

SOCIALLY BALANCED CARBON PRICING IN LAC

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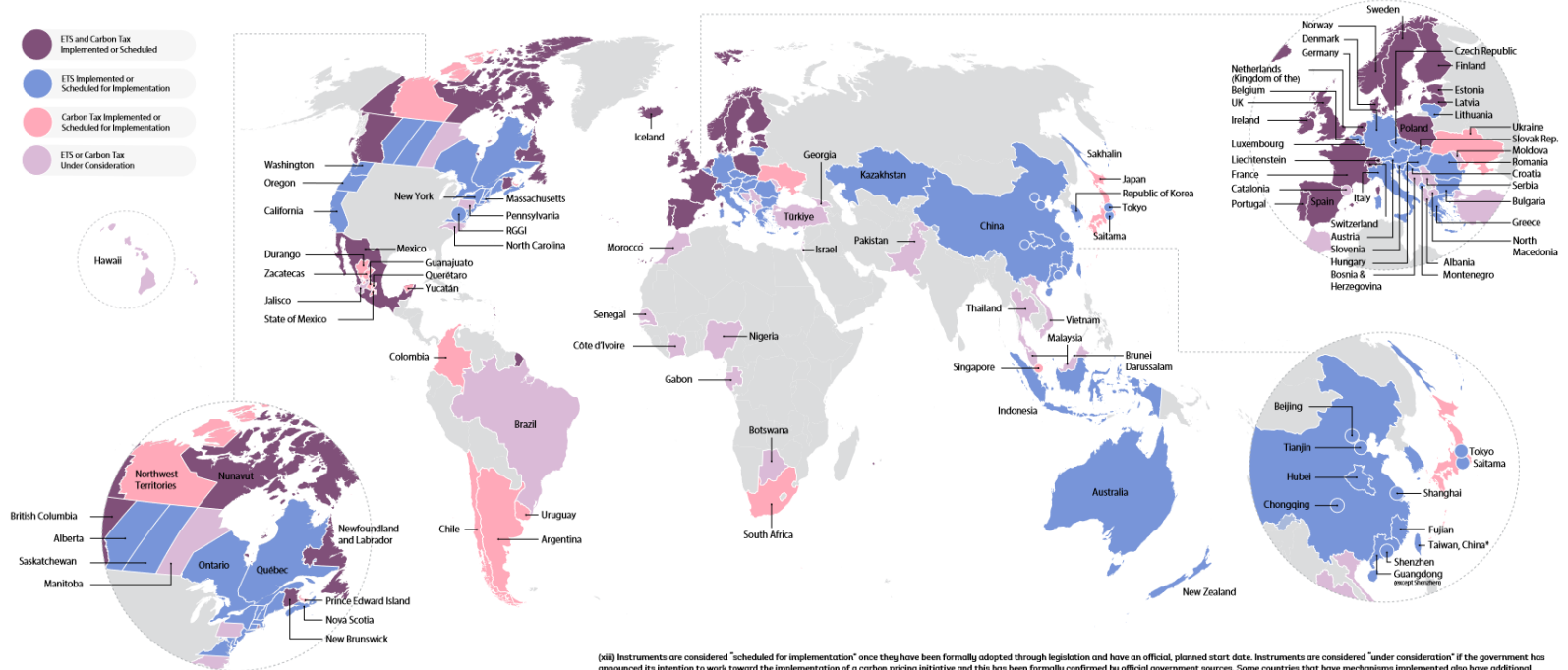
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>> INCREASING NUMBER OF COUNTRIES CONSIDER CARBON PRICING

WORLD BANK - STATE AND TRENDS OF CARBON PRICING 2023



(iii) Instruments are considered "scheduled for implementation" once they have been formally adopted through legislation and have an official, planned start date. Instruments are considered "under consideration" if the government has announced its intention to work toward the implementation of a carbon pricing initiative and this has been formally confirmed by official government sources. Some countries that have mechanisms implemented also have additional instruments under consideration. For subnational jurisdictions only the subnational instrument is reflected.

>> FUEL PRICE INCREASES ARE POLITICALLY SENSITIVE

Pakistan in uproar as protests over soaring energy prices turn violent

Traders close shops, electricity bills are set alight and utility firm staff are attacked as anger rises over living costs and political strife



An electricity bill is burned during a protest
Photograph: Shahzaib Akber/EPA

ALJAZEERA News - Israel-Gaza war Features Economy Opinion VI

Indigenous groups in Ecuador defy curfew to protest fuel hike

Indigenous groups are keeping up protests in most of Ecuador's provinces to demand a reduction of fuel prices and economic reforms.



Indigenous people kept up protests in most of the country's 24 provinces, including Imbabura, Cotacachi and Esmeraldas. Photo: Reuters

Protests over food and fuel surged in 2022 – the biggest were in Europe

Soaring energy prices are driving the current wave of street protests, in contrast to a decade ago when food prices were to blame, say researchers.



REUTERS World Business Markets Sun

Protests across Indonesia mounts over fuel price increase

By Stanley Widianto

September 6, 2022 4:06 PM GMT+7 Updated a year ago



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News

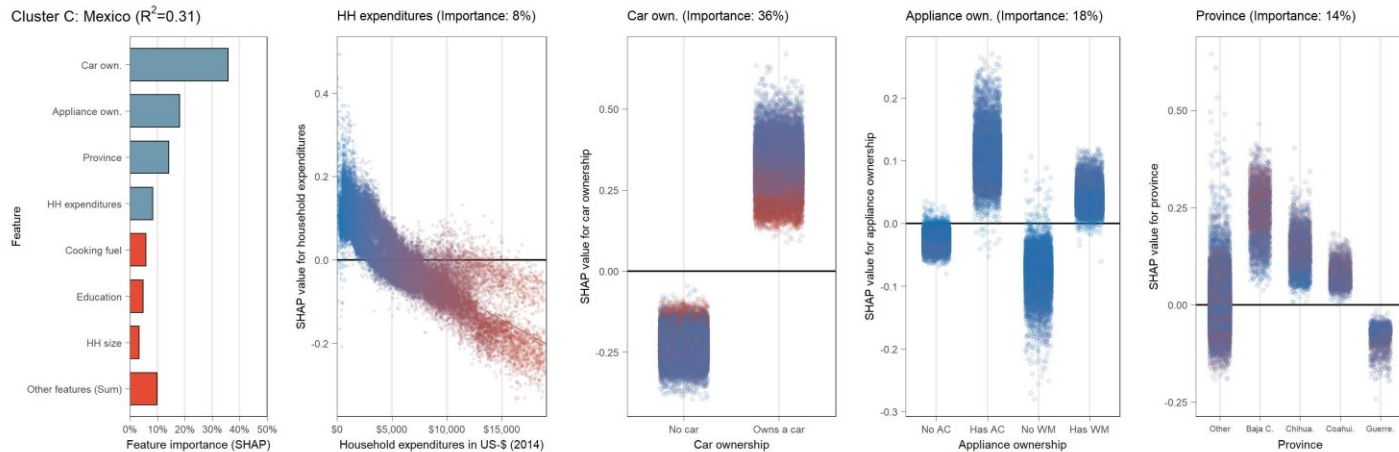
Nigeria's labour unions call indefinite strike over cost of living

Unions have announced a strike beginning on October 3 after President Bola Tinubu scrapped a decades-old subsidy on fuel.

>> WHO IS AFFECTED DEPENDS ON COUNTRY SPECIFICS

Vertical differences between poorest and richest households miss a large part of the heterogeneity.

Whether specific households are affected depends on their specific consumption patterns, e.g. do they own a car? How do they heat? Where do they live? etc. ...



Source: Missbach & Steckel (in prep)

>> THREE DIMENSIONS OF DISTRIBUTIONAL EFFECTS

Segment of Population	Criterion	Dimension of Distribution	Guiding questions
The Lower-Income Groups	Distributional effects	Vertical Distribution	What cost falls on the poorest members of society?
Hardship Cases	Personal effects	Horizontal Distribution	Which households face the highest additional costs? What is the cost to households which are most important to political decision makers?*
Hardly Accessible	Procedural aspects + use of revenues	Possibility of receiving transfers from government	Which households could be compensated given institutional set-up?

*: Assumption: Additional costs matter to households and correlate with political support.

>> HOW TO USE REVENUES FROM CARBON PRICING?



Equal cash transfers and distributional effects



Targeted cash transfers and distributional effects



Green spending and “issue-linkage”



Tax cuts -income, labor, and consumption



Corporate tax cuts



Public finance

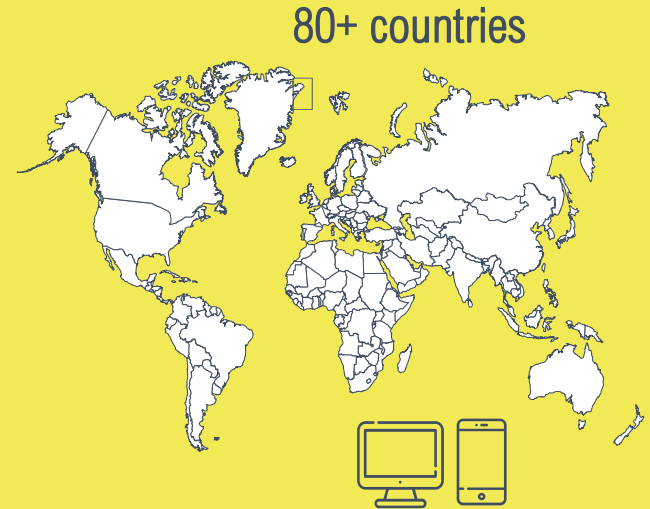
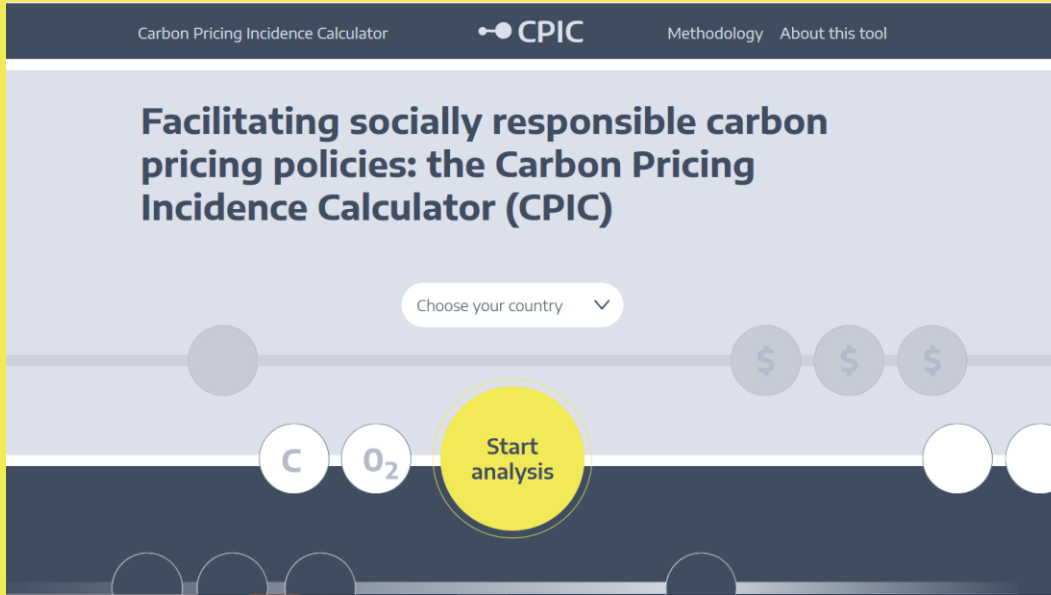
Table 1 | Recycling mechanisms ranked according to efficiency, equity and acceptability

Recycling mechanism	Efficiency	Equity	Acceptability	Accessibility
Labour tax (initial system non-optimal)	+	+	0	-
Labour tax (initial system optimal)	0	0	0	-
Capital/corporate tax (initial system non-optimal)	+	-	0	-
Capital/corporate tax (initial system optimal)	0	-	0	-
Directed transfers	0	+	+	?
Uniform transfers (initial system non-optimal)	0	+	+	?
Uniform transfers (initial system optimal)	+	+	+	?

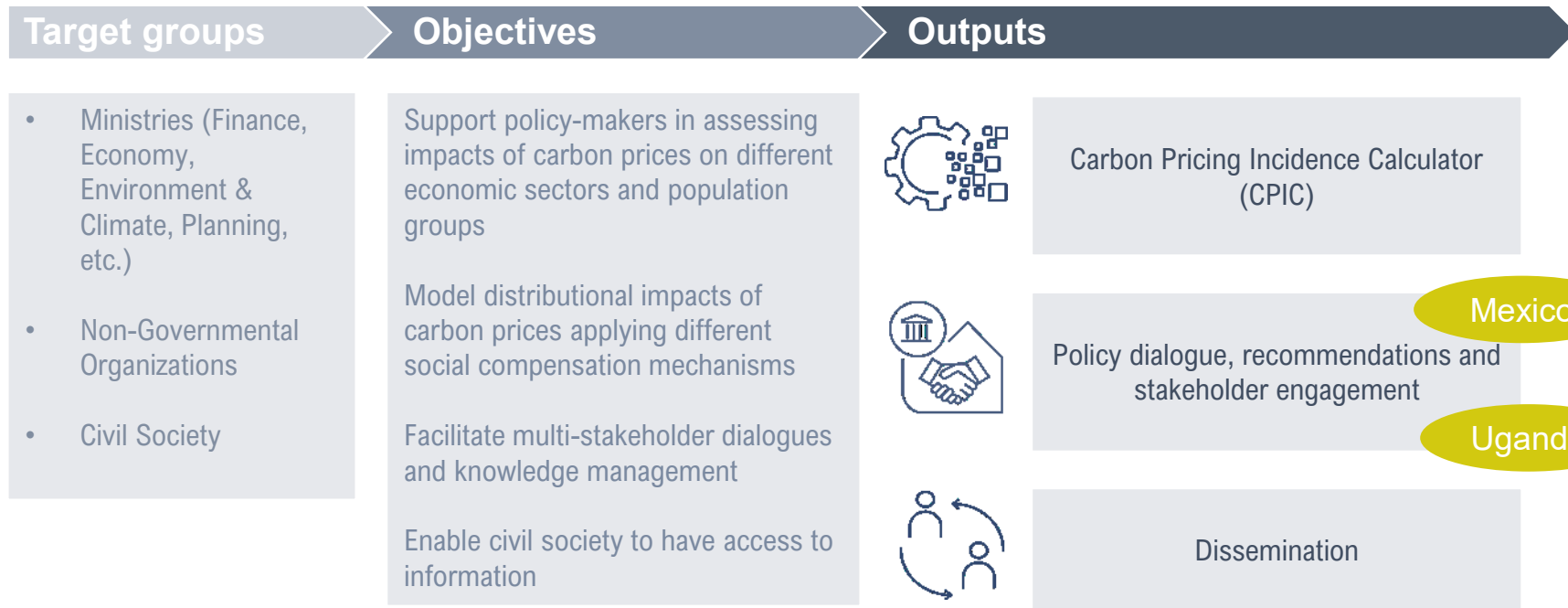
Equity and efficiency are determinants of acceptability, but the evaluation of acceptability focuses on the other factors that determine it. We use the definition of optimal as given in the section on public economics. Plus (+) and minus (-) signs indicate positive and negative evaluations, respectively, whereas 0 indicates a neutral evaluation.

Klenert et al. 2018

>> CARBON PRICING INCIDENCE CALCULATOR



>> PROJECT CONTEXT



Mexico

Uganda

>> METHODOLOGY AT A GLANCE

We use household data on around 1.5 million households from 87 countries

Households report on consumption expenditures, differentiated by consumption items

We use an Input-Output model to derive region- and sector-specific embedded CO₂-intensities

Next, we derive sectoral price increases resulting from a carbon price (e.g. MXN 735/tCO₂)

We compute the total additional relative costs

The diagram illustrates the methodology flow. An 'IO' (Input-Output) model box has arrows pointing to the 'Electricity' and 'Transport & Cooking' columns of the table. A second box, labeled '*MXN 735 / tCO₂', has arrows pointing to the '0.5 tCO₂', '1.2 tCO₂', and '0.1 tCO₂' rows of the table, representing the carbon price multiplier applied to the intensities.

Four household members, Jalisco, average income, no car, cooking with LPG,...				
Total yearly expenditures: MXN 120,000				
Electricity	Transport & Cooking	Vegetables	...	
MXN 3,200	MXN 5,000	MXN 2,500	...	
0.5 tCO ₂	1.2 tCO ₂	0.1 tCO ₂		
MXN 367.5	MXN 882	MXN 73.5	Σ	MEX 2,500
Share of total expenditures				2.10%

>> WE SIMULATE DIFFERENT CARBON PRICING POLICIES AND COMPENSATION OPTIONS

Carbon pricing policies	Coverage
National carbon price	Nationally released CO ₂ -emissions
Global carbon price	Internationally released CO ₂ -emissions (e.g. CBAM)
National carbon price in the electricity sector	Nationally released CO ₂ -emissions in the electricity sector
National carbon price on liquid fuels	Nationally released CO ₂ -emissions from liquid fuel combustion (e.g. for transport)

Compensation options	Intended use of revenues
Equal per capita transfer (lump sum)	
Equal per household transfer (lump sum)	
Electricity price subsidy	Compensation proportional to pre-tax electricity expenditures
Exempting electricity from carbon pricing	Differentiated carbon price in electricity sector
Reducing consumption taxes (e.g. VAT)	Compensation proportional to pre-tax total household expenditures

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World Development
Volume 173, January 2024, 105495

Cash transfers in the context of carbon pricing reforms in Latin America and the Caribbean

Leonard Missbach^{a,b}, Jan Christoph Steckel^{a,c}, Adrien Vogt-Schilb^d



IDB WORKING PAPER SERIES N° IDB-WP-01404

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Energy Policy
Volume 137, February 2020, 113120

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Filip Schaffrins^a, Michael Jakob^b, Rafael Serio^c, Adrien Vogt-Schilb^d, Houke Ward^{e,f,g}

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Socio-political challenges and policy options

Jan Christoph Steckel, Leonard Missbach, Nils Ohlendorf, Simon Feindt, Matthias Kalkuhl



World Development
Volume 115, March 2019, Pages 246-257

Poverty and distributional effects of carbon pricing in low- and middle-income countries – A global comparative analysis

Ira Irina Dorband^{a,b}, Michael Jakob^a, Matthias Kalkuhl^{a,c}, Jan Christoph Steckel^{a,b,d}



Optimal emissions pricing in LMIC accounting for household emissions from traditional cooking

Raavi Aggarwal^{1,2,3*}, Leonard Missbach^{1,3}, E. Somanathan^{2,4}, Jan Christoph Steckel^{1,5,6*} and Thomas Sterner⁷



Energy Policy
Volume 180, September 2023, 113672

Assessing distributional effects of carbon pricing in Israel

Leonard Missbach^{a,b}, Jan Christoph Steckel^{a,c}, Houke Ward^{a,d}

Analysis | Published: 23 September 2021

Distributional impacts of carbon pricing in developing Asia

Jan C. Steckel^a, Ira I. Dorband^a, Lorenzo Montrone^a, Houke Ward^a, Leonard Missbach^a, Fabian Hafner^a, Michael Jakob^a & Sebastian Renner^a

Nature Sustainability 4, 1005–1014 (2021) | [Cite this article](#)



World Development Sustainability
Volume 1, 2022, 100011

Double progressivity of infrastructure financing through carbon pricing – Insights from Nigeria

Ira Irina Dorband^{a,b,d}, Michael Jakob^{a,c}, Jan Christoph Steckel^{a,e}, Houke Ward^{a,f}

Duke Global Working Paper
Paper 38 • March 2021

Carbon Pricing and Household Welfare: Evidence from Uganda

Raavi Aggarwal, Sinem H. Ayhan, Michael Jakob and Jan Christoph Steckel

>> CASH TRANSFERS IN THE CONTEXT OF CARBON PRICING REFORMS IN LAC

World Development 173 (2024) 106-106



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World Development

journal homepage: www.elsevier.com/locate/worlddev



Cash transfers in the context of carbon pricing reforms in Latin America and the Caribbean

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ARTICLE INFO

JEL codes:

C67

H23

O54

Q52

Q54

Keywords:

Carbon pricing

Climate mitigation

Energy poverty

Social acceptability

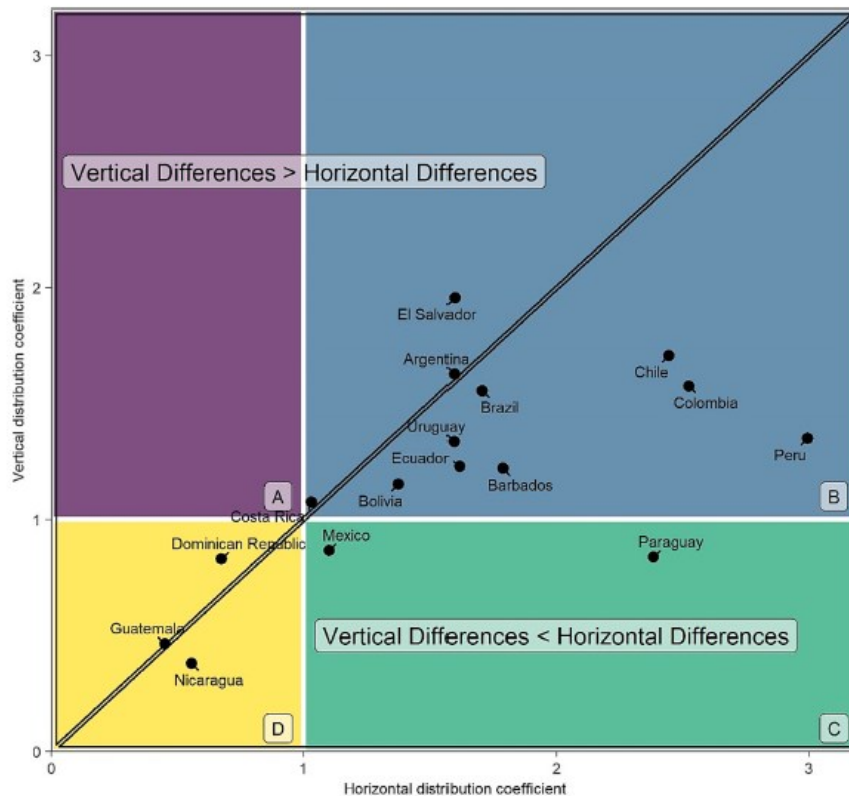
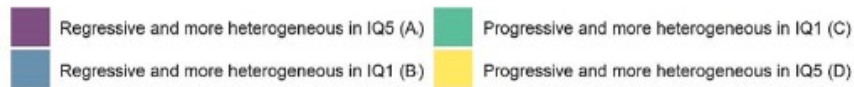
Tax incidence

ABSTRACT

One reason carbon prices are difficult to implement is that they might imply high additional costs on poor and vulnerable households. In response, studies often highlight that recycling revenues through cash transfers can render carbon pricing reforms progressive. This neglects that existing cash transfer programs target households from low-income groups imperfectly and that impacts of a carbon price are heterogeneous within income groups. In this study, we analyze if existing cash transfer programs can help to alleviate distributional effects of carbon pricing in 16 Latin American and Caribbean countries. We find that carbon pricing is regressive in 11 countries and progressive in 5. Most importantly, differences within income groups exceed differences between them. Beyond total household expenditures, car ownership and cooking fuel usage explain the variance in carbon pricing impacts. We show that households who are most affected by carbon pricing, some of them poor, do not necessarily have access to existing cash transfer programs. We suggest that governments aiming to compensate households should consider broadening the coverage of existing cash transfer programs, utilizing in-kind transfers or removing other distortionary taxes.

Can existing cash transfer programs help to alleviate distributional effects of carbon pricing in 16 Latin American and Caribbean countries?

>> SYSTEMATIC COMPARISON OF VERTICAL AND HORIZONTAL DISTRIBUTIONAL EFFECTS



>> AN INTEGRATIVE APPROACH FOR LAC COUNTRIES

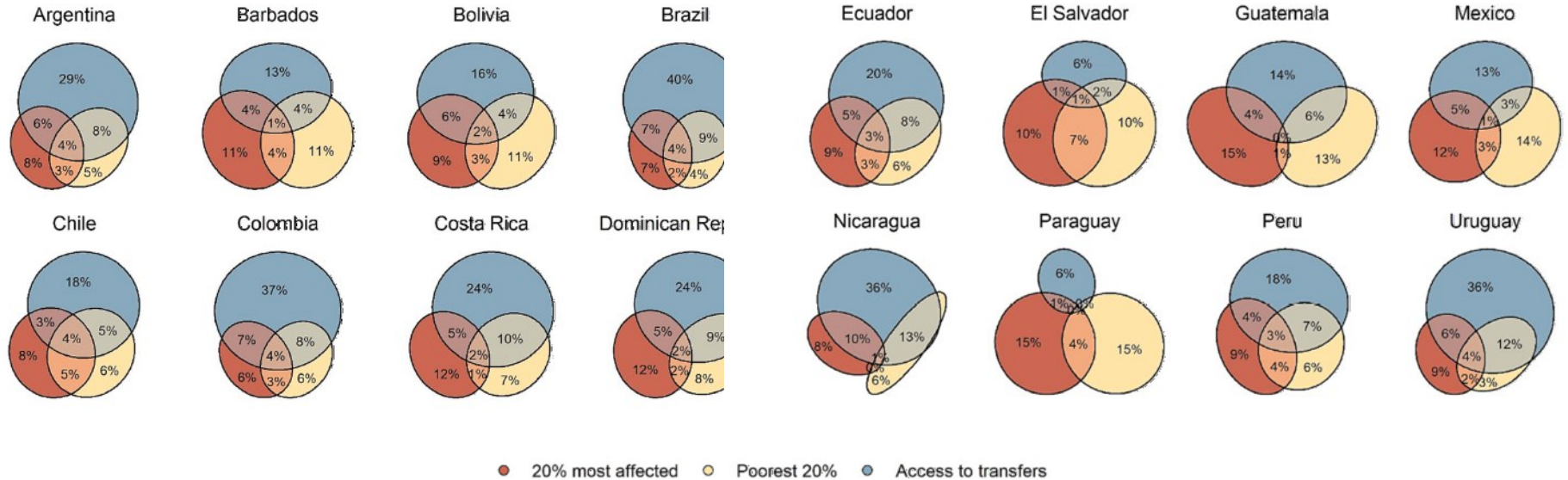


Fig. 4. Expecting high additional costs and having access to transfers Share of population in 16 different countries that can be characterized by at least one of the following criteria: a) facing higher additional costs to carbon pricing than 80 % of each country's population (20 % most affected, $HC_i^+ = 1$), b) being poorer than 80 % of each country's population (Poorest 20 %, i.e., expenditure quintile $j = 1$) and/or c) currently having access to governmental transfers, such as pensions, cash transfers, or stipends (Access to transfers, $GT_i^+ = 1$). Numbers express the share of total population in each sub-group. Differences to 20 % for '20 % most affected' and 'Poorest 20 %' because of rounding.

>> AN INTEGRATIVE APPROACH FOR LAC COUNTRIES

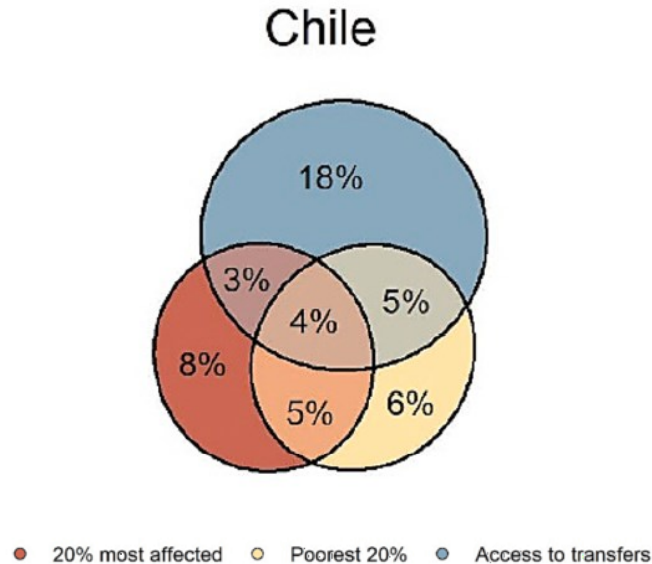


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>> STYLIZED CHANNELS TO COMPENSATE HOUSEHOLDS WITH HIGH INCIDENCE

Compensating those households for excessive costs which	Countries where this is relevant	Examples of instruments to be considered in further research	Compensating those households for excessive costs which	Countries where this is relevant	Examples of instruments to be considered in further research
... are relatively poor?	<ul style="list-style-type: none"> • Argentina • Bolivia • Brazil • Colombia • Chile • Ecuador 	<ul style="list-style-type: none"> • Lump-sum transfers • Expansion of coverage of existing transfer programs • Subsidies on subsistence consumption goods, such as food, water or housing • In-kind transfers (food, water, health goods and services) 	... use LPG?	<ul style="list-style-type: none"> • Mexico • Paraguay • Peru 	<ul style="list-style-type: none"> • Vouchers for LPG • Exemption of LPG from carbon price • Subsidies on electric cookstoves
... are relatively rich?	<ul style="list-style-type: none"> • Nicaragua 	<ul style="list-style-type: none"> • Reduction of labor or income taxes • Reduction of contributions to health insurance or contributions to pensions 	... live in rural/urban areas?	<ul style="list-style-type: none"> • Brazil • Uruguay 	<ul style="list-style-type: none"> • Provision of local public goods (health, education, water) • Setup of (geographically) targeted transfer programs
... own (and) use a car?	<ul style="list-style-type: none"> • Barbados • Brazil • Costa Rica • Dominican Republic • Ecuador • Guatemala • Mexico 	<ul style="list-style-type: none"> • Vouchers for transport fuels • Investments in public transport infrastructure • Subsidies on electric vehicles • Exemption of transport fuels from carbon price • Targeted compensation for car owners (and users), e.g., 	... use electricity?	<ul style="list-style-type: none"> • Bolivia • Guatemala 	<ul style="list-style-type: none"> • Subsidies on electricity prices for consumers • Introduction of block tariffs • Incentives for energy efficiency improvements
			... identify as ethnic minority?	<ul style="list-style-type: none"> • Nicaragua • Peru 	<ul style="list-style-type: none"> • Setup of targeted transfer programs
			... do not have access to established transfer programs?	<ul style="list-style-type: none"> • El Salvador • Guatemala • Paraguay 	<ul style="list-style-type: none"> • Expansion coverage of existing programs • Setup of targeted transfer programs

Contact



Find the Carbon Pricing
Incidence Calculator at
cpic-global.net

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