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Research Report

Sustainable public procurement as a tool to foster sustainable development in Costa Rica: Challenges and recommendations for policy implementation

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Deutsches Institut für
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Studies

Sustainable Public Procurement as a Tool to Foster Sustainable Development in Costa Rica

Challenges and Recommendations for Policy Implementation

Andreas Stamm

Luise Dietrich

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The German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) is a multidisciplinary research, policy advice and training institute for Germany's bilateral and multilateral development cooperation. On the basis of independent research, it acts as consultant to public institutions in Germany and abroad on current issues of cooperation between developed and developing countries. Through its nine-month training course, the DIE prepares German and European university graduates for careers in the field of development policy.

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Abbreviations

10YFP	10 Year Framework Programme on Sustainable Consumption and Production (SCP)
BCR	Banco de Costa Rica
CCSS	Caja Costarricense de Seguro Social / Costa Rican Department of Social Security
CEGESTI	Fundación Centro de Gestión Tecnológica e Informática Industrial / Foundation Centre for Technological Management and Industrial Computing
CGR	Contraloría General de la República de Costa Rica / Office of the Comptroller General (Costa Rica)
CINDE	Coalición Costarricense de Iniciativas de Desarrollo / Costa Rican Investment Promotion Agency
CNFL	Compañía Nacional de Fuerza y Luz / National Firm for Power and Light SA
CONAVI	Consejo Nacional de Vialidad / National Road Council (Costa Rica)
CPP	conventional public procurement
CRC	Costa Rica colón
CV	control variable
DGABCA-MH	Dirección General de Administración de Bienes y Contratación Administrativa – Ministerio de Hacienda / General Directorate of Asset Management and Administrative Contracting – Ministry of Finance (Costa Rica)
DIGECA	Dirección de Gestión de Calidad Ambiental / Directorate of Environmental Quality Management (Costa Rica)
DV	dependent variable
ECA	Ente Costarricense de Acreditación / Costa Rican Accreditation Entity
ESPH	Empresa de Servicios Públicos de Heredia / Public Service Company of Heredia
EUR	euro

FDI	foreign direct investment
FTZ	free trade zone
GDP	gross domestic product
GERD	gross expenditure on research and development
GVC	global value chain
IADB	Inter-American Development Bank
ICE	Instituto Costarricense de Electricidad / Costa Rican Institute of Electricity
ICT	information and communication technologies
IDB	International Development Bank
INEC	Instituto Nacional de Estadística y Censo / National Institute of Statistics and Census (Costa Rica)
ITC	International Trade Centre
IV	independent variable
LACOMET	Laboratorio Costarricense de Metrología / Costa Rican Metrology Laboratory
MECS	Matriz de Evaluación de Criterios Sustentables / Sustainability Criteria Evaluation Matrix
MEIC	Ministerio de Economía, Industria y Comercio / Ministry of Economy, Industry and Commerce (Costa Rica)
MEP	Ministerio de Educación Pública / Ministry of Public Education (Costa Rica)
MICITT	Ministerio de Ciencia, Tecnología y Telecomunicaciones / Ministry of Science, Technology and Telecommunications (Costa Rica)
MINAE	Ministerio de Ambiente y Energía / Ministry of Environment and Energy (Costa Rica)
MIVAH	Ministerio de Vivienda y Asentamientos Humanos / Ministry of Housing and Human Settlements (Costa Rica)
MOF	Ministerio de Hacienda / Ministry of Finance (Costa Rica)
MOOC	massive open online course

MOPT	Ministerio de Obras Públicas y Transportes / Ministry of Public Works and Transportation (Costa Rica)
MSMEs	micro-, small and medium enterprises
MSP	Ministerio de Seguridad Pública / Ministry of Public Security (Costa Rica)
MTSS	Ministerio de Trabajo y Seguridad Social / Ministry of Labour and Social Security (Costa Rica)
OECD	Organisation for Economic Co-operation and Development
ORT	Órgano de Reglamentación Técnica / Technical Regulation Body
PAC	Partido Acción Ciudadana
PP	public procurement
PROCOMER	Promotora del Comercio Exterior de Costa Rica / Costa Rican Export Promotion Agency
QI	Quality Infrastructure
R&D	research and development
RACSA	Radiografica Costarricense / Costa Rican Radiographic SA
RT	research team
SCP	sustainable consumption and production
SDG	Sustainable Development Goal
SICOP	Sistema Costarricense de Compras Públicas / Costa Rican System of Public Procurement
SMEs	small and medium-sized enterprises
SPP	sustainable public procurement
UNA	Universidad Nacional de Costa Rica / National University of Costa Rica
UN	United Nations
WCED	World Commission on Environment and Development
WTO	World Trade Organization

1 Introduction

This present study explores the challenges and potentials for the Government of Costa Rica to use public procurement (PP) as a tool to promote sustainable production patterns and developmental pathways. Sustainable public procurement (SPP) has been discussed internationally as an element of sustainable consumption patterns since the United Nations Earth Summit in Rio de Janeiro in 1992. Since publication of the groundbreaking report of the World Commission on Environment and Development (WCED) of 1987, entitled “Our Common Future”, sustainable development has been understood as a “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WECD [World Commission on Environment and Development], 1987) implying that economic, social and environmental goals have to be considered as jointly defining a desirable development.

However, how socially inclusive developmental pathways within the planetary boundaries can be achieved has not yet been clearly conceptualised (Rockström et al., 2009; Raworth, 2012; Altenburg & Rodrik, 2017). SPP is increasingly being seen as an instrument to foster sustainable development. It is defined in the following way:

Sustainable Procurement is a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment. (DEFRA [Department for Environment, Food and Rural Affairs, UK Government], 2006)

At the United Nations Conference on Sustainable Development (Rio+20) in 2012, the 10 Year Framework Programme on Sustainable Consumption and Production (SCP) (10YFP) was approved. The United Nations (UN) Sustainable Development Goals (SDGs) list SPP as one policy tool to “Ensure sustainable production and consumption patterns” (UN [United Nations], 2015). To this end, the UN Environment Programme (UNEP) supports countries in implementing SPP as part of the Marrakech Process and the 10YFP on sustainable production and consumption patterns, recently renamed One Planet Network.¹ Costa Rica was one of the pioneer countries in the Marrakech process.

1 See also <http://www.oneplanetnetwork.org/who-we-are>, accessed 1 March 2019.

SPP aims to incorporate economic, social and environmental criteria into procurement decisions (Sustainable Procurement Task Force, 2006, p. 10). As government purchases contribute around 12 per cent to gross domestic product (GDP) in the Organisation for Economic Co-operation and Development (OECD) and up to 30 per cent of GDP in developing countries, SPP constitutes an important market segment and could incentivise firms to adopt sustainable production pathways and related production processes (Brammer & Walker, 2011; UNEP [United Nations Environment Programme], 2017).

However, few governments have embraced comprehensive SPP policies and there is a lack of empirical evidence regarding the implementation of SPP and its effects on firms' production choices. Until today, SPP mostly remains an initiative of individual government departments (UNEP, 2017) and has been under-researched (Yülek & Taylor, 2012; IBRD [International Bank for Reconstruction and Development] & the World Bank, 2016; Grandia & Meehan, 2017):

Little is known about how procurement is implemented, how successful it is (how to measure its impact/effectiveness), what factors and actors determine its effectiveness and successfulness, and how public procurers deal with the (often conflicting) goals that they have to combine in their procurement." (Grandia & Meehan, 2017)

and

Until recently, the subject of public procurement [has been] largely ignored by development economists. Procurement was left to accountants, budget analysts [...] with a narrow set of objectives. The possibility that PP [public procurement] might prove to be an addition to the economic planner was largely overlooked. (Yülek & Taylor, 2012)

This current study aims to contribute to closing the above-mentioned research gaps in the existing literature as it constitutes – to the best knowledge of the authors – the first in-depth study of a developing country's efforts to implement a national SPP policy. Costa Rica has been chosen as it is a forerunner in implementing SPP as part of the country's broader commitment to sustainable development. In 2015, the Government of Costa Rica was the first in Latin America to adopt a National SPP Policy and already enacted its first legal provisions for SPP in 1995.

International experience indicates that the potential of PP as a lever of the transition towards sustainability cannot easily be realised. Both on the side of the public procurers and the (potential) private-sector suppliers significant **challenges for SPP implementation** can be observed:

- **Public procurers** are often risk-averse and tend to stick to common practices of price-based tendering and the acceptance of bids. Assessing which characteristics might really make a product or service qualify as sustainable is fairly complex. Persons involved in day-to-day procurement practices might not be – or might not feel – sufficiently well-trained to take informed decisions on how they can achieve the best “sustainability value for money” while staying within the limits of what is legally accepted as good procurement practice. This challenge can be mitigated with specific supportive measures at different levels of public administration (see the Dutch example of PIANOo in Box 3).
- At the same time, linking PP to sustainability criteria can only be effective if the **private sector** responds with an adaptation of the supply chains under their control. But, instead of doing so, firms might wish to turn towards less-demanding markets or might even mention sustainability characteristics of products and services which do not actually exist (“greenwashing”). Smaller firms in particular might have difficulties in financing adaptation processes and certifications, if public procurers demand too ambitious criteria. In several cases documented in various countries, this has led to tenders that had to be declared as “failed”, as no – or too few – companies submitted bids. Finally, a potential system failure may be that a process may be more prone to corruption when additional criteria beyond price and quality are included in the tender documents.

The Central Government of Costa Rica is clearly committed to SPP. The executive decree, which laid the foundation of the National SPP policy in 2015, established an inter-ministerial committee to steer its implementation – a rather innovative and promising governance approach that allows the various dimensions of sustainability (economic; social and labour; environmental) to be taken into account by institutional representation.

To assess both challenges to implementation and the possible effects of SPP in Costa Rica, the following two overarching research questions were developed in close co-operation with the Costa Rican partners:

- What governance challenges does the Costa Rican public sector face when implementing the National SPP policy?
- How did the private sector react to the recently established incentives in the PP system?

The study combines qualitative and quantitative methods to address both research questions. Reflecting the state of the art related to good research practices, it combines qualitative and quantitative research approaches, depending on the respective research question, the availability of quantitative data, and feasibility within the given time-frame.

To identify main **governance challenges**, the research team (RT) conducted a series of semi-structured interviews with procurement officers and experts. In addition, it carried out an online survey among procurement officers which to a large extent replicated a similar inquiry of 2013. This allowed us to analyse differences in the attitudes, knowledge and action of relevant SPP stakeholders over a span of five years. Moreover, the RT had access to the data of the national e-procurement platform from December 2010 to March 2018. This allowed us to analyse to what extent sustainability criteria had been included in tenders and, thus, what percentage of PP could be identified as SPP.

To assess the responsiveness of the **private sector** to the new incentives and demands by public procurers, the RT conducted a series of semi-structured interviews with managers of firms delivering goods and services to the public sector. The RT gained access to a large database of potential suppliers to the state. In respect to all these enterprises, the team ran an online survey to learn about the characteristics of enterprises and their approach to sustainability and pp. The survey was also used to examine associations between firms' production and consumption choices and their participation in both conventional and sustainable public procurement.

The major findings regarding the **governance of SPP in Costa Rica** can be summarised as follows (see also Section 5):

- There was an increase in public procurement officers' awareness and activities regarding the topic of SPP between 2013 and 2018. SPP implementation has indeed advanced but, to date, this applies mainly to certain products and selected implementation strategies and policy tools.

- Public servants are struggling to implement SPP in a comprehensive way as no strategy for knowledge transfer that would do justice to the complex challenges of SPP has been in place thus far.
- Possibilities of using public-private cooperation to close gaps between the supply and demand of sustainably procured products are currently not being exploited strategically. Structured and regular exchanges between the public and private sector are required to assess the necessities and possibilities of both.

The major findings concerning the **firms' participation in PP and SPP, and firms' sustainability performance** can be summarised as follows (see Section 6):

- The majority of firms surveyed agreed in general that preference should be given in PP to products of higher environmental and social standards.
- At the same time, however, one-third considered such criteria to be a barrier to their participation, while another third saw them as a comparative advantage.
- Meeting sustainability criteria is increasingly proving to be a competitive advantage for companies in accessing public sector markets. As public acquisitions sometimes constitute a significant share of a firm's total sales, public buyers are key references.
- Selling to the government rather than to private actors brings significant benefits for firms, such as learning, a certain planning security, and reputational effects. However, only a few firms are aware of these benefits and exploit them.

The following section introduces relevant literature regarding PP/SPP. Section 3 illustrates the Costa Rican economic and political framework. Section 4 introduces the political and institutional framework and its development. Sections 5 and 6 present the main empirical findings: Section 5 investigates the challenges Costa Rican actors face when attempting to implement SPP, while Section 6 examines how firms' production and consumption choices relate to their participation in PP and SPP. Finally, Section 7 offers brief conclusions and provides policy recommendations based on the findings.

2 Public procurement as an underestimated tool of strategic policymaking

In recent years, strategic economic policymaking has reappeared on the development agenda, as the SDGs have established severe challenges, both in terms of complexity and of speed. Interventions in market-based processes do not only aim to accelerate economic growth and overcome cyclical or structural crises anymore: rather, governments “need to advance structural change towards higher productivity while at the same time decoupling human well-being and economic progress from resource consumption and emissions” (Altenburg & Rodrik, 2017, p. 16).

Modern industrial policy can implement a series of policies intended to guide and accelerate structural transformation in the desired or required direction, without invalidating basic market mechanisms. Examples are promoting research, development, and innovation in strategic technology fields; financially charging energy and resource consumption; incentivising the usage of preferred technologies; and differentiated tax policies. In this context, PP should receive greater attention than in the past; it can be seen as a high-potential instrument for strategic policymaking (see, for instance, Eßig & Amann, 2015). Since governments are “big spenders”² and their procurement in many cases constitutes high shares of firms’ total sales, it conditions to a certain extent how some goods are produced, and/or whether new products or services are developed. Thus, public spending can be an important lever for the transition towards sustainable development patterns. However, this potential can only be realised if national policymakers link public purchases to comprehensive and viable sustainability standards.

The primary objective of PP is the cost-efficient provision of the goods and services that the government necessitates to fulfil its role. This objective is particularly relevant for developing countries when they suffer from tight public budgets and debt, while having to attend to the broad unfulfilled needs of the population. Secondary objectives of PP consider the influence a purchase has on society and the environment beyond sole cost-efficiency.

To date, most public-purchasing decisions have been taken on the basis of the lowest price requested from bidders (see IISD [International Institute for Sustainable Development], 2015 for Latin America; Chiappinelli & Zipperer,

2 Acquisitions of public entities account for around 12 per cent of GDP in OECD countries and up to 30 per cent of GDP in many developing countries (UNEP, 2017).

2017 for Germany). However, the definition of the “most economically advantageous offer” goes beyond mere price considerations and is often a matter of discussion. A Swedish study points out that the lowest price can be an effective decision-guiding tool in procurement if quality requirements are included in the product specifications, such as certified ecological production for school meals (Konkurrensverket, 2016). Life-cycle cost assessment can be a conceptual bridge between cost-based decision-making and sustainability considerations in PP, particularly if production externalities are increasingly internalised in production and distribution costs (such as through carbon pricing). For example, durable products lower maintenance costs and reduce the public consumption of finite resources. Consequently, the best value for money can be defined as “the optimum combination of whole life cost and quality to meet the customer’s requirements” (DCED [Donor Committee for Enterprise Development], 2017, p. 30). However, the transition from short-term price considerations to life-cycle costing requires changes in the modes and techniques of tendering and of assessing offers, as well as capable decision-makers. Criteria that are more complex may also require stricter provisions to avoid corruption. As the governance capacities of national and local governments are limited, introducing sustainability criteria into PP is demanding.

Governments are increasingly using PP to achieve secondary objectives (OECD [Organisation for Economic Co-operation and Development], 2015). Equal access to and fair competition in public contracts is considered the main procedural guideline to accomplish this primary objective (European Commission, 2011). Any non-monetary objective could be seen as a distortion of equal access and fair competition. However, an EU Directive has explicitly allowed the integration of environmental and social criteria into public tendering at the European level since 2014. The OECD, however, recommends a cautious approach and states that “any use of the public procurement system to pursue secondary policy objectives should be balanced against the primary procurement objective” (OECD, 2015, p. 9). Governments are advised to use PP as only one method of pursuing secondary policy objectives in accordance with a clear national strategy. This strategy should be accompanied by a good impact assessment to measure whether the previously defined priorities have been achieved.

Governments have used PP to address the structural objectives of their societies in several contexts, for example to promote small and medium-sized enterprises (SMEs), firms managed by representatives of disadvantaged groups, or women-owned enterprises.

- **SMEs:** A recent analysis has shown that a large number of measures to foster SME participation exist (DCED, 2017). Some examples are: reserving part of procurement budgets for the firm’s target group; improving transparency about tenders through electronic platforms; shortening payment times by public contractors; providing training and technical assistance for SMEs; as well as splitting contracts into smaller parts to allow a higher number of smaller firms to bid.
- **Formerly disadvantaged groups:** Over a long time, the South African procurement system favoured large firms owned by white people. After the radical political change in 1994, this also changed and PP started to be used to address past discriminatory practices. Today, firms can submit Black Economic Empowerment certificates to earn extra points within government tendering processes. The Ghanaian government promotes the local construction industry by giving preference to indigenous company owners (Amoah & Shakantu, 2017).
- **Women-owned enterprises** The International Trade Centre (ITC) estimated that businesses that are currently women-owned and women entrepreneurs only gain around 1 per cent of public contracts globally. In 2014, ITC launched its procurement initiative and published guidelines, which were intended to assist governments in taking action to increase women’s participation in PP (ITC [International Trade Centre], 2014).

Since 2002, PP has also been considered as an instrument for “**greening**” **value chains**. The World Summit on Sustainable Development (2002) initiated the Marrakech Process, which aimed to make production and consumption patterns less harmful to the environment. In the same year, the OECD Council adopted its “Recommendation on Improving the Environmental Performance of Public Procurement”, which called on member countries to, for example, provide the appropriate policy framework to incorporate environmental criteria into PP (OECD, 2002).

3 Economic and political framework conditions for strategic public spending in Costa Rica

The economic and political framework conditions the potential and challenges for strategic PP in Costa Rica. This section therefore embeds the analysis of SPP into the current national context.

3.1 Good socio-economic conditions and commitment to sustainable development

PP in Costa Rica takes place in a developed democratic setting. Costa Rica is perceived as a stable democracy (Bertelsmann Transformation Index, 2016) with a long-standing Social Compact (World Bank, 2015) and a reasonably low general level of corruption (rank 41 of 176 in the Corruption Perceptions Index, third after Uruguay and Chile on mainland Latin America) (Transparency International, 2017).

Historically, Costa Rica's economic development combined broad-based domestic growth with an intelligent use of outward-oriented development patterns, such as the export of coffee since the 1820s, banana exports since the 1880s and, more recently, tourism, light industry and ICT (information and communication technologies)-enabled services. Like many other Latin American countries, from the late 1950s until the beginning of the 1980s, Costa Rica went through a prolonged phase of efforts to accelerate industrialisation via the substitution of imports. Subsequently, it was among the first movers in the wave of structural adjustment policies. In this phase, the country benefited from preferential treatment from the United States, which supported Costa Rica in the US government's intention to stabilise the market-based development pattern in opposition to the revolutionary government in Nicaragua and left-wing insurgency movements in El Salvador. Unlike other countries in Latin America, Costa Rica maintained a heterodox approach to market liberalisation and outward orientation, namely granting direct subsidies to non-traditional agricultural export crops and maintaining state monopolies in electricity generation and fixed-line telephony. In addition, strong public institutions continued to strive towards a universal service in public health and basic education.

In recent decades, Costa Rica has been successful in attracting foreign direct investment (FDI) in knowledge-intensive sectors and has built a booming tourism industry, particularly ecotourism (ICT [Instituto Costarricense de

Turismo], 2017). However, the IMF's World Economic Outlook and the World Trade Organization (WTO)'s country profile indicate that Costa Rica is chronically dependent on the import of industrial products while it maintains an export surplus in agricultural products. Overall, the prospects for Costa Rica under globalisation and digitalisation are relatively good. The World Economic Forum ranked Costa Rica among the five most competitive economies of Latin America in 2017/2018 and the Global Innovation Index among the top performers in the region (Dutta, Larvin, & Wunsch-Vincent, 2017).

Costa Rica ranked 66 of 188 countries in the composite Human Development Index of 2016 and is classified in the group of countries with High Human Development. In Latin America, only a few countries score better: Chile and Argentina (Very High Human Development), Uruguay and Panama (High Human Development) as well as some small Caribbean island states. All of these countries have much higher per capita income levels than Costa Rica, which implies a strong performance of Costa Rica in non-income human development dimensions (education and health). However, income distribution is a matter of concern. Costa Rica exhibits a Gini-Index of 48.7, which is considerably higher than Argentina's 42.2 and Uruguay's 39.7. In the last ten years, the Gini has remained relatively stable for Costa Rica (World Bank, 2016).

Costa Rica's has a unique commitment to sustainable development, which may be an enabling condition to ensure acceptance and support for SPP by citizens and firms. In 2007, the government declared the country's intention to become completely carbon neutral by 2021, which was reiterated in the 2015 National Determined Contribution for the Paris Climate Change Agreement. These are only the most recent of several sustainability-related policies such as tax incentives and legal imperatives for reforestation thanks to which 52 per cent of the land surface are forested today. The Costa Rican National Development Plan 2013-2018 (MIDEPLAN [Ministerio de Planificación Nacional y Política Económica,], 2014) validates the trend towards sustainable development and expands it from the predominantly environmental to the social and economic dimensions such as SME promotion, climate adaptation, science and technology, transport and infrastructure, as well as anti-corruption measures.

3.2 Remaining structural problems as a starting point for SPP

Even if Costa Rica is clearly a good performer in human development, a couple of issues have to be seen as challenges, possibly leading to fissures in the otherwise stable progress of the country if not counteracted in a timely manner. The long wave of social protests and unrest, following the taking over of the national government by the Partido Acción Ciudadana (PAC) government of President Carlos Alvarado in 2018, should be seen as a sign of possible deeper ruptures.

Against the overall trend in most Latin American countries, inequality in Costa Rica has risen over the past ten to twenty years (World Bank, 2016). Also, despite acceptable growth rates and a strong commitment to social inclusiveness, poverty reduction has been stagnating. Growth has been uneven, with low labour absorption in sectors that employ unskilled workers (construction and agriculture), thereby favouring higher-skilled workers.

What clearly overshadows the image of a socio-economic good performer is the fact that regional disparities continue to be high and may even be increasing. According to a survey provided by the National Institute of Statistics and Census (INEC), in 2017, poverty affected 15.7 per cent of people living in the Central Region, 27.5 per cent of those in the Northern Region, 29.5 per cent in the Southern Pacific Region, and even 29.9 per cent in the Central Pacific Region. These regional disparities were mirrored in the location of industrial sites, which were concentrated in the Central Region. The Inter-American Development Bank (IADB) explains increasing inequality and insufficient poverty reduction by the insufficient creation of new and high-quality employment in large parts of the country.

The IADB states two main reasons for this underperformance: Firstly, productivity increases are hampered by the insufficient investment of the private sector in innovation-related efforts. While Costa Rica fares relatively well in the Global Innovation Index, the overall investment in research and development (R&D) – the gross expenditure on research and development (GERD) as a ratio to GDP – only rose from below 0.5 per cent in 2010 to 0.57 per cent in 2014. On average, the indicator for the group of upper middle income countries was 1.44 per cent in 2014 (World Bank, 2018). Secondly, there is a structural heterogeneity in the country's company structure, between large, highly productive firms, often foreign-owned and located in free trade zones (FTZs) and domestic micro- and small enterprises. Most

of the time, the two groups of firms are not connected in terms of supply chains. Thus, very little knowledge spillovers and backward linkages of FDI in FTZs with the local industry occur. In addition, value addition based on the fairly efficient agricultural sector is scarce.

In 2016, the Costa Rican business sector consisted of 36,950 units of which 78.3 per cent were classified as micro-, small and medium enterprises (MSMEs) and only 6.7 per cent as large firms. The limited number of large firms provided for nearly 70 per cent of overall employment (MEIC [Ministerio de Economía, Industria y Comercio de Costa Rica], 2017, p. 29). Most SMEs are active in trade (40 per cent) and services (42 per cent), only 12 per cent in industry and less than 5 per cent in information and communication technology (MEIC, 2017, p. 33). Consequently, very few local firms are able to supply intermediate products and services of high value to the export-oriented large firms and, thus, contribute to knowledge-based global value chains (GVCs). In addition, up to now Costa Rica's productive sectors only marginally benefit from the country's green image (as mentioned in subsection 3.1).

The continuing financial crisis may constitute a significant bottleneck to strategic public spending. The World Bank (2015, p. 101) outlined that “growing deficits could push the public debt to unsustainable levels and constrain resources for public investment, social services, and environmental goals.” Budget deficits of the Central Government were rising (5.6 per cent in 2013, 6 per cent in 2014) and were expected to reach 7.1 per cent by the end of budget year 2018 (Traña, 2018). The severe deficit was mainly linked to a combination of countercyclical measures undertaken during the last global fiscal crisis and structural forces. Increases in public salaries between 2008 and 2010 as well as the pension system for public employees weigh heavily on the budget. Structural rigidities also affect the revenue side: Tax revenues are low (13.5 per cent) and a large share of the remaining revenues are earmarked to the autonomous public institutions, and are thus outside Central Government's control (World Bank, 2015, pp. 104-106). The fiscal deficit was seen as the first major challenge to the new Costa Rican government which took office on in May 2018. It will have to bring the deficit down to sustainable levels, without compromising on the long-standing social compact. Whether or not promoting sustainability through directed public expenditure will maintain a decent rank in the order of policy priorities remains to be seen.

4 The political, legal and institutional framework for SPP in Costa Rica

Costa Rica is seen as a pioneer in SPP in Latin America, mainly because it was the first country on the continent to approve a national policy for this topical area in 2015. Important governance reforms in the system of public acquisition were made even earlier, as we will see in this section. The following subsection, 4.1, gives an overview of the development of policies implemented to make SPP happen. Subsection 4.2 digs deeper into the process of establishing electronic purchasing platforms, increasingly seen as “best practice” internationally. Whether public purchasers can award contracts directly or have to go through a tender depends on the budget available and the expected value of the order. This is sketched in subsection 4.3. The following subsection, 4.4, describes the role played by the Supreme Audit Institution as the main oversight and control organ for PP, before, in subsection 4.5, we provide an analysis of the role of the National Quality Infrastructure in the related processes.

4.1 Development of policies and legal regulations for SPP

The development of the political, institutional and regulatory framework for SPP in Costa Rica can be seen as the confluence of various conditions and processes. Costa Rican society has developed a strong commitment to environmentally sustainable development, at least since the 1970s. The social compact, understood as the commitment towards social cohesion, is even rooted back much further. Since colonial times, Costa Rica has mainly been a country of family farmers and small businesses, in contrast to other countries of the region, where social and ethnical disparities have been strong since the Spanish colonisation. This led to an overall quest for social cohesion.

When developing an applied strategy for SPP, the Costa Rican government has received support, both internationally in the context of the Marrakech process and at home from CEGESTI, an experienced and specialised consultancy and service-provider for sustainable development. The main milestones in the process were the following:

- Passed in 1995, the *Ley de Contratación Administrativa* (Law on Administrative Contracting) already included the – fairly general – demand for the implementation of environmental impact studies in public tenders for works in its Article 59 (Romero Pérez, 2008). While it does not explicitly mention the inclusion of sustainability criteria into calls for tender, Article 55 states that the administration may include other evaluation factors apart from price, such as experience or sustainability criteria.
- The *Ley Organica del Ambiente* (Organic Law of the Environment) published in the same year provided information on environmental criteria. It has outlined that, to qualify as ecological, a product “[...] must have a certification granted by a national or international agency accredited before the Costa Rican State. [...] In the processing or elaboration of ecological goods, both raw materials and additives and secondary components must be certified as well” (*Ley Organica del Ambiente*, Article No. 74, own translation).
- A first specific endeavour towards SPP constitutes the *Manual para la implementación de Compras Verdes en el sector público de Costa Rica* (Manual for the implementation of green purchases in the public sector of Costa Rica) published in 2008. Its purpose was to influence the environmental policies of purchases undertaken by public-sector institutions. The document provides a methodology for the inclusion of (ecological) sustainability requirements in calls for tenders and introduces various different certifications (CEGESTI [Fundación Centro de Gestión Tecnológica e Informática Industrial], 2008).
- Since then, the legal framework as well as the variety of respective manuals for SPP in Costa Rica have grown continuously. Published in 2010, Article 29 of the *Ley para la Gestión Integral de Residuos* (Law on Integral Waste Management) obligates all public entities, administrations, public firms, and municipalities to implement environmental management systems. Besides, it provides detailed requirements for SPP with regard to recyclability and biodegradability. Offers that include waste management, for instance, are given a 20 per cent advantage in the evaluation process (Casier, Huizenga, Perera, Ruete, & Turley, 2015).
- The Guide for SPP (*Guía de Compras Públicas Sustentables*) aims at providing public procurement officers with tools to allow the incorporation

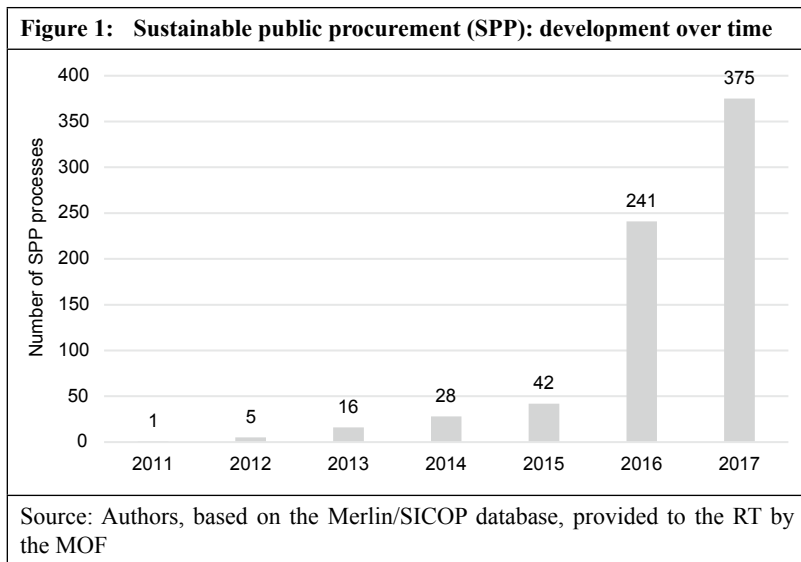
of environmental and social criteria into their purchases. To this end, the Directorate of Environmental Quality Management (DIGECA) within the Ministry for the Environment (MINAE) developed sustainability criteria for the 10 most common categories of products/services within PP (MOF [Ministry of Finance, Costa Rica], 2011).

- The Guide for the social criteria in the public procurement process in Costa Rica (*Guía de criterios sociales en los procesos de contratación pública en Costa Rica*) outlines all social criteria that must be complied with by all contracting parties, backed by national and international regulations. It covers labour and social security obligations, labour conditions, and the promotion of employment opportunities (CEGESTI, 2014).
- In 2014, the MINAE established the Directive 11 (*Directriz 11*), which regulates the purchase of electric devices such as refrigerators, air conditioners, and illumination devices. The directive is unique in Costa Rican law, as it is one of the few legally binding documents that defines precise admissibility standards for specific product groups to ensure sustainability. It is directed to the whole public sector and establishes the “prohibition of acquiring equipment, luminaires and devices of low efficiency, causing high consumption of electricity to be used in buildings and pedestrian transit facilities that can be found within the public sector” (Directive 11, own translation). Compliance with the energy-efficiency requirements established in the Directive needs to be verified via a product certificate, issued by a certification body accredited or recognised by the Costa Rican Accreditation Entity (Ente Costarricense de Acreditación, ECA).
- In 2015, the *Política Nacional de Compras Públicas Sustentables y Creación del Comité Directivo Nacional de Compras Sustentables* (Executive Decree 39310: National Policy on Sustainable Public Procurement and Creation of the National Steering Committee for Sustainable Procurement) came into force.

What is important is how the National Policy conceptualises “sustainable procurement”. In its Article 4, SP is understood as procurement which takes into consideration innovation, promotes SME participation, and contributes to the three dimensions of sustainability:

- The economic dimension, understood as monetary value, price, availability, quality and functionality of a purchased good;
- the environmental dimension, taking into consideration the environmental impacts of a product or service along its life cycle; and
- the social dimension; social impact should be considered in relation to topics such as poverty eradication, equity, distribution of resources and human rights; labour rights should be guaranteed along the value chains, and equal opportunities for women and handicapped people promoted.

Article 5 outlines eleven lines of action, which constitute the basis of the National Policy. All of these lines refer to indirect mechanisms to promote sustainability via PP, such as education and awareness-raising among procurers and the general public. While the policy does not make the inclusion of sustainability criteria legally binding for public procurement offices, it is nevertheless considered an important landmark in the process, as it states the clear commitment of the Central Government to SPP. Indeed, our analyses of PP and SPP processes illustrate that SPP processes have indeed increased (see Figure 1), especially since 2015, although they still remain low, relative to the overall number of procurement processes.



This National Policy is accompanied by “Technical Regulations for the Application of Sustainable Criteria in Public Purchases and a Guide for Implementation” (*Normativa Técnica para la Aplicación de Criterios Sustentables en las Compras Públicas y Guía para la Implementación*). Due to the fragmentation of the public sector, the executive order accompanying the National Policy only applies to Central Government institutions, that is, to ministries and not to (semi-)autonomous institutions or municipalities (MOF, 2015).

A national steering committee for SPP (Comité Directivo de Compras Sustentables) was formalised in the same year as a permanent inter-ministerial body for the coordination and implementation of the national policy on SPP (the inter-ministerial committee on SPP). Members of the Committee are appointed by the following ministries:

- Ministry of Finance (MOF) represented by the DGABCA,
- Ministry of Environment and Energy (MINAE),
- Ministry of Labour and Social Security (MTSS), and
- Ministry of Economy, Industry and Commerce (MEIC).

The Committee’s functions are to

- approve the strategy and action plan of the National Policy on SPP and its modifications;
- ensure the implementation and dissemination of the strategy and action plan;
- ensure monitoring and continuous improvement;
- propose and promote mechanisms to ensure that the National Policy remains a priority on the national political agenda; and to
- prepare systematic information on the progress of the implementation of the National Policy.

Additionally, there is a sub-committee on Quality Infrastructure (QI) and SPP. For a discussion of this, see subsection 4.5.

Box 1: The electronic procurement platforms for PP in Costa Rica

From around 2000 onwards, Costa Rica initiated the introduction of information and communication technologies (ICT) into public administration. “Digital government” was under the overall responsibility of one of the vice-presidents of the nation. ICTs were used to ease tax administration and, from an early point in time onwards, also for public procurement. “Compra-Red”, the first electronic platform was developed by a local software company and implemented by the MOF. However, Compra-Red was not the only platform used in pp. A 2007/2008 World Bank/International Development Bank (IDB) study concluded that there were around 20 different electronic systems in use and still a huge amount of “hardcopy” paperwork involved in pp. In addition, no homogenous product categories were utilised.

At the end of the 2000s, Mer-Link was introduced as a superior software solution. Mer-Link was based on the Korean online e-procurement system (KONEPS). Evidence indicates that in Korea, KONEPS had led to a 10 per cent saving in PP budgets. KONEPS/Mer-Link includes a supplier database, uniform product-catalogues based on the UN Central Product Classification, and provides an in principle paperless system. For the following years, Compra-Red, Mer-Link and decentral electronic systems were used in parallel.

In August 2016, and within the context of the accession process to the OECD, a government decree introduced SICOP (Sistema Digital Unificado de Compras Públicas), largely based on Compra-Red (OECD, 2015). Technically, SICOP is implemented by RACSA, a 100 per cent subsidiary of the Costa Rican Institute of Electricity (ICE).

4.2 E-procurement in Costa Rica

A means to simplify the procurement process is the e-procurement system named SICOP that was introduced in 2016 as a merger of the two former platforms Mer-Link and Compr@Red. The use of – and opinions about – e-procurement tend to differ. One respondent from the web-survey stated that, regarding SICOP, there was a lack of time and clarity in instructions. It was currently at a “trial and error stage” and people who were using it were not trained in it. In addition, it was stated that the delivery of training did not match the system’s complexity.

Central government institutions – those interviewed were CONAVI (National Road Council); MTSS (Ministry of Labour and Social Security); MSP (Ministry of Public Security); MICITT (Ministry of Science, Technology and

Telecommunications); MOPT (Ministry of Public Works and Transportation); and MIVAH (Ministry of Housing and Human Settlements) – are obliged to use SICOP. All interviewees from these institutions stated that the platform was very helpful in reducing paper use. Besides, some of our interviewees considered the platform a good possibility to interact with firms. In contrast, UNA as well as other autonomous institutions refrain from using it – apparently, because it would diminish their institutional autonomy. This non-binding application of SICOP is “limiting the benefits of a single platform” (OECD, 2015). Our interviewee from the CRG (Office of the Comptroller General, CGR) stressed that a 100 per cent coverage was required in order to fulfil objectives such as transparency, access, free competition, and consolidation of affirmative actions regarding sustainable purchases.

All public entities belonging to the Central Government were called upon to transition to SICOP as the exclusive PP platform. At the beginning of 2017, 75 per cent of all Central Government procurement passed through the SICOP system and, one year later at the beginning of 2018, 52 per cent of all PP procedures.³

Using electronic platforms can lead to savings of transaction costs in pp. Perhaps more importantly, lowering search costs may level the playing field in PP and ease the participation of SMEs. Finally, as the electronic systems allows for transparency, corruption-related problems can diminish.

4.3 Budgets, contract volumes and modes of public procurement in Costa Rica

As in other countries, the modes of public procurement in Costa Rica depend on i) the amount a public entity has at its disposal for procuring goods, services and work, and ii) the expected value of the contract. There are three main modes of procurement:⁴

- **Public tenders** are open to the participation of many bidders, follow strict and formalised procedures and require relatively long time-frames;
- **abbreviated tenders** are also competitive by nature, but less formalised, procurers make use of established lists of pre-qualified suppliers, from which only a limited number are invited to bid; and

3 Verbal communication Fabián Quirós, MOF.

4 There are additional modes, but less common, as for instance reverse auctions.

- **direct procurement** is seen as an exception from the use of a competitive process: public buyers decide by discretionary decision which product to buy from which provider.

For good reasons, Costa Rican law defines the common procedures to follow in public procurement, giving priority to competition among providers and limiting the discretionary power of the public buyers.

Public entities are classified in ten groups, depending on the annual budget available for procurement. Table 1 can be read as follows: A public entity in group B (second largest entity) has at its disposal for procurement between around EUR 75 million and EUR 112 million per year. This entity may directly award contracts of an amount less than EUR 43,483; between this amount and EUR 837,356 an abbreviated (or shortened) tender is feasible; each contract above this amount can only be awarded after a public tender. For a smaller entity with a procurement budget of between EUR 112,146 and EUR 373,819 (Group I, second smallest entities), the maximum limit for direct procurement is EUR 8,703; the threshold for public tender is EUR 83,726; and contracts in between these values can go through abbreviated tenders.

4.4 Administrative control in SPP: the role of the Office of the Comptroller General

The Office of the Comptroller General, CGR, is Costa Rica's Supreme Audit Institution. The CGR has a broad mandate to supervise the use of public funds on a legal basis and is thus responsible for transparency, budget approval, and ex-post controls in PP (OECD, 2015; SELA [Latin American and Caribbean Economic System], 2014). For example, if firms believe there has been an irregularity, for instance in the form of an unreasonable inclusion of sustainability criteria as admissibility criteria, they can protest to the CGR. Protests by firms can be presented at two stages:

- an **objection** is a protest against a specific requirement demanded within the tendering document, such as a part of the technical specification;
- an **appeal** for revocation protests against an adjudication act.

Table 1: Procedures to follow in PP, by available budget and expected value of contracts						
	Annual budget for public procurement (2018) in EUR		Public tender	Shortened tendering		Direct procurement
	Lower limits	Upper limit	Equal or more than	Less than	Equal or more than	Less than
A	111,996,316	-	970,435	970,435	140,108	140,108
B	74,763,896	111,996,316	837,356	837,356	43,483	43,483
C	37,381,948	74,763,896	586,149	586,149	39,146	39,146
D	18,676,021	37,381,948	418,827	418,827	34,795	34,795
E	3,738,195	18,676,021	293,074	293,074	30,444	30,444
F	1,867,602	3,738,195	251,207	251,207	26,093	26,093
G	1,119,963	1,867,602	167,471	167,471	21,741	21,741
H	373,819	1,119,963	125,603	125,603	13,054	13,054
I	112,146	373,819	83,736	83,736	8,703	8,703
J	-	112,146	41,883	41,883	4,336	4,336

Note: The values have been converted from Costa Rica colones to euros at the exchange rate of the last banking day of June 2018.
Source: CGR [Contraloría General de la República de Costa Rica], 2018

Objections are more common. Particularly with regard to admissibility criteria, certain firms feel excluded and consider the process as unfair, for example due to the high cost of obtaining a certification. In terms of SPP, the CGR has to check whether the criteria included are well-founded, that is, based on a market study as required in the *Normativa Técnica para la Aplicación de Criterios Sustentables en las Compras Públicas* (Technical Regulations for the Application of Sustainable Criteria in Public Procurement) and whether the procurer can prove that the criteria demanded are relevant and necessary. Thereupon, CGR can confirm or nullify the tender. With regard to the appeal for revocation, the firm needs to show that it would have been eligible for the procurement process. In this case, the procurement can be annulled.

4.5 Contributions to SPP from the National Quality Infrastructure (QI)

Quality infrastructure (QI) is relevant to SPP as sustainability and technical criteria often overlap, and as procurement officers have to rely on an effective QI to verify that firms comply with sustainability standards. An increasing number of sustainability standards are today approved and certified by national QI institutions, such as the “C-neutral” standard for companies, laid down as an INTECO standard and certified by the same organisation.

In Costa Rica, the main institutions in the field of QI are:

- **LACOMET** (Costa Rican Metrology Laboratory): Metrology, advocacy for the use of the International System of Units;
- **ECA** (Costa Rican Accreditation Entity): accreditation, ratification of foreign certifications;
- **INTECO** (Institute of Technical Standards of Costa Rica): Standardisation, elaboration of new norms/reference to international norms (including conducting market studies), certification of compliance with existing norms;
- **ORT** (Technical Regulation Body): compulsory regulation.

In general, the institutions aim to include adequate quality requirements in all procurement processes. To this end, they send delegates to the sub-committee on quality within the committee on SPP, review procurement officers’ tender documents before large purchases, and promote existing and research areas for new norms.⁵

During the interviews, the four institutions mentioned a series of challenges for the use of quality criteria: National standards are not in place for all products. Not many procurement officers know or are aware of either legal requirements regarding quality or the relevant institutions, and references to norms are not widespread. Often different standards are deemed interchangeable in calls for tender. An interviewee from INTECO pointed out that this benefited firms with lower standards. In addition, interviewees perceived that procurement officers were resistant to including specific

5 A new guide is currently being compiled. It will contain information on quality criteria and how to use technical norms in SPP, for instance, how to evaluate conformity or use metrology.

quality standards as their calls for tender could be rejected by the CGR due to an objection by the private sector (see subsection 4.4. For this reason, a governmental process was initiated to sensitise procurement officers and procuring firms, and to foster the use of quality standards. The SPP sub-committee members are strong supporters of the MOF's efforts towards SPP in Costa Rica.

5 Governing sustainable public procurement: what challenges hamper SPP implementation?

Procurement departments and offices in governmental institutions decide whether and how to include sustainability criteria in procurement decisions. Thus, procurement officers are key to driving and expanding the implementation of SPP. Accordingly, this part of the present study is guided by the following research questions.

- How do procurement officers deal with sustainability criteria within the procurement process?
- How do legal frameworks and existing SPP manuals contribute to or hinder SPP implementation?
- Which SPP implementation challenges do procurement officers face? How do/can they handle those challenges?

To respond to these research questions, we have combined qualitative semi-structured interviews with an online survey and its comparison to previous similar surveys.

Our results in this part of our research can be summarised as follows. First, the awareness of procurement officers towards, and their activities related to SPP have been growing since the first online survey in 2013. However, competences and capabilities on SPP practices are lagging behind. Second, although several buyers apply SPP to a range of products, it remains fragmented considering the total product range. No strategy for knowledge transfer that would do justice to the complex challenges of SPP is in place. Third, possibilities of using public-private cooperation to close gaps between the supply and demand of sustainably procured products are currently not being exploited strategically. A structured and regular exchange between the public and private sector would be required to assess the needs and possibilities of both.

The research design, the legal and institutional framework of PP/SPP and the detailed research results are presented below. As the state-owned electricity and telecommunication company ICE is one of the main public procurers in Costa Rica, we include a case study of it.

5.1 Research design

We combined the responses from an online survey with qualitative interviews of experts as well as PP officers to study the public sector perspective on SPP in Costa Rica. The design of our online survey followed similar enquiries, implemented in 2013 and 2016 by CEGESTI (Foundation Centre for Technological Management and Industrial Computing). The aim was to identify changes and continuities in SPP implementation. Some questions were adapted and added in order to include recent developments (for instance, with regard to regulations) and to gain knowledge beyond the existing studies. The 2013 survey had reached 39 respondents from the Central Government. In 2016, 58 respondents participated in the survey, of whom 53 per cent came from the Central Government (CEGESTI, 2013, 2016).

For the 2018 replication of the survey, the respondents were contacted through two main channels:

- The link to the survey was sent out by the DGABCA-MH (General Directorate of Asset Management and Administrative Contracting – Ministry of Finance) in the name of its Director General. Here 124 people were contacted, of whom 65 replied almost completely or fully (response rate of 52.4 per cent).
- The research team contacted 589 procurement officers electronically who were registered on the e-procurement platform MerLink/SICOP and of whom 41 replied (response rate of 7 per cent). Furthermore, 39 contacts within the municipalities received the link to the survey but, of these, only one person replied.

Consequently, 107 responses were analysed out of which 86 were complete, that is, they included answers to all compulsory questions. One needs to keep in mind the different contacting channels as the motivation for varying response rates: The 61 per cent of respondents asked by the MOF to participate differ from those contacted by the research team. The latter were

more likely to have participated out of interest in the topic, as no kind of pressure was exerted to make them participate.

Via the two channels described, we were able to reach a broad variety of institutions. Of our respondents, 68 per cent belonged to the Central Government and 32 per cent to the decentralised sector, that is, not belonging to the institutions subordinate to the Central Government. 84 respondents stated their gender: 43 female and 41 male.

Survey respondents were asked to provide the contractual limit for their institution, which indicated the institution’s level of potential public spending. Figure 2 shows which percentage of respondents in the two sub-categories belong to each of the ten categories (compare Table 1 for additional information).

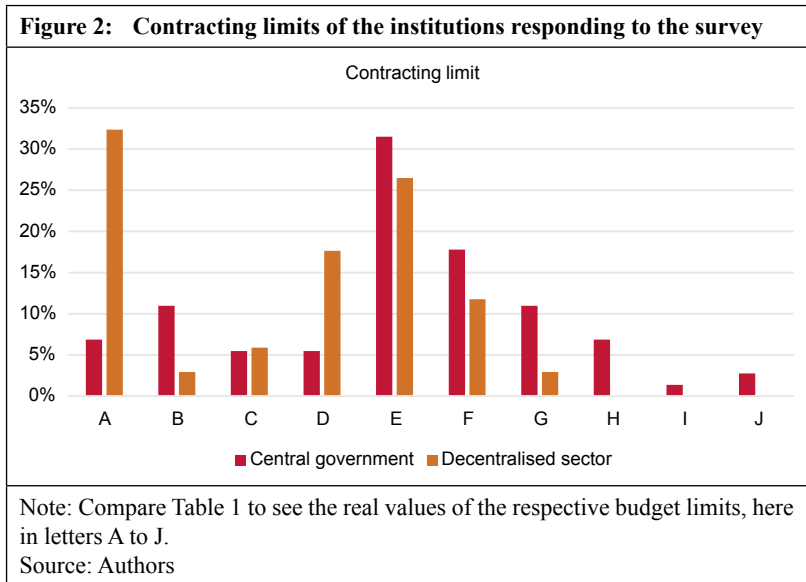


Figure 2 also indicates that, from the Central Government side, all budget ranges could be covered while, within the decentralised sector, most respondents came from large buyers. This is not surprising, as within the Costa Rican public sector the largest buyers are autonomous institutions. Around half of all respondents from both groups (Central Government, decentralised sector) belong to groups D, E and F of the contractual limits,

meaning they have an annual procurement budget of somewhere between EUR 3.7 million and EUR 37 million.

Unfortunately, only one respondent belonged to a municipality. However, as municipalities currently represent only a small share of PP, they are not necessarily of great importance when it comes to implementing SPP (OECD, 2015). In Costa Rica, many functions exerted by municipalities or provinces in other countries are carried out by Central Government or autonomous institutions at the central level, for example, education (Ministry of Public Education, MEP), water supply, and wastewater treatment (Instituto Costarricense de Acueductos y Alcantarillados, Costa Rican Institute of Aqueducts and Sewers). Nevertheless, the potential of municipalities for SPP should be considered in the future, as there are plans to provide the municipalities with a larger share of the budget (OECD, 2015).

In addition to the online survey, we held semi-structured interviews with eleven PP officers. First, procurement officers were asked about the relevance of sustainability in their daily work and sustainability efforts. Subsequently, we asked which products with a clear link to sustainability criteria were procured, what the challenges of SPP were, and how these could be met.

We conducted expert interviews with key institutions such as the CGR (Office of the Comptroller General), MOF (Ministry of Finance), MINAE (Ministry of Environment and Energy), ICE (Costa Rican Institute of Electricity), and CCSS (Costa Rican Department of Social Security). ICE (see the relevant case study) and CCSS are autonomous institutions and the largest procurers in the country. Additionally, representatives from three institutions from the National QI, namely ECA, INTECO, and LACOMET, were interviewed (see subsection 4.5).

All procurement officer interviews and some of the expert interviews were recorded and transcribed; transcriptions were then processed through structured content analysis using ATLAS.ti. For a full list of the interviews conducted as well as a list of categories used for the content analysis, see Appendices 3 and 4.

5.2 Inclusion of sustainability criteria in Costa Rican public procurement

In general, sustainability as a concept – including its three dimensions: economic, social, and environmental – is difficult to grasp, but especially so when it comes to practical considerations in pp. We now discuss how sustainability criteria can be included in calls for tender in order to illustrate the options that public procurers in Costa Rica have if they wish to shift towards more sustainable procurement patterns.

Calls for tender can contain product (for instance, energy efficiency) or firm-level (for example, years of experience, ISO 14.000 certificate) specifications. In principle, procurement officers can cover all three dimensions of sustainability in tender documents – either as evaluation criteria, or, under certain circumstances, as admissibility criteria. Based on **admissibility criteria**, governments either reject or decide to consider a firm’s bid. Based upon **evaluation criteria**, governments may assign each firm a score ranging from 0 to 100 and select firms with a higher score over other firms. Within the percentage point system, sustainability aspects can be taken into consideration and additional points can be attributed if sustainability criteria are respected. At the current stage, procurement officers are responsible for defining evaluation and admissibility criteria independently. Apart from that, they have to check compliance with the legal provisions, such as that bidding firms have paid their social security contributions.

Across the various different legal designs, **framework agreements** are a particular case. Framework agreements are an instrument to lower transaction costs in public procurement. For certain products or product groups, a list of products and suppliers is put in a “catalogue” from which the procurers can cover their needs without going through a new tender process (see Table 2 for a list of framework contracts valid in 2018). Sustainability criteria are being increasingly considered when setting up the framework contracts and the related catalogues. This may assure a more serious knowledge management in SPP. In 2018, however, only three framework contracts were valid in Costa Rica.

Table 2: Overview of framework contracts valid in 2018	
<i>Framework contract</i>	<i>Valid since</i>
Office furniture and school equipment	30.09.2017
Paper, cardboard, lithography	16.04.2018
Stationary	02.05.2018
Source: MOF, 2018, own translation	

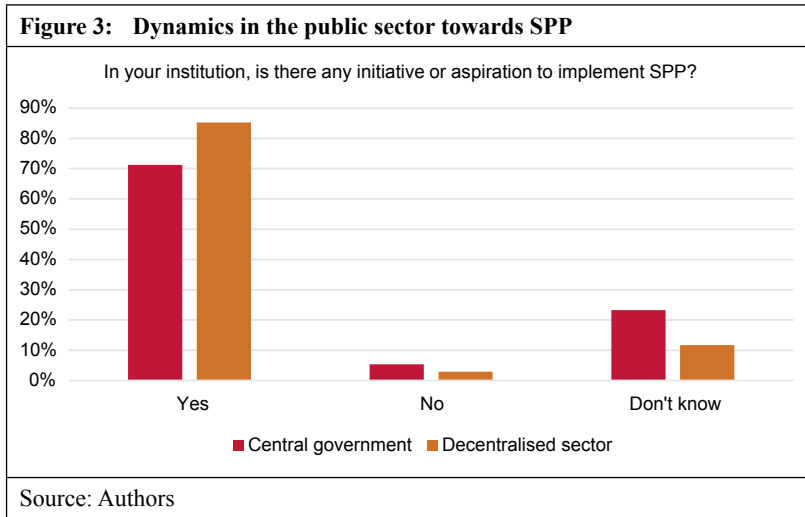
Certain **social criteria**, such as the prohibition of employing persons below the age of 15, labour standards, and social security registration are mandatory by law and thus included as admissibility criteria in calls for tenders. Certain **environmental criteria** can be used as admissibility criteria, that is, energy efficiency for refrigeration products, illumination products, and air-conditioning; recyclable plastics or no plastic at all for catering services; paper from recyclable fibre as specified in laws or a Directive (for instance, *Directriz 11*). We found that **economic criteria**, such as life-cycle costs, are hardly ever applied in Costa Rican SPP.

5.3 Presentation of results, and discussion

On the following pages, we will explore whether, to what extent and how the officers in charge of public procurement reacted to SPP policies, as framed by the National Policy and the related Directives.

5.3.1 Public servants' perception of SPP and its implementation

When we looked at the information collected, we examined first how SPP was understood and perceived among Costa Rican civil servants. Several of our interview partners stated that in the last two to five years – thus parallel to the implementation of the 2015 National Policy on SPP – the inclusion of criteria relevant to sustainability into calls for tenders had increased.



Sixty-nine per cent of respondents (2018) stated that the general topic was of (high) relevance in their daily work – an answer that could partly be attributed to social desirability, meaning that the respondents somehow assessed more what would be the desirable situation than what actually was the reality in their day-to-day work. Asked whether there was an aspiration to implement SPP in their institution, the results showed high aspirations, especially those from the decentralised sector. Overall, the topic of SPP was quite well known and it was of at least some importance to the majority of public servants who participated in our survey.

Our survey respondents from the Central Government were also asked whether they were implementing the 2015 National Policy on SPP. Only 60 per cent stated that they were indeed implementing it; 30 per cent stated that they did not know whether it was being implemented; and 10 per cent stated that it was not being implemented. This indicated that, while the executive order was relatively well known as a policy tool across the Central Government, there was still a considerably high number of institutions that were not aware of or were not implementing the Directive.

Regarding the strategies used by institutions in order to promote SPP, 69 per cent of respondents who stated that within their institution efforts towards SPP were being made, said “The specifications of the tender are oriented to the promotion of sustainable purchases.” Forty-six per cent indicated that

their organisation's strategy was "guidance and training for the personnel involved with the acquisitions." An overview of all possible answers, including a comparison to those of the 2016 CEGESTI survey, is given in Table 3.⁶ It clearly shows that the use of each given strategy increased over the past year. This positive trend was particularly reflected when it came to the inclusion of sustainability criteria in calls for tenders, in general (1.) and in the design of evaluation criteria (5.).

Table 3: Inclusion of sustainability criteria in public tenders: survey results		
<i>In your institution, which of the following practices are used to promote sustainable public procurement?</i> (Multiple answers possible)	2016	2018
1. The specifications of the tender are oriented to the promotion of sustainable purchases.	50%	69%
2. Guidance and training for the personnel involved with the acquisitions.	38%	46%
3. Communication of needs with sufficient response time for firms.	22%	26%
4. Research, studies and hearings to know the market prior to the preparation of the tendering documents.	21%	25%
5. In the tendering documents, offers with sustainable characteristics are allowed and additional points are awarded to this type of products.	19%	33%
6. Dissemination of sustainable purchases made by the institution.	10%	22%
7. Informal networks for the exchange of knowledge.	-	10%
8. Formal networks for the exchange of knowledge.	-	7%
Other	7%	7%
None	22%	9%
Source: Authors and CEGESTI, 2016		

⁶ It was not possible for us to compare these results with the ones from the 2013 survey as the latter one only addressed procurement officials from the Central Government.

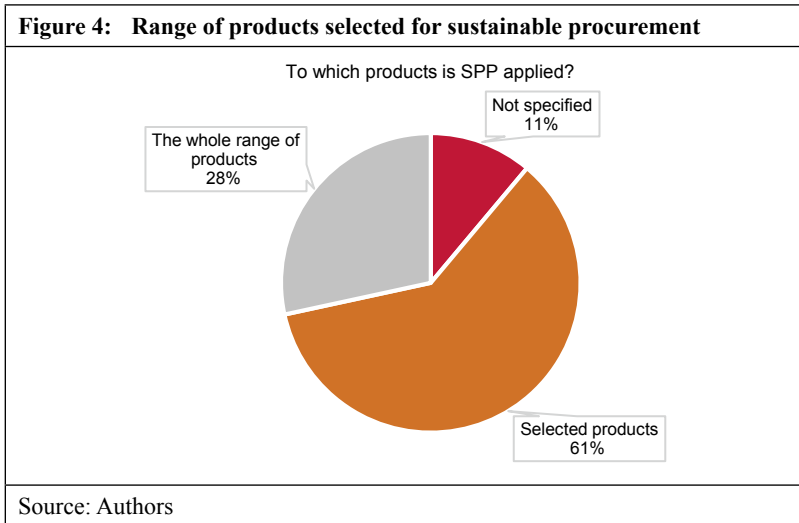
Despite increased awareness and implementation of SPP, sustainability was rarely considered to comprise its three dimensions – environmental, economic and social. Most interviewees only referred to the environmental dimension. However, one interesting observation from the online survey in this regard was that, when asked about environmental criteria, a number of people mentioned social criteria instead. This indicates that, in Costa Rican PP, social criteria are more prevalent than environmental ones, even if they are considered as simply legally binding and not part of a special SPP policy.

Environmental criteria were the most prominent criteria when it came to our interviewees' perception of SPP. Moreover, 55 to 60 per cent of our web-survey respondents stated it was easy or very easy to include this kind of criteria.

Social criteria were not necessarily considered to be part of SPP, which seemed to be framed more in terms of green procurement at many Costa Rican institutions. In our online survey, between 62 per cent and 82 per cent of respondents considered the inclusion of the various different social sustainability criteria to be easy or very easy.

Economic criteria were only mentioned by interviewees after being explicitly asked for. None of our interviewees stated that they included life-cycle assessment in the procurement process. A lack of knowledge in this area could be observed in the qualitative interviews. Among the interviewees, the idea was mostly unknown or confused with other concepts such as life span. In the web-survey, 49.5 per cent of respondents stated that life-cycle cost assessment was never done and only 4.3 per cent stated it was done for each offer.⁷

7 As a reaction to the underrepresentation of economic aspects, our interviewee from MEIC proposed the creation of new guidelines for their inclusion.



In addition, only one interviewee (from MINAE) referred to the concept of value chains. He made it clear that it was rather difficult for a country like Costa Rica which imports most of its products to consider the entire value chain with regard to sustainability.

At the product level, 61 per cent of respondents of our online survey stated that only certain items were chosen; 28 per cent indicated that sustainability criteria were applied to all products purchased; and 11 per cent mentioned a lack of a defined institutional strategy in this regard.

The products/services which were mentioned most frequently as an example of a sustainable purchase in our online survey (23 times) as well as in the interviews were cleaning products and services. While in the web-survey, paper products (15 times), computers and their accessories (10 times) as well as lighting (9 times) were mentioned relatively often, interviewees often referred to products included in the *Directriz II* (see subsection 4.1). Several interviewees underlined that the *Directriz II* was simplifying the sustainable purchase of specific products such as air conditioners. Some of them acknowledged that, even if some products' initial price was more expensive, a sustainable purchase might be more cost-efficient in the end due to higher energy efficiency and/or a longer life span.

Summarising the insights described above, our main finding with regard to the perception of SPP was: PP officers' awareness and activities regarding the topic of SPP have been constantly growing since the first online survey was implemented in 2013. SPP implementation has advanced; however, this only applies to certain products and selected implementation strategies and policy tools.

5.3.2 Technical knowledge about SPP among public servants

Respondents were asked about their knowledge of SPP-specific guidelines and regulations, for example, the Guide on SPP (see subsection 4.1). While among the respondents from our online survey 19.4 per cent stated that they did not know about the guideline, a majority of 53.8 per cent knew about it in general, but not its details. This indicated that, even if more than half of the people included in the survey had heard of this key tool, there was no widespread expertise on its contents within the institutions that we were able to reach through our survey. Nevertheless, the use of this guideline seems to be increasing: in 2016, 60 per cent of respondents stated that the recommendations of the guideline were being implemented; in 2018, it was already 68 per cent of respondents.

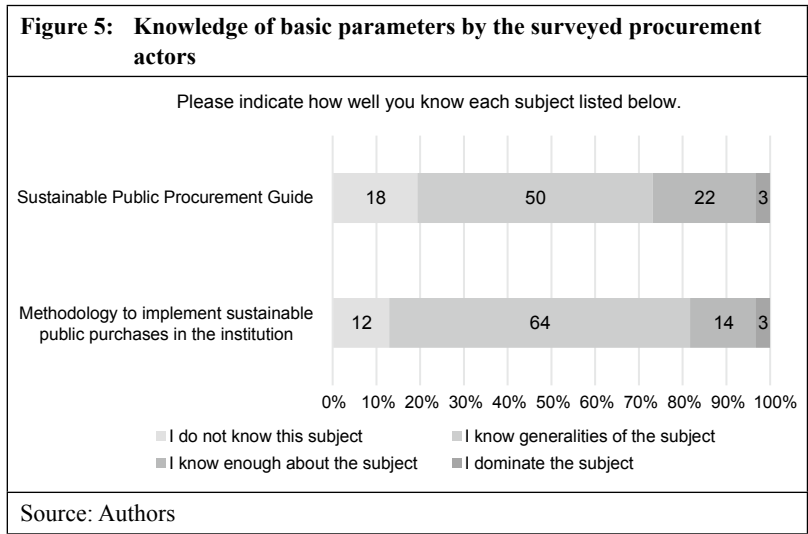
When asked why the guide was not used, these were the most frequent answers: For many respondents the 10 product groups mentioned in the guidelines were not a priority to the institution, or they could not find a sufficient number of bidders for them. Sometimes, also a lack of human resources and specific knowledge was a barrier.

Furthermore, within our survey, respondents were confronted with a number of legal obligations/PP topics and asked to indicate whether they

- did not know the topic;
- generally knew the topic;
- sufficiently knew the topic, or
- dominated (= were well acquainted with) the topic.

The most striking result in this set of questions was that barely anyone indicated that they "were well acquainted with" a topic. Thus, in a variety of topics, public procurers felt that, while they *did* have a general understanding of the regulations, they were not experts. Possible causes for this could be an

incomprehensive training system for public procurers or time pressure under which they had to work which hindered them from studying regulations in detail. More than 40 people stated that they did not know topics such as life-cycle assessment and extended producer responsibility – two issues that are crucial to comprehensive SPP implementation, but also difficult to put into practice. Nevertheless, when compared to the results of the 2016 CEGESTI survey, the situation had improved somewhat, as back then the category “I dominate (am well acquainted with) the topic” was selected even less.



Regarding the participation of our survey respondents in SPP-related trainings, 65 per cent of respondents from the decentralised sector and 46 per cent of respondents from the Central Government had participated in trainings. As respondents from the decentralised sector are assumed to have participated voluntarily in our survey, it was supposed that these respondents were also more interested in SPP and thus willing to participate in training courses. In general, 70.9 per cent found the training courses to be somewhat or fairly useful, while 20 per cent found them very useful, and only 9 per cent considered them to be of little use.

The complex legal framework relevant to SPP is often perceived to be incomprehensive: our interviewee from MEIC was under the impression that the general Law on Administrative Contracting collides with several

regulations on sustainable procurement, which would complicate the inclusion of comprehensive sustainability standards into calls for tender. Consequently, a lack of knowledge of specific laws could lead to confusion and frustration. The sheer number of laws and regulations relevant to SPP, combined with a lack of capacities among procurement officers, hampered their implementation: “Costa Rica is a country so full of laws, which undermines good intentions” (MINAE expert interviewed, own translation).

An interview partner from CONAVI stated that, due to lack of training, it was not easy to find the information applicable to one’s needs and incorporate it into the calls for tender. Additionally, an interviewee from MIVAH emphasised that procurement officers were unsure when to apply which criterion. This argument was stressed by a web-survey respondent who claimed that the complexity of the legal situation resulted in insecurity with regard to misinterpretation or misuse on behalf of the procurers, which might then lead to non-implementation.

Public-public exchange could help to share knowledge, for example, on the legal framework, and in this way reduce insecurity. The perceptions of and experiences with this kind of exchange differ from institution to institution. Our interviewees from MSP, MICITT and MTSS stated that there was no interaction or inter-institutional communication. Representatives from UNA (National University of Costa Rica) and MOPT (Ministry of Public Works and Transportation) said that no exchange took place on the level of the procurement officers. Nevertheless, there was some communication on very particular topics: procurement officers at CONAVI told us that, when elaborating a call for tender, they would try to figure out who had made a similar call for tender and to adopt certain wordings. Colleagues from other institutions ask procurement officers at MEIC for advice, particularly with regard to SME promotion, and several procurers participate in meetings for all procurement officers initiated by the Committee for SPP, mostly for training purposes.

There is a network of all higher education institutions committed to “green campus concepts” (Red Costarricense de Instituciones Educativas Sostenibles, REDIES). REDIES also serves as a platform to exchange experience and plans related to green procurement issues.

From the respondents in our online survey, only 9.9 per cent stated that they engaged in informal exchange with other procurers on the topic of SPP and

only 7.4 per cent of respondents stated that they participated in formalised interchange in this regard.

Regarding the practical implementation of SPP, we have so far found that no strategy for knowledge transfer that would do justice to the complex challenges of SPP is in place. Public servants seem to be regularly struggling with implementing SPP in a comprehensive way.

5.3.3 The knowledge gap in SPP: public-private interaction

Naturally, the supply capacity of the public sector plays a crucial role for SPP implementation: “[...] even if they [the procurement officers] are ready to face the market, the market also has to prepare for this type of implementation” (CGR expert interviewed, own translation).

According to several of our interviewees, there is currently a gap between supply and demand of sustainable products and services. An example of this is a tender which, in line with a regulation, had to include the request for employees with disabilities. Nevertheless, in this sector no firm employed a sufficient percentage of people with disabilities and the call for tender had to be adapted later on. The feasibility of some criteria also depends on the size of a call for tender. For instance, the request for catering avoiding single use plastic cannot be adhered to for a small event, as the firm’s investment costs for this specific requirement are too high. Another challenge is missing infrastructure linked to sustainability requirements. For instance, an interviewee from Empresa de Servicios Públicos de Heredia/Public Service Company of Heredia (ESPH) emphasised that the government recommends electronic vehicles; however, charging stations for these vehicles are not widespread. This also applies to recycling infrastructure. Our interviewee from MEIC remarked that a mismatch between supply and demand could even lead to the formation of monopolies (which are prohibited in Costa Rica) when only one firm offers a very specific product.

These mismatches could be avoided by market studies to identify what could be provided by the market. However, these studies were rarely mentioned by our interviewees. Consequently, there is a high level of insecurity involved in the procurement process as the procurer does not know in advance whether offers will be made at all, whether offers that match the call for tender will be forthcoming, or whether a firm will start an appeal perceiving the demanded

criteria to be too restrictive. Facing these challenges, several interviewees advocated for greater integration of and engagement with the private sector. This could involve awareness-raising campaigns for private firms and producers who sell their products to the public sector. Our interviewee from MIVAH claimed that the private sector needed to see the importance of SPP and engage in sustainability issues, for instance, by implementing a waste plan on the company level. However, an interviewee from MINAE voiced his doubts whether firms would be willing to adapt their production lines to sustainable production. Hence, awareness-raising among private firms is necessary. SMEs in particular have not been sufficiently informed about the possibilities of selling to the state.

This proposal of enhancing public-private knowledge-sharing is not reflected in the current situation: Asked whether there was an exchange between the public and the private sector, some interviewees stated that there was none and that exchange often only took place via the e-procurement system, SICOP. At the same time, it was claimed by our interviewee from MICITT that, due to SICOP, the distance between procurers and firms had increased, as it replaced more direct/personal mechanisms of communication. An interviewee from MOPT stated that exchange was easier with producers of electronic gadgets, such as air conditioning, electric cars, and so on, who are more interested in sustainability issues than those of articles for daily use, like paper. If interviewees had a positive impression about the existence of public-private exchange, this was due to training or the provision of information offered to firms. MEIC, for example, provided training for SMEs supported by INA while our contact from the Banco de Costa Rica (BCR) stated that all information regarding their procurement process was public and available online. All requests by firms about tender processes were duly answered by them. Thus, frequent exchanges, for instance, in the form of public-private dialogues, could close gaps in knowledge and boost mutual understanding.

Consequently, increased public-private cooperation could close the gaps between the supply and demand of products procured in a sustainable manner by the public sector.

5.4 Case study: ICE – forerunner in “green public procurement”

The Costa Rican Institute of Electricity (ICE) was created in 1949 as an autonomous institution, which is not subject to the MOF’s authority when it comes to PP, but has its own PP rules. Today, ICE is a corporate group of state enterprises including (see UNEP, 2012):

- ICE (electricity and telecommunications sectors);
- Costa Rican Radiographic SA (RACSA);
- National Firm for Power and Light SA (CNFL).

Within their mission, Grupo ICE states: “We are the corporation owned by Costa Ricans, which offers electricity and telecommunications solutions, contributing to the economic, social and environmental development of the country” (Grupo ICE, 2017, own translation).

When it comes to environmental protection, ICE has been a prominent actor in Costa Rica for many years. With regard to SPP, the process was started in late 2007, when a Committee on Green Procurement was set up informally in cooperation with CEGESTI, to be then formalised in 2010. During that time, CEGESTI published its Manual on Green Procurement (see subsection 4.1). For ICE, the inclusion of environmental considerations in the procurement process had been made mandatory through the *Ley de fortalecimiento y modernización de las entidades públicas del sector de telecomunicaciones* (Law for the strengthening and modernisation of public entities in the telecommunications sector) of 2008.

According to our interviewee at ICE, the firm was under pressure to ensure environmental protection, particularly as tyres with its logo had been repeatedly disposed of inappropriately. Tyres that had been deposited at random places were identified as a breeding place for mosquitos that transmit the infectious disease Dengue fever. From 2009 onwards, ICE started to outsource tyre waste management by using a “delivery on demand” concept (which included distribution, management, and collection services for new and waste tyres) and resulted in lower costs and which reduced CO₂ emissions. This initiative was later included as one of eight case studies in the 2012 SPP Impact Study, a joint project of UNEP and the Marrakech Task Force on SPP. The positive resonance to this project increased efforts towards SPP (UNEP, 2012).

However, the focus within ICE continues to be on “green” rather than on “sustainable” procurement. This can partly be explained by path dependency, as the term “green procurement” was already in use before the larger-scale Costa Rican SPP initiative was started. In addition, the environmental dimension (linked to health issues) was evident in the case of vehicle tyres. It is remarkable that ICE’s tendering strategy differs from those of other public actors in the country: at ICE, all environmental criteria are included as admissibility criteria. The sole evaluation criterion is then the price. Currently, the Green Procurement Committee is working on creating standardised calls for tender in order to make green procurement more feasible. After successfully forbidding the use of Styrofoam, the Committee is now working on banning single-use plastic.

In order to further develop their strategies, our interviewees expressed the strong wish for more international exchange as, at the national level, they perceived ICE to be the leading institution when it came to green procurement. Here, it needs to be considered that, along with international exchange, ICE should share its best practices with the procurement officers of Costa Rican institutions.

6 Leveraging sustainable public procurement: can SPP foster firms’ sustainability performance?

In the previous section we have been able to show how, in order to successfully implement SPP, the private sector’s perspective needs to be considered and analysed in detail. For this reason, the second part of our endeavour focused on finding out the point of view of Costa Rican firms. Our research design and results will be presented below.

6.1 Conceptual approach to studying the response of the private sector to SPP policies

For policymakers in Costa Rica and elsewhere it is crucial to know *whether*, and if so, *how* sustainable public procurement (SPP) can promote sustainable development pathways. Given that few countries have actually implemented a national SPP policy (UNEP, 2017), the introduction of Costa Rica’s National SPP in 2015 may offer important lessons for others.

SPP has recently been promoted as a demand-side policy to foster sustainable production, thanks to the public sector's purchasing power (see, for instance, European Commission, 2011, 2017; OECD, 2015; UNEP, 2017). Moreover, researchers have underlined SPP's particular potential to promote local industries in the global economy as only very few developing countries have signed up to the WTO's Government Procurement Agreement (Trionfetti, 2000; Kattel & Lember, 2010; Kono & Rickard 2014), giving them larger leeway to enact policies which might follow under prohibited protective measures from the WTO.

However, the relationship between SPP and firms' production choices is theoretically unclear and existing empirical evidence is scarce and mixed (Cheng, Appolloni, D'Amato, & Zhu, 2018; Grandia & Meehan, 2017; Lundberg, Marklund, Strömbäck, & Sundström 2015; Lundberg, Marklund, & Strömbäck, 2016; Yülek & Taylor, 2012). From a positive perspective, SPP can create or enlarge market demand for sustainable products, spread sustainable production standards, foster sustainable innovation and/or exports of sustainable products (Edler & Georghiou, 2007; Kattel & Lember, 2010; Taylor & Yülek, 2012; Blind, 2013). However, from a negative perspective, SPP may crowd out private demand for sustainable products, require high bureaucratic capabilities and constitute an avenue for corruption that may stifle competition and incentives for innovating and exporting (Marron, 1997; Lundberg et al., 2015; Lundberg et al., 2016; Lehne, Shapiro, & Eynde, 2018; Auriol, Straub, & Flochel, 2016; Szucs, 2017). Accordingly, based on a content analysis of the existing literature, Cheng et al. (2018) note that "the literature has thus far focused on Green Public Procurement (GPP) implementation while GPP's effects and efficiency are barely present in existing empirical evidence and are not addressed in many theoretical analyses".

The current study used a mixed-method approach. First, we surveyed firms registered at the domestic e-procurement platform Merlink/SICOP regarding their sustainability performance. Second, we collected data about firms' actual participation in PP from the e-procurement platform in cooperation with the government agency that operates the platform (RACSA). We combined these records about firms' participation in PP with firms' answers to eight proxies for their (sustainability) performance in the online survey to conduct a cross-section regression. Third, we conducted semi-structured interviews with procuring firms' management to understand whether theoretical assumptions about the mechanisms of (sustainable) government purchases

on firms' (sustainability) performance were reflected in reality. Given that our empirical strategy relied on interviews, an online survey and correlation-based data analysis, it does not allow us to make definitive conclusions on the causal effects of PP/SPP on firms' sustainability performance. Rather, the study provides a (first) conceptual framework and suggestive (but not conclusive) results which constitute a starting point for further research into the causal mechanisms.

Below, subsection 6.2. introduces the conceptual framework, subsection 6.3. outlines the methodology as well as its shortcomings, and subsection 6.4. presents and discusses the results.

6.2 Hypothesis of the quantitative research

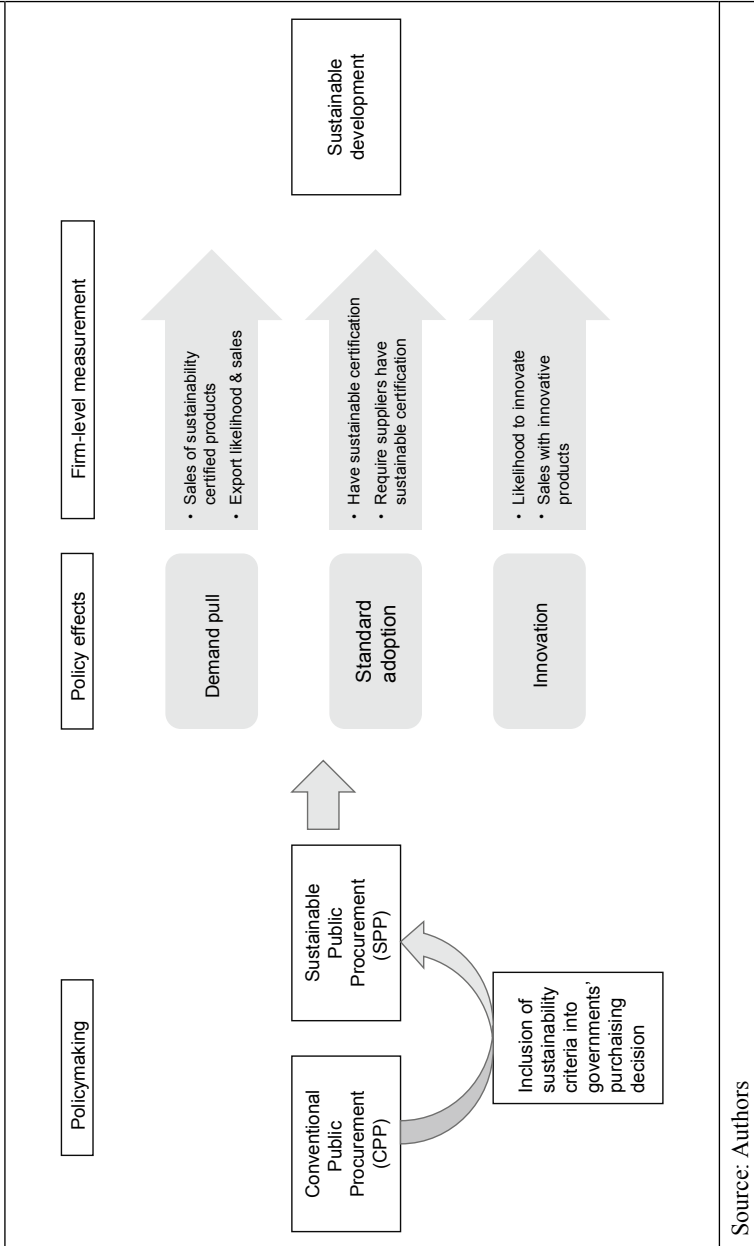
In the following, we conceptualise three channels – demand pull; standard adoption; and innovation – through which government purchases could influence firms' production choices (see Figure 6). For each channel, positive and negative hypotheses are formulated.

Hypothesis 1 – Sales of sustainably-certified products

From a positive perspective, SPP could create or enlarge (the perception of) business opportunities for sustainably produced products in local markets (Trionfetti, 2000; Blind, 2013; Edler & Georghiou, 2007; Uyarra, Edler, Garcia-Estevez, Georghiu, & Yeow, 2014). In doing so, SPP may create the “critical mass” (demand) and competition to overcome a lack of or the perception of a lack of profitable business opportunities (Edler & Georghiou, 2007; Uyarra et al., 2014), which have been argued to be crucial impediments to growth in investment-constrained countries (Rodrik & Subramanian, 2009).

From a negative perspective, it is however questionable whether SPP creates sufficient demand to actually increase sustainable production locally. Firstly, sufficient critical mass only occurs if several procurement offices act jointly, for example, targeting a specific product (Lundberg et al., 2016). Secondly, without a “buy-local” clause, SPP may increase imports rather than local output where the local industry is relatively weak (Trionfetti, 2000). For example, in Paraguay, Auriol et al. (2016) found firms that specialised in import intermediation for public procurement as a result of a low local industrial capacity. SPP may actually make local prices for sustainable

Figure 6: Hypothesised causal chains from public procurement to sustainable development



Source: Authors

products rise and thus crowd out private demand, which would mean that SPP actually reduced the total sales of sustainable products (Marron, 1997).

Thus, our first working hypothesis is formulated as follows:

Hypothesis₀: There is no significant correlation between firms' participation in SPP and firms' sales of sustainably-certified products.

Hypothesis 2 – exports

In the long term, preference for domestic (sustainable) products in public procurement could help a country build a comparative advantage, and thus increase exports of sustainable production. The participation in public procurement may enable learning and diversification processes. Firstly, public procurement has been argued to help firms – in particular young firms – to discover new markets (Ferraz, Finan, & Szerman, 2015), may provide feedback that can engender specialisation in future economic sectors (Edler & Georghiou, 2007) or may provide a “testing ground for innovative products” (Kattel & Lember, 2010). Given Costa Rica's eco-trademark and its populations' general openness towards sustainability, Costa Rica seems well-positioned to embrace such a developmental strategy (see Section 3).

However, in the short term, increasing domestic demand for (sustainable) products through public procurement may decrease product exports (see Trionfetti, 2000). Moreover, it is questionable whether firms' learning (towards exporting) in public procurement actually occurs. Therefore, we derive the following null hypothesis:

Hypothesis₀: There is no significant correlation between firms' participation in PP and firms' exports.

Hypothesis 3 – sustainable certification

The inclusion of sustainability standards as criteria to allocate public contracts may incentivise (or oblige) firms to adopt sustainability standards, and may thus help to spread them across value-chains and sectors (Uyarra et al., 2014; Blind, 2013; Brammer & Walker, 2011; see McCrudden, 2004 for historical examples). Accordingly, Hale and Roger (2014) as well as Auriol and Schilizzi (2015) suggest that governments can take an active role in orchestrating the efforts of private actors towards sustainable standardisation, that is, by supporting a specific (local) certification or label. The inclusion and support for specific standards in public procurement is also argued to

signal to producers and consumers unmet needs and the direction of future economic change (Edler & Georghiou, 2007; Mazzucato, 2015; Uyarra et al., 2014). Sustainability standards put an end to “equal treatment” of procuring firms (products) that do or do not adhere to higher sustainability standards, which constitutes a “carrot” for first movers and a “stick” for unsustainable incumbents and “laggards” (Rodrik, 2004; Chang, 2002).

However, the inclusion of sustainability standards as criteria in PP involves several risks that may actually lead to a negative effect. If the costs to acquire the necessary certificate for complying with sustainability standards exceed the potential benefits, additional sustainability standards may discourage firms from participating in SPP. Secondly, governments may lack the necessary information, knowledge and capacity to select adequate sustainability standards. Governments may select too ambitious standards, which may generate oligopolies or monopolies, or too basic standards, which also do not incentivise sustainable upgrading (Blind, 2013). For example, Lundberg et al. (2015) found suggestive correlations for such an effect in the Swedish procurement of cleaning services. In their analysis, they observed that none of the purchases, for which green criteria had been established, identified which specific environmental objectives should be met. This is particularly interesting as the political ambitions to promote SPP as an environmental policy instrument are extensive.

We thus derive the following null hypothesis:

Hypothesis₀: There is no significant correlation between firms’ participation in SPP and firms’ likelihood i) to possess sustainable certification and ii) request sustainability certificates from their suppliers.

Hypothesis 4 - innovation

Moreover, there may be important positive externalities to firms through their participation in (sustainable) public procurement, which could incentivise firms’ (sustainability-oriented) innovation. At the most basic level, sustainability standards in public tenders can serve as a source of information (which comes at no cost). Information equally constitutes a signal (Edler & Georghiou, 2007), which can trigger processes of self-discovery, for instance, for incremental or radical innovations, (Blind, 2013; Mazzucato, 2015), which are crucial for countries’ long-term growth (Hausmann & Rodrik, 2003).

Furthermore, SPP can help firms finance the costs of innovation, since innovations may involve risks unlikely to be covered through conventional lending (Panagariya, 2011; Andreoni & Chang, 2016; Kattel & Lamber, 2010). The government may step in as it has “the deepest pockets” (Andreoni & Chang, 2016) and can use its procurement to ease firms’ access to credit as procurement increases firms’ valuation (Banerjee & Duflo, 2014).

Yet, there are also rationales that suggest that selling to the government may reduce firms’ innovation activity. First, governments may lack information (for an example, see Panagariya, 2011), bureaucratic capacity (for instance, Rodrik, 2004) and embedded autonomy (Evans, 1995) to choose sustainability criteria that are neither too basic nor too stringent to foster rather than stifle incentives for innovation (Blind, 2013). Second, if costs for standard adoption exceed benefits, firms may refrain from SPP. Fewer companies imply less competition, which reduces incentives for innovation (see, for instance, Lundberg et al., 2015; Aghion et al., 2005).

Although no such specific policy is in place in Costa Rica, the 2015 National Policy on SPP puts a special focus on promoting innovation. We thus formulate the hypothesis as follows:

Hypothesis₀: There is no significant correlation between firms’ participation in PP and firms’ having innovated and/or firms’ share of sales from innovated products.

6.3 Research methods

This subsection provides an overview of the mixed-methods research design, including sampling and description of the various different data sources (6.3.1), the econometric approach (6.3.2), and potential caveats (6.3.3).

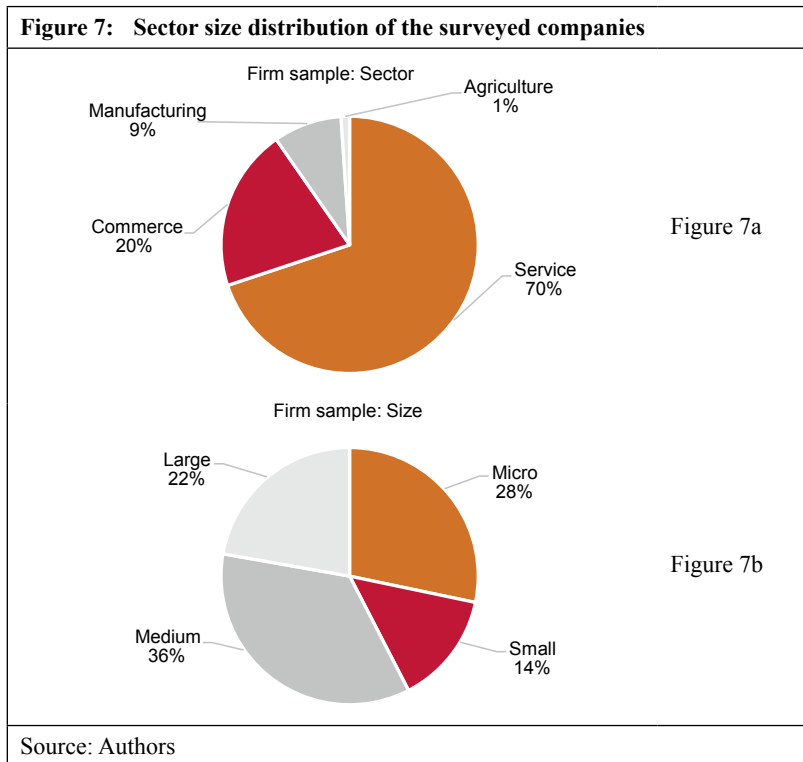
6.3.1 Sampling and data description

First, we conducted semi-structured qualitative interviews with representatives of company management.⁸ We selected companies based on product range, number of public contracts gained between 2016 and 2017,

⁸ The questionnaire can be found in the Appendix. Interviews were recorded and transcribed wherever possible, and analysed using ATLAS.ti. The defined categories can also be found in the Appendix.

and the value of the latter. Second, we selected firms that bid for the same public contracts. Although 125 firms were contacted by telephone, only 16 firms agreed to an interview. The firms interviewed had heterogeneous characteristics, that is, they were car resellers, catering services, textile firms, cleaning and maintenance service providers, or importers of machinery. Interviews followed the same questionnaire to guarantee comparability (see Appendix for the questionnaire).

Second, we conducted a two-tier quantitative analysis. We carried out an online survey to solicit firms' experience with SPP and to identify proxy indicators of firms' sustainability performance. The online survey was sent to 15,887 firms registered as procurers in the e-procurement platform Merlink/SICOP. Out of the 747 complete and 934 partial answers, we retained 712 after data cleaning.



The firm sample had the following characteristics (see Appendix for further tables).⁹ About 65 per cent of respondent firms indicated that they operated in the service sector, 19 per cent in commerce, about 8 per cent in manufacturing and not even as much as 1 per cent came from the agricultural sector (8 per cent: others). In terms of size, 28 per cent were micro-, 14 per cent small-, 35 per cent medium- and around 22 per cent large-sized firms.¹⁰ The mean number of employees was 26. The smallest firms were independent self-entrepreneurs with no standing workforce, while the largest firms – which operated in the cleaning or security-service industry, the media industry, selling/renting machines or were supermarket chains – had up to several hundred employees. Regarding company location, about 51 per cent of them were located in the province San José, 14 per cent in Alajuela, 11 per cent in Cartago, and 12 per cent in Heredia. The sample was dominated by firms from the Central Valley and only a few firms were located in the structurally disadvantaged regions. In terms of their capital, about 93 per cent of firms were exclusively owned by Costa Rican nationals, 3 per cent were exclusively foreign-owned, and 3 per cent were joint ventures between foreign and Costa Rican capital. The average firm in the sample was about 16 years old and had almost four years' experience in selling goods to the state through the e-procurement platform. In terms of firms' managers, about 73 per cent of managers were male and about 27 per cent female. Five per cent had less than or only high school education, 18 per cent had a technical education, 73 per cent had a university degree, and almost 3 per cent had a PhD. Thus, in comparison to the characteristics of the total population of firms in the formal sector, the sample mainly differed as it was skewed towards larger firms (22 per cent in the sample versus 7 per cent in total) and towards service sector firms (65 per cent versus 42 per cent in total).

Second, we used an administrative data set from the e-procurement platform Merlink/SICOP that contained all procurement processes conducted through the e-procurement platform between December 2010 and (at the moment of our access to the database) March 2018. The data covers all firms that bid for each procurement process, the evaluation criteria applied and the

9 Note that differences in the number of observations occur as some control variables, such as firm size, stem from the e-procurement platform, or as respondents did not provide the information required by the survey.

10 Note that the variable size of firms is part of the information available on the e-procurement platform and is calculated on the basis of formula established by the Ministry of the Economy (MEIC). See Appendix for the formula.

score that the firm achieved in the evaluation process [0-100]. We coded all procurement processes that included evaluation criteria related to sustainability as “sustainable” [1] and other processes as “conventional” [0] (for a list of the sustainable criteria, see Appendix 5.). We observed 49,839 procurement processes throughout the entire period, out of which we coded 729 as “sustainable” and 37,504 as “conventional” (the remainder is undefined as the applied criteria were missing). In the 729 SPP processes, public procurers required “sustainable” criteria 1,231 times, which is more than 729 as one process can include multiple criteria and/or products.

Finally, we matched firms’ responses to the online survey with firms’ administrated data record in pp. The former indicates that 301 firms in our survey sample were registered but did not participate in any procurement processes through the e-procurement platform.¹¹ Thus, we retained a sample of 411 firms for our regression analysis. Among the 411 firms, 26 firms had at least once been successful in a SPP process, 249 firms at least once won a CPP (conventional public procurement) process; 65 firms had bid for a SPP process and 369 firms had bid for a CPP process through the e-procurement platform Merlink/SICOP between December 2010 and March 2018.

6.3.2 Econometric approach

The quantitative analysis consists of a cross-sectional regression analysis. We observed firms’ self-indicated sustainability performance in March 2018 when firms responded to our survey. In addition, we observed firms’ participation in PP between December 2010 and March 2018. We matched both to explore correlations between firms self-indicated sustainability performance and their participation in pp.

Description of variables

Dependent variables (DVs): We chose seven questions from the online survey as DVs. The DVs are proxies for firms’ sustainability performance; in other words, for firms’ production methods and consumption choices. We isolated the following seven DVs:

11 Note that there was second procurement e-procurement platform operating until 2017 and that many PP processes, for instance by the CCSS, are still conducted on paper.

- Likelihood of sustainable certification;
- share of sales with sustainably-certified products in 2017;
- likelihood of having requested sustainable certification from suppliers in 2017;
- likelihood of having exported;
- share of sales with exports in 2017;
- likelihood of having innovated, and
- share of sales of innovated products in 2017.

Independent variables (IVs): We compiled the following IVs based on firms' participation in the e-procurement platform. In general, we distinguished between firms' participation in SPP and CPP processes.

- Amount gained in SPP or CPP between 2010 and 2017;
- times SPP or CPP contracts gained between 2010 and 2017;
- times bid for SPP or CPP contracts between 2010 and 2017;
- success rate in SPP or CPP between 2010 and 2017;
- times bid for SPP contract/times SPP contract gained between 2010 and 2017 (in absolute figures);
- amount bid for in SPP contracts/amount gained through SPP contracts between 2010 and 2017; and
- dummy firms gained SPP contract between 2010 and 2017.

Control variables (CVs): We controlled for a battery of firm-level variables, which were likely to affect a firms' contribution to sustainability as well as its PP performance. We controlled for a firm's **size** as it may be easier for larger firms to introduce sustainability actions such as acquiring a certificate. We controlled for a firm's **age** and a firm's **experience** in using the e-procurement platform, as older firms may be better known and connected to procurement officers and more familiar with procurement processes. On the other hand, incumbent firms may be more reluctant to change their production towards higher levels of sustainability than younger firms whose production choices are not yet so institutionalised. We controlled for the **location** of a firm's headquarters in one of the seven Costa Rican provinces, as there are strong

regional disparities which may affect both a firm's ability to gain public contracts as well as its sustainability performance. We controlled for the **gender** of the firm's manager, as previous studies have shown that female-led business are strongly disadvantaged in the assignation of public contracts (ITC, 2014). We also controlled for the level of **education** of a firm's managing director as we assumed that this might be positively correlated to a firm's ability to gain a public contract as well as to its sustainability performance. In addition, the firm's **sector** may affect the ability of a firm to gain public contracts as in some sectors it may be easier to implement environmental and social standards compared to other sectors. Finally, we also controlled for the origin of the firm's **capital**, as foreign firms are usually larger and export more frequently, which may have an effect on both the firm's ability to gain public contracts and its sustainability performance.

Model specifications

The following econometric models were used to estimate the influence of firms' participation in SPP on i) the probability that firms, for instance, possess sustainable certification, as well as ii) on firms' share of sales with, for example, sustainably-certified products. Through the inclusion of control variables such as firms' characteristics (like firm size as well as a firm's participation in CPP), we tried to isolate the effect of SPP participation (see subsection 6.3.3. Limitations). Given that dependent variables are either dummy variables or vary between [0-1], we used binary logistic regression models for the former, and fractional logistic regression models for the latter. Firstly, we used a standard logistic regression model with robust standard errors of the following form for binary dependent variables:

$$\begin{aligned}
 P(Y|X)_F = & F(\beta_1 \text{ Success Rate SPP}_{Firm} + \delta_1 \text{ Success Rate CPP}_F + \beta_2 \left(\sum_{2010-2018}^{SPP} \text{ Amount} \right)_F \\
 & + \delta_2 \left(\sum_{2010-2018}^{CPP} \text{ Amount} \right)_F + \beta_3 \left(\sum_{2010-2018}^{SPP} \text{ Times bid} \right)_F \\
 & + \delta_3 \left(\sum_{2010-2018}^{CPP} \text{ Times bid} \right)_F + \gamma (\text{Controls})_F
 \end{aligned}$$

“P(Y|X)” stands for the probability that firms do “Y” (rather than not) where “Y” is a proxy for one of the binary dependent variables, that is, firms indicating that they have sustainable certification, have innovated or have exported in 2018.

To consider coefficient robustness to model specification and to reduce multicollinearity, we estimate each model including either the times bid or times contracts were gained, as well as either the success rate based on frequency or value. “Controls” are always all variables listed above as control variables.

Secondly, we adopted a fractional logistic regression model (Papke & Wooldridge, 1996) to estimate the fraction of sales:

$$\begin{aligned} \log(SP)_{Firm} = & \alpha + \beta_1 (Success\ Rate\ SPP)_{Firm} + \delta_1 (Success\ Rate\ CPP)_F \\ & + \beta_2 \left(\sum_{2010-2018}^{SPP} Amount \right)_F + \delta_2 \left(\sum_{2010-2018}^{CPP} Amount \right)_F \\ & + \beta_3 \left(\sum_{2010-2018}^{SPP} Times\ bid \right)_F + \delta_3 \left(\sum_{2010-2018}^{CPP} Times\ bid \right)_F + \gamma (Controls)_F + \varepsilon_F \end{aligned}$$

Otherwise, all specifications of the fractional logit regression model are identical to the binary regression model.

6.3.3 Limitations

There are several issues, which may compromise the internal validity and thus limit the interpretative power of the study. We discuss these issues below.

Conceptualisation, operationalisation and measurement

A first limitation concerns the operationalisation of a firm’s efforts towards sustainability. There is no aggregate index or indicator to measure the multi-dimensional concept of sustainability at the level of the firm (OECD, 2008), and there is – to the knowledge of the authors – no public data available for proxies of firms’ sustainability in Costa Rica. Thus, we surveyed firms online and chose sustainability indicators based on practicability and relevance. Due to these limitations, all dependent variables constitute firms’ estimates and we rely on cross-sectional rather than panel data.

Self-selection and sample selection bias

Firms that make more efforts towards sustainability may be more likely to respond to the survey, which would mean that the sample is biased. As a result, descriptive and analytical results would portray the universe of firms in Costa Rica as more sustainable than they are. A simple t-test between

the surveyed and the total procuring firm population showed that survey respondents differed from non-survey respondent procuring firms in so far as their average amount gained in SPP was 1.7 million CRC (Costa Rica colón) (approximately EUR 2,500 at the time of the survey) higher, as (on a scale from 1-4) they were 0.2 larger and tended to be less often located in San José. However, there was no statistically significant difference between both groups regarding the origin of their capital, age and amount gained in CPP. Overall, the results remained ambiguous and were not clear-cut. The statistically significant differences in the variable “amount gained in SPP” suggested that the firms we surveyed gained higher amounts in SPP than the average of the total procuring firm population. Yet, one cannot conclude that the efforts of the firms surveyed towards sustainability were greater or smaller than the total population of procuring firms as there were no indicators for the sustainability performance of the non-surveyed firm population.

Endogeneity and direction of correlation

Generalised linear models and logit models make the assumption that observations are “randomly sampled”. However, public contracts are not assigned randomly; rather firms that compete for (sustainable) public contracts are a specific subgroup of the total population of firms. Thus, the variation we observed in proxies for firms’ sustainability performance may be explained by the endogenous characteristics of the firms observed rather than an exogenous effect caused by firms’ participation in PP/SPP. As a result, this sample may suffer from omitted variable bias and/or reverse causality. For example, firms already being certified may win sustainable public contracts more easily.

We attempted to deal with these concerns by including a battery of company-level variables to control for omitted variables. There were also specific data limitations that might affect the results: non-digitised purchases and/or government purchases channelled through the second government procurement platform that operated up to 2017 were not included in the analysis. This led to an underestimation of the total number of SPP contracts and their value. Moreover, we could only observe the *evaluation* but not the *admissibility* criteria for public contracts. Some public institutions, such as the ICE, included sustainability aspects within admissibility criteria (see, for

instance, *Directriz II*). Note, however, that in both cases we underestimated (not overestimated) the correlation of SPP with firms' efforts towards sustainability.

Multicollinearity¹² of independent variables

Given that we had 11 IVs among which some were very similar, we tested for and selected the model specifications to avoid multicollinearity. For example, the number of times a firm submitted a bid was likely to be positively correlated with the number of times a firm gained a public contract. A firm's success rate calculated on the basis of value or frequency was equally likely to be highly positively correlated. Thus, we only included variables in the same model with a pairwise correlation lower than 0.6 and a variance inflation factor below 10.

6.4 Results

First, we will present survey responses regarding firms' general perception of SPP. Second, we use empirical evidence from interviews, survey and e-procurement data to analyse whether the empirical data confirm the hypotheses outlined in subsection 6.2.

6.4.1 General introduction to the results: firms' perception of challenges and opportunities for SPP

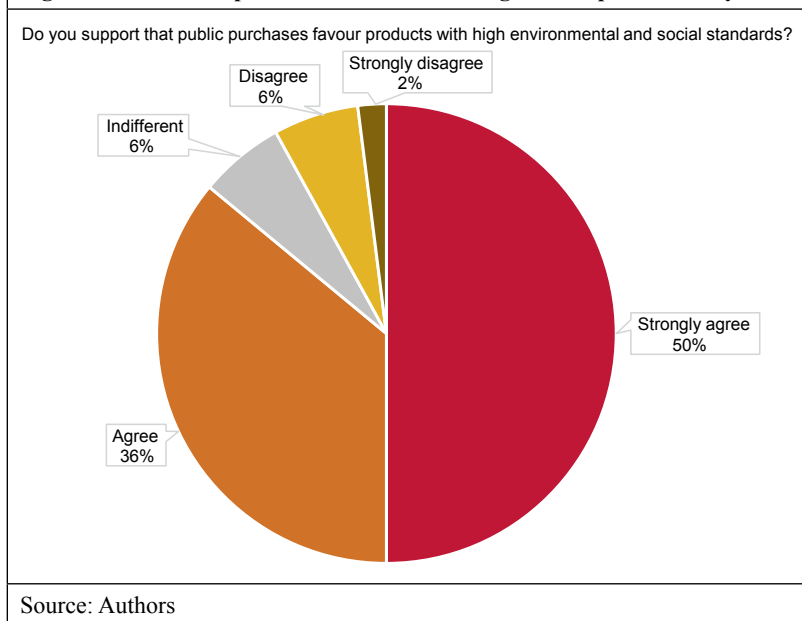
A general assumption is that firms are profit-oriented and may thus see social or ecological considerations mainly as obstacles to their company's business operations. Consequently, we were interested in finding out what firms thought about the government's initiative to include social and ecological criteria into public tenders more systematically.

Surprisingly, Figure 8 illustrates that about 50 per cent of respondent firms "agree strongly" and that about 36 per cent "agree" that products with higher social and environmental standards should be given preference in public

12 Multicollinearity is a problem of regression analysis and occurs when two or more explanatory variables have a very strong correlation with each other. On the one hand, with increasing multicollinearity, the procedure for estimating the regression coefficients becomes unstable and statements on estimating the regression coefficients increasingly inaccurate. On the other hand, the model interpretation is no longer unambiguous.

procurement. Only about 2 per cent (13 respondents) “strongly disagree” and a mere 6 per cent (39 respondents) “disagree” with the same statement. The positive image of SPP among firms may be due to a potential sample bias or to strategic answers, which would mean that the overall company population may see SPP less favourably. About four out of five firms surveyed believe that their entrepreneurial decisions will be more sustainability-oriented in the next five years, which resonates with a positive view of SPP.

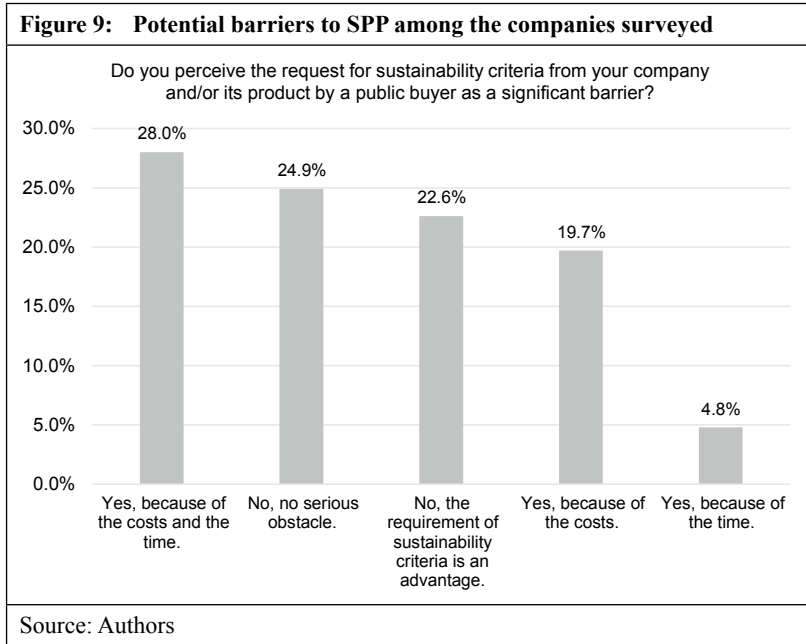
Figure 8: General opinion towards SPP among the companies surveyed



Yet only 25 per cent of the companies surveyed knew that the government was introducing SPP. Out of those firms, about 7 per cent indicated that they had participated in an event in which a government agent had explained SPP, another 7 per cent received written explanatory material, and about 9 per cent received information through social networks, television or the radio.

Finally, Figure 9 illustrates that the companies surveyed were divided between those that considered sustainability criteria a significant barrier (about 52 per cent); and those that considered the former no barrier (about 25 per cent) or even an advantage (about 23 per cent). Interestingly, firms

were mostly afraid that the “inclusion of sustainability” criteria might imply that more time had to be invested, and not so much because of increasing costs. This could be due to the fact that highly productive firms saw SPP less as a barrier than firms that were already “less productive” (see Section 3). Hence, although almost 9 out of 10 respondent firms viewed the inclusion of environmental and social criteria favourably, almost 3 out of 10 respondent firms were afraid that the inclusion of social and environmental criteria would constitute a barrier towards gaining public contracts.



6.4.2 Market creation/demand-pull: first effect

Hypothesis 1 – sales of sustainably-certified products

The first potential effect of public procurement (SPP and CPP) on companies’ production and consumption choices could be that SPP/CPP creates a market, or in other words, business opportunities for sustainably or conventionally produced products.

Interviews

The interview showed that the demand effect occurred regardless of whether the government asked for sustainable or conventional products, as long as the procurement opportunities were published transparently. Yet the government also creates business opportunities for sustainable products specifically: for instance, a car producer interviewed stated that the ICE's plans to purchase electric vehicles would be highly influential in incentivising other public buyers – and eventually the whole market – to adopt. One major difficulty of SPP is in distinguishing “sustainable” and “conventional” products. The list of sustainable evaluation criteria applied (see Appendix) illustrates that procurement officers have often relied on certificates to tell “sustainable” and “conventional” products or production methods apart.

Online survey

The online survey illustrates that sustainable certification is not yet very common across the surveyed firms. Only about 132 firms (about 19 per cent) indicated that they had and 551 firms (about 81 per cent) stated they did not have any firm- or product-specific sustainability certificates. Yet, about 60 firms responded that they realised at least 50 per cent of their total sales in 2017 and about 30 firms indicated that they realised at least 90 per cent of their total sales in 2017 with sustainably-certified products. Across the firms, the most common sustainability certifications were either the international ISO 14001 (2.5 per cent) or the local *Sello PYME* (3.1 per cent), *Bandera Azul Ecológica* (1.7 per cent) and *Esencial Costa Rica* (1.7 per cent). Interestingly, companies did not seem to make a difference between quality- and sustainability-related certification. For instance, some firms mentioned ISO 9001 (3.1 per cent) as a sustainability certificate, although it only relates to quality management, while the *Sello PYME* mainly states that the company is of limited size in terms of employment and turnover. One cannot ultimately conclude whether those answers were, for example, driven by the attempt to give a socially desirable response or by a conceptual misunderstanding of sustainability per se.¹³ Further, we investigated the relationship between government demand and firms'

13 Note that we only coded firms as having sustainable certification and only considered their self-indicated sales of sustainably-certified products if firms mentioned a sustainability- and not quality-related certificate.

sustainability behaviour. To this end, we examined correlations between firms' self-indicated share of sales of sustainably-certified products and their record in public procurement.

Regression analysis

Table 4: Regression table A: Sustainable certification and public procurement						
Dependent variable: Firms' share of sales with sustainably certified products						
INDEPENDENT VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Amount won in SPP 2010-2017	0.0141** (0.00576)	0.0109** (0.00536)	0.0164*** (0.00570)	0.0162** (0.00650)	0.0165** (0.00710)	0.0145** (0.00696)
Times bid for SPP 2010-2017	0.0520 (0.109)		0.0821 (0.0947)		0.0527 (0.0995)	
Times won SPP 2010-2017		0.444 (0.424)		0.518* (0.312)		0.493 (0.409)
Frequency success rate in SPP 2010-2017			-1.922 (1.195)	-3.168* (1.750)		
Amount success rate in SPP 2010-2017					-1.025 (1.315)	-1.640 (1.320)
Amount won in CPP 2010-2017	-0.000765 (0.000594)	-0.000679 (0.000523)	-0.000711 (0.000519)	-0.000836 (0.000544)	-0.000623 (0.000552)	-0.000598 (0.000510)
Times bid for CPP 2010-2017	-0.000878 (0.00524)		0.000341 (0.00356)		-0.000225 (0.00450)	
Times won CPP 2010-2017		-0.0211 (0.0278)		-0.00764 (0.0204)		-0.0169 (0.0272)
Frequency success rate in CPP 2010-2017			-0.853 (0.685)	-0.823 (0.708)		
Amount success rate in CPP 2010-2017					-0.411 (0.561)	-0.341 (0.576)
Firm-level control variables	YES	YES	YES	YES	YES	YES
Constant	-11.22*** (2.493)	-11.41*** (2.388)	-11.95*** (2.653)	-12.31*** (2.546)	-11.48*** (2.624)	-11.75*** (2.530)
Observations	297	297	297	297	297	297
Notes: Robust standard errors in parentheses. Amounts in million. Sector Agriculture omitted. ***p<0.01, **p<0.05, *p<0.1 Source: Authors						

Table 4 (Regression table A) suggests that only the amount firms won in SPP correlates significantly with the firms' share of sales of sustainably-certified products. The correlation is significant at the 1 to 5 per cent level controlling for firm-level characteristics and translates as following: a one million CRC (approximately 1,500 EUR at the time of the survey) increase in the amount firms won in SPP between 2010 and 2017 was correlated with a 0.06-0.1 per cent increase in firms' share of sales from sustainably-certified products. A one standard deviation increase in the amount firms gained in SPP would increase a firm's share of sales of sustainably-certified products on average by 4.9 to 8.3 percentage points. Given that the average share of a sample firm's sales in sustainably-certified products is 13 per cent, a 5 to 8 per cent increase is quite substantial. The results suggest that governments seem to have a substantial (positive) leverage on firms' sales of sustainably-certified products. Yet the results should be considered with caution and as indicative because the sample of firms is relatively small and no ultimate proof of causality was possible – thus, future studies should aim to expand sample sizes and identify causality to confirm and improve the precision of the estimates.

Interpretation and discussion

The positive correlation between the amount firms gained in SPP and firms' stated share of sales of sustainably-certified products could be suggestive of a demand effect.

In this case, firms' respective share of sales with sustainably-certified products had increased because of increased public demand for sustainably-certified products. One must remember that the independent variable consisted of the amount firms gained in SPP between 2010 and 2017, which was mostly realised in the period 2015 to 2017. Consequently, had the policy not been in place, business opportunities might have been less profitable for sustainably-certified products in local markets (see Edler & Georghiou, 2007; Uyarra et al., 2014). However, given the small number of SPP processes relative to CPP processes and the absence of a unified strategy among Central Government, it seems unlikely that SPP had already created sufficient critical mass with the exception of niche markets such as cleaning products.

6.4.3 Market creation/demand-pull: second effect

The second potential consequence of the market creation/demand-pull effect could relate to firms' exporting behaviour (see subsection. 6.2).

Interviews

In general, the interviews suggest that most of the firms were importers; only very few produced locally and exported. Many firms were license-holders of foreign brands that specialised in import and commercial intermediation, which was in line with the economic structure of other Latin American countries. Moreover, only a minority of firms had discovered the e-procurement platform's potential learning opportunities. For instance, a service-sector firm stated that it used the e-procurement platform to learn about competitors' products, prices and standards.

Such learning effects may stimulate sustainability standards, best practices and business opportunities in local or international export markets. Thus far, to the best of our knowledge, no deliberate policies are in place to strategically support these learning effects. However, they may still occur, albeit unintended by the government. Therefore, we also examined whether there was any correlation between firms' participation in PP/SPP and their export behaviour (as an imperfect proxy of diversification into foreign markets) (see below).

Online survey

Only a minority of the procuring firms in the survey also stated that they exported goods. In fact, only 65 firms (about 9 per cent) of the surveyed population were engaged in export. Interestingly, at the same time about half of the exporting firms stated that they possessed a sustainability certificate, which suggested that certification is often associated with orientation towards foreign markets. Half of the 65 firms realised only less than 10 per cent of their sales through exports and only about 20 firms realised more than 30 per cent and up to almost 100 per cent of their sales through exports.

Regression analysis

Table 5 (Regression table B) suggests that there is a negative correlation between the amount firms won in SPP between 2010 and 2017 and indication that they exported. The correlation is statistically significant at the 1 to 10 per

Table 5: Regression table B: Export and public procurement Dependent variable: Having exported or not								
INDEPENDENT VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amount won in SPP 2010-2017	-0.00738* (0.00408)	-0.00860* (0.00476)	-0.00659 (0.00402)	-0.00799* (0.00430)	-0.0102 (0.00720)	-0.0101 (0.00671)	-0.0157*** (0.00519)	-0.0125* (0.00652)
Times bid for SPP 2010-2017	0.162 (0.133)		0.155 (0.136)		0.167 (0.130)		0.752*** (0.262)	
Times won SPP 2010-2017		0.496 (0.374)		0.568 (0.390)		0.468 (0.348)		1.341* (0.776)
Frequency success rate in SPP 2010-2017			-0.826 (1.671)	-1.165 (1.527)				
Amount success rate in SPP 2010-2017					1.106 (2.030)	0.647 (1.902)		
Amount won in CPP 2010-2017	1.08e-05 (0.000864)	2.84e-06 (0.000852)	7.98e-05 (0.000863)	6.96e-05 (0.000836)	-5.17e-05 (0.000969)	-4.16e-05 (0.000892)	0.000687 (0.000762)	0.000334 (0.000666)
Times bid for CPP 2010-2017	-0.00893 (0.00590)		-0.00850 (0.00630)		-0.00948 (0.00601)		-0.0226*** (0.00735)	
Times won CPP 2010-2017		-0.0271 (0.0209)		-0.0272 (0.0198)		-0.0282 (0.0210)		-0.0433 (0.0282)
Frequency success rate in CPP 2010-2017			0.922 (1.434)	1.130 (1.388)				
Amount success rate in CPP 2010-2017					0.00149 (1.045)	0.208 (0.984)		
Dummy won SPP 2010-2017							-2.580 (1.695)	-2.231 (1.649)
Firm-level control variables	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-29.10*** (4.468)	-28.11*** (4.219)	-29.77*** (4.719)	-29.82*** (4.779)	-28.34*** (4.347)	-27.90*** (4.195)	-47.34*** (10.93)	-39.76*** (8.982)
Observations	284	284	284	284	284	284	178	178

Notes: Robust standard errors in parentheses. Education PhD, Sector Agriculture, Region Limon and Guanacaste omitted. ***p<0.01, **p<0.05, *p<0.1

Source: Authors

cent level controlling for firm characteristics. A one standard deviation increase in the amount firms won in SPP between 2010 and 2017 would decrease firms' predicted probability of exporting by 2.49 to 4.15 percentage points on average. Given that firms' predicted probability to export in the sample is about 10 per cent, a 2.5 to 4.1 per cent decrease is quite substantial.

Table 6 (Regression table C) suggests that the amount gained and times bid in SPP between 2010 and 2017 were negatively correlated with firms indicated share of sales of exported products. The correlations were statistically significant at the 5 to 10 per cent level and robust to model specification.¹⁴ A one million CRC increase (approximately 1,500 EUR at the time of the survey) in the amount firms gained in SPP between 2010 and 2017 was correlated with a 1.4 to 7 per cent decrease in firms' share of sales through exports. A one standard deviation increase in the amount firms won in SPP decreases a firm's share of sales of exports by 1.16 to 5.81 per cent on average.

Interpretation and discussion

The results provide some – but not clear-cut – evidence that SPP may have affected firms' export behaviour. In fact, the results suggested that there was a negative correlation (albeit not fully robust to model specification) between the amount firms gained in SPP and a firm's likelihood to have exported, as well as a significant and negative correlation with a firm's share of sales with exports. One interpretation would be in line with Trionfetti (2000) that raising SPP increased local demand for sustainable products, which may have induced firms to substitute exports with sales to local markets. This is supported by the fact that one could not observe any significant effect for the amount firms gained in CPP and would suggest that the negative correlation mirrors a static, short-term demand effect. The overview graphic in subsection 4.1 (Figure 1) indicates that SPP mostly increased in the years (2015-2017) and thus short-term, static effects seemed more likely to prevail at the time of the survey (March 2018). Given that SPP tended to rise over the last two years prior to the survey, learning effects about sustainable production methods, product standards and potential export opportunities

14 Note that the difference in level of statistical significance between models 1 to 6 and models 7 to 8 is connected to the smaller sample size and to comparing only firms that have won a CPP process, or in other words, excluding firms that participated but never won a SPP or CPP process.

Table 6: Regression table C: Export and public procurement								
Dependent variable: Share of sales with exported products								
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amount won in SPP 2010-2017	-0.0277** (0.0135)	-0.0311** (0.0137)	-0.0156** (0.00776)	-0.0194** (0.00839)	-0.0266* (0.0140)	-0.0335** (0.0149)	-0.0496* (0.0255)	-0.0803* (0.0439)
Times bid for SPP 2010-2017	-0.187* (0.113)		-0.206** (0.0898)		-0.223** (0.0987)		-0.398* (0.204)	
Times won SPP 2010-2017		-0.222 (0.261)		-0.277 (0.193)		-0.331 (0.252)		-0.651 (0.481)
Frequency success rate in SPP 2010-2017			-2.279 (1.481)	-2.440 (1.681)				
Amount success rate in SPP 2010-2017					3.240 (2.807)	3.792 (3.197)		
Amount won in CPP 2010-2017	0.00118 (0.00114)	0.00138 (0.00114)	0.00134 (0.000925)	0.00148 (0.00101)	-0.000210 (0.00118)	8.43e-05 (0.00118)	0.000281 (0.000325)	0.000972 (0.000612)
Times bid for CPP 2010-2017	0.00255 (0.00477)		0.00785 (0.00565)		0.00338 (0.00537)		-0.00686 (0.00536)	
Times won CPP 2010-2017		-0.00499 (0.0153)		0.0102 (0.0158)		-0.00464 (0.0164)		-0.0732* (0.0392)
Frequency success rate in CPP 2010-2017			2.736 (1.828)	2.367 (1.777)				
Amount success rate in CPP 2010-2017					0.673 (1.857)	0.526 (1.689)		
Dummy ever won SPP 2010-2018							3.188 (3.290)	6.324 (5.122)
Firm-level control variables	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-37.07*** (8.301)	-37.41*** (8.190)	-37.45*** (4.891)	-38.53*** (5.126)	-37.98*** (6.366)	-38.64*** (6.346)	-37.08*** (7.377)	-43.35*** (3.042)
Observations	309	309	309	309	309	309	192	192

Notes: Robust standard errors in parentheses. Sector Agriculture omitted in model 7 & 8. ***p<0.01, **p<0.05, *p<0.1

Source: Authors

are more likely to kick-in and unfold only in the medium term. Therefore, it seems crucial that the government helps and incentivises firms to explore the learning opportunities in procurement, as documented in the interviews.

6.4.4 Sustainability-related certifications

The second potential causal channel could be that procuring firms and their suppliers adopt sustainability standards that are required as evaluation and admissibility criteria in SPP.

Interviews

On the one hand, only some of the firms interviewed participated in PP processes that required sustainable evaluation and admissibility criteria. This illustrates that the notion of SPP has not reached all companies in the sample. However, all firms interviewed pointed out that they (would) adopt (any) legal standards the government requires – regardless of whether the standard were below or above international standards and whether the firms agreed with the rationale behind the standard or not. The simple reason was that, once the standards were required to do business with the government, compliance was an imperative for many firms as they often realised up to 100 per cent of their sales from government contracts.

Indeed, in particular for SMEs without any exposure to large or international firms, such as catering services, the government seems to remain the first source of information on (sustainable) production standards. In contrast, firms that are exposed to larger (and/or international) firms mentioned that governmental standards sometimes lagged behind the standards international firms adopted. One firm even said it sold to the government rather than to large, international private firms as the government required lower sustainability standards. Where sustainability standards are adequate, their inclusion as evaluation and admissibility criteria can be an effective tool to motivate firms to adopt sustainability standards and require certification from their suppliers.

Furthermore, the interviews illustrated that sustainable evaluation and admissibility criteria might compensate early movers, as well as signal unmet needs, along with directing and guiding market actors. For example, a local distributor of an international car producer stated that environmental standards in SPP can make “a big difference” for the firm as they would

Table 7: Regression table D: Sustainable certification and public procurement								
Dependent variable: Likelihood of having sustainable certification								
INDEPENDENT VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amount won in SPP 2010-2017	0.0649 (0.0734)	0.176* (0.0982)	0.0938 (0.0771)	0.186* (0.0968)	0.0895 (0.0866)	0.194** (0.0988)	0.116 (0.0891)	0.250** (0.123)
Times bid for SPP 2010-2017	-0.0491 (0.120)		-0.0528 (0.125)		-0.0658 (0.123)		-0.111 (0.168)	
Times won SPP 2010-2017		-0.372 (0.325)		-0.313 (0.347)		-0.358 (0.327)		-0.582 (0.467)
Frequency success rate in SPP 2010-2017			-1.219 (1.780)	-0.898 (1.733)				
Amount success rate in SPP 2010-2017					-0.823 (1.893)	-0.676 (1.785)		
Amount won in CPP 2010-2017	-6.54e-05 (0.000551)	-3.20e-05 (0.000531)	-6.08e-05 (0.000534)	-1.98e-05 (0.000517)	-0.000209 (0.000583)	-0.000155 (0.000552)	-0.000344 (0.000583)	-0.000305 (0.000574)
Times bid for CPP 2010-2017	0.000418 (0.00472)		0.000891 (0.00455)		0.00112 (0.00466)		0.00174 (0.00520)	
Times won CPP 2010-2017		-0.000775 (0.0163)		-0.00236 (0.0175)		-0.00166 (0.0174)		-0.000906 (0.0205)
Frequency success rate in CPP 2010-2017			0.710 (0.614)	0.723 (0.629)				
Amount success rate in CPP 2010-2017					0.670 (0.564)	0.663 (0.577)		
Dummy won SPP 2010-2017							-0.601 (1.331)	-0.0113 (1.377)
Firm-level control variables	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-6.359*** (1.669)	-6.450*** (1.667)	-6.657*** (1.745)	-6.731*** (1.735)	-6.639*** (1.732)	-6.731*** (1.724)	-6.219*** (2.757)	-6.330*** (2.781)
Observations	302	302	302	302	302	302	163	163

Notes: Robust standard errors in parentheses. Agriculture, Occupational Risk Dummy, Sector Other and Regions Puntarenas & Limon omitted in model 7 & 8. ***p<0.01, **p<0.05, *p<0.1
Source: Authors

reward them in comparison to competitors who are less advanced in electrical vehicles.

However, governments need to be cautious in finding the right balance between compensating (sustainable) early movers and challenging laggard firms. For instance, in an interview, a firm selling fire extinguishers described how public procurers created a virtual monopoly by requiring that a legally recognised, certified waste management firm disposes of waste: “[...] we only work with one waste management firm, which is the only one currently authorised. I would not see it as corruption, but it does close the market. Competitors that do not fulfil these sustainability requirements can’t compete.”

Online survey

In line with the fact illustrated above that only 19 per cent of the firms surveyed stated that they possessed sustainable certification, the online survey also suggested that the monitoring of suppliers’ sustainability performance was not yet very common among the firms surveyed. About 26 per cent of survey respondents stated that their firms requested sustainability certificates from national suppliers and 27 per cent from international suppliers.

Regression analysis

Results from Table 7 (Regression table D) provide no clear evidence for the hypothesis that there is a positive correlation between firms’ participation in SPP and firms having sustainable certification. The correlation between amount won in SPP and sustainable certification is positive but only significant at the 5 to 10 per cent level and not robust to model specification.

Below, we consider whether this weak evidence for the standard adoption effect is confirmed for monitoring suppliers’ sustainability performance. Table 8 (Regression table E) suggests that firms’ participation in SPP is not correlated to firms requiring sustainable certification from suppliers. The results suggest that the amount won in SPP between 2010 and 2017 does not correlate significantly with firms requiring sustainable certification from suppliers. Moreover, “times bid” for SPP 2010 to 2017 is even negatively correlated at the 10 per cent level to firms requiring sustainable certification from suppliers but not robust to model specification (thus one should not overemphasise this rather weak and non-robust correlation, which is rather suggestive of an unclear, or no, effect).

Table 8: Regression table E: Supplier monitoring and public procurement Dependent variable: Likelihood of requiring that supplier has sustainable certification								
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amount won in SPP 2010-2017	0.00236 (0.00269)	0.00200 (0.00284)	0.00180 (0.00246)	0.00178 (0.00269)	0.000921 (0.00253)	0.00111 (0.00284)	0.00394 (0.00257)	0.00264 (0.00279)
Times bid for SPP 2010-2017	-0.139* (0.0776)		-0.137* (0.0809)		-0.141 (0.0858)		-0.263** (0.113)	
Times won SPP 2010-2017		-0.255 (0.221)		-0.345 (0.237)		-0.418* (0.251)		-0.380 (0.281)
Frequency success rate in SPP 2010-2017			0.674 (1.026)	1.082 (1.150)				
Amount success rate in SPP 2010-2017					1.557 (1.043)	2.187* (1.234)		
Amount won in CPP 2010-2017	0.000841 (0.00112)	0.000689 (0.00118)	0.000996 (0.00125)	0.000890 (0.00136)	0.000937 (0.00132)	0.000909 (0.00149)	0.00201 (0.00135)	0.00209 (0.00135)
Times bid for CPP 2010-2017	0.0108*** (0.00360)		0.0100*** (0.00346)		0.00982*** (0.00347)		0.0121*** (0.00388)	
Times won CPP 2010-2017		0.0246* (0.0145)		0.0259* (0.0145)		0.0265* (0.0144)		0.0176 (0.0146)
Frequency success rate in CPP 2010-2017			-0.673 (0.537)	-0.835 (0.545)				
Amount success rate in CPP 2010-2017					-0.277 (0.494)	-0.390 (0.495)		
Dummy won SPP 2010-2017							0.187 (1.105)	0.256 (1.261)
Firm control variables	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-3.226** (1.411)	-3.340** (1.392)	-3.127** (1.375)	-3.153** (1.350)	-3.107** (1.439)	-3.116** (1.420)	-5.736** (2.608)	-6.298** (2.498)
Observations	287	287	287	287	287	287	173	173

Notes: Robust standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1

Source: Authors

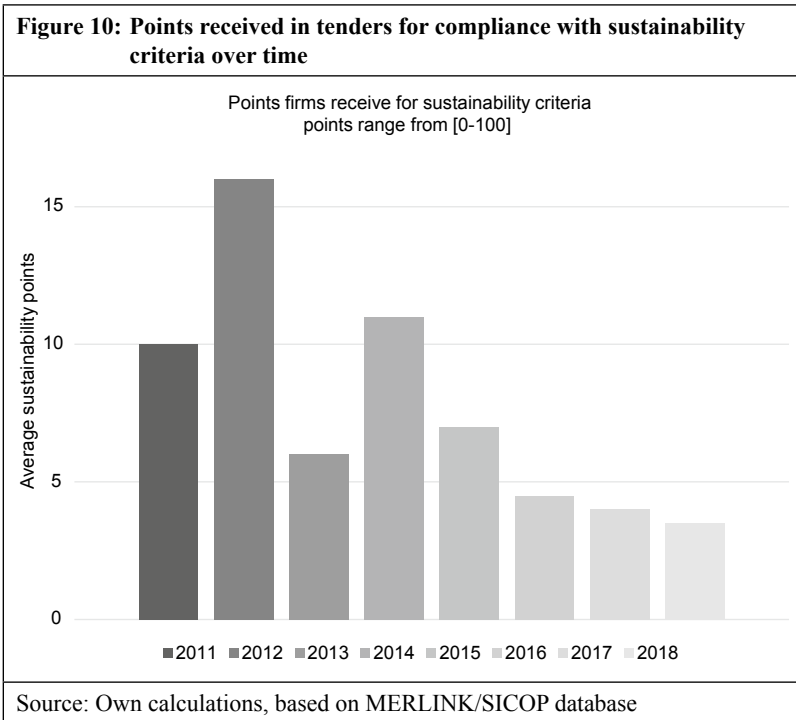
In contrast, the standard adoption effect is present for participation in CPP. “Times bid” for and won CPP processes between 2010 and 2017 are significant at the 1 per cent and 10 per cent level respectively (although “times won” is not robust to model specification).

Discussion and interpretation

In sum, regression tables D and E provide no evidence that SPP has either increased the selection of firms with sustainable certification or incentivised procuring firms to adopt sustainability certificates. In addition, SPP has not incentivised procuring firms to request sustainable certificates from their suppliers. One explanation could be that we underestimate the total amount of SPP: As we have no information on the inclusion of sustainability certificates as admissibility criteria, we might not capture the full effect on firms.

Alternative explanations may relate to the fact that SPP is underway to change incentives but remains too marginal to be enough of an incentive for firms to incur the high costs of certification. This may be related to the fact that the average points firms receive for complying with sustainable criteria remains small (around 5 out of 100 points) relative to common criteria like price or experience, as pointed out by several interview partners. The data equally reveals that, although SPP increased, the average points firms receive for compliance with sustainability criteria has steadily decreased over time from 15 points on average in 2014 to less than 5 points in 2017.

Accordingly, the company interviews and survey suggest that some of the sustainability criteria included in public tenders have been inadequate. For instance, many firms surveyed complained about the costs of certification, in particular international certification, as well as bureaucratic hurdles in acquiring national certificates, such as the *Sello PYME*. At the same time, certain criteria and certification may also be too basic to be an incentive. For example, *Sello PYME* does not require any change in production methods. In contrast, a certificate like *Sello PYME Verde*, which requires *Sello PYME* and ISO 14.000 may trigger changes in production methods, but also comes with significant financial costs. In addition, several firms pointed out that there was a lack of knowledge regarding adequate sustainability criteria among procurers.



6.4.5 Innovation

The third effect of PP/SPP on firms' sustainability performance could originate in positive externalities that accrue to firms through their participation in public procurement. Firstly, public contracts offer firms easier access to finance and private contracts (positive externalities), which, in turn, can provide firms with the necessary resources to incur costs for innovation. Secondly, active participation in public procurement (without necessarily winning) provides firms with free information, for instance, on industry standards in technical tender specifications, competitors or other markets, which may enable firms to learn and innovate.

Interviews

When asked how government contracts differ from private-sector contracts, several firms replied that government contracts offered planning security as they regularly had large volumes and were certain to be paid. A special contractual clause enables procuring SMEs to be paid out a certain percentage of the contractual value before the delivery of the goods or services – however very few firms know and use this opportunity, which underscores the need for better information and communication channels. A cleaning and maintenance firm from Limón illustrated the above mentioned facts by saying: “First, for safety, second, because the government always pays, even though late at times, but it will pay.”

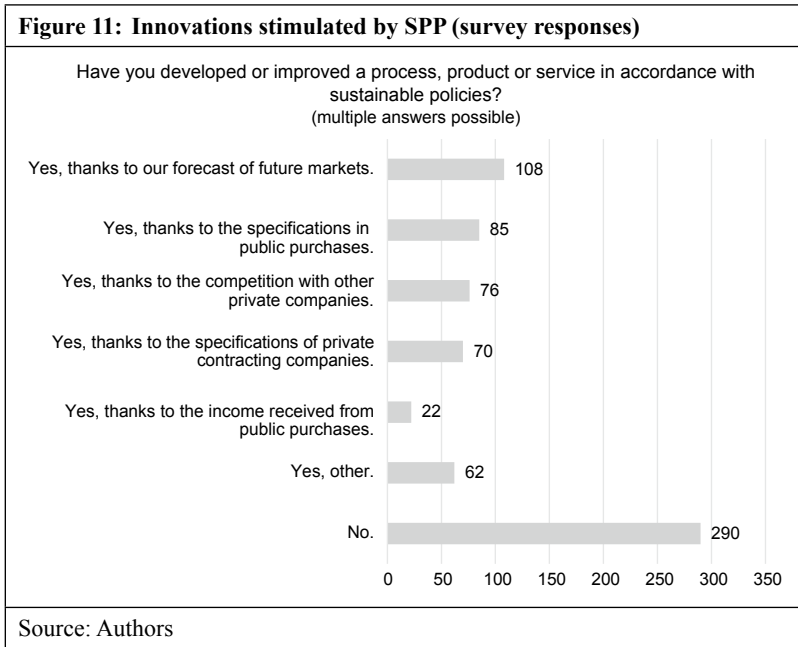
Access to finance and planning security could be the two pre-conditions to enable firms to invest in innovation costs. The Government of Costa Rica stipulates innovation as one key goal of the 2015 National SPP policy. Yet, it has not linked any of these co-benefits – planning security and access to finance – to specific targets for firms to innovate. Thus, if firms’ participation in public procurement is linked to their innovation activity, it is an unintended rather than an intended policy outcome.

Online survey

Figure 11 illustrates the replies that companies gave to the survey question on whether they had developed or improved a process, product or service in accordance with sustainable practices.¹⁵ Firstly, firms named other reasons than PP such as “competition with other private firms” (17 per cent, or 114 out of 646¹⁶) and “anticipation of future markets” (15 per cent, or 98 out of 646). However, despite inexistence of any kind of public procurement for innovation policy, about 10 per cent, or 68 of all firms in the survey, indicated that they had innovated thanks to the specifications in pp.

15 Note that Figure 11 shows aggregated numbers for producers and intermediaries/importers. While the original survey question was formulated differently for producers and intermediaries, the answer options were identical.

16 The number of participants varies between the survey questions.



In total, about 393 firms indicated that they had and 253 firms indicated they had not innovated (albeit for different reasons). The fact that such a high number of firms stated that they had innovated is certainly related to our wide definition of innovation as “Have you developed or improved a process, product or service?” for producers or “Have you incorporated a new product?” for intermediaries/importers. However, such a wide definition, which is aimed at incremental rather than radical innovation, has been applied by other studies relating public procurement and firm innovation (Aschhoff & Sofka, 2008). Moreover, we asked firms to estimate the share of sales they had realised with innovated products in 2017.

Regression analysis

We examine below whether there is any correlation between firms’ participation in PP/SPP and their self-indicated innovation activity.

The regression results suggested that there was no correlation between participation in SPP and an indication that one had innovated, and even a negative correlation between the times firms won SPP processes between

2010 and 2017 and firms' shares of sales of innovated products. The correlation is significant at the 5 per cent level, includes control variables, and is robust to model specification. Accordingly, winning an additional SPP process correlates with a 5 to 6 percentage points decrease in firms' shares of sales of innovated products. Given that sample firms' average shares of sales with innovated products is about 28 per cent, a 5 to 8 per cent increase is substantial – yet, one must note that on average between 2010 and 2017 sample firms only won about 0.2 SPP processes with a standard deviation of 1.2 SPP processes in the period.¹⁷

In contrast, the results at the same time constitute suggestive (but not conclusive) evidence that firms' participation in CPP could have fostered innovation, albeit unintentionally. Table 9 (Regression table F) suggests that the times firms bid for and won CPP processes between 2010 and 2017 is positively correlated with firms indicating that they had innovated. The correlations are significant at the 1 to 5 per cent level, include control variables and are robust to model specification. Note that on average sample firms won 6.5 CPP processes (standard deviation about 18) in the period between 2010 and 2017 and about 60 per cent of sampled firms stated they had innovated in 2017.¹⁸ Table 10 (Regression table G) suggests that the times that CPP processes were won between 2010 and 2017 may likewise correlate positively with firms' indicated shares of sales of innovative products. However, the correlation is only significant at the 10 per cent level and insignificant in two model specifications.

Interestingly, it is not the “total amount firms have won”, but “times bid and won” that seems to play a significant role for firms' innovation in both conventional and sustainable procurement.

Discussion and interpretation

In sum, the results provide accumulated evidence that CPP has enabled firms to innovate, for example, through learning opportunities and/or planning and financial security, even though there was not explicit public procurement for innovation policy in place. Firstly, 68 of the firms surveyed (about

17 Note that across sample firms that have won SPP processes; the average was 3.4 SPP processes won.

18 One must remember that the survey adopted a very wide definition of innovation, which is likely to (partly) explain why about 60 per cent of firms stated that they had innovated in 2017.

Table 9: Regression table F: Innovation and public procurement								
Dependent variable: Having innovated or not								
INDEPENDENT VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amount won in SPP 2010-2018 (in million colones)	-0.000344 (0.00219)	0.00113 (0.00441)	0.000463 (0.00251)	0.00153 (0.00428)	-7.74e-05 (0.00214)	0.00101 (0.00410)	0.00422 (0.00382)	0.00541 (0.00405)
Times bid for SPP 2010-2018	-0.0753 (0.0540)		-0.0808 (0.0552)		-0.0727 (0.0538)		-0.396** (0.199)	
Times won SPP 2010-2018		-0.442 (0.435)		-0.449 (0.447)		-0.475 (0.471)		-1.392** (0.608)
Frequency success rate in SPP 2010-2018			-0.862 (1.000)	-0.483 (1.094)				
Amount success rate in SPP 2010-2018					-0.298 (1.142)	0.208 (1.325)		
Amount won in CPP 2010-2018 (in million colones)	-0.000729 (0.000489)	-0.000730 (0.000488)	-0.000742 (0.000480)	-0.000757 (0.000487)	-0.000637 (0.000503)	-0.000614 (0.000508)	-0.000191 (0.000576)	-0.000224 (0.000544)
Times bid for CPP 2010-2018	0.0132** (0.00542)		0.0141** (0.00554)		0.0129** (0.00550)		0.0286*** (0.00879)	
Times won CPP 2010-2018		0.0464*** (0.0179)		0.0504*** (0.0184)		0.0488*** (0.0183)		0.102*** (0.0365)
Frequency success rate in CPP 2010-2018			-0.317 (0.440)	-0.511 (0.447)				
Amount success rate in CPP 2010-2018					0.451 (0.433)	-0.591 (0.435)		
Dummy ever won SPP 2010-2018							-0.152 (1.096)	0.706 (1.196)
Firm-level control variables	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-0.779 (0.962)	-0.470 (1.042)	-0.757 (0.969)	-0.414 (1.054)	-0.638 (0.973)	-0.261 (1.061)	26.75*** (2.292)	32.90*** (2.146)
Observations	297	297	297	297	297	297	179	179

Notes: Robust standard errors in parentheses. Agriculture and Education PhD omitted in model 7 & 8. ***p<0.01, **p<0.05, *p<0.1
Source: Authors

Table 10: Regression table G: Innovation and public procurement								
Dependent variable: Share of sales with innovated products								
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amount won in SPP 2010-2017	-0.000316 (0.00298)	0.00122 (0.00245)	-0.000661 (0.00319)	0.000473 (0.00262)	-0.000981 (0.00370)	-0.000108 (0.00299)	-0.00130 (0.00267)	-7.18e-05 (0.00277)
Times bid for SPP 2010-2017	-0.0599 (0.114)		-0.0607 (0.118)		-0.0584 (0.118)		-0.0237 (0.0694)	
Times won SPP 2010-2017		-0.353** (0.143)		-0.395** (0.163)		-0.421** (0.172)		-0.410** (0.168)
Frequency success rate in SPP 2010-2017			0.220 (0.712)	0.547 (0.727)				
Amount success rate in SPP 2010-2017					0.271 (0.887)	0.731 (0.918)		
Amount won in CPP 2010-2017	-0.000163 (0.000387)	-0.000183 (0.000390)	-0.000185 (0.000380)	-0.000179 (0.000394)	-0.000196 (0.000391)	-0.000193 (0.000394)	-6.37e-05 (0.000388)	-7.37e-05 (0.000389)
Times bid for CPP 2010-2017	0.000177 (0.00295)		-0.000189 (0.00319)		-0.000201 (0.00325)		0.000368 (0.00265)	
Times won CPP 2010-2017		0.0123* (0.00733)		0.0105 (0.00756)		0.0118 (0.00746)		0.0164* (0.00840)
Frequency success rate in CPP 2010-2017			0.286 (0.396)	0.236 (0.398)				
Amount success rate in CPP 2010-2017					0.105 (0.357)	0.0687 (0.358)		
Firm-level control variables	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-3.210*** (0.844)	-3.155*** (0.847)	-3.247*** (0.831)	-3.145*** (0.834)	-3.228*** (0.845)	-3.100*** (0.847)	-2.145 (1.533)	-1.872 (1.507)
Observations	277	277	277	277	277	277	169	169

Notes: Robust standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1

Source: Authors

10.5 per cent) stated that they had innovated thanks to public procurement. This provided some first suggestive but not conclusive evidence taking into account that answers may be driven by the desire to give socially acceptable responses or other unmeasured factors that have a causal influence on the relationship. Yet, the survey responses are also mirrored in significant, positive correlations between the times firms bid and public contracts won and firms stating that they had innovated. This is also supported by qualitative evidence: Several interview partners described how public procurement was a source of information and learning, for instance, about competitors, demand or product standards, as well as planning offers and financial security, for example, thanks to contracts' large volumes or long durations, improved reputation and financial viability.

This underlines the unused potential for the Government of Costa Rica to foster innovation through SPP, which it has not been successfully doing yet according to the results. Firstly, there is no significant correlation between SPP and firms' innovation activity. Concerning our sample of firms, this suggests that SPP has not yet incentivised sustainable innovation in a systematic way. This was also reflected in the interviews as only one firm stated that it had incrementally innovated its production methods in a sustainable manner (partly) thanks to sustainability criteria in public procurement. The company interviews and survey results likewise suggest that government procurement could foster innovation. In particular for smaller firms, public regulation is a major source of information while procurement is one way of spreading knowledge about and enforcing public regulation. Yet, only a few firms take the initiative to use the information available on the e-procurement platform and in technical tender specifications. This was particularly reflected in the company survey, in which the majority of firms state that they were uninformed.

Overall, according to the results, the National SPP policy (2015) has not achieved its goal of promoting innovation and potentially even had detrimental effects. A key task for the government is thus to improve its SPP implementation to facilitate sustainable innovations.

7 Summary and policy recommendations to strengthen the implementation of SPP in Costa Rica

In Section 5 we analysed challenges which the public procurers, on the demand-side of the public sector market, encounter in implementing SPP; in Section 6 we took a look at the response of the private sector, and thus, the supply side of the public markets. It should be reiterated that our research was carried out at an early stage of SPP implementation. Some of the challenges identified may be mitigated, when the processes mature, but more so, if addressed by determined political action. We have analysed five challenges, which we identified as those which need appropriate attention in the short run and discuss some policy options.¹⁹

7.1 Unify the fragmented procurement system

Analysis and challenges

The current procurement system is fragmented and insufficiently coordinated among public purchasers, which creates uncertainty and insufficient incentives for firms and procurement officers to implement and adopt sustainability criteria.

On the governance-side, almost every sustainability specification of a product or production process that goes beyond firms' obligation to comply with local laws is up to personal or institutional initiatives. Public procurers are regularly in charge of buying a range of products, which requires information and specific expert knowledge far above what individual procurers could reasonably have. As a result, public servants regularly struggle to implement SPP. In addition, they have to select various different sustainability criteria according to personal initiative and knowledge.

Considering the private sector, SPP has to some extent compensated sustainability-related first movers. This is what positive correlations between a firm's being successful in SPP and their shares of sales in sustainably-certified products suggest. However, these effects remain limited to a small number of firms. Moreover, SPP does not seem to have affected firms' probability to adopt sustainable certification and may even have stifled firms'

19 The policy options have been discussed with the counterparts of the research team and at a large workshop in San José in April 2018.

innovation activity. Both company interviews and the survey underlined that the irregular inclusion of sustainability criteria and the low number of points received for sustainability criteria constitute insufficient incentives to adopt sustainable production methods.

Policy proposals

The main proposal is to create a central PP authority with a national public procurement strategy that applies to all governmental entities.²⁰ The key tasks of this authority would be:

- to establish a national public procurement vision and strategy;
- to establish national procurement priorities and objectives;
- to establish clear, transparent and accessible product specifications for priority and non-priority products;
- to unify the procurement systems of decentralised and centralised government authorities; and
- to cooperate closer with QI institutions to define technical specifications, standards and conformity assessment procedures.

Determine priority sectors and products centrally: The central authority should determine priority sectors and products for which there is potential to foster local sustainable production capacity. Such a policy should be implemented across all government entities, including autonomous and semi-autonomous institutions and municipalities, to ensure a sufficient demand boost, to shift responsibility from the individual procurer to the Central Government, to avoid uncertainty on the part of the private sector, and to increase the effectiveness of policies. The central authority should consult with civil society and the private sector to guarantee orientation towards social goals and national acceptance.

Create a centrally determined product catalogue: We recommend the creation of a centrally designed, transparent and easily accessible product catalogue. This catalogue should contain sustainability criteria for each product comprised in the general strategy, which procurement officials in turn include when issuing tendering documents. Responsibility should lie

²⁰ The creation of a new PP authority is line with the OECD recommendation within its Public Governance Review for Costa Rica (OECD, 2015).

with the central procurement authority. In general, specifications should not be modifiable by individual procurement officers and should include indications whether sustainability criteria should be applied as evaluation or admissibility criteria. At the same time, the product catalogue should be developed and maintained in consultancy with experts, such as QI institutions like INTECO, and others, such as CEGESTI. To this end, the administration can build on its experience with the *Directriz II* and framework agreements.

Integrate all public entities into the e-procurement platform: The integration of all public entities is crucial to unifying the fragmented procurement system, offering equal transparency and opportunity as well as exploring the enormous information, communication and learning potential of an e-procurement platform for procurement officers and firms.

7.2 Reform the use of evaluation and admissibility criteria

Analysis and challenges

On the governance-side, the implementation capacity and pace of the Central Government – in form of the inter-ministerial committee – is limited. There are only very few products for which the Central Government has formulated clear guidelines on the question of which sustainability criteria should be applied. Thus, the burden remains mostly on individual procurers and their initiatives. However, procurement officers are cautious to include sustainability criteria, as they fear facing legal challenges from firms. Moreover, it is not clear whether the products selected are in line with a national comparative advantage and the goal of fostering the local production capacity of sustainable products. Finally, the inter-ministerial committee has no legal authority over semi-autonomous and autonomous government entities, which are responsible for a large share of public purchases.

On the side of the company, interviews documented that criteria for PP are a source of information and incentive if applied as evaluation criteria; they can equally be an imperative, if applied as admissibility criteria. However, the regression analysis showed that the current use of sustainability criteria has not yet incentivised firms to adopt sustainable certification or require them from their suppliers. This may be related to unintended negative effects of inadequately implemented sustainability criteria as outlined in the interviews: Too excessive criteria risk creating monopolies, especially if used as admissibility criteria, or may stifle competition if the costs exceed

the benefits of compliance – for example, in the case of expensive, foreign certification. Too generic or basic criteria, like the *Sello PYME*, or too few points for compliance with sustainability criteria do not incentivise change in production methods but may just add bureaucratic obstacles. Some firms also feared that sustainability criteria, in particular in the form of admissibility criteria, may be abused to favour crony firms.

Policy proposals

More legal responsibility for the central and less for autonomous institutions and individual procurement officers: While Central Government should not have authority to decide *what* autonomous and semi-autonomous institutions purchase, they should be empowered to determine *how* they are allowed and recommended to purchase priority and non-priority products.

Sustainability criteria should be included in tender documents gradually but progressively, including timely, transparent communication with procuring firms: On the one hand, this gradual but progressive strategy aims to explore the potential of including sustainability criteria into public tenders, for instance, to spread standards across procuring firms or to provide information on global production standards to foster innovation and exporting. On the other hand, the gradual but progressive strategy intends to minimise the potential negative effects of sustainability criteria, such as the exclusion of firms with inadequate knowledge or awareness of sustainability; monopoly formation; reduced competition; or favouritism. Accordingly, we propose that the Government of Costa Rica consider following the subsequent guidelines for the inclusion of sustainability criteria.

For priority sectors/products of the national procurement strategy outlined in the first policy recommendation above (Section 7.1):

- Step 1: Inform procuring firms through the e-procurement platform SICOP about new sustainable standards that will be required in the near future;
- Step 2: Gradually increase points [0-100] allocated for compliance with sustainable evaluation criteria;
- Step 3: Impose “compliance with sustainability” standards as a condition of admissibility.

For non-priority sectors/products of the national procurement strategy outlined in the first policy recommendation above (Section 7.1):

- Refrain from using admissibility criteria other than basic legal obligations to promote competition and prevent monopoly formation and corruption;
- Disincentivise public procurers from independently defining tender specifications with a view to avoiding errors and opportunities for corruption;
- Promote evaluation criteria other than the price in order to
 - encourage competition in the non-price dimension, such as energy efficiency or life-cycle costs;
 - include environmental and social costs in the purchase decision; and
 - reduce negative externalities of competition based solely on prices, such as dumping and corruption.

The proposed mechanisms should ideally be accompanied by mechanisms to verify compliance.

7.3 Organise the interaction between firms and government

Analysis and challenge

Surveys among firms and public officials have indicated that there is a lack of communication between public procurers and firms. Public procurers questioned whether the domestic private sector could adhere to standards and produce sufficiently sustainable products, while the private sector questioned political will, insufficient information and the product- or sector-specific expert knowledge of procurers. Thus, there is clearly a need to (re-)organise the way information is exchanged between firms and government.

Policy proposals

We support a better exchange of information and knowledge, but recommend that this communication be formalised, transparent, and accessible to all firms. We suggest the following:

- 1) to organise competitions for innovation in sustainable products,
- 2) to organise public-private dialogues,
- 3) to further develop the e-procurement platform into an information and communication tool,
- 4) to create a multimedia call and information centre, and
- 5) to strengthen the capacities of public procurement entities.

Organise competitions for innovation in sustainable products

To increase the sustainability performance of products, the government could organise innovation contests where the best innovations earn a (monetary) prize and/or the government could contract the winning firms or finance the development of a prototype (for instance, jointly with research institutions). Internationally, this kind of policy is known as Public Procurement for Innovation, or pre-competitive procurement (Georghiou et al., 2014). The incentive to win the prize (and future purchase of this product) could encourage firms to invest in research and product development costs, even beyond the final group of “winners”.

*Organise public-private dialogues (German: *Bieterdialoge*) for innovation and learning*

The Government could organise transparent and accessible meetings with firms offering a given product, as well as with experts, for instance, from universities. The main purpose of the meetings would be that the government announces which products it plans to buy in the near future under which conditions and which ecological and/or social goals it pursues thereby. In Germany, for instance, such *Bieterdialoge* are organised as two-way formats for information exchange (see Box 2). Public authorities do not only communicate their intentions to the private sector, but also receive information that helps them achieve an understanding of what progress the potential bidder community can make in the near future and, thus, how to avoid tenders which have to be declared “failed” due to a lack of bidders.

Compared with an innovation competition, firms are certain under such dialogues that the government will buy the required product in the near future. If the government publishes a call for tender with a mix between a conventional version and a more sustainable version of the same product,

higher search costs could be financed through contract revenues. Moreover, synergies could be built with universities or Costa Rican research centres. Costa Rica has a clear commitment to foster university-industry linkages.

As a potential disadvantage, the increased danger of corruption through personal contacts between government officials and private sector has been mentioned. Thus, we recommend using this mechanism selectively for products considered to hold great potential for the local economy and with a potentially high sustainability impact.

Box 2: Public private dialogues in German public procurement

Public-private dialogues preceding SPP in Germany – *Bieterdialoge*

As a response to information problems and procedural challenges in SPP, a recent development in Germany has been the implementation of *Bieterdialoge*, which precede municipalities' SPP decisions. These are often tri-partite, involving procurement offices, private-sector representatives, and civil society organisations. *Bieterdialoge* have three functions:

- They inform stakeholders about sustainability issues in value chains.
- They explain the intentions of public authorities in their procurement.
- They allow public authorities to assess which level of sustainability standards a sufficient number of suppliers may fulfil in the coming budget years. This responds to the fact that there have been a considerable number of cases in which tenders had to be declared as failed, because no bidder could fulfil ambitious participation criteria.

Develop the e-procurement platform into an information and communication tool

We propose to facilitate the use and expand the scope of the existing e-procurement platform (SICOP) into an information, learning and communication tool for firms and procurers.

For procurement officers:

- Share information through SICOP to replace the variety of SPP guides that currently exist and are still being developed; and
- expand available information about: i) (new) sustainability criteria; ii) best practices; iii) official regulations, such as national norms, to prevent procurement officers from unintentionally ignoring them.

For firms:

- Create an online tool to provide firms with information on, for instance, networks of competitors, product and value-chain upgrading as well as export markets opportunities within a firm's product space; and
- create a mobile application and/or send firms emails with information on new procurement processes and reminders about deadlines.

General recommendations:

- Product groups should be specified centrally, aligned to international classifications while procurement offices should not be allowed to define their own product groups;
- online learning videos and questions and answers (Q&As) for the use of the e-procurement platform should be developed;
- SICOP should be adapted to the needs of users, for example, mandating RACSA to consult feedback from users regularly (such as every half-year or annually); and
- MECS (Matriz de Evaluación de Criterios Sustentables, Sustainability Criteria Evaluation Matrix) should be integrated into the platform to unite knowledge.

Create a multimedia call and information centre

We propose that an information and client attention centre be created where knowledge on SPP is collected and made accessible upon request. Such a centre could be operated by RACSA or CEGESTI for instance and could be inspired by the Dutch PIANOo to serve as a contact point for firms and PP officers. The centre should be in charge of answering the content-related questions of SICOP users as well as providing information in the form of periodic newsletters on the topic of SPP, possibly in cooperation with the institutions from the field of QI. In addition, the centre's staff should be mandated to increase awareness and learning about issues in PP, SPP and sustainability more broadly.

**Box 3: Centralised information and client attention centre:
PIANOo in the Netherlands**

PIANOo: an approach for systematic support to professional tendering in the Netherlands

PIANOo (Professioneel en Innovatief Aanbesteden, Netwerk voor Overheidsopdrachtgevers, Professional and Innovative Tendering, Network for Government Contracting Authorities) was set up in 2005 to professionalise procurement and tendering in all Dutch government departments. It works for and with a network of around 3,500 PP and tendering professionals from the Central Government, regions, municipalities, and other entities. Since January 2017, PIANOo has been part of the Netherlands Enterprise Agency (RVO.nl), which is embedded in the Ministry of Economic Affairs and Climate Policy.

To improve both efficiency and compliance with rules and regulations, PIANOo brings experts from specific areas together, pools knowledge and experience, and provides advice. In detail, PIANOo provides the following products and services:

- Providing information, advice, tools, and model documents to both public and private-sector organisations via the main Dutch website for procurement and tendering in the public sector: www.pianoo.nl;
- fostering dialogue between government contracting authorities and private-sector firms at regional meetings, market meetings, and the PIANOo conference in order to exchange information and practical experience;
- publishing a series of brochures on topical procurement issues considering practical knowledge and scientific insights;
- publishing visionary documents tackling complex legal issues in procurement practice and providing advice and recommendations;
- offering a “Question and Answer” section where PP and tendering professionals can find answers to more complex questions; and
- offering a Tendering Law Course for procurement professionals and lawyers in the public sector on the key aspects of Dutch and European tendering law.
- Since 2014, PIANOo has had a special division working on SPP which is the central contact point for all Dutch public procurers in this topical field. The declared goal is to provide active support to procurers in order to accelerate the fulfilment of SPP and its professional application within government procurement services.

Strengthen the capacities of public procurement entities

In Costa Rica, there is high demand and need for the broad-based training of procurement officers. Out of respondents in our public sector online survey, 60.7 per cent thought training was most crucial. Where the content of training was concerned, 57 per cent ticked all four possibilities specified, namely life-cycle analysis, verification of workers' rights, verification of environmental criteria, and general SPP methodology.

Training of the managers of procuring firms is equally important for sustainable production. Although the company survey documented a positive view among sample firms regarding sustainability, the survey also underlined a lack of information regarding SPP in general. Company interviews documented that there was also a lack of knowledge regarding sustainability in general, along with certifications, legal rights and possibilities for firms within pp.

Policy proposals

We recommend using the e-procurement platform SICOP as well as a mobile application for the broad-based learning of procurement officers and firms alike. Moreover, a call centre could help solve specific issues. Massive open online courses (MOOCs) could be a cost-and time-efficient opportunity to offer training to incumbent and incoming procurement officers. That said, such services must be user-friendly and should be developed in interaction with users (firms and procurement officers) as existing learning videos are inadequate.²¹

7.4 Strengthen inclusive development through SPP

The company interviews and survey suggested that the inclusion of small(er) firms, female-managed firms and firms from structurally disadvantaged regions remains an important issue, albeit arguably less so than in other countries. Small(er) firms in our survey were frequently concerned that in particular the costs of sustainability certification might constitute an obstacle for their participation in SPP. Among the survey respondents, only 27 per cent of the firms had female managers (although women make up about

21 The existing videos offered by the MOF are very long and unpopular, which is reflected in just 160 clicks in 2 years (see <https://www.youtube.com/watch?v=WyThKPfE3bM>).

half the population). Finally, firms' postcodes suggest that about 9 out of 10 procuring firms are located in or close to urban areas. This is mirrored in the fact that firms from structurally disadvantaged regions participating in PP complained about difficult access to information on public auctions and tenders.

Policy proposals

In consultation with firms and civil society, the government should consider different means to better integrate disadvantaged actors into public purchases, for example, by granting disadvantaged actors conditions that are more favourable: First of all, the government should try to expand and tailor its communication and information-sharing strategy to include and address female-owned companies, MSMEs and firms located in regionally disadvantaged regions. For example, the government should consult the three groups to learn about their specific challenges, tackle those challenges in training videos, and include representatives of each group in public marketing campaigns.

The government should consider improving access and/or provide firms with finance for sustainable certification: To improve access, the government should more actively help and inform firms about the possibility of using public contracts as guarantees to receive banks loans. Beyond informing firms more actively about this existing possibility, the government should engage with private banks to reach a point where public contracts are generally considered as a financial guarantee, for example, by signing contracts up to a certain amount.

The government might consider coordinating and consolidating the array of certificates, which demonstrate the commitment of companies to sustainability: The home-grown sustainability certificate, *Bandera Azul*, seems well positioned to be transformed and promoted to becoming the national sustainability certificate. Through active government support, competing certificates, such as those issued by MEIC and MINAE, could be integrated into this new single national sustainability certificate. Importantly, public procurers could give preference in public purchases to companies that possess the certificate and support MSMEs with information and finance for compliance with the certificate's sustainability standards and promote the

certificate through the Costa Rican Investment Promotion Agency (CINDE) and export promotion agency (PROCOMER).²²

Finally, MSMEs also emphasised, that the government should reinstitute separate bidding for sub-parts of public contracts to enable more MSMEs to participate and compete.

22 A good practice would be the example of the new Costa Rican coffee label of ICAFE (Instituto del Café de Costa Rica / Coffee Institute of Costa Rica). ICAFE is a non-state public institution with the objective of promoting an equitable coffee production model among national producers, beneficiaries, roasters, and exporters (<http://www.icafe.cr/icafe/acerca-del-icafe/>).

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Appendix

Appendix 1: Questionnaire/Guiding interview questions (public sector)

Preguntas para las entrevistas cualitativas con los compradores públicos

Preguntas preliminares (información general)

¿Cuál es su nombre y apellido?

¿Cuánto tiempo tiene de trabajar en la institución?

Preguntas de contenido (sustentabilidad en la institución)

¿Cómo aparece/se refleja el tema de la sustentabilidad en su trabajo diario (en general)?

¿Qué medidas existen/son implementados con respecto a la sustentabilidad? (guías, directrices internas, etc.)

¿Cómo se implementan CPS en su empresa/institución?

¿Qué productos se obtienen de forma sustentable? ¿Por qué específicamente esos productos?

¿Para la administración de los carteles se utilizan bases de datos/programas como Mer-Link/ SICOP/MECS?

Preguntas de contenido (impresión subjetiva de sustentabilidad en la institución y margen de maniobra)

¿Cuáles decisiones relacionadas con CPS puede tomar de manera independiente/autónomo?

¿Cuáles son los desafíos de las CPS?

¿Cómo se puede enfrentar estos desafíos al nivel institucional?

¿Existe un intercambio sobre cuestiones de sustentabilidad con los proveedores/otras proveedurías?

¿Cree que las CPS pueden impulsar otras áreas aparte del proceso de compra?

Pregunta final

¿Le gustaría añadir algo?

Appendix 2: Questionnaire/Guiding interview questions (firm sector)

Preguntas para entrevistas cualitativas

Preguntas introductorias

¿Cuáles son los productos más importantes en las ventas totales de su empresa?

¿Conocen ustedes acerca de la temática de las compras públicas sustentables?

- Si sí: ¿A través que medio se informaron, el estado, periódicos, televisión o redes sociales?

¿ En su opinión, ¿debería el estado adquirir productos sustentables?

- Si sí, por qué?

Compras públicas y su empresa

¿Qué importancia tienen las ventas al Estado para las ventas totales de su empresa?

¿Desde qué año venden productos al estado?

¿Si han participado en licitaciones públicas sin tener éxito, analizaron por qué no han tenido éxito?

¿Cuáles son los clientes públicos más importantes para ustedes?

¿Cree que PyMes tienen más dificultades para obtener licitaciones públicas?

- ¿Si si, cuáles son las causas?

¿Es diferente para ustedes vender al estado en comparación a vender a consumidores privados?

- Si sí, por qué? (Barreras burocráticas, precios más altos, mayores requisitos de calidad del producto)

Sustentabilidad de la empresa

Introducción:

¿Qué asocia usted con la sustentabilidad empresarial?

Sustentabilidad de procesos, ingresos y productos

Sustentabilidad de procesos de producción:

¿Usted uso insumos sustentables para la producción?

- Por ejemplo: madera certificada, empaques biodegradables etc.

Sustentabilidad de productos:

¿Considera usted las consecuencias ambientales de sus productos?

- Por ejemplo? (la eficiencia energética, las emisiones o el uso de lubricantes contaminantes; otros)

¿Cuáles fueron las razones principales para iniciar acciones de sustentabilidad?

- (La demanda de consumidores / gastos, costos / cambios de política, regulaciones / iniciativa de empleados / especificaciones en compras públicas)

¿Cuál de las razones mencionados ha más influido a sus acciones sustentables?

Desafíos para implementar sustentabilidad empresarial

¿Qué dimensiones de la sustentabilidad (ambiental, social, económico) significan barreras importantes para su actividad empresarial?

- Y por favor especifique sobre estándares ambientales
- Y por favor especifique sobre estándares sociales

Sellos y certificaciones de sustentabilidad empresarial

¿Tiene su empresa sellos o certificaciones de sustentabilidad 1) de productos y 2) de gestión sostenible?

- ¿Si si, cuáles?
 - ¿bandera azul o ISO14000/9000 o sello-PYMES/carbono-neutral?

¿Desde cuándo su empresa ha considerado la gestión o producción sostenible?

¿Existe un plan de gestión ambiental?

En sus procesos administrativos:

¿Intentan utilizar materiales amigables con el medio ambiente, por ejemplo, papel reciclado, tintas no contaminantes, equipos con un bajo consumo de energía?

¿Se le pide a su empresa algún certificado o sello cuando concurra por compras públicas?

- Por favor especifique, cuál certificados? (con aspectos sociales o ambientales)

En cambio, cuando usted contrato a otras empresas:

¿Requiere certificados, sellos o auto-declaración al respecto de los proveedores?

¿La participación en compras públicas fue el motivo para adquirir un certificado/ auto-declaración de sus proveedores?

Transformación de la economía y tendencias de mercado

¿Qué considera usted importante para mejorar el desempeño de su sector, en relación con la sustentabilidad?

¿Considera que su empresa está bien preparada para enfrentar nuevos requerimientos relacionados con los criterios medioambientales y sociales en sus productos y servicios?

Política nacional de las compras públicas sustentables (CPS)

En 2015 el gobierno costarricense aprobó una directiva de compras públicas sustentables. Esta directiva requiere que los compradores públicos tengan más en cuenta de los criterios de sostenibilidad en la contratación pública.

¿Conoce usted esta directiva?

¿Sabe que el sector privado tiene la oportunidad de participar en la formulación de medidas relevantes (por ejemplo la directiva de CPS de 2015)?

¿Por ejemplo, mediante la Cámara de Industrias o la UCCAEP (La Unión Costarricense de Cámaras y Asociaciones del Sector Empresarial Privado)?

¿Qué podría hacer el estado para apoyarlo?

- Por ejemplo:
 - Aprobación más rápida de sellos.

- Apoyo financiero para la implementación de criterios de sostenibilidad
- Reducción de la burocracia en las licitaciones

Innovación

Transición e introducción: un objetivo de la directiva nacional sobre las compras públicas sustentables de 2015 es de promover la innovación empresarial en materias económicas, ambientales y sociales.

¿Ha usted desarrollado un nuevo/mejorado un proceso gracias a la solicitud de compras públicas?

- Podría darnos un ejemplo.
- Por ejemplo, debido a los estándares requerido, o por requerimientos diferentes

¿Ha usted desarrollado un nuevo/mejorado un producto o servicio en su empresa gracias a la solicitud de compras públicas?

- Podría darnos un ejemplo.
- Por ejemplo, debido a los estándares requerido, o por requerimientos diferentes

¿Qué debería hacer el Estado para ayudar/apoyar a innovar nuevos productos sostenibles?

Corrupción

¿Cree que los compradores siguen sus requisitos legales al momento de adjudicar licitaciones?

- De otros países se sabe que el tema de la corrupción influye la efectividad de la contratación pública. Qué es su experiencia en Costa Rica?

¿Puede imaginar que se podrían abusar de los requisitos sostenibles para exigir un precio más alto?

¿Podría imaginarse que algunos criterios de sostenibilidad se están inventando para favorecer a ciertas empresas?

¿Ya no recibió o había una desventaja para concursar por un contrato público porque otras empresas usaron medidas de corrupción?

Appendix 3: Categories ATLAS.ti (public sector)

Codes	Sub codes
Work experience	
Procurement process	Sustainability inclusion in PP
	Admissibility criteria PP
	Technical specifications PP
	E-Procurement platform PP
	Evaluation criteria PP
	Objection PP
	Framework agreement PP
	Market analysis PP
Sustainability criteria	Social criteria SC
	Environmental criteria SC
	Economic criteria SC (e.g. life cycle analysis)
	SME inclusion SC
Procurement examples	Cleaning supplies/services PE
	Catering PE
	Furniture PE
	Vehicle PE
	Electronics PE
	Office supply PE
	Paper PE
Institutional environmental management	
Quality infrastructure	Norms QI
	Certifications QI
	ISO QI
Legal reference	Decree reference LR
	Law “Gestión integral de residuos” LR
	Directive single use plastics LR
	SPP Commission LR

Codes	Sub codes
	Law “Contratación Administrativa” LR
Exchange	Public-Public E
	Public-Private E
Perception SPP Costa Rica	
Challenges	Fragmentation of regulations C
	Implementation of laws C
	Supply vs. demand C
	Fiscal deficit C
	Personal turnover C
	Incomprehensive legal framework C
	Complexity of sustainability C
	Societal change C
	Shift in consciousness C
	Fragmentation public sector C
	Information deficit C
Reference to other countries	
Training	
Suggested solutions	Government support SS
	Policy recommendations SS
	Conscientization SS

Appendix 4: List of interviews conducted

Sector	Institution/Firm	Date
public	ICE	18.02.2018
public	DGABCA	21.02.2018
public	CGR	22.02.2018
public	MINAE	28.02.2018
public	MIVAH	01.03.2018
public	MOPT	01.03.2018
public	MICITT	01.03.2018
public	CCSS	05.03.2018
public	DIGECA	06.03.2018
public	CONAVI	07.03.2018
public	UNA	09.03.2018
public	MTSS	12.03.2018
public	MEIC	14.03.2018
public	MSP	14.03.2018
public	ECA	14.03.2018
public	LACOMET	14.03.2018
public	INTECO	15.03.2018
public	ESPH	16.03.2018
public	BCR	26.03.2018
private	Comercial de Potencia y Maquinaria S.A.	05.03.2018
private	Asesoría Óptima en Seguridad Industrial	06.03.2018
private	Agencia Datsun	06.03.2018
private	Súper Barato	07.03.2018
private	Romagro del Siglo XXI	09.03.2018
private	Servicios Piñar Sociedad Anonima	09.03.2018
private	Catering Service Calderón	09.03.2018
private	Grupo Q.	14.03.2018
private	Creaciones Niza Sociedad Anonima	14.03.2018
private	Federico Hidalgo	15.03.2018

Appendix 5: List of sustainability criteria for the quantitative analysis

Criteria
Criterios Sustentables
Criterios sustentables
Gestión ambiental
Certificación ISO 14001
Certificado ISO 50001
Gestión Ambiental del Fabricante
Plan de Manejo de Residuos
Lista de Iniciativa para Reducción de la Contaminación
Plan de Gestión Integral de Residuos (de conformidad con Ley para la Gestión Integral de Residuos N° 8839)
Cláusula en materia Laboral (COMPRAS SUSTENTABLES).
Protección al medio ambiente
Oferente o producto que posea certificación vigente ISO 14000, para alguno de los procesos internos de la empresa
CRITERIOS SUSTENTABLES
RECONOCIMIENTO AMBIENTAL Y SOCIAL
Criterio Sustentable
CRITERIOS AMBIENTALES
CONTRIBUCIÓN AMBIENTAL
Criterios ambientales
Sellos Ambientales
Criterio Ambiental
Certificaciones ambientales y de calidad
Producto biodegradable, no contaminante o de fácil asimilación por el planeta
Plan de manejo de Residuos Sólidos
Condición de discapacidad
Criterio sustentable
Certificación de consumo eficiente de energía
Factores Sustentables_Ambientales
Cumplimiento de manejo de reciclaje y tratamiento de desechos electrónicos

Criteria
Desempeño ambiental
Norma ISO 14001
GALARDONES OBTENIDOS EN MATERIA AMBIENTAL
Certificado vigente del Programa Bandera Azul para empresas, emitido por el AYA.
Impacto ambiental
Certificación ISO 14000
Requisitos ambientales
Factores Sustentables_ Sociales
Programas de participación e inclusión de personas con discapacidad, incentivando un trabajo de inclusión e igualdad.
Certificación Ambiental
Sistema o programa de gestión ambiental
Certificación de seguridad y calidad
PROTECCION AL MEDIO AMBIENTE
Desempeño Ambiental
CERTIFICACIONES AMBIENTALES
REFRIGERANTES NATURALES
Certificación o plan de manejo ambiental
Certificación con la ISO 14001
Reconocimiento por el SIREA en eco-eficiencia o producción limpia
Certificaciones Ambientales
Criterios Sustentables- Ambientales: Certificación ISO 14001:2004 ó ISO 14001:2015
Criterios Sustentables- Ambientales: Galardón Programa Bandera Azul Ecológica (PBAE), denominada Cambio Climático
Criterios Sustentables- Sociales : Inserción laboral de personal con discapacidad
Criterios Sustentables- Sociales : Inserción laboral de personal con edad igual o superior a 45 años
Consumo energético_ Energy Star
CERTIFICACIÓN ISO 14001 de Gestión Ambiental o similar (Producto certificado por INTECO y avalado por ECA)
Prácticas Sustentables en el proceso de fabricación del producto

Criteria
Responsabilidad Social
Certificado ecológico o ambiental
Consortio con Empresa PYME
Certificado de Sistema Gestión Medio Ambiental ISO 14001
CONTRIBUCIÓN AMBIENTAL Y SOCIAL
Plan para el manejo de Residuos (Disposición final de las baterías)
Cantidad de componentes reciclables
Consumo energético
CERTIFICACION DE MEDIO AMBIENTE ISO 14001
Plan para el manejo de Residuos
Certificacion Tecnologia Verde
Producto verde
Certificación de cumplimiento de normas de seguridad calidad
Sistema de gestión en igualdad y equidad de género
Disposición final de los residuos de empaque
Funcionamiento de ahorro de energía
Plan de Gestión Ambiental
Certificación ISO 9001 y 14001
Certificados de Sostenibilidad Ambiental
CONTROLES DE CALIDAD UTILIZADOS EN PROCESOS DE RECOLECCIÓN
Certificaciones de ahorro energético
Practicas sustentables en el proceso de fabricación del producto
CONTRATACIÓN A PERSONAS CON DISCAPACIDAD
CRITERIO AMBIENTAL
CRITERIOS SUSTENTABLES AMBIENTALES
PLAN SALUD OCUPACIONAL
Gestión integral de residuos y gestión ambiental
Certificación 14001
Empresa Pyme
Reciclaje
Criterio Social

Criteria
Criterios Sustentables- Ambientales
Garantía Complete Care (seguro contra caídas y derrames de líquidos)
Prácticas Ambientales
Criterios Sustentables- Sociales
Criterios amigables con el ambiente
Productos de bajo impacto ambiental (productos biodegradables)
Contratación de personas con discapacidad
Criterios sustentables Sociales
Experiencia en edificaciones sostenibles
Productos Amigables con el Ambiente
Centro de acopio para el reciclaje y tratamiento de desechos electrónicos en el país
Certificación de Compras Verdes
Certificación de manejo residuos electrónicos
Criterios de Sustentabilidad
Empresa PYME o en Consorcio con PYME
Manejo de residuos
Personal con discapacidad:
ASESOR EN GESTIÓN AMBIENTAL
Certificación ISO 14001:2004 ó ISO 14001:2015
Certificación vigente de Carbono Neutralidad
Consideraciones Sociales
Cumplimiento Norma TIER 3, Agencia de Protección del Ambiente EPA
Galardón Programa Bandera Azul Ecológica
Personal con edad igual o superior a 45 años
Rendimiento de combustible por kilometraje
CAPACITACION EN PROGRAMAS DE GESTION AMBIENTAL CON PROGRAMA IMPLEMENTADO
Certificaciones amigables con el ambiente
Certificación OHSAS 18001
Certificación ambiental
Certificación de Rendimiento: AHAM

Criteria
Certificación de Seguridad: UL (SA11089) /CSA (245337)
Certificación de carbono neutral
Certificación ecológica ambiental
Criterios sustentables ambientales
Criterios sustentables sociales
Tratamiento de Residuos Sólidos
Certificado carbono neutral
Cláusula en materia Laboral (COMPRAS SUSTENTABLES). Protección a personas adultas
Condiciones adicionales de seguridad
Contribucion Ambiental
Emisiones CO ₂
Factores Sustentables_Económica
Gestión de Residuos de los Consumibles
Ley 7600
Ley 8839 Art.29
Menor consumo eléctrico
NORMAS AMBIENTALES: LA EMPRESA QUE CUMPLA CON NORMAS BANDERA AZUL ECOLÓGICA O SIMILAR
Rendimiento de combustible
Sostenibilidad
Certificación ISO, SAE, NFPA, California Title 13, ECE Regulation 65
Ahorro de agua
Aspectos técnicos. Mayor rendimiento de combustible
CONSTANCIA COMPOSTABILIDAD Y BIODEGRABILIDAD
Carbono Neutro
Certificacion ISO 14001
Combustible Diesel
Consorcio con Empresa PYME
Contratación de personas mayores de 45 años
DRENAJES ECOLOGICOS
Fair Trade

Criteria
Incluye baterias recargables y cargador
PLan de manejo de residuos
Producto organico
Programa de Gestion de Desechos Electronicos
Reconocimientos ambientales
Registro PYME
tecnología verde
Certificación LEED-AP 3-2009 como Consultor en Diseño Sostenible
Certificado Carbono Neutral emitido por el MINAE
Certificado ISO Gestión Ambiental 140001
Conocimiento de Estándares Internacionales de Gestion Ambiental
Desecho de Baterías
Estudios Formales en Sostenibilidad Ambiental
Experiencia en Programas de Financiamiento para PYMES
PYME registrada
Programa de manejo de residuos
programa medio ambiental
Certificaciones ambientales
Cláusula en materia Laboral (COMPRAS SUSTENTABLES).
Experiencia de la empresa en la prestación de servicio médico bajo el Sistema de Atención Integral de Medicina de Empresa-Caja Costarricense de Seguro Social

Appendix 6: Summary statistics

Summary statistics: Dependent variables						
HYPO- THESIS	VARIABLES	(1) N	(2) Mean	(3) SD	(4) Min.	(5) Max.
1	Having sustainable certification	683	0.193	0.395	0	1
1	Share of sales with sustainably certified products	659	0.0736	0.236	0	1
2	Supplier monitoring: sustainable auto-declaration	656	0.224	0.417	0	1
2	Supplier monitoring: sustainable certification	667	0.259	0.439	0	1
3	Having innovated, 2017	646	0.608	0.488	0	1
3	Share of sales with innovated products, 2017	637	0.275	0.308	0	1
4	Having exported, 2017	679	0.0957	0.294	0	1
4	Share of sales with exported products, 2017	712	0.0165	0.0929	0	1

Summary statistics: Independent variables					
VARIABLES	(1) N	(2) Mean	(3) SD	(4) Min.	(5) Max.
Ever won SPP 2010–2018	411	0.0487	0.215	0	1
Total amount won in CPP 2010–2018 (colones)	411	6.661e+07	2.601e+08	0	3.058e+09
Total amount won in SPP 2010–2018 (colones)	411	7.776e+06	8.353e+07	0	1.560e+09
Times bid for CPP 2010–2018	411	21.64	57.49	0	536
Times bid for SPP 2010–2018	411	0.779	4.062	0	55

Summary statistics: Independent variables					
Times won CPP 2010–2018	411	6.732	19.29	0	168
Times won SPP 2010–2018	411	0.221	1.217	0	16
Frequency success rate in CPP 2010–2018	411	29.28	33.78	0	100
Frequency success rate in SPP 2010–2018	411	3.576	15.95	0	100
Amount success rate in CPP 2010–2018	411	28.26	36.55	0	100
Amount success rate in SPP 2010–2018	411	3.139	15.72	0	100

Summary statistics: Control variables					
VARIABLES	(1) N	(2) Mean	(3) SD	(4) Min.	(5) Max.
Capital: Costa Rica	389	0.925	0.263	0	1
Capital: international	389	0.0411	0.199	0	1
Capital: international-Costa Rica	389	0.0334	0.180	0	1
Firm size: micro	411	0.221	0.416	0	1
Firm size: small	411	0.144	0.351	0	1
Firm size: medium	411	0.277	0.448	0	1
Firm size: large	411	0.0122	0.110	0	1
Education firm manager: no or only highschool education	395	0.0506	0.220	0	1
Education firm manager: technical and applied education	395	0.159	0.367	0	1
Education firm manager: Bachelor or Master	395	0.762	0.426	0	1
Education firm manager: PhD	395	0.0278	0.165	0	1
Gender firm manager	377	0.745	0.436	0	1
Sector: Other	384	0.0807	0.273	0	1
Sector: Agriculture	384	0.00521	0.0721	0	1

Summary statistics: Control variables					
Sector: Commerce	384	0.211	0.409	0	1
Sector: Manufacturing	384	0.0417	0.200	0	1
Firm: Age	381	17.65	15.35	1	125
Firm: Experience in PP: Years firm registered in Merlink	411	3.653	2.532	0.129	8.063
Region: San Jose	409	0.511	0.500	0	1
Region: Alajuela	409	0.176	0.381	0	1
Region: Cartago	409	0.115	0.319	0	1
Region: Heredia	409	0.130	0.336	0	1
Region: Guanacaste	409	0.0171	0.130	0	1
Region: Puntarenas	409	0.0220	0.147	0	1
Region: Limon	409	0.0293	0.169	0	1
Number employees in 2017	375	26.36	94.88	0	1,300

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