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foster industrial development: Can they  
be inclusive and sustainable?

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# DEMAND-DRIVEN POLICY INTERVENTIONS TO FOSTER INDUSTRIAL DEVELOPMENT: CAN THEY BE INCLUSIVE AND SUSTAINABLE?\*

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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. 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 innovation.

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

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

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## 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). In practice however, 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, often limited to interventions such as public procurement and the policy space available within internationally acceptable trade and investment rules (Kattel and Lember, 2010).

This paper argues 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 influence demand for investment or for intermediate goods by targeting specific firm or investor behaviours. They can also 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).

Demand-driven industrial policy has been used 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 controversial measures are 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).

From a catching up perspective, the Republic of Korea exemplifies efforts to strategically promote demand and thereby support the country's continuous and sustainable industrialization. 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). From a policy perspective, Stiglitz (2017) asserts that demand-side policies are necessary to enhance diversification and promote economic transformation. However, “more than simply increasing exports and strengthening import competing industries”, the author advocates the strengthening of the non-traded sector as “poverty reduction and a larger middle class will increase the size of domestic markets” which can enhance demand for domestically manufactured products (Stiglitz, 2017, p.35).

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 enhance the efficiency of public interventions. Moreover, 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 call is to (re-)consider industrial and other related policies as components of long-term inclusive growth and sustainable development strategies (Aiginger, 2014). How industrial policies can better serve the poor, 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. 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).

From 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.

### **METHODOLOGICAL CONSIDERATIONS**

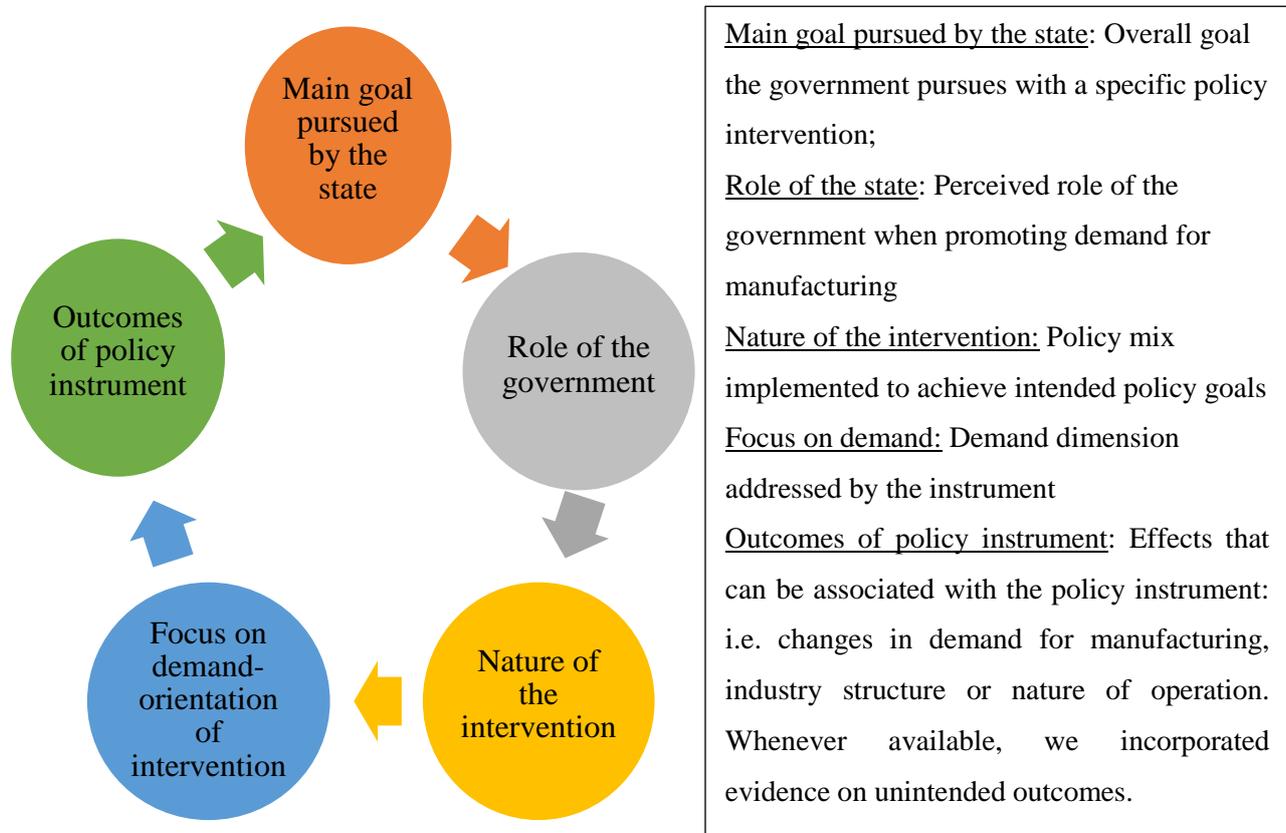
This paper builds mainly on evidence from secondary data sources. We proceeded as follows: first, we searched scholarly literature for studies on demand-driven industrial policy instruments in low- and middle-income countries. We specifically looked at demand-driven policy instruments implemented either individually or in combination as part of a policy mix with direct relevance for manufacturing. 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.

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.

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 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.

## **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, 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.

#### A 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). 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 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).

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 suitable to make sense of the diverse and heterogeneous demand-driven industrial policy instruments documented in the literature. 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 /		Measures to promote / enhance	Grants, subsidies for the

co-generator of innovation	/create demand for innovative products by targeting final users	consumption of innovation
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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>1</sup> While various sub-categories attract significant attention, for the sake of comprehensiveness of the analysis, this paper presents a case study from the Dominican Republic to illustrate how innovative approaches to public procurement can contribute to various policy outcomes in terms of enhancing SME capacities to participate in public procurement or benefit specific segments of firms owned by disenfranchised societal groups.<sup>2</sup>

**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, product quality, or the actual manufacturing

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<sup>1</sup> In 2016, the World Bank (2016) valued the market for public procurement in developing countries at about 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 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>2</sup> Public procurement can promote innovation by creating demand for domestic innovative firms. 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 by supporting sustainable companies in reducing production costs, in educating lead consumers or to raise awareness on the benefits of sustainable consumption (World Bank, 2012; UNIDO, 2011). Finally, international policy coordination through public procurement helps to improve access to for example, essential medicines, at lower cost or at preferable conditions for participating countries.

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 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). 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). International scale efforts include

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<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).

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 the case of adopting 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.

## **DEMAND-DRIVEN INDUSTRIAL POLICY INSTRUMENTS IN DEVELOPING COUNTRIES**

### 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).

From an inclusiveness perspective, ongoing SPP 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 1). We discuss the case of the Dominican Republic more extensively, as it has been in place the longest.

### **Box 1 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).

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 micro, small and medium sized enterprises (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).

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 an 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).

According to ITC (2014), the Dominican experience provides various policy recommendations to enhance the participation of women-owned businesses in tender processes and to enhance women's empowerment through public procurement:

- *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.

### 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 paragraphs discuss 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. 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>4</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 2) 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>5</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

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<sup>4</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>5</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).

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).

## **Box 2 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 expending 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).

### Government as awareness raiser and information provider: 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 been implemented in Africa, while in India, the "Make in India" strategy to support industrial development includes measures to close the loop from the demand side. In Latin America, the national brand Primero Ecuador ("Ecuador first") is an example of a targeted national branding campaign.

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).

The main objectives of Primero Ecuador are (MCPEC 2017a):

- 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;

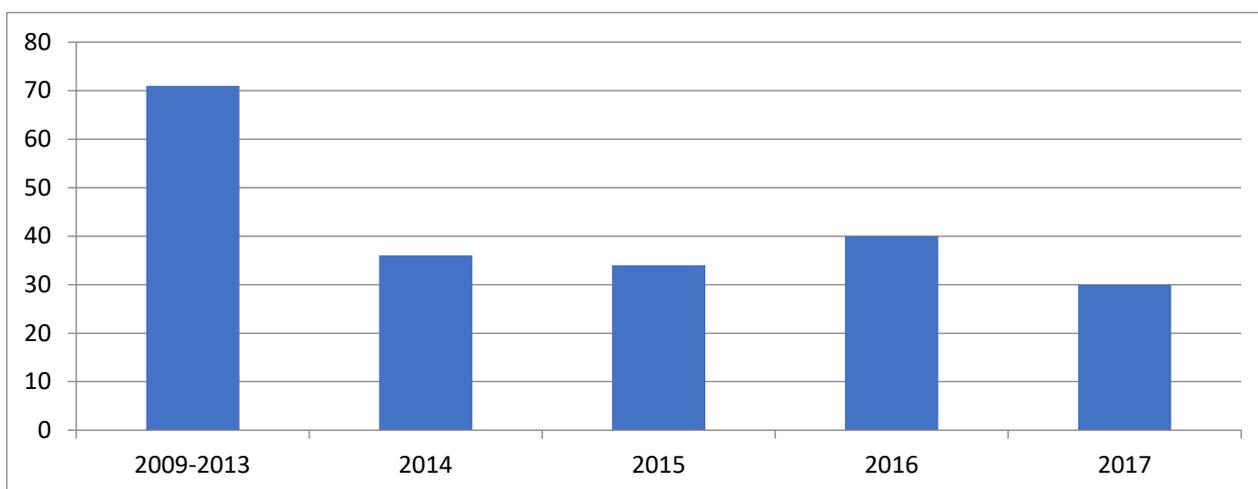
- Provide consumer products of high quality and value added;
- Promote consumption of socially, environmentally and economically responsible products.

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). By The campaign will be used to promote specific value chains rather than specific brands, which may be interpreted as acting against international trade rules.

#### *Outcomes and lessons learned*

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 2) for some 6,800 certified products, mainly in the food, textile and crafts industries (MCPEC, 2017 and personal communication with Primero Ecuador).

**Figure 2**      **Number of licenses of Primero Ecuador per year**



Source: Authors based on 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).

### 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>6</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>7</sup> (KPMG, 2016).

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>8</sup> (Zhang et al., 2013). The strengthening of the NEV industry is

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<sup>6</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>7</sup> Other strategic industries include the new generation information technology, biotechnology, high-end equipment manufacturing, new energy and new materials (CCCPC, 2016).

<sup>8</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

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 3). 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.

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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 3 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).

#### *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).

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 4 presents various estimates on actual amounts invested by Chinese authorities in the NEV consumer subsidy programme.

#### **Box 4 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>9</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*

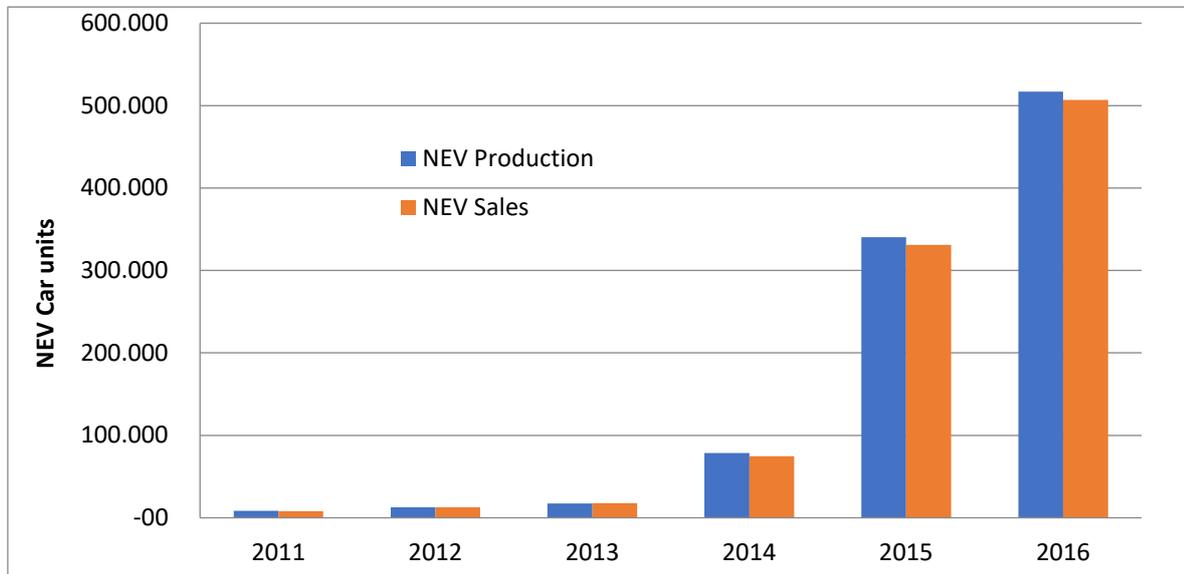
A systematic impact analysis of the subsidy on the NEV industry in China seems pending. However, available evidence indicates the significance of the subsidy for the development of the

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<sup>9</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).

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 3).

**Figure 3      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).

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>10</sup>; however, the positive pace is expected to remain for the remainder of the year (State Council of China, 2017).

#### *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.

<sup>10</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.

- 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*

Available 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).

## 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, non-negligible 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 study on the regulatory reform in Mexico served to illustrate the second type of channel.

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 use of country branding campaigns illustrates 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.

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.

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>11</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).

Our introductory section brought to bear a discussion on the challenges developing countries face in enhancing the efficiency of public interventions and to avoid 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>11</sup> Shadlen and Fonseca (2013) documented a very similar case in Brazil.

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