The effect of multinational enterprises on climate change

Supply chain emissions, green technology transfers, and corporate commitments.

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DRIVING SUSTAINABLE ECONOMIES

MNEs and Climate Change –
Key Questions, Framework, New Data and Policy Tools

- Objective: to analyze the dynamic relationship between MNEs and climate change:
  1. **What effect do MNEs currently have on climate change?**
  2. **How do MNEs shape the potential transfer of "green" technologies to domestic firms?**
  3. **How committed are leading MNEs currently to transition supply chains to net-zero emissions?**
  4. **What policies can influence multinational enterprises' effect on climate change?**

- Leveraging new datasets.
  - CDP GHG database, Climate Action 100+ , Orbis, WB Enterprise Survey's "Green Module"

- Introducing a new framework "(the 5P's") highlighting relevant policy tools.

MNEs bring both challenges and opportunities for climate change mitigation
Direct & Indirect effects via three channels

- The climate change literature often presents MNEs/FDI in binary terms:
  - **Pollution haven:** as a risk to shift emissions towards developing countries
  - **Pollution halo**: as opportunity for domestic firms to reduce emissions via cleaner technology
- *Yet,* MNEs brings challenges & opportunities for climate change via *three* channels:

Scale Effect	**Technology Effect**	**Composition Effect**
(Increased production = increased emissions)	(Change in production methods = reduce carbon intensity)	(Change in industrial structure = ambiguous effect on emissions)
(+)	**(-)**	**(+/-)**

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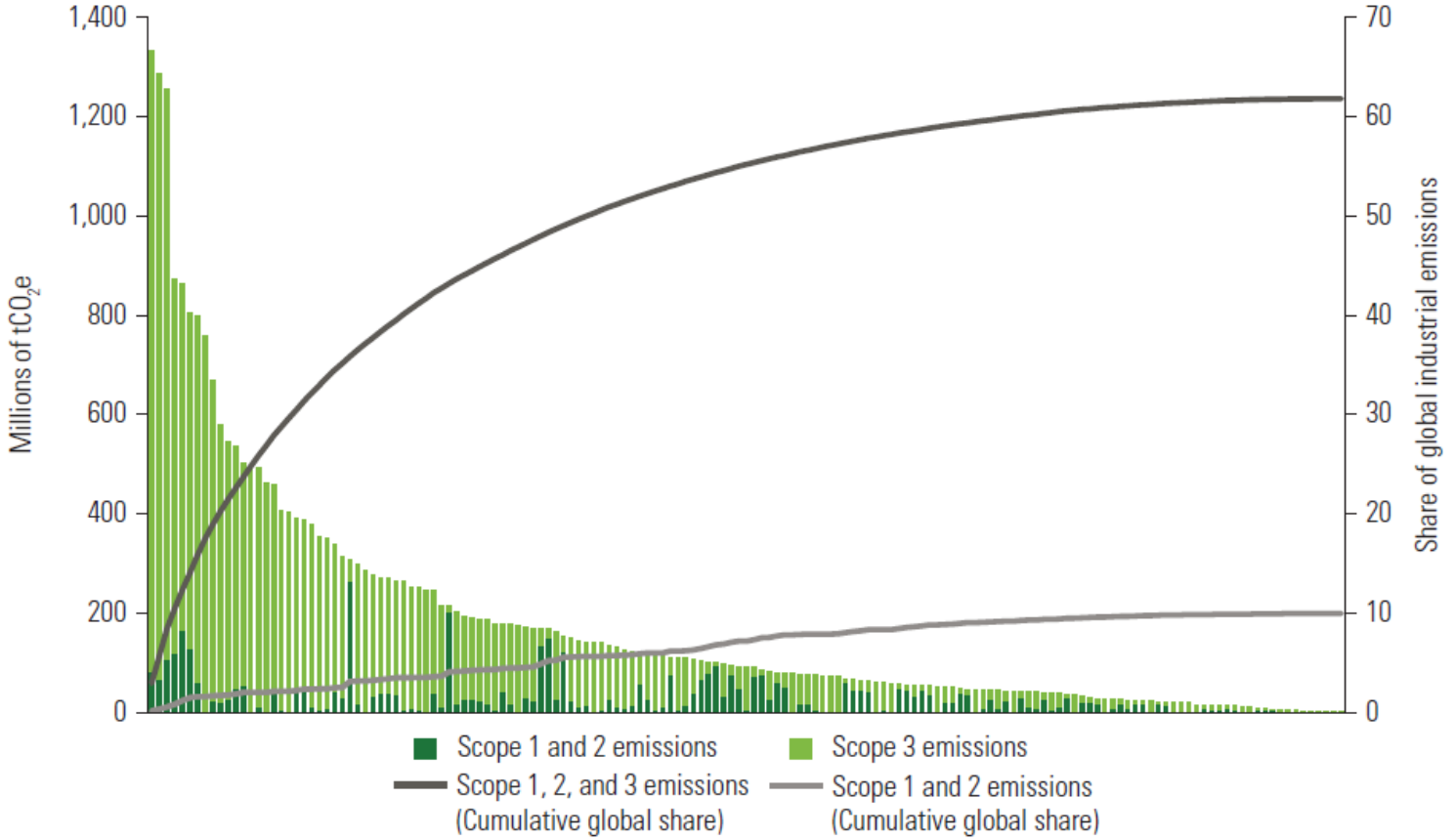
Scale Effect

The supply chains of 157 large MNEs account for a majority of global industrial emissions

157 MNEs' supply chain emissions, (% of global industrial emissions, 2021)

(Each bar represents one MNE, the lines show cumulative emission shares)



Source: Authors' calculations using CDP and OECD data.

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Scale Effect

MNEs' emissions are driven by energy and industrial sector

Sector	Number of MNEs	Share of Global Industrial Emissions
Energy	75	37
Industry	45	15
Transport	25	7
Consumer Goods & Services	12	2
Total	**157**	**60**

Source: Authors' calculations using CDP and OECD data.
Note: Industry includes mining and manufacturing

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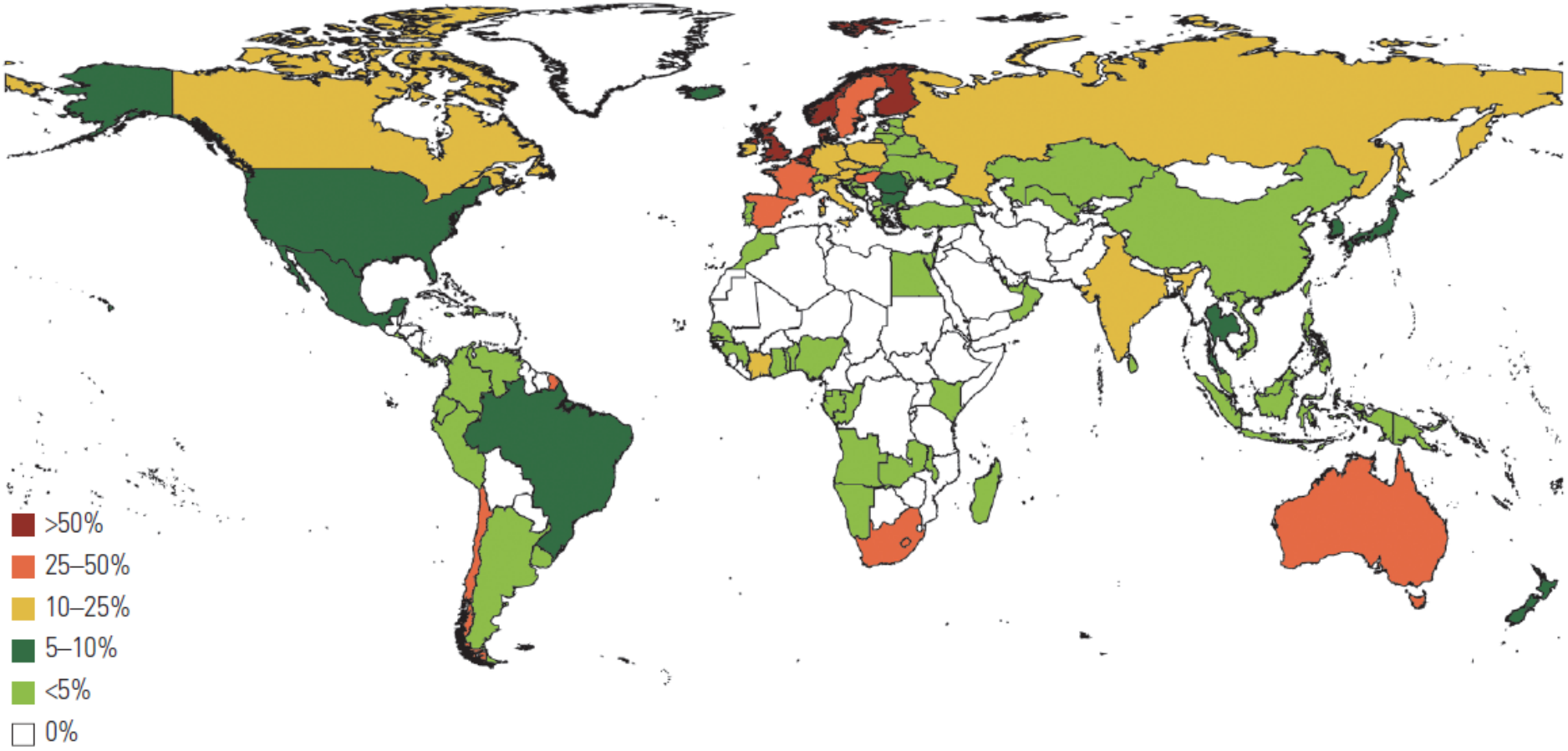
Scale Effect

These 157 large MNEs makes up a large share of emissions for many countries, especially in Europe…

Share of country-level emission from 157 MNEs



Source: Authors' calculations using CDP and OECD data.

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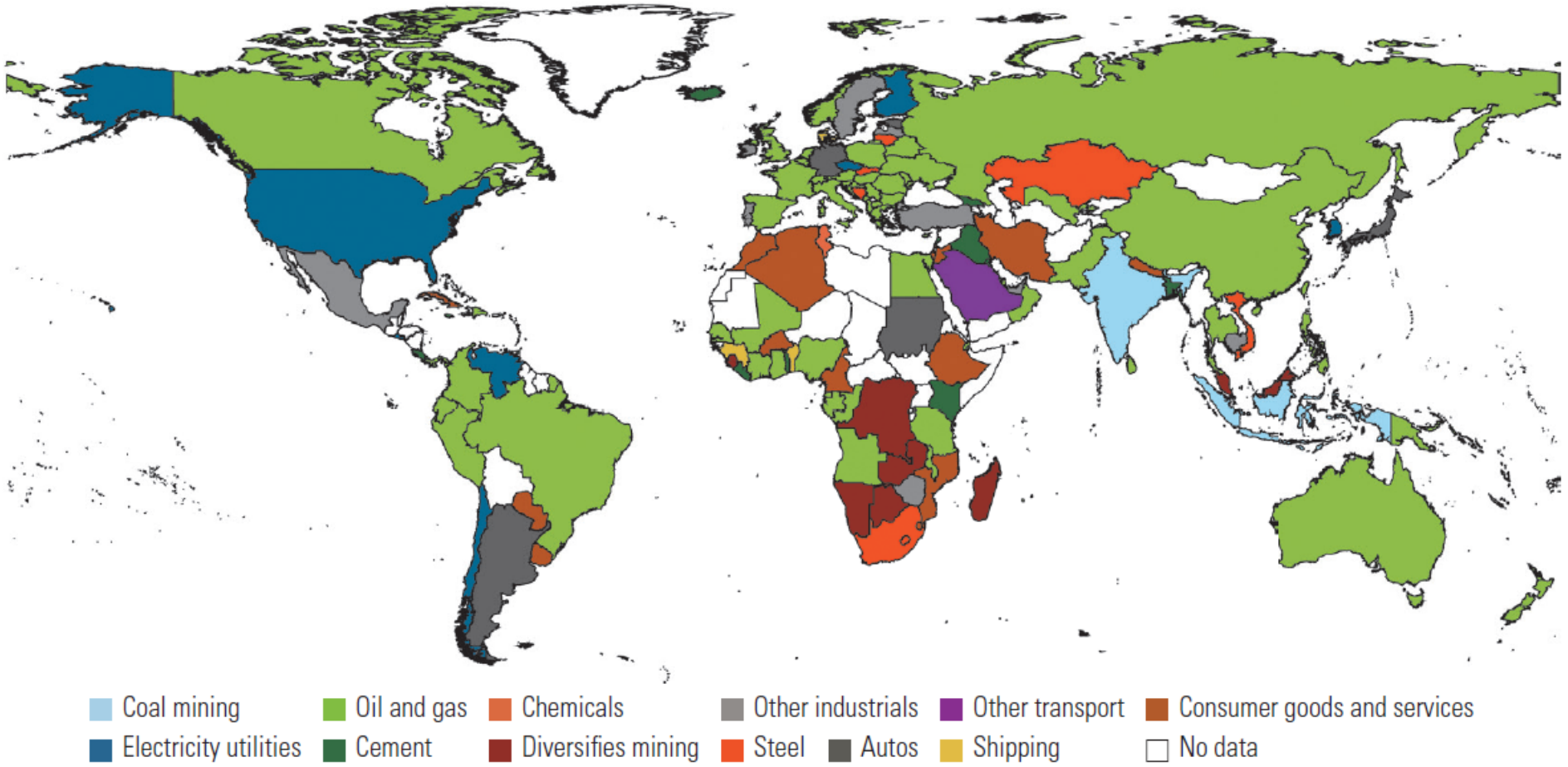
Scale Effect

….While the most polluting sector differs

Sector with the biggest emissions from 157 MNEs



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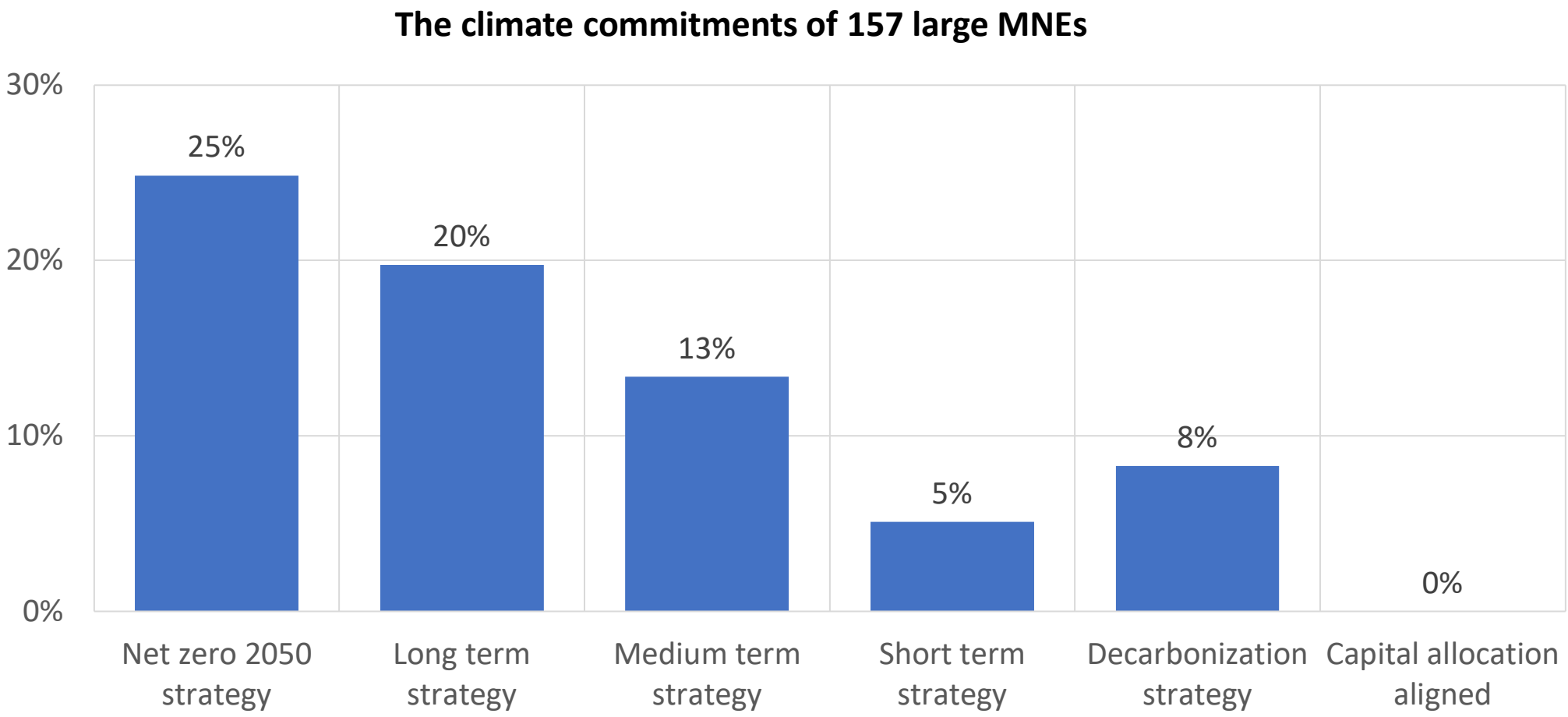
Source: Authors' calculations using CDP data.

Scale Effect

Yet most of the 157 MNES are insufficiently committed to climate change in the long, medium, and short-term



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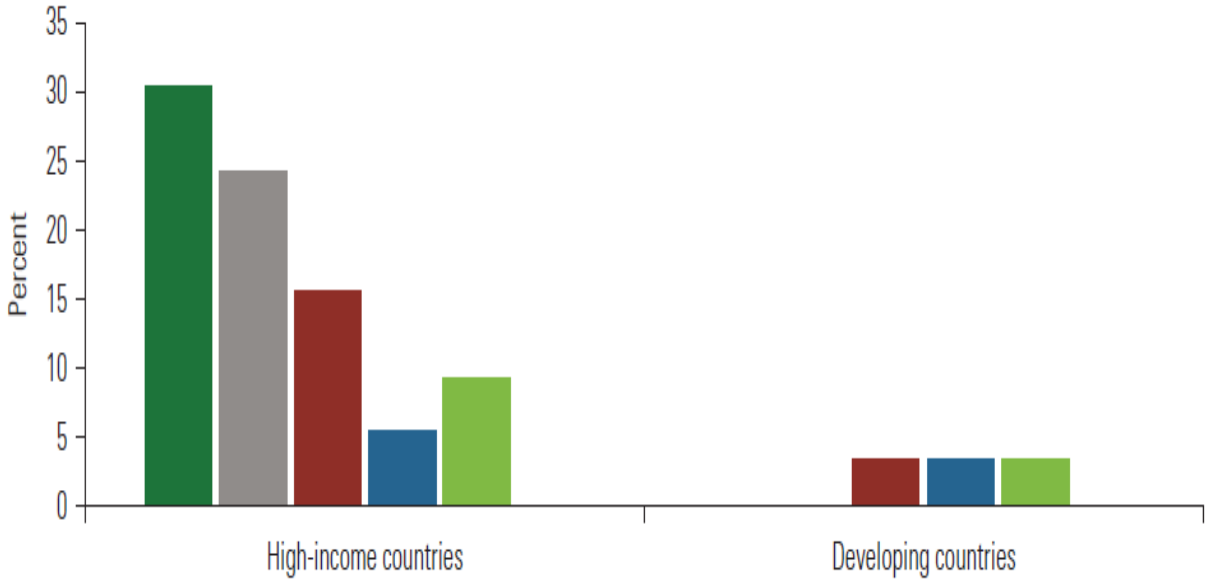
Source: Authors' calculations using Climate Action 100+ data.

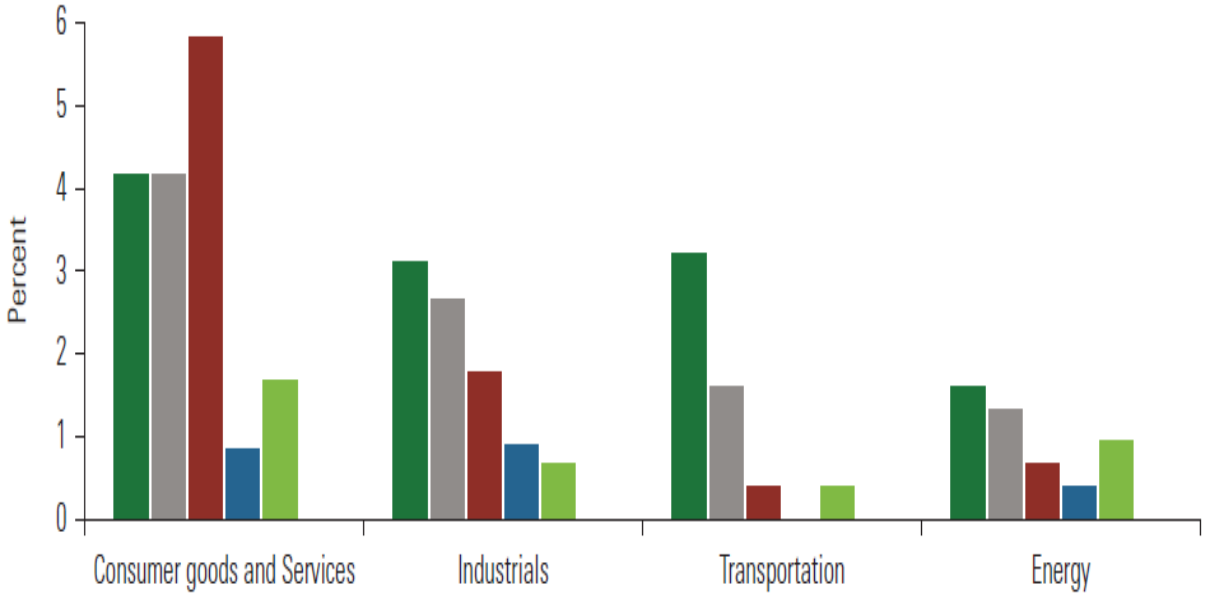
Scale Effect

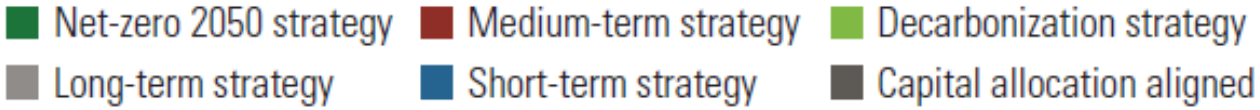
More committed MNEs are in high-income countries and in consumer goods and services

The climate commitments of 157 large MNEs, by income level



The climate commitments of 157 large MNEs, by sector





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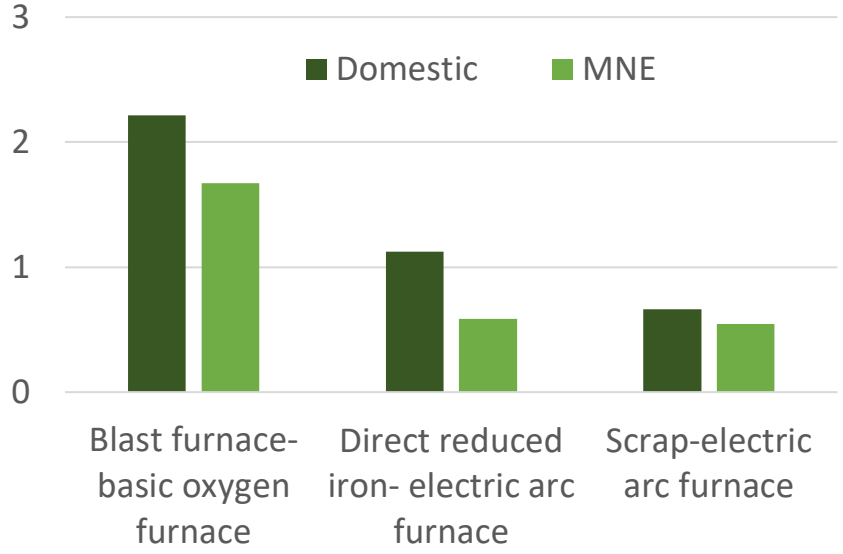
Source: Authors' calculations using Climate Action 100+ data.

Technology Effect

Linkages with MNEs can help transfer "greener" technology and reduce emissions of domestic firms

MNEs' production is less carbon-intensive than domestic firms

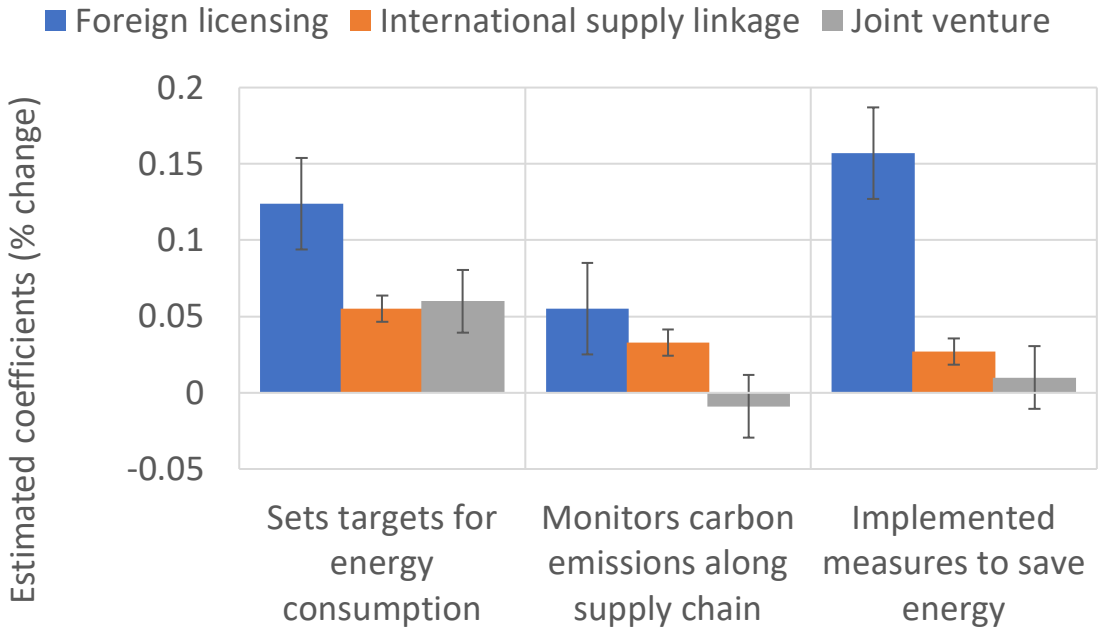
(CO2e per metric ton of crude steel production)



Source: Authors' calculations using CDP data.

Linkages with MNEs are associated with more "green" activities

(Regression coefficients associated with MNE linkages vis-à-vis domestic firms)



Source: Authors' calculations using data from the World Bank Enterprise Survey 2020. Note: Results are from individual regression. Each regression controls for country, sector, and year fixed effects as well as firm age and size. Coefficients are described as marginal effects.

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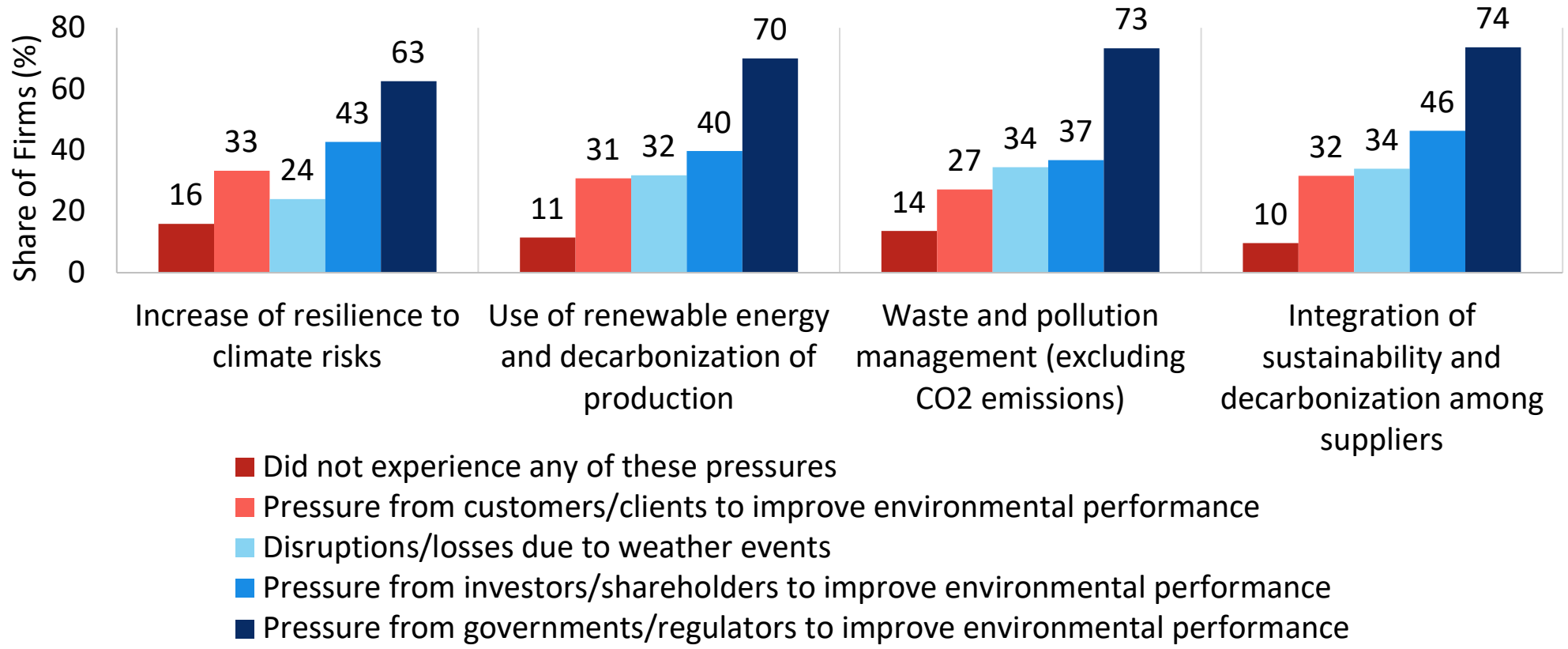
Technology Effect

Government pressure is a key driver for MNEs to invest in sustainability initiatives

Question: Will your company invest in environmentally sustainable initiatives in developing countries in next 3 years?



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Composition Effect

MNEs' cross-border investment (FDI) is increasingly shifting away from polluting and into green sectors

Greenfield FDI announcements

Mergers and acquisitions announcements

Source: Authors' calculations using FDImarkets and Refinitiv data. Note: sectors classified in accordance with EU Taxonomy for Sustainable Activities. The dotted lines provide the best-fitting trendlines.

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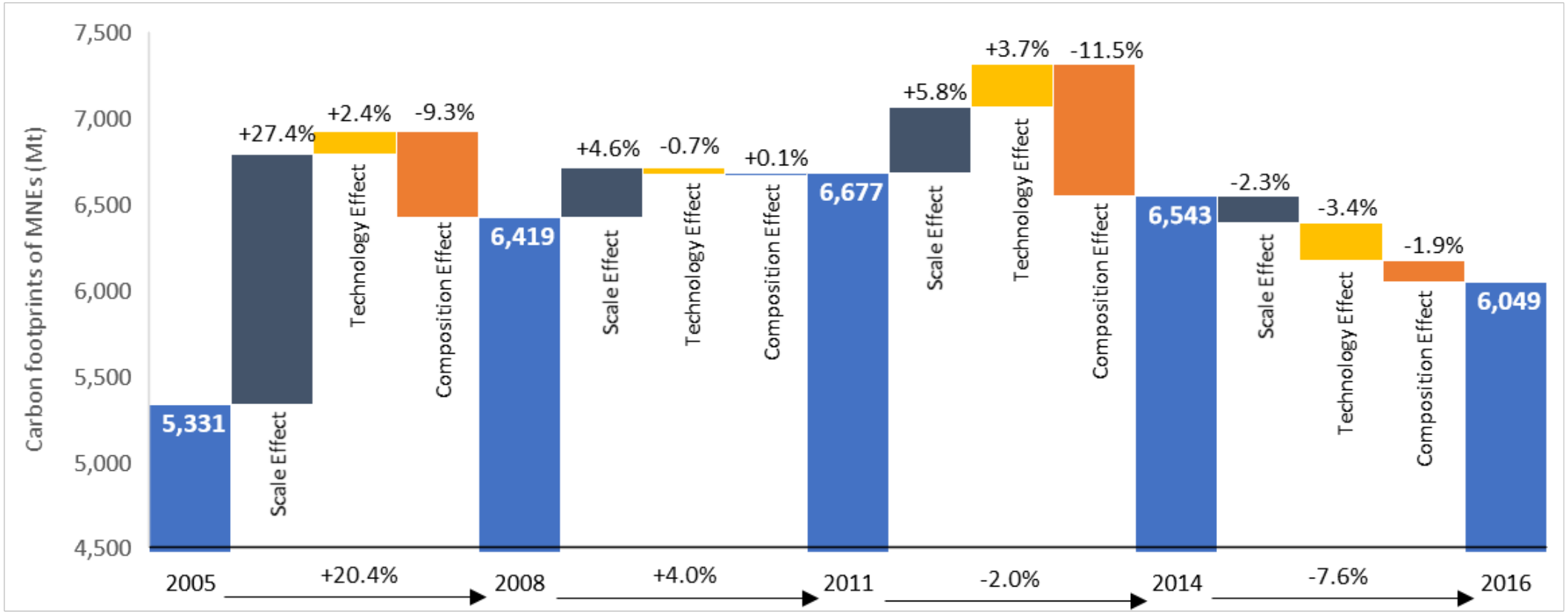
In sum, the emissions embodied in the supply chains of MNEs by scale, technology, and composition effect.



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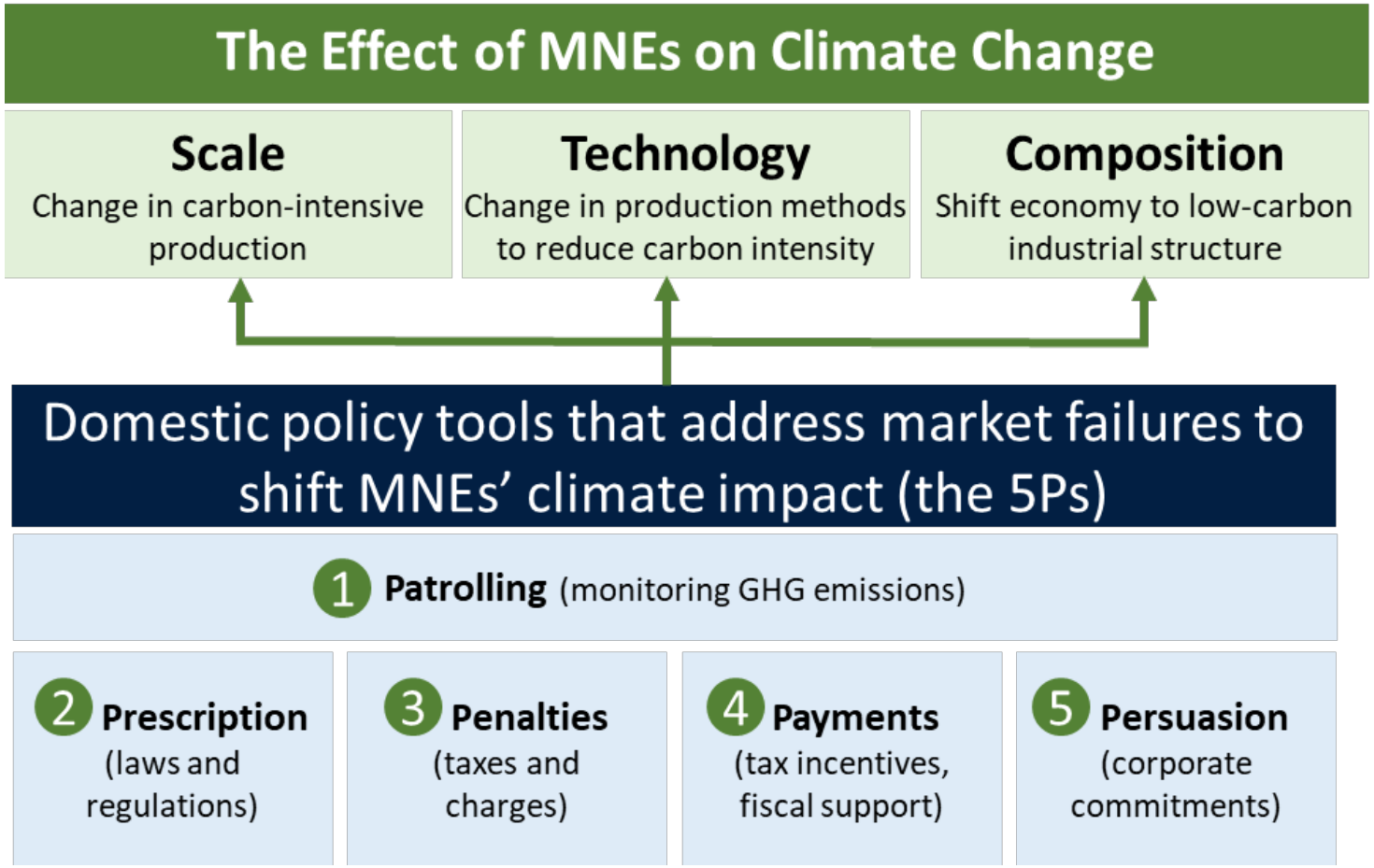
Policymakers can deploy a range of policy tools to improve the impact of MNEs and FDI on climate change mitigation and adaptation



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Policymakers can use a range of policy tools to improve the impact of MNEs and FDI on climate change mitigation

	Objectives to improve MNEs' effect on climate change mitigation		
Domestic policy tools	**Scale Channel** Reduce carbon intensive production	**Technology Channel** Change in production methods to reduce carbon intensity	**Composition Channel** Shift economy towards a low-carbon industrial structure
Patrolling (monitoring emissions)	• Monitoring firm-level GHG emissions (scope 1, scope 2 and scope 3) • Voluntary reporting standards and environmental disclosure laws		
Prescription (laws and regulations)	• Environmental standards • Emission permits	• Environmental standards • Streamlined regulations for technology licensing, joint ventures, local sourcing	• Restrictive business / FDI regulation for 'dirty' sectors • Liberalized business/FDI regulation for 'green' sectors
Penalties (taxes and charges)	• Environmental taxes	• Environmental taxes	• Higher income tax for 'dirty' sectors
Payments (tax incentives, fiscal support)	• Buy-out schemes	• Incentives for green R&D, skills training, capital upgrades • Incentives for technology licensing, JVs, supplier programs	• Tax incentives for 'green' sectors.
Persuasion (corporate commitment, information campaigns)	• Corporate commitment campaigns	• Supply chain eco-certification • ESG / Impact investing • Investor aftercare on green re-investment / supplier linkages	• 'Green' investment promotion and facilitation

Thank you for you attention!

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