PB Red Sur N° 3 | 2025
With support from

Just Climate Transition and Fiscal Risks in Latin America: An Uncomfortable Relationship

Miguel Galindo
Universidad Nacional Autónoma de México
UNAM

About this Policy Brief

This Policy Brief was produced by the South American Network on Applied Economics / Red Sur with the aid of a grant from the International Development Research Centre, Ottawa, Canada, as part of the project: "Elevating and connecting research from Latin America and Africa to inform the G20 and COP30: public debt, care, and climate change", between 2024 and 2025, under Project Pillar 2: 'Fiscal risks and opportunities in a just climate transition'.

Introduction

Climate change is an obstacle to development due to its far-reaching impacts on economic activities, social welfare, the environment, and the magnitude of resources required for adaptation and mitigation processes. To avoid the worst climate scenarios, the Paris Climate Change Agreement targets a temperature rise between 1.5° C and 2° C for this century. Achieving these temperature targets requires building a global net-zero carbon economy between 2050 and 2070 (United Nations, 2015).

Therefore, climate change involves both physical and climate transition risks that pose significant challenges for a Just Climate Transition.

Physical risks are represented, for example, in terms of welfare, health, Gross Domestic Product (GDP) losses, or reduced possibilities for economic growth on a global scale. These impacts reduce fiscal revenue and generate additional pressures for public emergency expenditures. Climate transition risks are related to policy, technological, market, and reputation risks that correspond to changes in production and consumption patterns and public policies. Climate transition leads to an accelerated depreciation or loss of assets in carbon-intensive activities (stranded assets), which has economic and social consequences on all economic structure. For example, climate transition risks result in the closure of certain activities, such as the fossil fuel sector (oil and gas). The closure of these intensive carbon activities will have major repercussions for the financial sector and public finances due to a significant reduction in fiscal revenues from taxes and royalties from these activities.

Additionally, the climate transition requires increasing public investment in infrastructure which leads to more fiscal pressures.

In this sense, fiscal policy is subject to significant potential physical and climate transition risks. It is, therefore, impossible to achieve a Just Climate Transition without a proper fiscal risk administration.

This policy brief analyzes the main physical and climate transition risks for the fiscal policy for Latin American countries. This analysis contributes to developing a proper and efficient risk administration.

Physical Risks

Climate change is a development obstacle that has negative effects on a range of economic activities, with some possibly non-linear negative and irreversible effects that are more intense in poor or warmer regions or countries, impacting their capacity for long-term economic growth. Climate change negatively affects multiple productive activities (agricultural, industrial, and services), energy and water demand, and poverty. It increases inequality, has significant consequences on health, stimulates migratory flows, and affects ecosystems and biodiversity (Dell et al., 2014). Furthermore, in Latin America, there is evidence that climate change has caused a considerable increase in the frequency of extreme weather events, which have significantly affected potential economic growth rates (Delgado et al., 2021).

There are multiple estimates of the impacts of climate change on either the output level or the output growth rate. These impacts of climate change on the long-term growth rate are particularly relevant insofar as they condition long-term growth prospects. For example, Dell et al. (2014) estimate that a temperature increase of 1^{o} C would result in a 1% - 2% reduction in growth rates in poor countries.

The physical risks of climate change impact public finances through **losses in fiscal revenues** due to the fall in GDP and the decline in potential growth rates. This especially affects activities that account for a significant proportion of tax revenues and resources from royalties from extractive activities and natural resources. In addition, the physical risks of climate change lead, directly or indirectly, to **increases in public spending** to finance mitigation and adaptation processes and to deal with the emergencies (productive or social) caused by extreme weather events.

These physical climate change risks are expressed through increases in fiscal deficits. It is estimated that in Latin American and Caribbean countries, extreme climate effects cause a reduction in public revenues of between 0.8% and 1.1% of GDP in lower-middle-income and low-income countries, respectively, with a limited effect in terms of increases in public spending. As a result of these effects, the increase in the fiscal deficit would be equivalent to 0.8% of GDP for lower-middle-income countries and 0.9% of GDP for countries in the low-income group (Delgado et al., 2021). These authors also estimate that between 2001 and 2019, extreme weather events in the region had an annual fiscal deficit impact averaging between 0.2% and 0.3% of GDP, which represents about 10% of the average fiscal deficits observed in the region's countries (2.6% of GDP).

Climate Transition Risks

The Paris Agreement on climate change targets a global temperature increase between 1.5º C and 2º C for this century and this requires that the global economy become carbon neutral between 2050 and 2070 (IPCC, 2018).

A climate transition to a carbon-neutral economy implies:

- The core of the deep decarbonization process requires generating electricity from renewable energy sources and that all economic activities, transportation, and households will be electrified (IEA, 2021; IPCC, 2018). This implies the termination, or a significant reduction, of the production and use of fossil fuels. For example, IEA (2021), assumes deep decarbonization scenarios with no additional investment in oil and gas production, a drastic reduction in the demand for fossil fuels, and that 60% to 90% of electricity generation should come from renewable energy by 2050 (IPCC, 2018).
- The transport sector requires a 95% reduction in emissions by 2050 (20% by 2030) (IEA, 2021; IPCC, 2018) due, for example, to an increase in the sale of new hybrid or electric cars. These will come to represent between 50% and 60% of new car sales between 2030 and 2035, in reference to 5% in 2020, and practically the total number of cars sold from 2035 onwards. Thus, electric cars will represent 20% of the cars in circulation in 2030 and 60% in 2040 (IEA, 2021).
- The agricultural sector needs to stabilize or even reduce the expansion of the agricultural frontier, increase productivity, and modify consumption patterns (IPCC, 2018).
- Most of the constructions and buildings should be carbon neutral by 2050 (IPCC, 2018).

The accelerated transition to a carbon-neutral economy between 2050 and 2070 presents several risks that are concentrated in (NGFS, 2021):

- **Changes in public policies** (i.e. carbon price).
- **Technological obsoleteness**, caused by the introduction of innovations that make current production processes incompatible with certain goods and services as a result of companies' greater commitment to environmental sustainability.
- **Changes in market conditions** associated with changes in consumer habits or preferences towards products and services with lower carbon content (greener or more sustainable).
- The **growing importance of reputational considerations** is driven by consumer perceptions that certain consumption is unsustainable - or carbon-intensive - and therefore incompatible with carbon neutrality.

Public Finance and Climate Change Risks

Physical and climate transition risks have important consequences for Latin America's fiscal and public debt conditions. Depending on the specific characteristics of the countries' production and consumption patterns and fiscal and budgetary structures, this affects fiscal policy and public debt management to varying degrees.

In general, these physical and climate transition risks lead to a reduction in tax revenues and increases in public spending:

1. Fiscal losses caused by the physical impacts of climate change on all economic activities, social welfare, the environment, and ecosystems. This risk results in tax revenue losses and, in some cases, higher public spending requirements.

This situation leads to increases in fiscal deficits and public debt, evident in extreme climate events (Delgado et al., 2021).

2. Reduction of fiscal revenues (tax and non-tax) due to the configuration of a wide variety of "stranded assets" in productive activities with high carbon content. This risk is stronger in oil and gas production activities. Current global hydrocarbon production projections are inconsistent with the Paris Climate Change Agreement. They would lead by 2030 to CO2e emissions that are more than double those committed to reaching the 1.5°C temperature increase target. McGlade and Ekins (2015) estimate that 39% of oil reserves, 53% of natural gas reserves, and 51% of coal reserves will become "stranded assets." For some of the region's countries, these risks would, therefore, represent a significant loss of oil revenues, fiscal resources, and exports.

Climate transition scenarios indicate that by 2035, oil production in Latin America will be reduced to less than 4 million barrels per day, representing approximately 60% less oil production compared to pre-Covid pandemic levels (Solano-Rodriguez et al., 2019). This process could be particularly challenging for countries with oil exports and fiscal revenues derived from fossil fuels (Delgado et al., 2021). Estimates, which oscillate as a consequence of international oil price swings, indicate that public revenues from oil and gas exploitation represented between 2008 and 2013 on average 8.3% of public revenues in Bolivia, 8.0% in Ecuador, 6.6% in Trinidad and Tobago, 5.4% in Mexico and 2.5% in Colombia. In addition, in 2017, oil accounted for 98% of export revenues in the Bolivarian Republic of Venezuela (Delgado et al., 2021). In a significant number of countries in the region, this reduction in fiscal revenues particularly affects sub-national governments with important fiscal resources from royalties generated by carbon-intensive activities. Therefore, climate transition implies a significant loss of fiscal revenues for some countries.

This reduction of fiscal revenue must be compensated to avoid an imbalance in the fiscal deficit and a disproportionate increase in debt as a proportion of GDP.

3. Decrease in tax revenues from collecting selective taxes on the consumption of fossil fuels, vehicles, and other taxes on carbon-intensive goods and services. In all the region's countries, collecting excise taxes on fossil fuels, vehicles, and other carbon-intensive goods and services represents a significant percentage of tax revenues. Therefore, efforts to mitigate GHG emissions would significantly impact current tax collection levels. For example, tax revenue from IEPS on gasoline and diesel represented 1.6% of GDP in Mexico in 2019, 0.74% of GDP in Argentina in 2020, and close to 1% of GDP in Chile in 2014. Vehicle tax revenue in Mexico stood at 0.07% of GDP in 2018, which is 2.4 times lower than the OECD average, and for Argentina at 0.26% of GDP in 2020. With an environmental tax on mobile sources, Chile collected 0.04% of GDP in 2017 (Galindo, L.M., 2024).

4. Expansion of public spending on fossil fuel consumption subsidies, the cost of which depends on international oil and gas prices. In several countries in the region, the increase in the international oil price may lead to an increase in consumption subsidies. For example, the current fossil fuel subsidy in Latin America is estimated to be around USD 46 million (Coady et al., 2019). The amount of fossil fuel subsidies in the region is estimated to average about 1% of GDP in Latin American countries. However, in some countries, the fiscal cost of policies is considerably higher (Delgado et al., 2021).

5. Increased public spending to promote a just climate transition. Recent estimates for countries in the region indicate that meeting the challenges of climate change will require annual investments in infrastructure of between 2% and 8% of GDP, most likely 5% of GDP, and the financing of social protection systems to ensure the population's access to basic benefits would require between 2% and 5% of GDP, with significant differences by country. Thus, a just climate transition involves, up to 2030, an annual expenditure of at least 5% to 7% of GDP (Galindo et al., 2022). Part of this expenditure is already being carried out.

Therefore, climate change represents significant fiscal risks. Table 1 presents a summary of these (qualitative) effects. In all cases, without specific actions to increase fiscal resources or reduce (redirect) public spending, fiscal risks imply higher primary deficits and increases in public indebtedness, which may threaten the financial sustainability of public debt.

In this sense, the transformation of the fiscal policy is a fundamental component of the climate transition. Without this transformation, fiscal policy might not be able to contribute to the climate transition. moreover, it will be an obstacle to this climate transition.

Table 4. Summary of the expected impact of climate risks on public finance

	Physical risks	***Stranded assets***	***Selective consumption***	***Subsidies to fossil***	***Just climate***
Tax collection	(-)	(-)	(-)	n.c.	n.c.
Non-tax revenues (royalties, operating fees, etc.)	(-)	(-)	n.c.	n.c.	n.c.
Current expense	n.c.	n.c.	n.c.	(+)	(+)
Capital Expenditures	n.c.	n.c.	n.c.	n.c.	(+)
Primary fiscal result	(-)	(-)	(-)	(-)	(-)
Public indebtedness	(+)	(+)	(+)	(+)	(+)

Source: Authors' elaboration

Conclusions and Recommendations

Climate change risks induce significant fiscal risks. In this sense, it is important that Latin American countries change fiscal and budgetary priorities, consistent with climate change, but also move towards a new institutional framework that establishes coherence among the policies applied and develops coordination and cooperation mechanisms, both among government agencies and in the relationship between the public sector and private actors.

These fiscal climate risks should be addressed to achieve a Just Climate Transition. This is possible when options such as proper risk administration, green fiscal reform, programs of debt for nature, and the instrumentation of regulations and new infrastructures consistent with the deep decarbonization process are considered. In fact, a Just Climate Transition is impossible without a solid fiscal climate policy.

The relevance that environmental and social sustainability dimensions are acquiring in the financial management of public indebtedness is leading to greater interest on the part of the Ministries of Finance (who will have to transform their fiscal and debt management tools and take on a more leading role in the development of transparent systems for programming, measuring, reporting and verification of the National Climate Change Policy), and of the Central Banks (who will have to incorporate environmental dimensions into their regulatory standards for local financial markets).

The benefits of the advance of sustainable finances are related to new conditions for access to sovereign financing. The current reality regarding fiscal policy and public debt management indicates that environmental and social sustainability should be considered simultaneously with the intertemporal sustainability of public finances. Countries could achieve intangible reputational benefits by adhering to international climate change efforts that should be added to the obvious financial advantages that would derive from the new financial practices.

However, the objectives set out in sustainable financing are relevant to consider. It should not be overlooked that public commitment to the sustainable development agenda is a necessary condition for the climate change mitigation and adaptation agenda to succeed and for progress towards the achievement of the SDGs.

This agenda should enter more forcefully into the decision-making processes of the private sector, which is called upon to proceed with very important transformations in its investment, production, and consumption patterns.

References

Coady, D., Parry, I., Le, N.-P., & Shang, B. (2019). *Global fossil fuel subsidies remain large: An update based on country level estimates* (IMF Working Paper No. 19/89). International Monetary Fund. https://doi.org/10.5089/9781484393178.001

Dell, M., Jones, B. F., & Olken, B. A. (2014). What do we learn from the weather? The new climate–economy literature. *Journal of Economic Literature, 52*(3), 740–798. https://doi.org/10.1257/jel.52.3.740

Delgado, R., Eguino, H., & Lopes Pereira, A. (2021). *Política fiscal y cambio climático: Experiencias recientes de los ministerios de finanzas de América Latina y el Caribe*. Inter-American Development Bank. https://doi.org/10.18235/0003376

Galindo, L.M. (2024). *Fiscal risks and opportunities in a just climate transition: a Latin American vision*, Red Sur PB T20/2024 TF02.

Galindo, L. M., Hoffman, B., & Vogt-Schilb, A. (2022). *¿Cuánto costará lograr los objetivos del cambio climático en América Latina y el Caribe?* (IDB Working Paper No. IDB-WP-01310). Inter-American Development Bank (IDB).

International Energy Agency. (2021). *Net zero by 2050: A roadmap for the global energy sector*. https://www.iea.org/reports/net-zero-by-2050

Intergovernmental Panel on Climate Change. (2018). *Global warming of 1.5°C: An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways*. https://www.ipcc.ch/sr15/

McGlade, C., & Ekins, P. (2015). The geographical distribution of fossil fuels unused when limiting global warming to 2°C. *Nature, 517*(7533), 187–190. https://doi.org/10.1038/nature14016

Network for Greening the Financial System. (2021). *NGFS climate scenarios for central banks and supervisors*. https://www.ngfs.net/ngfs-scenarios-portal/

Solano-Rodríguez, B., Pye, S., Pei-Hao, L., Ekins, P., Manzano, O., & Vogt-Schilb, A. (2019). *Implications for climate change targets on oil production and fiscal revenues in Latin America and the Caribbean*. Inter-American Development Bank.

United Nations. (2015). *Paris Agreement*. United Nations Treaty Collection. https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27