Impact of Pesticide Residue Concerns on Fresh Produce Consumption in the UK

by

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Pesticide residues in fresh produce are a major consumer concern (Keikotlhaile et al., 2010). After food poisoning, the presence of chemical substances (toxics and pesticides) is the main food concern among European Union citizens; above obesity and genetically modified food concerns (EC, 2006). In the United Kingdom (UK), out of 2,309 samples of fruit and vegetables tested, pesticide residues were detected in 66.4% of the cases (PRC, 2008).

Objective

Academic research has focused on determining the willingness to pay for pesticide-free products rather than estimating demand conditions. There is no evidence to indicate whether the stated preference has translated into revealed preferences, and there is insufficient demand information to tailor a communication campaign to minimise potential negative effects.

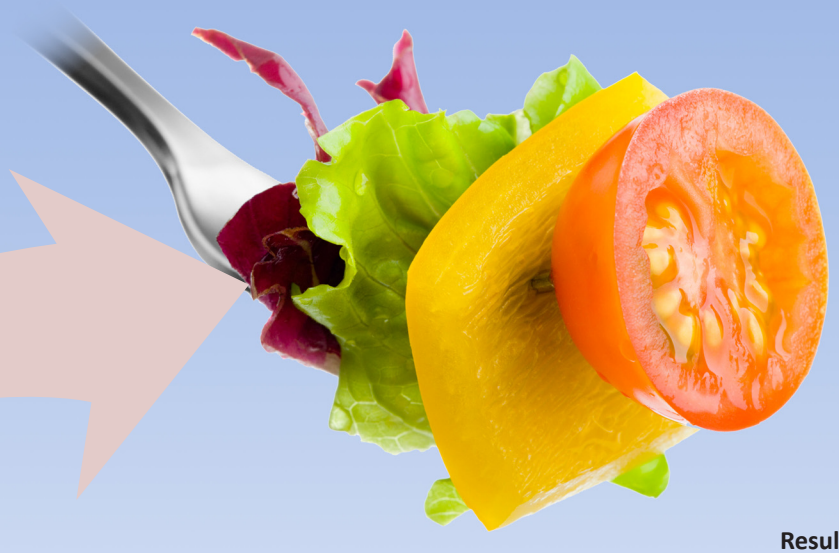
We estimate the impact of pesticide news among UK households, upon healthy eaten patterns, with respect to changes in food consumption.

Dataset and Methodology

We use the Living Costs and Food Survey dataset (formerly Expenditure and Food Survey) that involves more than six thousands households per year. For two weeks, households keep a diary including food eaten outside, at home, homegrown and free food.

Using Nexis engine, we utilise as a proxy of pesticide concerns the newspaper hits per month, with the keywords: fruit and vegetable or produce and pesticide.

Assuming weak separability, we use the Paasche index to aggregate over categories. The elasticity estimation for a two stage demand system is presented in Carpentier and Guyomard (2001) .



Elasticity estimation

2 stage LA/AIDS with pesticide media index

UK household dataset (apr 01-dec 08)

Results

Summary SUR estimation

		Parameters		
Stage 1		R^2	Total*	Significant (95%)
	Food	0,89	15	8
	Personal	0,50	15	5
Stage 2				
	Fresh Produce	0,79	17	11
	Processed F&V	0,47	17	9
	Meat and Dairy	0,60	17	13
	Fat and Carb	0,64	17	10

(*) it includes a set of monthly dummy variables and a linear trend.

Unconditional Uncompensated Elasticities

Stage 1	Food	Personal	Home and Transport	Expenditure	Media Index
Food	**-0,82**	0,03	0,78	0,55	0,000009
Personal	-0,10	**-1,28**	1,24	1,31	-0,000066
Home and Transport	0,20	1,08	**-1,27**	0,91	0,000046

Stage 2	Fresh Produce	Processed F&V	Meat and Dairy	Carb and Fat	Other Food	Expenditure	Media Index
Fresh Produce	**-0,93**	-0,0050	0,01	-0,01	0,98	0,51	-0,00016
Processed F&V	0,01	**-1,10**	0,03	0,08	1,04	0,57	0,00004
Meat and Dairy	0,01	0,0021	**-0,98**	-0,0028	1,01	0,54	0,00013
Fat and Carb	-0,0026	0,04	-0,01	**-0,99**	1,01	0,54	0,00026
Other Food	0,23	0,14	0,55	0,27	**-1,15**	0,58	-0,00011

Conclusions

As a result of pesticide news, UK householders have changed their consumption patterns. Firstly, households do not vary their overall food expenditure much. Secondly, fresh produce are substituted by carbs and fats, and in less degree, by meat and dairy. Thirdly, processed fruit and vegetables are less sensitive to pesticide news and do not vary their expenditure much. Consequently, the evidence shows that as a result of pesticide news UK households are eating a less healthy diet.

References

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