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# Public-Private Collaboration on Productive Development in Uruguay

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## Abstract*

The PPC for PDPs implemented in Uruguay in recent years have provided fertile ground for research. Many have achieved results that can be analyzed within the scope of their respective histories and institutional settings. The study inquires about what PPCs maximize the benefits of PDP results and minimizes rent-seeking behavior or the capture of government. In other words, it wants to disentangle how did the PPCs selected balanced these two apparently conflicting goals. The results show that some PPCs managed these matters better than others did. A history of private-public collaboration at the sectoral level was a key factor in understanding the different results. The imposition of foreign regulations to export-intensive sectors is another factor that reduces the imbalance. Additionally, the PPCs' degree of sophistication and the lower risk of one-sidedness depend on the capacities of public and private actors. Finally, the study found that the PPC design that most likely has better results has to be consistent with the kind of good, that is, the public, club, or private good, the PDP is providing.

**JEL Classifications:** L52, O25
**Keywords:** Productive development policies, Public-Private collaboration, Uruguay, Meat traceability policy, Cluster promotion policy, Sectoral councils

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## 1. Introduction

The productive development policies (PDPs) implemented in Uruguay in recent years have provided fertile ground for research. Many of these PDPs have achieved results that can be analyzed within the scope of their respective histories and institutional settings.

This paper takes as its starting point a paper written by Hausmann, Rodrik, and Rodriguez-Clare (2005) that provides an overview of the Uruguayan PDP system around 2004. The authors were seeking to identify new growth opportunities in Uruguay. At the time, the Uruguayan economy was recovering from the financial crisis of 2002 that disrupted the banking system and created a major economic slump. Still, the authors found that the recovery of macroeconomic balance, the achievement of more competitive real exchange rates, and a political system and institutions that had earned credibility and trust under fire were the underpinnings for numerous real investment opportunities that had ample growth potential. Despite this positive finding, the authors detected important shortcomings in several policies, which were hindering growth. The country's industrial promotion legislation remained neutral in the signals given to investors and created incentives for activities with few demonstration effects or other positive externalities. In the authors' view, this constituted a major drawback for "self-discovery" (Hausmann and Rodrik, 2002) and growth. They also emphasized that the main problem with Uruguay's approach to vertical policies is that they are the product of historical circumstances, for example, with agriculture, and that the National Innovation System (NIS) was weak.

Since 2005, Uruguay's PDP system has been significantly revamped. The new government implemented institutional innovations that modified the scale and scope of support for the transformation of the country's economic structures.[1] The administration that took office in March 2010 continued this approach and went more deeply into the PDP priorities defined in the preceding five years.

Since 2005, the government has implemented substantial modifications to the institutional setting that supported productive development, including by creating new actors. For example, it created two strategic organizations: the Unit for the Support of the Private Sector

[1] The government in office since 2005 came from the first coalition of left-of-center parties that controls the Executive in Uruguay today.

(UNASEP)[2] at the Ministry of the Economy and Finance (MEF) and the National Agency for Research and Innovation (ANII). It modernized other organizations, such as the Uruguay XXI Institute, which gradually became a full-fledged trade and investment promotion agency.

Barrios, Gandelman, and Michelin (2010) reviewed and assessed six PDPs implemented in Uruguay between 2005 and 2009. They recognized that there had been an important change in the government's commitment to more active policies than in the past. Nevertheless, the lack of funding in some cases put this achievement at risk, and no new institutionalized learning mechanism was installed in its place. They also found that coordination problems existed between complementary policies and that private sector participation in the design, selection, and implementation of productive policies was uneven. Finally, they discovered that some public actions were too interventionist and possibly exposed to risk of failure.

The objective of this Working Paper is to delve further into the institutional arrangement of PDPs implemented in Uruguay in recent years. PDPs are defined as policies aimed at increasing the productivity of firms in specific sectors or clusters, and/or that improve the likelihood of emergence and growth of new competitive firms in industries previously not present in the country's structure.[3] The focus is on the public-private collaboration (PPC) that was intentionally designed as collaboration between the government and the private sector to design, implement, and/or assess PDPs.[4]

The authors of the present study inquired about institutional arrangements that maximize the benefits of PDP results and minimize rent-seeking behavior or the capture of government. In other words, what the authors wanted to know is how the PPCs selected for study balanced these two apparently conflicting goals. The authors learned that some PPCs managed these matters better than others did. A history of private-public collaboration at the sectoral level was a key factor in understanding the different results. The imposition of foreign regulations to export-intensive sectors is another factor that reduces the imbalance. Additionally, the PPCs' degree of sophistication and the lower risk of one-sidedness depend on the capacities of public and private actors. Finally, the authors found that the PPC design that most likely has better results has to be consistent with the kind of good, that is, the public, club, or private good, the PDP is providing.

[2] UNASEP was designed to be a one-stop window for those applying for tax benefits under the investment promotion regime.
[3] Call for Research Proposals (2011), Public-Private Collaboration for Productive Development Policies (RG-T1861), Inter-American Development Bank (IDB).
[4] Ibid.

The authors organized the exposition as follows. In Section 2, the three PDPs that harbor the five selected PPC case studies are described. The institutional settings of the agriculture policy, the sectoral councils (SCs) implemented by the industrial policy, and the cluster promotion policy are analyzed. Section 3 details experiences of the meat traceability system, two SCs, shipbuilding and biotechnology, and two clusters, blueberry and tourism in Colonia. The scope for PPC and the outcomes of these policy experiments are highlighted in the analytical section after each case study. Finally, Section 4 lays out the lessons learned from these five case studies in terms of the institutional settings of PPC for PDPs.

## 2. Three Productive Development Policies

The relationship between public and private actors has always been important in Uruguayan policy. While PPCs in PDPs—especially in agriculture—existed before 2005, the focus of cooperation was significantly different in the last two administrations.

The first policy examined is the Ministry of Agriculture and Fishing (MGAP), which carries agricultural policy forward. The MGAP strategy aims to enhance agriculture and agroindustry competitiveness to achieve sustainable development with social inclusion. Public policies designed to pursue these strategic objectives go beyond MGAP and require coordination within government structures and collaboration with the private sector. In the first section of this chapter, the authors describe the institutional settings of the agriculture policy to explain the policy context in which meat traceability was adopted.

The Ministry of Industry, Energy, and Mining (MIEM) carries out the industrial policy, which includes the SCs. These are opportunities for public-private collaboration between government, business leaders, and workers directed toward elaborating and implementing sector-specific industrial plans. The councils are relatively new, but different modalities of PPCs were already in place in the majority of the sectors they promoted. The authors examined the institutional functioning of the SC in the second section to understand the policy context in which the two cases—biotech and shipbuilding—are integrated.

Uruguay began a cluster promotion policy in 2005 with two simultaneous programs: the Clusters and Productive Chain Support Program (Programa de Apoyo a la Competitividad de Clusters y Cadenas Productivas, or PACC), and the Small and Medium Enterprise Competitiveness and Export Promotion Support Program (Programa de Apoyo a la

Competitividad y Promoción de Exportaciones de la Pequeña y Mediana Empresa, or PACPYMES). The Office of Planning and Budget (OPP) implemented the first with the support of the Inter-American Development Bank (IDB), while the second was implemented by MIEM, with support from the European Union (EU). These programs intended to create collaboration between important public and private actors in clusters and co-finance competitiveness-enhancing activities. In Section 3, the authors describe the PACC institutions that harbored the two cluster cases, blueberries and tourism in Colonia.

### *2.1 Agriculture Policy: Public-Private Institutional Setting*

Since 2005, agriculture policy has been transforming its institutional setting to a more coordinated and efficient system. The system is composed of the central structure of MGAP, its various programs and projects, and the expanded agricultural institutions, including an autonomous entity and six non-state public entities specialized in different sectors, consisting of meat, dairy, wine, and seeds, or functions, defined as research and extension. In 1948, the first institute was built; the last one was built in 2007. These seven institutes have private sector participation through business associations in their board directories. The expanded agricultural institutions are the expression of PPC in agriculture policy (Arboleya, 2007).

The institutes are legal instruments that organize, manage, and finance sectoral public policies, whose founding laws always include clauses providing a specific funding source. Some institutes are mandatory advisors of the executive branch, explicitly or implicitly, but no institute is responsible for designing policy.

There is great diversity in the composition of their boards of directors. For some, the state has a majority of votes, in others it is the private sector, and in others the votes are balanced, but the president of the board, appointed by the executive branch, has an extra vote if a decision is tied. Based on the experience of some of the well-functioning institutes, this last mechanism provides a safeguard against capture by the private sector. Other arrangements include veto powers given to the state-appointed head of the board or double value of it. Another mechanism to avoid dominance of narrow interests consists of including in the governing bodies more than one type of actor from the value chain, such as cattle producers versus meat processors, winemakers versus vine growers, or seed producers versus seed traders versus seed users. With respect to the meat traceability system, the composition of the meat institute's (Instituto Nacional

de la Carne, or INAC) board of directors was a fertile space where divergent interests from the two central actors of the meat value chain were negotiated.

Since 2005, and especially after 2007, the government reformed the expanded agricultural institutions to align them more closely to its policy strategy. The creation of a new institute and the reorganization of some of the older ones, reflecting lessons learned from their evolution, are proof that the last two administrations view these institutions, with the adjustments described above, as a powerful tool for PPD based on PPC.

In terms of PPC, however, the government is also proposing to go beyond the co-governance model of the expanded agriculture institutions and build inter-institutional innovation networks. MGAP's innovation policy guidelines for the current administration claim that the agriculture innovation policies will be executed by public-private networks (Paolino, 2010). Until now, such new institutional architecture to organize PPCs for agriculture policy was far from being fully deployed. Some of those interviewed for this Working Paper mentioned the lack of critical capabilities for getting involved in such sophisticated collaborations. Nevertheless, the example of an embryonic public-private inter-institutional network based on the meat traceability platform may be a signal that a more sophisticated PPC might loom in the future.

In sum, the institutional framework upon which meat traceability policy was designed and implemented rests on a long-standing PPC for PPD culture in the agriculture sector. This will be essential to assure meat traceability's success.

### *2.2 Industrial Policy: Sectoral Councils*

Although sectoral councils are new in Uruguay, they have existed for several years in other countries (Devlin, 2012). In Uruguay, SCs are public-private deliberative bodies where representatives from government, business, academia, and trade unions participate with the goal of designing and implementing industry-level growth strategies. These strategies are laid out in sectoral plans, which include a long-term vision, medium and short-term objectives and goals, and an action plan, with a timeframe up to 2020—containing a detailed list of tools and indicators to measure the results of the plan's implementation.

The first round of industrial SCs launched in 2011 included automotive, shipbuilding, wood and forestry, biotech, pharmaceutical, and textiles-apparel.[5] In two case studies, the authors examine activities carried out to meet two crucial objectives of the biotech plan, which are the biotech promotion law and the registration process for biotech products, and the efforts to reinvigorate the naval equipment industry by creating demand.

One critical aspect that affects the possibility of achieving the plans' goals concerns financial support. One of the strengths of the newly developed strategic plans, in comparison with past experience, is that every action intended to achieve a specific goal is associated with an estimation of its financial requirements, and has identified a source for its financial support.

In terms of their modus operandi, the MIEM officials involved divided up into technical teams each devoted to coordinating different SCs. They report to MIEM under various types of term contracts, but they do not enjoy the benefits of assured tenure that regular civil servants enjoy. One of the future challenges for the government is to find a way to retain the existing professional staff by encouraging professional growth and making a public sector career attractive. Today, there is competent technical staff to assure progress for the councils' work, so the risk pointed out by Ross Schneider (2010) of cheap talk, that is, of meetings that lack value for the participants or that have little impact on policy and performance, due to lack of competent staff to follow up the council, is relatively low. The sustainability of the working teams, however, is not assured for the future.

The labor movement in Uruguay is organized under a single national federation, PIT-CNT, which, despite some normal infighting and uneven unionization rates by industry, is perceived as the legitimate representative of firm- and industry-level organizations. Depending on the scope of SC's activities, representatives of industry-wide unions have participated since the early times. Such participation is an added responsibility for professional union leaders. The law protects labor activism, and senior leaders are allowed indeterminate leave as long as they are re-elected to representation roles.

The private sector is mainly involved in SCs through industry-level business chambers or associations, but individual firms can participate on their own behalf if they want to. Like labor

[5] The first round's plans, except for textiles-apparel, are available at http://gp.gub.uy/es/node/639 and http://gp.gub.uy/es/node/640 [last accessed 04/01/2013]. The second round of SCs was launched in 2012, and it included building, chemicals, metallurgical industry, and design. The third round of SCs, launched in 2013, includes audiovisual, renewable energy, ICT, and nanotechnology.

unions, member contributions finance these business organizations, and they exhibit varying degrees of organizational effectiveness or sophistication in their agendas. The differences among SCs in the organization of the private sector account for some of the councils' achievements and failures. There are SCs where private sector involvement occurs through traditional industry-level business associations.[6] These cases, such as the automotive or the textiles sectors, typically correspond to sectors with a long tradition of collective action. There are other cases in which participation occurs through more recently created and less experienced—but sometimes more modern—leadership, like biotechnology or shipbuilding.

In some sectors, private actors participate through associations that are allegedly represented by senior leaders but, according to some private sector actors, the associations are actually entrenched organizations that do not effectively convey the sector's needs and future challenges. There are some organizations with more innovative features, such as. AUDEBIO (Asociación Uruguaya de Empresas de Biotecnología), in the biotech industry, in which important sector participants are not represented but that nonetheless have a clear-cut, modern agenda. While that agenda may not represent the entire private sector, it raises issues that are significant to the whole sector, with some degree of legitimacy. Some councils, like shipbuilding, enjoyed the benefits of their previous trajectories as part of a cluster-development policy, that is, PACPYMES and then PACC, and had in that context developed ad hoc governance mechanisms that, at least, provided legitimacy to representatives of the organized segments. These issues will be revisited in the case studies.

The basic principle of the SC is consensus building (Devlin and Moguillansky, 2009). The public sector has taken the lead in defining and implementing this methodology. In defining the contents of the agenda, however, private sector participation has always been crucial. The provision of relevant information to set credible goals has been the decisive issue in their participation. Elaboration of the first round of strategic plans was a long negotiation process until consensus was reached. This method might be viewed as too slow and it could sometimes lead to imperfect results, but it enhances the plans' legitimacy.

Moreover, SCs lack explicit safeguards against possible coordination failures and preventing capture. Considering that government technical staff members work very closely with the private sector, where they could eventually get a better job, the lack of employment benefits

[6] Namely, associations based on lobbying capability to promote private interests.

may affect their commitment to look after the interests of the public sector when negotiating with private sector representatives.

Finally, SCs appear vulnerable to the risk of premature abandonment by a new administration that does not understand their purpose, does not value their achievements or strategies, and/or attaches to them a lower priority. This methodology has some original features, but planning industrial development strategies is not new. There were experiences of strategic planning at the sectoral level in the late 1990s, that is, the so-called Competitiveness Agendas, which incoming administrations discontinued. The two cases analyzed in section 3 will focus on the issues raised above from SCs.

### *2.3 Cluster Promotion Policy in Industrial, Agricultural, and Service Sectors*

The cluster promotion program that was created between the IDB and Uruguay's government in 2006 laid the groundwork for the establishment of PACC. It was based on the identification of a number of productive agglomerations that might be facing problems in improving their competitiveness due to coordination failures and the under-provision of public goods, or club goods, in the areas of market access, technological development, and governance of multi-actor cooperation.

PACC was designed and run to increase firm competitiveness. This permeated many of its features and the important steps in its evolution. First, clusters' Plans to Strengthen Competitiveness (PRCs) were developed through a participatory process facilitated by government-hired specialists. This included the identification, mobilization, and selection of agglomerations to be included in the program. The latter was accomplished through an open call for private-public joint initiatives with the endorsement of at least one local government. Second, public-private co-financing of competitiveness-strengthening actions clearly aligned with PRCs was established. Third, the public institutional architecture was reorganized to facilitate integration with private actors. This involved removing bottlenecks and creating or recreating inter-stakeholder links, with a view to strengthening collective competitiveness.

While similar programs were developed simultaneously in other parts of the Southern Cone, the Uruguay program had three distinctive features that reveal some of its underlying strategies (Rius, 2011). First, the coordination of PACC was placed outside the sectoral ministries, at a high-level agency with ministerial status that had a history of managing IDB-

supported projects efficiently and effectively. The idea underlying this was to facilitate horizontal coordination within the public sector departments and agencies interacting with the private sector in each cluster.

Second, an open call was used to select clusters that would be supported. The program's staff promoted the program more actively among the more promising groupings and encouraged some to apply, but the call was open to any that met the requirements. This conveyed the message that no group had a privileged relationship with the program, and that any group could drop out if it ceased to meet the criteria, as other potential beneficiaries were waiting to be included.

The third distinctive feature was the style of facilitation for development of the participatory competitiveness plans and early organization of the governance structures. In addition to a proactive team of government officials, the external facilitators were individual sector specialists or experts in facilitation of participatory strategy-setting, rather than large international consulting companies. This solution—which deviated from the norm in other cluster programs in the region (Pittaluga, 2012)—could have made it easier for the private sector to capture those individuals and push a rent-seeking agenda. The experience, however, has shown that this resulted in greater ownership of the PRCs by the private sector, without the feared capture of the agenda and a greater private commitment to the PRCs themselves.

Like similar programs in the region, the strong presence of the private sector in the agenda setting and management of cluster activities was expected, and achieved, in the best-performing cases. This included participation of representative firms and groups of firms in the governance of the cluster, the definition of priorities, and the approval of specific activities. It was expected that a cluster governance structure would emerge, with a specific form of coordination and/or integration with mixed and public sector entities or spaces. In the process, the public sector, through the program's coordination unit, was the main facilitator, reflecting a peculiar and innovative approach to the role of public actors in the implementation of productive development policies.

This model on paper was largely the one observed in reality since 2006. Still, this did not preclude small or larger shifts in tactics or higher-level principles and strategies. In particular, the intervention model was gradually improved in the period between 2006 and 2009, which saw the rise of ten (and the fall of three) clusters that had developed governance structures and project

achievements. The change of administration on March 1, 2010 brought with it the replacement of the senior tier of program executives, an impasse in the public approval of new activities, and a slow return to more or less normal operation since 2011, reportedly with a narrower focus on competitiveness-enhancing activities not supported by other existing policies and programs. It is not clear if the cluster policies will be maintained after the end date of the IDB-supported project in 2014, but there is no doubt that the cluster methodology introduced by PACC, and also by PACPYMES is already profoundly integrated in Uruguayan policy making.

## 3. Five Cases of Policy Implementation through Public-Private Collaboration

The three PDPs described above were implemented through different sorts of PPCs. In this section, the authors present five case studies, which explain how these PPCs functioned and provide valuable lessons in terms of which institutional settings worked better and which did not.

### *3.1. Case 1: Meat Traceability*

Meat, along with wool, has been one of Uruguay's most traditional exports, although today dairy products and agricultural products, such as rice, soy, and wheat, and forestry-cellulose are also in the top ranks of exports. Still, in 2011 Uruguay was the eighth leading exporter of meat (OECD-FAO, 2012) and it was one of the few meat-producing countries that exports the majority of its production—75 percent in volume.

Implementation of meat traceability was an enormous challenge. First, because until now there was no country in the world that had implemented a universal tracking system for its entire bovine stock. Second, it is such a challenge because it involves coordination of a large number of actors scattered all over the national territory, many of whom are located in remote rural areas. Finally, it required a cultural change: new technologies had to be introduced in a production system that was steeped in deeply rooted traditions regarding the way things are done. Some actors refer to meat traceability as a revolution in the field production only comparable to the introduction in rural areas of barbed wire fencing completed at the end of 19$^{th}$ century. The goal of this section is to describe and analyze what PPCs were important to successfully implement the meat traceability system.

### *3.1.1. Emergence and Development of the Meat Traceability System*

Meat traceability policy is one of the few examples in Uruguay of a state-level policy that three consecutive administrations have prioritized. It is inextricably linked to the control of foot and mouth disease (FMD). Only after the last FMD outbreak in 2001—that reduced the sale price of meat by nearly 40 percent—government and private actors began to consider the need to implement a suitable information system to regain the confidence of the markets.

The meat traceability system has two subsystems along the value chain: (i) cattle traceability (CT) and (ii) black boxes (BB). The former refers to the tracking of data from the farm up to the slaughterhouses, while the latter consists of tracing information on meat cuts at the industrial stage to the retail stage. The complete link between the two subsystems allows for the tracing of beef cuts from the retail level to the farm of origin, or from farm to plate.[7]

With regard to CT, in August 2006 Law No. 17,997 provided the legal foundations for the Animal Identification and Registration System (SIRA) under the aegis of MGAP. This mandatory bovine cattle identification system[8] was not new to the participants of the meat value chain. Since 2004, the National Livestock Information System (SNIG) managed a voluntary individual Traceability Pilot Program in the orbit of MGAP. Before that, since 1973 there had been a mandatory group identification system—managed by the Livestock Control Office (DICOSE), also under MGAP—to control the stock and movements of bovines throughout the national territory. Currently, the three units coexist.[9]

The CT allows following the path of an animal, from registration until slaughter, providing information such as date and place of birth, sex, race, physical movements within national borders, and changes of ownership. The introduction of mandatory CT was gradual.

[7] There are very few publications about meat traceability in Uruguay. MGAP and the Inter-American Institute of Agricultural Cooperation (IICA) (2009) contains a complete description of the system and Barrios, et al. (2010) analyze meat traceability using economic analytical tools. Both documents provided background information for our analysis.

[8] The World Organization for Animal Health (OIE) defines animal identification as "the combination and linking of the identification and registration of an animal individually, with a unique identifier, or collectively by its epidemiological unit or group, with a unique group identifier." It defines animal traceability as "the ability to follow an animal or group of animals during all stages of life"; defines an animal identification system as "the inclusion and linking of components such as identification of establishments/owners, the person(s) responsible for the animals, movements and other records with animal identification" (Bowling et al., 2008).

[9] Although today the SIRA is a sub-system of the SNIG, since the latter has a more comprehensive function and is meant to become a first step towards building an overall National System of Agriculture Information.

First, the cattle born since the second semester of 2006 had to be identified and registered.[10] Five years later–on June 2011—all the cattle born and raised in the Uruguayan territory had to be registered in the SIRA. Up to now, around 2,5 million tags per year were delivered and correctly placed in the animals' ears (SNIG source).

The BB's initial goal was to enhance the reliability of information related to taxes due from meat processors. In 1998, the first public proposal to set up electronic scales at processors' plants was made, when the government discovered significant tax fraud in a slaughterhouse. Consequently, since 2000, the government ordered slaughterhouses to install an Electronic Information System of the Meat Industry (SEIIC), named BB. The SEIIC is a system of electronic scales located in each of the seven data control points strategically placed throughout the industrial process.[11] Each scale scans weights and identifying information that connects to a local server and to a national database in INAC.[12]

Later on, INAC further developed the BB project into a more comprehensive system to allow more fluid interaction between meat packers and cattle raisers. The goal of the SEIIC was broadened—it also became a part of the traceability system. Since 2004, BB systems have consistently been installed in slaughterhouses.[13] Starting in 2013, the 21 slaughterhouses authorized to export were included in the new program that harmonizes the CT and BB.

Summing up, the experience accumulated over 30 years from group CT functioning was the basis for fruitfully implementing individual voluntary CT since 2004 and mandatory since 2006. From 2007, BB started operating in slaughterhouses, completing the provision of information from the first four scales. The next phase, completing coverage of the industrial process until scale 7, has not yet been accomplished. Finally, since 2013, an overarching system has been in place that is capable of harmonizing information from CT and BB. Figure 1 summarizes the milestones of the implementation of the overall meat traceability system.

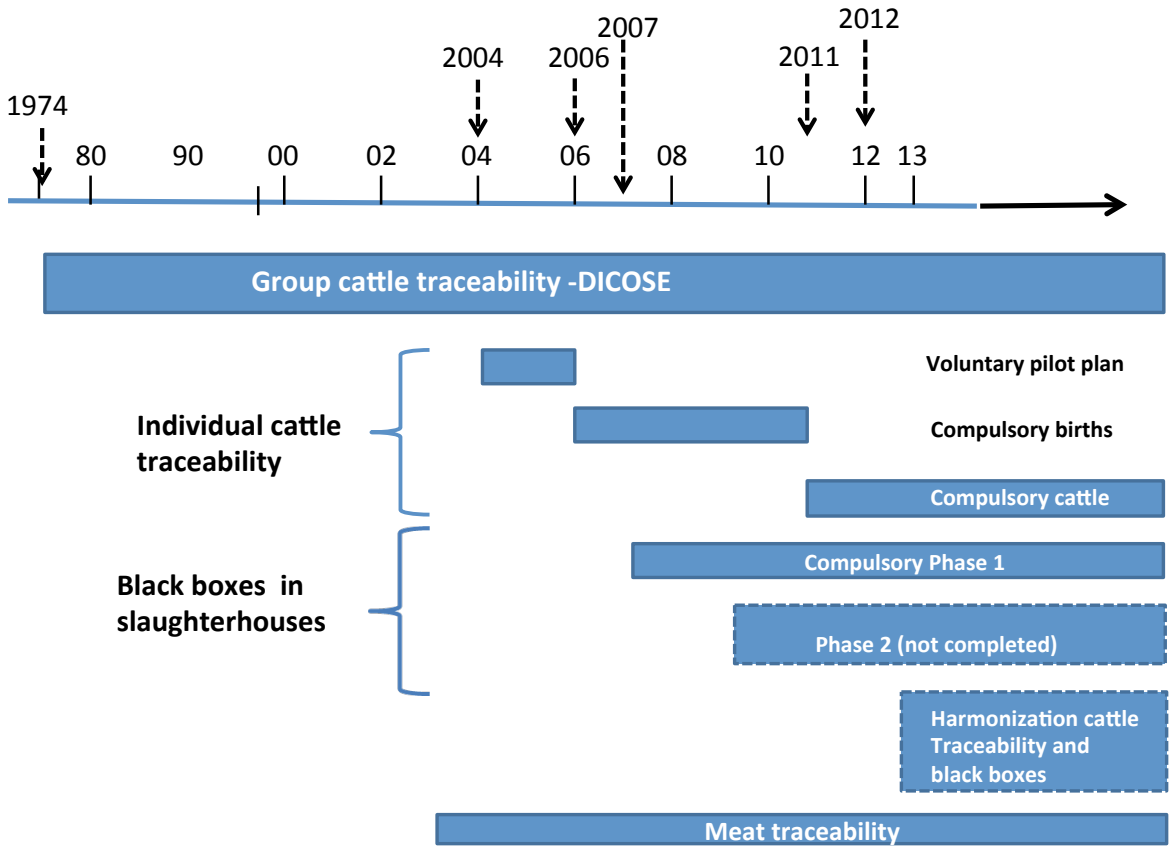
[10] This forces the ranchers to identify each calf with two ear tags: a visual ear tag placed in the ear of each bovine cattle head, with a printed number to enable the identification of the animal at first sight. A second ear tag contains a radiofrequency identification device to store the same number of the visual ear tag. And they are also obligated to send the registration form by courier to the SNIG.

[11] 1. Live weight, 2. Bleeding, 3. Dressing, 4. Classification, 5. Deboning room entry, 6.deboning room packing, and 7. Dispatch of boxes.

[12] INAC developed the SEIIC and manages it now.

[13] In August 2003, the Decree N°364/003 established that the cattle sellers to slaughterhouses paid US$1 for every animal processed to fund the BB project.

**Figure 1. Traceability System Evolution**




Source: Adapted for INAC.

### *3.1.2 Old and New Public and Private Actors from the Meat Value Chain*

The meat traceability system adds new links to vertical and horizontal actors from the meat value chain. The chain involves different actors from the productive sector with vertical and horizontal linkages. It also includes public actors, from MGAP, the expanded agricultural institutions, territorial government agencies, the state courier company, and the state telecommunications company.

The principal private actors—cattle producers, wintering producers, and meat processors—participate through their representative entities that have a long and traditional involvement in meat production issues. There are four principal cattle-producing entities: the Asociación Rural del Uruguay (ARU), Federación Rural (FR), Cooperativas Agrarias Federadas (CAF) and Comisión Nacional de Fomento Rural (CNFR). The Asociación de la Industria Frigorífica del Uruguay (ADIFU) and the Cámara de la Industria Frigorífica (CIF) represent the

meat processors. The consignees participate through their representative entity Asociación de Consignatarios de Ganado (ACG), which is a new actor, and veterinarians are associated in the Sociedad de Medicina Veterinaria (SMVU). Some of these representative entities participate in the boards of directors from the expanded agricultural institutions related to meat issues (INAC, IPA, and INIA).

In the countryside, traditional local public actors, such as police and regional offices of MGAP, continue to enforce participation in the system. Cattle producers have a long-standing tradition of being highly regulated and penalized for non-compliance. The FDM outbreaks in the 1990s reinforced the severity of punishment for non-compliance.

A new actor in the value chain is the electronic operator. Operators are individuals or firms registered at the SNIG and certified by it after completing a training course. The operators must have the appropriate training and infrastructure to supply electronic information on livestock movements and transfers of property. They have to be at the ranch or/and at the livestock fair at the precise time when the cattle moves because they are responsible for the appropriate data collection, which involves reading the electronic tags by means of a digital scanner. After this, they send this information to the central SNIG database.

Other new private actors in the meat value chain are software and electronics firms. A local private consortium, including SONDA, ICA, and ARTech (the latter is a very successful database software company catalogued as a pioneer of the Uruguayan software sector; see Snoeck and Pittaluga [2012] for more details), designed and implemented the SNIG's traceability database and continues to manage it. The private consortium and SNIG work very closely together to achieve incremental innovations. In the electronics sector, devices such as digital readers are designed and produced by local firms, but the majority are imported. The dissemination of digital readers among farmers may boost the emergence of other actors in the service sector. This process is starting from a low baseline, but it is likely to gain speed. Moreover, INAC, together with a local electronics firm, is developing the harmonization of CT and BB. These experiences show the huge potential from the traceability system to create externalities in the local high-tech sector.

New relevant actors from the meat processors side are the transnational corporations that are transforming the whole meat value chain. Bittencourt, Carracelas, and Lorenzi (2011) analyzed this recent trend and found that these new actors are promoting greater and more formal

coordination between primary and industrial phases; however, they are not strongly horizontally linked with other firms in a potential cluster. Some of these transnationals are looking to access developed country markets with their own brands. Again, meat traceability provides an enormous opportunity to link retailers to the value chain, and to integrate Uruguay's meat industry with global value chains (GVC).

Summing up, the meat traceability system is exerting pressure to create a more complex structure of vertical and horizontal linkages of the meat value chain. To date, these ramifications have not emerged dynamically, but rather, innovations are appearing gradually. Policies to foster them may create the need for renovated PPCs. This issue may be illustrated by a recently created PPC to foster innovation in the traceability platform, described in the subsection 3.1.7. below.

### *3.1.3 Alignment with the Traceability Policy*

Despite persistent implementation problems, actors from the private sector agree that meat traceability puts Uruguay at the forefront not only of cattle registration and identification, but also of the ability to certify the quality of exported meat products. This alignment with policy is the result of a long, intense process, which started in 2001 when the administration pleaded for installation of individual traceability as a long-term solution to deal with FMD outbreaks. With some exceptions, private sector actors from cattle producer associations evolved from their early opposition to the system to its more recent defense.

The FR president's declaration to the press in 2002 provides an illustration of the opposition arguments. The declaration expressed doubts that such a sophisticated system could work in a third-world country. He questioned the country's preparedness for such innovation and the priority given to it.[14] Neither meat processors wanted individual traceability, but if there was nothing to be done about it, they wanted it to be mandatory, although they were not ready to recognize its advantages with higher prices to cattle producers. In 2004, the CIF president argued that "there is no basis to think that cattle individually traced can be better priced at present, but it will unquestionably happen when buyers, that is, high-income countries, demand it."[15]

[14] Press release: September 20, 2002- EL PAIS DIGITAL.
[15] Press release: February 1, 2004- EL PAIS DIGITAL

In June 2005, however, before the public consultation on the SIRA law, the principal cattle producers and meat processors' associations—ARU, FR, CAF, CIF, and ADIFU—backed mandatory individual traceability. Which factors can explain this alignment process?

The EU requirements were an initial critical factor to explain the alignment process. The EU had observed, in consecutive audits, problematic aspects of the Uruguayan group identification system as run by DICOSE, and pressured the government to take steps toward a system capable of providing greater guarantees. In 2005, MGAP and INAC signed an agreement with the EU that, starting in April 2010, Uruguay would be required to supply meat toward the Hilton quota from animals individually identified from birth to the slaughterhouse, although the deadline was postponed to July 2011.

In short, the threat of losing market access spurred the sectors in the value chain to join forces. In 2005, meat exports to EU represented 19 percent of the total value, or (9.6 percent in tons), and in 2011, they represented 30.6 percent, or17.9 percent in tons (Uruguayan Central Bank, undated). The growth observed between 2005 and 2011, however, cannot be explained by traceability because to date the EU did not enforce this.[16]

There may also be reasons internal to the value chain that explains the convergence in favor of mandatory individual traceability. An interviewee proposed that cattle producers and meat processors had interchangeable interests that facilitated a win-win resolution. The latter were being rather reluctant to use BB, but were required by the government to introduce it. Meanwhile, the former had great interest in its implementation. On the other side, meat processors had great interest in a mandatory CT because the voluntary CT already in place was not paying off.

Until BB were installed, meat processors weighed cattle using their own scales. This generated a lack of trust between the two parties, since the weight determines the price paid to the cattle producer.[17] As BB allow weighing the animal upon its arrival to the slaughterhouse, and in subsequent process stages, cattle producers can verify the performance of their animals and have an objective indicator for the price they receive. Therefore, BB represents an important

[16] Except for the Hilton quota and the recent exports of high-quality meat (quota 620/481).

[17] The live weight of the bovine is a parameter to use in a trade agreement; either to give a first approximation of the animal that is being offered, with which to fix the price of the animal. The live weight may be stated at the field and/or at point 1 of the SEIIC. The carcass-weight ("peso canal") is stated at point 4 of the SEIIC (former second scale). The majority of the meat processors handles the carcass-weight for the establishment of the price. However, today meat processors and cattle producers are negotiating within the INAC directorate to change the price setting system to point three of the SEIIC.

tool to reduce information asymmetry between meat processors and cattle producers. This is why cattle ranchers were pro-BB. The implemented system works in a precise way. The BB innovation has made a significant contribution to transparency in the markets, by incorporating an independent weighing system.

Regarding the mandatory versus voluntary characteristics of the CT system, the latter creates a double cattle market, that is, traced versus not traced, which has high associated costs for slaughterhouses due to the necessary adaptation of their processes to the different products, because it is impractical to specialize in just one of them. This is likely the reason that meat processors advocated for the mandatory system.

Thus, there were symmetrical interests between the two negotiating parties. Several interviewees asserted that the expanded agricultural institutions of the meat sector provided a useful environment to arrive at a consensus. Since INAC is the only institute where meat processors' and cattle ranchers' representatives sit on a board with the government, it probably played an important role in that process.[18]

Summing up, private-public alignment on meat traceability was the result of two intertwined factors. One factor, the threat posed by the EU to require individual traceability from a certain date, was a trigger to seek convergence. Although the threat was never realized, the Uruguayan traceability system was put in place. The other factor, that the private sector accepted the system after intense negotiations between the two central actors of the value chain, became possible because there were acceptable quid pro quo for both parties. The PPC culture already in place by years of co-governance of the meat-related institutes is probably an explanation for the solution finally reached that satisfied the parties from the state and private sectors.

### *3.1.4 The Economics of Traceability*

So far, except for the high-quality quotas to the EU, no destination market is requiring individual bovine traceability to Uruguay. Yet it is already being required in the domestic bovine market. "I don't buy asterisks," says a wintering cattle producer. By this, he means that he doesn't buy animals with a listed problem, codified by an asterisk and a problem number[19] in the traceability system. A particular problem is the "*02" that indicates that the animal lost its trace in some

[18] Some of those interviewed assert that INAC was not pro-meat traceability from the beginning and needed to be convinced that it was worth the effort.
[19] There are 24 possible listed problems related to the animals' status, electronic devices, and attributes.

phase of its life, making it a non-traced animal that is still registered. According to data from July 2012 (SNIG source), 23 percent of the animals had lost their traceability at some stage of their lives. Given that there are 11.5 million registered animals, there were 2.6 million non-traced animals at that time.

Non-traced animals currently circulate in a parallel market. Nevertheless, SNIG's director complains that "slaughterhouses can export non-traced animals—even to the EU—but brokers won't buy them."[20] In short, even if meat traceability does not yet have economic value in exports,[21] it is already having effects in the domestic bovine market. This is proof of successful implementation of the CT system.

Why, however, would traceability generate economic value? To answer this question it must be certain that traceability output is information. As such, it must be treated as an economic good, albeit a peculiar one. Hobbs (2003) and Hobbs, Kerr, and Yeung (2009) identify three sorts of information resulting from the traceability system: (i) reactive ex post information: livestock traceability facilitates the tracing back of animals in the event of an outbreak, in which case the traceability system allows ex post cost reduction after a problem has arisen; (ii) ex post, or forensic information on a food safety problem: a traceability system can enhance the effectiveness of a tort liability law as an incentive for firms to produce safe food; and (iii) ex ante information of credence attributes: refers to invisible characteristics of a product. This third function of a traceability system is pre-purchase quality verification to reduce information costs for consumers.

These three outputs relate to different outcomes. The first outcome of a bovine traceability system is improved outbreak management. The traceability output is reactive ex-post information that is non-rival[22] and non-excludable.[23] The information provided by the traceability system is a pure public good, and there is a rationale for public sector funding. The Uruguayan CT provides the ex-post information to identify, locate, and isolate the source of contamination of a bovine outbreak. It allows a sanitary regulation outcome that has the feature of a public

[20] The government's concern relates to the possible discrimination against poorer producers that are probably the majority in the parallel market. One interviewee estimates that price differences between the two markets are from 10 to 20 percent. Several of those interviewed stated that they expect the parallel market to disappear soon.
[21] In the only cases where information from CT is required to sell to the EU is for the Hilton quota and the 620/481 quota. These exports represented in 2011 and 2012 around 8 percent of total meat exports in value.
[22] The use of a specific piece of information from a traceability database (e.g., animal identification and/or movement information) does not preclude its use by someone else.
[23] This means that it is impossible to exclude any individuals from consuming the good or service once provided.

good.[24] The CT and BB harmonization to complete the whole value chain and get closer to farm to plate traceability reinforce the public good feature.[25] Depending on the degree to which information is excludable, the meat traceability system can provide other sorts of goods, such as club goods or private goods, that have different expected outcomes, such as increased market access or product differentiation.

The above is the basic conceptual framework providing a rationale for the economic-good nature of traceability. For instance, to sell to the EU a very high-quality meat—quota 620/481—since 2012, the traceability system has been providing information that certifies the animal's age and compliance with required confinement in a calving pen in the last 100 days before entering the slaughterhouse. The outcome is increased market access, as Uruguay had not been able to sell its meat to this high-value market.[26] At first glance, this outcome seems to be more a club good than a public good, but looking at it in more detail, the information provided is actually an externality of the first outcome, given that the traceability system has already recorded age and animal movements. Thus, it operates as a public good.

Thereafter, the traceability infrastructure is available to producers and/or manufacturers to add information to create club goods or private goods. To date, there has been tentative progress in this last direction. However, there are signs of more disrupting changes. The following sections contain a description and analysis of the PPCs that were involved from the design to the implementation of the meat traceability system as a public good. These sections also contain an analysis of a more sophisticated PPC involved in the creation of a club good based on the meat traceability platform. The question posed is whether the nature of the good is requiring different types of collaborations between actors.

### *3.1.5 Public-private Collaboration in the Design of the Cattle Traceability System*

In September 2005, a public debate document (PDD) containing a design for the individual system was issued, prepared by officials from MGAP, INAC, and IPA. An agronomist with a Ph.D. in electronic livestock identification led the team that drafted the document. Besides local

[24] Access to traceability information is restricted and only the SNIG (as representative of the state) is responsible for privacy and data stewardship. However, SNIG website's users can access their own account.

[25] The discussion about the public good nature of the meat traceability system must be placed in relation to the spillovers generated by the meat value chain to the rest of society. However, this discussion exceeds the scope of this paper.

[26] On February 2012, the first high-quality meat was shipped to the EU. Uruguay is the first Latin American country to access the 20,000 ton non-tariff quota, expected to be increased to 48,300 tons in 2013. This group already includes the United States, Canada, Australia and New Zealand.

meetings with organized communities to discuss the PDD around the country, representative entities from cattle ranchers, meat processors, services agents, and professionals were consulted. A task force was created to undertake public-private deliberations. The consultative process ended in December, when MGAP presented a complete draft of the SIRA law to parliament.

An ad hoc working group of the five main private sector associations representing cattle producers and meat processors presented a document containing their positions (ARU et al., 2006). They declared their willingness to go deeper and faster than proposed by the PDD with respect to mandatory traceability, they proposed simplifying the institutional organization of MGAP, and they stated their willingness to study the possibility of substituting the ear tag for the fire-heated brand as the legal instrument of proof of cattle ownership. Anticipating innovation trends, they recommended that identifiers must incorporate information about an animal's pedigree, and that selection programs run by breeders' associations or other selection programs must enhance quality.

The parliament took six months to issue the SIRA law, from December 2005 and August 2006. The main question discussed in parliament with the private sector was the funding of the SIRA. The discussions ended with the government taking on the financing of the traceability system. Public financing of this technological platform is rational in terms of conventional economic analysis. The health of the country depends on it, and the choice of actors to free-ride on the funding of the public good has large externalities.

Summing up, the private sector was able to protect its private interests, but also to collaborate with the government to contribute to the design of a suitable system. The government had competent professional bureaucrats that designed an adequate traceability system and followed an effective consultative methodology, which facilitated the PPC. These two elements together designed a system that assured the efficient delivery of the sanitary public good.

### *3.1.6 Public-private Interaction to Implement the Cattle Traceability System*

The SIRA law included creation of the Committee for the Evaluation and Monitoring of the System, where the government and the private sector could discuss the evolution of the system, assess it, and propose changes for its improvement. However, the committee has met only sporadically.

In 2010, MGAP convened technicians from producers associations involved in the establishment of the committee. The group stopped meeting after meeting regularly for three months, apparently because MGAP no longer convened meetings. An attempt to revitalize the committee was made in December 2012, when MGAP launched an interagency task force to detect and correct problems in the SNIG. To date, however, less formal processes have been the main channels of interaction among actors, where the public sector learns how to solve practical problems, often based on valuable information from the private sector.

Private sector informants maintain that the main complaints are the growing complexity of the system due to bureaucratic slowness and inefficiencies, and that internet connectivity is problematic in the countryside. The public sector asserts that the private sector lacks creative proposals to solve problems and is disinclined to change.

In sum, there is no organized mechanism involving PPC to enhance the system. Time will tell if the latest attempt to set up a problem-focused task force will prosper. Meanwhile, the ongoing PPC was capable of putting in place CT, but the forms it acquired lacked opportunities for the actors to innovate.

### *3.1.7 Public-private Networks to Innovate within the Traceability System*

Some government officials have a clear view about the need to transform policy-related public-private relationships. The government is proposing to develop public-private innovation networks. Certain specific conditions, however, must be met, as MGAP's innovation policy guidelines underline:

> An agricultural innovation public policy that alters convictions or tries to change ingrained behavior patterns must be based on persuasion of those institutions that perceive change as a potential threat to their current position. Political consensus is needed in the network to the extent that the interdependence goes beyond coordination and cooperation, and involves joint responsibility between organizations, accountability and responsiveness. Autonomous organizations would be willing to commit resources and trust in an emerging network insofar the government agrees with it and emboldens it (Paolino, 2010).

To build those networks, the capabilities of each node are crucial. The public sector has to mobilize actors around a common strategic plan and establish coalitions in line with the public policy. It also has to resolve power conflicts among actors. Private actors' capabilities are crucial

because they are the beneficiaries and/or active participants of the innovation policy (Paolino, 2010).

These new institutional arrangements have not progressed. Some endeavors that are in an early planning stage could, however, spark a new PPC mode. A public-private innovation network is being formed, in which the division of labor is between MGAP, INAC, INIA, the National Institute of Biological Research (IIBCE), the Uruguayan Hereford Breeders' Association, and ARU. The objective is to enhance meat competitiveness through the integrated use of meat traceability data, that is, CT and BB, and genomic tools. The technological convergence will allow the genetic improvement of food conversion efficiency and carcass quality of Hereford cattle. The basic principle is that the most accurate method to learn about the genetic value of an animal is in slaughter. In other words, the animal that goes to slaughter is a source of information on the genetic potential of its parents. In the words of the Uruguayan Hereford Breeders' Association manager:

> We have to add new database fields in the RFID that hang from each animal's ear where information about the animal's kinship is going to be stored. After that, this information reaches the BB system in the slaughterhouse, which is sent to the INAC database. There we retrieve information about the animal's quantity and quality of meat and we match it with its family tree (ancestors, progeny and congeners). With that information, we can apply a superior method of genetic selection from the animal's living relatives to create an elite breeding stock for the Hereford cattle to enter the market (interview, December 21, 2012).

This network will produce a club good that involves different nodes, public and private, with complementary functions. The example points out that some public and private actors have critical capabilities to engage in collaboration that utilizes their potential for innovation. This outcome, however, can only be understood by recognizing the evolution of the overall institutional setting of the agriculture sector and the particular development of meat traceability just examined.

Looking ahead, there is enormous room to potentiate meat traceability for innovation. For instance, the presence of transnational groups that are integrating Uruguay's meat industry to global value chains is an opportunity to find business niches where traced meat cuts are profitable. There are plenty of opportunities to use information from the traceability systems to

manage production, or for the emergence of new service firms. To boost those innovations, suitable policies with renovated PPC, like the one analyzed above, seem indispensable.

### *3.1.8 Institutional Design Lessons*

The PPCs that ruled the three phases from the meat traceability policy were detailed in the preceding subsections: the actor's alignment to policy, the system design and the system implementation. The meat "expanded agricultural institutions" (particularly INAC, but also IPA and INIA), where public and private actors encountered within the board of directors, have been fruitful environments during the three phases. In each phase, the PPC was of a different type, however.

During the alignment phase, the government triangulated negotiations between private actors of the different tiers from the vertical value chain to reach a joint position to the public decision of mandatory individual traceability. The public-private forum in INAC occupied a pivotal place to make this happen. The institutional background and PPC history was crucial to aligning private actors with the public decision, as well as the apparently unavoidable EU requirement. The traceability system was co-designed through a creative consultative process, where the private sector proposed innovative ways of designing a suitable traceability system. At the same time, the government had competent professional officials able to present technically sound and consistent proposals. Additionally, the CT law involved an intense parliamentary discussion with the participation of private and public parties. All these factors together explain the minimization of rent seeking in the designed system. This kind of PPC was of a modern type because there was a collaborative learning process that ended successfully in the enacted SIRA Law. Finally, during the implementation phase relationships between private and public actors came back to old fashion interactions. Private actors put themselves in a demanding position and the government responds to them. The government has not yet been able to create an adequate "space" where the various actors involved in the policy implementation can contribute creatively. The result is that traceability based innovations are being sluggish. Additionally, there is no evaluation and monitoring of the traceability system as the SIRA law foresaw it. The absence of a learning policy "space" of this kind has certainly affected negatively the solutions to problems that have arisen during the implementation process.

An innovation network that is taking shape based on the traceability platform establishes a new form of PPC, however. It confirms that some public and private actors are ready to undertake sophisticated relationships to achieve the private or club goods that the traceability system can provide. This is maybe a signal of structural change, which a well-defined and mature PPC can forge.

In sum, the overall process in terms of institutional configuration, that is, MGAP's central structure, expanded agricultural institutions, and ad hoc task forces was capable of delivering a public good. The provision of club goods, or private goods, requires other more sophisticated institutional arrangements. One illustration is a fledgling innovation network based on the traceability platform that establishes a new form of PPC, where there is a division of tasks between private and public actors to produce a club good. Therefore, this case study illustrates quite clearly that the nature of the provided economic good (whether public, club or private) requires different types of collaborations between private and public actors.

### *3.2. Case 2: Shipbuilding Sectoral Council*

The shipbuilding sectoral council was set up as an instrument of industrial policy for the shipbuilding industry. In the SC's plan, a prime objective has been its development to exploit the dynamism of the regional and national demand for barges and other small ships.[27] Without an augmented infrastructure with direct access to the sea, this would be impossible. The construction of an industrial shipbuilding pole near Montevideo's harbor is one of the most crucial steps to achieve the SC's objective. At the same time, the pole's construction has important sunk costs that require a minimal critical mass of shipbuilders that choose to make it their base. The SC, where entrepreneurs, union leaders, and government officials interact, was especially active in creating opportunities for advancing a cluster agenda.

This paper examines the SC's functioning through the process of responding to an important sales opportunity and its outcomes. It explores the traction of some analytical hypotheses, examining recent negotiations between the government and a private buyer, the private-private suppliers' partnership, the bidding, and the construction of three barges for a vast pulp and paper project.

[27] Available at http: www.gp.gub.uy/es/node/640 [last access 4/01/2013]

*3.2.1 A Supplier Development Program to Boost the Shipbuilding Sector*

In May 2011, the Chilean-Finnish-Uruguayan company Montes del Plata (MDP) signed a contract with a group of local shipbuilding firms[28] for the transportation of raw materials such as timber, by water, to their projected pulp mill in the south of Uruguay. These Uruguayan firms had just finished a long process to become shipbuilders. Since 2006, the cluster promotion programs PACPYMES and PACC had been instrumental in bringing together a number of actors from the ship repair and shipbuilding sectors and had made them partners in designing sectoral policies and setting up an umbrella organization. In 2006 and 2007, support from PACPYMES had allowed members of the cluster to submit joint bids for contracts with another Finnish pulp and paper company called BOTNIA (now UPM) and the state-owned oil and gas company ANCAP, with varied success (Freira, 2012).

This cluster-building process resulted in the establishment in 2010 of a public-private organization known as the Shipbuilding Cluster Association (ACLIN). The encouragement from PACPYMES and PACC was crucial to ACLIN's advancement to become the cluster's governance and representation mechanism. Unlike typical business associations, ACLIN brought together different actors that were part of or were connected to the industry, including shipbuilding firms, shipyards and dockyards, the Navy's workshops and dockyard (i.e., a state-owned-company), vocational education institutions, and the sector's labor union, known as National Union of Metalworkers (UNTMRA). ACLIN participates on the SC, along with other actors from the private shipbuilding sector, educational, technological centers, and the government.

One of the key objectives, first for the cluster and then for the SC, was the establishment of a services hub for the industry, or the Polo Industrial Naval, which was expecting to generate economies of agglomeration. The industry is comprised of small firms that run their own workshops and do small jobs for the transportation companies or are subcontracted by larger firms. To become competitors in the regional or global shipbuilding industry they have to achieve a minimum scale and find partners involved in various other functions besides

[28] A consortium between Uruguayan firms and a Spanish shipbuilding company, Galictio, was formed.

production. The chance to produce several large barges was viewed as both a challenge and an opportunity for the actors of the incipient sector. It could offer the opportunity to reduce the drain of qualified workers caused by the sector's recent lack of dynamism. In the SC's shipbuilding plan, the revitalization of the shipbuilding industry was expected to build on existing human capital, relatively strong private-private cooperation, and improved public-private relationships.

The process that ended with the contract to supply three barges to MDP was a success for the government, since it was largely consistent with the government's goals for the sector. In addition to resulting in a big sale for the sector and the creation of some temporary but valuable jobs, it also allowed the shipbuilding sector to buy the time necessary to prevent a more dramatic loss of qualified workers.

The production orders also allowed the government to showcase a different type of constructive tripartite—that is, labor-firm-government—relationship, with the three parties committed to rebuilding an industry. The sharing of business information that is usually unavailable to the government or unions revealed high levels of trust and willingness to cooperate.

For the government, and probably for the trade union, getting MDP to buy three barges in Uruguay produced by joint Spanish-Uruguayan teams became an achievement in terms of transfer of technologies and hands-on training of workers. The latter was more valuable than the wages earned, since trained workers will be available for future related projects. This is a positive externality that justifies public involvement.

The result, however, was not what MDP had in mind. It reveals the complicated trajectory of the shipbuilding industry in its efforts to subsist and grow in Uruguay.[29] MDP received offers from Brazilian, Paraguayan, Polish, Chinese, and Uruguayan firms. According to knowledgeable industry sources, there was a difficult negotiation between the Ministry and Director of Industry and MDP, with the Spanish-Uruguayan bidding consortium as a side player. In the negotiations, MIEM brought the broader investment contract to bear on the result, construing it as a binding agreement to help Uruguayan firms develop their supply capabilities. In the end, the Spanish-Uruguayan consortium revised its costs and reduced the price, and the

[29] This and the next paragraph are based on interviews with senior industry managers.

remaining difference, with respect to the Paraguayan offer, was split between the government and MDP in equal parts. What the company obtained in those negotiations is not entirely clear.[30]

Regarding delivery times, the first barge, which was originally to be delivered in May 2012, was not delivered until September and was produced mostly using Spanish workers. At the time of this writing, the second barge, which was due in October, and the third one, which was due in January 2013, are expected to be delivered with a similar delay. The proportion of Uruguayan workers on the production teams was expected to grow for the second and third barges, but so far there is conflicting evidence on the figures at the end of the project. Whatever the terms of the agreement with MDP, the government seems to have invested significant resources, including political capital, contacts in the relevant market, and financial resources, to force the company to subsidize development of the shipbuilding industry through over-pricing in their purchase of capital assets.

The government's intervention and the resulting agreement amount to protection for the infant industry, through subsidies that may have allowed the industry to develop competitive strength in due time, or that merely postponed the decline of the industry for a few years. This raises questions of incentives and institutionalization.

*3.2.2. Actors and Representation*

The possibility of collaborating with Galictio was crucial to keeping the construction contract in Uruguay, both because of its financial capacity and for its actual manufacturing expertise. The participation of ACLIN in the SC and the history of exposure of Uruguayan firms to international practices through attending industry events were key to establishing the partnership.

While not the only legitimate voice from the non-government side, ACLIN has broad recognition as a cluster governance mechanism. It has had active involvement in moving the SC agenda forward. Its role, however, has been complicated by the industry's configuration. The small and medium firms that make up the shipbuilding cluster, have not participated through business associations. The traditional business association–the Shipbuilding Industry Chamber, established in 1967—does not participate in the SC, although four of its ten members are

[30] Some key informants explain the deal differently, with the government making available as much as US$2 million in technology transfer and workers' re-tooling and training expenses, and/or some of the over-price paid by MDP being returned through the investment promotion regime.

involved in it. Neither does the cluster include the leading private firm, which is Tzakos Naval Industries S.A., a well-established, foreign-owned company that specializes in ship repair.

Moreover, many of the outputs from SC work have the characteristics of a public good or even a club good that all private actors can enjoy without detriment to others, regardless of their participation in the SC. To some extent, the latter is the case of the benefits from the training programs that contribute to a more skilled labor force that anyone willing to pay enough might hire. This could explain why some established firms follow a wait-and-see strategy, only participating if the new initiative is successful and/or may threaten its market standing. Engaging with the PPC is therefore a part of classic industrial strategy decision making.

The union's role in building the first barge for MDP was seen as constructive, mainly because it ensured labor peace to help meet the delivery deadline or avoid delays. According to sources interviewed, when the stringent contracts with local suppliers started to be detrimental, sub-sector leaders considered industrial actions, but they were discouraged by national leaders. The latter recognized the symbolic value of showing a barge built, at least in part, by local workers that met MDP's standards. Apparently, they succeeded in postponing demands and actions until completion of the first barge. Some sources close to ACLIN report that workers' response has been more disappointing when unions have been asked to participate in other strategic consultations or planning, as they seemed less prepared and, unless they touch on salary or job issues, less interested.

### *3.2.3 Infant Industry Arguments and Policies*

The opening of the MDP's international tender in 2011 accelerated negotiations to develop a joint bid between Galictio and a group of local firms. It was understood from the beginning that, to compete for the contract, the Spanish-Uruguayan consortium had to reduce production costs. These were higher than in Paraguay or Argentina, because of a technological gap, and, particularly in Paraguay, relative real wages.[31] MIEM's grand vision for the sector was to manage national and regional demand, with the hope of reaching production levels at which economies of scale would become significant. The government seems to be aware that, barring

[31] To illustrate international cost divergence due to Uruguayan labor market policies, a sector observer pointed out that nominal wages have risen around 15 percent per year, in the last two to three years, while inflation has stayed around 8 percent. percent

that, the industry's future in Uruguay was bleak. That the jump from small shops to major firms is not easy was recognized by a doubling of the gamble, devising plans to employ many of the sector's workers and owners in a new Industria Naval del Estado, S.A., and making operational the Polo Industrial Naval.[32] The experiment that is underway, however, is raising difficult issues about underlying theory and practice.

Galictio had the expertise to produce more efficiently than the local firms did, but costs could not be cut enough to become internationally competitive. Two different sources that know the sector well report that Uruguayan firms are mainly weak in one or more of the following areas: the management of production processes and monitoring and adjustment of procedures, that is, process optimization over time or resource use; commercialization and customer relations; learning; human resource management; and financial accounting.

While some of these weaknesses were previously known (Freira, 2012), others became more evident as work progressed on the MDP's barges. Key informants indicated that Galictio was good at process and workshop management, and negotiated with local suppliers based on predesigned contracts that imposed stringent conditions that were hard for some local partners to meet. That led some local firms to walk away from offers to participate in production of the second barge. Some of their employees and some small firm owners signed up for the vacant jobs and got them. The result so far is that it is unclear what will kick-start a local company to partner with Galictio or others in the future on a more egalitarian basis.

Moreover, the design of the joint venture assumed that learning by Uruguayan firms or workers was going to happen spontaneously through working together with the Spanish teams. The technology transfer process initiated with the first barge included hands-on training of local workers and the construction of infrastructure. Since October 2011, workers have been trained in advanced welding to meet international standards. It is unclear if the transfer of knowledge and technologies transmit process management skills and human resources management abilities that could be context-specific and tacit. Other capabilities listed above as underdeveloped are difficult to learn from just watching others do them or from being part of production teams. The neglect of the learning challenge is a technical failure of the industrial policy implemented, and it

[32] Interview with Sebastián Torres, Director of the Industrial Department (MIEM).

may be related to the fact that most of the public officials involved come from economic rather than management backgrounds.[33]

It is hard to tell now whether the child is learning because there are no report cards. Everyone agrees that monitoring joint projects and assessment of capacity development is critical to the fine-tuning of these vertical policies, but the imperative of running many similar efforts simultaneously—perhaps to avoid being seen as preferring some sectors over others—leaves little time for fine policy issues.

Other more conventional observations relate to revealed preference and incentives and time inconsistency. Regarding the former, while the heavy-handed negotiations with MDP may in the future become a symbol of timely government intervention to create growth for an incipient industry, it shows workers and investors that the government has a stake in seeing some firms or sectors survive, even at high costs. The incentives part of the question is what will prompt local firms and their foreign partners in favored sectors to enhance their productivity and competitiveness, as long as they can be optimistic that under-performance will probably go unpunished by the government. Within the period of this study, it is not possible to tell if those concerns are justified.

The time inconsistency issue is peculiarly expressed in this context. In the SC industrial policy mechanism, weak institutionalization generates uncertainty about whether policies will remain the same under new administrations. Another type of time inconsistency may be found where the government's preferred policy toward the sector might change with a new election because the new government has preferences that differ from those of the previous government. In such a case, the private sector may anticipate that the benefits of protection will not last, and then decide to enjoy them better while they are available, without committing too much of their own resources. The SC strategy does not seem to be immune to these risks.

Many sources agree on the dependence of the SC initiative on the technical capabilities, determination, and political skills of the director of industry. The same personal commitment exists in his unit's staff, which constitutes one of the strengths of the PDPs compared to a similar program run from within the existing bureaucratic structures. The SCs are innovative policies implemented through ad hoc structures. They are more flexible, and enable the hiring of younger

[33] Industry sources point out that there is a large business potential for the shipbuilding industry around the "hidrovía" Paraná, Paraguay, Uruguay, but that other players have cost and know-how advantages from decades of experience (Paraguay) or have updated technologies and powerful state institutions to support them (Argentina and Brazil).

and better-trained specialists than can be found within regular civil service structures. During the administration that creates and supports them, these structures can be quite effective. The innovative policy maker has the choice between working through the state's old structures, with a greater chance of failing after strenuous efforts, or setting up a nimble and technically solid ad hoc structure. Institutionalization of the innovative industrial policy mechanism is sacrificed to results when the second is chosen, giving other actors reason to doubt the policy's continuity beyond the next election.

The type of structural changes envisaged by the administration requires long horizons and patience. Even if protecting the infant Uruguayan shipbuilding sector was reasonable in the 2011 economic context, the baby could be thrown out with the bathwater before her potential could be asserted, when weakly institutionalized mechanisms disappear with a change of administration. Some informants close to MIEM hoped that the participatory foundations of the sectoral plans would facilitate their appropriation by the private sector and their shielding from partisan interference. So far, however, there has not been enough time to assess the extent of such appropriation and its strength with respect to other forces that might conspire against it in the future.

### *3.2.4 Institutional Design Lessons*

As argued by Ross Schneider (2010), private-public councils, his label for PPCs, come in varied sizes and shapes, and their institutional analysis should focus on what types of councils or PPCs can be empirically linked to which outcomes. He also recommends examining links to policy outcomes, such as competitiveness, export growth, jobs created, and others, as well as the links of institutional configuration of councils or PPCs to the quality of policies.

The shipbuilding SC case sheds light on crucial institutional design issues. Regarding participation of the private sector in PPCs, participation does not need to be complete to allow the mechanism to generate operationally meaningful and useful agreements. This is deduced from the success in keeping qualified workers active through the supply contract with MDP, an achievement that required tactical synchronization between segments of the private sector, the government, and unions. At this stage, the story shows that PPC enhanced the quality of policy, but it is too early to know if it also created a viable shipbuilding industry. It shows that a mixed membership organization conceived as the keystone of sectoral governance, such as ACLIN, can

play constructively and facilitate consensus. Still, it is not entirely clear that it was crucial to reach an agreement with MDP, nor that it is capable of making it a clear step towards the industry's development.

Second, an innovative policy maker supported by a lean and professional ad hoc structure demonstrates that it is possible to attain some early achievements, but raises doubts about sustainability without institutionalization. Whether the private sector's sense of ownership will be enough to protect the policy from political interference or suppression will only be known when a new administration takes over.

Third, the SCs shed light on the pros and cons of inclusion of trade unions in PPCs. The case shows that wage bargaining can be left off the table of industrial policy, and workers may still be able to manage conflicts to support a long-term vision, even if they are less consistently interested or active on other development agendas. Putting job discussions under a long-term lens could help in engaging them. There is some evidence that the workers' national-level leaders see the value of making sacrifices to promote longer-term industrial development, which contradicts other analyses that see unions as shortsighted and obsessed with salaries.

Fourth, the preexisting cluster structures, workers' organizations, and the technically strong government teams have not paid enough attention to the design of technology transfer mechanisms for managerial competencies or to the monitoring and evaluation of the experiment to assess the extent of capacity development. If the reasons to support the industry with public funds are to generate a capacity development trajectory and facilitate positive spillovers, these outcomes should be regularly assessed to allow the introduction of adjustments. The consensus on the importance of learning in industrial policymaking should legitimize allocation of resources to those all-important tasks.

Finally, the outputs from SC work are public or club goods, which sectoral private actors can enjoy without detriment to others, regardless of their participation in the SC. The SCs are open PPCs providing these kinds of goods. This case study illustrates that it is desirable for sector development to establish free access to come and go from the SCs because of the nature of the goods provided by them.

### *3.3. Case 3: Biotech Sectoral Council*

In 2010, the biotech SC started working with a number of actors from the private sector, different government agencies, universities, and research and development (R&D) centers. One year later, the Biotech Sector Strategic Plan was launched.[34] The biotech plan has several main objectives, but here emphasis will be placed upon two objectives that involved the creation of missing sectoral public inputs: the process of elaboration of appropriate legislation for the sector and the process of registration of biotech products.

#### *3.3.1 Actors and Representation*

Biotech is a crosscutting sector, so that it influences many other activities throughout the productive structure. Private actors related to biotech are not affiliated with a classic sectoral chamber; they all have another sectoral affiliation beyond their activities in the biotech area. This complicates policy targeting and actor coordination.

Private actors participate in the SC through the biotech business association known as AUDEBIO. Among its members are private companies and education and research centers. AUDEBIO received a boost under the Life Science cluster initiative driven by PACPYMES since 2005.[35] During that time, an effort was made to develop economic indicators to measure the size and evolution of the sector, which had previously been unknown, making it harder to think about this atypical industry. Additionally, the first participatory assessment was undertaken, and PACPYMES facilitated joining forces and meetings that helped the actors get to know each other.

AUDEBIO started to grow in numbers of members very recently, coincidentally with the blossoming of the SC.[36] Another factor that explains the growing importance of AUDEBIO is the new opportunities that biotech offers to enhance intensive natural resource-based production, which are the country's main specialization. Along with skilled human capital and updated technological infrastructures, this can explain the new biotech endeavors that are emerging. It is fair to say, however, following Cornick (2011), that more intensive PPC made it possible to accelerate the development of this business association.

[34] Available at: http://gp.gub.uy/es/node/639 [last access 4/01/2013]
[35] AUDEBIO was created by a group of firms in 1987, but it did not have a very active presence until then.
[36] The SC helped restructure the association with a new agenda.

While the absence of important biotech companies in AUDEBIO is notorious, members of the association believe that it is a natural growth process and that in the medium term these companies will join them. Thus, it appears that their integration could strengthen AUDEBIO. In this sense, AUDEBIO has achieved cohesive political action inside the group, but has not yet obtained the same results outside the group. Despite the abovementioned absences and the small number of members, AUDEBIO has become the legitimate representative of the private biotech sector in Uruguay.

Members of the AUDEBIO were not grouped around a single market because there are several relevant markets for biotech products and services. This heterogeneity could be either positive or negative, depending on whether it compromises the search for solutions to basic problems that affect the whole industry.

Other relevant actors participating in the biotech SC are R&D institutes, technological parks, public and private universities, the national vocational training university, and other governmental agencies.[37] There is no trade union sectoral related to biotech.

### *3.3.2 The Biotech Promotion Law: A Tool for Productive Policy*

A major objective of the biotech plan is to create a legal framework to promote the biotech industry. This responds to the need to harmonize the existing regulatory framework, while advancing the main goal of generating an appropriate legal framework within which to promote biotech activities.

The biotech regulatory system involves different governmental institutions that have implemented a multiplicity of uncoordinated regulations, which are not appropriate to the specific dynamic of the biotech sector. A comprehensive and coherent regulatory framework for the activities concerned is a pillar for sectoral development.

A law to promote the biotech industry is being drafted by public and private actors within the SC. This represents an exception, since although different sectoral promotion laws were developed in other countries, they were established in response to requests, demands, or pressure from private actors. The draft law in this case arises from dialogue between public and private actors that identified it as one of the main objectives of the plan.

[37] In the health area, the MSP is the regulatory authority, and so it is also in the biotech-related health area. The same applies to the cases of animal and agricultural biotech with MGAP.

The law will also institutionalize the SC, giving it a formal mandate and funding for its activities. The continuity of the policy tool for this sector is thereby guaranteed. That is, the formalization and funding of the SC becomes a necessary investment if biotech is to be a strategic area. Formalization of the SC may have another consequence. It will provide a formal conduit for sectoral policies. This change implies a new challenge for the institutions related to biotech policies. Arguably, coordinating the agenda so as to avoid bureaucratic capture is one of the main challenges for the SC.

Experiences collected by Devlin (2012) suggest that national strategic policy alliance councils can usually work effectively whether or not they are written into law. In this case, the authors might be inclined to think that institutionalization of the SC in the biotech law will act as a safeguard to assure its permanence as a policy tool unaffected by political turnover.

### *3.3.3 The Registration Process for Biotechnology Products*

The process for the registering biotechnology products is a critical factor for the development of a biotech industry. Currently, it is a requirement for the consolidation of the area. Biotech products require particular processes to be publicly registered to establish their safety and quality standards and prevent undesired results or accidents with potentially large negative effects. Nevertheless, the process to establish such registration systems is not only a technical matter but is also part of a policy to correct bureaucratic failures and improve the requirements imposed on firms. The plan identified the current regulatory framework as a barrier for the development of biotech activities in Uruguay:

> Uruguay is lagging behind when it comes to the regulation of biotechnology product data and the provision of appropriate human resources for their analysis. Companies (from the SC) consider these two factors as a major bottleneck for their integration in the local and international market. They perceive that an unfair competition exists in the local market with regard to imported products. These are more easily accepted in the domestic market given the acceptance of their source records by national control authorities.

In this regard, the SC pointed out that problems with existing registration procedures are an obstacle for development of the sector. There are several cases reported by interviewees in which international companies came to Uruguay to carry out R&D stages of a product, but were forced to set up their plants in neighboring countries—mainly Argentina—because the

Uruguayan regulatory framework was not amenable to their undertaking product development phases.

The SC participants had an active role in defining and monitoring the agenda on this issue. As for the composition of the SC, the main problem was the lack of representation of some government actors, in particular from MSP and MGAP. The weak involvement of these ministries implied that some fundamental issues could not be worked out within the SC. The absence of representatives from MGAP and the MSP remains a problem, despite many efforts made by the SC to include them. This represents a major problem for SCs, for at least two reasons. First, some important objectives for the SC cannot be addressed because there are no available government representatives from relevant ministries. Here, an established protocol for registration of biotech products would be an achievement of importance for the biotech sector.

The second reason refers to the legitimacy of the biotech council as a tool for productive development. SCs are based on horizontal and crosscutting criteria of public governance. This assumes that there are political objectives that cannot be achieved without the coordinated involvement of several ministries, other government agencies, and private actors. The non-participation of representatives of the MSP and MGAP can be seen as disinterest or the low priority given to the issues of the biotech council, or it can be viewed as a major problem of horizontal strategic interactions on productive issues that go unrecognized as important by other ministries besides MIEM.

This problem is more important than those related to institutional failures or capture attempts of the SC tool. It refers to the Uruguayan government's ability to address issues in a coordinated manner that require articulation between different ministries. It is impossible to precisely pinpoint the causes. It is likely that the regulatory problems are linked to vested interests within the public administration. There are also problems of inefficiency inherent in an old management structure organized vertically, where crosscutting areas such as biotech find barriers.

So far, analysis of the SC shows that it is a tool with great potential. It still faces challenges related to the organization of the Uruguayan state. Beyond these challenges, the SC has worked regularly and has met the goals that it has set.

*3.3.4 Institutional Design Lessons*

This case analyzed the process of creating two sectoral public (or club) goods through the biotech SC. Creation of biotech legislation can be considered successfully completed, but the process of registering biotech products is incomplete. The analysis pointed out several institutional arguments that possibly explain the two results. First, the process that led to the drafting of the law was a multi-party process. AUDEBIO was an appropriate forum to address the common technical problems of the industry within the SC. Because biotech is a general-purpose technology that depends intensively on R&D, this atypical business association—that cuts across industry, academia, and technological centers—seems appropriate to address the development of a regulation for such a broad sector. Addressing some productive development objectives may require specialized and legitimate inputs to develop legislation and regulation. In some sectors, particularly high technology sectors, an inadequate input may hinder the sector's development and delay it for years. This could be the result of lack of technical expertise, but it could also arise because legislation or regulations might be defined without related industry's input.

Second, the law, if approved and regulated, will institutionalize the SC, giving it a formal mandate and providing funding to sustain it. Unlike shipbuilding, the biotech SC is designing its institutionalization to assure its survival as a policy tool following a change in government.

Third, the most challenging issue presented by the biotech SC case is the weakness and sometimes lack of public-public coordination. It is even more critical, however, when dealing with transversal sectors, as biotech. Inadequate registration for biotech products in Uruguay obstructs development of a dynamic sector with large opportunities. Sectoral development can only go so far if important ministries lack commitment to collaborate. Nonetheless, the problems of a high-tech industry and their indirect effects on specific areas of responsibility may remain low on the list of priorities of some government agencies, such as the ministry of health, in a relatively unsophisticated government structure.

The new institutions created since 2005 were designed to assure public-public coordination, Productive and Innovative Cabinets, along with SCs, were not sufficient until now to assure an efficient governance model to address policies that promote crosscutting sectors as biotech. The challenge is enormous. Cross-sectoral policy questions are growing in importance. More and more PDP issues will require coordination of different government agencies and multi-

party collaboration. This does not mean that government officials are not aware of it, but rather that concrete results are missing. The registration problems of biotech products are just one illustration.

### *3.4. Case 4: Blueberry Cluster*

The blueberry cluster consists of a private sector-initiated PPC, in which dynamic entrepreneurs, in collaboration with the PACC and a few other public sector actors, produced club goods to allow the sector to take off.

#### *3.4.1 Actors and Representation*

The first blueberry plantations in Uruguay date back to 1988. Commercial production has increased since the early 2000s. Exports became significant in 2000–07, with 100 percent of exports destined for European countries. Today, Uruguay ranks among the top ten exporters of blueberries in the world, to a large extent due to its latitude, which allows it to take advantage of reversed seasonal patterns compared to North American and European markets.

Larger producer-exporters lead the industry, along with a group of small farmers that sell their harvest to exporters. Production is in two geographical areas: the coast of Rio Uruguay and the south of the country. Argentinean investors have been present since 2006; Chilean companies also have a remarkable presence, with access to marketing channels and supply of inputs such as planting and farming technology.

In 2007, 73 producers, in a total area of about 600 hectares, made up the primary production. Production is technical knowledge-intensive, given the sensitivity of plants to pests and climatic and soil conditions. Together, these parameters make it a primary production that requires substantial inputs of capital and expertise.

Initially, the sector had two producers' associations: the Uruguayan Blueberry Chamber (CUDELAR), which was national in scope but dominated by the largest producers, and the National Association of Uruguayan Blueberry Producers (ANPAU), which was mainly composed of producers with smaller planted areas in the south.

The initiative to create an institution to facilitate exports was a long-standing priority for producers before creation of the blueberry cluster. This aspiration materialized in 2007 with the creation of UPEFRUY (Union of Uruguayan Fruit and Vegetable Producers and Exporters). The

enthusiastic and broad involvement of the private sector, and its leadership of the program, gave substantial legitimacy to the clustering initiative.

### *3.4.2 A Cluster Led by the Private Sector*

The blueberry Cluster started operating in the orbit of PACC in the second half of 2006. The application to participate in the program was developed in part by private actors, but mainly by the larger export-oriented producers. PACC did not tell the private sector what to do, but it invited the private sector to indicate what was needed. This required the private sector to be well organized and knowledgeable about what it wanted. Moreover, PRCs were developed in a participatory way, and funding priorities were consistent with it.

The blueberry PRC was developed in 2007. It identified six strategic objectives for the cluster related to entry into global markets, farming technologies, human resources, institutional strengthening, and a favorable framework for sectoral policies.

In 2007, the institutions that made up the support group were public entities whose mandate placed them in a position to have some dealing with the fledgling blueberry industry. Since the creation of the cluster, MGAP and the municipal governments of subnational units represented the public sector where plantations were located. The latter, however, did not play a significant role to help build the institutions to develop the blueberry sector, and neither did the former in the beginning of the process. MGAP does not have appropriate institutional frameworks or a tradition of dealing with an incipient, mostly export-oriented cluster like the blueberry cluster. What is more, the Honorary Commission of the Citrus Plan, a long-standing institution, has been shut down, and the institutional framework supporting the farmer sector does not seem to be responsive to the requirements of a dynamic export-oriented fruit sector.

### *3.4.3 The Creation of an Essential Export-supporting Club Good*

The main initiative the blueberry cluster directed through PACC was the creation of an institutional infrastructure to meet the sanitary requirements imposed by the United States for access to its market. From the beginning, this initiative took precedence, being clearly aligned with strategic objectives and having particular economic significance for producers. Since the origin of blueberry plantations in the country, this was viewed as a necessary step to achieve the desired levels of profitability. It was also a test of the maturity of the conglomerate in terms of its

capacity to overcome the challenges associated with access to the most demanding markets. The initiative itself crystallized the shared vision among private entrepreneurs of a new sector, whose viability and growth was directly dependent on export performance. Private actors, especially exporting companies, were aware of the regulatory challenge: USDA requires that a single organization representing the private sector engage in the health certification institution, a role assigned to UPEFRUY. Creating and sustaining that institution, which is a club good, involved non-negligible costs considering the export levels at the time.

UPEFRUY, an institution managed by the private sector and engaged in the international representation of the cluster, assumed the representation of the conglomerate in relation to the cluster-development program and the policy. This role, and the rapid acceptance of it by the private sector, reveals that UPEFRUY remained focused on its core mandate, staying away from business disputes among members or other issues outside its specific scope of action. In 2007, the cluster governance was created under PACC guidelines. It was built on institutions with exclusive private sector representation and the involvement of major members of existing business associations, and, therefore, it was legitimate among private sector actors.

The main contribution from MGAP came from the General Directorate of Agricultural Services (DGSA), which deals with sanitary regulations, and is the national phytosanitary protection organization for international agreements in this area. Collaboration between the DGSA and the cluster was functional to the established goals. In 2010, a project was approved that provided resources to strengthen cooperation between the DGSA, UPEFRUY, and the U.S. Animal and Plant Health Inspection Service (APHIS) as a way of monitoring the most significant pest—the fruit fly—guaranteeing its treatment, and managing sanitary certification in the country's departure airport.

Access to the U.S. market demands keeping fruit fly problems under control, and this requires private investments in plant treatment as well as in monitoring the presence of the pest throughout the country. Regarding the latter, the DGSA has no physical presence in the country, which leads to the need to devise a mixed monitoring system in which producers themselves are involved. In addition, the DGSA must certify compliance with the health requirements of the merchandise exported to the U.S. Although the sector lacked extensive experience in collaborating with the DGSA, informants reported a good relationship, which was not affected by the more distant political representation of MGAP in the cluster. DGSA even mentioned

having sought training to provide services to the sector, which reveals the responsiveness of the public actor, its professionalism.

### *3.4.4 Institutional Design Lessons*

The blueberry case offers some lessons with respect to institutional design. First, even if the involvement of the public sector was relatively low and its contribution to the trajectory of the cluster was limited, the public sector did not block the private sector's initiative. The latter sector was strong, well organized, and had few associations that were representative of the sector. The private actors showed signs of dynamism and commitment, took the initiative, and were supported by both the program and the public sector to participate in the design and implementation of policy responses to the problems identified in the cluster.

Second, at the same time, from the public sector, active cooperation from the DGSA was required and was efficient, but public actors show relative backwardness compared to the dynamism of the sector.

Third, agencies from the NSI, like the National Agricultural Research Institute (INIA) or Laboratorio Tecnológico del Uruguay (LATU), could have played a more significant role, but they acted as followers of the private sector. The weak integration with technical and research agencies of the public sector is noteworthy. Although INIA conducted research, even before the launch of PACC, and in collaboration with private companies, technicians, and entrepreneurs consulted observed that even in 2011 the conglomerate was based on a technological package imported from Argentina and not totally adapted to Uruguayan conditions. The country still lacks a long-term research program articulated at a high level between the public and private sectors in this sector. The producers' frequent complaint is that the agriculture research system lacks room for emerging crops directed toward dynamic markets.

In sum, besides the divergence between the private and public sectors on priorities and resource allocation for publicly funded research, the case highlights some tensions that can arise in incipient sectors not used to interacting with research institutes. A more frequent dialogue between the private sector and research institutes is desirable. There is, however, no endogenous sectoral innovation strategy, which is a shortcoming of the blueberry PRC.

### 3.5. *Case 5: Tourism Cluster in Colonia del Sacramento*

The tourism cluster in Colonia del Sacramento shows a proactive local government initiating the PPC and successfully convening a heterogeneous set of private sector actors that needed to be coordinated in any sector development strategy. From the quality of policy perspective, getting them to set up and support a lasting governance mechanism was a positive outcome (Ross Schneider, 2010). The following paragraphs examine the trajectory followed by the cluster.

*3.5.1 Creating Institutions among Heterogeneous Actors: A Government-led Experience*

The port of Colonia del Sacramento, the base for ferries shuttling passengers to and from Buenos Aires, Argentina, is the entry point for tourists coming into Uruguay. Moreover, the city and the departments are worthy destinations in their own right. The area has many assets to affirm its leading role in the country's tourism services landscape.

When PACC decided to include Colonia's tourism among its supported clusters, the department was undergoing a gradual but deep transformation, and it had an acceptable but not impressive quantity and quality of services supply. As in other parts of the country, the traditional family hotel was giving way to new facilities run by international hotel chains.

As a tourist destination with a long history, Colonia had a complex institutional landscape that posed a challenge for any new competitiveness-enhancing initiative. The Colonia Tourism Corporation was tasked with channeling demands from a variety of local tourism leagues, but it was not unanimously considered a legitimate voice for the whole sector.

One of the distinctive features of cluster building was that the approach to PACC was originally promoted by the local government agency known as Intendencia Municipal de Colonia (IMC). In 2006, IMC appointed a young, well-trained sector specialist to head the Tourism Bureau. Her hiring broke with political norms, putting a person in a significant job who possessed the necessary motivation and skills, all of which was crucial for the cluster-building process.

The private sector initially acted as a follower of the local public initiative. Despite some previous experiences in trying to achieve coordinated action to address shared problems, the private sector was divided and it lacked a common vision, because it was organized in sub-sector associations that were mainly lobbying groups.

The diversity of relevant actors, the heterogeneity of management and marketing skills, and other capabilities of the actors, were a distinctive feature of this conglomerate. The number

of different organizations and agencies relevant to the cluster is striking; it shows the complex challenges for coordinated collective action and policymaking that existed.

The IMC's leadership and support for the initiative were crucial. It was not just, however, the initial support required to break a non-cooperative equilibrium that mattered; the IMC also led efforts to encourage participation of the least organized and inadequately represented segments, such as handicrafts shops and small rural tourism operators. This made its job harder, but it contributed to a potentially farther-reaching impact. Among the actors that were already better organized, the Gastronomy Chamber (GC) deserves special attention. The cluster sometimes had difficult relations with this important local player. The interviews suggested that there were problems surrounding representation within the sub-sector, and that pre-existing personal differences permeated the interactions.

The former director saw the contribution of the technical staff from the PACC Coordinating Unit as positive. She highlighted their effective implementation of the program, pushing the locals to set ambitious but realistic targets and keeping the focus on initiatives that enhanced competitiveness. Among other contributions, the director of tourism received solidarity and support, which was helpful to convey a notion of the objectives and rationale of the cluster tool or the specific collaboration around concrete initiatives such as the brand-development initiative and the facilitation of coordination with other public actors, such as the Ministry of Tourism and Sports (MINTURD). In brief, this appears to be a case of a successful, publicly initiated PPC for PPD, which was partly built on functional public-public collaboration, especially in convening and supporting the network-building effort.

The cluster governance structure initially had the standard PACC configuration, evolving quickly toward an original, locally grown model. In addition to a cluster management group, a tourism roundtable was set up, with participation of other IMC units and MINTURD. This comprised the local version of the support groups referred to in the PACC methodology. It is a PPC achievement, and one that enhanced the quality of policies, that the IMC, through its committed, skilled, and politically adept officials, was able to generate enough trust and interest to develop the PPC initiatives, regardless of their initial limited impact.

*3.5.2 The Uses of Consensus Strategy Documents*

As directed by PACC policies, the cluster's PRC was developed in a participatory manner in 2007, based on a detailed study of the cluster's situation at the time. The plan identified nine

strategic pillars for the cluster, that is, the tourist destination, comprising institutional strengthening of the cluster, territorial and sectoral planning, improvement of touristic infrastructure, creation of business network, vocational education, quality and tourism brand of Colonia, and promotion of increased integration of information technologies in the sector.

In late 2007, the cluster created the Colonia Tourism Association (ATC), a joint governance/management entity for coordination of private-private and public-private collaboration. The ATC is a joint initiative of the organizations of the private sector, the Tourism Bureau of the IMC, and MINTURD. A steering committee leads it, and it sets longer-term strategies and makes executive decisions on most issues.

The ATC's establishment and its relative stability, highlighted by several actors, is considered the conglomerate's achievement. It required handling a delicate balance between being too close to the public sector, such as the IMC, and becoming spokespersons for the private sector. When conflicts erupted between political authority and segments of the private sector, these predicaments were intensified, but they were not the most visible conflicts. The strategic plan provided constant guidance and support, since its consensual foundations aligned demands and pressures upon the original objectives and priorities. The legitimacy of the ATC seems solid.

The initiative to develop a tourism brand for Colonia is valued not only for its product, but also for the process of collective decision making it involves. In the development phase of the strategic plan, the initiative generated a consensus. Developing the initiative in constant communication with private actors generated a sense of ownership that the parties valued as an achievement of the cluster as a whole. The tangible character of the branding product initiative, and its suitability for the early stages of PPC when other projects with diffuse benefits may have been be harder to sell to reluctant partners, may be among the reasons explaining the active and constructive involvement of the private sector. In brief, in the trajectory of the cluster, the initiative seems to have contributed to raising levels of trust among actors, spreading a sense of ownership and accomplishment, adding legitimacy to the strategic plan, and adding valuable actual results, which were necessary for the marketing and communication strategy of the conglomerate.

Two milestones in the evolution plans may serve as foundations of the cluster to help visualize the achievements: (i) rapid evolution from the standard institutional model of PACC to

local governance centered on the ATC, and (ii) some episodes of conflict from which the ATC and the cluster as a whole seem to have emerged strengthened. In this context, the case suggests that consensus strategies for achieving greater cluster competitiveness can serve multiple purposes. A first purpose is the more straightforward one of identifying priorities for policy changes, joint public and private action, and the resolution of coordination failures. In this vein, competitiveness plans serve as a navigational tool for PPC participants. A second purpose relates to the benefits that flow from the participatory process that develops the plans. Private-public dialogue may enhance the information base on which policies or private strategies are made, but it also may help develop a sense of ownership of jointly developed strategies.

This case illustrates a third function that the plans serve. When turnover of critical staff is high, and when conflicts emerge that challenge PPC-generated policies, the participatory competitiveness social contracts among participants remind them of what all once agreed was the most appropriate course of action. Without foreclosing change and adaptation, the plans remind partners that new initiatives, or departures from old ones, require a new consensus.

The use of financing mechanisms that were envisaged by PACC policy is revealing about the focus of this PPC and its results. Most of the resources, when the non-refundable contribution from PACC and the private sector's contribution are added together, have gone to structuring projects, or to those projects with non-appropriable benefits for all members of the cluster, largely related to cluster governance. The cluster's investments have been small, compared to, for example, the almost US$1 million allocated by the blueberry cluster. It has not approved any closed projects, revealing difficulties in developing other initiatives and multi-actor collaboration beyond the basic supply of club goods. This suggests that the PPC's main success has been in building trust and generating a multi-stakeholder forum where various parts of the tourism value chain can work together to address growth-related issues. The impacts on competitiveness appear, based on the allocation of funding and effort, to be very modest so far.

### *3.5.3 Institutional Design Lessons*

The Tourism in Colonia case offers lessons for institutional design. First, the PACC's admission procedure requiring joint private and public endorsement opened the door to an unlikely but successful example of a government-led cluster-building initiative. The heterogeneity of the private sector on a small- to medium-scale international tourism destination was not an obstacle

for the institutionalization of governance mechanisms, with substantial PACC facilitation assistance and adept local public leadership.

Second, the evidence from this case suggests that technical capacity supplemented with relative political autonomy creates conditions for tangible achievements even in complex contexts. The possibility of reaching early results helped this, for example, the branding exercise, and thereby generated interest and commitment that encouraged the private sector's involvement. The development of trust and a sense of shared goals are valuable in themselves, but they do not trigger demands for more ambitious, pro-growth collaborations.

Third, consensus strategies in the form of cluster's strategic plans can serve other purposes besides listing policy and collective action priorities. Their production can generate ownership of the initiatives resulting from the participatory planning process. More importantly, they can become convenient reminders of foundational agreements, or social contracts, to overcome the challenges of staying the course when there is high public and private personnel turnover.

## 4. Lessons Learned

The Uruguayan government, or at least MGAP and MIEM, has a clear position on PPC for PDP, and it created policies with that position in mind. However, placing a magnifying glass over the way the government is carrying out these designs, as was done in this study, the results are generally rather disappointing. There is a sort of inertia from the government that implies not moving from a status quo relationship with the private sector and between different public agencies, even when many officials and authorities agree that changes are necessary. The following paragraphs lay out seven policy lessons derived from the five cases studied.

### *4.1. Private Sector Capacity: Unproductive Rent Seeking versus Contributing to Productive Activities*

Cluster promotion background in both shipbuilding and biotech is without a doubt what allowed the private sector to get organized and interact with the government in a new way, that is, by contributing to productive activities through SCs. The cluster promotion initiatives were also effective in the blueberry and tourism PACC cases in transforming government-firm

relationships. These programs generated trust between public and private sector participants and allowed for accumulation of knowledge, mostly tacit and originating from practical experience.

In slightly different ways, SCs, like clusters, have made significant contributions to the institutionalization of representation in the private sector. This is necessary and desirable for sustaining PPC and can be achieved without full participation, or with the exclusion of some large participants. Yet, a more cohesive business sector may also be a more powerful performer, demanding forms of protection or subsidization that could harm other sectors or consumers or stifle innovation. The risk of capture of the PPC mechanisms by a rent-seeking private sector is a recurrent theme in the literature. While PACC erected a barrier to these processes by putting competitiveness at the center of its requirements and by being flexible in its choice of private sector actors to involve, the SCs were more exposed to those risks by supporting industries, like shipbuilding, that had more uncertain competitiveness prospects.

The blueberry case is one in which the private sector made the right efforts to achieve a successful PPC. It did so despite a weak public sector. Government capture is a real danger due to the strength of the private compared to the public sector entities. The conclusion reached regarding the avoidance of capture revolves around the sort of public sector that is functional to PDPs and at the same time avoids private rent seeking. Here, the study finds that the model of intervention of PACC, with an enabling hallmark, has these qualities. Even though there are no explicit safeguards against possible coordination failures or capture, this is not perceived to be a risk in light of the government's enabling philosophy. Institutionalizing critical criteria, such as, for example, tying public support to clear competitiveness-enhancing investments, may be necessary as these PPCs evolve, to minimize the risk of capture when the founders are no longer involved.

From the shipbuilding and biotech cases, the lesson learned was that if the private sector organizes itself in some innovative way, the government is responsive and can adopt new ways of collaboration. The SCs are institutional settings that allow and potentiate these new relationships. However, SCs can also be based on more traditional relationships that are more inclined to rent seeking, such as in the apparel-textile or automotive sectors that were not studied here. SCs do not have explicit safeguards against possible coordination failures or capture. According to the information collected so far, the actors involved do not perceive this as a problem. This does not mean that this risk does not exist. Government-hired professionals

involved in the councils see it as a possible problem, but one that so far has not appeared. The risk may be greater in other industries.

In the case of meat traceability, the institutional setting led to minimize rent seeking from different groups in the value chain with divergent interests. The threat of foreign regulation, or technical and sanitary requirements imposed by the main foreign buyers, is another principal factor that explains why private sector organizations aligned with each other and with the domestic regulatory authority. Finally, the innovation network in construction proves that when critical capabilities within the government and the private sector are available, it is possible to establish more sophisticated relationships where productive rent seeking prevails.

### *4.2. Public Sector Capacity: Administrative versus Political*

In Uruguay, public sector capacity—or the lack of it—has operated as a restriction on the implementation of new forms of PDPs. This means that when an institution has no capacity to properly fulfill its function and the prospects of reversing that situation do not look favorable, institutional opportunities are created that overlap with existing ones. Policy innovation presents the policymaker with a dilemma. Capacity can be created outside of the existing bureaucratic structure that will be more agile, responsive, and dynamic than conventional policies, but that are likely to disappear with the next change in political leadership, including with a new administration of the same political party. Alternatively, a change in the modus operandi of old but entrenched pre-existing bureaucracies can be attempted, which will make the innovations an uphill battle. The latter requires political capacities and, if the step to break with old institutions is taken without adequate capacity, there is a risk that the old structures and the power resources will block the new policy. In the first option, the policymaker assumes some inefficiency in the duplication of structures, but it has the advantage of avoiding the potential obstruction derived from political weaknesses.

In the case of meat traceability, a mid-way resolution of the innovative policymaker's dilemma was implemented. New capacities were created inside the existing bureaucratic structure, but with no attempt to change or improve the modus operandi of the pre-existing mechanisms. The new institutions were added side-by-side with the old ones. The result was co-existence of the old system, fire-heated branding and paper physical support, with the new electronic system managed by different departments of the same ministry.

The experience of the shipbuilding SC to date sheds light on essential issues relating to public sector capabilities and their role in the success of PPC for PDPs. Technical sophistication and commitment are essential for the new types of collaborative public policies. The major roles played by the MIEM team and the director of industry demonstrate the value of deep technical understanding of the policy challenges, as well as the capacity to pull one's weight in sometimes difficult negotiations. The director's ability to recruit committed young professionals, as well as the latter's technical contributions and energy, account for a good part of the achievements.

The cluster tourism case reveals other features of the capacities of the Uruguayan state. It is a successful case where the public sector was initially the leader of the collaboration. Our conclusion is that the creation of the mixed public-private institution (ATC) with autonomous management assured protection against capture. Additionally, the cluster governance retained the capacity to act as the corporate memory of policy, allowing for the continuity of initiatives despite changes in the main players.

### *4.3. Public-Public Coordination Failures*

The cases analyzed show that PDPs are weak if they depend on public-public coordination because of the lack of effective coordination and governance across different state agencies. This issue is central for the councils and to a lesser extent for PACC. Meat traceability is encapsulated in MGAP and its expanded agricultural institutions, which is a strength of this PDP because public-public coordination is facilitated. It is also a limitation, however, when meat traceability is thought of as a basis to build a new meat competitive advantage based on a value-chain approach. In this case, it is essential that innovation networks remain the foundation of public-private collaboration and public-public coordination beyond the agricultural arena.

One of the main shortcomings in the biotech sector is the failure of public-public coordination. It has obstructed the achievement of the registration of biotech products, upon which the development of the sector depends. This kind of problem is particularly relevant for cross-sector technologies like biotech, but it is relevant to any productive area that requires crosscutting regulation. Emphasis on public-public coordination must be an essential issue in the design, implementation, and assessment of PDPs. The five cases studied here show the difficulties of this kind of coordination.

### *4.4 Labor Union Capabilities: Wage Bargaining Dialogue versus Long-Term Vision*

The labor union's role in the construction of the first barge in the shipbuilding case was constructive, mainly because it ensured labor peace to help the consortium meet delivery deadlines. The SC with workers' participation also changed the logic of private-private relations, turning it into a more regular dialogue on longer-term issues, not just on short-term wages and working conditions. Some sources report, however, that workers' response has been more disappointing when unions were asked to participate in other strategic consultations or planning, as they seemed less prepared and—unless they touched on salaries or jobs—less interested.

### *4.5 Time Horizons*

In the five cases studied, time horizons for public-private interaction have been from medium to long term. For meat traceability, there is a long-standing PPC tradition in agriculture policy. In the manufacturing sector, there are fewer precedents, but the precise and systematic work of cluster promotion programs can operate as a catch-up mechanism. A related issue is that policy continuity is a basic condition for attaining long-term possibilities. There has been continuity since 2005 because the same political party has governed, but when parties change, this has not been the norm. Thus, the SC institutionalization that is intended to be accomplished in biotech through a law is an interesting pathway to assure continuity in policy tools.

### *4.6 Policy Learning Spaces*

The monitoring and assessment of productive policies, even if the policy design normally includes them, are totally absent in the PDPs studied here. In all the cases, the absence of opportunities for learning was highlighted in order to be able to replicate the successes or correct missteps.

The shipbuilding industry case illustrates well the effects of the lack of systematic opportunities for learning. There is no mechanism in place to learn from the technology transfer that is taking place through the Spanish-Uruguayan joint venture. Moreover, absent such a mechanism, it will be anyone's guess whether the productivity gains achieved, and the associated managerial learning, can sustain the industry's competitiveness in the future. Given the resources invested, it would seem essential to have adequate learning strategies in place.

Concerning the infant industry protection and the truncated technological transfer observed, this process must be further documented to understand, through figures, what was invested by the state, and what learning took place. Without the appropriate policy assessment tools, the state will never learn from its good and bad experiences. The lack of management capabilities at the level of the shipbuilding workshop plant managers and the neglect of learning in policy design must be better documented to fully understand the policy's developmental effects.

### *4.7 The Nature of Public-Private Collaboration*

The nature of public-private collaboration depends on the different types of economic goods that PPDs provide. This last lesson is more a hypothesis to guide further research. The five cases reported how, through PPC, PDPs have provided public and club goods. The nature of the goods provided has required different types of collaboration between actors.

In meat traceability, the PDP delivered a sanitary public good through a PPC. This involved some innovative capacity to design the system, but it aimed to solve current problems of implementation. There is no organized mechanism involving PPC to enhance the system. This is reasonable to the extent that no private actor would individually benefit from the system's improvements because they are public goods. What is more, until now, there are few coordination mechanisms between private actors apart from the traditional representative entities. Where innovation is concerned and the possibility of rent appropriation appears, however, more sophisticated relationships seem to be looming on the horizon. The division of labor between private and public actors in the innovation network studied here is a good illustration of that.

In biotech, however, a group of entrepreneurs from AUDEBIO is playing a leading role, together with the government, to draft the basic regulation of public goods for sector development. This could be because this regulation is considered more a club good than a public good, or because high-tech entrepreneurs may be more prone to contribute to productive activities. Currently, biotech is as insignificant to the economy in total as meat is significant.

The tourism and blackberry cases show that the cluster promotion program with its enabling state philosophy is useful to create club goods or specific institutions to regulate or organize the sector. When private actors mature, they are able to create more appropriable

collective goods. In the blackberry case, however, the lack of adapted local innovation may be because there is still no clarity about the club goods that merit other PPCs, like the innovation network from the meat traceability case.

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