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Policy mixes against oil dependence: Resource nationalism, layering and contradictions in Ecuador's energy transition

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ABSTRACT

Most recent research on energy policy is interested in how policy mixes —the combination of instruments to attend a policy problem— can explain policy outcomes. This policy design framework is utilized here to explain and avoid possible implementation gaps in oil-rich countries engaged in the low-carbon energy transition. Ecuador is used as an typical case for a ten-year policy which headed at a post-oil era after three decades of oil dependence but failed eventually. A causal mechanism linking the adoption of policy aims with the implementation gap is tested against a typology of expected empirical observations based on policy instruments. The main findings indicate how the adoption of contradictory policy aims produces institutional change by layering, which helps actors resisting the policy change to influence the incumbent, eventually undermining the political interplays and the policy outcome.

1. Introduction: policy mixes and causal mechanisms in the low-carbon energy transition

Recent research on energy policy underlines the importance of "policy mixes" —the combination of instruments to attend a policy problem— in the energy transition [1]. This approach advocates for a "conscious policy design" [2] by underlining the complementarity of programs —such as energy efficiency, technological change, circular economy, etc.— that share a common final goal [3,4]. Not only does it call scholars´ and practitioners´ attention on how instruments constituency is key to fulfill the energy policy objectives [5,6], but it also pinpoints the institutional effects of policy instruments on consistency and coherence [7].

This shift from resource endowment to decision-making brings out new elements to the political economy of energy transition in oil and gas producing countries, hence providing for a renewed explanation of policy outcomes and implementation gaps. To reverse the path dependence of oil-endowment and "escape the resource curse" [8], governments have been advised to cancel or to postpone natural resource exploitation until domestic institutions are strong enough to deal with boom and bust cycles [9]. Yet expecting governments to make such a decision might be a vain wish since institutional change is a wicked problem for natural resource endowed countries: existing institutions can help or constrain governments to control for exogenous factors such as oil price shocks, but these factors affect existing institutions [10]. Such endogeneity has dramatic implications for policy design and fails to reverse long-lasting effects of path dependence, for instance when institutional change is implemented by "layering" [11,12]. Institutional change by layering, as opposed to drift, displacement and replacement, is a process by which new aims and means are added to the existing ones, hence creating an overcrowded institutional system increasing the risk of incoherent policies (for a full taxonomy, see [13]).

In most Latin American and Caribbean (LAC) oil and gas producing countries, energy policy is driven by the will to secure State control over natural resources, in order to maximize the government-take in rents and to finance development. These are the core attributes of "resource nationalism" [14–16], which is the dominant regional pattern. Even though governments would rather implement liberal policies in Colombia, Peru, and Trinity and Tobago to attract foreign direct investments and increase their proven reserves, they make intensive use of natural resource rents to finance development. In Mexico, the petroleum sector has been controlled by the State since the 1938 Constitution and the creation of PEMEX *(Petróleos de México)*. This monopoly was only partially reversed in 2015, by the opening of the upstream to private investments. During the past two decades, resource nationalism has even included the nationalization and expropriation of foreign assets in Bolivia, Venezuela, Ecuador and Argentina. In Brazil, it has provided protection to local national oil companies combined with

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the controlled intervention of private actors. [17,18].

Regardless of the degree of State control over the petroleum sector, almost all of these countries fall far behind the low-carbon energy transition (see Appendix Table B4), the exception being Brazil, where the first important program of biofuels was launched in the 1960's, at a time when this country's energy sector was in crisis [19]. Renewables energy sources (RES) hardly reach 18% of total primary energy supply (TPES) in Peru, and even remain below 10% everywhere else. They are below 20% of total energy production (TEP) in all but one country (Colombia), where they reach 23%. These performances contrast with Chile's, a net oil and gas importer like Brazil and Argentina, where RES reach 27% of TPES and 75% of TEP [20].

Why would the energy transition be hindered by resource nationalism? This paper argues that the attributes of resource nationalism —resources nationalization, rent-seeking and state-driven development— are contradictory with the ultimate goals of the energy transition because they do not allow to reverse the path dependence of resource endowment. A necessary but non-sufficient condition to achieve these goals is for a government to renounce progressively using oil and gas rents for development.

Ecuador is a typical case of resource nationalism hindering the energy transition because of a lack of consistency between the aims and means of the policy. Immediately after his election in 2006, President Correa announced his will to achieve post-oil transition, a major challenge considering this country's economy had been driven by oil rents for over three decades. The new energy policy would consider massive investments in hydropower infrastructures, the construction of a new petrochemical complex to export refined products rather than crude oil, and a ban on the exploitation of the Ishpingo, Tiputini and Tambococha oilfields (ITT), also known as "The Yasuni-ITT Initiative" [21]. Yet after ten years the results of this policy look deceptive. In 2013 the government gave up the Yasuni-ITT Initiative and had the National Assembly declare ITT of national interest, in order to push forward the oil extraction from the Amazon. The ambitious call for a structural change in the energy mix ended in an incremental raise of hydropower in TEP, and the pattern of energy consumption remained unchanged.

To assess this lack of consistency and explain how it produced an implementation gap, the research design was based on a critical realistic approach of process tracing, combining dualism and trans-factualism [22]. This means a causal explanation of a policy outcome exists (dualism) and this explanation can be found in detected but non-directly observable phenomenons (trans-factualism). Such a critical realistic approach had two implications for the research. Theoretically, the causal mechanism —hereby defined as *"a system of interlocking parts"* (A–C) transmitting causal forces from a trigger (T) to an outcome (O) [23]— consists in a pattern of interplays between institutions and actors that can explain implementation gaps in certain contexts, rather than a law-like theory of implementation gaps. Methodologically the constitutive parts of the causal mechanism are not intervening variables but entities engaging in activities. Hence the causal mechanism relies on a deterministic inference and it does not provide a predictive model. Policy instruments were utilized as expected empirical observations (or fingerprints) of the causal mechanism, following a Bayesian logic as explained in Section 3.

The remaining part of the paper is organized as follows. Section 2 describes the analytical framework of the research. It includes a discussion about the relationship between policy design and implementation gaps. Then it proceeds with the theorization of a causal mechanism of implementation gap in the energy transition. Section 3 explains the method used to support the hypothesis. It includes a description of the expected empirical observations based on the energy policy mix. Then it explains the rationale of the Bayesian formalization based on hoop tests. Section 4 presents the research results and analyzes them for each part of the causal mechanism. It describes the collected evidence, then proceeds with the Bayesian formalization and point-by-point comparison with the hypothesis. Section 5 draws some conclusions on policy mixes in energy transition and further research on the low-carbon energy transition in oil-rich countries.

2. A policy design framework

2.1. Policy design and implementation gap

Research on implementation gaps started with Aaron Wildavsky's interest in explaining failures in the policy process and the differences between what was expected by a government and policy outcomes and outputs. His work with Jeffrey Pressman focused on decisions effectiveness, in particular during the implementation phase, although later on Wildavsky would also write on policy evaluation. In their study of a failed economic development project in Oakland, California, Pressman and Wildavsky underlined the complexity of collective action in the gap between policy formulation and implementation [24]. After this ground-breaking study, research on implementation would feed into an impressive body of literature focusing on decision course, unexpected policy outcomes and implementation gaps (for a state of the art, see [25–27]).

This research made at least three fundamental contributions to policy analysis. First, it showed that a government deals with multi-layered processes, since multiple stakeholders are involved at different levels in local and national agencies, State and social organizations, as well as private and public companies. Second, it brought about a central argument of the pluralist theory regarding the diversity of perspectives and objectives, underlining the incidence of community power in a Project's cost and the control of social content by the central administration. Third, the Oakland case showed that not all actors assign the same importance, necessity or urgency to a policy program, when they can choose among competing offers, and not everyone expects to benefit likewise from this program.

The role of implementation structures in top-down and bottom-up policy styles [28,29] became key to disentangle the complex relationship between policy design and implementation gaps [30]. This framework provided a middle-range theory of policy change, according to which the scope of the collective action and a decision's degree of abstraction define three levels of policy aims and means [31,32]. At a macro level, general preferences and principles adopted by a government may be assimilated to long-term goals to be fulfilled by the overarching institutional design and the governance mode. At a meso level, specific ideas and principles define medium-term goals which lead to combine specific instruments in a policy mix. At a micro level, technical objectives and preferences defined by the administration allow for the adjustment or calibration of these policy instruments to short-term variations in context.

This theory combines the institutional approach of policy paradigms[1] [33] with a taxonomy of policy instruments based on the State's resources of nodality, authority, treasure and organization [34]. Nodality instruments can be assimilated to the use of information by a government, either as a detector (to inform a decision) or as an effector (to inform on a decision) [35]. Authority includes formal rules expressed in the political Constitution, laws and regulations. Treasure instruments are financing sources and public spending related to the policy at stake. Organization refers to State and non-State agencies involved in the design, implementation and evaluation of this policy [34,36].

[1] In his comparative study of the neoliberal turn of UK and French economic policies, Peter Hall [40] states that a policy paradigm change, coined as "third-order change", consists in adopting a new definition of the policy problem which frames the agenda-setting, the formulation and the implementation. Unlike first- and second-order changes (referring to changes in aims and means), third-order change are not the product of social learning but rather of the multiplication of policy failures in the former paradigm (or normal policy).