand their capacities and available policy space to choose effective policy mixes (Peres and Primi, 2009; Shadlen and Fonseca, 2013). Good governance, the ability to set clear objectives and a deep understanding of the country context are preconditions in order for demand-oriented policy instruments to work (UNIDO, 2011).



Priorities and goals need to be clear; policymakers must consider possible trade-offs between policy tools and intended targets while considering any restrictions stemming from current internationally acceptable trade and investment practices.

Although evidence on international policy coordination is scattered throughout the paper, we can highlight some relevant cases. The case of pooled public procurement of HIV medicines in Latin America corroborates that this mechanism can help reduce unit prices, improve quality assurance and reduce, or at least minimize, corruption in pharmaceutical procurement. By enhancing the combined monopsony power of regional governments, it was possible to counteract the monopolistic position enjoyed by large pharmaceutical firms. Moreover, the case illustrates how developing countries can capitalize on regional collaboration mechanisms through regional and/or multilateral organizations (Nguyen et al., 2015). The case of ICT procurement in Sri Lanka also illustrates how developing country governments can benefit from collaboration with international organizations such as the World Bank, which can help align domestic interventions—in this case, public procurement—to good international practice.

The case of the subsidy for NEVs in China reminds us of the need to think of the optimal timing and duration of government interventions, of time lags for consumers to adjust and the risks of fraud by some beneficiaries of the intervention. For these instruments to work, policymakers need to close price gaps very tightly between the preferred and not so preferred option (OECD, 2008). These observations are consistent with Altenburg (2011) who asserts that the duration of policy interventions depends on the specific case and is a matter of open debate. He refers to successful examples of long protection as, for instance, the automotive sector in the Republic of Korea or the aeronautics industry in Brazil; he expects there to be even more examples of long and costly government interventions that ended in failure.

But to what extent can demand-driven industrial policy interventions really contribute to equitable and sustainable development? The case studies presented in this paper demonstrate that although not always explicit, demand-driven industrial policies can contribute to inclusiveness and sustainability objectives. To comment on the issue of inclusiveness, demand policies can act in various ways. First, by setting specific targets in terms of access, quality and affordability of specific products; see for example, the case of generic drugs in Mexico. The development of the generics market allowed price reductions both for public procurement and final consumers. More importantly, agency was returned to consumers who could choose generic, i.e. more affordable drugs without affecting quality. The extent of success and actual reorganization of the market remains subject to deeper enquiry; however, there are positive signals of “success”. The Mexican experience lends support to Nguyen et al. (2015, p. 267) who

conclude that “successful pharmaceutical policies and pricing mechanisms have to be locally tailored, transparent, stable and predictable”. Moreover, it corroborates the hypothesis that by helping to develop new or to expand existing market segments, governments can enhance the quality and efficiency of a given manufacturing segment – in this case pharmaceuticals.<sup>20</sup> At the same time, governments can assist consumers in breaking their role as price acceptors – they are in a very weak position to negotiate with medicine providers (Nguyen et al., 2015).

The design and implementation of demand-driven industrial policies, understood as policy processes, can also be inclusive. Although demand-driven interventions can be initiated, enforced and monitored by governments, other actors such as local public authorities, different agencies, financial institutions, industries, retailers and consumers and independent organizations and consumers might play decisive roles promoting or facilitating uptake and compliance (OECD, 2011). As the alignment between different actors is usually quite difficult, the OECD (2011) recommends the implementation of administrative or policy tools to facilitate the process. A stronger alignment with the private and social sector can support policymakers in identifying the necessary information, consumer needs, barriers for stimulating demand and in increasing demand for social and environmental goods (OECD, 2011).

Our introductory section brought to bear a discussion on the challenges developing countries face in enhancing the efficiency of public interventions and to avoid some mistakes from the past in which policy experimentation never closed the policy learning loop. In a world where industrial policies are increasingly expected to pursue broader and more diverse objectives, we endorse Stiglitz's (2017) call for increased openness, transparency and understanding of the rationales for industrial policy. There is a need to take stock and study the set of available policy tools, some of which require a redefinition while others need to be introduced, in line with Gault's (2010) invitation to promote “public sector innovation”, including a reflection on the capacities required for governments to implement, monitor and evaluate diverse industrial policy instruments in place. Further research and evaluation is needed to ensure adequate codification of experiences like those presented in this paper, and others.

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<sup>20</sup> Shadlen and Fonseca (2013) documented a very similar case in Brazil.

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## **Annex 1      Criteria used to select examples of the use of demand-driven industrial policy instruments in low- and middle-income countries**

### Compulsory requirement

- Type of instrument and correspondence with categories in analytical framework
- Relevance for demand (private and public consumption)
- Relevance for manufacturing activities
- Evidence on outcomes (e.g. economic, social, environmental impact on the activities of a specific industry, inclusiveness, sustainability, and so on). Ideally, evidence on outcomes should build on evaluations of the instrument.

### Role of government

- Rationale for intervention (sector strategy, value chain, etc.)

### Optional elements:

- Agencies responsible for the implementation and actors involved
- Participatory incentive: compulsory, voluntary, combination of both
- Drivers of implementation (partnerships, donor-driven, private sector, etc.)
- Target population
- Investment / funding allocated to the implementation of the instrument
- Time frame
- Implications from the perspective of international agreements / international collaboration / international policy coordination efforts

### Lessons learned:

- Context of the implementation
- Drivers for the implementation of specific policy instruments
- Barriers / risks associated with the implementation of specific policy instruments



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