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## RESEARCH BRIEFING NOTE

### Impact of changing the value of the Healthy Start Vouchers

#### Executive Summary

Healthy Start Vouchers (HSV) are a UK government program to support healthy food choices of low-income households with a pregnant woman or with children (aged 1-4 years). We used cash register data to explore how the recent increase in the voucher value from £3.10 to £4.25 impacted spending on eligible food items.

Using a difference-in-difference (DiD) approach, we controlled for time trends and other idiosyncratic factors and found the increase in voucher value by £1.15 resulted in 11 pence increase in spending on all eligible items, and an 8 pence increase in fruit and vegetable (F&V) spending. We also observed that the voucher value change had a greater impact upon F&V spending in more deprived areas compared to the least deprived areas.

#### Introduction

The Healthy Start Voucher program is designed to support families to buy certain types of milk, infant formula and fruit and vegetables. If families are receiving a qualifying benefit and are pregnant or have parental responsibility for at least one child under 4, then they are eligible for the scheme and receive vouchers worth £4.25 to help towards their food shopping. Two vouchers per week are given to families with a child under 1 year. Vouchers can be redeemed for plain cow's milk; plain fresh, frozen or tinned vegetables; infant formula milk; or fresh, dried and tinned pulses.

In this study, we analysed the effects of a recent change in voucher value, from £3.10 to £4.25. On January 4th, 2021, all Lidl stores increased the value of the HSV to £4.25. This meant that all Lidl customers who shopped in a Lidl store with a HSV were able to redeem £4.25 towards their shopping. This was followed by an increase in value to £4.25 nationally on the 1st of April 2021. This provided two time points to measure the effect of this increase in value on food shopping behaviours.

#### Methods

We used cash register data collected at all Lidl stores to create a nationally representative random sample of 15 million basket transactions covering the time period of October 4th, 2020, to June 3rd, 2021. Within this sample, we analysed the effect of the two changes in voucher value at two time points – the Lidl change on 4th January 2021 and the national change on 1st April 2021.

Using a difference-in-difference (DID) approach we identified the causal impact of the value change on the composition of items within the HSV baskets. DID compares HSV to non-HSV baskets before and after each value change, holding constant any other factors that may affect shopping behaviours.

Using this approach, we answered three main questions:

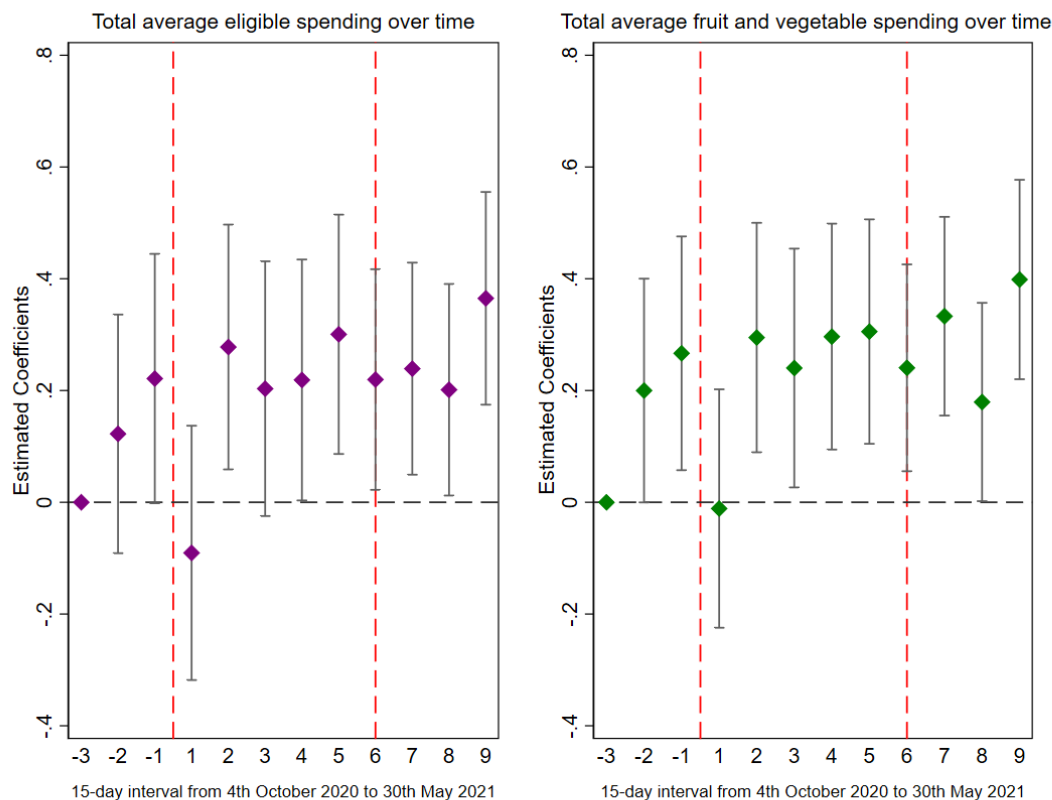
1. How does the change in voucher value (£1.15) affect spending on all eligible items?
2. How does the change in voucher value affect spending on fruit and vegetables (F&V)?
3. How does the change in voucher value affect F&V spending by store deprivation level?

## Results

To enable us to monitor change over time, we divided the time into 15-day intervals. These intervals included both the 4<sup>th</sup> January (Lidl Change) and the 1<sup>st</sup> April (National Change), 2021. For the purposes of this analysis, we investigated the change in F&V/eligible items purchased, between the HSV vs non-HSV baskets, within each time interval, relative to January 2021 (time period 0, the time interval for the Lidl value change). Figure 1 shows the results. Each data-point (diamond shape) represents the difference in spending between HSV and non-HSV baskets (in £), relative to time period 0. The 'bar' around the data point represents the confidence intervals (Cis), so the distribution in the data. When the 'bar' does not cross the dashed grey horizontal line (at 0) this indicates that there is a statistically significant difference in spending between HSV and non-HSV baskets.

The vertical red dashed lines indicate the time point for each voucher value change. Note the second dashed line at time point '6' is for illustrative purposes only. The coefficients are compared to time period 0 – comparing spending patterns to time period 0, when the Lidl value change occurred.

**Figure 1: Total average eligible spending and fruit and vegetable spending over time**



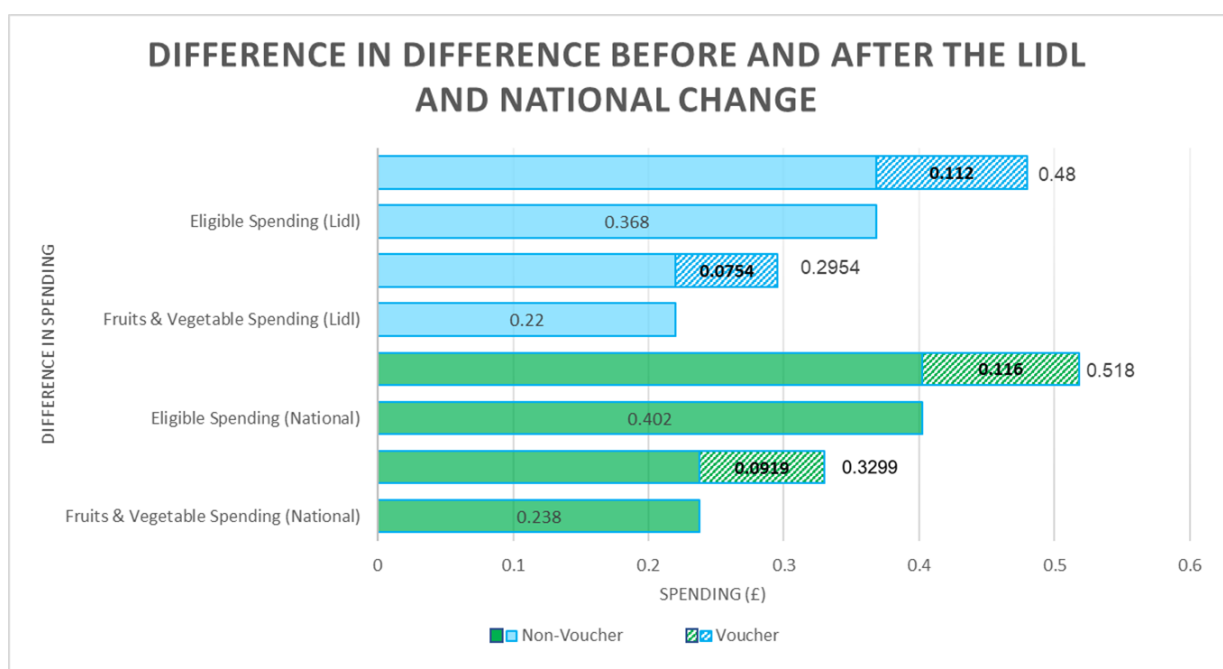
In summary, Figure 1 shows that across most time periods, the Lidl voucher value change had a statistically significant impact on spending on eligible items and on F&V. This provides a first indication that the increase in voucher value increased spending on eligible items.

### Impact of voucher value change on F&V and eligible item spending

To derive a clearer estimate of the magnitude of this effect we conducted a DiD analysis. Here, spending patterns across all months prior to the value change were jointly compared to all months after the value change.

Results for the DiD estimates are shown in figure 2.

**Figure 2: Difference-in-Difference after the Lidl and National Change**



As before, basket spending is divided into two categories – eligible spending and F&V spending. Within each category, are two bars – the top bar represents the average amount spent for HSV baskets, and the bottom bar represents the average amount spent for non-HSV baskets. The DiD estimator is the shaded area on each top bar (HSV baskets) and is the difference before and after the value change and the difference between the HSV and non-HSV baskets – so the overall impact of the voucher value change. In figure 2, the top two categories (top four bars) represent the impact of the Lidl value change, and the bottom two categories represent the impact from the national value change. So, if we take the eligible items as the first category, and focus on the Lidl value change, then we observe that the HSV baskets spent on average 11p more than non-HSV baskets; and for F&V spending, the difference is 8p.

Controlling for time trends via the DiD method is important as both HSV and non-HSV baskets increased spending on F&V over time, however the DiD allows us to show that the HSV baskets spent 8 pence more than the non-HSV baskets on F&V. These results suggest that, in statistical terms, the Lidl voucher value change had a significant positive change on spending patterns.

Focussing on the national change, so comparing the whole time period before and after the national change, we arrive at similar conclusions. We observe a 12 pence increase in eligible item spending and a 9 pence increase in F&V spending

Taken together, these results suggest that within this sample, most of the impact on spending behaviours occurred after the Lidl value change prior to the nationwide change.

**Result 1: The increase in voucher value significantly increased spending on F&V and eligible items.**

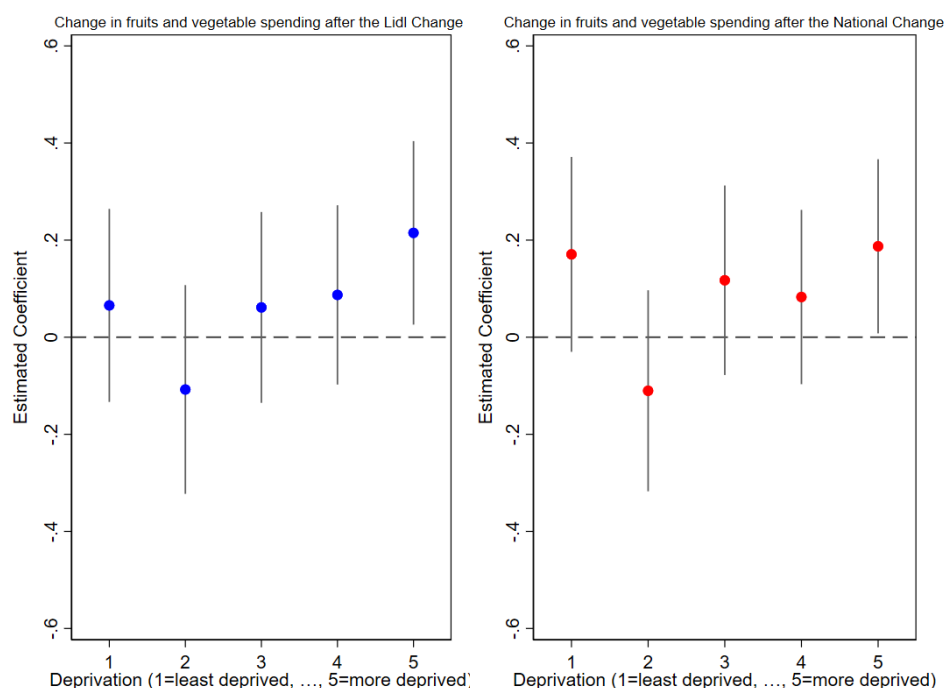
### Impact of voucher value change by store deprivation

In this section we repeat the previous analysis focusing on Lidl stores located in areas with different levels of deprivation. To classify areas, we used the Index of Multiple Deprivation (IMD). The IMD is the official measure of relative deprivation in England, which ranks all areas according to their level of deprivation, relative to that of other areas. Here we categorised stores into five different deprivation groups. A score of 1 refers to the least deprived areas and a score of 5 refers to the most deprived areas.

Figure 3 summarises the effect from the HSV value change for each of these five different deprivation groups. Each datapoint depicted indicates how much more or less F&V spending changed for a HSV basket relative to a non-HSV basket as a result of the value change. It therefore indicates whether the value change increased or decreased spending. Each data point also has a confidence interval (CI), which indicates the statistically probable range for the size of the effect. If the whole CI is above the zero line, this indicates in statistical terms that there has been a significant increase.

Comparing results from the least to the most deprived areas for the Lidl value change (left-hand chart) we see that the effects become larger for more deprived areas. From a statistical perspective, the observed increase is only statistically significant for the most deprived area (data point 5).

**Figure 3: Change in voucher groups fruit and vegetable spending by deprivation**



We can see clearly that the increase in F&V spending for HSV baskets is largest in the most deprived areas and for the less deprived areas we detect no statistically significant change in spending patterns. These results suggest that the change in voucher value had the biggest effect in areas with high levels of economic and social deprivation. These results are comparable when focused on eligible item spending.

**Result 2: The effect of the value change is strongest for the stores located in the most deprived areas**

## **Conclusion**

These early results suggest that both the Lidl increase and the national increase in value of HSV vouchers had a statistically significant impact on F&V, and eligible item spending. HSV baskets spent 11p more after the Lidl value change than before, relative to non-HSV baskets. In other words, each additional £1 of value change led to an increase in spending on eligible items of around 7p. In more deprived areas this increase was more substantial and amounted to 35p (or 30p per additional £1 value change).

## **Implications and Recommendations**

Our analysis provides evidence that the change in voucher value had the desired effect of increasing spending on eligible items. There is a statistically significant DiD effect. Quantitatively these effects are at the lower end of prior published estimates that indicated each £1 increase in government spending leads to 6-10p of additional spending on healthy food items. The overall effect of a £1.15 on dietary composition is therefore rather modest. The explanation for this is simple. In our sample, almost half of HSV baskets spent more than £4.25 on eligible items such that the increase in voucher value had an income effect (i.e., expanding the budget) but no price effect (reducing the price of eligible items to zero). As intended, the increase in voucher value had its biggest impact in more deprived areas in the UK.

If the government intended to have a stronger impact on the dietary health of poorer households, it would be required to increase the value of HSV values even further. It is expected that each additional increase in voucher value will have a stronger impact on the basket share of eligible items as the price effect will become larger the higher the HSV value.