**Using Outcome Regulation to Contend with Lifestyle Risks in Europe:**

**Tobacco, Unhealthy Diets, and Alcohol**

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1. **Introducing the problem of lifestyle risks**

Data from a wide range of economically developed nations show that more than one in four people who die each year do so as a result of the consumption of tobacco, alcohol, and/or unhealthy foods.[[1]](#footnote-1) A great number of these are early deaths that rob victims of what otherwise could be productive and long happy lives. Moreover, the diseases and injuries leading to these deaths impose huge costs on national health care systems. This is an enormous public health problem that could be significantly reduced.

Although many countries have made considerable progress in cutting smoking prevalence rates, not nearly enough has been done, and in many places still a quarter or more of the adults are daily smokers.[[2]](#footnote-2) All too little progress has been achieved in reducing death and disease from alcohol,[[3]](#footnote-3) whether we focus on those who harm themselves from alcohol abuse or those who are third-party victims of people who have drunk too much (including drunk driving victims, spousal abuse victims, and victims of other criminal acts). Finally, many nations have largely stood by as diets have become increasingly unhealthy -- diets that contain too many calories, too much added sugar, too much salt, and too much saturated fat. The result is a tsunami of obesity, high blood presure, heart disease, diabetes and more.[[4]](#footnote-4)

1. **Who should be asked to solve the problem?**

The leading enterprises in the industries that produce these harmful products generally take the same position on what they and others call lifestyle risks. They point out that they sell legal products, and that if there are risks in consuming these products, the public is aware of those risks. Therefore, harms connected with these products, they say, are the responsibilty of the users (and abusers), not the product makers.

Sometimes, primarily for public relations reasons or in an attempt to forestall new legal regulation, firms adopt a corporate social responsbility campaign aimed at reducing harm. But little headway has been made in reducing the social costs of these products as a result of such campaigns.[[5]](#footnote-5)

To be sure, these products have long been subject to some public regulation, such as taxes on alcohol and tobacco products, the oversight of animal slaughter to promote food safety, disclosure requirements with respect to product ingredients and risks, and so on. But existing regulations have not prevented the avalanche of deaths we are now witnessing.[[6]](#footnote-6) Should government step in and do more?

Many conservatives object that much of the proposed new government regulation of these risks would create an objectionable nanny state that too intrusively tells citizens how to behave. They echo industry leaders in saying the risks these products contain are matters of personal responsibility. They retreat to the refrain of the laissez-faire 1800s – caveat emptor (let the buyer beware).[[7]](#footnote-7)

This ideological position is troubling. First, it cannot be that people who talk of individual responsibility actually want those who become ill or injured from consuming these products to be denied medical care. Hence, since the unhealthy will need disproportionately more medical care, the reality will be that in the funding of the national health care system the healthy will be subsidizing the unhealthy. While conservatives may accept this imbalance when an illness one has is unpredictable and unavoidable, for what they see as chosen lifestyle risks this sort of subsidy seems in conflict with the personal responsibility value they preach. The best way to resolve this tension would seem to be to favour government action that would help keep more people healthy in the first place.

Second, some of these products harm usually innocent third parties. Death and injuries that arise from second-hand smoke and drunk driving are two key examples. It is hard to see how leaving it to the market to reduce these harms will play out succcessfully, which plainly it has not to date. Conservatives might well favour imposing harsher penalties – through the criminal law or the tort system – on individuals who cause these sorts of harms. Yet the practical reality is that threatening drunk drivers who run people over with more jail time or enhanced tort liability for punitive damages will not suffice and that identifying just which cigarette user’s smoke caused your heart attack or lung cancer so that you could sue them is usually not possible. Hence these externalities from tobacco and alcohol can also justify increased government intervention aimed at preventing those harms.

Third, and even more problematic from the personal responsibility perspective, is the reality that most smokers become addicted when they are children, a large share of obese adults were already obese when they were children, and many alcoholics start down this road as teenagers. But one cannot seriously argue that immature children should be held fully personally responsible for their situations. Moreover, consuming these products (especially cigarettes, too much alcohol and too much sugar) either becomes an addictive behaviour[[8]](#footnote-8) or is genetically directed from the outset so that simply asserting that adults who smoke, drink too much, and eat badly should just take control and alter their ways is unrealisitc and morally unconvincing. Of course, some do change their behaviour, but the reality is that, notwithstanding people’s hopes and wishes, a huge share of smokers who quit later relapse, a vast share of those who lose lots of weight through dieting later regain that lost weight, and so many of those who give up drinking later restart the habit.[[9]](#footnote-9)

For a number of reasons, then, from the social perspective, what we most need is more effective prevention that reduces sharply the take-up of smoking and the early excessive consumption of unhealthy food and beverages. For conservatives to reply to this state of affairs by blaming parents for how their children turn out is pointless and ineffective. It is indeed the failure of parents on their own to stave off these health risks to their children that is at the heart of the problem, and what we need to sort out is how to enable families to naturally make healthy choices rather than unhealthy ones with their children.

Hence, rather than characterizing the government as a nanny it would be better to frame sensible collective action as helping to empower parents to more effectively achieve a healthy lifestyle for their children. Consider, for example, the common legal rule that children under a certain age may not purchase tobacco products. This should not be viewed as a child protection mechanism through which the rest of society seeks to make up for the failings of other parents who do not forbid their young from buying cigarettes. Rather, it should be viewed as helping responsible parents achieve what they want by assisting them in preventing retail tobacco merchants (along with cigarette companies) from seducing their children into buying the products on their way to or from school when parents are not practically able to police the behaviour of their own offspring.[[10]](#footnote-10)

Still, opposition to the nanny state idea has widespread backing especially because of some specific policy changes that have been proposed (and adopted) in the name of public health. Many pepole do not like to be told, for example, that they cannot legally buy large containers of soda in restaurants (a rule that New York City recently adopted, and which, for now, has been overturned by a lower court with the decision now on appeal).[[11]](#footnote-11) Many people object to this limit on their liberty even if they personally do not drink sugar-sweetened beverages in a size that would be forbidden. So, too, many people object that they cannot smoke cigarettes while walking on the beach (as several US cities have done), or that they cannot buy beer or whiskey after certain hours or on certain days (as is the rule in many places).

This suggests that public health regulation with respect to tobacco, alcohol and junk food should be cast - where practical - in ways that preserve freedom of choice at the individual level while at the same time altering aggregate public behaviour in ways that constitute healthier lifestyles, especially for the young.

1. **Forcing businesses to take responsibilty for the public health problems their products cause**

My proposal is in this spirit - imposing legal duties on business and not on consumers thereby avoiding the nanny state objection that conservatives have made. In effect, various sellers of these products would be required to take real responsibility for reducing the harms that they well know their products cause.[[12]](#footnote-12)

Initial responses to my proposal from the left will raise the opposite objection. Many public health leaders view industry as the enemy and find it difficult to support what I propose. But I appeal to them to appreciate that I am simply imposing a different sort of regulation on business. After all, they do widely support conventional regulation of business that tells business what to do. My approch, rather, tells business what to achieve.

I call my proposal outcome regulation (or performance-based regulation). My proposal does not tell business how to label their products, or how they can be advertised, or where they can be sold, or how they are formulated, or who can buy them, or how much money they are to add on to the price (to cover a tax increase), and so on. These are the hallmarks of conventional regulation. My proposal leaves all of these matters up to business to adopt or not.

Instead my proposal tells them to achieve better public health results, giving them a specific target they are to meet. If they achieve these outcomes we praise them, perhaps even giving them financial bonuses if they exceed their outcome targets. If they fail to achieve their targets, we shame them publicly and we impose very substantial fees or fines on them. The goal here is not actually to collect such fees, but rather to give the regulated businesses a strong financial incentive to do the socially desirable thing.

That is the plan in broadest outline. Of course, there are many crucial details to resolve. Just which businesses are regulated? What is the nature of the outcome targets and how are the regulated firms’ specific targets determined? What are the fees imposed on failure to achieve the required outcomes (and what are the bonuses, if any, for going beyond one’s target outcome)? How is compliance monitored? And what supplementary rules are needed to prevent the plan from being undermined by regulated parties “gaming” the scheme?

It seems wisest to address these issues with specific examples. The next section will discuss tobacco and the following sections junk food and alcohol, respectively. The discussions illustrate how the outcome-based approach to regulation can be implemented in a variety of ways.

1. **Forcing tobacco companies to reduce smoking prevalence**

For tobacco, I propose simply requiring tobacco companies to reduce the number of their cigarette-smoking customers by thirty percent. This reduction, matches the WHO Global 2013-2020 Action Plan target that nations are urged to meet by 2025.[[13]](#footnote-13) Under my proposal, firms would face interim annual prevalence-reduction goals of, say, three or four percent a year, ultimately cumulating to the thirty percent target. So, for example, if 10 million people in a country smoked a firm’s cigarettes today, then in due course the firm would be allowed to have only 7 million customers. Indeed, perhaps the best way of viewing my proposal is as a mechanism for nations to employ in order to achieve their WHO goal.

In some European countries, such as Sweden, this reduction would eventually move the smoking rate down to below ten percent, and in others, such as the United Kingdom and Finland, to between ten and fifteen percent. This would be a huge public health achievement. And while no individual would be told by government that he or she could not smoke, out of the population of smokers (and would-be smokers) the society would wind up with about a third fewer smokers through the indirect efforts of private business.

Demanding this sharp curtailment of their business might seem a dramatic demand to make of the tobacco industry. But do not forget that cigarette companies world-wide have been found to have engaged in misconduct, false and misleading advertising, illegal marketing to children, and the like.[[14]](#footnote-14) Arguably, by cutting their customer base by thirty percent this would leave them closer to where they would have been without their past misbehaviour.

A somewhat narrower, and possibly politically more attractive, outcome target would be to require tobacco companies to cut, say, in half the smoking prevalence of younger people – either of children (under 18) or perhaps better people under age 24. While this would have a smaller shorter run public impact, over the longer time horizon it should yield a large decrease in older adult smoking rates as well, since relatively few adult smokers begin as adults, especially after age 24.

How might tobacco companies achieve their outcome targets? That would be up to them to figure out. Here are some possible strategies they might engage in, some of which are already called for by the international Framework Convention on Tobacco Control.[[15]](#footnote-15) They could promote and fund access to cessation programs; they could halt their aggressive marketing to youths; they could raise prices; they could seriously prevent their retailers from selling cigarettes to children. One likely strategy that could be controversial in the public health community would be to try to switch smokers away from cigarettes into alternative products (more on that below). The broader point is that tobacco companies have, over the years, figured out all sorts of ways to get people to take up smoking, and they surely could as well figure out ways of undoing their past (often illegal or at least socially objectionable) efforts. Since most smokers actually say they would like to quit and no individual smoker would be coerced by government through this plan, this is hardly a nanny state proposal, and to the extent that fewer children will become smokers as a result of the plan, this helps many parents achieve what they surely want for them.

The regulatory scheme would have to make precise just who would count as a smoker (and of what) as a way of determining whether the firms achieved their reduced-prevalence targets. For these purposes it seems fair to assume as a first step that the consumption of smoke from any burned tobacco product would count. Hence firms would get no benefit from moving their customers from cigarette smoking to the smoking of, say, cigars, pipes, roll-your-own tobacco, bidis, or any new products like those that might be introduced (e.g., small cigars that are largely indistinguishable from cigarettes). So, too, so as to discourage the tobacco industry from introducing new burned products that are smoked but contain some other ingredient instead of tobacco, consumption of that sort of product would also count toward the firm’s continually reduced target.

On the other hand, in the name of “harm reduction” it might be thought quite all right if, instead of smoking, people used other sorts of tobacco/nicotine products that did not involve burned tobacco. If so, then people consuming these other products would not count against the tobacco companies’ targets, and hence the companies would have an incentive to switch smokers to these other products. Examples here could include smokeless tobacco that is chewed or otherwise placed in the mouth (including Snus, a traditional Swedish moist-powder oral tobacco that is now spreading elsewhere). Also in this category would be e-cigarettes, a newer product that delivers nicotine to users through a sort of vapor and which in some forms is made to look like the person is actually smoking when she is not (and can give the user something long and slender like a cigarette to hold onto when it is being used).

Although the use of these products is controversial, there is good reason to believe that it would be far safer for people to use smokeless tobacco products than to inhale burned tobacco smoke, even if the former causes mouth cancer.[[16]](#footnote-16) If so, a switch from the latter to the former, other things equal, would be a large public health gain. And from what we know now there is good reason to believe that e-cigarettes are safer than all forms of smokeless tobacco now on the market (although of course if later research were to show that e-cigarettes are seriously harmful, then their use could be counted towards a tobacco company’s prevalence target).[[17]](#footnote-17)

Yet, many public health officials and physicians oppose these sorts of products. Some do so because they believe that promoting these products violates a “Do no harm” norm, even if it can be proved that they “Do far less harm.” Others object on the ground that these new products will become gateway products to the consumption of traditional cigarettes, and/or that people who would have just quit smoking will use these products instead, and/or that these products will be used by regular smokers to help keep up their deadly habit and thereby preclude their own quitting, and/or that they may simply be ineffective as a cigarette smoking cessation mechanism for those seeking to use them that way. In short, they fear that rather than being “harm reducing” products like Snus and e-cigarettes will, on balance, be harm promoting. So far, there is little reason to embrace these fears. Nonetheless, as illustrated by recent a recent proposal of the EU Commission, these fears have caused the public health community in many places to try to block these new products, often by seeking to have them treated as “drugs” and subject to extremely expensive prior-approval processes.[[18]](#footnote-18)

Under my proposal, things are very different. Burned tobacco product use would have to be dramatically reduced. Therefore, the fear that the widespread introduction of these other products would be accompanied by stabilized or even increased cigarette consumption would not come about. And while one could force tobacco companies to curtail their consumer base through other means, for the first several years of the plan at least, it probably would be sensible to permit them to accomplish this exceedingly important public health outcome by enticing people who would have been smokers to be consumers of some other considerably less dangerous smokeless product instead. Even if this meant that many people were addicted to the nicotine in these other products, it appears that the amount of nicotine they contain by itself is not especially dangerous to users.[[19]](#footnote-19)

In any event, the point for now is that any outcome regulation plan must up front make decisions about what consumption counts towards the firm’s outcome target and what consumption does not so count and hence qualifies as a permissible substitute.

The discussion so far has assumed that the national smoking prevalence rate is the outcome to be regulated. This would require deciding not only what product use counts but also what counts as a being smoker. Is smoking one cigarette a day or a week or a month enough? Must one be a “daily” smoker to count as a smoker (perhaps even a smoker of several cigarettes a day)? That would have to be decided in advance and different governments currently define smokers in somewhat different ways.[[20]](#footnote-20)

While the public health instinct is likely to want a person who smokes at all to count towards a firm’s restricted prevalence target (say, even one cigarette in the course of a month) that might not necessarily be the best strategy. Suppose that in a jurisdiction today twenty percent of adults are “heavy” smokers and ten percent are “light” smokers. If a thirty percent reduction in prevalence rate must be achieved, then perhaps it might be better for society if the heavy smoking rate of twenty percent were reduced to fourteen percent than if the overall smoking rate of thirty percent were reduced to twenty-one percent (especially if most of that reduction were to come from the light smoking group).

A different way to use outcome-based regulation to deal with the tobacco problem might be to require, say, a thirty percent reduction of the total number of cigarettes (or similar products) smoked. But this might be unwise. Tobacco companies would get credit for cutting heavy smokers from, say, forty cigarettes a day to twenty-eight a day, but the health benefits to those smokers may be slim – especially if many of them also decide to smoke each stick more carefully than now (inhaling more deeply, smoking down to the very end of the stick, and so on). And while it would perhaps be easier to monitor changes in cigarette volume sold, reliable survey data is already available in most countries, and could be readily created in others, that would inform regulators of the nation-wide smoking rate by brand (and fortunately for this purpose, most people smoke only a single brand at any one period of time).

Finally, and briefly, in conclusion to this section, penalties would have to be established that would be imposed if the tobacco companies failed to reach their reduced outcome targets. Financial penalties or fees are probably the simplest and clearest. While not necessarily bankrupting the firms, the fees for failure to achieve a firm’s performance goals would plainly have to be high enough to make it unprofitable for firms to have more smokers than they are permitted to have under the plan (i.e. the fees would have to exceed any long run profits from having an excess set of smokers).

But other penalties should also be considered. Non-compliers could be publicly shamed, and compliers praised. Or non-compliers could face more direct regulatory controls on marketing, for example. These penalties need not substitute for fines but could be added on. For example, fines could be immediately imposed for failing to meet the firm’s incremental annual prevalence-reduction target with substantial additional penalties held in reserve to be deployed if the thirty percent reduction goal is not achieved by the end of the phase-in period.

1. **Forcing food retailers to improve the population’s diet**

Because cigarette smoking is so clearly and reliably the cause of disease and death, reducing prevalence rates will directly reduce the bad public health outcomes that currently result from smoking (including, probably, second hand smoke harms as well). And because of their past bad behaviour, it seems appropriate and fair to point the regulatory regime at the product makers.

By contrast, for junk food I propose an outcome regulation scheme of a quite different sort. As will soon become clear, my regulatory focus is not at all on individual consumers as is normally the case when the regulatory strategy is to provide customers with health information about the foods on offer.[[21]](#footnote-21) Nor is the focus having government encourage the consumption of specific foods that are thought healthier and discourage the consumption of other specific foods that are deemed unhealthy. Indeed, it is also not directly about the admirable, if challenging goal, of having individuals enjoy a health balanced diet.[[22]](#footnote-22) Rather, the focus is on the aggregate national diet of a jurisdiction adopting the plan.

In contrast to what I will propose, one could try to classify all foods into, say, two categories – junk food and not[[23]](#footnote-23) – and then require makers/sellers of the former, say, to cut their sales in half. This would be somewhat more analogous to what I proposed for tobacco (although because we eat so many different foods, a fifty percent reduction in the consumption, say, of candy bars is not the same as a fifty percent reduction in the number of smokers). In any event, if the outcome goal of the regulatory strategy were to sharply reduce the amount of junk food items consumed, a bight line would have to be drawn around what counts as junk food items. But determining that can be highly contentious. Where would bread and breakfast cereals go, or would some be on each side of the line depending on ingredients?

Furthermore, if, say, candy bars are in the junk food category and fresh orange juice is not, a simple shift from the aggregate consumption of the one to the other might bring with it little dietary gains. As will be clear below, I recommend instead a focus not at the “food item” level, but at the nutrient level, which in this example would importantly be sugar.

Also, in contrast to my proposal regarding tobacco, my junk food recommendation does not regulate food producers. Indeed, especially given the recent shift of market power in the agro-food supply chain, there is reason to believe that, in any event, it would better to focus the outcome regulation on food retailers. This also allows me to illustrate a different application of outcome regulation.

The policy goal I have in mind is improving overall national diets by reducing the amount of added sugar, salt, saturated fat, and calories consumed by the population as a whole (more on this below).

As already noted, the regulatory controls would be on supermarket and hypermarket chains (plus large wholesalers who provide products to shops owned by small business people) and restaurant chains which have a significant number of outlets/franchises (say, a dozen or more).

These groups of retailers between them sell a large and growing share of the food that people eat (although the proportion varies from country to country depending upon the structure of the retail food industry).[[24]](#footnote-24) Focusing on these retailers would give regulators a reasonably modest number of enterprises to monitor (far fewer than if the scheme were focused on food producers).

Moreover, because of the wonders of bar code technology in which every packaged product contains, or can readily be made to contain, a Universal Product Code to which calories, added sugar, fat, and salt quantities are or can be attached, cash registers in large retailer outlets should be rather easily programmed to measure the relevant ingredients of the foods passing through the check-out lines of the stores and through the cash registers of restaurants. Hence regulatory oversight should be reliably achieved at a reasonable cost.

Furthermore, and perhaps even more importantly, retailers would have far more flexibility than food producers in putting together a range of strategies to achieve the public health objective I have described.

More precisely, suppose, for example, that the nationwide outcome goal were to reduce by twenty-five percent the amount of added sugar, twenty-five percent of the amount of salt, twenty-five percent of the saturated fats, and ten percent of the total calories consumed by the public by the end of, say, seven years (with annual interim reduction targets along the way). These targets are based on widespread scientific consensus - and backed up by the WHO - that added sugar is bad for people (certainly in excess), that salt promotes high blood pressure and ill health in many people, and that saturated fat (certainly in excess) causes heart disease and more.[[25]](#footnote-25) Although twenty-five percent might not be precisely the right number, I believe it is a feasible medium-term goal. Also, the ten percent calorie reduction (if that is the right number for any specific geographic area) is aimed at returning the average public calorie consumption level to where (or at least towards where) it was some years ago.[[26]](#footnote-26)

My proposed salt reduction target is close to the WHO Global Action Plan target for 2013-2020.[[27]](#footnote-27) And while that plan does not have numerically specific added sugar and fat targets, if food retailers were to reach the targets proposed here, that would bring about, on an overall basis, a sharp improvement in national diets. In turn, that should also go a long way (along with the tobacco prevalence rate-reduction described above) towards helping nations achieve other WHO goals like halting the rise in obesity and diabetes and reducing by twenty-five percent the mortality rate from cardiovascular diseases, cancer, and diabetes.

Again, as with my tobacco proposal, no individual would be forced to change what he or she eats or what is served to his or her family. And many unhealthy eaters would, alas, continue to eat poorly and suffer serious negative consequences. But overall, at the population health level, the pursuit of these outcome targets by food retailers would generate substantial health gains. Roughly speaking, in many places, food and beverage consumption patterns would be back near where they were perhaps twenty or thirty years ago when the national diet was much healthier and the bad health outcomes from a junk food dominated diet were far rarer.

This regulatory strategy assumes that people actually eat and will continue to eat approximately the same share of what they buy, so that purchases serve as a sensible proxy for consumption. Were food waste to change under the proposed plan, somewhat adjusted targets might be necessary.[[28]](#footnote-28)

To be sure, there are some scientists who doubt the dangers of salt[[29]](#footnote-29) and others who are skeptical about whether saturated fat is really a culprit.[[30]](#footnote-30) And while traditional public health nutrition experts believe that all calories are equal, now there are a number of analysts who divide the world into good and bad calories.[[31]](#footnote-31) It appears that nearly everyone agrees that having lots of added sugar in your diet is unhealthy.[[32]](#footnote-32) Hence, it is possible that in some jurisdictions government leaders would want to experiment with using outcome regulation of retailers restricted to only a subset of the targets proposed here, say, sugar and calories.

If this happens, however, one need pay extra careful attention to possible substitution effects. It is one thing to reduce added sugar and have people eat vegetables instead, for example. But if they switch to high fat/high salt crisps, that could be a big mistake.

Furthermore, even if the plan included lowered sales targets of both added sugar and salt, the agency overseeing the plan would have to be concerned about different substitute problems. If industry developed, say, a new salt replacement product that tasted salty but did not have the negative consequences of salt, that would be good; but if the new product were just as harmful, then it would undermine the goal of the plan if enterprises switched users to the new product. The agency in charge, therefore, would have to be empowered to include consumption of a new unhealthy product as counting towards a firm’s salt target.

Regardless of what the precise targets are, a key point to appreciate is that the public could be moved to consume, say, less added sugar in a wide variety of ways. Of course, products that are now made with added sugar could be made with less of it. For example, sugar-sweetened carbonated beverages that now have 140 calories per can might be made with just 70 (thereby perhaps made less sweet or with some artificial sweetener added in place of half the sugar). Some claim that even though artificial sweeteners themselves contain no calories, they create cravings for sugar and calories.[[33]](#footnote-33) To the extent this is so, retailers would then probably find it unwise to promote this sort of substitute – that is, because it could undermine, rather than enhance, their effort to achieve their calorie and sugar target.

I should make clear that retailers need not take all of their reductions from what could be termed high sugar, salt and/or saturated fat products. It would be left to them to achieve their outcome targets in the most efficient way, while still catering to consumer taste (and hence maintaining retailer profits). So, for example, some added sugar might be taken out of baked goods, pasta sauce, processed meals, and more – regardless of whether or not these products are currently especially high in sugar, since any reduction would help a retailer towards its target.[[34]](#footnote-34)

But the public could also reduce its consumption of added sugar by eating a lesser quantity of today’s high-sugar products, and perhaps/probably eating more of something else instead. More precisely, super-market retailers could not only press food makers to reformulate their products, they could also get their suppliers to change the packaging or portion size – both of which are things that retailers are increasingly in a strong position to demand with their growing emphasis in their sales of “private labels” (food packaged by suppliers in containers bearing the retailer’s own brand). But equally importantly, food retailers could alter what they advertise, change where in the store foods are displayed, warn customers about which are less healthy foods, change the prices they charge for various items they sell, drop some very unhealthy products from their stores and replace them with healthier ones, and so on.[[35]](#footnote-35)

Restaurant chains would have a similar array of options that would cut across both having, say, less sugar in the meals/courses they currently sell, and marketing their menu items differently so that their consumers overall would shift to eating healthier meals. (Franchises of chain restaurants would be included in the regulatory scheme whether actually owned by the chain leader or by local franchisees.)

For the junk food problem, I would propose that individual retailers be given different targets based on the overall healthfulness of what they currently sell – as measured by the comparative levels of added sugar, salt and saturated fat contained in what their consumers purchase. So, for example, if one food chain has already successfully emphasized healthier foods with less sugar, salt and fat, it would have a smaller reduction target; by contrast chains that now, on an overall basis, sell especially unhealthy foods would have an outcome target that required a larger reduction in the offending ingredients.

One way to think of this is to imagine that a random sample of, say, 100,000 Euros (or maybe 1,000,000 Euros) of an enterprise’s food sales would be checked over a period of time to establish its baseline features. Then multi-year targets would be set with those firms that have averages worse than the industry average being given more demanding target reductions than those who at the outset have better-than-average records. The individual firm targets would be set to achieve the overall national goals described above – say, a twenty-five percent added sugar reduction in seven years – with some firms perhaps having a five to seven percent annual reduction target and others perhaps having only a two to three percent annual reduction target. At the end of the initial regulatory period, the amount of sugar in each of the enterprises’ sales (per 1,000,000 Euros) would be closer together than it is today.

As with the tobacco proposal, the penalties for failing to achieve a firm’s regulatory target would have to be substantial so as to entice retailers to accomplish the public health objective instead of just incurring the penalties.

1. **Forcing alcoholic beverage makers and/or auto makers to reduce drunk-driving deaths and injuries**

Turning now to alcohol, I wish to illustrate yet a different way in which outcome regulation targets might be deployed. So far the discussion has envisioned the regulation of product makers in ways that reduce their customer base (as with tobacco) and the regulation of retail sellers in ways that reduce the troubling features of what their customers buy (and presumably consume).

For alcohol, imagine for purposes of illustration here that the outcome target is not a reduction of the number of alcoholics who badly harm their own bodies though excess consumption (or who abuse their partners’ bodies while drunk). Assume, rather that the target is a reduction in the number of highway deaths caused by drunk driving (or possibly the number of highway deaths and serious injuries caused by alcohol consumption, although a reduction in the former is likely also to yield a reduction in the latter).

This public health problem – serious traffic accidents caused by drunk drivers – is a substantial one in most places with large scale use of private motor vehicles (although the incidence level may well vary by country). In some places, forty percent of highway deaths are the result of drunk driving; the European average is about twenty-five percent.[[36]](#footnote-36) Hence, in this example we are no longer focusing on lifestyle harms to consumers themselves, but instead on lifestyle harms to third parties.

Which enterprises should be enlisted to reduce drunk-driving highway fatalities? Two potential targets are alcohol sellers (either product makers or retailers) and automobile sellers (makers or retailers). If we focus for now on the manufacturers, we are talking about a relatively small number of firms if auto companies are the regulatory target and also a relatively small number of firms if beer and spirit companies are the focus (although perhaps many more small enterprises if winemakers are also the target).

On moral grounds, both auto makers and alcoholic beverage makers are well aware of the involvement of their products and highway fatalities so that, in return for the profits they now earn, it is arguably only fair to require either (or both) of them to take more responsibility for these harms.

Consider generally how the drunk-driving fatality rate might be brought down. One way, of course, is to get fewer people to drive drunk (or perhaps to drive somewhat less drunk, a harm-reduction behaviour that would be a gain as compared with the current situation although ideally less beneficial than a full severing of drinking and driving). This might be achieved in a variety of ways – getting people who might drive drunk to pre-commit in a binding way not to drive, getting people who will drive not to drink or drink less, making motor vehicles not drivable by people who have had too much to drink, and so on. A different strategy for reducing drunk-driving fatalities is to reduce or alter the nature of crashes that occur when people drive drunk. This might mean changes in highway design, changes in vehicle design, changes in speed limits, and so on.

Now think about how these changes might be achieved and by whom. Some could be brought about by changes in the nature of the products – for example, auto makers could build breathalyzers into ignition systems so that those who had too much to drink could not start or drive the vehicle; or auto makers could install alarms that sound (and perhaps even force drivers to pull off the road) if drivers begin to weave their vehicles in a way that signals lack of control. Alcoholic beverage producers could somewhat lower the alcohol content of their products, although the connection between such a change and the level of drunk driving might be vanishingly small. Other changes that might bring about fewer highway fatalities might well require the cooperation of other than product makers. For example, bars and the like where alcohol is consumed might stop selling liquor to people before they get drunk, or take away their car keys if they become drunk, or actively arrange alternate rides home for those who become drunk and so on. Changing highway features to make crashes less deadly would probably require legislative or regulatory action. Faster response time or more effective responses to highway crashes by emergency crews would require yet other changes.

As between auto makers and alcoholic beverage makers, it is not obvious which would be better positioned to achieve the reduction in drunk-driving fatalities. Alcoholic beverage makers could perhaps more easily require bars and restaurants to monitor their customers as a condition of being able to serve their products. Auto makers might be better positioned to push politically for changes requiring legislation than are beer, wine and liquor companies, although not necessarily. In any event, alcoholic beverage and/or auto makers (depending on which is the focus of the regulation) might well have to “bribe” each other by contract to engage in conduct that helps the outcome target be reached (e.g., alcoholic beverage makers could pay auto makers to install breathalyzers in their vehicles).

Although in both cases we are generally talking about the regulation of mostly large international corporations, politically, the public might be more comfortable focusing the regulation on alcoholic beverage makers since the ordinary citizen might well think of drunk driving as an alcohol matter more than a car matter. From a reliable monitoring basis, however, it is probably easier to determine which auto company made the vehicle the drunk driver was driving than it is to determine what sort of alcohol the driver had been drinking (although cross-examination of survivors and extrapolation via sampling techniques could probably determine with reasonable accuracy the market share of highway fatalities attributable to specific beverage sellers).

As with the junk food issue described above, the individual firm level targets might well be set differently based on the current rate of fatalities connected to each of the regulated enterprises (since some may have better achieved more responsible consumers already and should get the benefit of, and not be punished for, that).

Additional measuring issues would arise where drivers had consumed multiple types of alcoholic beverages before the accident and/or where more than one drunk driver is involved in the crash. But, since for purposes of the proposed regulatory scheme it is not necessary to ascertain highly reliable causation connections for every individual highway death, these problems could be worked out in statistically reliable ways that yielded a generally accurate and fair overall attribution of an aggregate annual rate of drunk-driving fatalities to each auto maker and/or alcoholic beverage producer.

The discussion so far has meant to illustrate with some precision just how outcome regulation might work with respect to certain aspects of the tobacco, junk food, and alcohol problems.

Next follow some observations that help more generally to distinguish outcome regulation from other regulatory strategies that might be seen as close cousins.

1. **Outcome regulation versus other regulatory strategies**

 Tax

Some people have proposed that governments tax (or often, increase the tax on) the targeted products; e.g. a higher cigarette tax, a junk food tax (or sugar-sweetened beverage tax), and a higher tax on alcohol. The central impact that advocates of these policies imagine is lowered consumption of those products (although indirectly there may come about some product substitution and product composition changes too). The first point to emphasize is that outcome regulation is not a tax. Firms pay no fees or taxes if they meet their targets, and if they raise prices to help achieve their outcome targets, they keep the money instead of paying money over to the government in the form of taxes collected. Something like a tax, which here has been called a fee or fine, is only imposed if firms fail to meet their targets. If the scheme works well, little if any money is collected by government.

Because it is not a tax, outcome regulation should be far easier to adopt politically, given the widespread hatred of taxes by both business and consumers in so many countries. Moreover, by not adopting a tax strategy, we don’t have government becoming dependent on income from these dangerous products to balance the budget. This is probably desirable because dependence brings with it something of a conflict of interest between the public health goals and the goal of keeping government running.

Setting the right tax can be tricky, but arguably that is true as well with respect to setting the outcome target. Still, one might argue that there is one less step in my proposal. For outcome regulation, policymakers simply focus on the public health target. For the tax, one probably ought to focus first on the target as well and then try to figure out how much of a tax is needed to achieve the target.

Perhaps even more importantly, while it is true that a tax strategy can have indirect effects, there is good reason to think that firms subject to the outcome target will feel themselves as having much more discretion and flexibility in achieving the social goal. As discussed throughout, with outcome regulation, firms will have a wide range of tools to draw on to meet their targets. When there is a tax, then that tool – a change in price – is the central and mandated change (even if firms knew that bad outcomes could be better reduced by other than through a price effect).

 Tort

Because outcome regulation seeks to force enterprises whose products cause harm to reduce that harm, it bears a decided resemblance to tort law, which also threatens enterprises with financial burdens if they fail to reduce harms associated with their activities, including the sale of their products. Yet, outcome regulation does not involve having judges decide whether the behaviour of the firm was unreasonable. It does not judge their conduct. It judges their results.

In this respect, outcome regulation is more like strict liability in tort which also bases obligations on outcomes. While using different mechanisms, the aspiration of both is to prod enterprises into reducing the health and safety costs of what they sell.

In practice, strict liability is rarely the law, in contrast to the core fault-based tort liability that virtually all nations have today. But some countries do occasionally apply strict liability, and it is well understood in the theoretical literature.[[37]](#footnote-37) In any event, while outcome regulation bears some similarity to strict liability, it is unlike strict liability in tort in two critical respects. Outcome regulation neither seeks to compensate product victims nor to internalize all social costs into the price of the product (although price increases might be one strategy adopted by some regulated parties as a way to achieve their outcome targets).

Cap and Trade

Outcome regulation is very much like the “cap and trade” strategy that is increasingly applied to deal with the problems of air pollution or of climate change more broadly.[[38]](#footnote-38) The annual target reductions that my proposal would impose on the regulated firms are clearly analogous to the ever-reduced “caps” in, say, pollution and/or carbon emissions that a cap and trade plan imposes.[[39]](#footnote-39) And the focus of outcome regulation is decidedly on those reduced caps.

Moreover, the “trade” features of the cap and trade idea could also be introduced into outcome regulation if one thought that wise. For example, tobacco companies that lost more of their customers than required, food retailers that sold even less added sugar than allowed, and alcohol beverage makers that reduced drunk-driving deaths associated with their products even more than required could “sell” their excess achievements to competitors who were having a harder time meeting their targets. They could perhaps thereby more cheaply avoid paying the penalty fine by buying up excess accomplishments from others.

**Conclusion**

In conclusion, outcome regulation offers a new way to deal with lifestyle risks – risks that people now take but at a deep level want reduced. That is, mature people mostly don’t want to smoke or get drunk or eat unhealthily. They have been enticed to doing so today in substantial part because of marketing efforts by sellers of these products that have created social norms in support of their consumption. People also drink, smoke and eat the wrong things because they provide short term pleasure, even if they also bring with them long term serious harms. Rational consumers often realize that they have made the wrong choices, but the short term pleasures are hard to resist. And when they give in to those pleasures while children and remain addicted to them throughout their lifetime, they are behaving in ways they now wish they had been able to avoid.

Eliminating drinking alcoholic beverages and eating junk food is clearly not the social goal today, and even eliminating cigarette smoking is probably an unrealistic goal for now. But improving the national diet, curbing smoking considerably, and reducing harms from alcohol abuse (like drunk driving as illustrated here) are sensible and achievable social goals. The discussion here is meant to show how outcome regulation might not only be quite efficient in helping a nation to reach those goals but also could do that in a way that avoids the nanny state litany so often sounded against other public health strategies.

To be sure, outcome regulation is unlikely to work perfectly. For example, it must be acknowledged that the administration of an outcome regulation strategy will be easier in a jurisdiction where large firms control a substantial share of the market in which the regulation would be imposed. Where the large sellers control much less of the relevant market, administration could be much more difficult and restricting the plan’s reach only to the large firms could both limit its effectiveness and cause a considerable sense of unfairness among the regulated businesses.

In any event, some unexpected evasions of the spirit of the rules will probably be developed that will have to be battled with follow-on regulation. Furthermore, if left unchecked, the social gains from the plan in some cases might be concentrated in certain social classes. Suppose, for example, that food retailers were to disproportionately reduce the added sugar, salt, and fat sold to their higher income customers; or suppose tobacco companies were disproportionately to reduce smoking prevalence among the more well-to-do. (In fact, it seems unlikely to me that either of these two examples would occur, but it is certainly imaginable.) The point is that were lower income people to be left behind, then perhaps more sophisticated targets would need to be developed that had a geographic or social class focus. For example, the healthier food gains might have to be equally achieved in stores serving lower income customers as in those serving higher income customers, and/or lower social class victims of drunk driving would equally have to benefit from an overall reduction in drunk-driving fatalities as do higher income victims. This concern is analogous to the “hot spots” problem with cap and trade pollution control schemes that might achieve pollution reductions in wealthy neighborhoods and concentrate the pollution in low income areas. These are all matters to be monitored and, as needed or reasonably foreseen, made part of the outcome parameters to which regulated firms are held.

But so long as we are confident that we are asking for the right outcomes and can reliably measure whether there is compliance, the shortfalls of outcome regulation should be modest. Its attractions as compared with taxes, tort law, and conventional “command and control” regulation are considerable. At the least, this is a strategy with which public health should experiment.

1. WHO reports suggest in the WHO European Region 16% of all deaths to adults over age 30 are from tobacco

<http://www.euro.who.int/en/what-we-do/health-topics/disease-prevention/tobacco/news/news/2012/04/deaths-from-tobacco-in-europe>;

6.5% of deaths arise from alcohol consumption

[http://www.euro.who.int/\_\_data/assets/pdf\_file/0006/184155/The-European-Health-Report-2012,-1.-Where-we-are.pdf](http://www.euro.who.int/__data/assets/pdf_file/0006/184155/The-European-Health-Report-2012%2C-1.-Where-we-are.pdf); and

10-13% of deaths are caused by obesity

<http://www.euro.who.int/en/what-we-do/health-topics/noncommunicable-diseases/obesity/facts-and-figures> (accessed July 22, 2013). [↑](#footnote-ref-1)
2. As of 2010 fourteen of twenty-seven European nations had adult smoking rates of more than twenty-three percent and only one (Sweden) had an adult smoking rate of less than fifteen percent. <http://www.oecd-ilibrary.org/sites/9789264183896-en/02/05/index.html;jsessionid=97t37ei8gnkj.x-oecd-live-02?contentType=&itemId=/content/chapter/9789264183896-24-en&containerItemId=/content/serial/23056088&accessItemIds=/content/book/978926418> (accessed July22, 2013). [↑](#footnote-ref-2)
3. Europe has the highest rate of consumption of alcoholic beverages of all regions in the world, and death rates attributable to alcohol are actually going up in some countries. <http://apps.who.int/gho/data/node.main-euro.A1091?lang=en&showonly=GISAH> (accessed July 22, 2013) [↑](#footnote-ref-3)
4. More than half of the European population is now overweight or obese.

<http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Overweight_and_obesity_-_BMI_statistics> (accessed July 22, 2013). [↑](#footnote-ref-4)
5. #  *Corporate Social Responsibility in Europe:* ***Rhetoric and Realities* (**[Regine Barth](http://www.e-elgar.co.uk/search_results.lasso?Author_Name_grp=Regine%20Barth" \t "_parent) and [Franziska Wolff](http://www.e-elgar.co.uk/search_results.lasso?Author_Name_grp=Franziska%20Wolff) eds.) (Edward Elgar 2009).

 [↑](#footnote-ref-5)
6. For a description of actions taken thus far by the EU with respect to tobacco, alcohol and unhealthy food, as well as an analysis of the legal powers of, and limits on, the EU to act to reduce the incidence of non-communicable diseases caused by these products, see Alberto Alemanno and Amadine Garde, ‘The Emergence of an EU Lifestyle Policy: The Case of Alcohol, Tobacco and Unhealthy Diets,’*Common Market Law Review*(forthcoming). [↑](#footnote-ref-6)
7. Nadine Henley, ‘Free to Be Obese in a “Super Nanny State”?’ <http://journal.media-culture.org.au/0609/6-henley.php> (accessed July 22, 2013). [↑](#footnote-ref-7)
8. #  Robert H. Lustig, ‘The Most Unhappy of Pleasures: This Is Your Brain on Sugar’ *The Atlantic,* Feb 21 2012.

 [↑](#footnote-ref-8)
9. #  Stuart Wolpert, ‘Dieting Does Not Work, UCLA Researchers Report’ 2007. http://newsroom.ucla.edu/portal/ucla/dieting-does-not-work-ucla-researchers-7832.aspx (accessed July 22, 2013). See also, W. A. Bogart, ‘Law as a Tool in “The War on Obesity”: Useful Interventions, Maybe, But, First, What's the Problem?’ 41 *Journal of Law Medicine and Ethics* 28 (2013).

 [↑](#footnote-ref-9)
10. Stephen D. Sugarman, [‘Framing Public Interventions With Respect to Children as Parent-Empowering’ in *Raising Children*](http://www.law.berkeley.edu/files/Framing_Public_Interventions_Parent_Empowering_ssrn.pdf) (N. Gilbert and J. Berrick, eds., Oxford University Press 2008). [↑](#footnote-ref-10)
11. ##  Bianca Nunes, ‘NYC "Soda Ban" Overturned: An Analysis of the Opinion.’ <https://www.law.upenn.edu/blogs/regblog/2013/04/02-nunes-nyc-soda-ban-overturned.html> (accessed July 22, 2013).

 [↑](#footnote-ref-11)
12. For a more general call to use outcomes-based regulation to reduce the social costs of a wide variety of consumer products see Stephen D. Sugarman, ‘[Performance-Based Regulation: Enterprise Responsibility for Reducing Death, Injury and Disease Caused by Consumer Products](http://www.law.berkeley.edu/sugarman/JHPPL346_07_Sugarman.pdf)’ 34 *Journal of Health Policy, Politics and Law* 1035 (2009). [↑](#footnote-ref-12)
13. <http://www.who.int/cardiovascular_diseases/15March2013UpdatedRevisedDraftActionPlan.pdf> (accessed July 22, 2013). [↑](#footnote-ref-13)
14. Especially damning of the tobacco industry is the judicial finding in the U.S. that the defendants conspired to violate a criminal racketeering law, U.S. v. Philip Morris

USA, Inc., et al., 449 F. Supp. 2d 1, 26 (D.D.C. 2006). [↑](#footnote-ref-14)
15. Eight Years of the WHO FCTC, http://www.who.int/fctc/en/ (accessed August 1, 2013). [↑](#footnote-ref-15)
16. For a discussion of this issue see the UK debate provided by the Medicines and Healthcare Products Regulatory Agency. [http://www.mhra.gov.uk/Safetyinformation/Generalsafetyinformationandadvice/Product-specificinformationandadvice/Product-specificinformationandadvice–M–T/Nicotinecontainingproducts/index.htm](http://www.mhra.gov.uk/Safetyinformation/Generalsafetyinformationandadvice/Product-specificinformationandadvice/Product-specificinformationandadvice%E2%80%93M%E2%80%93T/Nicotinecontainingproducts/index.htm) (accessed July 22, 2013). [↑](#footnote-ref-16)
17. For evidence on this issue, see *Health Effects of Smokeless Tobacco Products, a report of the Scientific Committee on Emerging and Newly Identified Health Risks*, European Commission, Health and Consumer Protection Directorate-General, <http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_013.pdf> (accessed August 1, 2013). [↑](#footnote-ref-17)
18. For an attack on the proposed treatment of e-cigarettes as medicines by a long time leading tobacco control advocate, see Clive Bates: Call to arms on e-cigarettes in the European Parliament (updated) <http://www.clivebates.com/?p=1326> (accessed July 22, 2013). [↑](#footnote-ref-18)
19. ##  For a thorough analysis of the evidence from a pro-e-cigarette perspective, see Tobacco cigarette vs e-cigarette nicotine equivalency <http://www.e-cigarette-forum.com/forum/ecf-library/261114-tobacco-cigarette-vs-e-cigarette-nicotine-equivalency.html> (accessed August 1, 2013).

 [↑](#footnote-ref-19)
20. For the definition used by the U.S. Centers for Disease Control, see <http://dhds.cdc.gov/guides/healthtopics/indicator?i=smokingstatus>. For a comparison of different definitions, see the report from New Zealand:

[www.health.govt.nz/system/.../monitoring-tobacco-use-in-nz-may08.doc](http://www.health.govt.nz/system/.../monitoring-tobacco-use-in-nz-may08.doc) [↑](#footnote-ref-20)
21. For the White Paper outlining an EU strategy to provide consumer information about food, see Commission ‘White Paper on a Strategy for Europe on Nutrition, Overweight and Obesity related health issues’ COM (2007) 279 final. [↑](#footnote-ref-21)
22. *Marine Friant-Perrot and Amandine Garde,* ‘From BSE to Obesity – EFSA’s Growing Role in the EU’s Nutrition Policy’ in *Foundations of EU Food Law – The First Ten Years of the European Food Safety Authority* (A. Alemanno and S. Gabbi eds., forthcoming 2014). [↑](#footnote-ref-22)
23. WHO for example identifies some foods as HSSF: products that are high in salt, sugar and fat on the basis of some agreed nutrition profiles. [↑](#footnote-ref-23)
24. The Lancet NCD Action Group (Rob Moodie, et al), ‘Profits and Pandemics, prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries’ 381 *The Lancet* 670 (2013). [↑](#footnote-ref-24)
25. See the WHO 2013 non-communicable diseases global action plan. <http://www.who.int/cardiovascular_diseases/15March2013UpdatedRevisedDraftActionPlan.pdf> (accessed July 22, 2013). [↑](#footnote-ref-25)
26. By one count, in the U.S. the average caloric intake rose more than twenty percent from 2168 per day in 1970 to 2673 in 2008 with nearly all the gains coming from added fats and grains. http://thesocietypages.org/graphicsociology/2011/04/11/nutrition-circles/ (accessed July 22, 2013). [↑](#footnote-ref-26)
27. See the WHO 2013 non-communicable diseases global action plan. <http://www.who.int/cardiovascular_diseases/15March2013UpdatedRevisedDraftActionPlan.pdf> (accessed July 22, 2013). [↑](#footnote-ref-27)
28. For information about food waste today, see *Stop Food Waste*, European Commission, Health and Consumers Directorate-General <http://ec.europa.eu/food/food/sustainability/> (accessed August 1, 2013). [↑](#footnote-ref-28)
29. See, e.g., Gary Taubes, ‘Salt, We Misjudged You’ *New York Times* June 2, 2012. <http://www.nytimes.com/2012/06/03/opinion/sunday/we-only-think-we-know-the-truth-about-salt.html?pagewanted=all&_r=0> (accessed July 22, 2013). [↑](#footnote-ref-29)
30. Sarah Novak, ‘Are Saturated Fats Really the Enemy?’ *Alternet* March 16, 2011. <http://www.alternet.org/story/150278/are_saturated_fats_really_the_enemy> (accessed July 22, 2013). [↑](#footnote-ref-30)
31. Gary Taubes, *Good Calories, Bad Calories: Fats, Carbs, and the Controversial Science of Diet and Health* (Knopf 2007). [↑](#footnote-ref-31)
32. Robert Lustig, *The Real Truth About Sugar* (River City eBooks 2011). [↑](#footnote-ref-32)
33. [Qing Yang](http://www.ncbi.nlm.nih.gov/pubmed/?term=Yang%20Q%5Bauth%5D), ‘Gain weight by “going diet?” Artificial sweeteners and the neurobiology of sugar cravings’ 83 *Yale J Biol Med.* 101 (2010). [↑](#footnote-ref-33)
34. For comparable experience from the UK campaign to broadly reduce salt in the British diet, see salt-reduction campaign taking place in the UK:

<https://www.gov.uk/government/news/salt-strategy-aims-to-help-reduce-our-salt-consumption-by-a-quarter> (accessed July 22, 2013). [↑](#footnote-ref-34)
35. For a discussion of “nudge” techniques by which business can shift consumer choice, see Alemanno, A., Amir, On, Bovens, Luc, Burgess, Adam, Lobel, Orly, Whyte, Kyle Powys and Selinger, Evan, ‘Nudging Healthy Lifestyles – Informing Regulatory Governance with Behavioural Research’ (January 15, 2012). *European Journal of Risk Regulation*, Vol. 3, No. 1, January 2012; HEC Paris Research Paper No. LAW-2013-981. Available at SSRN: [http://ssrn.com/abstract=2005672](http://ssrn.com/abstract%3D2005672) [↑](#footnote-ref-35)
36. http://www.eubusiness.com/news-eu/europe-road-safety.lgi [↑](#footnote-ref-36)
37. See, e.g., Guido Calabresi, *The Cost of Accidents: A Legal and Economic Analysis* (1970); Robert Cooter and Thomas Ulen, *Law & Economics*, 6th ed. Chapters 6 and 7. [↑](#footnote-ref-37)
38. How Cap and Trade Works, Environmental Defense Fund <http://www.edf.org/climate/how-cap-and-trade-works> (accessed August 1, 2013). [↑](#footnote-ref-38)
39. Cap and Trade, U.S. Environmental Protection Agency <http://www.epa.gov/captrade/> (accessed August 1, 2013). [↑](#footnote-ref-39)