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CHAPTER 17:

FINANCIAL INCENTIVES TO PROMOTE HEALTHIER DIETS

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Abstract:

Food and drink prices may affect our purchases, consumption and various health-related behaviours. The low cost of energy dense foods and relatively high cost (per calorie) of fruits and vegetables are important reasons why people living in lower income households generally consume a diet higher in saturated fats and sugars and lower in fruits and vegetables. However, predicting the impact on behaviour and food choice of increasing the price of a specific food or drink products can be complex. Furthermore, unintended consequences need careful consideration, such as the degree to which people replace an unhealthy food with a more unhealthy food. A good example of how to predict behaviour change is provided by research carried out to estimate the impact of a levy (tax) on sugary drinks in Mexico and the UK. This chapter reviews the evidence on whether increasing the cost of unhealthy foods and decreasing the cost of healthier foods results in changes to purchases, better quality diets and improved health. It concludes by examining the political acceptability and future prospects of such measures.

17.1 Introduction

Dietary financial incentives are interventions that alter the prices people pay for selected foods or drinks and are typically instigated by policy makers to encourage better diets and health. Examples include recent interest in subsidising sales of fruits or vegetables and in taxing saturated fat or added sugar, including through levies on manufacturers of sugar-sweetened beverages (Finkelstein et al., 2013) (SSBs) (See case study in Box 1). Other examples include the more established practice of providing free school fruit for young children and free school meals for disadvantaged children.

These incentives can be imposed nationwide, (Smed et al., 2016) in certain localities, or in particular settings such as primary schools or selected restaurants (Cornelsen et al., 2017); they can be imposed on consumers, retailers or manufacturers; and may target broadly defined food types or very specific nutrient content. Those that lead to price increases, or *negative financial incentives,* may penalise or discourage unhealthy food choices whilst those that lead to price reductions, or *positive financial incentives,* are typically designed to encourage healthier food choices or address food insecurity.

One argument supporting the use of financial incentives is based on the ideas of an early twentieth-century British economist, Arthur Pigou. It is that the prices people pay should reflect not only the costs incurred directly by the producers and suppliers of products, but also any hidden costs or benefits that are experienced by other people or society.

Examples of negative financial incentives being used to try and account for hidden costs, or *negative externalities*, include car fuel duty which partially reflects the environmental harm posed to others by greenhouse gas (GHG) emissions (Martin et al., 2012, Don Fullerton et al., 2010), and tobacco duty, which may be justified by the harm caused by passive smoking. The externalities in these two cases also extend to healthcare costs (arising from physical

inactivity or smoking-induced illnesses) that are typically paid for by the public at large through collectively-funded healthcare systems. Given the high cost of treating and managing obesity-related non-communicable diseases (NCDs), (Biener et al., 2020, Dixon et al., 2019, Cawley and Meyerhoefer, 2012) including heart disease, cancer and type 2 diabetes, a similar case can be made for taxing unhealthy foods and drinks.

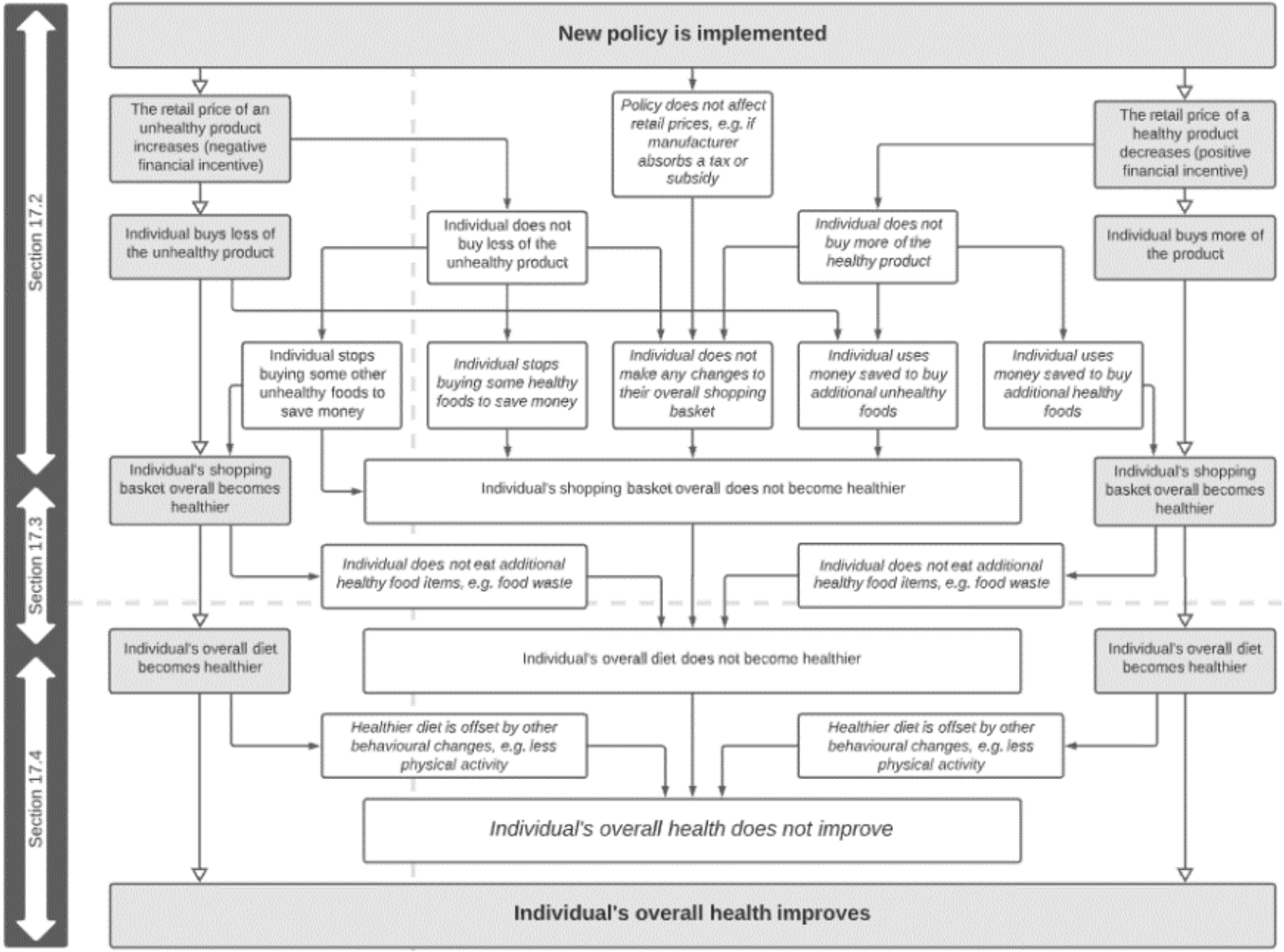
Examples of benefits that are accrued by others but not reflected in retail prices may include improved classroom behaviour and educational outcomes associated with eating healthy meals during childhood, the value of which extends beyond a single child to their classmates and the wider economy. The use of positive financial incentives, including subsidies, to account for these *positive externalities* may be favoured by policy makers because they do not restrict individual choices, particularly among those on lower incomes, in the way that negative financial incentives may. For this reason, the Nuffield Council on Bioethics' Interventions Ladder (see chapter 1) lists "Guiding choice through disincentives" above "Guiding choice through incentives", indicating they are more intrusive and that more robust evidence would be needed before negative financial incentives can be implemented. On the other hand, some policy makers may oppose positive financial incentives because they require Government funding, whereas negative financial incentives are revenue generating. A potentially neat solution lies in the so-called "*double dividend*" (Don Fullerton et al., 2010) (as proposed by some advocates of GHG emission taxes) whereby carefully designed food or drink taxes might discourage unhealthy diets whilst simultaneously generating revenue to fund subsidies of healthier alternatives.

Other more contested arguments supporting the use of financial incentives include the idea of *internalities*. These are hidden costs or benefits that accrue to consumers themselves which might be overlooked when making purchasing decisions. This could include long-term health consequences resulting from the strong habitual properties of some unhealthy food

products. People may also be time inconsistent in that they plan to consume less in the future but, when the time comes, they choose not to (See chapter 16). Although prices could be adjusted to better reflect people's own best interests, policy makers may be reluctant to act for fear of being too paternalistic. On the other hand, the public may support financial incentives that enable people to have more self-control over their dietary choices.(Crawford et al., 2010, Gruber, 2010)

With reference to Figure 17.1, which shows the possible effects of dietary financial incentives on an individual's health behaviours, the remainder of this chapter examines the potential impact of dietary financial incentives on purchasing behaviour, diet and, finally, health.

Figure 17.1: Pathways linking dietary financial incentives with health improvement



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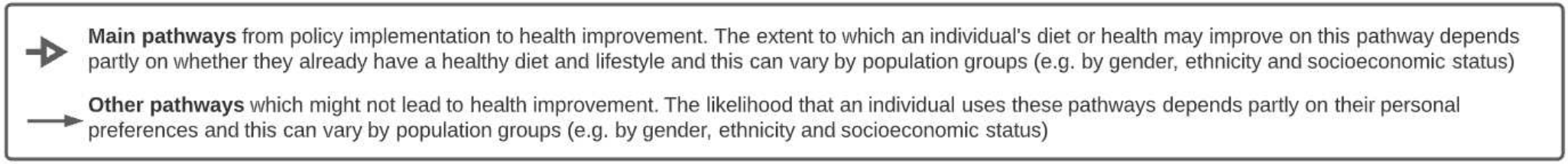
Main pathways from policy implementation to health improvement. The extent to which an individual's diet or health may improve on this pathway depends partly on whether they already have a healthy diet and lifestyle and this can vary by population groups (e.g. by gender, ethnicity and socioeconomic status)
Other pathways which might not lead to health improvement. The likelihood that an individual uses these pathways depends partly on their personal preferences and this can vary by population groups (e.g. by gender, ethnicity and socioeconomic status)

17.2 Do food and drink price changes affect how much we buy?

17.2.1 Price elasticities of demand

A measure of the degree to which demand for a particular product changes when its price changes is the *price elasticity of demand* (PED). It is calculated by dividing observed percentage increases (or decreases) in the demand for a product by observed percentage decreases (or increases) in its price. The higher the value of the PED, the more '*elastic*' the demand for a product is in terms of its responsiveness to price changes.

On the face of it, higher values of PED could be desirable from a policy making perspective. This is because the total cost of subsidising healthy products would be lower for a given increase in sales and because only relatively modest tax measures would be necessary for a given decrease in sales of unhealthy products. However, this assumes that policies can be designed such that the tax or subsidy is passed on to consumers through retail price changes, rather than being absorbed by retailers or producers. This is least likely to happen when taxes are imposed on products with a higher PED, or subsidies are imposed on products with a lower PED, due to those suppliers fearing lost sales and revenue. Another consideration is that taxing products with lower PED values could be beneficial from the point of view of generating tax revenue because relatively few people will stop buying the product, despite an increased retail price, and thus will incur the tax.

Published price elasticity of demand estimates typically vary at the general population level between 0.2 and 0.8 for different types of food and drink (Andreyeva et al., 2010, Green et al., 2013). This indicates that a 10% price increase (or decrease) may be associated with a relatively small 2% to 8% reduction (or increase) in purchases of those products (See Figure 17.2). These values vary by product type for several reasons:

- Products that are considered necessities (e.g. staple foods) tend to be less price elastic than those that are considered luxuries (e.g. restaurant meals) because people are more likely to need similar quantities of them after a price change.
- Products that are relatively cheap in relation to a person's overall budget (e.g. a loaf of bread that lasts several days) tend to be less price elastic than more expensive items (e.g. a single portion of red meat eaten at one mealtime). This also suggests that people with smaller budgets might be more sensitive to price changes than their wealthier counterparts, (Pechey et al., 2013) particularly if they suffer from financial insecurity, and that PED would be higher in low- and middle-income countries (indicating that policy changes would have a disproportionately greater impact on consumption in those countries) (Green et al., 2013).
- Broadly defined product types (e.g. 'vegetables' or 'soft drinks') tend to be less price elastic than narrowly defined product types (e.g. 'organic broccoli' or 'cloudy apple juice') because there are fewer close substitute products that people can buy instead.

Other relevant determinants of PED include:

- The size and direction of the price change (Schmacker and Smed, 2020). In some instances, small changes may not be noticed. In others they can have a disproportionately large impact. Whilst some people enjoy snapping up special offers, for example, other people may begrudge even the smallest price increases.
- The rationale for the price change. People might be more responsive to financial incentives imposed by policy makers in the public interest than those promoted by retailers. An example of the former may be the large fall in demand for plastic carrier bags among shoppers that exceeded what might have been expected in response to the

very small, nominal charges that are now incurred for environmental reasons. Similarly, a dietary financial incentive might provide a signal that 'nudges' people towards healthier diets, independent of the price change itself, and in some cases this may be the dominant factor in driving behaviour change. Alternatively, people may be less responsive if they resent Government interference.

- The type of actions needed by consumers. People may be less responsive to incentives if they are cumbersome or inconvenient to claim and redeem. This might include means-tested healthy food vouchers (Griffith et al., 2018) and free school meals, which can also be unattractive due to social stigma. People might be more responsive to universal in-store food price changes, for instance, since little effort is required to change the quantity or type of products in their shopping baskets.
- The time period. People may respond to price changes in the short term but then switch back to old habits once they've got used to them. Alternatively, it may only be in the longer-term that people change their habits, by learning different cooking skills or gaining knowledge of alternative products, for example. Manufacturers would also have more time to develop better alternative products (e.g. meat- or sugar-free versions of people's preferred foods and drinks), which has been one stated objective of SSB levies (Box 1). However, other factors also influence decisions to switch production to healthier products. These include how the cost of making changes to production processes compare with the cost in terms of lost sales and revenue that would arise from passing the levy onto consumers through higher retail prices (or the cost in terms of absorbing it themselves).

Figure 17.2: Elasticities of demand

Definition	**Interpretation**	**Example**	**Other published estimates**
Price elasticity of demand (PED) $\frac{\%\ change\ in\ demand\ for\ a\ product}{\%\ change\ in\ price\ of\ a\ product}$	If |PED|>1 then demand is price elastic If |PED|<1 then demand is price inelastic Absolute values of PED are used	The PED of eggs is estimated to be 0.27, indicating that if the price increased by 10%, demand would decrease by 2.7% [1]	Food not at home: 0.81 Soft drinks: 0.79 Beef: 0.75 Fruit: 0.70 Cereals: 0.60 Vegetables: 0.58 Fish: 0.50 Dairy: 0.65 Fats/oils: 0.48 Sweets/sugars: 0.34 [1]
Cross price elasticity of demand (XPED) $\frac{\%\ change\ in\ demand\ for\ product\ A}{\%\ change\ in\ price\ of\ product\ B}$	If XPED>0 then the two products may be substitutes. If XPED<0 then the two products may be complements.	The XPED of dairy products in relation to the price of cereals is estimated to be +0.06, indicating that these are weak substitute products where a	XPED in relation to a change in the price of cereals: Fruit and vegetables: +0.01 Meat: +0.01 Dairy: +0.06

	Larger absolute values of XPED indicate a stronger relationship between the two products.	10% increase in cereal prices could be associated with a 0.6% increase in demand for dairy products [2]	XPED in relation to a change in the price of fish: Fruit and vegetables: -0.08 Meat: -0.07 Dairy: -0.09 [2]
Income elasticity of demand (YED) $\frac{\%\ change\ in\ demand\ for\ a\ product}{\%\ change\ in\ personal\ income}$	If YED is between 0 and 1 then the product may be considered a necessity. If YED>1 then the product may be considered a luxury. YED is rarely negative.	The YED for fruit and vegetables is estimated to be 0.62, indicating that if incomes increase by 10%, demand would increase by 6.2% [3]	Soft drinks: 1.24 Cereals: 0.4 Dairy: 0.81 Fat and oil: 0.58 Fruits and vegetables: 0.62 Legumes and nuts: 0.4 Meat, fish, and eggs: 0.79 Root vegetables: 0.42 [3]

[1] Based on U.S. data collected between 1938 and 2007 (Andreyeva et al., 2010)

[2] Based on 2008 estimates for middle-income countries (Cornelsen et al., 2015b)

[3] Based on data from 48 African countries collected between 1991 and 2015 (Colen et al., 2018)

17.2.2 Not everyone's the same

Differences in the PED between the general population and the intended target population have rarely been studied in relation to food or drink but would affect how dietary financial incentives work. Ideally, people who already typically buy healthier products would be less responsive to price changes than people who typically buy a larger proportion of less healthy products. Otherwise the policy may achieve little more than reducing the shopping bills of people who already have healthier diets, potentially widening diet inequalities. In the case of taxes on unhealthy products (e.g. SSBs), improved health and equity outcomes would require behaviour change among those disproportionately impacted by their consumption (e.g. younger people and those with lower socio-economic status).

It is likely that PED also depends on people's current habitual level of consumption. For example, those who have never purchased a product or who already buy ample amounts of it may be less responsive to price reductions because they may not consider buying more. On the other hand, they at least have more potential scope for making relatively large changes in the quantity they purchase.

There are also differences in how much spare time people have. For many people, time is money, and if that's the main reason why they choose fast-food over healthier meals cooked at home then they might not be so reactive to food price changes.

17.3 Can dietary financial incentives lead to healthier diets?

17.3.1 What else is in your shopping basket?

Dietary financial incentives can affect diet directly if they lead to changes in how much people buy of the particular healthy or unhealthy product that is the target of a price change. But those price changes can also affect diet indirectly if they lead to changes in other food or drink purchases:

- People who decide to buy less of an unhealthy product in response to a price increase may spend the money they have saved on other products instead. Similarly, those who buy more of a healthy product in response to its price going down may need to save money elsewhere in their budget by spending less on other food or drinks. These are examples of a *substitution effect*.
- If people's reaction to financial incentives is limited, then price increases on the targeted unhealthy products may lead to fewer purchases of other food or drinks. Similarly, price reductions on selected healthy products may lead to more purchases of other food or drinks. These are examples of an *income effect.*

A measure of how changing the price of one product could affect the demand for another product is the *cross-price elasticity of demand (XPED)*. It is calculated by dividing the percentage change in demand for another food or drink product by the percentage change in price of the product that is subjected to the dietary financial incentive (Figure 17.2). The higher the value of the XPED, the more '*elastic*' the demand for another product is in response to a change in price of the targeted product. Like PED, the XPED is likely to vary between the target population and the general population and between the short- and long-term.

From a policy making perspective it could be desirable if, in relation to the product that is the target of a dietary financial incentive, the XPED for other healthy food or drink products was much higher than the XPED for other unhealthy products. If the substitution effects were dominant, then this would imply that in response to a new tax on unhealthy products (such as fast food takeaways or SSBs), people would spend the money they save from buying less of it on more healthy products (such as vegetables, fruit or sugar free drinks) relative to unhealthy products (such as processed ready meals or savoury or sweet snacks). Alternatively, if the income effects were dominant, then this would imply that people who want to continue buying the taxed product but don't want to spend more on food or drink overall would reduce purchases of other healthier products (e.g. fruit) at a slower rate than they reduce purchases of other unhealthy products (e.g. SSBs).

A key determinant of XPED is the degree to which the two products are considered complements (e.g. fast food and SSBs may be complements, so a tax on one could reduce demand for both) or substitutes (e.g. fruit may be a weak substitute and biscuits a strong substitute for chocolate bars, so a chocolate tax might increase demand for biscuits more than it would for fruit). Compared with PED, fewer studies have examined XPED in relation to the products that would be the target of dietary financial incentives although it is becoming more common. Evaluations of SSB taxes have looked at substitution effects but commercially sensitive estimates of both PED and XPED may not be publicly available, such as the impact of end-of-aisle or other in-shop price promotions using data from supermarket loyalty cards (Cornelsen et al., 2015a, Finkelstein et al., 2013, Miao et al., 2013, Schroeter et al., 2008, Dharmasena and Capps Jr, 2012, Cornelsen et al., 2015b).

17.3.2 Who eats what?

An important feature of dietary financial incentives is that the targeted products are unlikely to be universally good or bad for us. When compared with the example of tobacco duty noted in the Introduction (1.1), where each additional cigarette is somewhat harmful for anyone who smokes it, most foods benefit the undernourished, are relatively harmless to those with healthy balanced diets, and only cause harm when consumed in large quantities over long time periods. Ideally those who have most to gain from changing their diet would be the most responsive to financial incentives, but often this may not be the case. Therefore it is necessary to consider and investigate how different groups of people respond to financial incentives before they are introduced.

Another consideration is how food purchases translate into food consumption. For example, the purchase of large amounts of heavily processed foods for consumption by one person in a short space of time is likely to be more harmful than one household storing their purchases for consumption over a longer period. It is also necessary to examine how the consumption of food that is bought at the household-level, perhaps by a parent, is shared between different household members.(Griffith et al., 2018) Finally, not all food gets eaten, and there are reasons to presume this applies most to healthier, less processed and fresh foods that are more perishable (Yu and Jaenicke, 2020).

17.3.3 Other things are happening

Not all dietary financial incentives are designed with health improvement in mind. Examples involving positive financial incentives include the UK Government's £849m 'Eat Out to Help Out' subsidy for restaurant meals in August 2020 and product price promotions used by food

retailers, (Watt et al., 2020) sometimes to offset policies designed to increase the price of unhealthy foods(Cornelsen et al., 2015a). They are also used in many countries to support agricultural product markets, including sugar, (Bonnet and Requillart, 2011) and ostensibly to maintain reasonable prices for people's basic food needs (Walls et al., 2016). Examples involving negative financial incentives include proposed environmental taxes on meat and dairy produce to account for the high levels of GHG emissions generated in their production, which (on some measures at least) cause similar damage globally as those generated by the entire transport sector where environmental taxes are much more common. Food prices are also affected by more established sales taxes which are frequently applied to selected foods with little apparent consideration of their nutritional content: in the UK, bakery shoppers pay 0% value added tax (VAT) on hot Cornish pasties and 20% on cakes, whilst supermarket shoppers pay 0% on ice cream and 20% on red meat (Gruber, 2010).

People's demand for particular products is also dependent on their food purchasing power, which tends to increase over time due to technological change, (Lakdawalla and Philipson, 2009) and their income. In general, people buy more when incomes rise and less if incomes fall. This relationship can be measured by the *income elasticity of demand* (Figure 17.2) which can help predict how sales of particular foods or drinks may change when people's financial circumstances change (e.g. after losing a job) or when the economy experiences an economic recession or upturn.

Since all these factors could have large incidental effects on the balance of healthy and unhealthy food and drinks in our diets, policy makers need to consider the degree to which they may reinforce or undermine the effects of their own (potentially more modest) dietary financial incentives. Evidence from recent decades also indicates that the price of healthy foods has increased faster than the price of unhealthy foods in many countries including the

UK, (Jones et al., 2014) suggesting that more stringent policies to encourage healthier diets may be needed to weaken these underlying market trends.

17.4 Do dietary financial incentives improve health?

In addition to the complex relationships between food and drink prices and healthier diets, assessing the success of dietary financial incentives is complicated by further potential avenues for unpredictable consequences to emerge on the pathway between healthier diets and health-related outcomes (Figure 17.1) (Lakdawalla and Philipson, 2009). For example, even if product price changes did lead to better diets, these prices changes may affect other health-related behaviours. Since some people would have to spend more time in the kitchen and doing shopping, one study suggests that a fast food tax might lead to weight gain if people have less time for exercise (Yaniv et al., 2009). More encouragingly, another study suggests healthy food subsidies can improve health – because they boost the chances that children go to school and to check-ups with the doctor, since their families are experiencing less stress (Bronchetti et al., 2019).

A further complicating factor in assessing the success of dietary financial incentives arises if there is ambiguity about the health policy objective; for instance, if obesity is poorly defined (e.g. whether the aim is to reduce population average BMI or the proportion of people who are obese) or if there are multiple objectives (e.g. related to health inequalities or food insecurity). This might not matter, but it is unlikely that different objectives can be met with the same policies. Expecting that a policy can tackle hunger among some people, for instance, whilst addressing over-eating among others is potentially unrealistic.

In terms of the empirical evidence, there is a shortage of studies that have examined the impact of specific financial incentive policies on health outcomes, due partly to the long time

period that effects would be expected to materialise and methodological challenges in attributing cause to effects. Studies that have examined the relationship between general food price fluctuations and health outcomes nevertheless provide policy makers some hope. For example, several studies show that higher fast food prices are associated with lower weight outcomes, especially among younger people, and that lower fruit and vegetable prices are associated with lower body weight, including among low-income groups (Powell et al., 2013).

17.5 Further considerations and conclusion

Dietary financial incentives are more popular with policy makers than regulations that restrict choice. They may also be better at changing behaviour and reducing inequalities than nudging. But designing them is challenging because of the long and complex pathways between price changes and better health (Figure 17.1) which can produce unintended consequences, e.g. some people will adopt worse diets and others will be unfairly penalised. Compared to the example of car fuel duty, which leads more directly and unequivocally to the goal of reduced GHG emissions, opportunities for a short pathway are limited: taxing people with obesity or subsidising healthy weight (Bhattacharya and Bundorf, 2009, Gruber, 2010, The Economist, 2009) would be wholly unpalatable and likely impractical.

Another (more feasible) policy would make greater use of the tax or social security systems to tackle financial insecurity in order to free people experiencing deprivation from the heavily skewed economic incentives that arise from constant uncertainty about their future income and lead many to rely on food banks. Such insecurity may be a root cause of poor outcomes and inequalities not just in relation to diet but also other determinants of health including housing and education.(Marmot, 2020). Other than that, policy makers may conclude that the

risk of unintended consequences means the scope for using economic incentives to improve diets is limited to subsidising the purchase of products that are universally good by people who otherwise wouldn't buy them (e.g. means-tested healthy food vouchers), or taxing a small range of products that are considered universally bad (e.g. SSBs). Danish politicians apparently confirmed this when they withdrew a wide-ranging 'fat tax' encompassing meat, dairy produce and processed food when unintended consequences emerged shortly after its introduction in 2011. . More recently, however, growing clamour for tougher action on GHG emissions from food production (e.g. meat and dairy) (Fujimori et al., 2019) could lead to an increased political acceptability of multilateral food taxes that couldn't be justified solely by people's unhealthy food choices. If so, then policy interest in dietary financial incentives looks set to continue for many years to come.

In conclusion, whilst dietary financial incentives have an important role to play in promoting health, so far they have proved insufficient on their own to address the scale of the public health challenge. Bolder and complementary actions will almost certainly be necessary in the future

Box 1: Case study: Levies on sugar sweetened beverages (SSBs)

Recent evidence shows promising effects of price changes on purchasing behaviours and sales of non-essential foods high in energy and sugar (Pfinder et al., 2020), however few studies have analysed long term changes in diet quality or health outcomes.

A systematic review of real-world evaluations of SSB taxes reported declines of 10% (95% CI -5 to -15%) in purchases of taxed beverages with a 10% SSB tax.(Teng et al., 2019) The largest effects were seen amongst lowest socioeconomic status (SES) groups, indicating its potential to narrow diet inequalities. A review of virtual or experimental scenarios showed that intention to purchase decreased more when combined with other financial incentive or educational schemes (i.e., healthier food subsidies or improved labelling) (Redondo et al., 2018).

Chile and the UK have implemented a tax or levy on SSBs based on thresholds of sugar content in terms of grams of sugar per 100mL. In Chile, which has the highest SSB sales per capita in Latin America (188 kcals per capita per day), (Popkin and Hawkes, 2016) tax rates on SSBs exceeding 6.3g/100 mL were increased from 13% to 18% in 2014, whilst tax rates on SSBs with lower or no sugar content were decreased from 13% to 10%. A controlled before-after study showed that household purchases of SSBs above the lower sugar tier declined in volume by 3.4% and in calories by 4.0%. Analyses revealed larger reductions in purchases of SSBs with higher sugar content amongst higher SES groups when compared to lower SES groups (-6.4% vs -1.6%) (Caro et al., 2018) possibly due to the tax not being fully passed onto consumers, lower responsiveness to price increases amongst low SES households (Cuadrado et al., 2020).

In April 2018, the UK government implemented the Soft Drinks Industry Levy where SSBs exceeding 8g/100 mL were charged £0.24 per litre and those ranging from 5 to <8 g/ 100 mL were charged £0.18 per litre. This levy, aimed at drinks companies, successfully encouraged product reformulation. In 2019 the purchased volume of drinks above the higher (>8g/100mls) and lower (5-<8g/100ml) sugar thresholds had decreased by 44% and 86% respectively.(Pell et al., 2021) Prices of lower tier drinks (5-<8g/100mls), in particular, reduced by £0.17/litre and the proportion of low-sugar beverages (<5g/100mls) as a proportion of market share increased from 16% to 28% (Scarborough et al., 2020) indicating the impact of the levy was due to reduced availability of sugary drinks as well as differences in price. Total added sugars purchased also fell by around one-third in all SES groups (Niblett et al., 2019).

Evidence of the effectiveness of taxation of SSBs on beverage (and thus added sugar) consumption rather than purchasing is more complex and still emerging (Pfinder et al., 2020, Madsen et al., 2019). In North America, two studies assessing the City of Berkeley's tax over the first three years of its implementation found reductions of up to 52% in self-reported SSB consumption across all SES groups.(Falbe et al., 2016, Lee et al., 2019) A similar analysis from Philadelphia State indicated a decrease of 26% in intakes in the short term, albeit offset by increased purchases across nearby cities without the tax (Roberto et al., 2019). In the UK, the National Diet and Nutrition Survey shows that intakes of SSBs and added sugars are overall significantly lower compared with previous years in most age groups (Public Health England and Food Standards Agency, 2020).

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