Did the 2021 UK Tampon Tax Abolition Reduce Prices?

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Summary

This report analyses the impact of the abolition of the 2021 UK tampon tax on prices. In particular, it is found that the elimination of the tax resulted in a roughly 4% decrease in the price of tampons, meaning that a majority of the savings was passed on to the consumers.

Introduction

On January 1, 2021, the United Kingdom abolished the 5% VAT on women's sanitary products, commonly known as the "tampon tax." Economic theory generally suggests that tax cuts lead to price decreases, but the extent of this effect depends on various factors such as demand elasticity. In the case of the UK tampon tax abolition, there has been considerable debate regarding its actual impact on consumer prices.

Neidle (2022) is one prominent study that appeared to find that the tax removal did not result in a price decrease. However, the study suffers from significant methodological shortcomings:

1. It assumes independent data points for inference, an unrealistic assumption for time series price data.
2. It fails to account for the methodology used by the Office for National Statistics (ONS) in calculating consumer price indices (CPI).

This report aims to address these methodological challenges and provide a more robust analysis of the tampon tax abolition's impact on consumer prices by employing an event study methodology utilizing time series techniques, incorporating the nuances of the ONS price index calculations, and conducting robustness checks.

Empirical Strategy

As mentioned in the introduction, the strategy employed in this analysis is an event study using time series methods. The model equation is

$$y_t = \beta_0 + \beta_1 T + \eta_t$$

where y_t is the natural log of the individual price index for tampons, T is a dummy equal to 1 after the abolition of the tampon tax, and η_t is an ARIMA error.

The identifying assumption of this approach is that, after accounting for the tampon tax abolition and incorporating time effects through ARIMA errors, there are no other significant, sudden shocks to prices. To validate this assumption, the same empirical strategy will be applied to several related goods, serving as a robustness check for the results.

Data

Data for this analysis comes from the ONS website https://www.ons.gov.uk/economy.

A crucial aspect of the ONS data that needs to be dealt with is the way the ONS calculates individual price indices. Effectively, every year individual price indices are rebased using last January's price index. The effect of this procedure can be seen in the section of the data below.

```
product_data %>%
  filter(ITEM_ID == 610310) %>%
  filter(INDEX_DATE <= as.Date("2009-02-01")) %>%
  print()
```

```
## # A tibble: 25 x 4
##    INDEX_DATE ITEM_ID ITEM_DESC                    ALL_GM_INDEX
##    <date>       <dbl> <chr>                               <dbl>
##  1 2007-02-01  610310 ULTRA LOW SULPHUR PETROL CPI         99.4
##  2 2007-03-01  610310 ULTRA LOW SULPHUR PETROL CPI        102.
##  3 2007-04-01  610310 ULTRA LOW SULPHUR PETROL CPI        106.
##  4 2007-05-01  610310 ULTRA LOW SULPHUR PETROL CPI        110.
##  5 2007-06-01  610310 ULTRA LOW SULPHUR PETROL CPI        111.
##  6 2007-07-01  610310 ULTRA LOW SULPHUR PETROL CPI        111.
##  7 2007-08-01  610310 ULTRA LOW SULPHUR PETROL CPI        110.
##  8 2007-09-01  610310 ULTRA LOW SULPHUR PETROL CPI        109.
##  9 2007-10-01  610310 ULTRA LOW SULPHUR PETROL CPI        112.
## 10 2007-11-01  610310 ULTRA LOW SULPHUR PETROL CPI        116.
## # i 15 more rows
```

Neidle, Dan. 2022. "How the Abolition of the "Tampon Tax" Benefited Retailers, Not Women. An Analysis of Pricing Evidence in ONS Data." https://taxpolicy.org.uk/wp-content/assets/tampon_tax_report.pdf.