

Labour impact evaluation of climate change policies towards NDCs – The case of Argentina

Regional workshop on “Tools and methodologies for modelling and assessing the impacts of the implementation of response measures” for Latin America and Caribbean region

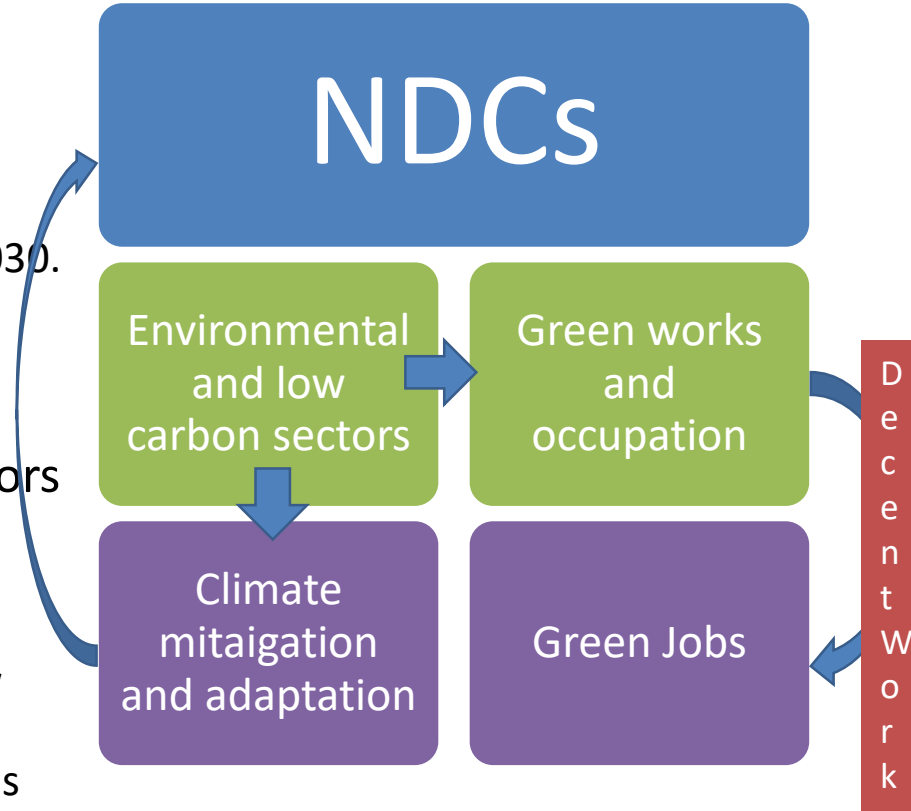
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NDCs Argentina

- 2017: National Plan on Climate Change (Cabinet of Ministers)
- 2019: Priorization of sectoral plans
- 2020: 2nd NDC: 359 MtCO₂eq at 2030.
- 2021: COP Glasgow – 349 MtCO₂eq at 2030.
- First time includes adaptation goals and green employment/ Just Transition perspective
- Actions from public policy towards sectors
 - Incentives for Enterprise adaptation and transformation of industries in selected sectors.
 - Incentives for new climate Smart and low carbon industries.
 - Climate mitigation and adaptation policies



NDCs Argentina

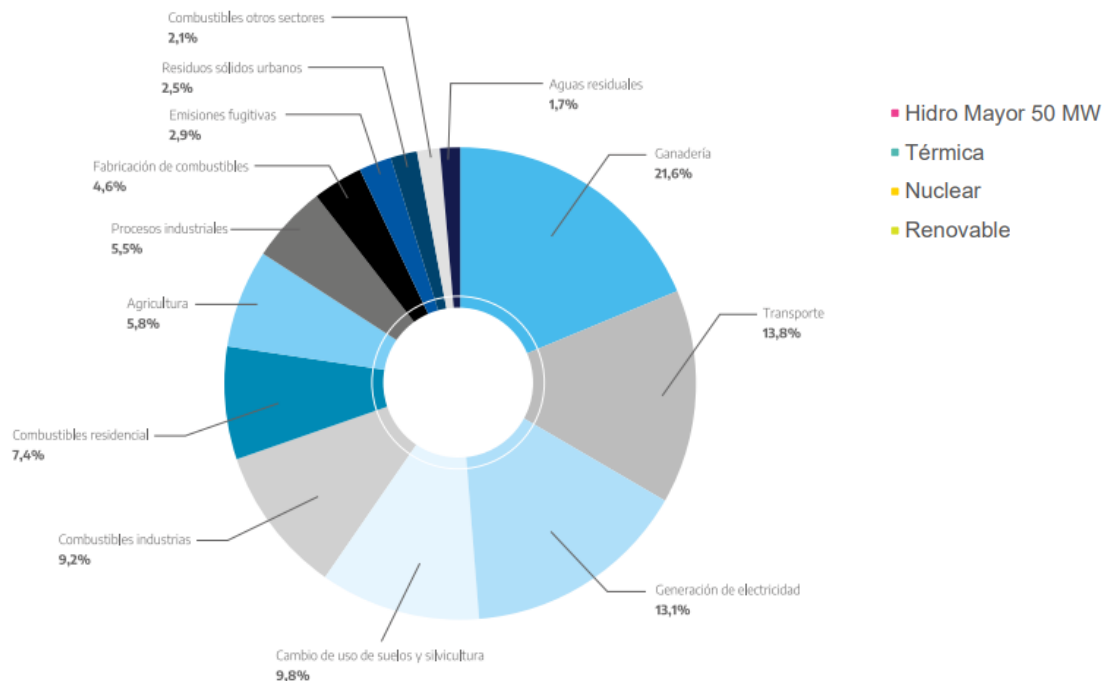
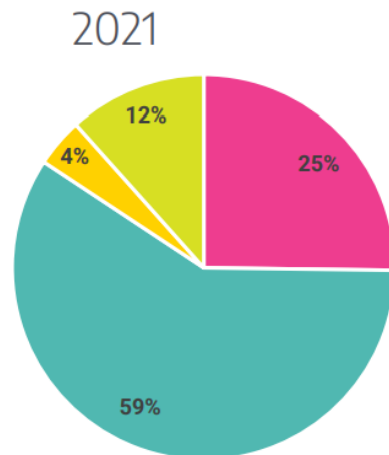
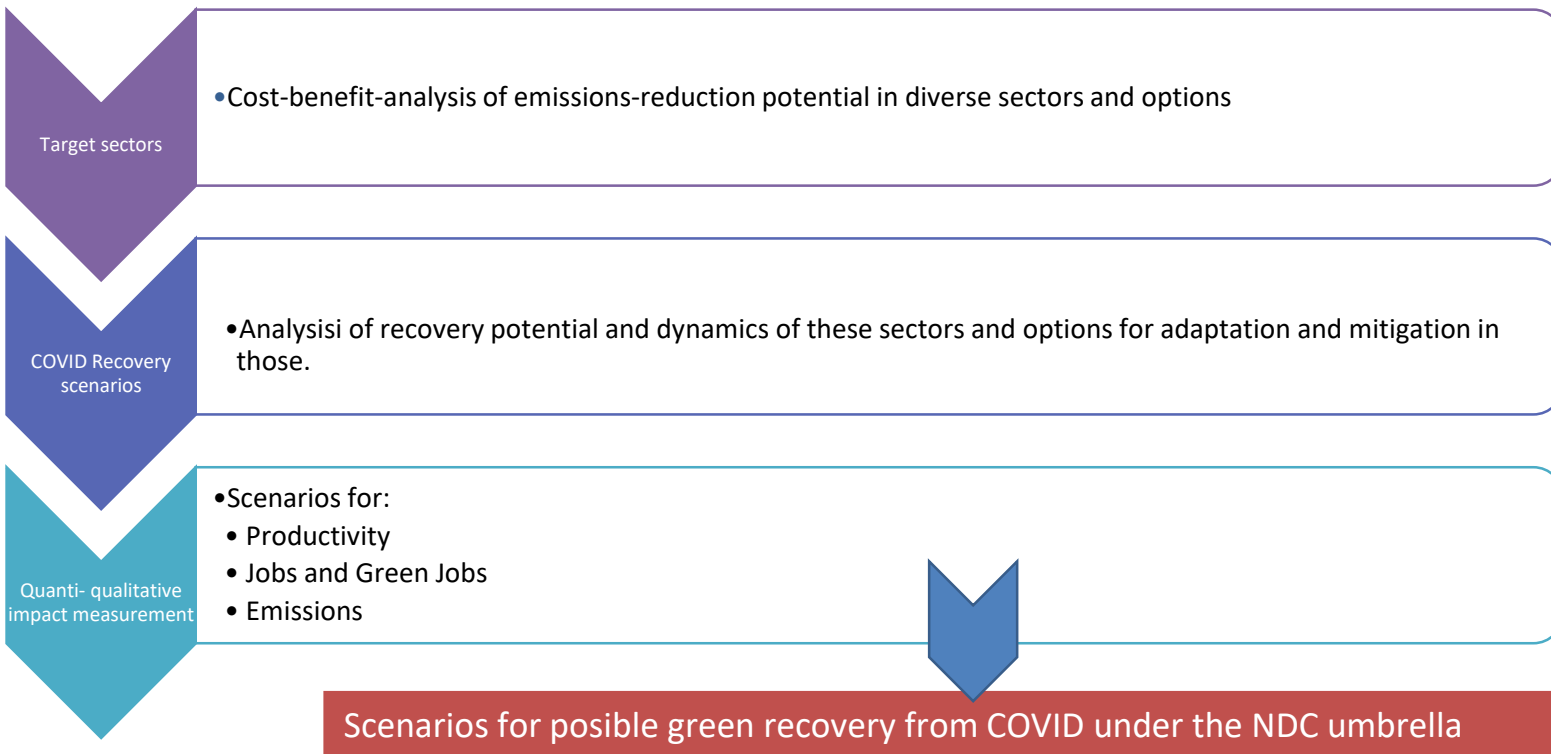


Figura 3. Emisiones de GEI por subsector (2016). Fuente: Tercer Informe Bial de Actualización de la República Argentina a la CMNUCC. SGyDS. 2019.

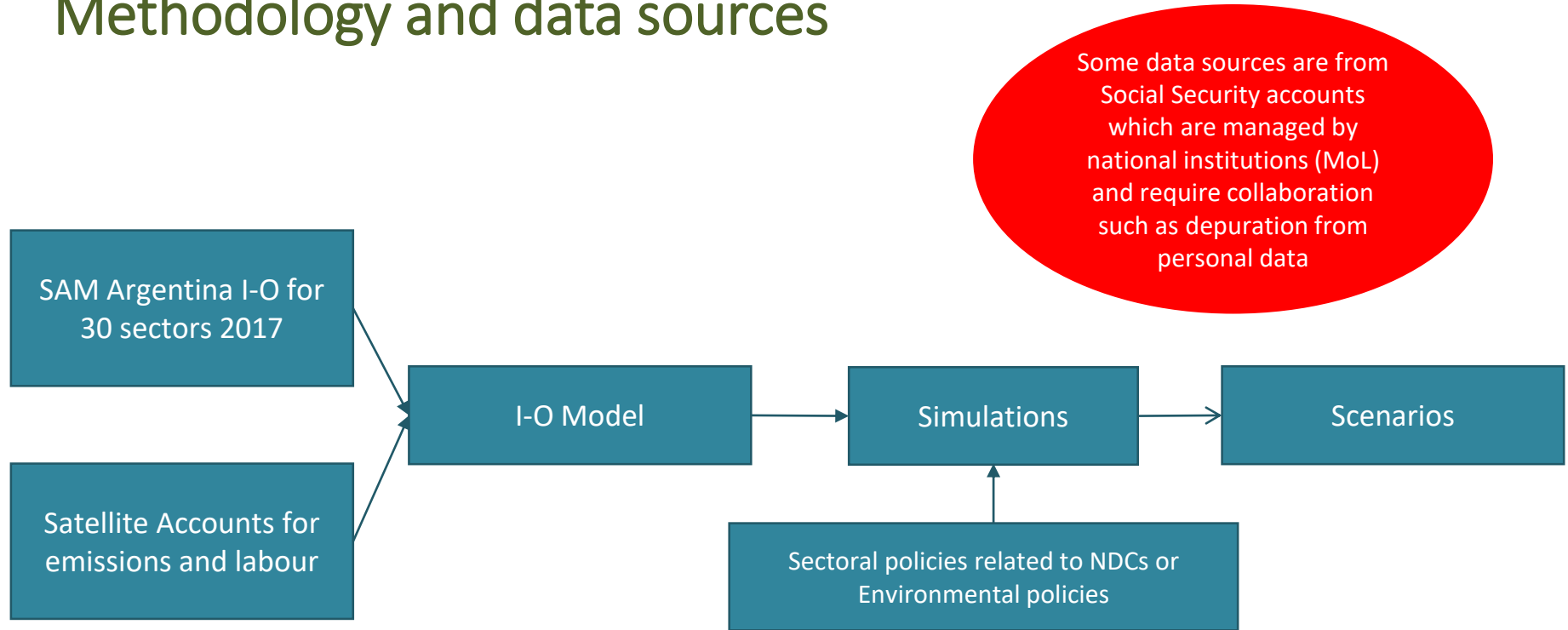


46. El Anexo Técnico REDD+ refiere a la reducción de las emisiones debidas a la deforestación y la degradación forestal en los países en desarrollo, a la función de conservación de los bosques, a su gestión sostenible, y al aumento de las reservas forestales de carbono en los países en desarrollo.

Structure of the labour impact analysis for the NDCs



Methodology and data sources



Satellite Accounts

Satellite accounts are auxiliary databases that allow computing calculations on additional variables to those found in the matrix. Two satellite accounts were used for this evaluation:

- GHG emissions: total emissions, by sector, by emission source and by type of gas.
- Employment: level of total employment, by sector, by categories (sex, age, occupational category, skills level).

Prioritized Sectors validated with Government partners, Employers and Workers representations

■ Agriculture

- Agriculture
- Livestock
- Forestation
- Fishery

■ Fuels

- Biofuels/Agrifuels
- Petrol/Refineries

■ Transport (Goods)

- Transport - road
- Other transport

■ Energy and Water supply

- Conventional electricity (coal and gas)
- Hidro- and nuclear power
- Renewables
- Distribution and efficiency

Examples: Climate Change Mitigación escenarios

Policies directed towards diminishing emissions in specific sectors or providing incentives for low carbon sectors

Description	Methodology	Involved Sectors
Increment Renewables in the nergy Matrix	Fixed coefficients and proyected demand	Energy (Renewables and conventional)
Increment proportion of biofuel within conventional fuels by law	Fixed coefficients and proyected demand	Biofuel and conventional refineries
Conversion of the transport sector (road) towards biodiesel or hibrid	Fixed coefficients and proyected demand	Transport, biofuel, oil refineries, fuel supply
Promotion of Forestry with regards to other LULUCF	Proyected demand	Forestry
Energy efficiency in high energy-demanding sectors	Fixed coefficients and proyected demand	Refineries, Biofuel, energy-intensive industries and extractive industries
Other complementary simulations related to technological change, efficiency in public sector, asf.	Fixed coefficients and proyected demand	Refineries, Biofuel, natural gas plants, public programs and public administrations, other

https://www.magyp.gob.ar/sitio/_pdf/plan_sectorial_cc.pdf

https://www.argentina.gob.ar/sites/default/files/plan_de_accion_nacional_de_energia_y_cc_2.pdf

Examples: Climate Adaptation scenarios

Policies aimed towards: climate adaptation projects and technologies or tending to develop capital and investment for mitigating impacts, risks and L&D.

Examples used for simulation:

- 1) Investment in Climate Smart Agriculture
- 2) Investment in infrastructure against floods
- 3) Urban reforestation and measures for reverting soil sealing
- 4) Investment in sanitary and human capital against climate related health risks

These kind of simulations need:

- Knowledge about the cost structures of the projects used as example/case
- Simulating a shock on all potentially involved sectors through at least a cluster or even value chain approach

Example for an Adaptation scenario

- Public Investment of 100 million argentine pesos (2017, about 10 million USD) nfor a solar energy park installing about 3100 KW.
- Simultated demand-shock for all involved sectors as well as emissions.calculations for all inputs (national or imported)

Sectores	Estructura de costos	Inversión (Δf^m)
Otras industrias manufactureras	0.7%	0.7
Servicios de construcción	9.5%	9.5
Actividades Inmobiliarias y empresariales	1.3%	1.3
Maquinaria y Equipo	81.1%	81.1
Productos de metal	7.5%	7.5
Servicios Financieros	0.0%	0.0
Total	100.0%	100

Baseline towards 2030

- 1,5% GDP growth achieving +16,1% cumulative variation 2020-2030 (INDEC, World Bank, IMF).
- The baseline estimates the following results in a non-intervention scenario:
 - 22.8 millón jobs
 - 408,53 MtCO₂eq

Examples of results and scenarios: Renewables

- This scenario estimates the effect of reaching 25% renewable energy in the energy mix by 2030 (commitment of 30% renewable energy by 2030 – Climate Summit 2021).
 - This scenario generates a positive effect on the level of employment and a decrease in emissions.
 - The decrease in emissions is mostly explained by the decrease in energy consumption and, mainly, a drop in CO2 emissions.

Renewables: Scenario for Productivity, Employment and Emissions

	ΔVBP	ΔL	ΔE
Directo	-227	-1,868	-12,0
Indirecto	-10 741	200	-14,15
Inducido	13 866	9 854	12
TOTAL	2 898	8 186	-14,00
$\Delta\%$ vs periodo inicial	0,02%	0,04%	-3,84%

Cummulated effect on general Economy



Aggregate effects on sectors



Sector	$\%\Delta VBP$	$\%\Delta L$	$\%\Delta E$
Agrícola, forestal e industrial	0,06%	0,07%	-0,03%
Energía, extracción, combustibles y electricidad	-1,27%	-2,05%	-13,81%
Industria y minería	0,06%	0,05%	0,04%
Transporte, servicio y equipos de transporte	0,04%	0,04%	0,04%
Infraestructura	0,10%	0,10%	0,10%
Comercio, restaurantes y hospedaje	0,05%	0,05%	0,04%
Servicios empresariales, financieros, inmobiliarios	0,17%	0,15%	0,11%
Educación y administración pública	0,02%	0,02%	0,00%
Salud, servicios sociales y comunitarios	0,06%	0,07%	0,07%
Total	0,02%	0,04%	-3,84%

Renewables – Employment

Concepto	ΔL	$\% \Delta L$
Mujeres	4 702	0,05%
Hombres	3 484	0,03%
≤ 24 años	2 277	0,05%
> 24	5 909	0,04%
Profesional	529	0,03%
Calificación técnica	1 247	0,03%
Calificación operativa	3 939	0,04%
No calificado	2 471	0,06%
Asalariado registrado	2 370	0,02%
Asalariado no registrado	2 682	0,06%
No asalariado	3 134	0,06%
Total	8 186	0,04%

Other Examples: Biofuel cut within conventional fuels

- Scenario simulates an increment of up to 16% biofuel content within conventional fuels at 2030
- This scenario generates a positive effect on the level of employment and a decrease in emissions.
 - The drop in emissions is mainly explained by the decrease in energy consumption followed by a drop in residential emissions.
 - Mainly, the drop in emissions is from CO₂ and, in a much smaller proportion, of CH₄.

Other Examples: Electric vehicles

- This scenario estimates the effect of technological change on the car industry. In particular, it analyzes the substitution of fossil fuel for electricity distribution.
- This scenario generates a slightly positive effect on the level of employment, but it forecasts mayor changes in value chain and therefore in the skills type and level as well as changes within the value chain (suppliers, mechanics and maintenance services, car industry).
 - However, emissions are slightly higher than the baseline.
 - This result of emissions is due to the fact that although the incorporation of electric cars reduces emissions since they burn less fuel and at the same time their production is reduced, fuel consumption for electricity generation is increased due to the current energy matrix based mainly on gas and fossile fuel. It is recommended to accompany electric cars with the incorporation of renewables into the system.

Complementary simulations

- **Distributed (non centralized) generation:** increase the installed capacity of distributed generation to 1,000 MW by 2030. This shock implies reaching 1.61% of the installed capacity in distributed generation by 2030.
- **Public Lighting:** decrease in electricity consumption by public lighting due to the replacement of the current luminaire with LED lamps. Said decrease represents approximately 3% of the energy consumption of the general government (general government includes the energy consumption of the public administration at the national, provincial and municipal levels).
- **Residential electric cars:** reach 5% of the electric residential vehicle fleet.
- **Residential CNG cars:** increase the number of CNG vehicles by 5 percentage points.
- **Residential Energy Efficiency:** efficiency improvements in residential energy consumption (fuels and electricity). According to ECLAC, efficiency improvements of 9% are expected by 2030.

General results matrix

SAM table of simulated climate change mitigation policies. Difference from baseline.

Concepto	ΔVBP	$\% \Delta VBP$	ΔL	$\% \Delta L$	ΔE	$\% \Delta E$
Renewables	-4,119	-0,02%	11,786	0,06%	-20	-5,37%
Biofuels cut	-71,386	-0,39%	21,039	0,10%	-14	-3,76%
Electric Vehicles	-9,335	-0,05%	23,084	0,11%	1	0,19%
Vehicles Biofuel	11,269	0,06%	12,814	0,06%	-4	-0,96%
Forestation and Reforestation	701	0,00%	775	0,00%	0	-0,07%
Energy Efficiency	13,203	0,07%	87,724	0,43%	-27	-7,35%
Decentralized Generation	-8,352	-0,05%	-4,11	-0,02%	-2	-0,50%
Public Lighting change	-230	0,00%	46	0,00%	0	-0,02%
Electric cars, private	-26,712	-0,14%	-9,52	-0,05%	-1	-0,15%
Cars, private, gas	-17,579	-0,09%	-5,258	-0,03%	-1	-0,14%
Energy Efficiency, private	-35,024	-0,19%	3,329	0,02%	-4	-1,18%
Total	-147,565	-0,80%	141,707	0,70%	-70	-19,3%

Results

- The scenario that yields the best result in terms of emissions is that of energy efficiency followed by renewable energies with reductions of 21.4 and 14 MtCO₂eq with respect to the baseline, respectively.
- In terms of employment, the biofuels and biodiesel vehicles scenarios are the ones that show the best results, with increases of 12,567 and 8,912 jobs with respect to the baseline.
- If all the scenarios were carried out together, emissions by 2030 would decrease by 50.9 MtCO₂eq with respect to the baseline. While employment would increase by 6,749 new positions with respect to the baseline

Thank You Very Much!

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