

The distributional and nutritional impacts and mitigation potential of emission-based food taxes in the UK

Article

Supplemental Material

Kehlbacher, Ariane, Tiffin, Richard, Briggs, Adam, Berners-Lee, Mike and Scarborough, Peter (2016) The distributional and nutritional impacts and mitigation potential of emission-based food taxes in the UK. *Climatic Change*, 137 (1-2). pp. 121-141. ISSN 0165-0009 doi: <https://doi.org/10.1007/s10584-016-1673-6> Available at <https://centaur.reading.ac.uk/63881/>

It is advisable to refer to the publisher's version if you intend to cite from the work. See [Guidance on citing](#).

To link to this article DOI: <http://dx.doi.org/10.1007/s10584-016-1673-6>

Publisher: Springer

All outputs in CentAUR are protected by Intellectual Property Rights law, including copyright law. Copyright and IPR is retained by the creators or other copyright holders. Terms and conditions for use of this material are defined in the [End User Agreement](#).

www.reading.ac.uk/centaur

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

Appendix

Figure 1: Estimated demand system

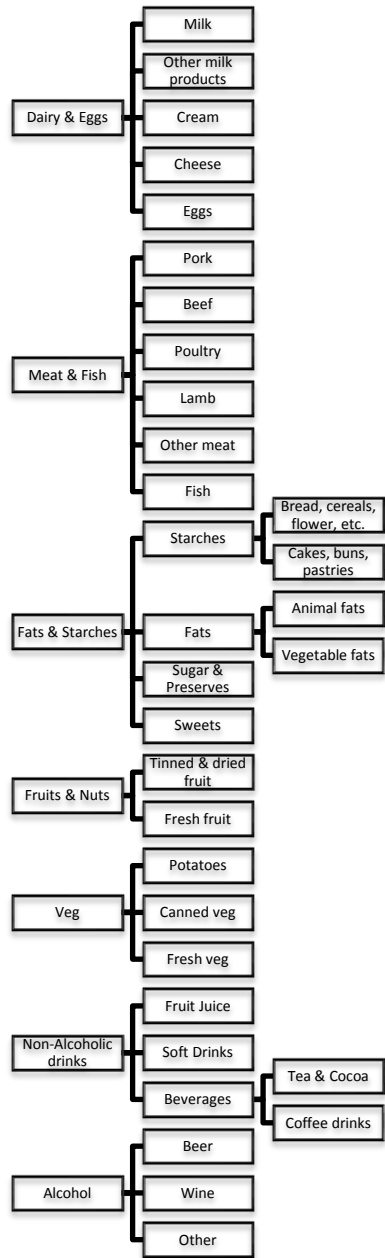


Table 5: Sample characteristics, sample sizes and population equivalents (LCF, 2011)

Name	Gross wkly. income per capita (£)	Avrg. wkly. pensioner Inc. (£)	No. of econ. active persons	Sample				Population	
				No. of persons < 18 yrs	No. of persons 18-45 yrs	No. of persons 46-59 yrs	No. of persons > 60 yrs	N	%
SEC1	1251.81	664	1.78	1.06	1.10	1.81	0.21	2,821,760	11.52
SEC2	976.89	989	1.76	1.01	1.06	1.75	0.16	4,194,316	17.58
SEC3	673.45	721	1.72	1.01	1.01	1.64	0.28	2,906,290	11.1
SEC4	590.11	1200	1.59	0.99	1.10	1.73	0.22	5,238,317	18.92
OTHER	397.03	2086	0.19	0.26	0.24	0.44	1.15	8,622,152	40.89
Total								23,782,836	100

Table 6: Expenditure shares (in %) and weekly food expenditure (in £)

	SEC1	SEC2	SEC3	SEC4	SEC5
Milk	0.036	0.037	0.039	0.041	0.042
Other milk	0.037	0.038	0.039	0.042	0.043
Cream	0.004	0.004	0.004	0.004	0.004
Cheese	0.035	0.036	0.038	0.040	0.041
Eggs	0.010	0.011	0.011	0.012	0.012
Pork	0.050	0.051	0.054	0.054	0.058
Beef	0.032	0.033	0.035	0.035	0.038
Poultry	0.038	0.038	0.041	0.041	0.044
Lamb	0.012	0.012	0.013	0.013	0.014
Other Meat	0.040	0.041	0.043	0.043	0.047
Fish	0.042	0.043	0.046	0.046	0.049
Bread etc.	0.103	0.110	0.113	0.123	0.117
Cakes etc.	0.049	0.053	0.054	0.059	0.056
Animal fats	0.006	0.006	0.007	0.007	0.007
Veg. fats	0.016	0.018	0.018	0.020	0.019
Sugar etc.	0.007	0.007	0.007	0.008	0.008
Sweets	0.034	0.036	0.037	0.041	0.039
Tinned/dried fruit & nuts	0.015	0.014	0.013	0.010	0.013
Fresh fruit	0.067	0.060	0.057	0.045	0.059
Potatoes	0.030	0.030	0.029	0.028	0.027
Canned veg	0.052	0.052	0.050	0.048	0.046
Fresh veg	0.078	0.079	0.075	0.072	0.069
Fruit juice	0.019	0.019	0.021	0.021	0.017
Soft drinks	0.033	0.034	0.036	0.038	0.030
Tea & Cocoa	0.008	0.009	0.009	0.009	0.008
Coffee drinks	0.010	0.010	0.011	0.011	0.009
Beer	0.026	0.022	0.019	0.017	0.016
Wine	0.090	0.079	0.068	0.058	0.056
Other alcohol	0.021	0.018	0.016	0.014	0.013
Weekly food expenditure	82.30	72.27	65.44	59.27	51.80

Table 7: Scenario A- Consumption change (in %)

	SEC1	SEC2	SEC3	SEC4	OTHER
Milk	-10.038*	-8.911*	-8.935*	-10.407*	-8.274*
Other milk	-4.465*	-4.839*	-4.618*	-8.224*	-4.600*
Cream	-3.610*	-4.284*	-5.583*	-6.092*	-4.105*
Cheese	-3.873*	-6.847*	-5.088*	-5.107*	-4.098*
Eggs	-7.901	-8.384*	-8.198	-6.737*	-4.749*
Pork	-5.108*	-5.169*	-4.953*	-7.185*	-5.500*
Beef	-6.051*	-5.539*	-7.435*	-10.526*	-10.183*
Poultry	-1.736*	-2.106*	-2.254*	-3.874*	-3.082*
Lamb	-7.394*	-9.622*	-8.685*	-6.983*	-6.502*
Other Meat	-4.159*	-7.512*	-5.222*	-10.155*	-8.216*
Fish	-4.235*	-5.224*	-6.699*	-15.954*	-8.395*
Bread etc.	-6.997*	-6.047*	-7.999*	-8.258*	-8.176*
Cakes etc.	-0.172	0.381	-0.096	0.326	-0.243
Animal fats	-2.982*	-4.659*	-4.061*	-3.600*	-5.551*
Veg. fats	2.395*	0.698	1.528*	-1.424	0.096
Sugar etc.	-5.639*	-3.706*	-27.995*	-3.428	-1.066
Sweets	-11.950*	-7.603*	-22.067*	-5.722*	-7.810*
Tinned/dried fruit & nuts	-2.267*	-2.131*	-1.273	-2.269*	-1.895*
Fresh fruit	-2.301*	-2.754*	-2.911*	-4.108*	-1.844*
Potatoes	-0.974*	-0.811*	-1.913*	-4.626*	-2.169*
Canned veg	-3.371*	-3.949*	-4.073*	-3.949*	-6.775*
Fresh veg	-4.145*	-4.689*	-3.974*	-4.159*	-4.020*
Fruit juice	-3.028*	-5.234*	-3.440*	-7.454*	-3.422*
Soft drinks	-4.094*	-4.608*	-4.041*	-4.885*	-7.173*
Tea & Cocoa	-1.386	-2.283*	-2.051*	-2.020*	-6.282*
Coffee drinks	-2.551*	-4.320	-4.386*	-3.046*	-3.765*
Beer	-1.985*	-2.313	-3.857	-1.781*	-2.191*
Wine	-1.589	-0.959	-1.416	0.258	-0.985
Other alcohol	-2.410	-2.903	-3.602	0.875	-1.194

*95% credible interval excludes zero

Table 8: Scenario B- Consumption change (in %)

	SEC1	SEC2	SEC3	SEC4	OTHER
Milk	-0.192	-0.313*	-0.470	-0.935*	-0.574*
Other milk	-0.383	-0.290*	-0.134	-2.241*	-0.379*
Cream	-0.399	-0.171	-0.122	-0.075	-0.019
Cheese	-3.902*	-6.376*	-4.847*	-5.080*	-4.312*
Eggs	-3.990	-7.056*	-3.576	-3.873*	-1.310
Pork	-5.121*	-5.149*	-5.186*	-6.963*	-5.463*
Beef	-6.045*	-5.392*	-7.652*	-10.452*	-10.159*
Poultry	0.042	0.011	-0.135	-0.710*	-0.390*
Lamb	-7.313*	-9.519*	-8.710*	-6.977*	-6.509*
Other Meat	-4.165*	-7.268*	-5.272*	-10.054*	-8.213*
Fish	-3.619	-3.552*	-7.877*	-12.545*	-7.023*
Bread etc.	-6.730*	-5.820*	-8.012*	-8.182*	-8.206*
Cakes etc.	0.385	0.974*	0.557	1.139*	0.368
Animal fats	-2.858*	-4.064*	-3.468*	-3.567*	-5.170*
Veg. fats	4.143*	2.778*	3.546*	1.298	2.341*
Sugar etc.	-2.649	-1.678	-22.799*	-0.691	2.257*
Sweets	-8.007	-3.402	-17.874*	-2.244	-4.882*
Tinned/dried fruit & nuts	-1.302	-2.061*	-0.823	-1.447*	-1.115
Fresh fruit	-0.830	-1.381*	-0.888	-1.622*	-0.481
Potatoes	-0.414*	-0.356*	-0.830*	-2.591*	-1.103*
Canned veg	-0.564*	-0.931*	-0.745*	-0.685*	-2.106*
Fresh veg	-0.976*	-1.100*	-0.398*	-0.675*	-0.477*
Fruit juice	-0.058	-0.797	-0.004	-0.008	-0.633*
Soft drinks	-0.014	-0.258	0.034	-0.122	-2.926*
Tea & Cocoa	-2.040*	-2.846*	-2.072*	-2.082*	-5.266*
Coffee drinks	-3.446	-5.255*	-4.422*	-3.125*	-3.195*
Beer	-0.078	-0.432	-1.102	0.056	-0.029
Wine	-0.763	-0.281	-0.472	0.250	-0.049
Other alcohol	-1.441	-1.424	-1.550	0.319	-0.124

*95% credible interval excludes zero

Table 9: Change in average daily intake per person (in %)

Scenario	SEC1	SEC2	SEC3	SEC4	OTHER	
A	Energy (kcal)	-3.14	-3.27	-4.34	-4.63	-3.60
	Total fat (g)	-2.57	-3.03	-3.25	-4.49	-3.44
	Saturated fat (g)	-3.78	-4.16	-4.77	-5.20	-4.33
	Total sugar (g)	-4.75	-4.22	-8.11	-4.96	-3.78
	Salt (g)	-3.42	-4.13	-4.02	-5.64	-5.17
	Fibre (g)	-2.73	-2.90	-3.42	-4.16	-3.41
	Fruit (g)	-2.30	-2.71	-2.79	-3.99	-1.85
	Veg (g)	-3.02	-3.34	-3.31	-4.28	-4.08
B	Energy (kcal)	-1.15	-1.27	-2.19	-2.04	-1.51
	Total fat (g)	-0.88	-1.24	-1.41	-2.09	-1.59
	Saturated fat (g)	-1.81	-2.08	-2.66	-2.57	-2.35
	Total sugar (g)	-1.42	-1.00	-4.45	-1.02	-0.66
	Salt (g)	-1.76	-2.39	-2.25	-3.44	-3.12
	Fibre (g)	-0.95	-1.06	-1.33	-1.76	-1.27
	Fruit (g)	-0.87	-1.43	-0.88	-1.61	-0.53
	Veg (g)	-0.70	-0.83	-0.64	-1.42	-1.12