Science, technology and innovation policies in Uruguay: problems of coordination and regulation functions[1]

Abstract

This document investigate how the complementarity of Science, Technology and Innovation policies (STIp) has worked in Uruguay from 2005 to 2022. The period considered contemplates three governments of a center-left party (Frente Amplio) and the first three years of a center-right coalition (Coalición Multicolor) with the purpose of analyzing possible differences. Here it is argued that the achievement that the achievement of greater and better levels of complementarity in the STIp occurs with adequate state capacities for the deployment of regulation and coordination policies, but this type of measures has not been adequately considered. The construction of technical and political capacities to lead STIp, based on the implementation of regulatory policies and/or the establishment of coordination spaces, are not attributes inherent to State institutions, but rather are a political creation with the same level of importance as those of provision, for example. The methodology used is qualitative and an analysis of secondary information is carried out.

Keywords: *Coordination, regulation, state capacities, Uruguay, STIp.*

Introduction

In recent years, important developments in Science, Technology and Innovation Policies (STIp) have taken place in Uruguay. This paper aims to investigate the complementarity of these policies. Specifically, the objective is to analyze the role played by the *coordination* and *regulation* functions of STIp in Uruguay in recent years. To this end, this paper recognizes the State as a key element in promoting a

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global Science, Technology and Innovation (STI) strategy, because it has the capabilities and incentives to build a systemic and long-term vision.

Regulation and coordination are instruments and functions of state management oriented to the fulfillment of political objectives. They are not ends in themselves. For this reason, these activities must be supported by technical and economic resources and political backing. Throughout this paper we insist, based on theoretical references, that the construction of technical and political capacities to lead STIp, based on the implementation of regulatory policies and/or the establishment of inter-institutional coordination spaces, are a political construction.

The time frame of the analysis proposed covers the years 2005-2021. It includes the three periods of the Frente Amplio (FA) at the head of the national government (2005-2020) and the first three years of government of the Coalición Multicolor (CM), 2020-2022. This article does not have a comparative vocation, but rather to seek an analysis of the regulatory and coordination functions of the STIP.

The methodology is based on a qualitative and exploratory design based on the analysis of secondary information. It focuses mainly on the survey and analysis of official documents on the STIp, including government reports and political party proposals. In the case of the CM administration, in addition to considering the electoral proposals promoted, the main measures that have been implemented in this political arena as of the Urgent Consideration Law (UCL) and the Budget Law approved in 2020 (N° 19924). At the same time, an exhaustive systematization of the specialized academic literature was carried out.

1. State capacities in STIp: a new look at its institutions

The market has historically been emphasized as the main agent in the distribution of resources. It has been insisted that public regulations and state capacities to promote the deployment of STIp are unnecessary. It is enough to join the external market with what one knows how to do -comparative advantages-. In Uruguay, such insertion should focus on the mobilization of the primary export sector. Some of the

positions aligned with these principles point out the importance of deregulating -or re-regulating- reducing the levels of protection and the degree of State intervention, allowing free mobility, mainly of capital and technologies.

Other perspectives, emphasize the decisive role of public policies to shape industry, regulate foreign investment and make the country's scientific-technological structure compatible with demands of the productive sector [Sábato and Botana, 2015 (1968); Herrera, 1975 (2015); Casas, 2020; Crespi and Dutrénit, 2013; Dutrénit and Puchet, 2020; Lastres, et.al., 2020]. This article is positioned from this analytical perspective to analyze STIp, focusing on State capacities to regulate and coordinate public policy actions.

To carry out activities and the STIP, an active role of the State is necessary in the actions directly implemented. Also in the orientations, embodied in regulations and coordination of different actors.

To this paper, it is useful to define STIp as "measures taken by a government for the purpose of, on the one hand, promoting the development of scientific and technological research and, on the other hand, using the results of such research to achieve specific objectives" (Salomon, 1977: 76).

Independently of the classic view of Salomon (1977), there is another way of approaching the STIp (Lundvall and Borrás, 2005; Borrás and Edquist, 2013). Thus, scientific policy focuses on the production of knowledge through the promotion of competitive funds for research, the creation of research institutions (laboratories, universities, and public and private institutes of higher education); regulations and tax incentives; intellectual property rights; and the evaluation of scientific production. Technology policy focuses on the advancement and commercialization of technical knowledge using public procurement, assistance to strategic sectors, support for linkages between actors (university and business; research and industry) and the improvement of technical skills. Innovation policy aims to introduce capabilities to the economic system, through improvements in organizational performance and learning, adjustment of regulations (environmental, bioethical, competition;

intellectual property; consumer protection; etc.), access to risk capital and promotion of vertical and horizontal coordination and articulation (Lundvall and Borrás, 2005; Borrás and Edquist, 2013).

The perspective of Borrás and Edquist (2013), as well as that of Lundvall and Borrás (2005) is useful for countries with an undisputed track record and legitimacy of STIp. In Latin America and Uruguay, STICs were secondary during much of the 20th century (Davyt, 2011; Sagasti, 2011). Whether from the perspective that prioritizes the analysis of the coalitions of the actors that sustain the STIP or the one that focuses on the orientation of the instruments used, it is important to analyze the objectives and their articulation.

Ultimately, the possible complementarities of policies may be a consequence of the creation and sustainability of links between different agents (Borrás and Edquist, 2013; Bortagaray, 2014). Articulating diverse actors with possibly opposing interests is not a simple political activity. The dynamics between institutions and coalitions of actors and their interests is a complex game where the relative power of each actor necessarily intervenes.

One way of buffering the game is using specific state capacities and functions such as regulation or the construction of coordination spaces. The following section provides a theoretical description of the role of regulation in public policy and, subsequently, analytical elements to address the case of STIp in Uruguay.

1.1. Regulation in public policies[2]

The activity of regulation has long been assumed by public administrations. The assumption of state responsibilities throughout the 20th century, starting with the construction of the Keynesian Welfare State, implied a strong presence of the public sector in various areas that had been considered eminently private scenarios

[2] An excerpt of this section was presented -but not published- at the XVIII CLAD International Congress on State and Public Administration Reform, Montevideo, Uruguay, 29 Oct.-1 Nov. 2013 under the title "Regulation in the Social Area: Functional Equivalent to Direct Provision?" by Guillermo Fuentes and Marcelo Castillo.

(Castro, 1995). Intervention in new matters was not limited to direct provision, but sometimes involved the regulation of market economic relations.

Traditionally, in public administrations, regulation was exercised through classic mechanisms of hierarchical authority. In this sense, such actions were "invisible" within the legal framework, making it difficult to identify when policies, norms or provisions of a regulatory nature were involved. The new context, observed since the first decade of the 21st century, has the particularity that part of the social public services and several of the productive sector (at least in Latin America) are provided by private actors, both for-profit and not-for-profit. This divergence has made it impossible for the State to exercise control and regulation of these sectors through hierarchical authority. The link between the new providers and the public administration was the contract. The diversification of suppliers of goods and services also had an impact on the need to define, from the public sector, certain minimum standards of quantity and quality to avoid possible situations of unequal access based, for example, on the purchasing power of citizens.

Thus, either because private actors began to intervene in the provision of goods and services, or because the very institutionalization of Latin American States ended up restructuring their different functions, the result has been an increase in regulatory activities. Regardless of the definition used to understand regulation, when the State establishes this type of measures, it imposes decisions in the form of public norms, with the threat of applying sanctions in the event of non-compliance (Baldwin, Cave and Lodge, 2012). Thus, regulation will also be one of the ways of building institutions or, in other words, rules of the game and procedures that protect exchanges of goods and services and decision making (North, 1993). In addition, the other contribution in terms of institutionality is given by ensuring conditions of predictability in the behavior of the different agents involved in the policy. Finally, regulations in the provision of goods and services will be responsible for guaranteeing availability over time.

There are multiple definitions of what means regulation. One of the most used, because it´s concise: "practices and regulations through which the government

modifies or guides the conduct and/or structure of an industry or service (public or private) with the objective of minimizing transaction costs and improving the efficiency and equity of markets in accordance with the social interest" (Stark, 2004).

There are, also, multiple analytical levels to characterize regulation. At a more general level, it can be said to encompass all social control mechanisms. At a less general level, it refers to the actions of state agencies to direct socioeconomic affairs. Finally, it can be understood as rules accompanied by some mechanism, usually a public agency, to monitor and promote compliance with these rules (Jordana and Levi-Faur, 2004).

Two aspects emerge from these clarifications: i. that modern States have been carrying out regulatory policies practically since their genesis, because they must consider everything from the pricing of basic services to the conditions and requirements that a civil society organization must meet to provide services; ii. that all regulatory action influences the citizenship, directly or indirectly, and hence its social impact.

Beyond the nature of regulation and the rationale for its existence, it is necessary to know specifically what matters are subject to regulation. In this regard, Levi-Faur (2011) proposes eight aspects on which regulation exists:

i. *entry* (defining who is eligible to be the object of any policy or, on the contrary, to offer a service)
ii. *exit*
iii. *behavior* (channels for complaints about poor services, or steps to take in each situation)
iv. *costs* (setting minimum and maximum service costs, based on different instruments such as prices, fees or capita)
v. *content* (in areas such as communication, where there are regulations in relation to language, explicit violence)

vi. *preferences* (which in the author's opinion are manifested fundamentally by the different processes of education and professionalization of a society)
vii. *technology* (determining the conditions under which new production mechanisms can be used);
viii. *performance*, (orienting the activity towards the results obtained in the subject matter subject to regulation).

The list gives an idea of the complexity of regulation in contemporary societies. The development of regulatory practices by public agencies has led some authors to speak of a "regulatory state" as a new type of state with specific characteristics (Gilardi, 2008; King, 2007; Moran, 2007). Through these particularities of the regulatory state, power can be redistributed among old actors in the political scene. In this sense, for authors such as Majone (1999), the conversion to a type of regulatory state entails the generation of different governance models that promote the emergence of new actors in the political arena and, consequently, have an impact on established power relations.

The type of specific regulation mentioned in contemporary literature presents some nuances in relation to the regulations that characterized state presence until at least the 1960s. While the regulations existing in previous periods were basically aimed at replacing market functioning issues, the new ones would be aimed at promoting, complementing, or even creating the necessary conditions for a better functioning of the market (Stark, 2004). In this context, the main political conflicts arise in relation to the type of link and the conditions for the coexistence of both.

Although Latin America has not been immune to these processes, it has presented particularities in relation to the more developed countries. Specifically, although the creation of new institutions and regulatory practices has been almost as intense as in Europe, the process has been characterized by changes in regulatory frameworks and the absence of commensurate institutional transformations (Stark, 2004). This has resulted in weak state regulatory capacities.

Regardless of the Latin American context, within the basic capacities and instruments available to any public organization when regulating and influencing the behavior of different social or economic actors, the following can be mentioned (Baldwin, Cave and Lodge, 2012):

1. Directing: when legal authority and command through law are used directly to achieve political objectives.
2. Distribute wealth: when contracts, loans, subsidies or other incentives are used to influence the behavior of actors.
3. Redirecting markets: when governments channel competitive forces to achieve ends (e.g., when a license auction seeks to benefit consumers).
4. Informing: if information is deployed strategically.
5. Direct action: to contain certain undesirable effects of a policy.
6. Granting protected rights: when rights and responsibilities are structured and positioned to create desired incentives and constraints.

In addition, the scenario may present extra complications, of an operational nature, linked to who will be or are the object of regulation. States regulate via hierarchical authority in contexts of public monopoly of service provision (or the intention to monopolize) and use more specific regulations when the universe of providers is of a private nature. But what should be the characteristics of the regulation of a policy arena in which several public providers coexist with private providers or various public actors with differential legal powers, such as the ECI? Given the diversity of the nature of the actors, it is essential to define the type of regulation politically.

Table 1. Some examples of regulatory instruments in STIp

Instruments	Examples
Regulations	*Intellectual property rights* *University statutes and establishment laws* *Competition policy on R&D partnerships* *Bioethics regulations*
Direct economic transfers	*Financial support to research organizations and universities* *Competitive research funds* *Tax exemptions* *Support for venture and seed capital*

Soft instruments	*Voluntary standardization* *Public-Private Partnerships*

Source: Own elaboration based on Borrás and Edquist (2013: 17).

When designing regulations on STIP, the following principles must be considered: i. meet clearly identified policy objectives and be effective in achieving them; ii. establish clear, simple and practical definitions for users; iii. have a solid legal and empirical basis; iv. be consistent with other regulations and policies; v. produce benefits that justify the costs, considering the distribution of effects on society; vi. consider economic, environmental and social effects; vii. be implemented in an equitable, transparent and proportional manner; viii. be implemented in an equitable, transparent and proportional manner; viiii. produce benefits that justify the costs, considering the distribution of effects on society; ix. promote innovation through market incentives and target-based approaches (Borrás and Edquist, 2013).

Now, in the implementation of regulation, the analysis of state coordination is fundamental since, in each field of public policy, actors with disparate competencies and natures proliferate. The case of the PCTI is no exception. In recent years, several analyses have been carried out on the different coordination formats in public policies and it is therefore interesting to briefly review this analytical discussion.

1.2. State coordination and systemic efficiency

A first issue to consider is the definition of coordination. It will be understood as a process through which synergy is generated between the actions and resources of the various stakeholders in a specific field of public management, while building a system of rules of the game through which the actors find incentives to cooperate, beyond their particular interests and ideologies, usually in conflict with each other (Repetto, 2005).

This process will not necessarily entail a reduction of plurality among actors but aspires to have more harmonious and effective results in relation to politically defined objectives (Ben-Gera, 2009). It is not a voluntary process, involves the investment of resources -technical, financial and, mainly, political- and it is in this way that the

actors will value the areas or mechanisms of coordination. If this investment of resources is not made, fragmentation and loss of systemic rationality may be encouraged. The new rules or institutions that are fostered through coordination will generate a redistribution of resources among the actors and, possibly, conflicts between winners and losers. This situation will be aggravated when policies are deeply rooted or have a long tradition (Shannon, 2005). This could be reversed by applying regulations that encourage cooperation among actors, although differences will persist according to the power resources they possess.

Coordination can be horizontal -between different ministries or agencies at the same hierarchical level- or vertical -within the same organization or organizations at different hierarchical levels-. Thus, vertical coordination will operate in the policy design and implementation stages (Matei and Dogaru, 2012). In contrast, horizontal coordination will operate to institutionalize dialogue and negotiation among actors to subsequently make public policy decisions. Horizontal coordination is more difficult to implement due to the relative institutional equivalence of the bodies involved in decision-making and public service provision (Christensen and Lægreid, 2007). This type of coordination requires high-level political intervention that directs objectives or establishes incentives of a different nature (Repetto, 2010).

Specifically, the coordination modality has an impact on the integration of the different actors that will participate in the space. In this sense, there may be an *intra-sectoral* conformation -in which actors from the same public policy arena participate- or an intersectoral conformation -which involves coordination between different actors and public policy sectors with different levels of administrative hierarchy-. There is also *cross-cutting* conformation -which will seek cooperation between several policy arenas-. Each type will entail different rules and activities and, consequently, the political valuation of each will also vary. In this sense, those at the highest hierarchical level, such as the ministerial cabinets, seem to carry out cross-cutting coordination, while those at the lowest hierarchical level move through the other processes.

According to Ben-Gera (2009), the establishment of an effective coordination system would be achieved if certain requirements are met. First, there must be a planned government agenda, so that the spaces receive the main policy guidelines quickly. Secondly, ministries or agencies of relative hierarchical equality should smoothly share their action plans to avoid institutional overlaps and negative impacts on the actions to be implemented with other agencies. The third point refers to the availability of information from higher and lower levels. Fourthly, the system must ensure that all objectives and activities defined at all levels are aligned with a budget earmarked for such purposes.

In scenarios where decision making is highly decentralized -as is the case of the STIp-, coordination spaces can act as guarantors of systemic efficiency. This is so because the production and use of STI takes place in multiple spaces and, therefore, requires that several actors agree on the type of actions they will carry out, the time frame in which they will undertake them and the resources they will need (i.e., they must coordinate their actions in multiple senses). The fifth point refers to the fact that the individual actions of the different agencies must be executed in line with the decisions taken by the national government. In this way, each space is prevented from generating an autonomous work agenda. Ben-Gera (2009) adds two more aspects to the five points mentioned above. An effective coordination system should have procedures for the resolution of eventual disputes or disagreements among participants -imposing sanctions or encouraging agreed action-. Finally, monitoring will be necessary to account for the implementation of the decisions taken.

The sectoral logics of action of the State in general and of the Uruguayan State in particular -based on the deployment of actions contained in specific ministries or agencies on specific policy areas or matters- make it difficult to establish adequate coordination. This historical form of organization has compartmentalized public actions and has resulted in a fragmented form of intervention. In other words, the institutional framework created has been characterized by being scarcely complementary to multisectoral actions and, in this sense, coordinated state action has recently appeared as a new way of addressing problems of a multidimensional

nature. However, coordination has an additional problem that refers to the lack of a specific subject or issue on which to coordinate (Midaglia, Fuentes and Castillo, 2015).

2. STIp and their capacities in the AF and CM governments

Around 2004, the FA unveiled its government program. In it, the will to prioritize STI activities through a proposal aimed at increasing the synergy between the productive and scientific-technological sectors was evident. Although it might sound novel in terms of national policy, this aspect was already well known in the specialized literature. Institutional dispersion and disarticulation, the absence of political leadership for the design and implementation of long and medium-term policies, in addition to the historical underfunding of the sector were the major challenges faced by the FA governments. However, the arrival of the FA to the national government in 2005 generated certain expectations regarding the potential systemic strategies of the STIp, since the installation of regulatory frameworks in line with the country's needs was announced. In addition, it was proposed to reformulate the organizational structure and update the instruments for the promotion of STI through the active coordination of public and private activities.

In first national government (2005-2010) it is possible to notice a certain strategic view on the need to design and implement STIp. To this end, relevant institutional changes took place, such as the installation of the Ministerial Innovation Cabinet (MIC), chaired by the Education and Culture Ministry (ECM) and integrated by the Economy and Finance Ministry (EFM), Industry, Energy and Mining (IEMM), Livestock, Agriculture and Fishery Ministry (LAFM) and the Planning and Budget Office (PBO). The National Agency for Research and Innovation (NARI) was created as its "executing arm" and the National Council for Innovation, Science and Technology (NCIST) was renewed in its consultative and deliberative capacity. It was a novel institutional design, which took fragments of the existing and added modifications based on the presumption of transversality and hierarchical articulation (Ardanche, 2012; Bianchi, et al., 2016; Zeballos and Bianco, 2021).

The design sought on the one hand, to specialize the elaboration, design and regulation actions that correspond to the MIC, deliberation (NCIST) and execution (National Agency for Research and Innovation) and, on the other, to make processes transparent (Ardanche, 2012; Bianchi, 2017). The proposed division of labor would be relevant if the MIC acquired concrete political powers -such as that of a *principal*- and some capacity to control NARI's actions. However, the latter acquired greater flexibility by circumscribing itself to private law, rather than building and, eventually reinforcing, state capacities (Ardanche, 2012; Baptista, 2016; Bianchi and Snoeck, 2009; Bianchi, 2017; Zeballos and Bianco, 2021).

This configuration followed the typical guidelines of the New Public Management, a market-oriented administrative reform model that, among other issues, raised the relevance of separating policy design from policy implementation, leaving the latter in the hands of specialized agencies governed by private law. One of the problems associated with this type of design lies in the fact that generally, the daily dynamics of operation determines that the principals (in this case the MIC) lose driving capacity due to their remoteness with respect to the policy, and thus the agent becomes autonomous, driving public policy towards its interests (Bianchi, et al. 2016; Bianchi, 2017).

To implement the stated objectives, an Operational Team (OT) of the MIC was constituted. This team had the objective of institutionally redesigning the STI system according to the budget granted and building a National Strategic Plan for Science, Technology and Innovation (NSPST) within the framework of a techno-economic paradigm that placed the production and use of knowledge and innovation as drivers of development and economic growth (Aguiar, et. al., 2017; Ardanche, 2012).

However, the capacity for political leadership never materialized and, therefore, the differential nature of the actors involved, as well as the wide range of objectives set, hindered the establishment of horizontal, vertical and cross-cutting coordination. In the same sense, the system of incentives built based on the regulations issued was not aimed at increasing systemic efficiency, but in some cases increased contradiction.

During the second period of the FA government (2010-2015), the implementation of the NSPST was foreseen, but it was not possible due to the lack of public policy instruments that materialized the planned objectives and embodied the few policy guidelines designed. These years also saw the dismantling of the OT, which brought the MIC's role to an end. The disappearance of both spaces put an end to the presumptions of combating the historical sectoral fragmentation. As a result, most of the institutions involved in the NSPST did not adapt their plans, reports and evaluations to the proposed objectives. In this regard, it is important to make some caveats. The productive ministries (LAFM and IEMM) developed their own tools for the promotion of R&D&i (Rubianes, 2014) but they did not adapt to what was established by the NSPST. The National Agency for Research and Innovation was the only institution that was governed by what was established in the National Plan and from there it consolidated and gave continuity to initiatives for monitoring and evaluating STI activities in the country such as the innovation surveys and the survey of Scientific-Technological Equipment. On the other hand, National Council for Innovation, Science and Technology was ignored as a space for deliberation on STIp (Baptista, 2016; Rubianes, 2014) and towards the end of the period, and under the aegis of the Productive Cabinet (composed of IEMM; EFM; LAFM), an exchange on the installation of the Sectoral Councils was initiated (Bortagaray, 2014). These were presented as instruments of productive policy -oriented by the IEMM- aimed at the exchange and coordination on the strategic planning of some sectors participating in global value chains (Pittaluga, 2015).

In the run-up to the 2014 election year, all participants in the electoral race pledged to grant 1% of GDP for the promotion of R&D. Specifically for the FA it was a historical debt that it also failed to fulfill in its third term of national government that began in 2015 and ended in 2020. Despite the budgetary non-compliance, in that administration the organization of the STI system was modified. The new scheme promoted "systemic competitiveness" and installed in 2017 the National System of Productive Transformation and Competitiveness (NSPTC). Law N°. 19472 was the originator of the new system that sought the expansion of innovative activities, the

incorporation into national and regional value chains and the development of new activities and ventures (Bianchi, 2017; Zeballos and Bianco, 2021).

In concrete terms, the MIC was eliminated from the design and projection of the STIp, National Council was politically emptied and National Agency for Research and Innovation crystallized its autonomy for policy design. The Agency's growing self-sufficiency was not without conflict. It was questioned by the academic community and consequently a Secretariat of Science and Technology -SST- was created within the orbit of the Presidency of the Republic (Bianchi, 2017). The new Secretariat was born without political centrality, without a budget and it took two years to appoint its hierarchs. The SST not only did not influence political decision-making because its capacities in terms of design, coordination and regulation were scarce, but it also failed to consolidate itself as a political space of regulatory relevance.

At the same time, this imprint coexisted with the constant lack of political agreement on the medium and long term economic and productive agenda, since the prospective and articulating views of the public and private sectors of the EFM and the PBO were not actively incorporated. As a corollary, there was no concrete institutional support or specific regulatory tools that promoted an important interaction between the public and private sectors (Borrás and Edquist, 2013). The spaces created were quickly emptied because they did not possess regulatory capacities in the terms proposed by Levi-Faur (2011). Specifically, they did not control entry -that is, they did not define the actors and institutions targeted by the STIp-. Nor did they influence the contents or activities of the institutions involved. Thus, they did not help to socialize information in general and did not build intersectoral agreements with the intention of mobilizing R&D&i capabilities. In other words, they did not allow the establishment and consolidation of communication channels and spaces for negotiation between the government and business, labor, academic or civil society sectors on the continuity, adjustment or dismantling of the STIp. Thus, the absence of clear and effective regulations, in addition to the lack of a systemic vision, brought forward the failure of the third term of the FA government.

The national CM government led by Luis Lacalle Pou -Partido Nacional-, began on March 1, 2020. Twelve days later, the health emergency caused by the pandemic of COVID-19 was decreed and although most of the government's concerns and actions turned towards this phenomenon, the CM's agenda was maintained. The Executive Branch submitted to the Legislative Branch a Bill of Urgent Consideration Law (UCL) that condensed a large part of the government plan agreed upon by the CM. The UCL was approved by Parliament in July 2020 and reaffirmed in the referendum of March 27, 2022. The regulation established, among other issues, modifications in the government of Education such as the elimination of the National System of Public Tertiary Education, a key space for the projection of postgraduate degrees outside the department of Montevideo. To this must be added the elimination of teachers' participation in educational management bodies and the replacement of the Education Councils by General Directorates. The new approach sought to install a more centralized model.

So far, the implementation of the reform has not been free of conflicts and the unions linked to the different levels of education were the most mobilized during 2022 (UCU, 2022).

In addition to the union conflict promoted by the modifications in the structure of education governance, there is the meager budget that the CM has granted to education in general and to the ECI in particular. At the same time, in the Budget Bill submitted by the Executive Branch to the Legislative Branch on August 31, 2020, which involved arduous negotiations within the ruling party, the institutional framework of the ECI was described as complex. It was stated that the starting situation was the existence of a set of "very valuable" capabilities but dispersed in a crowded institutional architecture. In addition to referencing documents produced during the FA government periods, the CM legitimized its policy actions through technical consultancies carried out during 2021 and 2022. The objectives of the work carried out focused on an evaluation of the regulations for the development of STI policies and activities and a characterization of actors and capacities with the aim of proposing a "reordering of the system".

The movements processed so far pursue the "rationalization of the institutional framework" through a premise of austerity and reduction of state participation. Based on the principle of "fiscal responsibility", the budget allocation for the STI was meager.

3. Conclusion

In general terms, during the FA governments there was a moderate increase in the budget allocated to STIP activities and some reorganization of the institutional system. However, within this framework of growth and the search to strengthen the role of state institutions in this policy arena, there was no implementation of adequate functions and capacities for state regulation and coordination. As mentioned above, coordination is a policy instrument and not an end in itself; promoting it presupposes high political support and an explicit objective. In this sense, public policy operations aimed at improving STI creation and use capabilities, including antitrust regulations, sectoral interventions and regulations related to intellectual property rights, were insufficient. The causes can be traced back to the scant attention paid to the dynamics of social and productive change and to the historical fragmentation of the institutional framework of the Uruguayan state.

In terms of regulation, there was no impact on the different markets, nor was a way of disseminating strategic information among actors and institutions consolidated. The series of reforms that took place in the institutional landscape did not manage to modify the characteristics of the Uruguayan State or transform it into a regulatory one. Specifically, about the regulation of the STIp, clear and practical definitions do not seem to have been established for users and producers, a virtuous scheme of complementarity with other policies was not established, nor was it possible to minimize costs and market distortions. Neither was the incorporation of R&D&i in sectors other than Higher Education stimulated. On the contrary, both the implementation of policies through the financing of international loans and the logic of promoting researchers entailed problems that deserve to be highlighted. Thus, it is worth asking what the level of involvement of multilateral organizations in the

transmission of international models is that should be applied in the country. At the same time, to what extent the fact of encouraging the financing of individual researchers in the NRS conditioned the formation of collective actors who "defended" the policy in the face of cutback scenarios.

Regarding inter-institutional coordination in the sector, an effective system was not consolidated in the terms theoretically defined and, on the contrary, discontinuity and institutional tensions were replicated. As mentioned above, coordination must be promoted and sustained politically with leadership and resources. While many of the coordination problems occurred between public actors, coordination with companies and other private actors was not smooth either. The coordination forums that were implemented lacked strategic continuity and the political weight to set action parameters for all the actors involved in this policy field. These spaces did not help to socialize information in general and did not build inter-sector agreements with the intention of mobilizing R&D&i capabilities. They did not allow the establishment and consolidation of communication channels and spaces for negotiation between government and business, trade union, academic or civil society sectors on the permanence of specific policies and regulations.

Finally, a question that has to do with the effective capacities of the public actors of the Executive Branch to effectively set political objectives, to actors that have competencies and regulations that generate a framework of autonomy such that they can collide with those set by the political actors. In other words, can politics, as an activity, set objectives for STI without the agreement of the actors in the system, or must macro-level coordination bodies be created to bring about change? In a global context where States are being questioned in terms of their capacities, what kind of strategies should be implemented to build policies aimed at sustainable development in which STICs play a leading role?

Despite the ideological differences that may characterize the periods of governments analyzed, they have all avoided general discussions on development models and have reinforced the absence of leadership on STIp, appealing to the value *per se* of innovation and their disruptive market capacities. In the immediate term, this

discussion implies transcending, or at least temporarily neglecting, the political and economic discourse that assimilates fiscal responsibility with austerity in social investment, which must necessarily involve R&D&i.

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