AGRI-ENVIRONMENTAL INDICATORS FOR POLICY MONITORING AND EVALUATION: THE OECD PERSPECTIVE

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BETTER POLICIES FOR BETTER LIVES

Outline

1. Agriculture's triple challenge
2. Overview of the OECD DSR framework for AEIs
3. Overview of OECD AEIs
4. Future developments

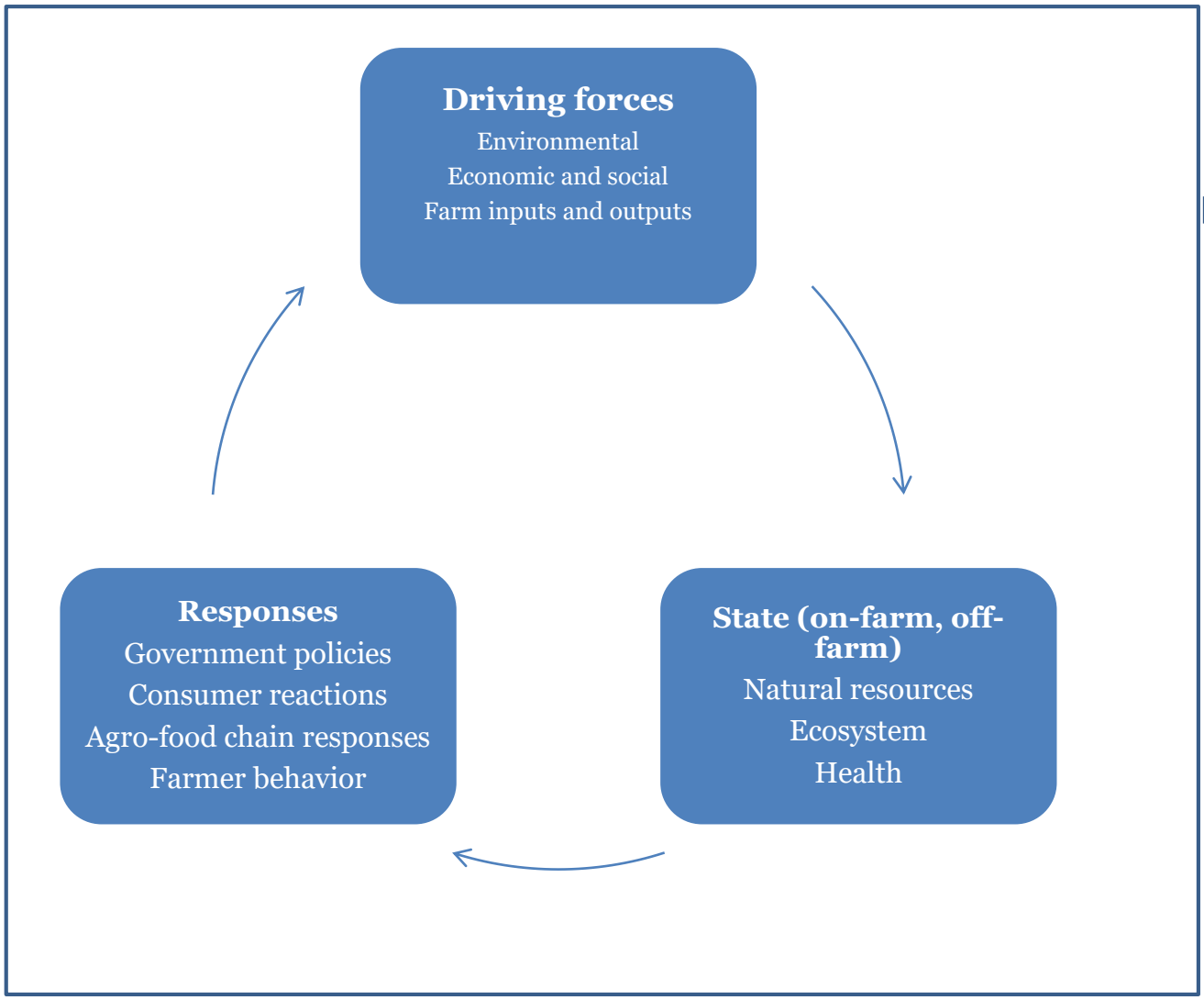
Agriculture's triple challenge

1. **Providing food security and nutrition to a growing global population:** a growing population requires a significant increase in the production of affordable, healthy and nutritious food;
2. **Contributing to the livelihoods of people around the world working along the food supply chain:** global food systems are essential to the livelihoods of many people;
3. **Ensuring the environmental sustainability of the sector, while adapting to, and helping to mitigate climate change:** global food systems are not only dependent upon natural resources they also are main contributors to greenhouse gas emissions and water pollution.

Why we need indicators tracking the sustainability of agriculture

- The 2016 OECD Agriculture Ministerial meeting underlined that:
  - Current policies are not sufficiently aligned with emerging needs
  - The need to improve the consistency of signals on productivity, sustainability and resilience
- Policy makers need to
  - Know whether policy changes are providing the right incentives
  - Identify good practices and examples when comparing countries

DSR Framework



Monitoring and Evaluation

Principles for Agri-Environmental Indicators

- To maximize their impact, AEIs should be (OECD 1997, 2008):

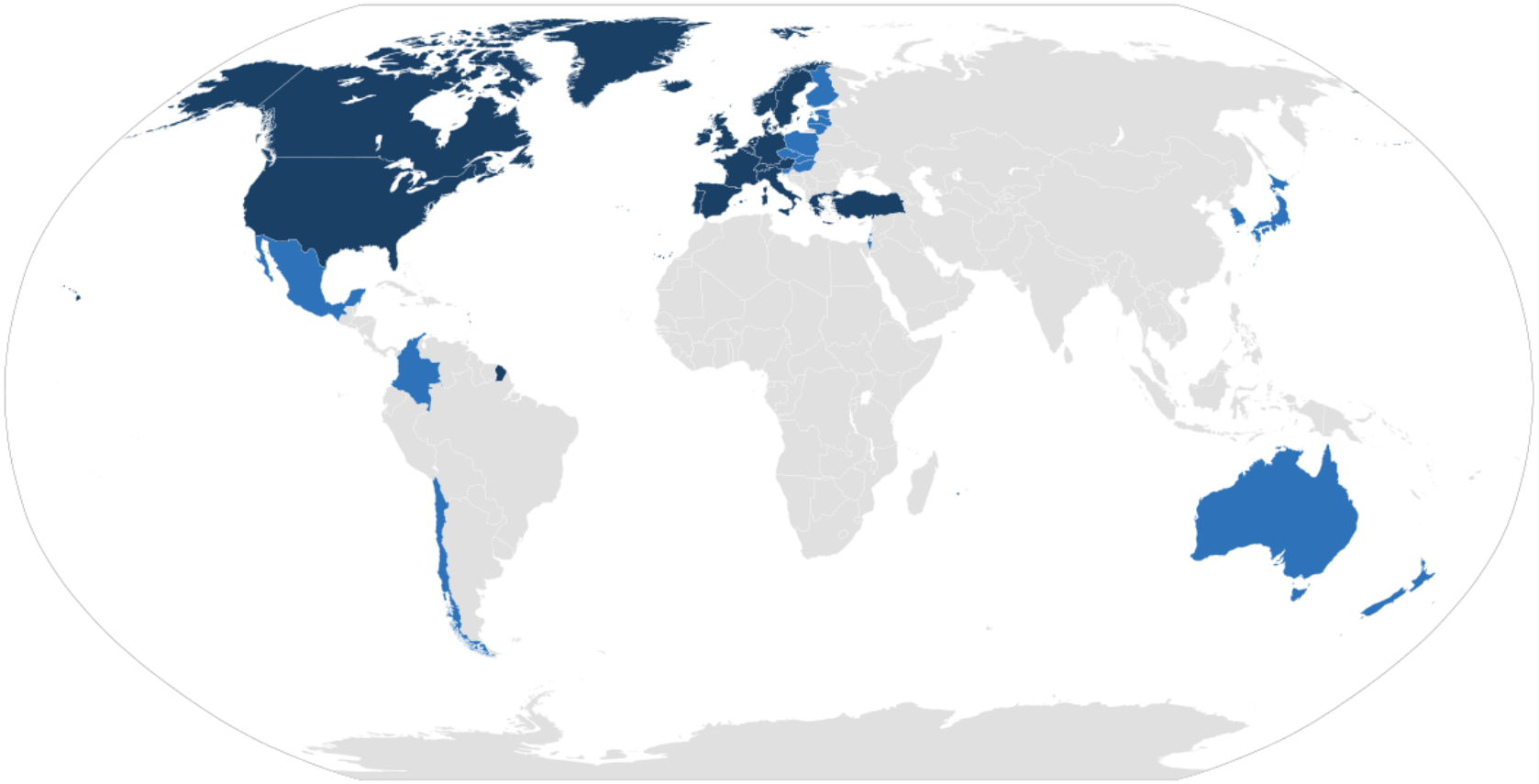
Policy relevant: track the trends that are of broad policy and public concern.

Analytically sound: The indicator must be consistent with existing theoretical work, be of potential use for economic models, and there must be some degree of consensus around its validity.

Regularly and comprehensibly measurable: it is based in robust data coverage, quality and definitions.

Easy to interpret: indicators should be interpretable by the general public.

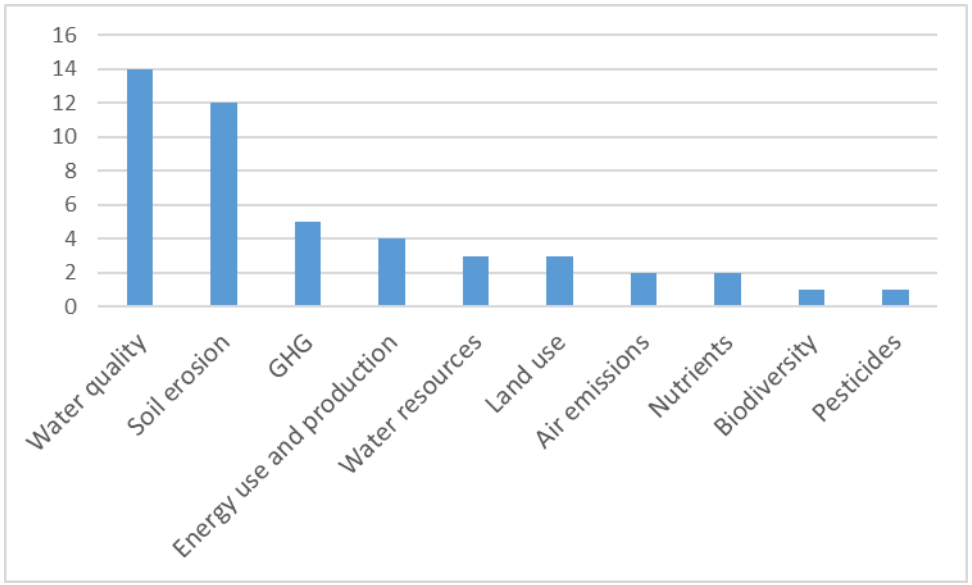
37 OECD member countries



What are the OECD AEIs?

- ~50 indicators, covering 37 OECD countries + 17 non-OECD countries over 25 years (1990-2018)
- AEIs are collected on a yearly basis
- Diverse sources: governments, other international organisations and agencies, in-house calculation.
- 10 environmental domains

Number of AEIs by agri-environmental domain



Source: Author's calculations based on OECD's AEIs. Retrieved from http://www.oecd.org/tad/sustainable-agriculture/agri-environmentalindicators.htm

OECD AEIs room for improvement

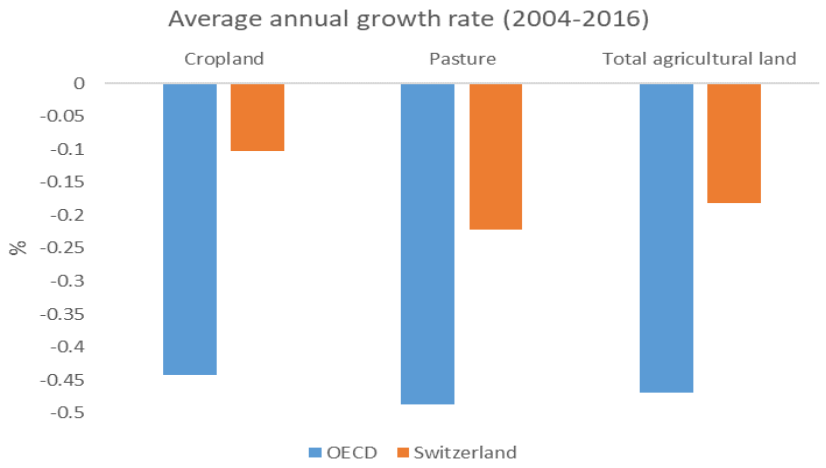
- Strong emphasis on driving forces and state indicators
- Focus on 8 main indicators due to their measurability and policy relevance

			Attributes			
Indicator	**Unit**	**Indicator type**	**Policy relevant**	**Analytically sound**	**Measurable**	**Easy to interpret**
Agriculture land	Ha	Driving force	+++	++	+++	+++
Ammonia emissions	Tons	State/Impact	+++	+++	+++	++
P balance	kg/ha	Driving force	+++	+++	+++	++
N balance	kg/ha	Driving force	+++	+++	+++	++
GHG emissions	CO2e tonnes	State/Impact	+++	+++	+++	+++
Energy consumption	1000 toe	Driving force	++	++	+++	++
Agriculture freshwater abstraction	millions m3	Driving force	+++	++	++	+++
Farmland bird index	Index 2000=100	State/Impact	++	++	++	+
Pesticides sales	Tons of active substance	Driving force	++	++	+	++
Soil erosion	% of area with different erosion levels	State/Impact	+++	++	+	++
Water quality	Share of agriculture on emissions and Share of monitoring sites in ag areas exceeding limits	State/Impact	+++	++	+	++

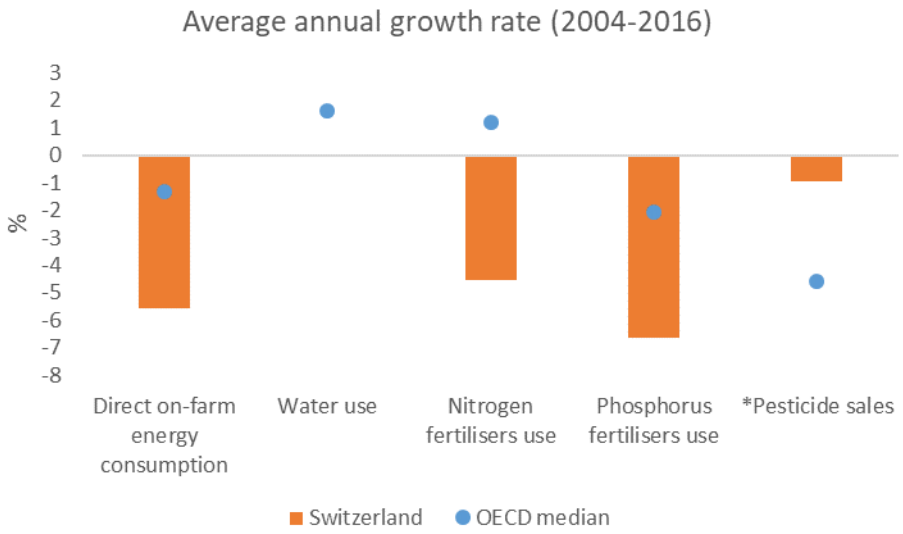
Source: Adapted from OECD (2013), OECD Compendium of Agri-environmental Indicators, OECD Publishing. http://dx.doi.org/10.1787/9789264181151-en

Agri-environmental indicators trends

- Total agricultural land in OECD was converted to tree-covered areas, sparse vegetation areas and artificial surfaces
- Switzerland exhibits a similar trend



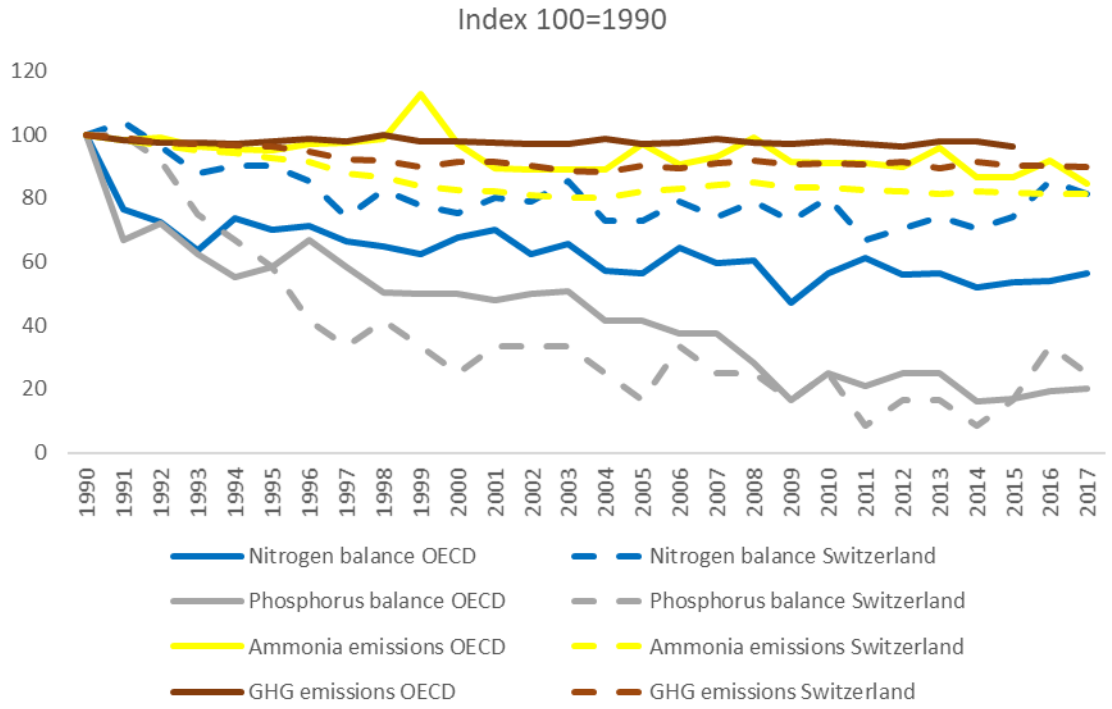
- Input efficiency has improved in energy and P fertilisers and worsened in N fertiliser and water use per ha.
- Switzerland shows improvements in all analysed inputs



*2011-2015 for pesticides

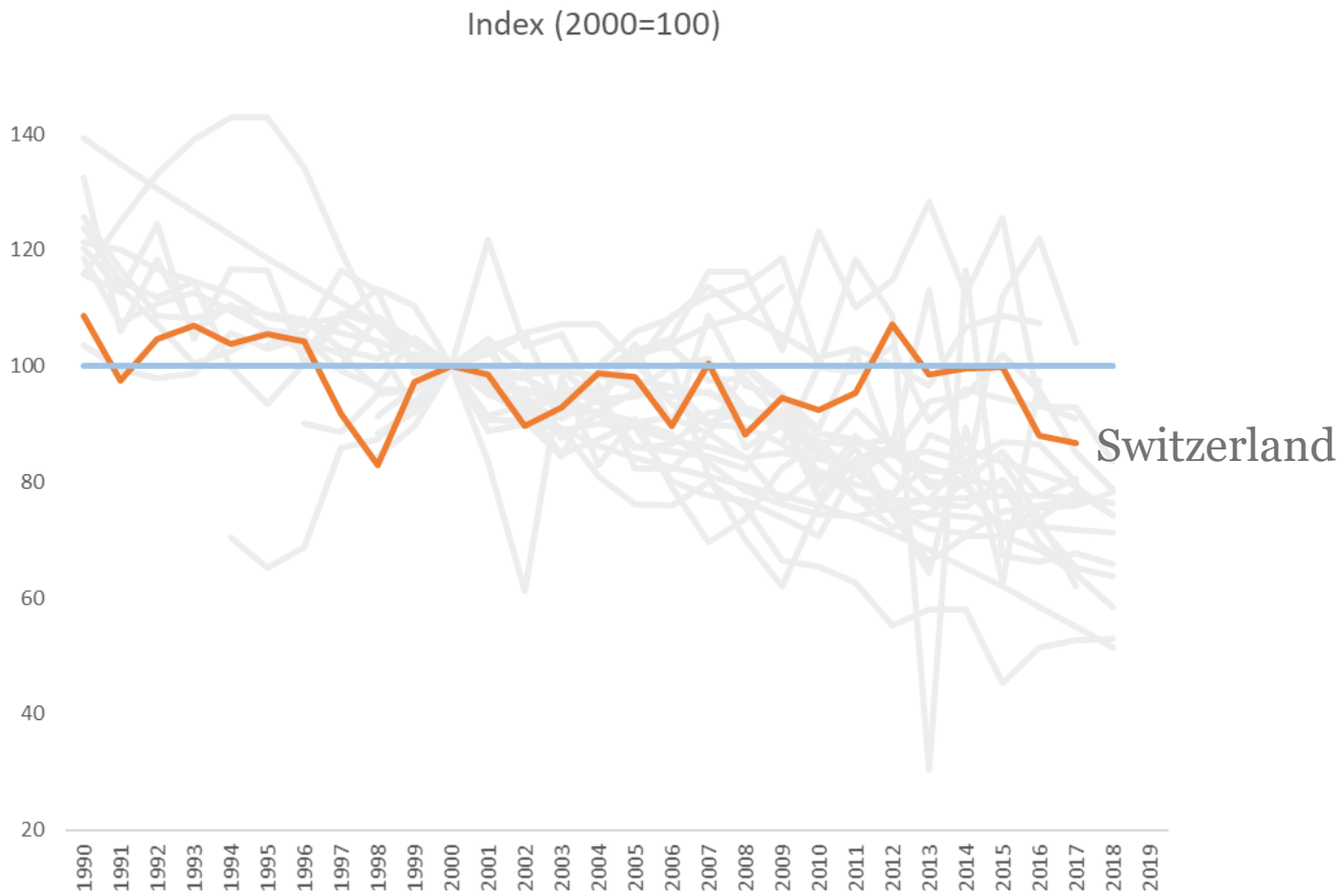
Agri-environmental indicators trends

- Most of the improvements accrued in P balances.
- N balances and ammonia emissions have declined
- GHG emissions have remained stable
- Switzerland shows better performance in ammonia and GHG emissions



Agri-environmental indicators trends

Farmland birds indicators continue to decline in most OECD countries

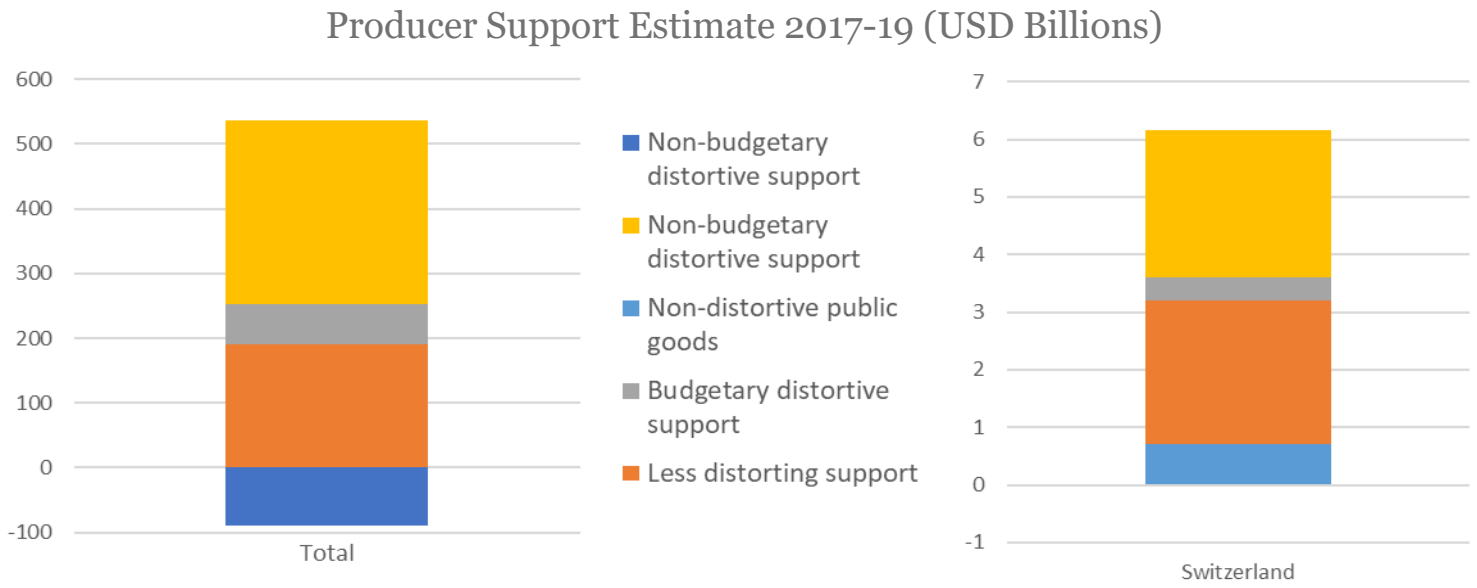


The environmental impacts of agricultural policies

- Market transfers and payments based on output or variable input use can cause increased greenhouse gas emissions, nutrient loads to water bodies, overexploitation of water resources, soil degradation and biodiversity losses (OECD, 2019; Henderson and Lankoski, 2019).
- Agri-environmental payments are used to improve the environment but, for the most part, they have been inefficient:
  - In most cases they are implemented in conjunction with distortive support.
  - 40% of payment schemes in a selected group of countries had no effective targeting mechanisms for identifying the most cost-effective investments.
  - Few schemes pay for results.

Agricultural policies as driving forces and responses

- **Distorting payments dominate:**
  - 66% in all monitored countries
  - 50% in Switzerland
- **Less distorting payments:**
  - 35% in all monitored countries
  - 40% in Switzerland
- **Payments for public goods (mostly environmental):**
  - 0.2% in all monitored countries
  - 12% in Switzerland



What can policy-makers do?

1. Replace distortionary subsidies by other forms of support, such as payments based on area or redirecting them to support research, innovation and training;
2. Improve the targeting of agricultural policies with environmental goals by including cost-effectiveness criteria for maximizing value-for-money investments and, when possible, transit from supporting practices to outcomes.

New context of opportunities

- **CAP reform**: more flexibility and stronger focus on performance
- **EU Green Deal**: ambitious targets on nutrient losses, agrichemical use, antimicrobials, organic farming and high-diversity landscapes.
- **Post 2020 Aichi CBD Targets**: biodiversity issues gaining momentum.
- **Trade tensions**: trade wars, little progress in multilateral trade agreements and demands for integrating environmental issues into regional trade agreements (e.g. EU-Mercosur)
- **COVID-19**: strained agri-food supply chains that may trigger trade restrictive measures

What is the OECD doing to fill the gap

1. **New Productivity Sustainability Resilience framework (OECD, 2020)**: distil recommendations from combining indicators to assess country policies through the lenses of long-term productivity, sustainability and resilience.

   Norway Review using the PSR (forthcoming):

   – High productivity growth is accompanied by modest improvements in environmental performance (GHG emissions intensities have grown and nutrient balances have declined slightly).

   – Achievement of weak sustainability but failed to achieve strong sustainability.

   – Emphasis on food security, increased production and landscape spread across the country results in environmental degradation.

What is the OECD doing to fill the gap

2. **Farm level analysis network**: explore available and potential sustainability and resilience indicators at the farm level to perform analytical work on productivity, sustainability and resilience.
3. **Network on Agricultural Total Factor Productivity and the Environment**: guidelines for calculating aggregate agricultural TFP, incorporating environmental variables.
4. **Expanding OECD's biodiversity indicators**: develop indicator guidelines and potential indicators on semi-natural habitat in farmland (Farmland habitat index).

New context demands integrated approaches

1. Improve the policy relevance and measurability of indicators:
   - Integrated and multidisciplinary approaches: focus on reliable, timely and policy relevant indicators.
   - Political will for promoting integrated approaches: farm level surveys on economic and environmental performance (e.g. Irish farm level sustainability reporting, EU's Farm Sustainability Data Network)
   - Develop indicators that are comparable across countries for international benchmarking that can help tracking domestic and international commitments.
2. Role of experts:
   1. Provide expert advice on policy design: What to target? Which outcomes? Contract length?
   2. Provide guidance on:
      - the use of digital technologies for monitoring compliance
      - how to cross-link existing data sets (soil tests, satellite data, administrative data, etc.)
      - define baselines

Thank you for your attention!

OECD Agriculture and the Environment website:
https://www.oecd.org/agriculture/topics/agriculture-and-the-environment/

OECD reports:

- OECD (2020), *Agricultural Policy Monitoring and Evaluation 2020*, OECD Publishing, Paris, https://dx.doi.org/10.1787/928181a8-en.
- OECD (2020), *OECD Agro-Food Productivity-Sustainability-Resilience Policy Framework*, https://one.oecd.org/document/TAD/CA/APM/WP(2019)25/FINAL/en/pdf.
- OECD (2019), *Trends and Drivers of Agri-environmental Performance in OECD Countries*, OECD Publishing, Paris, *https://doi.org/10.1787/b59b1142-en*.
- OECD (2008), *Environmental Performance of Agriculture in OECD Countries Since 1990*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264040854-en.
- Henderson, B. and J. Lankoski (2019), "Evaluating the environmental impact of agricultural policies", *OECD Food, Agriculture and Fisheries Papers*, No. 130, OECD Publishing, Paris, https://dx.doi.org/10.1787/add0f27c-en.

OECD policy briefs:
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