

Agricultural Subsidies and Environmental Impacts

Institute for International Trade



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Objectives

The report explores the impacts of production and trade-distorting domestic support in agriculture on climate (greenhouse gas emissions) and the environment (water, biodiversity, and land degradation)

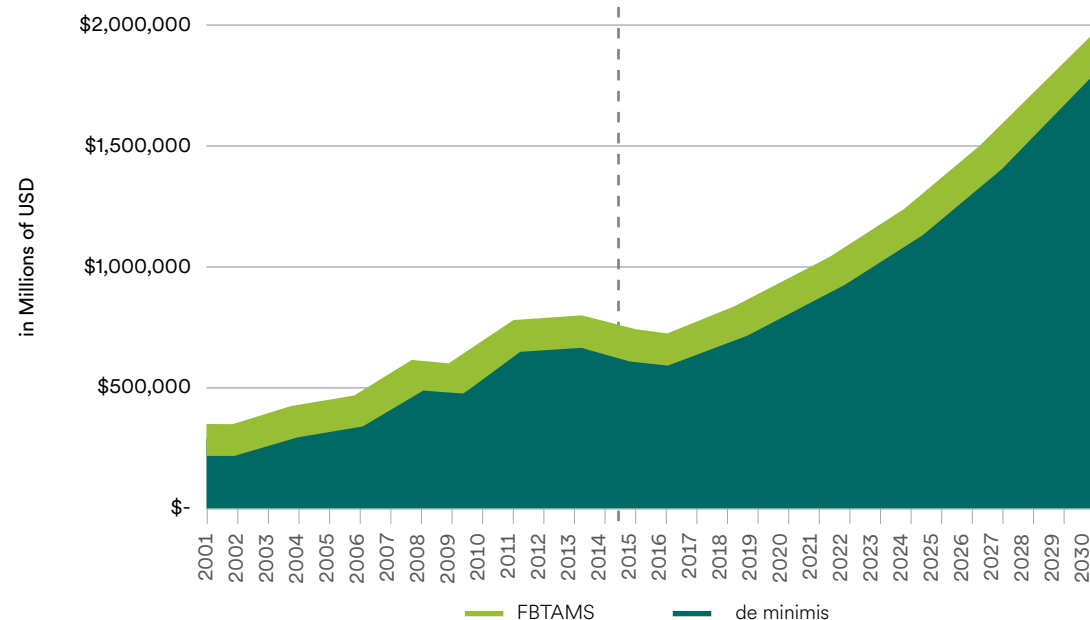


Overview of agricultural subsidies



Latest WTO data show that trade-distorting agricultural subsidies entitlements are high and increasing

Figure 1: Growth in entitlements of Amber Box support, all WTO members



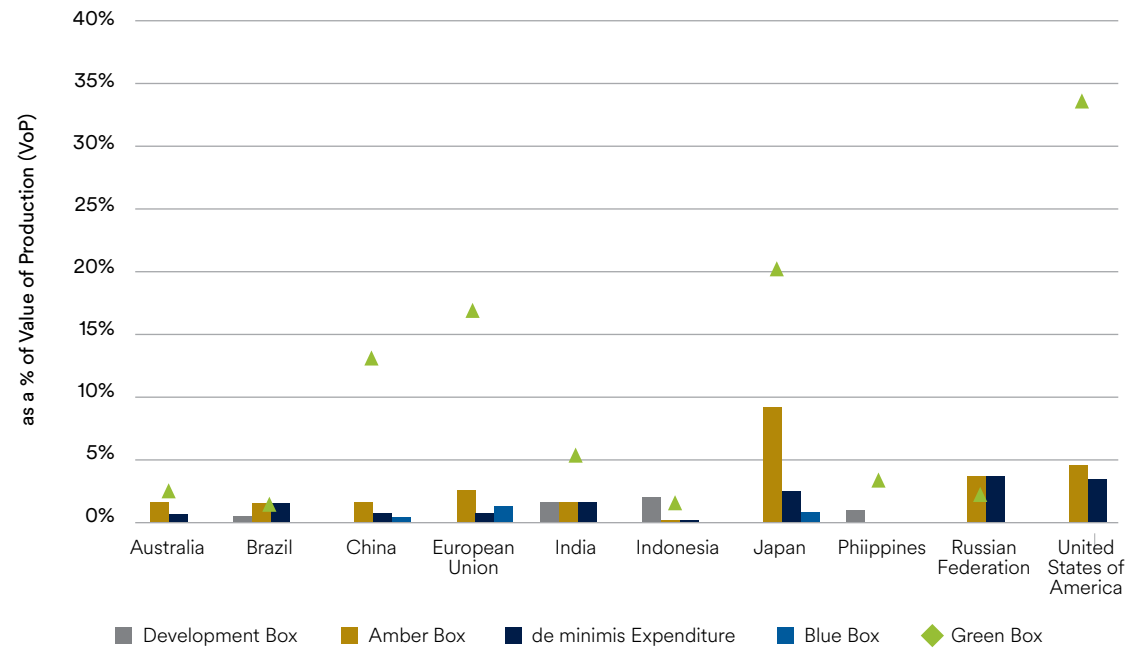
Source: Australia and New Zealand, JOB/AG/171

Rank	Top 10 in 2030	Share
1	China	42.27%
2	India	11.51%
3	Indonesia	8.09%
4	European Union	6.56%
5	Brazil	6.09%
6	United States	3.86%
7	Japan	2.30%
8	Turkey	1.85%
9	Russia	1.05%
10	Mexico	0.73%



Subsidies provided are also highly concentrated in a handful of countries and commodities

Figure 9: Notified agricultural domestic support expenditures as a % of VoP, selected countries, 2016



Source: Authors' calculation based on WTO notifications

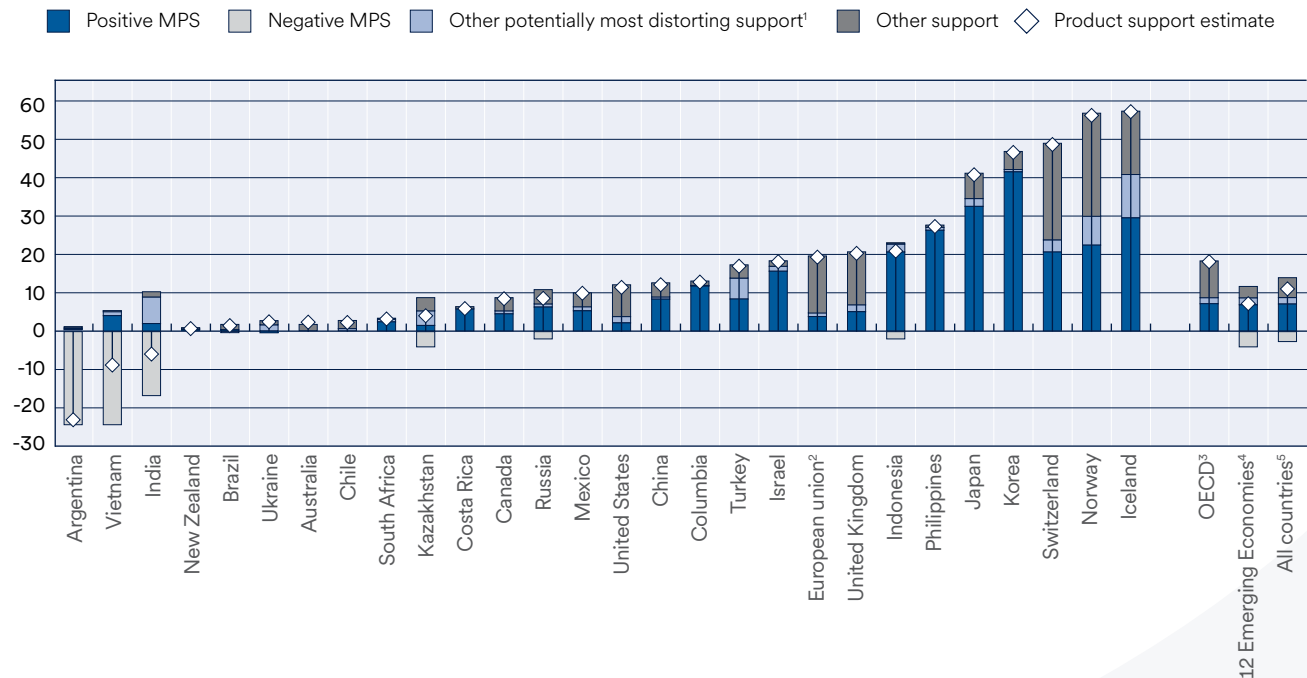


Recent OECD data show that most subsidies today distort production and trade, and are environmentally harmful

Most support is tied to policies that increase output or inputs use

Payments for long-term resource-retirement and provision of environmental public goods are negligible

Figure 11: Potentially most distorting transfers and other support by country, 2018-20: percentage of gross farm receipts



Linkages between agricultural subsidies and environmental impacts

A synthesis of available literature focusing on key environmental channels

- GHG emissions
- Water, biodiversity, land degradation



Agricultural subsidies interact with environmental impacts in two broad ways

Subsidies change economic incentives for agriculture, impacting on:

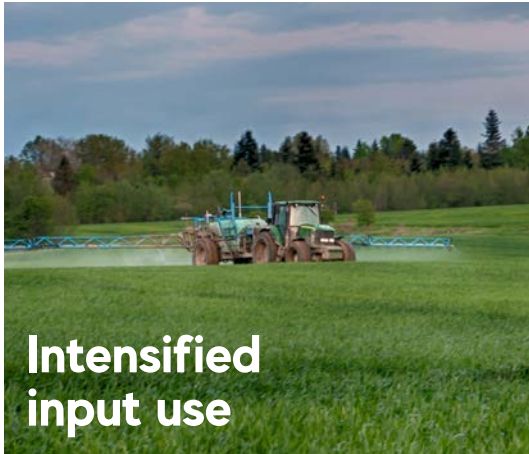
- 1 The number and mix of agricultural goods produced
- 2 Where and how they are produced

Three channels determine environmental impacts:

- 1 The intensive margin (use of inputs and changes in stocking rates)
- 2 Extensive margin (induced land-use changes)
- 3 Entry-exit margin (land entering or leaving agricultural use)



Negative environmental outcomes can be extensive, and are well-documented, e.g.



- Increased application of toxic chemicals and/or GHG outputs
- Nutrient depletion



- Environmental degradation
- Increased GHG emissions



- More salinity
- Surface and groundwater depletion



- Habitat and species loss
- Decreasing carbon sinks



Agricultural subsidies, properly conceived, can have positive impacts on the environment

If designed to reduce and/or minimise negative impacts

- They can promote carbon storage
- Preserve natural landscapes
- Build resilience to natural disasters, and more

Mechanisms to promote these impacts include, inter alia

- Regulation
- Environmental cross-compliance requirements
- Support for eco-system services, and more

Many environment policy measures will also impact on agriculture

- Biofuel mandates
- Carbon taxes, and more



The net impacts on climate vary, and are difficult to measure since

A variety of factors are at work

- 1 Behavioural (individuals and firms' calculations)
- 2 Location-specific

The types of subsidies on offer matter

- 1 Market price support (barriers to trade)
- 2 Coupled support (linked to output and/or inputs)
- 3 Decoupled support



In recent years, the policy and analytical focus on the linkages between climate change and the agricultural sector have increased dramatically. This has largely been spurred by the signing of the Paris Agreement, the ensuing demands of designing and implementing the Nationally Determined Contributions by countries, and the production of landmark reports such as the IPCC Special Report on climate change and land (IPCC 2020).



The literature shows that net impacts of agricultural subsidies on GHG emissions are unambiguously harmful

Two recent modelling exercises conclude that removing subsidies and border protection would result in significant GHG reductions

- They differ on the incidence between developed and developing countries, and
- The weight accorded to subsidies removal versus border protection reduction

They also adopt a novel subsidies repurposing approach

- Scenarios where subsidies are repurposed to support green innovation substantially reduce GHG emissions
- Repurposing should be calibrated so as not to subsidise farmers through backdoor means



While limited by their assumptions and available data, agro-economic models can address many questions concerning climate change



- The emissions intensities assumed for key products in different countries
- Technology mix, uptake, and sharing
- The fiscal dimension of subsidies reform and associated climate actions
- GHG emissions beyond CO₂



- Partial equilibrium models are particularly sensitive to these interactions
- How policies impact on consumer choice and production decisions



Agricultural subsidies impacts' on water, biodiversity, and land degradation happen at two connected levels

Global National



- The focus has been on environmentally harmful subsidies
- Data are not amenable to large-scale modelling, is best modelled on site-specific bases, and modelling assumptions are subject to the same caveats as for climate
- Nonetheless, available studies indicate that agricultural subsidies are either harmful or not helpful to the environment
- And global processes such as the G7, G20, and CBD are increasingly emphasising the need for reforms, meaning data and modelling will only improve

- Several European countries, and the EU, are assessing their public subsidies that may harm the environment, including through use of green budgeting
- These are driven by a strong and growing need to finance environmental investments
- Such reform efforts would be strengthened by investment in information tools and techniques to strengthen systems approaches to integrated biodiversity data



Directions for future work



An innovative approach to addressing the agricultural subsidies pillar at the WTO is within reach



- Improve awareness and understanding of available information and analysis
- Fill strategically important knowledge gaps
- Empower the WTO Secretariat to make policy data and analysis available
- Make much greater use of existing WTO & OECD data and analysis



- Build a coalition of stakeholders in support of an evidence-based discourse and a package of agriculture policies that would work better for people and the planet



Specific knowledge gaps to fill under Pillar 1 include



Distinguishing between 'good' and 'bad' subsidies in terms of their environmental as well as economic impacts



Unpacking input subsidies to disentangle most harmful measure from beneficial impacts



In-depth examinations of commodity-specific subsidies



A specific focus on the needs of less developed countries



Possible activities under Pillar 2 include



Identify opportunities to contribute an evidence-based subsidy reform narrative to target international meetings



Engage with and contribute analysis to the WTO's TESSD process



Identify public, private, and public-private measures to improve the performance of global food systems



**Successful policy reform in a sector
as sensitive as agriculture requires
more than just good data; it
requires coalition building**



make
history.



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