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Ecuador's climate targets: A credible entry point to a low-carbon economy?

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ABSTRACT

Long-term credibility is a central pillar of climate policy. This paper assesses whether Ecuador's recently adopted climate targets, policies to decarbonize the power sector, and measures to reduce deforestation constitute a credible basis for a transformation towards a low-carbon economy. Based on the literature on the design of credible climate policy and expert interviews, we argue that even though Ecuador's existing policies may reduce emissions in the short term, they do not yet constitute an entry point for a long-term strategy of economic transformation. We then outline politically and institutionally feasible mitigation measures, which we evaluate from a dynamic policy sequencing perspective according to their potential to prepare the ground for more stringent measures to reduce emission in the future. These measures include inter alia reform of driving restrictions, public transport, vehicle efficiency standards, support for electric cars, and results-based payments to reduce land use emission. Such reforms will need to be phased in gradually and embedded in a broad fiscal reform package. To counter potential adverse distributional effects of higher energy prices, low-income groups could be protected by lowering other taxes, scaling up investment in education, and block-pricing schemes. Furthermore, increased participation of key stakeholders would likely reduce public opposition against energy- and climate-related policies, such as fossil fuel subsidy reform.

Introduction

Due to the long lifetimes of GHGs in the atmosphere and the inertia of energy capital stock, long-term credibility is crucial for the successful implementation of climate measures (Hovi et al., 2009). Policy credibility, understood as the expectation that existing measures will remain in place, or that additional measures will be adopted to meet targets announced by the government, has a strong influence on the economic behavior of non-government actors, e.g. regarding investment decisions (Nemet et al., 2017). For this reason, this study examines whether existing policies are appropriate to incite a long-term transformation of energy and land use patterns.

In 2008, Ecuador became the first country globally to adopt a constitution that includes inalienable rights of nature (Art. 71) (Asamblea Constituyente, 2008). The constitution also recognizes the government's responsibility to adopt measures to mitigate climate change (Art. 440). These targets are reflected in the national development plan ('Plan Nacional para el Buen Vivir') for the period 2013–2017, which includes environmental sustainability (objective 7) as well as restructuring economic activity towards decreased dependence on extractive industries and achieving higher shares of renewable energy (objective 10) as important cornerstones for inclusive socio-economic development (Secretaría Nacional de Planificacíon y Desarollo, 2013). A pronounced concern for environmental integrity can also be deduced from the most recent World Values Survey (2014), where more than 23% of Ecuadorians named environmental pollution as the 'most serious problem of the world' (compared to less than 6% in Chile and Brazil, roughly 9% in Argentina, and about 18% in Peru).

This perspective seems to be confirmed by the fact that Ecuador's 'Intended Nationally Determined Contribution' (INDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) specifies emission reduction targets with respect to a business-as-usual (BAU) projection (Government of Ecuador, 2015a). The INDC is based on the national climate change strategy (Government of Ecuador, 2012) and climate change plan (Government of Ecuador, 2015b) (details on policies are presented in the Energy and climate policies section).

One of the key findings of this paper is that current climate measures might be sufficient to achieve emission reductions in the short- and mid-term, especially in view of economic growth rates well below those projected. However, large-scale decarbonization is likely to be obstructed by rapidly growing emissions from oil consumption in the transport sector, where gasoline and diesel are still heavily subsidized. Based on expert interviews and document analysis, we argue that the

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credibility of efforts to reform these fossil fuel subsidies is undermined by institutional and political barriers, such as the inability to provide compensation for adverse distributional effects and lacking involvement of key stakeholders. We also identify politically and institutionally feasible mitigation options and evaluate these options according to their potential to support economic transformation strategies.

Research design and relation to previous studies

The central research question addressed by this paper is whether Ecuador's climate targets constitute a credible basis for a long-term strategy of economic transformation. Our analysis is based on 14 expert interviews carried out in Quito in April and May 2016 and complemented by an analysis of official documents. As the interviewed experts covered a broad spectrum, ranging from experts for electricity markets to public finance specialists, we deliberately refrained from using a standardized questionnaire and decided to resort to semi-structured interviews instead. Our interviews included experts from key ministries (environment, agriculture, and finance), implementing agencies (Servicio de Rentas Internas, Secretaría Nacional de Planificación y Desarrollo, Instituto Nacional de Energías Renovables), national and international NGOs (Grupo Faro, Centro de Planificación y Estudio Social, Friedrich-Ebert-Stiftung) and bi- as well as multilaral donors (United Nations Development Program and Gesellschaft für Internationale Zusammenarbeit) (see Appendix A for a list of interview partners and Appendix B for an example of interview questions).

The theoretical foundation of this study lies in current advances in the understanding of credibility issues in climate policy formulation. Helm et al. (2003) demonstrate that multiple policy objectives, irreversible energy investments, and the possibility to renege on ex-ante commitments can make announced policies time-inconsistent. That is, even though policy makers have set future targets, they have an incentive to deviate from their plan and impose less stringent policies, for instance as a reaction to strategic underinvestment into abatement technologies by firms who anticipate the government's reaction. Brunner et al. (2012) discuss how legislation of a long term governance framework, delegation to independent authorities, and securitization (i.e. creating financial commitments vis-à-vis investors) can enhance the credibility of long-term climate policies. Aldy (2014) emphasizes the importance of policy surveillance and shows how increasing transparency can strengthen participation in and compliance with international climate agreements.

For the analysis of Ecuador's climate targets, we rely on the framework proposed by Nemet et al. (2017). Based on insights from various policy areas (such as monetary, fiscal and trade policy), this framework identifies four key elements of credible climate policy: the design of rules, transparency and trust, political economy and compensation, as well as robustness (see the Assessing the credibility of Ecuador's climate policy section for details). This paper hence contributes to a fast-growing literature on the political economy of climate policy (Helm, 2010; Lachapelle and Paterson, 2013; Fankhauser et al., 2015). In particular, our analysis of factors that undermine the long-term credibility of Ecuador's climate targets is closely related to contributions assessing political and institutional barriers to climate policy implementation (Unruh, 2000; Staub-Kaminski et al., 2014), and our assessment of feasible mitigation policies that might pave the way for more ambitious future targets is conducted from the perspective of the literature on policy sequencing (Meckling et al., 2015). Focusing on the credibility of real-world policies, our analysis applies insights from the theoretical literature on credibility and commitment to assess the role of political and institutional factors for the feasibility of climate policy in Ecuador.

In terms of regional coverage, Latin America has received comparatively little attention in the literature on climate change mitigation so far. Most studies deal with the largest economies in the region, especially Brazil (Lucena et al., 2016; Octaviano et al., 2016), Mexico (Veysey et al., 2016; Rosas-Flores et al., 2017) and Chile (García Benavente, 2016; Sanhueza and de Guevara, 2014). Existing literature on Ecuador has mostly focused on the proposal to leave oil reserves located in the Yasuní national park unexploited in exchange for compensatory payments from the international community (Finer et al., 2009; Rival, 2010; Vallejo et al., 2015). A notable exception is Escribano (2013), who shows how Ecuador's energy policy aims to achieve contradictory environmental and development targets. In a similar vein, Finer et al. (2008) examine the impacts of oil and gas exploitation on biodiversity and indigenous communities in the Western Amazon, and Bozigar et al. (2016) analyze the effects of oil extraction on indigenous livelihoods in the Northern Ecuadorian Amazon.

To our knowledge, our study is the first to address the political economy of Ecuador's energy policies from the perspective of climate change mitigation. As Ecuador is a comparatively small emitter, accounting for only 0.3% of global GHG emissions, national climate change mitigation policies will have rather minor direct effects on the global climate. Nevertheless, Latin America is frequently regarded as a 'bell-weather' for reconciling socio-economic with environmental goals. Hence, successful steps towards low-carbon development in Latin America could provide a motivation for other regions to strengthen their climate policies (Edwards and Roberts, 2015). In addition, understanding the political impediments for the achievement of long-term climate targets, and how these impediments can be overcome, can yield important insights to inform policy design in other countries (Steinberg, 2015).

Socio-economic development, energy use, and emissions

This section first provides a brief overview of current socio-economic developments in Ecuador. It then discusses the structure and development of the country's energy use patterns and GHG emissions.

Socio-economic situation

Ecuador has a population of slightly above 16 mn. Since 2001 its official currency is the US$, which was adopted after a serious banking crisis in the late 1990s had resulted in inflation rates of more than 50% (Jácome, 2004). Living conditions have persistently improved throughout the past two decades. For instance, life expectancy increased from 71 years in 1995 to about 76 years in 2015, while during this period infant mortality declined from 35 to 18 per 1,000 live births, and the share of people living below the poverty line of US$ 1.90 per day (at year 2011 PPP US$) declined from almost 14% to less than 4% (see Table 1). However, economic inequality remains an important concern. Even though it has persistently declined, the Gini index still exceeds 45, and more than 35% of national income accrues to the richest 10% of the population, whereas the poorest 10% only receive 1.7%. In addition, even though access to electricity is almost universal, more than 13% of the population does not have access to a clean water source, and more than 15% lacks access to decent sanitation facilities.

Table 1
Selected socio-economic indicators for Ecuador for the period 1995–2015.*: Value for 2014.
Source: World Bank (2016).

	1995	2000	2005	2010	2015
GDP/cap (constant 2010 US$)	3847.5	3678.9	4286.5	4657.3	5366.5
GDP/cap PPP (constant 2011 international US$)	7726.2	7387.6	8607.8	9352.3	10,776.6
GDP growth (%)	2.3	1.1	5.3	3.5	0.2
Poverty ($1.90/day, 2011 PPP) (%)	13.8	28.2	13.6	7.1	3.8*
Life expectancy (years)	71.2	72.9	74.1	75.0	75.9*
Infant Mortality (per 1000)	35.2	28.4	24.3	21.3	18.4
Income share highest 10%	40.0	45.9	42.6	38.4	35.2*
Income share lowest 10%	1.0	0.9	0.9	1.4	1.7*
GINI index	51.0	56.4	54.1	49.3	45.4*
Access electricity (%)	–	94.0	–	97.0	–
Access sanitation (%)	63.5	69.7	75.3	80.7	84.7
Access water (%)	76.8	79.7	82.3	84.9	86.9