

# Obesity rates have fallen! We're winning?

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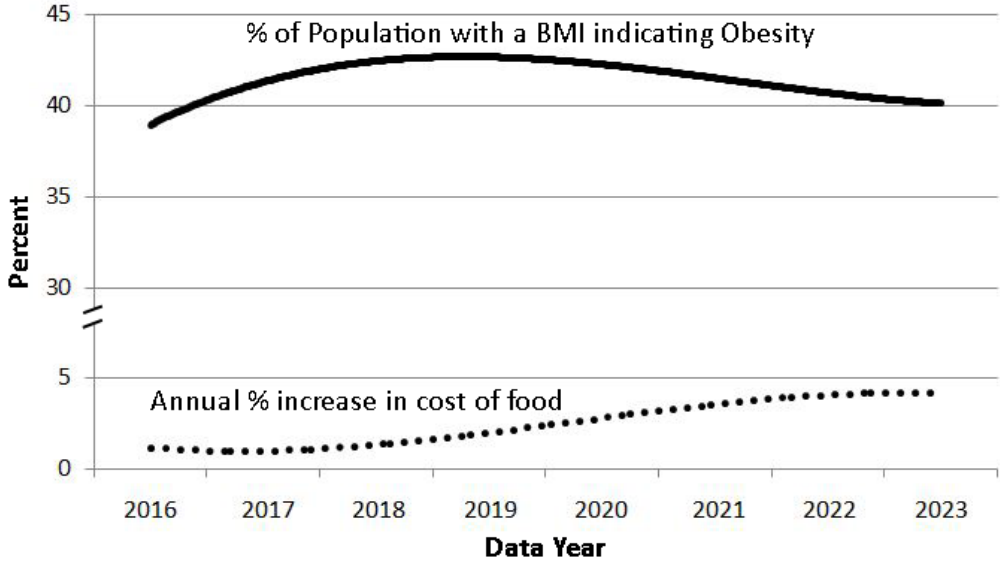
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Recent news media articles have stated that the USA is becoming less obese for the first time in history, citing research from the Centers for Disease Control (Emmerich et al, NCHS Data Brief, 2024). Data from the CDC indicates that the rate of obesity was about 31% in 2000, slowly increased until it peaked at about 42% in 2018 through 2020, then decreased to 40% in 2023. There are lots of pats on the back going around by individuals or entities who claim their approach, program, or legislation has worked. But did anything thrown at the problem in well over a half century of attention actually bring about this novel and small reduction?

Maybe. Maybe not.

If we look at a decade's worth of data on population bodyweight and consumer costs, we can see that there is a crude relationship between a recent trend of slightly decreased obesity rate and increased costs of groceries (and other consumer costs). If we look at cost of groceries price increases, from about 2014 to 2020, costs to the consumer generally went up roughly 2% per year.



(adapted from Centers for Disease Control and Bureau of Labor Statistics data)

Bureau of Labor Statistics data also show a relatively flat real hourly wage statistic (adjusted for inflation and seasonal effects) from 2010 to 2015, then about a 5% wage increase realized from 2016 to 2020. The pandemic driven short recession led to inflated wages of about 7% over a few months but since then there was about a 6% reduction in real wages leading up to and through 2023.

This visual correlation is interesting, but what does income and consumer cost data have to do with obesity rate drop? Well, let's look at basic and common examples of how governments approach eradicating common public behaviors they consider wrong.

## **Smoking Policy as a Precedent**

Every government that attempts to reduce tobacco use spends endless money on public education campaigns, BUT the most potent tool they use is simply legislation. Laws are enacted to restrict where one can smoke in order to push smokers outside and away from others, and to pile on inconvenience to the smoking behavior. Laws are also enacted that restrict methods of commercial advertising. But the legislation that has been most effective in reducing tobacco use is taxation. In 1982 about 30,000,000,000 packs of cigarettes were sold at about \$1.25 per pack. In 2011 there were about 15,000,000,000 packs sold at a price of about \$6 per pack. In 1983 the US tax on each pack of cigarettes was \$0.16, in 1993 it was \$0.24 per pack. In the 1980s the combined state and federal tax on a pack was \$0.31, in the 1990s it was about \$0.56 per pack. If we move to the 2000s the tax was \$1.39 per pack for a real consumer cost averaging \$3.94 per pack. In the 2010s the tax was \$2.62 per \$6.32 pack. Currently the federal tax for a pack of “shorts” is \$1.01 and for “longs” is \$2.11. The current average state tax per year is \$1.96 per pack. At a minimum (for shorts) tax makes up \$2.97 of the price of a pack and a maximum (for longs) tax makes up \$3.98 per pack. The end result of legislated behavioral restrictions supported by enforced consumer price increases led to the reduction in the percent of the population classified as smokers from 38% in 1977 to 11% in 2021 (with no additional decreases since).

Currently in the USA average prices for a single pack of cigarettes ranges from \$11.96 (NY) down to \$6.11 (MO). If we pick a midpoint between these two for a national estimate, \$9.03, a pack a day smoker would spend approximately \$3296 per year with approximately \$1453 of that going to the government in the form of collected tax. The total expenditure of USA smokers, assuming a pack a day consumption, is about \$255,549,000 (annual sales). That puts about \$98,484,000 into government tax accounts. In reality, it is likely about half of this figures given that a smoker by government definition is anyone who has smoked 100 or more cigarettes in their lifetime or who currently smokes any number of cigarettes at any frequency, low or high. Regardless of the revenue generated for the government, the economic stress emplaced by taxation did produce the desired effect of reduced rate of smoking. Note that this data refers to the USA, however, the UK operates similarly and is among the most aggressive anti-smoking legislator and taxer globally.

Artificially creating exorbitant and high pricing for a “recreational” product and behavior through massive taxation appears to be a definitive factor in changing consumer buying habits ... in this specific instance.

## **Food & Beverage Composition and Legislation**

One of the UKs many taxes on the consumer is a 20% value added tax (VAT) paid on every item purchased. The equivalent in the USA is “sales tax”. This UK tax does not

apply to groceries if they meet certain criteria for exemption. But if you want an ice cream, sorbet, frozen yogurt, or any other item considered a snack, luxury item, or a dietary health risk (as deemed by some government committee) you will pay 20% tax, and more. In 2016 the UK passed the Soft Drinks Industry Levy (“sugar tax”) to financially restrict sugar consumption by the public. Three tax levels were set: no additional tax on drinks with less than 5g sugar per 100 ml, 18 pence per liter of a drink with between 5 and 8g/100 ml, and 24 pence per liter if the concentration is above 8g/100 ml. Standard old school Coca Cola™ has 11g of sugar per 100 ml and is subject to added taxation. Minute Maid Orange Juice™ has 10g/100 ml and is not subject to taxation as it’s classified as a fruit juice. In the instance of Irn Bru™ (Scotland’s leading soft drink), at the time of legislation, there would be a 24 pence tax added to the 20% VAT at its original 10.3 grams of sugar per 100 milliliters content level.

This legislated sugar policy did not really change consumption of soft drinks, rather it motivated some soft drink manufacturers to reduce the amount of sugar in their beverages so they could avoid adding an additional tax at the cash register, which they believed may have induced a small drop in sales to the public. In this instance an added tax burden on the consumer intended to reduce sugar consumption through reducing citizen purchasing power was circumvented by a few industrial actors who changed formulations in order to avoid loss of sales. Those actors prevented added consumer financial strain from government actions while still indirectly enabling the government to make some progress towards one of their end goals, reduced sugar consumption. Interestingly, this actually set up conditions where a manufacturer could improve their profitability by eliminating 5.6 grams of sugar per every 100 milliliters produced (Irn Bru™ as the example here). The tax driven reformulation and reduction in added sugar was a removal of **18.9** grams per 12 ounce can. That ingredient savings, in US dollars, amounts to:

$$\begin{aligned} & 18.9 \text{ grams less sugar per can} \\ & \times 33,576,576 \text{ 12 ounce cans consumed/year} \\ & \times \$0.001 \text{ per gram sugar wholesale sugar cost} \\ & = \$634,597 \text{ savings in production costs per year} \end{aligned}$$

What small to moderately sized manufacturer would turn down a government enabled increase in profit of two thirds of a million dollars per year? It is important to note that this example of taxation towards an intended behavioral change, in terms of volume of soft drink consumption, was largely ineffective overall. The largest multi-national soft drink providers essentially ignored acting on the legislation, as have consumers. Soft drink sales have experienced nothing except increased sales volumes for the past 25 years. The only real change here was that the UK government inadvertently legislated a means for greater profit for beverage manufacturers, IF they chose to reformulate their products to reduce taxation on their customers. Most have not and have kicked the tax

induced price hike problem down the road, to their sales outlets that collect and deliver the added consumer taxation to the government.

A second similar UK legislated effort was to increase taxation on sparkling and still ciders (alcoholic) in what was touted as a means of taking cider out of the hands of under-age drinkers. Apparently members of parliament believe that age laws on alcohol purchase aren't effectively enforced in the UK. The price of a liter of cider was approximately £3.84 in 2012, the addition of the tax mandate added £1.05, or 27% to the price. This was on top of 20% of that price already being tax. This did not affect consumption. In 2002 the UK cleared for consumption about 5.9 million hectoliters of cider. After the taxation scheme was introduced that number rose to 6.8 million hectoliters before levelling back off at about 5.8 million hectoliters in 2022 (data from Statista). It appears the taxation plan to reduce underage drinking by adding tax to one of the cheapest and sweetest forms of alcoholic beverage did not significantly affect sales and consumption. BUT it did increase government tax revenues at the expense of the financial wellbeing of low and middle socioeconomic groups.

In the UK, the personal financial trend is the higher your income, the more alcohol you tend to consume (Institute of Alcohol Studies, Socioeconomic groups and alcohol, 2014). The large low and middle income groups were already being financially pressured by inflation, increased costs at the cash register from ever increasing production costs and increasing labor costs, all of which drive prices of goods ever upward. The increased cost from taxation was not motivation enough to reduce consumption. As such the policy was impotent as a means to change public behavior, but it was profitable for the government tax office.

### **An Old and Controversial Economic Measure**

So what really caused the small but detectible drop in obesity rate over the past 4 years? It is likely that nothing any government agency did created the change in BMI noted. It is unlikely that more than a half century of public service messaging did anything to manifest this drop, especially when commercial food and beverage advertising specifically intends to counter reduction in consumption. If such a government led informational approach was going to be successful it would have produced these results decades ago.

The reduction in BMI seen could have been brought about by the dramatic increase in the cost of groceries, with about 25% more charged at the register during the same period of time as BMI decreased. Did that increased financial burden drive a reduction in food consumption through establishing a price barrier where low and middle socioeconomic classes lost the buying power to eat in excess?

This particular concept does have a bit of support from research into Body Mass Index (BMI). BMI was originally developed as a proxy measure for the economic health of

large groups (social groupings and nations for example). Low BMI values were indicative of poor economies and high BMI values were indicative of strong economies where people had funds and access to basic needs and more. If the original correlational relationships of BMI to economic health are real, then the economic conditions over the past four years may have at a minimum influenced obesity rates. This is further supported by the data from government mandated increases in costs of cigarettes through massive taxation decreasing tobacco use.

However, it is worthwhile to note that cigarettes are not food nor are they basic needs; they are “luxury” or “pleasure” items. If we consider soft drinks and cider, beverages with nutritional stats and a “pleasure” facet, we see moderate tax increases that artificially drive up costs to customers have failed to drive consumption down. Groceries are much more likely to follow this purchasing outcome than that of tobacco. Diversion of the average citizen’s decreasing disposable income from non-essential spends to essential spends, specifically to buy lower cost, less nutritious, and higher calorie groceries likely occurred in order to keep equivalent amounts of food on the home table.

### **Reality Check**

Another item to consider here is the “Aging of America”. There is a shift in demographic composition where there are more older individuals are surviving longer. During the post-65 years of age segment of the lifespan, bodyweight tends to drop significantly, usually as a function of inactivity induced muscle atrophy, sarcopenia, and osteoporosis. As such, the increased age of the US population, with more and more people moving into that late stage age group where bodyweight declines, provides an expectation that the average population BMI (requiring only height and weight as data inputs) would trend down. These negative changes in muscle and bone are not reflected in BMI calculations or results. So, it is highly likely that the 2% reduction in BMI in the past few years, if not simple experimental data noise, are the result of muscle and bone loss in the growing older age groups, not fat loss, and certainly not from gross population adoption of new food or exercise behaviors.

So, a change in age related body composition is more likely the source of the noted decrease in BMI than any campaign, program, or tax. This suggests that for those at the median annual income or below, increased food prices are leading to redistribution of income to purchase grocery needs first. Diverted funds to groceries come at the expense of purchases in all other classes of expenditures that are not considered absolute necessities. Despite higher costs at the store, American eating habits seem to be less affected by increased prices than one would expect.

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