

Extended Abstract

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Paper/Poster Title	Discussion Paper – How integrated are UK farm-gate prices with global markets? : An econometric investigation of the transmission from international prices to UK farm-gate prices over time
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Abstract	<i>200 words max</i>
<p>This discussion paper assesses econometric evidence on the transmission of international prices to domestic UK farm-gate prices over time. It assesses the extent to which international prices drive UK agricultural prices received by farmers and attempts to ascertain how the transmission from international prices to farm-gate prices has changed over time. To do so the analysis employs error correction models to examine relationships between UK farm-gate and international prices in two distinct periods of the CAP. We examine the evidence across agricultural commodities in both arable and livestock sectors, finding strong evidence of increased price transmission over time in line with policy reforms. Nonetheless the degree and pace of price transmission from global markets to the UK farm-gate varies substantially by commodity. The paper proposes methods for extending the econometric analysis to consider commodity-specific structural breaks and the possibility of asymmetric price transmission. The paper also proposes some policy implications around the impacts of further market liberalisation.</p>	
Keywords	Agricultural prices, CAP reform, international markets, econometrics
JEL Code	Q110 Agriculture: Aggregate Supply and Demand Analysis; Prices; Q170 Agriculture: Agriculture in International Trade
Introduction	<i>100 – 250 words</i>
<p>The UK is in the process of signing major Free Trade Agreements, with potentially significant ramifications for domestic agricultural sectors. Farming stakeholders have expressed some concerns about the potential exposure of UK agriculture to wider global markets following the UK's Exit from the EU. Recent volatility in international agricultural markets and prices has also generated policy discussion around the impacts of changes in global markets on domestic agriculture. To help us understand the implications of changes in global markets on UK farming, it is important to establish how exposed domestic farm-gate prices already are to international market prices. In the past, policy intervention – such the CAP – has affected transmission and our study hopes to shed light on how policy reform has affected transmission over time.</p>	

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Methodology	100 – 250 words
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The agricultural commodities considered in the analysis are feed wheat, milling wheat, barley, beef, milk, sheepmeat, pigmeat, and chicken. These commodities cover both the arable and livestock complex but clearly do not constitute all agricultural commodities produced in the UK. Monthly international reference prices are taken from the World Bank’s Pink Sheet and the FAO, whilst UK agricultural prices are taken from the UK Agricultural Price Index dataset published by Defra.

For many price-series there is evidence of a unit root confirmed by standard ADF tests. After examining cointegration, the econometric approach utilises the error correction model (ECM) which allows us to examine the short-run and long-run relationships between UK and international prices, as well as the pace of adjustment. ECMs have been used by many researchers to examine price transmission between domestic and international markets in the literature.

The sample is split into two roughly equal periods corresponding to two distinct periods of the CAP. The 1988-2005 period relates to a period of market price support via export subsidy and intervention storage, production quotas, and coupled support payments. The post-2005 period represents the decoupling of the bulk of CAP support from production and the phase-out of most market intervention measures. Error correction models were estimated in both periods on a commodity-specific basis and results compared, alongside standard econometric diagnostics. We report short-run and long-run elasticities estimated by the ECM, in addition to the speed of adjustment following a shock in international prices.

Results	100 – 250 words
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The econometric analysis of price transmission suggests that the relationship between UK farm-gate prices and international reference prices has changed dramatically over time. This is to be expected with CAP reforms which have generally led to a greater alignment of EU / UK prices with those pertaining in global markets.

In the first sample covering 1988-2005, there is a lack of a statistically significant long-run relationship between international prices and UK farm-gate prices for all commodities excluding pigmeat. Conversely, in a number of commodities, namely feed wheat, milling wheat, milk, sheepmeat and pigmeat, “perfect pass-through” – corresponding to a long run transmission coefficient from international to domestic prices of unity – cannot be rejected in the post-2005 sample. Whilst statistically

significant, the lowest long-run transmission coefficients appear on beef and chicken in the post-2005 period. Reasons for this are explored in the paper.

Despite increased transmission in the post 2005 period, both the short-run transmission elasticities as well as the speed of adjustment in UK farm-gate prices from a shock in international prices differ markedly across commodities.

Discussion and Conclusion

100 – 250 words

We find evidence that CAP reforms have been generally successful in market orientation for UK farmers. In a number of key agricultural commodities, UK farm-gate prices recently exhibit strong long-run relationships with international reference prices, whereas they did not in the more distortionary CAP period. For such commodities, there are two important implications : (1) the impact of any further liberalisation on farm-gate prices may be limited as prices are already firmly exposed to international factors and (2) future trends in international prices are likely to be a key determinant of prices received by UK farmers. For agricultural commodities characterised by lower transmission elasticities from international to domestic prices, the findings suggest these sectors could be expected to be more exposed to further liberalisation.

The speed of adjustment to a shock in global prices differs markedly by commodity. Potential reasons are explored in the paper as well as the implications for agricultural policies which try to address any fluctuations in farm income induced by shocks on global markets.

Extensions to the econometric analysis are proposed including potential asymmetry in price transmission and a more sector-specific analysis of the structural breaks. Policy reforms where undertaken and implemented at different times throughout the period, depending on the commodity in question. Chow tests for structural breaks would allow us to better isolate the date at which transmission changed and how timing corresponds to the trajectories of reform by sector.