



Payments for environmental services from farming: what is the role for governments? An OECD perspective

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The OECD

- 30 member inter-governmental organization promoting sustainable economic growth
- multi-disciplinary approach to the economic analysis of policy issues
- tool for governments providing comparative data, analysis and forecasts
- shares experiences and identifies good policy practice through peer review processes
- engages with over 70 developing countries

Outline of the presentation

- Setting the scene
 - Agriculture's close links with the environment
- Challenges
 - Markets for environmental service provision
- Agricultural policy reform
 - An opportunity to improve signals to farmers
- Agri-environmental policies
 - Convergence of policies in the US and EU?

Setting the Scene

Agriculture's environmental footprint...

- **Benefits:**

1. Biodiversity and ecosystem preservation
2. Landscape conservation
3. Flood and drought control
4. Carbon sequestration....

- **Damage:**

1. Water depletion and pollution
2. Soil quality depletion and erosion
3. Loss of habitats
4. Air pollution & Greenhouse gas emissions

...but is not as clear-cut as it seems

- Agricultural production generates a complex mix of environmental benefit and damage
- Agri-environmental relationships are marked by a high degree of diversity in space, scope and time
- Reducing harmful effects is also “beneficial”, while reducing beneficial effects is also “harmful”
- Property rights and reference levels are crucial - who has the right to pollute with no penalty or to expect a reward for providing environmental services

Agriculture and environmental services

- Agriculture is not the sole activity providing land-based environmental services, but specific services are associated with farming attributes
- There is often no fixed correlation between environmental service provision and production intensity or scale of production
- Many services are site specific
- Some services result from the collective activity of farming in an area (landscape, biodiversity...) – what can be termed “spatial jointness”

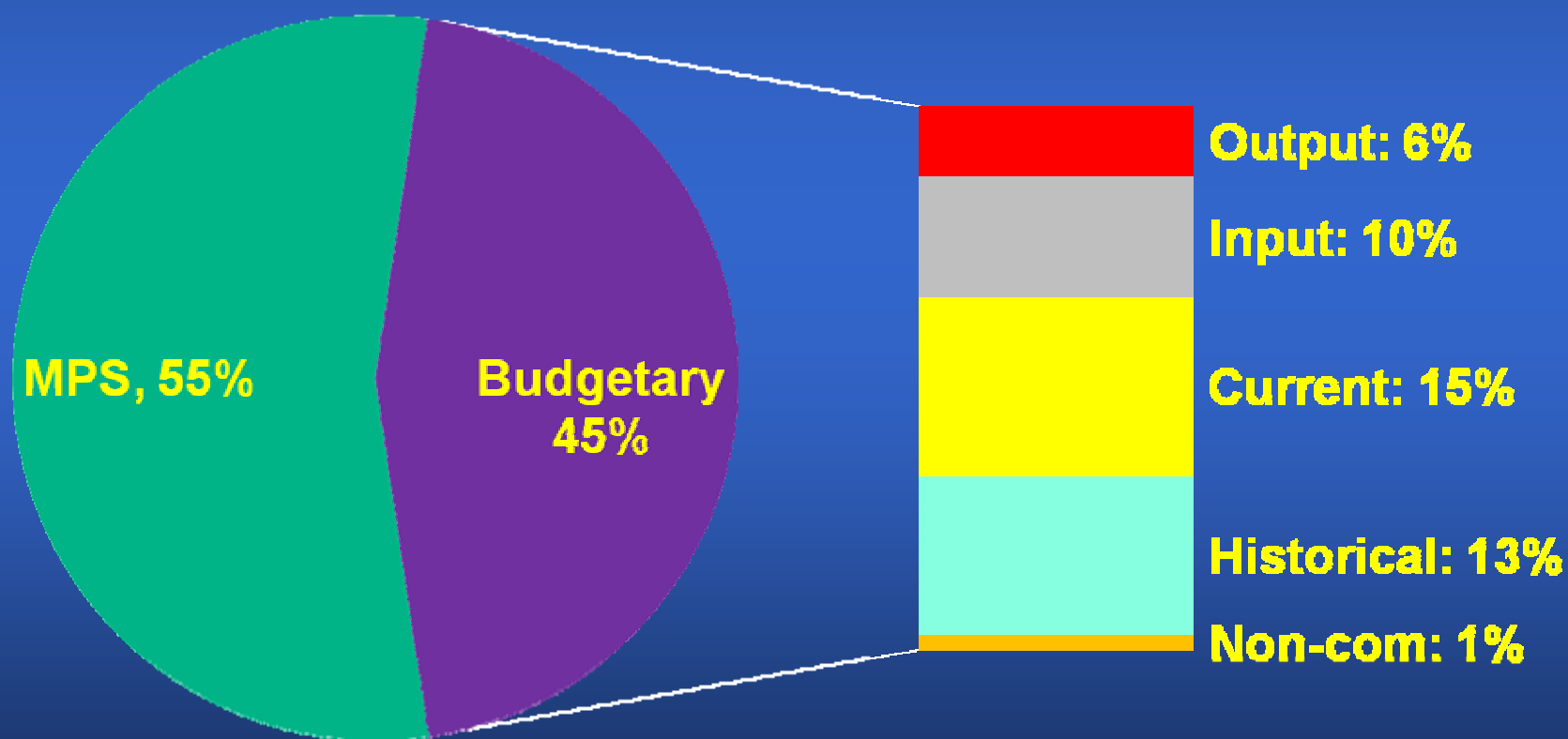
A snapshot of OECD performance

- OECD agricultural output since 1990 is up 5%, with more water (3%) and energy use (6%), but less land (4%) and labour (10%)
- *Soil*: decrease in erosion and loss
- *Nutrient surpluses*: decrease, easing pressure on water quality, but pockets of high concentrations
- *Pesticides*: lower applications, but risks are unclear
- *Biodiversity*: apparent halt in long term decrease?
- *Greenhouse gas emissions*: reduction
- Overall, a mixed picture with OECD agricultural *output increasing faster than inputs*, easing environmental pressure

Environmental services: supply

- Measuring changes in the *state* of the environment is often difficult (biodiversity, landscape) but *driving forces* (proxies) is easier (farm systems, practices, types of land use)
- Opportunity cost of extra environmental services provided in terms of agricultural output, or farm income foregone
- Actual costs of investment or replacement costs of alternative investment (e.g. paddies or dams) for services
- Farmers' may have more knowledge than policymakers of *costs* incurred in providing additional environmental services (asymmetric information) – leading to an efficiency loss

Composition of producer support in OECD countries, 2004-06



Environmental services: demand

- **Markets** – premiums paid for food and fibre that provide environmental services in the course of production (e.g. organic), but is only indirectly linked to the services provided, and premiums sometimes difficult to generate
- **Opinions** – views of media, NGOs, governments via elected representatives, experts – but imprecise and liable to be influenced by vested interests
- **Peer pressure** – demonstration farms, domestic or external moral suasion – farmer neighbours can indirectly articulate demand to each other
- **Surveys** – formal econometric studies, but rely largely on hypothetical “what-if” type questions

Methods of valuing demand

- **Contingent valuation** – willingness to pay (WTP) for the provision (or avoidance of loss) of a specified environmental service (“warm glow” bias?)
- **Travel cost** – amount visitors pay to visit sites characterized by agriculturally related landscapes
- **Hedonic price** – extra value of land and rents adjacent to areas of agri-environmental service provision
- **Choice experiments** - comparison of WTP values attached to the provision of different bundles of services or attributes of a composite environmental service

Challenges

Challenges to develop markets

- Some agri-environmental services are not marketed or marketable – public goods
- Some services are jointly produced with on-farm commodity production and farm practices....
-but there is no simple correlation between commodity production and environmental service
- Some services are the result of the collective production of many farms (“spatial jointness”)
- Some services could be provided by other land owners and users besides farmers

...some markets can be created...

- ...if property rights are clearly defined – who provides the service and who should be charged – which is not the case with public goods
- Premiums can be charged for food where environmental services are also produced – such as for some organics - plus tradable permit schemes, auctions, agri-tourism, voluntary and co-operative efforts among farmers
- Incentives to create markets greatest where there is least government support

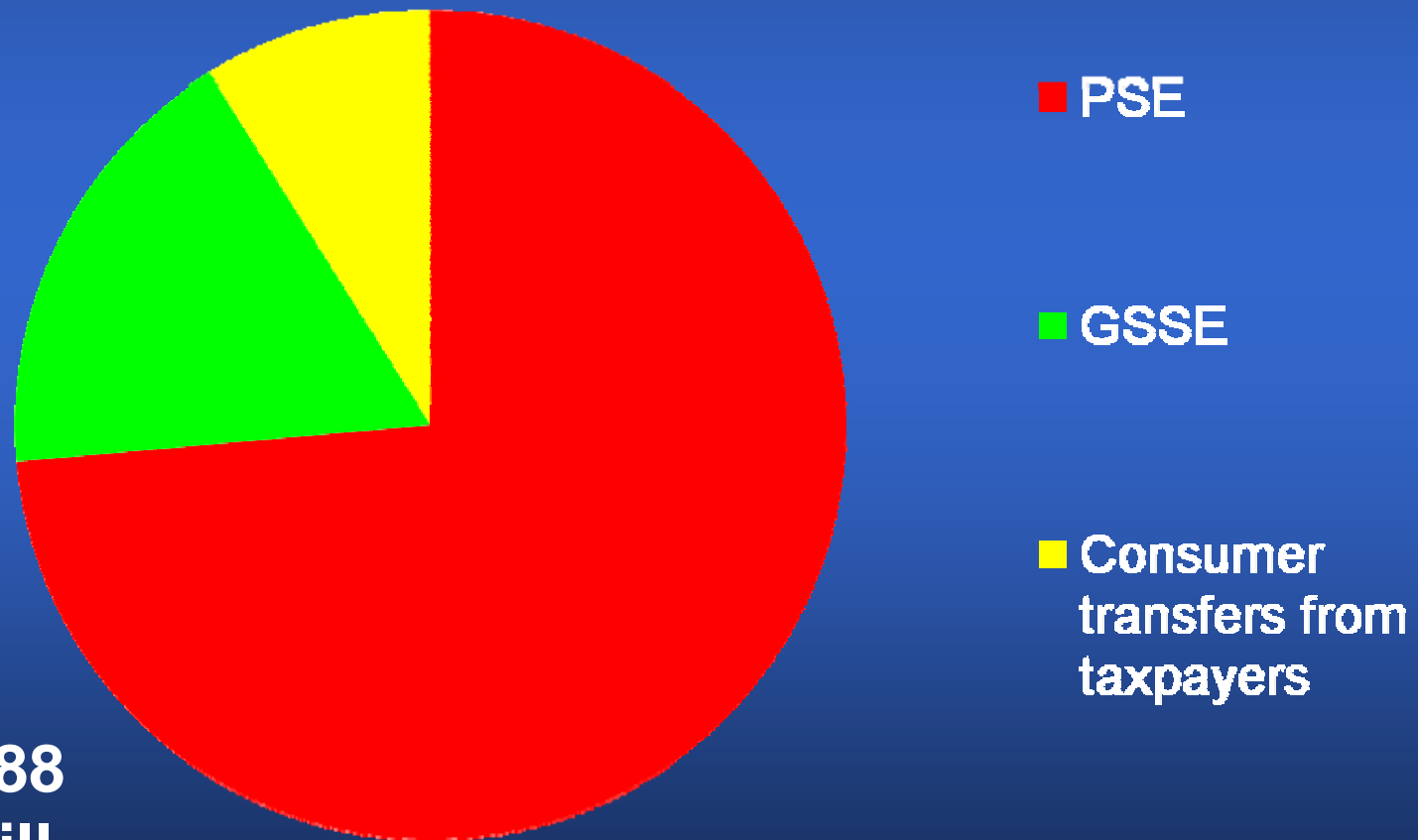
Agricultural Policy Reform

Progress in ag policy reform

- Policies gradually moving away from commodity specific support measures - decoupling
- Farmers have more production flexibility while still being eligible for support
- Increasing impact of environmental, food safety and animal welfare regulations – and cross compliance
- Policy reform offers the potential for better targeting – including for environmental services

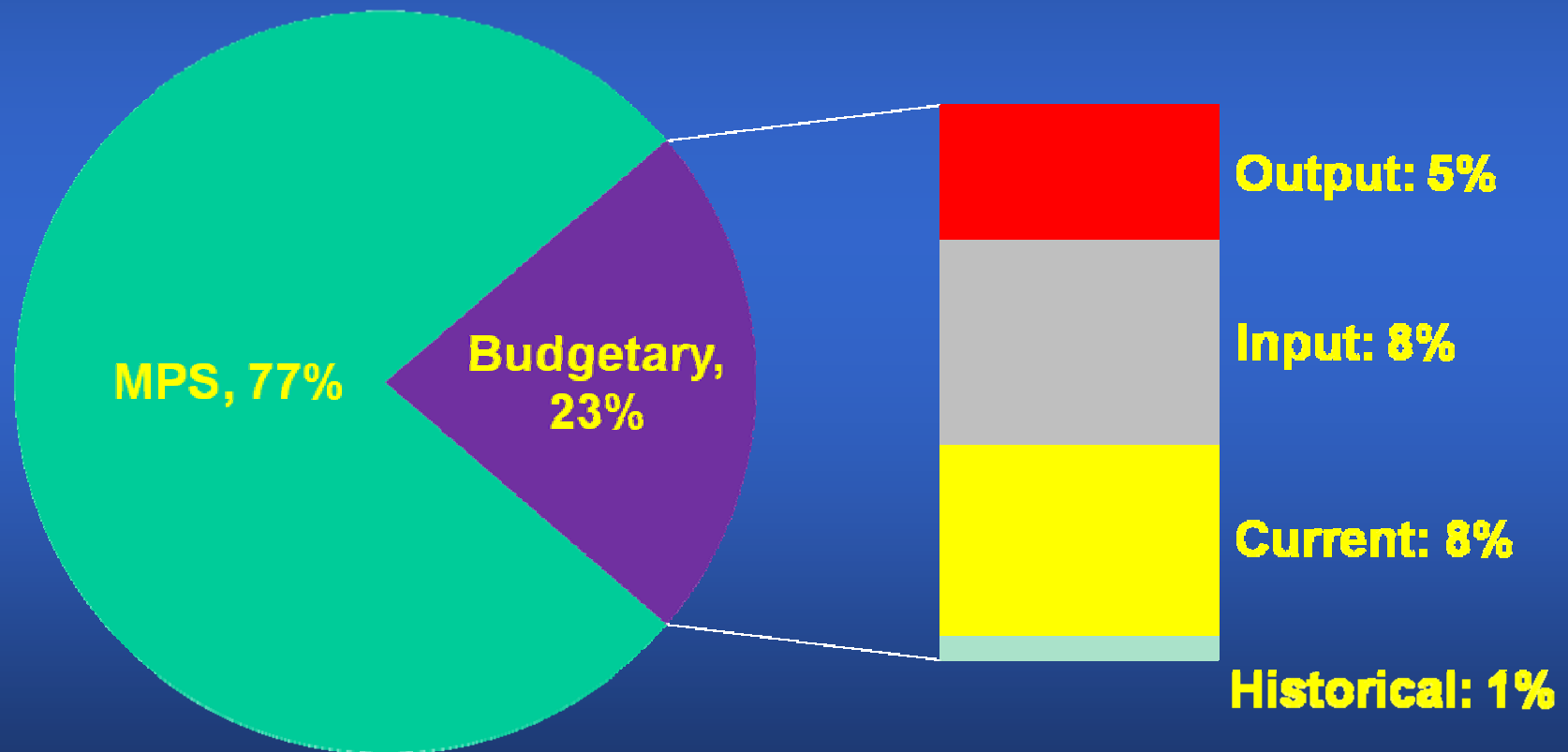
Agricultural policies: total support estimate for OECD 2004-06

\$US 381 billion (1.1% GDP)



TSE 1986-88
USD 299 bill.,
2.5% of GDP

Composition of producer support in OECD countries, 1986-88



...and in the US and EU...

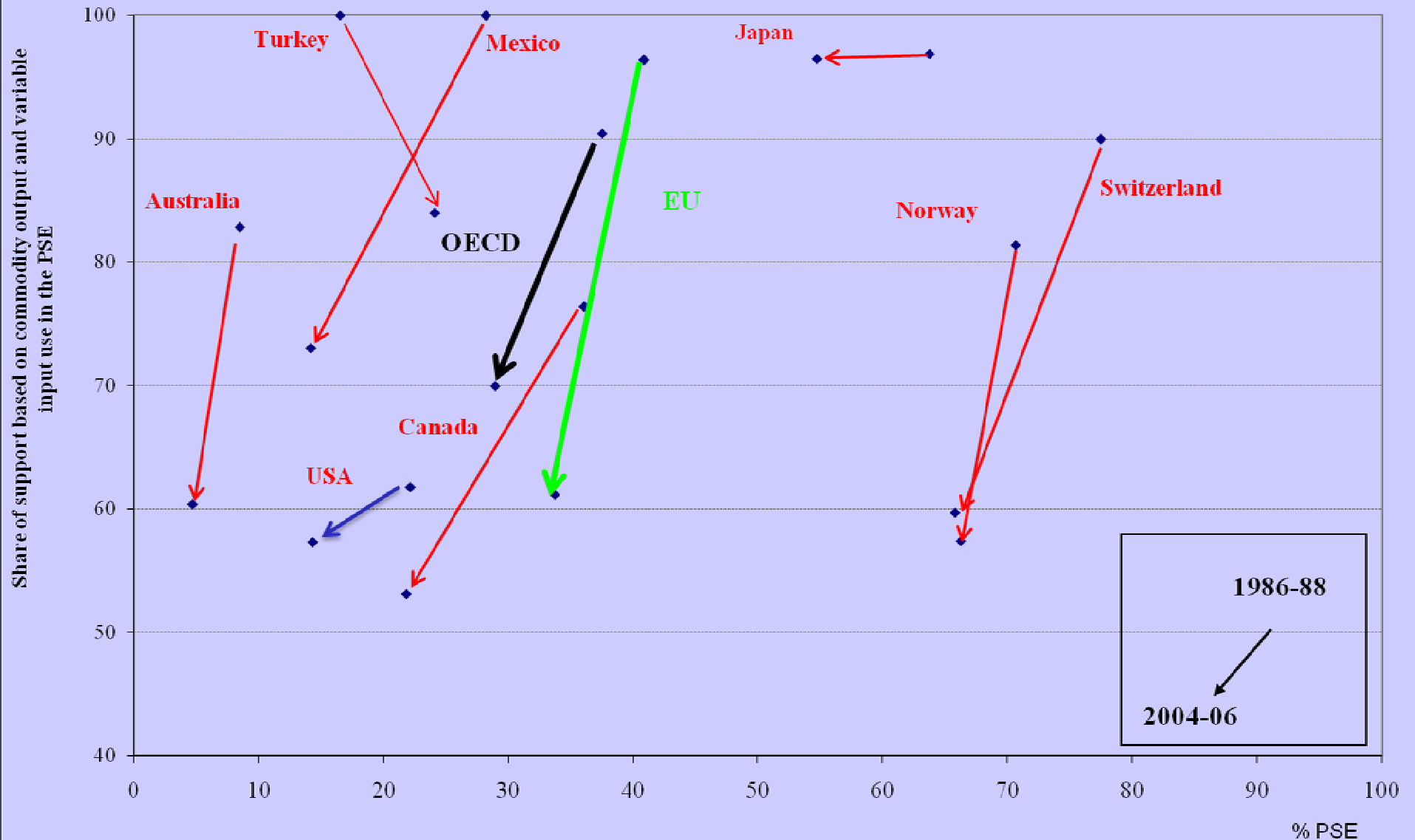
- **United States**

- In 1986-88 63% of producer support was from budgetary payments of which only 2% was based on historical variables or for non-commodities, while in 2004-6 the respective figures were 77% and 31%

- **European Union**

- In 1986-88 14% of producer support was from budgetary payments of which none was based on historical variables or for non-commodities, while in 2004-6 the respective figures were 52% and 15%

Mapping progress in policy reform



Agri-environmental Policies

How clear is the need for policy?



Range of policy instruments

- **Command and control** – designated areas with high nature values where agricultural practices are strictly specified (e.g. national parks, green zones); codes of practice, standards & certification
- **Economic instruments** – payments for targeted (not across the board) and tailored environmental service provision
- **Market facilitation** – market information, tradable permit schemes, agri-tourism, voluntary and co-operative efforts among farmers
- **R&D, extension services** – information on and dissemination of “good” farm practices

Policy incentives

- Payments for environmental services are incentives provided to farmers to voluntarily contract to deliver environmental services that would not otherwise be provided
- Assumption is that property rights rest with the farmers (who choose how to manage their resources) compared to the polluter pays principle where the rights rest with the public (who choose who is responsible for pollution)

US agri-environmental policy

- US agri-environmental policy is aimed at:
 - Maintaining soil quality
 - Preserving farm and ranch lands
 - Improving water and air quality
 - Increasing wildlife habitat and carbon sequestration
- US policy relies on a range of voluntary subsidies and cross-compliance mechanisms
- The goal is to design programmes to enrol eligible farmers who will deliver under contract the greatest benefit at the least cost

The US Environmental Benefits Index

- EBIs are indexes to prioritize multiple environmental objectives and rank applications
- EBI introduced in 1990 for Conservation Reserve Program
- Farmers voluntarily submit offers (bids) to provide environmental services and agree to implement certain practices or retire land from production
- The applications are ranked in terms of weighted environmental benefits – weights can be changed
- The given budget for a programme is then allocated to the farmers whose applications balance the highest environmental benefit against the costs of adopting conservation practices

EU agri-environmental policy

- EU agri-environmental policy is aimed at:
 - Improving water, soil and air quality
 - Preserving agricultural landscapes (cultural)
 - Preserving biodiversity and wildlife habitats
 - Ensuring viable farms to contribute to countryside stewardship in rural communities
- EU policy relies on environmental protection legislation, a range of voluntary payments and cross-compliance mechanisms
- The goal is to ensure that farmers deliver environmental benefits based on the general concept of good farming practice

Similarities and differences

- Between 15-20% of farmland in the EU and US are under specific agri-environmental programs
- About \$US 5-6 billion of public support is spent annually on specific agri-environmental programs in both areas
- EU policy has stressed the benefits that working farms provide to the environment, while US policy has stressed the benefits of idling environmentally sensitive land – but now more convergence
- US relies more heavily on voluntary approaches and places emphasis on bidding systems
- Both the EU and US focus on influencing farm management practices and have cross-compliance

Some concluding messages

- Need to have the right incentives (carrots) and disincentives (sticks) in place
- Transactions costs of implementing closely targeted policies are potentially high – but can overall save financial resources
- Essential to monitor and evaluate performance
- “Not everything that can be counted counts, and not everything that counts can be counted” *Albert Einstein*



Thank you for listening!

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