

# The efficiency and productivity of farming systems



## The Challenge

In order to promote a sustainable agricultural industry, farms must be resource efficient. CAP Reforms since the early 1990s have increasingly focused on resource efficiency issues to preserve the natural environment and secure greater income stability for Scottish farmers. Whilst CAP Reforms have been significant, prices, costs and land use change through succession have influenced the current technological and management structure of Scottish agriculture.

## Policy Implication

To accommodate future reforms and meet ambitions of the post-EU support climate, there is a need to focus on resource use efficiency to maintain resilience against rising input costs and decreased demand for agricultural products. A discussion is emerging towards protection of natural capital resources within future policy directions, but a number of documents have called for a refocus on productivity. This seems to infer sustainable economic growth is needed and a suite of indicators would explain the resilience of the sector both economically and environmentally.

## Research

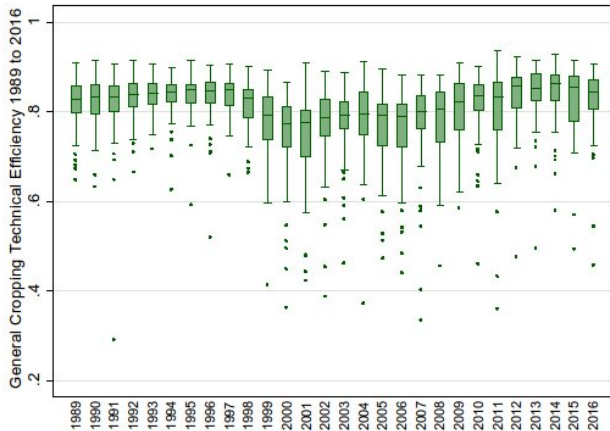
Using the Farm Business Survey (FBS) of 500 farm businesses in Scotland from 1989-2016, we evaluated the technical efficiency of all farm types. We can assess partial ratios of input to output, but it is more useful to take a whole farm approach to account for the majority of input resources which go into making a particular output. Moreover, managers make decisions at a farm level and allocate resources to maximising output and profits of enterprises on the farm.

## Results

The average technical efficiency of the farm has remained stable, despite fluctuations between periods. This may be a consequence of reorganisation of farm resources to accommodate changing biophysical and policy conditions. It is notable that there is a great level of divergence between top and bottom performers.

Farming is characterised by a range of decision makers and increasing choices towards technological adoption. Evaluating these techniques against risks and rewards helps categorise some farmers as risk takers and others as risk averse. For most farms there has been some technical progress, and this shows that Scottish farms within the FBS are continuing to adopt newer technology to progress resource use.

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## About

The Land Economy, Environment and Society (LEES) Research Group is one of the largest groupings of economists and social scientists working in the rural, agricultural and land based sectors in the UK. Our vision is to be recognised as one of the leading centres for agricultural and wider rural economic and social research globally, benefiting the land use sector, the environment and rural communities.

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