

Subsidy would improve fruit and veg intake by as much as 15%, say economists

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High fixed costs for retailing fresh fruit and vegetables means that they cost 40% more than would be efficient, unlike unhealthy alternatives, which trade close to marginal cost, a new study demonstrates.

Introducing a subsidy to counteract the price distortion and reduce the cost of fruit and [vegetables](#) will change diets in a way that is not only healthier, but also more in line with what consumers like to eat, according to the research.

Published today in *Science Advances*, the study by economists at the University of Warwick set out to quantify distortions in the price of fruit and vegetables due to market imperfections, and their impact on our diets.

The economists found that fixed [costs](#) in the [supply chain](#) play a much larger role in the price of fruit and vegetables than in prices of other foods, distorting the relative price by at least 40%. These [high prices](#) imply that consumers on average buy 15% less fruit and vegetables than they would have if these sold at marginal cost. This underconsumption is due to a market imperfection: the fixed costs prevent the 'invisible hand' of the market from allocating more fruits and vegetables to consumers, which both they and the producers of these product would prefer.

The 15% underconsumption of fruits and vegetables due to retail market imperfections accounts for a third of the gap between the average amounts of fruit and vegetables consumed and the recommended intake.

Professor Thijs van Rens, one of the authors of the article, also leads the Warwick Obesity Network, which develops evidence-based policy and practitioner briefs supporting a national strategy against obesity. He said: "The food [retail market](#) is very competitive, so if there weren't any fixed costs you would expect food to be sold close to marginal cost. And the fact that they are not affects diets.

"A higher price of any product means that people buy less of it. The question is, by how much? We find that if the market were working correctly, consumers would buy 15% more fruit and vegetables than they

currently do, which would constitute a huge gain for public health.

"There is something wrong with the market, which is that there's a high fixed cost in the provision of fruits and vegetables. The effect of that is that the prices are too high, and consumption too low. What is worse: the effect is stronger when demand is low. And demand happens to be low where people are poor. So this [market failure](#) not only makes us all unhealthier, but it increases health inequality as well."

The shelf price of a product incorporates fixed costs associated with its manufacture and distribution. Fruit and vegetables have particularly high fixed costs as they are perishable products which requires them to be restocked more frequently. This drives up the price of fresh produce compared to other, unhealthier, foods, which are sold close to their marginal cost.

To investigate the impact this has on consumers' fruit and [vegetable](#) purchasing, the economists modeled the consumption behavior of households with different incomes, living in neighborhoods with different average income levels. They used data on food purchases in the United States from the NielsenIQ Homescan dataset, which contains detailed information about quantities and prices of food purchases between 2004-2014 from about 60,000 households, to determine how much what a consumer pays for fruit and vegetables varies due to their preferences over quantities and qualities of fruits and vegetables, and how much is due to these fixed costs.

The economists argue for a subsidy for fruit and vegetables as high as 25% to increase consumption of fruit and vegetables and make our diets healthier. It is estimated that UK supermarkets sold around [£10.4 billion of fresh produce in 2017](#), so they estimate that funding a subsidy would cost government £2.5 billion per year.

The NHS is estimated to have spent [£6.1 billion](#) on overweight and obesity-related ill-health in 2014/15 and will potentially spend £9.7 billion by 2050, while the overall cost of obesity to wider society is estimated at £27 billion.

Professor Van Rens adds: "Taxing and subsidizing to tackle obesity has been politically infeasible for some time but shouldn't be any longer. Obesity is a massive [public health](#) problem and we're not going to solve it with tweaks. We need to bring out the big guns: subsidies and taxes. A subsidy is in some ways the most market-based, least invasive intervention you can think of. Anything less than that is just giving friendly advice and will not get us where we need to be.

"There is no debate that [fruit](#) and vegetable consumption would increase if you subsidize it. The main contribution of our research is to show that the [market](#) is already so distorted that this subsidy would benefit every single consumer in the economy."

"How Distorted Food Prices Discourage a Healthy Diet" will be published in *Science Advances*.

More information: Roberto Pancrazi et al, How distorted food prices discourage a healthy diet, *Science Advances* (2022). [DOI: 10.1126/sciadv.abi8807](#). www.science.org/doi/10.1126/sciadv.abi8807

Provided by University of Warwick

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