

## Extended abstract for Contributed Paper session

<b>Paper Title</b>	The effect of different implementations of the 2003 Mid-Term Review of the CAP on technical efficiency of beef production. A comparative analysis
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**Contributed Paper abstract prepared for presentation at the 91<sup>st</sup> Annual Conference of the Agricultural Economics Society, Royal Dublin Society in Dublin, Ireland**

**24 - 26 April 2016**

<b>Abstract</b>	<b>200 words max</b>
<p>Besides introducing decoupled payments, the 2003 Mid-Term Review allowed to maintain limited coupled support. As a result, there were significant differences in subsidies granted in each Member State. We aim to explore the effects on technical efficiency of the different implementations in the beef sector in selected countries, given that it was the sector where the highest level of coupled payments were retained. This analysis intends to provide some empirical evidence regarding the effect of maintaining different levels of coupled support, in addition to decoupled payments, on farm level economic performance. The countries and regions compared will be France, Ireland, Germany, Scotland and England and Wales. The effect of decoupled payments on efficiency is a priori unclear for all countries, however the retention of coupled support is expected to have a negative impact. A country specific output distance function will be estimated, together with the effects of a series of technical efficiency drivers, including different types of subsidies.</p>	
<b>Keywords</b>	technical efficiency, subsidies, CAP, output distance function, FADN, decoupling, beef production
<b>JEL Codes</b>	Q12 - <i>Micro Analysis of Farm Firms, Farm Households, and Farm Input Markets</i> ; Q18 - <i>Agricultural Policy, Food Policy</i>
<b>Introduction</b>	<b>100 – 250 words</b>
<p>The 2003 Mid-Term Review introduced for the first time decoupled payments as part of the CAP. In addition, EU Member States were given wide options regarding the maintenance of different types of coupled direct payments (i.e. arable payments and livestock premia) and other additional support for specific sectors.</p>	

Considering the rather complex system of payments put in place after the 2003 Reform, the aim of this paper is to explore the effects of different combinations of subsidies on farm technical efficiency in selected Member States. To our best knowledge, very few comparative analyses have explored the effects of subsidies implemented after the Mid-Term Review on farm economic performance. More specifically, this analysis intends to fill a gap regarding the lack of empirical evidence regarding the effect of the maintenance of different levels of coupled payments and/or additional specific support, in addition to decoupled payments, on farm level technical efficiency.

We focus the analysis on the beef sector, since it was heavily affected by partial decoupling and to our best knowledge, no comparative analysis in this sector has been performed to date.

Taking advantage of the harmonized financial data for EU farmers offered by the Farm Accountancy Data Network (FADN), we intend to estimate a series of output distance functions together with an inefficiency effects model in order to compare the effects of different levels of subsidy composition and coupling levels between selected Member States.

**Methodology**

*100 – 250  
words*

Stochastic Frontier Analysis (SFA) is the methodology implemented in order to obtain technical efficiency scores. In line with previous EU comparative analysis using SFA, a distance function is estimated here, with an output orientation. The effects of exogenous factors on efficiency are explored through their incorporation in the distribution of the inefficiency component in the model estimated. We implement a time variant model, where inefficiency is allowed to vary systematically as a function of time. The mean of the variance of the inefficiency component is expressed as a function of a vector of exogenous variables that are likely to affect farm technical inefficiency, among which are a set of country specific subsidy variables.

Country specific separated frontiers are estimated, since it is very unlikely that farms in different countries share the same production technologies. However, in order to allow the comparison of policy effects in a consistent way, the same empirical specification of the model is estimated. The only difference is in the variables capturing the effects of different types of payments implemented in each of the different countries.

**Results**

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words*

So far, estimates for Ireland have been obtained, using Irish NFS data. This data is recorded and transmitted by Teagasc to the European Commission in order to fulfil Ireland's obligation to provide data to FADN.

The model gives satisfactory results in terms of the number of significant variables and the monotonicity conditions, which are fulfilled at the means. The average technical efficiency score between 2005 and 2013 is of 0.717, meaning Irish beef farms have quite an important scope of improvement of output levels with the current input use.

The coefficients obtained in the inefficiency effects model estimated indicate the direction of the effect of the efficiency drivers on farm technical efficiency. Focusing on the subsidy variables included, the effect of receiving higher decoupled payments per hectare seems to have a positive and significant effect on efficiency. The effect of receiving higher share of total subsidies in the form of additional beef support is also linked with efficiency improvements.

#### Discussion

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words*

**Note that for the extension of the analysis to a comparative framework, we are still waiting on the European Commission to provide the FADN data files for the UK, France and Germany. The permission to use the data has been granted, however the files have not been physically sent to us yet.**

As already explained, we intend to implement the same model we have already estimated for Ireland using data for the UK (disaggregated to regional level in order to include two samples, one for Scotland and one for England and Wales), France and Germany.

The only variation is in the variables capturing the specific effects of different types of payments implemented in each. For Scotland, these variables are the same than in the Irish model, since the SFP together with additional beef support was implemented. Germany and England and Wales are included as examples of implementation of full decoupling and no additional or coupled support granted, therefore only a variable capturing the effects of decoupled payments is included in the models estimated for each. On the other hand, France implemented the SFP together with the maximum level of coupled support allowed in the beef sector, in addition to additional beef support. Therefore beef production remained heavily subsidised and only partially decoupled from production. We expect that the retention of such high level of coupled payments in France has had negative effects on farm efficiency in the sector.