

Analysis of correlations in prices between domestic and imported straight N fertilizers

Introduction

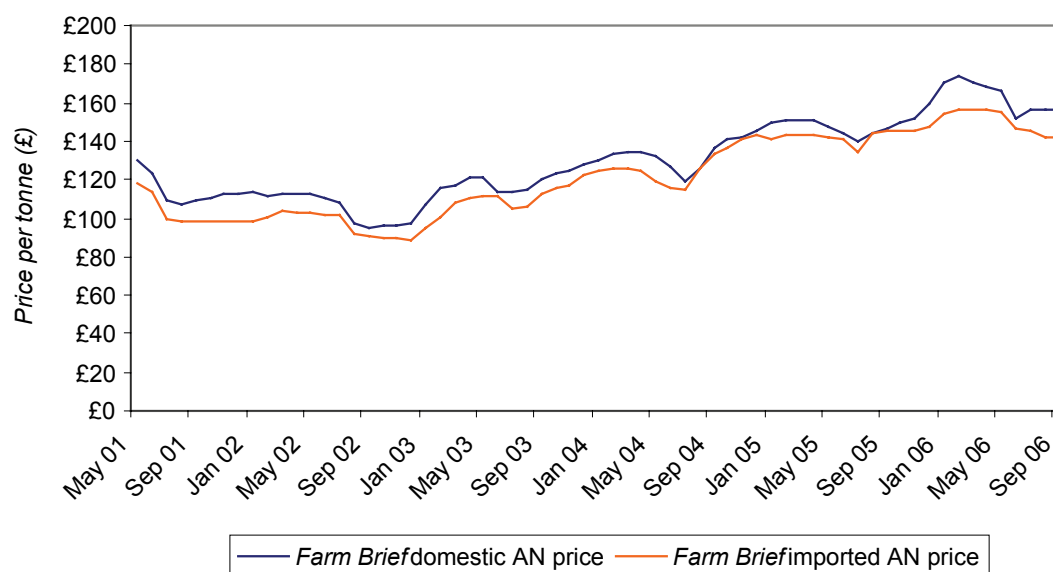
1. If two or more products are within the same economic market, such that a hypothetical monopolist of either would not find it profitable to impose a SSNIP, we would expect their prices to be correlated over time. This is because if prices were to diverge, we would expect demand- and/or supply-side substitution to cause prices to move back together. This appendix assesses the correlations between domestically-produced AN and the prices of imported AN and imported urea.

Price correlations

2. The parties submitted price data which showed that the prices of domestic and imported fertilizer products are positively correlated over time.¹ Charts showing this correlation in prices are shown in Figures 1 and 2. The correlation coefficient between domestic and imported AN (Figure 1) is 0.98 and the correlation coefficient between domestic AN and imported urea (Figure 2) is 0.92.

FIGURE 1

Domestic and imported AN prices

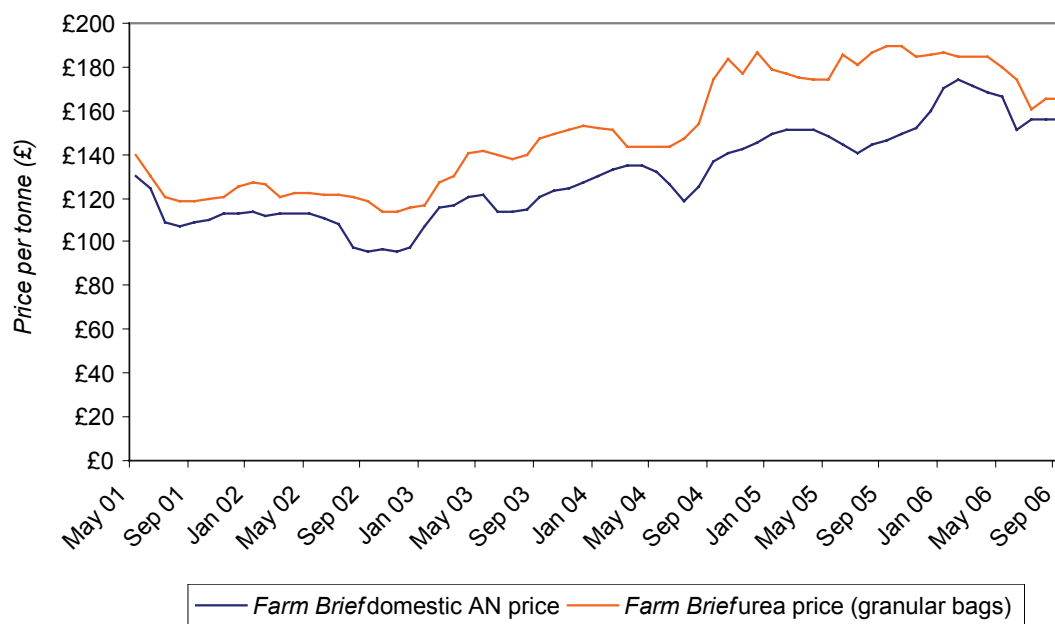


Source: Farm Brief.

¹This data was taken from published on farm (delivered) prices from a publication called Farm Brief.

FIGURE 2

Domestic AN and imported urea prices



Source: Farm Brief.

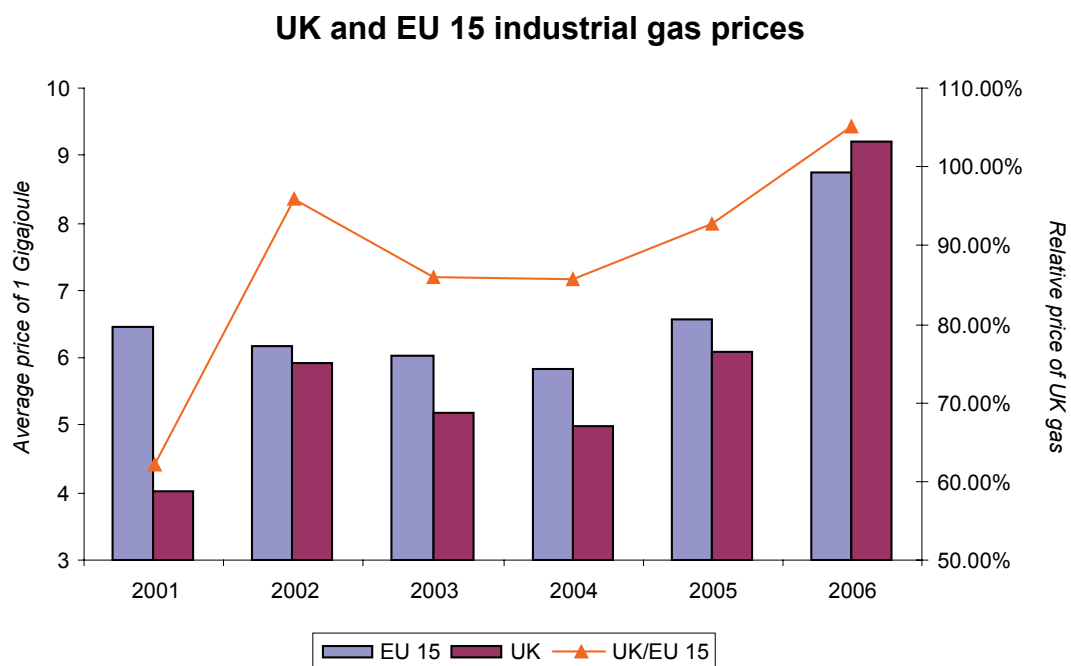
3. Price correlations are consistent with a wider market which includes both imported AN and imports of other straight fertilizers. However, price correlations alone are not conclusive evidence that the economic market is wider than AN in the UK. If prices are correlated as a result of substitution or arbitrage, then it is likely that those two products constitute one market. However, there are two alternative causes of correlated prices. These are:
 - (a) Price correlations may occur without substitution (or potential substitution) because of common cost movements. In this case, common movements in gas prices, which make up the majority of the costs of all nitrogen-based fertilizer products, may cause prices to be correlated.
 - (b) Price correlations may occur without substitution (or potential substitution) if there are common seasonal demand patterns. In particular, if the seasonal upturn in demand is correlated in the UK and in the rest of the EEA, this may explain some of the correlation in prices that we observe.
4. We therefore assessed whether the observed correlation in prices could be explained by either of the above factors, or whether it was as a result of substitution by customers between domestic and imported fertilizer products.

Natural gas prices

5. The price of natural gas in the UK increased sharply in the period from December 2005 to April 2006. [✂]

6. Figure 3 shows a comparison of annual natural gas prices in the UK and in the EU.² The chart shows that over time there has been a broad upward trend in both UK and EU gas prices; however, the upward trend in UK gas prices has been more marked.

FIGURE 3



Source: Eurostat.

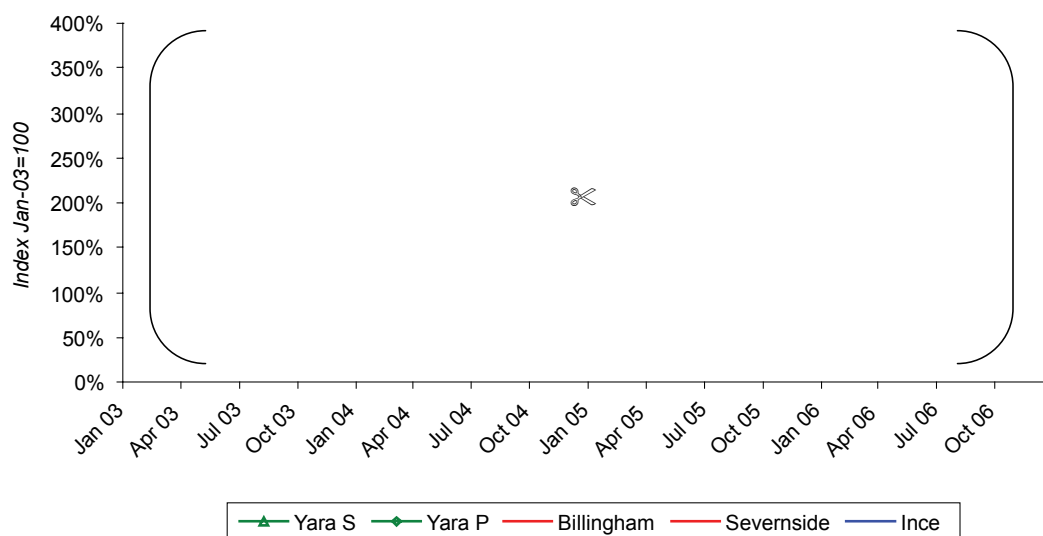
7. Figure 4 shows a comparison of the prices paid by each of the parties for natural gas with those paid by the largest importer to the UK, Yara. Yara supplied gas price data for two plants in Europe its Sluiskil plant in the Netherlands and its Porsgrunn plant in Norway.³ [✂]

²Source: Eurostat.

³Source: the parties. Yara prices from Yara questionnaire response.

FIGURE 4

Comparison of Kemira, Terra and Yara gas purchase prices



Source: The parties and Yara.

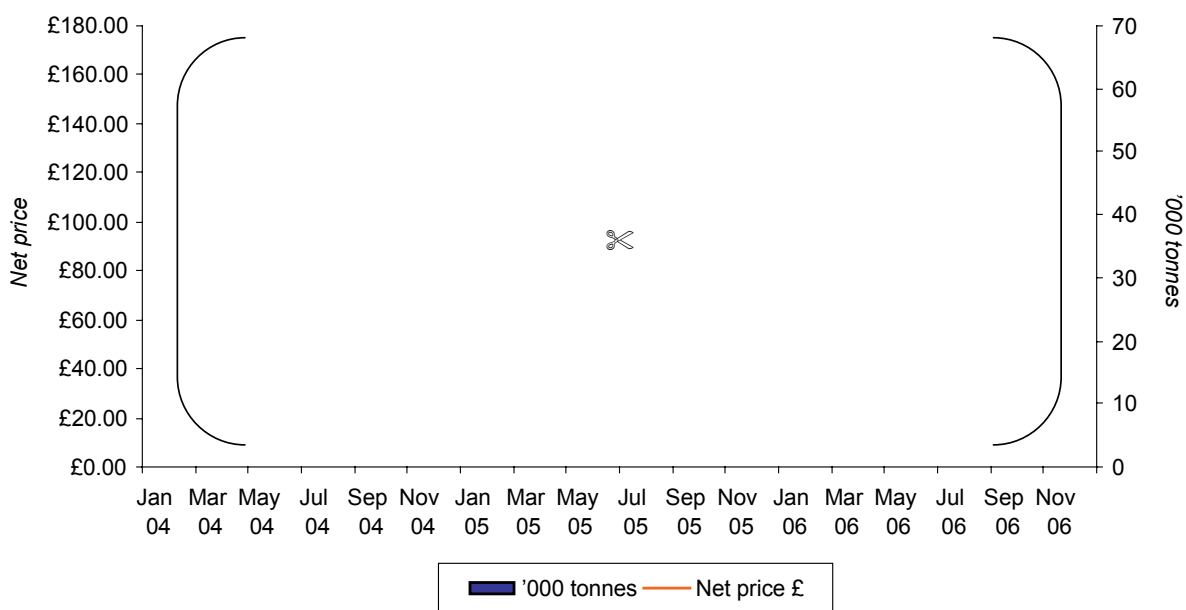
8. As Figure 4 shows, UK and European gas prices have tended to increase steadily over the period. However, natural gas prices in the UK increased considerably in the first six months of 2006.⁴ This would appear to show that the correlation in prices that we observe above is not caused by common movements in cost as there appears to have been a significant divergence in the main component of cost during the period.
9. In addition, were the UK to constitute a separate economic market, we would expect a significant cost shock to result in increased UK prices. [✂]⁵ This is illustrated in Figure 5.

⁴Terra ceased production of ammonia within the UK as a result of high gas prices. This explains the missing data in the chart as no gas was purchased during these months. Terra's net purchase price in March 2006 is distorted by the sale of some gas.

⁵Terra's prices [✂].

FIGURE 5

Price and sales of nitram (Terra)



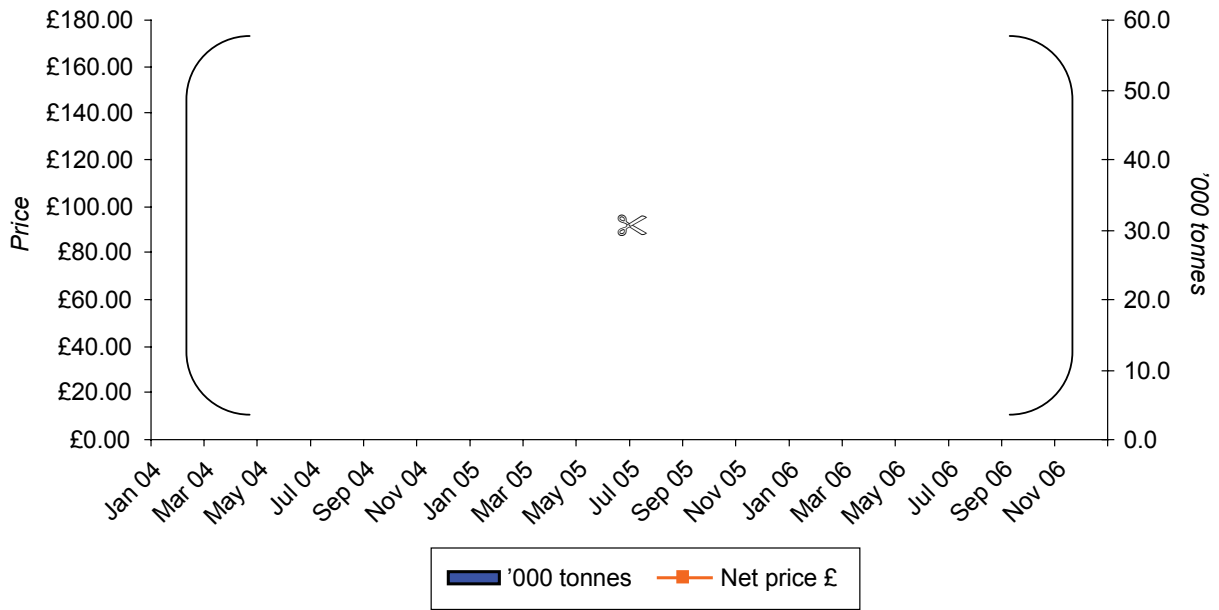
Source: Terra.

10. However, volumes appear to have [✂].⁶
11. Kemira sales volumes and prices over the period [✂].

⁶This is a common problem when analysing short-term price shocks, and is often termed 'larder loading'. Where customers observe temporary price shocks, they may 'stock up' (in the case of a low price) or, as in this case where there is a temporary price increase, they may delay purchases. As such, customer behaviour in response to these shocks should not be taken as direct evidence of likely behaviour in response to a SSNIP.

FIGURE 6

Kemira AN prices and sales, 2004 to 2006



Source: Kemira.

12. However, it is less clear from Kemira sales data whether [✂].