The impact of a sterling depreciation on the costs of a family shop on food, non-alcoholic drink, clothing and footwear

The impact of a depreciation in the sterling exchange rate

1.1 A range of external studies have estimated that leaving the EU would lead to a fall in the value of the pound of 12% on average.

1.2 As shown in Table 1.A, HMT estimates that a 12% fall in the price of sterling would increase the cost of a typical food and drink shop for a household of 2 adults and 2 children by around £120 a year by 2018. The cost of clothing and footwear spending increases by almost £100 over the same period.

1.3 According to ONS statistics, an average 2 adult 2 child household spends £81.40 a week on food and non-alcoholic drink, and £38.20 a week on clothing and footwear.

1.4 An exchange rate depreciation would start to have an impact on the cost of imports relatively quickly, but the full effect would take some time to pass through. This analysis is based on a 2 year horizon, by which time most of the effect would have passed through to consumer prices.

Table 1.A: Impact of 12% depreciation of sterling on shop of a 2 adult 2 child household

	Annual spend in 2014 (£)	Annual spend 2 years after depreciation (£)	Change (£)	Per cent change (%)
Food and drink	4233	4355	123	2.9
Clothing and footwear	1986	2085	98	5.0
Total	6219	6440	221	3.6

Source: ONS Family Spending 2015
Note: totals may not sum due to rounding

Technical note on methodology

1.5 To estimate the impact of a sterling depreciation on the sub-components of the CPI, the sensitivity of the 11 CPI components that make up the food and non-alcoholic drinks category to changes in the exchange rate is estimated econometrically.[1] This is similar to the approach taken

1 The Food and Non-alcoholic beverages component of the CPI is made up of: bread and cereals, meat, fish, milk, cheese and eggs, oils and fats, fruit, vegetables and potatoes, sugar and confectionary products, other food products, coffee, tea and cocoa and mineral water, soft drinks and juices.

in a Bank of Canada Discussion Paper published in October 2015.[2] The model below is estimated on quarterly data from 1997Q1 to 2016Q1.

$$CPI_t^i = \alpha + \sum_{j=0}^{8} \beta_j \Delta e_{t-j} + \sum_{j=0}^{8} \gamma_i \Delta wexp_{t-j}^i + \theta y_t + \emptyset oil_t + \varepsilon_t \quad (1)$$

Where:

- CPI_t^i is the annual inflation rate of component i (in log differences)
- Δe_{t-j} is the annual change in sterling ERI (in log differences) at lags of up to 2 years
- $\Delta wexp_{t-j}^i$ is the annual change in world export prices (in log differences) at lags of up to 2 years. This is measured using IMF indicators of world goods and commodity prices in dollar terms.
- y_t is the output gap, using the OBR March 2016 estimate.

1.6 The food and drink estimates are then weighted together using expenditure weights in the Consumer Price Index.

1.7 A different approach is used to estimate the impact of the depreciation on clothing and footwear prices. This is because the ONS 2010 change in price collection methodology makes econometric results less reliable.[3] Instead ONS estimates for the import intensity of the four categories that make up the 'Clothing and Footwear' CPI division are used. These are estimates of the proportion of household consumption that is directly due to imports. For example, 42% of consumption of garments is directly from imports, implying that a 12% change in the exchange rate would lead to garments overall becoming 5% more expensive. Table 1.B below shows the import content and implied price change from this method.

1.8 This method assumes the sterling depreciation is fully passed on to clothing and footwear goods that are imported. It also assumes that there is no effect on non-imported goods in these categories. These are both simplifying assumptions. One of which will result in downward pressure on prices, while the other would push up on clothing prices. These effects are likely to broadly offset each other.

Table 1.B: Clothing and Footwear import intensity and implied price change from a 12% depreciation

Component	Import Intensity (%)	Implied price change (%)
Garments	42	5.0
Other articles of clothing and accessories	31	3.7
Dry-cleaning, repair and hire of clothing	1	0.1
Footwear including repairs	50	6.0

Source: ONS Estimated import intensity of household consumption by classification of Individual Consumption According to Purpose (COICOP), 2010

2 Exchange Rate Pass-Through to Consumer Prices: Theory and Recent Evidence Bank of Canada Discussion Paper (2015).
3 This is because of the break in the series following the methodological change in measuring clothing prices in 2010, which affects the econometric estimation. See 'CPI and RPI: increased impact of the formula effect in 2010' ONS (2010).

Data sources

- CPI sub-component inflation rates and weights come from the latest ONS Consumer Price Inflation release
- sterling exchange rate data come from the Bank of England statistical interactive database
- world export prices come from IMF indicators of world goods and commodity prices[4]
- the output gap comes from OBR estimates
- oil price data are available on Bloomberg
- weekly household spending on food and drinks and clothing and footwear is available from the latest ONS Family Spending release, in tables A1 and A23. This has been scaled up to an annual figure in Table 1
- CPI component import intensity are available here

[4] Our results use 3 different variables: global food prices, global agricultural commodity prices and global commodities ex food, and takes the average of the results from these 3 models.