Hernán Thomas, María Belén Albornoz and Facundo Picabea (2015)
Políticas Tecnológicas y Tecnologías Políticas: Dinámicas de Inclusión, Desarrollo e Innovación en América Latina
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In recent years in Latin America, debates regarding the relation between Science, Technology and Innovation (STI) policies and the endogenous development process have taken a significant role in the public policy scenario. In this context, different governmental actors and institutions have advanced to place it on the public sphere.

In order to investigate this issue, Hernán Thomas, María Belén Albornoz, and Facundo Picabea work with a set of articles on the public policies for technological development. Even if the research articles show a spatial and temporal heterogeneity, they found a common ground in the use of theoretical tools from the sociotechnical background, partly adapted to the Latin American context by Hernán Thomas.

In the book, the articles are organized around three axes: (1) innovation processes and their relation to knowledge production, (2) social and technological change and the articulation of public policy, and (3) technological policies and their artefactual and social impact on public health, education and renewable energies. Through this diversity, the authors are able to depict the centrality of technological policies in the development process.

In the first axis, Mariano Fessoli, Adrian Smith, Hernán Thomas and Gabriela Bortz (15) analyze three types of alternative innovation movements (Appropriate Technology, Alternative Technologies, and Social Technologies). Even though these experiences have presented a few problems and decline, they foster learning that could influence mainstream policies. Above all, this movement can contribute to concepts around the social inclusion dynamics and enrich this debate.

The second axis presents different research, both in the space and temporal dimension, but discusses the role of the government (in the representation of the State) in the construction of technological solutions to public problems and their specific regulations. Particularly, it investigates access to automobiles

in Argentina in the 1950's (67) and to broadband internet service in Ecuador and Colombia in the past decade (111).

In the first research, Facundo Picabea and Alberto Lalouf propose to address the sociotechnical dynamics around the manufacturing process of the first Argentinian car (85), called *Rastrojero*. From a set of socioeconomic problems associated with an external restriction scenery, the central government made a set of decisions influenced by a nationalistic ideology that leads to building different sociotechnical alliances allowing manufacture of this and other types of automobiles and motorcycles.

This research is useful to investigate the centrality of the government in the decision-making process regarding technological policies and its relation to the national development process. Although this does not derive from a large car manufacturing dynamic, it allows gathering a set of relevant industrial actors and developing capabilities regarding knowledge-intensive technologies.

On the other hand, María Belén Albornoz and Javier Jiménez try to relate the construction of the sociotechnical trajectories to the public policies associated with the implementation of the broadband Internet service in Ecuador and Colombia. Even though both countries are located in the same geographical region, the development of this service shows entirely different sociotechnical styles, which indicates the relevance of the redistribution and access process made possible by government intervention.

In the case of Ecuador, they agree that implementation has to take place in terms of infrastructure and access by the population. In Colombia's case, the public policy has to favor the service quality, setting aside issues regarding the universality of access. However, in both cases, the role of users is ignored, and the private sector has a significant role in the construction of the sociotechnical alliances.

The last axis – and the most important as to the number of works – addresses a set of experiences with regard to the application of technological policies in public health (147), education (207) and renewable energies (241). These three experiences have as a common denominator the impulse of public policy in sectors deemed strategic by the central governments. Moreover, they are deeply related to the social inclusion process.

In the first case, Lucas Becerra and Guillermo Santos analyze the trajectory of the Public Drug Production (PPM, in its Spanish acronym) laboratories in the city of Buenos Aires, Argentina. Even though the PPM experience presents a set of limitations, it has also fostered learning and provided capabilities. Associated with the Research and Development (R&D) drug production process, these allowed not only the debate around the meanings

of drug production, but also around the generation of national, regional and local R&D dynamics.

The educational experience, analyzed by Javier Jiménez, Mónica Bustamante and María Belén Albornoz, focuses on the distribution of computer devices in the schools of the city of Quito, in Ecuador. This experience, driven by the local government, is part of a one-laptop-per-child policy developed around the globe. The project started in 2002 and immediately presents a set of limitations, as in other regions of the world, mainly associated with the deterministic conceptions made by the policy makers, who traced a linear relation between the use of computers and an improvement of educational quality.

The last research, carried out by Santiago Garrido and Paula Juarez, analyzes a set of experiences that try to develop renewable energy in association with the social inclusion process. All of the experiences have several limitations concerning the implementation process. These problems derive from a public policy design that ignores the role of users and other socially relevant groups for the works of this kind of technology. Moreover, this problem reveals the need to make sociotechnical alliances with users and social organizations in order to make them work.

These six papers allow us to observe the complexity of the construction of the relationship between technology and policies. The results of the investigations indicate the need to have a significant planning process for technological policies. Using concepts from the sociotechnical analysis in the design and formulation of the policies would allow for a better implementation process. Moreover, the use of these tools grow in importance as we make reference to a social inclusion process.

As proven by the different experiences of the book, the deterministic conception that ignores users and their role in the process of technological policy construction could lead to unexpected results, where the objectives are hard to achieve, and a social exclusion dynamics can probably be generated. However, the findings of these experiences show that although a technological policy cannot be successfully implemented, it could greatly contribute to learning and generate capabilities for future experiences.

This work is mostly based on the limitations posed as governments try to implement technological policies at the Latin American level, which leads to a disregard of a vast body of public policy experiences with successful implementation. In this context, this analysis of such heterogeneous experiences – both temporally and

geographically – proves useful for the readers who wish to begin to understand the Latin American context of STI policies.