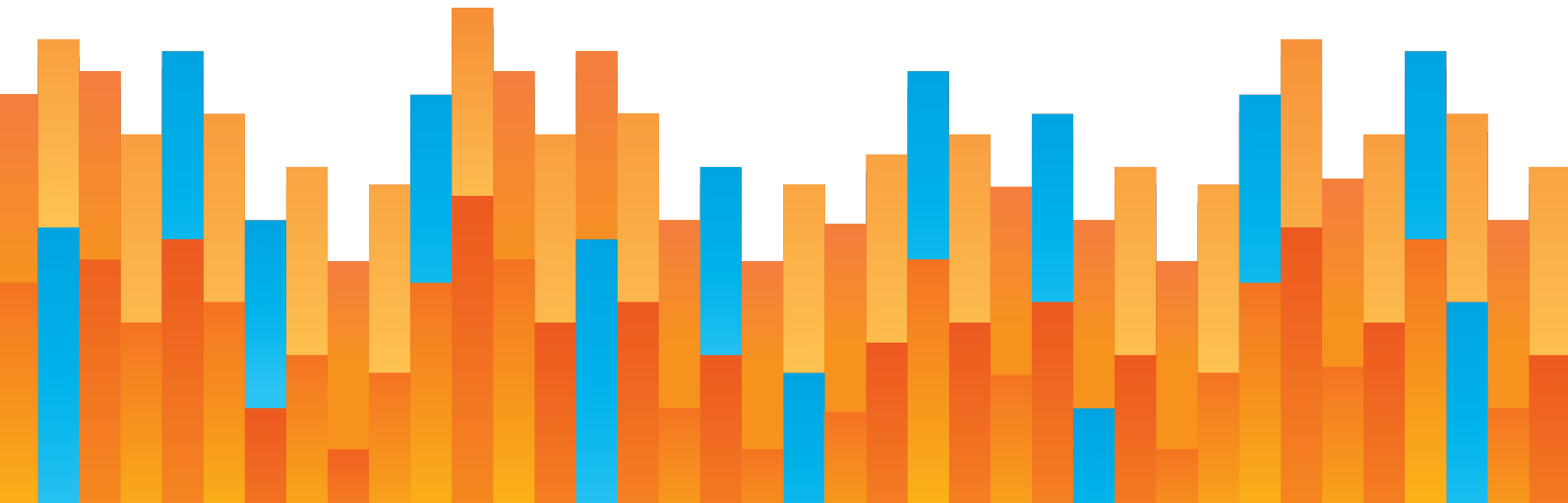
reason FOUNDATION

CONSUMER SURPLUS IN THE FDA'S TOBACCO REGULATIONS

WITH APPLICATIONS TO NICOTINE REDUCTION AND E-CIGARETTE FLAVORS

by Pierre Lemieux
Project Director: Guy Bentley
June 2019



Reason Foundation's mission is to advance a free society by developing, applying and promoting libertarian principles, including individual liberty, free markets and the rule of law. We use journalism and public policy research to influence the frameworks and actions of policymakers, journalists and opinion leaders.

Reason Foundation's nonpartisan public policy research promotes choice, competition and a dynamic market economy as the foundation for human dignity and progress. Reason produces rigorous, peer-reviewed research and directly engages the policy process, seeking strategies that emphasize cooperation, flexibility, local knowledge and results. Through practical and innovative approaches to complex problems, Reason seeks to change the way people think about issues, and promote policies that allow and encourage individuals and voluntary institutions to flourish.

EXECUTIVE SUMMARY

Cost-benefit analyses (within Regulatory Impact Assessments) are required for significant federal regulations, including for the FDA's upcoming regulations on nicotine reduction and flavor bans in tobacco products and e-cigarettes; these cost-benefit analyses should be done correctly. Consumer surplus—how much a consumer values a product or, more precisely, the amount a customer would be willing to pay over and above the price of the good—is a fundamental concept in cost-benefit analysis. Children, by definition, are not adults, and cannot properly be said to have a consumer surplus; then, adults are not children and should not be treated like children in cost-benefit analyses.

Under the pressure of the anti-smoking movement and behavioral economics, the FDA has recently downplayed consumer surplus in the case of tobacco. The arguments of behavioral economists for chopping consumer surplus are not convincing. Without incorporating the full consumer surplus, cost-benefit analysis risks becoming a mere rubber stamp for government proposals. Moreover, the justifications for obliterating or reducing consumer surplus are based on cognitive biases and assumptions of individuals' lack of self-control, but implicitly assume that politicians and government bureaucrats are not subject to the same failings.

Cost-benefit analysis is not a magic bullet, but it is still a useful requirement if we keep in mind the limitations of the method. Since it is, at any rate, required by federal law, the forthcoming cost-benefit analyses of the FDA's proposals for nicotine reduction in tobacco and for banning flavors in e-cigarettes must follow standard economic methodology and not assume away part of the consumer surplus.

TABLE OF CONTENTS

PART 1

INTRODUCTION

Federal law establishes clear requirements for cost-benefit analysis (alternatively called "benefit cost analysis") for the evaluation of significant regulations. Such analyses must be made properly. The current regulatory intention of the Federal Drug Administration (FDA) is to reduce the level of nicotine in combustible[1] cigarettes and to regulate or ban flavors in e-cigarettes.[2] This sparks a debate as to whether adults' right to choose should be abrogated by government.

1 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on pivotal public health step to dramatically reduce smoking rates by lowering nicotine in combustible cigarettes to minimally or non-addictive levels." March 15, 2018. And "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." March 16, 2018, https://www.govinfo.gov/content/pkg/FR-2018-03-16/pdf/2018-05345.pdf. Note that the FDA uses "combustible" but, more often, "combusted." This paper uses the former term.

2 Food and Drug Administration. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." March 16, 2018, https://www.govinfo.gov/content/pkg/FR-2018-03-16/pdf/2018-05345.pdf. And "Statement from FDA Commissioner Scott Gottlieb, M.D., on advancing new policies aimed at preventing youth access to, and appeal of, flavored tobacco products, including e-cigarettes and cigars." March 13, 2019. https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm633291.htm.

This paper does not discuss the medical-biological evidence about the consumption of tobacco. It takes for granted the statistical evidence that tobacco causes a number of diseases and deaths among smokers.[3] It does not consider the effects of secondhand smoke, as the cost-benefit analyses of tobacco policy often don't, and because the bans of smoking in public and in work places have largely defanged that issue. The paper does not discuss the medical-biological effects of e-cigarettes, but assumes that they are very small compared to those of combustible cigarettes.[4] Instead, this brief addresses the benefits and costs for all individuals in society—called "social costs" and "social benefits"—of policies preventing individuals from using these products as they want to.

[3] Sloan, Frank A. *The Price of Smoking*. (MIT Press, 2004). Many other demonstrations have been produced by public-health researchers and could be cited here. However, as should become clear in this paper, public-health analyses often neglect the economic methodology that is necessary for a scientific analysis of public policy.

[4] Bentley, Guy. *A Question of Taste: The Public Health Case for E-Cigarette Flavors*. Reason Foundation, November, 2018. https://reason.org/wp-content/uploads/public-health-case-e-cigarette-flavors.pdf.

PART 2

FEDERAL REQUIREMENTS FOR COST BENEFIT ANALYSIS

2.1 LEGAL REQUIREMENTS

According to Cass Sunstein, a Harvard Law School professor who was the administrator of the White House Office of Information and Regulatory Affairs (OIRA) under President Barack Obama, the "principal architect" of cost-benefit analysis in the federal government was Ronald Reagan. His 1981 Executive Order 12291 mandated that any significant regulatory action (or "major rule" in terms of this original executive order) be accompanied by a Regulatory Impact Analysis (RIA), including a cost-benefit analysis.[5] Bill Clinton's Executive Order 12866[6] reaffirmed and codified these practices. Significant regulatory actions are defined as those that "have an annual effect on the economy of $100 million or more" or have other important effects. The Office of Management and Budget's Circular A-4, which

[5] Executive Order 12291. Federal Regulation, February 17, 1981. https://www.archives.gov/federal-register/codification/executive-order/12291.html.

[6] Executive Order 12866. *Regulatory Planning and Review*. September 30, 1993. https://www.reginfo.gov/public/jsp/Utilities/EO_12866.pdf.

provides guidance to federal agencies on the preparation of RIAs, clearly states that "[b]enefit-cost analysis is a primary tool used for regulatory analysis."[7]

Enthusiastic about what he calls "the cost-benefit revolution," Sunstein argues that it reached its achievement with Barack Obama's Executive Order 13563 in 2011.[8] The requirement to include a cost-benefit analysis in an RIA has not been challenged by any president up to and including President Donald Trump. Sunstein writes:

> *If anyone is responsible for the cost-benefit revolution, it is a diverse assortment of presidents: Reagan, George H.W. Bush, Bill Clinton, George W. Bush, Obama, and Donald Trump. For all their disagreements, they share enthusiasm for this revolution.*[9]

It is recognized that a regulation that affects the tens of millions of American users of tobacco products and their suppliers is a significant regulation. This applies to e-cigarettes, which are now deemed to be a "tobacco product" falling under the authority of the Food and Drug Administration (FDA). The agency provided an RIA and a cost-benefit analysis (CBA) with its 2010 proposed regulation on graphic warnings on tobacco packages,[10] a regulation that was rapidly struck down in a U.S. District Court. The FDA also provided such an analysis with its 2016 rule deeming certain products such as e-cigarettes to be tobacco products (the so-called "Deeming rule").[11] It will have to provide an RIA and a CBA for each

---

7 Office of Management and Budget. Circular A-4. September 17, 2013. https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf (also available at https://obamawhitehouse.archives.gov/omb/circulars_a004_a-4/). See also John F. Morrall and James Broughel. *The Role of Regulatory Impact Analysis in Federal Rulemaking*. Mercatus Center at George Mason University. 2014. https://www.mercatus.org/system/files/Morrall_RoleofRIAs_v1.pdf.

8 Executive Order 13563. Improving Regulation and Regulatory Review. January 21, 2011. https://obamawhitehouse.archives.gov/the-press-office/2011/01/18/executive-order-13563-improving-regulation-and-regulatory-review.

9 Sunstein, Cass R. *The Cost-Benefit Revolution*. MIT Press, 2018. 3-4.

10 See Part 7 of this paper.

11 Food and Drug Administration. "Deeming Tobacco Products To Be Subject to the Federal Food, Drug, and Cosmetic Act, as Amended by the Family Smoking Prevention and Tobacco Control Act; Regulations on the Sale and Distribution of Tobacco Products and Required Warning Statements for Tobacco Products; Proposed Rule." April 25, 2014, https://www.govinfo.gov/content/pkg/FR-2014-04-25/pdf/2014-09491.pdf. Food and Drug Administration. "Deeming Tobacco Products To Be Subject to the Federal Food, Drug, and Cosmetic Act, as Amended by the Family Smoking Prevention and Tobacco Control Act; Restrictions on the Sale and Distribution of Tobacco Products and

of its current regulatory projects on nicotine reduction in tobacco and on controlling non-tobacco flavors in e-cigarettes.

2.2 NICOTINE REDUCTION IN TOBACCO

On March 16, 2018, the FDA published an Advance Notice of Proposed Rulemaking (ANPRM) indicating its intention to mandate a maximum level of nicotine in cigarettes "so that they are minimally addictive or nonaddictive."[12] Nicotine is known to be the addictive product in tobacco.[13] The ANPRM also opens the door to a similar regulation of "other combusted products (e.g., cigars, pipes) if the assumed rule were to cover such products." The agency says it "expects that making cigarettes minimally addictive or nonaddictive would reduce tobacco-related harms by promoting smoking cessation or complete migration to alternative, potentially less harmful noncombusted products and by reducing initiation." The document acknowledges that "potential costs and benefits from a possible nicotine tobacco product standard would be estimated and considered in an accompanying preliminary impact analysis." It requests submissions on possible effects and, more generally, on the costs and benefits of the envisioned regulation.

The ANPRM specifically asks: "How should potential consumer surplus or utility loss from the removal of nicotine in cigarettes be considered?" The importance of this request should not be underestimated. As explained later in this paper, "consumer surplus" is a crucial component of cost-benefit analysis.

The day the FDA released the ANPRM on the project of nicotine reduction in cigarettes, the FDA commissioner made clear that it was a "cornerstone" of his agency's "comprehensive

Required Warning Statements for Tobacco Products; Final Rule." May 10, 2016. https://www.govinfo.gov/content/pkg/FR-2016-05-10/pdf/2016-10685.pdf.

12 Food and Drug Administration. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." March 16, 2018, https://www.govinfo.gov/content/pkg/FR-2018-03-16/pdf/2018-05345.pdf.

13 Food and Drug Administration. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking": "[N]icotine is the primary addictive chemical in tobacco … In the process of obtaining nicotine, users of combusted tobacco products are exposed to an array of toxicants in tobacco and tobacco smoke that lead to a substantially increased risk of morbidity and mortality."

plan on tobacco and nicotine regulation."[14] A few days later, the agency issued another ANPRM addressing the possible regulation of premium cigars.[15]

2.3 CONTROL OR BAN OF FLAVORS

In the meantime, on March 21, 2018, the Federal Drug Administration issued another ANPRM, titled "Regulation of Flavors in Tobacco Products."[16] The objective is to obtain information in view of "regulatory actions FDA might take with respect to tobacco products with flavors … Potential regulatory actions include, but are not limited to, tobacco product standards and restrictions on sale and distribution of tobacco products with flavors." Currently the only flavor still allowed in combustible cigarettes is menthol, but e-cigarettes use other favors (such as cherry, vanilla, melon, etc.); little cigars and cigarillos can also be flavored. The ANPRM of March 21 mainly targets e-cigarettes, which are now deemed to be tobacco products even if they do not contain tobacco. The goal seems to be to ban or strictly regulate the flavors in e-cigarettes as well as in little cigars and cigarillos, and to ban menthol in combustible cigarettes.

The official reason is apparently to prevent adolescents, also called "youth" or "kids" (defined as persons under 18 years of age), from getting a taste for ("getting hooked on"[17]) nicotine. E-cigarettes however are also a means for adults to stop smoking combustible cigarettes and the former represent only a very small health risk compared to the latter.[18]

14 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on pivotal public health step to dramatically reduce smoking rates by lowering nicotine in combustible cigarettes to minimally or non-addictive levels." March 15, 2018. https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm601039.htm

15 Food and Drug Administration. "Regulation of Premium Cigars: Advance notice of proposed rulemaking." March 26, 2018. https://www.govinfo.gov/content/pkg/FR-2018-03-26/pdf/2018-06047.pdf.

16 Food and Drug Administration. "Regulation of Flavors in Tobacco Products: A Proposed Rule by the Food and Drug Administration." March 21, 2018. https://www.govinfo.gov/content/pkg/FR-2018-03-21/pdf/2018-05655.pdf.

17 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on Efforts to Reduce Tobacco Use, Especially Among Youth, by Exploring Options to Address the Role of Flavors--including Menthol—in Tobacco Products." March 20, 2018. https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm601690.htm.

18 See Bentley. *A Question of Taste: The Public Health Case for E-Cigarette Flavors.*

The FDA commissioner admitted a trade-off exists: "This reflects a careful balancing act … This is a difficult compromise I'm trying to make."[19]

The ANPRM on flavors is rather discreet on the information it needs for evaluating costs and benefits in a valid economic sense.[20] Legally, however, the RIA on flavors will require a complete cost-benefit analysis as much as that on nicotine reduction.

Concurrently to the serious controls and bans envisioned by the March 26 ANPRM (discussed in detail in Part 8 of this paper), other related developments have occurred. On March 5, 2019, this commissioner announced his resignation, invoking personal reasons.[21] *The Wall Street Journal* reported his replacement will likely be Dr. Ned Sharpless, who is said to share Gottlieb's viewpoint on vaping.[22] In the meantime, Dr. Gottlieb announced new administrative restrictions on the sale of some flavored e-cigarettes and a requirement that e-cigarette manufacturers submit their existing products for "premarket authorization" by August 2021, which is one year earlier than previously mandated.[23] Among the many other efforts to intensify the control of "tobacco products," the New York City Council intends to ban all flavored e-cigarettes as well as menthol cigarettes.[24]

---

19 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on Pivotal Public Health Step to Dramatically Reduce Smoking Rates by Lowering Nicotine in Combustible Cigarettes to Minimally or Non-addictive Levels." March 15, 2018. https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm601039.htm.

20 See Part 8 of this paper.

21 "FDA Chief Scott Gottlieb to Leave Agency." *The Wall Street Journal*. March 5, 2019. https://www.wsj.com/articles/fda-chief-scott-gottlieb-to-leave-agency-11551816541?mod=searchresults&page=1&pos=5.

22 "FDA Sets Limits on Retail Sales of Flavored E-Cigarettes." *The Wall Street Journal*. March 13, 2019. https://www.wsj.com/articles/fda-sets-limits-on-retail-sales-of-flavored-e-cigarettes-11552481969?mod=hp_lead_pos7. "Vaping" is the process of consuming an e-cigarette.

23 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on advancing new policies aimed at preventing youth access to, and appeal of, flavored tobacco products, including e-cigarettes and cigars." March 13, 2019. https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm633291.htm.

24 "New York City Council Weighs Ban on Flavored E-Cigarettes, Menthols." *The Wall Street Journal*. January 30, 2019. https://www.wsj.com/articles/new-york-city-council-weighs-ban-on-flavored-e-cigarettes-menthols-11548895703.

2.4 COST-BENEFIT ANALYSIS SHOULD BE DONE CORRECTLY

No objective, however virtuous it appears to be, is likely to be attainable at no cost. One way to check if the costs are acceptable is to make sure that the net benefit is positive and larger than any alternative intervention with the same results. The realization that trade-offs have to be made because interventions have costs as well as benefits is the basis for cost-benefit analysis. For this reason, any government intervention should be subject to a thorough and methodologically correct cost-benefit analysis. This applies to the current proposals to reduce the nicotine content of tobacco and to ban or regulate flavors in e-cigarettes and other tobacco products.

PART 3

A SHORT INTRODUCTION TO COST-BENEFIT ANALYSIS AND THE CONSUMER SURPLUS

3.1 THEORETICAL GROUNDING AND METHODOLOGY

Cost-benefit analysis (CBA) is an integrated set of analytical methods and techniques for evaluating public projects or interventions in terms of economic efficiency and social welfare.[25] CBA is grounded in a field of economic analysis called "welfare economics," developed since the 1930s.[26] It requires a precise methodology to assure that all social

[25] For some limitations of the concept of social welfare, see Pierre Lemieux, "Social Welfare, State Intervention, and Value Judgments." *The Independent Review* 11:1 (Summer 2006), 19-36. http://www.independent.org/pdf/tir/tir_11_01_02_lemieux.pdf.

[26] Mishan, E. J. *Introduction to Normative Economics.* Oxford University Press, 1981. Antoinette Baujard. "A Retrospective History of the New Economic Theories of Justice." RePEc, 2016. https://ideas.repec.org/p/hal/journl/halshs-01302390.html and

benefits (benefits to all individuals in society) and all social costs (costs of resources used or utility costs to individuals) are included without double counting.[27] When we speak of "utility," we mean the welfare of individuals in the sense of their preferences for some goods or situations as opposed to others.[28]

Cost-benefit analysis assumes that a public policy is needed only if there is a "market failure" that prevents markets (the set of free and decentralized actions of individuals) from calculating all costs and benefits correctly and assigning them to their originators.

Cost-benefit analysis assumes that a public policy is needed only if there is a "market failure" that prevents markets (the set of free and decentralized actions of individuals) from calculating all costs and benefits correctly and assigning them to their originators. The main market failures come from "externalities," that is, phenomena that bypass (are external to) voluntary transactions on the market. One standard example of a negative externality is air pollution, because the polluters (say, owners of motor vehicles) can get away without compensating those harmed by their emissions (anybody affected by the fumes is harmed). There are also positive externalities. One source of positive externalities flows from what are called "public goods," or goods or services that benefit everybody, including those who haven't paid for their production.[29] Standard examples include national defense and the judicial system. In a pure free market, goes the argument, these

https://charlesgide2016.sciencesconf.org/86214/document. See also A.R. Prest and R. Turvey. "Cost-Benefit Analysis: A Survey." *Economic Journal* 75(300) (December 1965).

27 A classic textbook is E.J. Mishan's *Cost-Benefit Analysis: An Informal Introduction*. Third Edition (George Allen & Unwin, 1982).

28 Other definitions exist in terms of "satisfaction" or "pleasure." The definition given here is more general, avoids any interpersonal comparison of utility, and includes the other definitions as special case. For an introduction to modern Hicksian economics, see Pierre Lemieux, "John Hicks and the Beauty of Logic." *Regulation* 37(4) (Winter 2014-2015). 67-73.

29 We may then speak of "public goods externalities." See Francis M. Bator, "The Simple Analytics of Welfare Maximization." *Quarterly Journal of Economics* 72:3. August 1958, notably pages 369-371.

goods will not be produced in sufficient quantity because producers cannot collect a price from consumers. In the standard approach of cost-benefit analysis, a public project or regulation that aims at correcting some externality will be desirable only if its total benefits to some individuals in society are higher than its total costs to other individuals.[30]

A basic idea of economic theory is that, as one introductory textbook puts it, "[t]he value of something is what we are just willing to give up for it."[31] Costs and benefits are measured by individuals' willingness to pay (WTP) according to their own individual preferences. The benefits of a public policy are theoretically equal to what individuals who receive the benefits would be willing to pay for the policy. The costs of a public policy are theoretically equal to what harmed individuals would be willing to pay to avoid it. Costs include the value of the resources used (say, for building a dam or for complying with a regulation) and not available for other purposes. Any negative externality should be added on the cost side, and any positive externality on the benefit side.

The benefits of a public policy are theoretically equal to what individuals who receive the benefits would be willing to pay for the policy. The costs of a public policy are theoretically equal to what harmed individuals would be willing to pay to avoid it.

In general, then, all benefits are valued by what some individuals would be willing to pay to obtain them, and all costs by what some individuals would be willing to pay to avoid them. Cass Sunstein explains that this idea does not amount to crudely replacing everything with money but, on the contrary, to allow everybody to express his preferences for what is most valuable to him:

30 As discussed below, the cost of the government intervention must also be factored in to justify the intervention.

31 Friedman, David. *Hidden Order: The Economics of Everyday Life*. HarperBusiness, 1996. 31.

> *[A] significant advantage of the willingness to pay measure is that it should, in principle, take account of everything that people care about … If people value cell phones because they want to connect with their children, of if they want to save (rather than spend) money so that they can give it to poor children in Africa, or if they want to spend money on a vacation because of their love of nature, then their concerns, however diverse in qualitative terms, should be adequately captured by the willingness to pay criterion, however unitary.*
>
> *That is a point for cost-benefit analysis. Notwithstanding its apparent crudeness, and notwithstanding the simplicity of the quantitative measure, it honors qualitatively diverse goods that people care about for diverse reasons. In that way, it is not simple at all. For that reason, cost-benefit analysis has advantages over some measures of happiness or subjective welfare.*[32]

3.2 IMPORTANCE OF CONSUMER SURPLUS

Consumer surplus is the net benefit that individuals obtain from a good or service they purchase, that is, what they are willing to pay minus what they actually pay (which includes the good's production cost). One does not buy anything from which he does not get a consumer surplus. Add all these individual consumer surpluses, and you get "the" consumer surplus on the market.[33] Assuming that the satisfaction of all individuals is the goal, it seems reasonable that a public policy should maximize "consumer surplus," which is what consumers get after resource costs have been deducted.

Consider a public policy—regulation or some other form of intervention—that will affect the market by changing the price of a certain good. Suppose, for example, that the intervention is a tax that leads to a higher price. Consumer surplus will decrease because consumers will have to pay more and will thus consume less. The consumer surplus that is lost because of the public policy is the difference between the initial and the final surplus. It is equivalent to what the consumers of the good under consideration would be willing to pay to be spared the policy. If the public policy increases consumer surplus instead, this gain is equivalent to what the consumers would be willing to pay for the policy.

---

[32] Sunstein. *The Cost-Benefit Revolution*. 73.

[33] Appendix A of this paper gives a slightly more technical (geometrical) explanation of consumer surplus.

A public policy—tax, subsidy, regulation, etc.—will generally produce a reduction in the consumer surplus of some individuals in order to increase the consumer surplus of some other individuals. If, for example, the government limits a paper mill's effluents, consumers of paper see their consumer surplus decrease because they have to pay more (a cost), while anglers obtain better fishing conditions in the river (a benefit). The net consumer surplus gained or loss is what counts as the increase or decrease of consumer surplus stemming from the regulation.

Although the problem is more complicated than it appears at first sight, estimating the consumer surplus allows us to add and compare costs and benefits across all individuals without trying to add up their subjective feelings, which is impossible to do scientifically.

Although the problem is more complicated than it appears at first sight, estimating the consumer surplus allows us to add and compare costs and benefits across all individuals without trying to add up their subjective feelings, which is impossible to do scientifically.[34]

The change in consumer surplus (summed over all individuals) is normally the main source of benefit or cost in a cost-benefit analysis.[35] It gives what will be the total and net benefits gained or lost by individuals from the public policy under consideration. This idea has been accepted by economists since the birth of modern cost-benefit analysis.[36] The consumer surplus, writes E.J. Mishan, "is the most crucial concept in the measurement of social benefits in any social cost-benefit calculation."[37] It is fair to say that the typical textbook of

[34] Some limitations of cost-benefit analysis are addressed in section 2.5 of this paper.

[35] As the remuneration of capital, profits are part of resource costs. A policy that reduced the profits necessary to bring capital to produce goods wanted by consumers would decrease consumer surplus.

[36] "If economists are to play their part in shaping the canons of economic policy fit for a new age, they will have to build on the foundation of Consumers' Surplus."—John R. Hicks, "The Rehabilitation of Consumer Surplus," *Review of Economic Studies* 8(2). February 1941. 109.

[37] Mishan. *Cost-Benefit Analysis: An Informal Introduction*. 22.

cost-benefit analysis takes this view[38]; notwithstanding exceptions, this is standard economics. In the 1980s, Professor Kip Viscusi explained how the full loss of smokers' consumer surplus naturally needed to be entered as a cost of anti-smoking policies.[39]

3.3 FEDERAL REQUIREMENTS ARE BROADLY CONSISTENT WITH STANDARD ECONOMICS

Federal requirements are broadly consistent with standard cost-benefit theory. Section 1(a) of Executive Order 12866 mandates all alternatives should be considered, including non-intervention:

> *In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures.*[40]

Circular A-4 insists on the importance of willingness-to-pay (WTP) "as what individuals are willing to forego to enjoy a particular benefit." It confirms that standard CBA methodology must be respected:

> *Adoption of WTP as the measure of value implies that individual preferences of the affected population should be a guiding factor in the regulatory analysis.*
>
> *In monetizing health benefits, a WTP measure is the conceptually appropriate measure as compared to other alternatives (e.g., cost of illness or lifetime earnings), in part because it attempts to capture pain and suffering and other quality-of-life effects.*
>
> *The opportunity cost of banning a product—a drug, food additive, or hazardous chemical—is the forgone net benefit (i.e., lost consumer and producer surplus) of that product.*[41]

---

38 For example, see F. Tevfik, *Cost-Benefit Analysis: Theory and Application*. SAGE Publications, 1996. 163 and *passim*.

39 Viscusi, W. Kip. "Secondhand Smoke: Facts and Fantasy." *Regulation* 42(3) (Fall 1995). 47.

40 Executive Order 12866. Regulatory Planning and Review. September 30, 1993. 51735, https://www.govinfo.gov/content/pkg/FR-1993-10-04/pdf/FR-1993-10-04.pdf.

41 Circular A-4 (2003). 8-19. Although lost profits should be incorporated one way or another in cost-benefit analysis, there is some doubt that "producer surplus" should be: see Mishan. *Cost-Benefit Analysis: An Informal Introduction*. 54-63.

3.4 REVEALED PREFERENCES

WTP and consumer surplus, which come from subjective preferences and are thus subjective values, must be quantified with necessarily imperfect data. Fortunately, market data often reveal something about consumers' actual preferences or "revealed preferences," and are actually more reliable than "stated preferences," that is, what consumers may declare in surveys. Circular A-4 recognizes this principle:

> *Other things equal, you should prefer revealed preference data over stated preference data because revealed preference data are based on actual decisions, where market participants enjoy or suffer the consequences of their decisions. This is not generally the case for respondents in stated preference surveys, where respondents may not have sufficient incentives to offer thoughtful responses that are more consistent with their preferences or may be inclined to bias their responses for one reason or another.*[42]

3.5 LIMITATIONS AND USEFULNESS OF COST-BENEFIT ANALYSIS

Even when done correctly, cost-benefit analysis is not perfect. It has many limitations besides data problems. Multiple assumptions are required about about risk, discount rate, alternative policies, etc.[43] Multiple entry points exist for political biases. Moreover, the best cost-benefit analysis cannot resolve distributional issues or larger systemic issues.

Distributional issues come from the fact that the costs and benefits of a government intervention don't fall on the same persons. There are winners and losers in the sense that some lose utility in order for the policy to benefit others—even if the presence of net benefits suggest that the winners could in theory compensate the losers.[44] (Note that distribution is ultimately a matter of utility, not simply of money.) Distributional effects may

42 Ibid. 24.

43 Morrall and Broughel. *The Role of Regulatory Impact Analysis in Federal Rulemaking.*

44 Even "in theory," it is not always true that the winners could compensate the losers. See Bator, "The Simple Analytics of Welfare Maximization"; see also Paul A. Samuelson, "Evaluation of Real National Income." *Oxford Economic Papers* 2 (1950). 1-29.

be deemed important enough to qualify the significance of a cost-benefit analysis. Circular A-4 recommends including a distribution analysis to a RIA.[45]

Economist and philosopher Anthony de Jasay has argued that government decisions to favor some citizens to the detriment of others are always morally arbitrary, which would imply that cost-benefit analysis is more an excuse for government-favored redistribution.[46] At any rate, cost-benefit analysis cannot be used to justify any net benefit. For example, unconstitutional government actions cannot be justified by some net social benefits.[47] In a free society, individual liberty against invasive government interventions would seem to be a shared normative value.

At any rate, cost-benefit analysis cannot be used to justify any net benefit. For example, unconstitutional government actions cannot be justified by some net social benefits. In a free society, individual liberty against invasive government interventions would seem to be a shared normative value.

The redistribution problem can be avoided by government interventions that literally benefit everybody—for which everybody in society is willing to pay—or, in other words, public goods.[48] If nobody is taxed more than what the value of a public good represents for him, no redistribution takes place. But government bans (total or partial) on goods that cause no harm to others do not belong to this category, and necessarily have redistributive consequences.

45 Office of Management and Budget. Circular A-4. 14.

46 De Jasay, Anthony. *The State*. Liberty Fund, 1998. Originally published by Basil Blackwell, 1985. For a review of this book, see Pierre Lemieux, "An Unavoidable Theory of the State." Library of Economics and Liberty. June 4, 2018. https://www.econlib.org/library/Columns/y2018/Lemieuxstate.html.

47 Mishan. *Cost-Benefit Analysis: An Informal Introduction*. 158-161.

48 Samuelson, Paul A. "Diagrammatic Exposition of a Theory of Public Expenditure." *Review of Economics and Statistics* (37) 1955. 350–356.

People preoccupied by redistribution often want to favor lower-income individuals, but this is a matter of value judgment.[49] In the case of tobacco policy, the low incomes are on the side of smokers. In 2015, smoking prevalence among American adults living below the poverty line is 26.1% compared to a prevalence of 13.9% for those not considered poor.[50] The FDA notes that "adults with education levels at or below the equivalent of a high school diploma have the highest smoking prevalence level."[51] Interference with adult smoking means a loss of consumer surplus concentrated among the poor, which means a redistribution against them.

Interference with adult smoking means a loss of consumer surplus concentrated among the poor, which means a redistribution against them.

Cost-benefit analysis cannot determine ultimate moral values about distribution, but the data it assembles can help determine who will be the winners and the losers in a given government intervention. Note that the manipulation of consumer surplus can introduce some redistributionist values by the back door as the preferences of the policy makers or the analysts overrule those of ordinary people.

49 Or about some sort of constitutional contract. See James M. Buchanan. *The Limits of Liberty: Between Liberty and Leviathan* (1975) (Indianapolis: Liberty Fund, 2000). https://www.econlib.org/library/Buchanan/buchCv7.html. For a review, see Pierre Lemieux, "Lessons and Challenges in The Limits of Liberty." Library of Economics and Liberty, November 5, 2018, https://www.econlib.org/library/Columns/y2018/Lemieuxlimitsofliberty.html?fbclid=IwAR3biSIw2gM_DDdLXYEKt679G8XV-yY9YJwxUtJRq3xq-DU2kxEHfeDS6PU.

50 Siahpush, Mohammad et al. "Socioeconomic Status and Cigarette Expenditure among US Households: Results from 2010 to 2015 Consumer Expenditure Survey." BMJ Open, June 15, 2018. https://bmjopen.bmj.com/content/bmjopen/8/6/e020571.full.pdf.

51 Food and Drug Administration. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." 11823.

Arguably, a cost-benefit analysis that is not a sufficient condition for good public policy remains a useful requirement. It requires rational analysis and properly distinguishing between, on the one hand, scientific results, which provide information about the constraints and opportunities of the physical and social world, and, on the other hand, individual tastes, which are subjective. Cost-benefit analysis certainly seems preferable to the alternatives of political whim or bureaucratic/academic domination. It constrains the proponents of a public policy to reveal all costs and all benefits in a consistent way, and is therefore a good discipline for government regulators. At any rate, cost-benefit is a legal requirement for the policy issues analyzed in this paper, and is thus taken as a given in this paper.

PART 4

THE CASE OF CHILDREN

The assumption that one knows better than anybody else what's good for oneself underlies welfare economics and cost-benefit analysis. It is only valid when analyzing the choices of adults. Children, by definition, are not mature enough to make choices that can be assumed to be in their own best interest. It is meaningless to speak of a child's consumer surplus. It is certainly desirable to prevent children from—or guide them away from—making choices that could seriously handicap their future adult self, a role which is normally considered as belonging to parents and other guardians (including schools).

Yet, some perspective is needed. Many problems seem to plague today's youth, and nicotine attraction or even addiction is only one of them, and arguably not the major one. Guy Bentley raises the question (not even mentioning "hard" drugs):

> *Is [FDA Commissioner Scott Gottlieb] right to classify current youth e-cigarette use of 20% as an epidemic? For context, current youth alcohol use in 2017 was 29.8%, marijuana use was 19.8%, and 28.7% of teens were sexually active.*[52]

He adds a good question, to which he gives a reasonable answer:

[52] Bentley, Guy. *A Question of Taste: The Public Health Case for E-Cigarette Flavors*. 19.

> *If 20% of high school students vaping at least once in the past 30 days rises to the status of an epidemic, would it be accurate to say there are also epidemics of teenage sex, alcohol and marijuana use? The answer is clearly no.*

"No child should use any tobacco products, including e-cigarettes," Gottlieb declared.[53] But it is as true, and quite certainly truer, that no "child" should take drugs, or have sex, or commit suicide or mass murder (according to FBI statistics, 7 of the 50 mass shooters in 2016-2017 were in their teens[54]). Whatever the root causes of these problems, it is doubtful that the FDA or other federal agencies can solve them by further prohibitions. Many of the bad behaviors of teenagers are already forbidden by law.

The FDA calls indistinctly "youth," "adolescent," "child" or "kid" anybody from 12 through 17, but this group is not homogeneous. A 17-year-old, who can enroll in the army with his parents' permission and is on the verge of having the right to vote (18 years of age at the federal level) and to reach the age of majority in many states, is certainly different from a 12-year-old child. Those whom the FDA considers "kids" can often be held criminally responsible for their actions. In many states, they can marry and in most states, they can be licensed to drive unsupervised from age 16 (the highest threshold is 17; the lowest, 14 and a half).[55] The three-page statement issued by the FDA commissioner with the Advance Notice of Proposed Rulemaking (ANPRM) on flavors contains the word "kids" seven times.[56]

The main point of this paper remains that adults should, as a general rule, be assumed to be adults, capable of making decisions for themselves, which means that their consumer surplus must be assumed to correctly reflect their preferences.

---

53 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on efforts to reduce tobacco use, especially among youth, by exploring options to address the role of flavors—including menthol—in tobacco products."

54 Federal Bureau of Investigation. "Active Shooter Incidents in the United States in 2016 and 2017." April 2018. https://www.fbi.gov/file-repository/active-shooter-incidents-us-2016-2017.pdf/view.

55 According to the Insurance Institute for Highway Safety; see https://www.iihs.org/iihs/topics/laws/graduatedlicenseintro/mapunsupervisedrivingage. See also the AllstateBlog at https://www.allstate.com/blog/rethinking-the-minimum-driving-age/.

56 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on efforts to reduce tobacco use, especially among youth, by exploring options to address the role of flavors—including menthol—in tobacco products."

PART 5

THE IMPACT OF THE ANTI-TOBACCO MOVEMENT ON CONSUMER SURPLUS

Over the past few decades, standard cost-benefit analysis, as described in Part 3, has been challenged by two different but ultimately related trends. One, reviewed in this part of the this paper, was the anti-tobacco movement's negation of the existence of a consumer surplus in the consumption of tobacco, with the support of a few economists. The other trend, reviewed in Part 6, was the impact of a school of economic thought called behavioral economics, which has provided support to the anti-tobacco movement's challenge.

5.1 EARLY INVOCATIONS OF IMPERFECT INFORMATION

Until the early 1990s, there were few cogent, if any, economic arguments against the existence of a consumer surplus for smokers. In 1993, World Bank economist Howard Barnum published a research report arguing that only 25% of the smokers' consumer surplus could be factored in because only 25% of smokers were well informed when they

started smoking.[57] His calculations implied that the reduced consumer surplus was lower than the cost of tobacco and therefore, from a social welfare viewpoint, the optimal consumption of tobacco was zero. Consequently, a public policy to reduce or even to ban smoking would show benefits higher than its costs.[58] This was probably the first cost-benefit analysis of tobacco.

For a few years, the World Bank and its consultants continued their research on smoking and reached results similar to Barnum's, albeit more prudent. They incorporated the effects of addiction in "uninformed costs" (the presumed cost for the consumer of not being perfectly informed about the risk of tobacco), even if the information problem seemed to remain their major justification for ignoring part of the smokers' consumer surplus.[59]

It is noteworthy that these later World Bank economists explicitly recognized that smoking produced some private benefits and thus equivalent social benefits.

It is noteworthy that these later World Bank economists explicitly recognized that smoking produced some private benefits and thus equivalent social benefits. Kenneth Warner, one of the World Bank's external economists, wrote that "tobacco produces utility for some members of society," and that "this utility warrants recognition (and perhaps some respect) in planning optimal control policy." He continued: "Indeed, certain tobacco control advocates, including this author ..., have expressed respect for the notion that knowledgeable adults who are fully informed of the health risks involved should have the

57 Barnum, Howard. "The Economic Costs and Benefits of Investing in Tobacco." World Bank, March 1999, mimeo. This paper is no longer available on the Web. Parts of it appeared as Howard Barnum, "The Economic Burden of the Global Trade in Tobacco." *Tobacco Control* 3 (1994). 358-361. https://tobaccocontrol.bmj.com/content/tobaccocontrol/3/4/358.full.pdf?frbrVersion=2.

58 Lemieux, Pierre. "The World Bank's Tobacco Economics." *Regulation* 24-3 (Fall 2004). 22-29. https://object.cato.org/sites/cato.org/files/serials/files/regulation/2001/10/lemieux.pdf.

59 Peck, Richard et al. "A Welfare Analysis of Tobacco Use," in Iraj Abedian et al. *The Economics of Tobacco Control. Towards an Optimal Policy Mix*. University of Capetown, with the support of the World Bank. 1998. 119-128.

right to consume tobacco products in environments in which they are not imposing burdens on others."[60] Another group of World Bank economists suggested that the "individual sovereignty" and "consumer sovereignty" (of adults) opposes paternalistic interventions. "[T]he economic arguments suggest that the socially optimal level of consumption of tobacco would not be zero," they wrote, and "the economic rationale for intervention … leaves much room for private choice."[61]

At the time of the World Bank's early research on smoking, it was already known that smokers, far from ignoring the risk of smoking, generally overestimated it. In a 1990 article based on a 1985 survey, Kip Viscusi showed that, while the risk of smoking-caused lung cancer was estimated as between 0.05 and 0.1 by medical authorities, it was thought to be of 0.426 by the general population and 0.368 by smokers. A previous Gallup survey had found that smokers overestimated the risk of lung cancer and of other smoking-related diseases.[62]

Twenty-four years later, these numbers have not changed much, except for the increase in the smokers' perceived risk of tobacco. According to Viscusi, the medical estimate of the lung cancer for smokers is 0.08. A wide gap seems to remain between the public's estimates of the health risk of smoking and the risk estimated by public health experts.[63]

---

60 Warner, Kenneth. "The Economics of Tobacco Control and Health: An Overview." in *The Economics of Tobacco Control.* 57-75. As we will see, Warner later abandoned this standard economic methodology when dealing with tobacco.

61 Peck, Richard et al. "A Welfare Analysis of Tobacco Use," in Prabhat Jha and Frank J. Chaloupka (Eds.), *Tobacco Control in Developing Countries*. World Bank and Oxford University Press, 2000. 162, 170. http://documents.worldbank.org/curated/en/602821468330954036/pdf/709670WP0tobac00Box370064B00PUBLIC0.pdf.

62 Viscusi, W. Kip. "Do Smokers Underestimate Risks?" *Journal of Political Economy* 98(6) (1990). 1253-1269. Later surveys showed similar results and are reported in W. Kip Viscusi, *Smoked-Filled Rooms: A Postmortem on the Tobacco Deal* (University of Chicago Press, 2002), Chapter 7. The public's estimated risk of smoking (like those for more recent years) is based on U.S. surveys and doesn't necessarily apply to other countries. It is however likely that the over-awareness of the risk of tobacco has spread in many foreign lands with restrictive smoking policies and information campaigns; for example, mandated graphic warnings on cigarette packs are more and more common abroad.

63 For these more recent data and estimates, see W. Kip Viscusi, "Risk Beliefs and Preferences for E-Cigarettes." *American Journal of Health Economics* 2(22) (2016), especially 221-223. The medical risk used by Viscusi applies to the average smoker older than 35. He notes (p. 222): "The risk levels change proportionally with the number of years after age 35 that the annual number of deaths occurs. For example, if the smoking population incurred these total mortality risks over 50 years of smoking from age 35 to 84, then the lifetime total mortality risk rises to 0.13 for lung cancer and

Going back to the mid-1980s, a survey had shown that individuals from 16 to 21 years of age (the youngest age group in the survey) overestimated the risk of smoking more than the total sample. A statistical analysis by Viscusi showed that these young individuals' smoking behavior was as much influenced by their perceptions as in the rest of the population.[64] These observations are still relevant for the FDA's concern about some "youth" smoking.

5.2 MORE RECENT NEGATIONS OF CONSUMER SURPLUS

After the World Bank's research, the smokers' consumer surplus continued to be challenged by government agencies. The cost-benefit analyses of some health agencies have ignored or negated it. One example is the Australian Commonwealth Department of Health and Aging, which published a review, including a cost-benefit analysis, of the graphic warnings that the government had implemented a few years before (on December 1, 2012). The study, commissioned by the government to a private firm, concluded that the benefits of the regulation exceeded the costs, specifically ignoring its cost in terms of the smokers' lost consumer surplus:

> *Loss of consumer surplus is not an appropriate consideration with respect to tobacco control interventions. That is, the instances in which it is likely to be applicable are limited and offset by gains from the majority of smokers whose true preference is to reduce or stop their consumption of tobacco.*[65]

This obliteration ignored the government's own *Handbook of Cost-Benefit Analysis*, which states:

0.43 for total smoking mortality." He also notes (p. 221) that "[n]ew evidence in 2015 of additional smoking-related risks would boost these estimates somewhat."

64 Viscusi, W. Kip. "Age Variations in Risk Perceptions and Smoking Decisions." *Review of Economics and Statistics* 73(4) (1991). 577-587.

65 Australian Government. "Regulatory Burden Measurement & Analysis of Costs and Benefits." January 2016. 27. https://ris.pmc.gov.au/sites/default/files/posts/2016/02/Tobacco-Plain-Packaging-PIR-%E2%80%93-Appendix-C-1.docx.

> *A core principle is that goods are worth what people are willing to pay for them, which is equivalent to saying that they are worth what people are willing to give up to obtain them.*[66]

5.3 ADDICTION

As we saw, the fact that people are more than well-informed of the risk of tobacco consumption remains well established. If there is an information problem, it seems to be that smokers much overestimate the risk of tobacco.

In the absence of evidence for adult smokers' lack of information, the critics of consumer surplus have introduced other reasons. These reasons frequently revolve around the fact that most smokers start as minors or young adults and that addiction prevents smokers from quitting. Addiction and the supposed inability of smokers to overcome it are crucial arguments. Other, more general arguments about cognitive biases and self-control will be discussed in Part 6. Three health economists (including Kenneth Warner) claim that "the 'lost pleasure' from tobacco use, as represented by conventionally measured consumer surplus, should not be included as a cost in FDA economic impact analyses of tobacco regulations." [67]

The addiction argument is not as powerful as it may appear to be. First, there are more former smokers than current smokers: for the United States, in 2014, the figures are respectively 52 million and 40 million.[68] A similar situation exists in other countries. Addiction to tobacco is certainly not inescapable. It also seems recognized that, like say alcohol, gambling, sex, or internet use, tobacco does not have the same addictive effect on all individuals.[69]

---

66 Government of Australia. "Handbook of Cost-Benefit Analysis." Department of Finance and Administration, January 2006. 120. https://www.finance.gov.au/sites/default/files/Handbook_of_CB_analysis.pdf.

67 Chaloupka, Frank J., Jonathan Gruber and Kenneth E. Warner. "Accounting for 'Lost Pleasure' in a Cost-Benefit Analysis of Government Regulation: The Case of the Food and Drug Administration's Proposed Cigarette Labeling Regulation." *Annals of Internal Medicine* 162 (2015). 65.

68 Rodu, Brad. "How Many Americans Smoke?" R Street Institute. October 29, 2015. https://www.rstreet.org/2015/10/29/how-many-americans-smoke/.

69 Weimer, David L. *Behavioral Economics for Cost-Benefit Analysis*. (Cambridge University Press, 2017). 118-119.

> *...it is possible to explain why a rational and well-informed adult consumer may choose to smoke or not to quit smoking (or engage in some other risky activity).*

Moreover, it is possible to explain why a rational and well-informed adult consumer may choose to smoke or not to quit smoking (or engage in some other risky activity). The best-known theory of rational addiction is that developed by Gary Becker and Kevin Murphy.[70] The general idea is that a rational consumer may judge that the enjoyment he will enjoy now and in the future is lower than the costs of an addictive habit. This is especially true for individuals who have a high rate of time preference, that is, who discount the future, including future costs, at a higher rate. Individuals may also find comfort in an addictive good because of a difficult life situation that would be even more difficult without such comfort.[71]

That smokers often express regret for having started is misleading—at least until they are diagnosed with a smoking-related disease. If they really regretted it, they would find the will to quit and join the 52 million American ex-smokers. Those who remain smokers obviously consider that, given their circumstances and the trade-off they want to make between the benefits and the (probabilistic) costs of smoking, continuing to smoke is the best or least bad option. Those who claim that they want to quit smoking without actually quitting resemble the large number of Los Angeles residents who reported that they would like to leave the city but never did it.[72] What they presumably meant is that they would leave if they could find another place with the benefits of Los Angeles but without its costs. Since the net benefits of Los Angeles were the highest they could find (according to their

[70] Becker, Gary S. and Kevin Murphy. "A Theory of Rational Addiction." *Journal of Political Economy* 96(4). 675-700.

[71] See also Weimer. *Behavioral Economics for Cost-Benefit Analysis.* 119-112.

[72] The anecdote is reported in W. Kip Viscusi, S*moking: Making the Risky Decision* (Oxford University Press, 1992). 120.

own preferences), they stayed. Revealed preferences through actual choices show what people really want to do, everything being considered.

One economic principle should be emphasized, which is at the basis of economic theory: tastes are subjective. Some like smoking, others don't. As the Latin saying goes, "*de gustibus non est disputandum*" (tastes are not to be debated). In its 2011 cost-benefit analysis on graphic warnings, the FDA correctly reaffirmed this principle; it is worth quoting the whole paragraph:

> *Although it does not affect our use of consumer surplus, we note that virtually all studies of the economics of smoking and addiction assume that smoking is pleasurable to smokers. In their 2001 paper in* The Quarterly Journal of Economics*, Gruber and Köszegi state that "smoking is a short-term pleasure." Economists Warner and Mendez state: "Many members of the tobacco control community dismiss the notion that smoking can be pleasurable. But those people were never smokers or, if they were, have selective memory. For some smokers, the relief of withdrawal symptoms might suffice as a 'pleasure.' But smokers derive much more from their cigarettes, including everything from 'mouth feel' to the nicotine drug rush, from relaxation to self-image (think Marlboro Man), and from enhanced ability to concentrate to companionship.*[73]

Other reasons than imperfect information or addiction have been suggested for ignoring the consumer surplus of tobacco or other addictive goods. We now turn to these, which are regrouped under the label of behavioral economics.

[73] "Food and Drug Administration, Required Warnings for Cigarette Packages and Advertisements; Final Rule," June 22, 2011. 36714 (references to citations and one emphasis removed). https://www.govinfo.gov/content/pkg/FR-2011-06-22/pdf/2011-15337.pdf.

PART 6

THE IMPACT OF BEHAVIORAL ECONOMICS ON CONSUMER SURPLUS

6.1 WHAT IS BEHAVIORAL ECONOMICS?

Behavioral economics—an economic approach developed over the past few decades—borrows from psychology and challenges the rational-choice model of standard (neoclassical) economics.[74] The rational-choice model explains choices by assuming that individuals try to maximize their utility (that is, to improve their situation) and generally succeed given the constraints of the external world. Behavioral economics emphasizes instead that individuals make mistakes. Just as the imperfect-information argument was losing steam in tobacco debates, behavioral economics lent some support to the negation

[74] For summaries of behavioral economics, see Herbert A. Simon, "Behavioral Economics," *The New Palgrave Dictionary of Economics*. Vol. 1 (2018); Bernheim, B. Douglas and Antonio Rangel, "Behavioural Public Economics." *The New Palgrave Dictionary of Economics*. Vol. 1 (Macmillan, 2018); and Sendhil Mullainathan and Richard H. Thaler, "How Behavioral Economics Differs from Traditional Economics." *Econlib*, n.d. https://www.econlib.org/library/Enc/BehavioralEconomics.html.

of consumer surplus. Even if what is good for individuals remains the normative goal, behavioral economists believe that we can't always count on the individual knowing or doing what is good for himself.

Even if what is good for individuals remains the normative goal, behavioral economists believe that we can't always count on the individual knowing or doing what is good for himself.

At the risk of oversimplifying, behavioral economics is based on two hypotheses:

1. Individuals make mistakes in trying to maximize their utility.
2. These mistakes are systematic, not random.

In its application to public policy and cost-benefit analysis, behavioral economics rests on two further (often implicit) hypotheses:

1. Systematic mistakes in individual choice can be efficiently corrected by government intervention.
2. Thus, government should correct them.

The first three hypotheses are positive (purporting to describe the reality, or "what is"). The fourth one is normative (or moral, that is, "what ought to be") and derives from the assumption that the good of individuals is to be pursued.

The systematic mistakes lead to what behavioral economists call "intrapersonal market failures"[75] or "internalities," by analogy with the externalities of standard economic theory. These mistakes come from two broad sources: cognitive biases and lack of self-control. Cognitive biases prevent consumers from correctly interpreting and using the information they have. For example, evidence suggests that people have problems dealing with probabilities. They underestimate the likelihood of events with high probabilities, and

[75] Ashley, Elizabeth M., Clark Nardinelli and Rosemarie A. Lavaty. "Estimating the Benefits of Public Health Policies that Reduce Harmful Consumption." *Health Economics* 26 (2015). 617-624.

overestimate (or sometimes ignore) events with low probabilities.[76] Or their choices are biased by the availability of information around them ("availability bias"). They can be nudged into making different choices simply by facing a different default option: to participate or not in the corporate pension plan, for example. Many other cognitive biases are invoked.

> *Lack of self-control shows in the difficulty of keeping resolutions regarding the well-being of one's future self.*

Lack of self-control shows in the difficulty of keeping resolutions regarding the well-being of one's future self. This can also be conceived as a sort of bias, a "present bias" that creates a time inconsistency between what they think they should do for the future (like saving for retirement or quitting smoking now instead of some time in the future) and what they effectively do; this instance of lack of self-control is sometimes called short-sightedness. The difficulty of breaking an addiction is also an instance of the lack of self-control.

Such behavioral hypotheses can have an impact on cost-benefit analysis and, in particular, on the interpretation of consumer surplus. If individuals generally or often don't make choices that really maximize their welfare because of cognitive biases and/or poor self-control, it can be claimed that their consumer surplus has no normative value, that it is not their *real* consumer surplus. Coercive government interventions could arguably increase individual welfare by ignoring the consumer surplus revealed by the market.

6.2 QUESTIONABLE APPLICATIONS TO COST-BENEFIT ANALYSIS

The claims that behavioral economics requires ignoring consumer surplus as revealed in voluntary actions are problematic.

[76] Weimer. *Behavioral Economics for Cost-Benefit Analysis*, and the references cited therein.

Hypothesis #1 appears quite obvious. Individuals do make mistakes. The question is whether this observation is enough to dispense with the usual economic approach based on individual choices. As far as positive analysis is concerned, standard rational-choice economics has ways to deal with the bounded rationality of individuals. As an individual pays for the cost of his own mistakes, he has incentives to try and avoid them, if only by learning from his past mistakes and from other people's mistakes. Moreover, people who make mistakes—for example, businessmen who fail to maximize profits—tend to be selected out of the relevant markets, so irrationality is less common than a focus on the imperfectability of human beings would suggest. In other words, market discipline tends to root out mistakes. Just think of those who observe the bad consequences of a mistake made by somebody else and thus change their own behavior. Finally, and especially in a free society, useful rules and institutions develop to guide individuals through complex decisions: schools and churches help parents raise the young, financial intermediaries can help individuals make complex decisions, many corporations enroll their employees in retirement schemes, and so forth.

As an individual pays for the cost of his own mistakes, he has incentives to try and avoid them, if only by learning from his past mistakes and from other people's mistakes.

It is arguably more difficult to deal with mistakes that are both systematic and persisting (Hypothesis #2). For example, why do individuals often overestimate their luck? Why do they often follow mobs or bubbles (such as stock exchange bubbles or real estate bubbles)? Why are they biased in favor of immediately available information? When systematic mistakes are made, one would think that education and the progress of knowledge would mitigate them over time (except perhaps to the extent that they have been hard-wired in our brains by evolution). Indeed, behavioral economics is helpful in revealing systematic mistakes and making it easier to avoid them. Yet, don't systematic mistakes take any normative value out of individual preferences and consumer surplus?

> *… one must make sure to distinguish mistakes from what may just be different individual preferences.*

Lest we take systematic mistakes too seriously, some caveats are important. First, one must make sure to distinguish mistakes from what may just be different individual preferences. For example, some individuals may have a higher discount rate that reflects genuine preferences for the present. Second, the persistence of systematic mistakes does not necessarily mean that the government institutions are capable of correcting them efficiently. It may be that no institutions can solve the problem at lower cost (that is, better or less badly) than voluntary market interaction, and it may be a dangerous illusion to try to impose an unachievable nirvana with human beings that don't exist, as economist Harold Demsetz argued.[77]

These last remarks lead us to Hypothesis #3, which raises a conundrum. Government actors themselves are presumably subject to the same cognitive biases that affect ordinary individuals. After all, politicians, government bureaucrats, and voters are all ordinary individuals, contradicting the supposed cognitive asymmetry between government agents and citizens. Many economists have come to recognize that governments tend to amplify, not correct, the cognitive biases and lack of control of individuals, raising serious doubts about Hypothesis #3.

> *Many economists have come to recognize that governments tend to amplify, not correct, the cognitive biases and lack of control of individuals….*

[77] Demsetz, Harold. "Information and Efficiency: Another Viewpoint." *Journal of Law and Economics* 12(1). 1-22.

Focusing on government experts, economist Michael David Thomas notes that "[i]f experts are also biased, … they are replacing the decisions of market participants with their own policy biases rather than deciding from a position of better knowledge, which is a type of manipulation." He suggests that "[b]ecause experts, like market actors, cannot avoid cognitive bias, the scope of behavioral policy is limited severely."[78]

Kip Viscusi and Ted Gayer cite Cass Sunstein, who wrote: "For every bias identified for individuals, there is an accompanying bias in the public sphere."[79] Viscusi and Gayer further explain:

> *[G]overnment policies often institutionalize rather than overcome behavioral anomalies. … In other words, in a democratic system, theory and evidence suggest that government policies will reflect the irrationalities of ordinary people. … [A] framework of behavioral public choice should take into account that policymakers and regulators are themselves behavioral agents subject to psychological biases, and further, that they are public agents subject to political pressures and biases endemic in the political process. The behavioral paradox is that government policies are subject to a wide range of behavioral failures.*[80]

Lee and Clark similarly criticize the contradictions of public policy inspired by behavioral economics:

> *Surely behavioral economists are familiar with how public choice analysis has generated theoretical insights by comparing markets and government under the realistic assumption that political decisions are just as motivated by self-interest as market decisions. One would think that this would have motivated articles by behavioral economists comparing markets and government under the realistic assumptions that political decisions are just as influenced by cognitive biases as are market decisions. We haven't seen such an article by a behavioral economist.*[81]

78 Thomas, Michael David. "Reapplying Behavioral Symmetry: Public Choice and Choice Architecture." *Public Choice* (2018) https://doi.org/10.1007/s11127-018-0537-1

79 Viscusi, W. Kip and Ted Gayer. "Behavioral Public Choice: The Behavioral Paradox of Government Policy." *Harvard Journal of Law & Public Policy* 38(3) (2018). 978.

80 Ibid. 977, 970, 1006 and 1007.

81 Lee, Dwight R. and J.R. Clark. "Can Behavioral Economists Improve Economic Rationality?" *Public Choice* 174 (2018). 38.

The public choice school of economic analysis, which developed in the last half of the 20th century, obtained important theoretical and empirical results by starting from the common-sense assumption that politicians and bureaucrats are not angels but ordinary individuals.[82] Even downplaying the presumption that voters and government agents are subject to the same cognitive biases and lack of self-control that plague ordinary individuals in their private capacity, the participants in government processes face incentives that tend to produce results very different from those that a government of angels (to borrow from James Madison in Federalist No. 51) would achieve. As Lee and Clark reminded us, it is a common error to compare an imperfect market (and other free human interactions) with a perfect government and conclude that the latter is superior.

The conclusions of public choice economics can be briefly summarized in four propositions. (1) The individual voter whose single vote is highly unlikely to change the result of an election or referendum is motivated to remain "rationally ignorant," that is to spend little time and other resources on gathering information; he votes blind.[83] (2) The politician is motivated to promise more than he knows he can achieve and to support special interests instead of his electors' interests, which are not homogeneous anyway. (3) The government bureaucrat (the one who wields some influence in the bureaucracy) is motivated to expand the size of his bureau so as to increase his salary, career prospects, and perks. (4) For all these reasons, "government failures" are at least as prevalent as "market failures."

Government failures often have more serious consequences than market failures.

Government failures often have more serious consequences than market failures. Nineteenth-century economist Jean-Baptiste Say noted that "in private life, the mistakes of individuals can never ruin but a small number of families, whilst those of princes and ministers spread

82 For a summary of the public choice literature, see Dennis C. Mueller, *Public Choice III* (Cambridge University Press, 2003).

83 Caplan, Bryan. *The Myth of the Rational Voter: Why Democracies Choose Bad Policies* (Princeton University Press, 2007); Geoffrey Brennan and Loren Lomasky. *Democracy and Decision: The Pure Theory of Electoral Preferences* (Cambridge University Press, 1993).

desolation over a whole country."[84] One striking example is the government's present bias or short-sightedness that leads to persistent and increasing budget deficits: since 1960, the federal budget has not shown an annual deficit only five times.[85] It is as if the federal government is addicted to deficits and lacks the self-control to get out of them.

A minimum lesson to draw from public choice economics as pertains to behavioral economics and cost-benefit analysis is Viscusi and Gayer's conclusion that "[a]ny critical review of private behavioral failures should be accompanied by a comparable assessment of government failures."[86] Behavioral economics Hypothesis #3 is thus far from certain: government intervention may amplify individual mistakes instead of correcting them.

The normative policy implication of behavioral economics represented by Hypothesis #4 does not follow from the three first hypotheses, even if one thinks that the government should, for moral reasons, correct individual utility-maximizing mistakes. The reason is that it is likely incapable of doing so, and could create worse evils if it tries.

> *Deciding between different products or courses of action that can affect an individual's welfare is a matter of trade-off—what to choose and what to forego. The fundamental question is who will make these trade-offs: some individuals for all, or each adult individual for himself?*

Deciding between different products or courses of action that can affect an individual's welfare is a matter of trade-off—what to choose and what to forego. The fundamental question is who will make these trade-offs: some individuals for all, or each adult individual for himself? The normative principle embedded in consumer surplus (and an underlying concept of standard welfare economics) is that each individual should be left free to do it

84 Say, Jean-Baptiste. *A Treatise of Political Economy* (1821) (Augustus M. Kelley, 1971). liv.

85 U.S. Office of Management and Budget. Federal Surplus or Deficit [-] [FYFSD], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/FYFSD, January 9, 2019.

86 Viscusi and Gayer. "Behavioral Public Choice: The Behavioral Paradox of Government Policy." 1007.

for himself as long as he does not harm others. Public policies inspired by behavioral economics suppose that government can do it better, and that it is justified in substituting its judgment for each individual's judgment.

If the government rejects the postulate that individuals know better what's good for themselves, where are the limits of government controlling private lives? Without considering the full consumer surplus, cost-benefit analysis risks becoming a mere rubber stamp for the government's proposed policies.

PART 7

THE FDA'S TOBACCO CBA EXPERIENCE

Debates about consumer surplus and behavioral vs. neoclassical economics may seem theoretical and divorced from the real world of policy making, but this is not true. Very practical policy issues depend on how consumer surplus is incorporated in cost-benefit analysis. A good illustration is the FDA's 2011 rule to impose graphic warnings on cigarette packages.[87] For reasons not directly related to consumer surplus, the regulation was struck down by a U.S. District Court and could not come into force. But the debate on consumer surplus continued and will affect the cost-benefit analyses of the new tobacco and e-cigarette regulations planned by the FDA.

7.1 COST-BENEFIT ANALYSIS OF THE PROPOSED 2010 RULE

The FDA has not gone so far as to refuse to include any lost consumer surplus in its CBAs of tobacco regulation. Consider its 2010 RIA for the proposed rule on graphic warnings on cigarette packs. As public-health studies do, the FDA started by evaluating how many lives,

[87] A very good analysis of this debate can be found in Helen G. Levy, Edward C. Norton, and Jeffrey A. Smith, "Tobacco Regulation and Cost-Benefit Analysis," *Journal of Health Economics* 41(1) (2017). 1-25.

or healthy years of life, the rule was forecast to save.[88] Using standard values for a statistical life—based on revealed preferences such as how much more people are paid to accept risky jobs—the FDA derived an estimate of what smokers would be willing to pay (their willingness to pay) to have the proposed regulation enacted and obtain the presumptive health benefits. This value constituted the major benefit of the proposed regulation.

This way of proceeding is often used in public health studies, but is controversial because consumers of tobacco, like consumers of any other good, must have deducted these non-price costs from the demand they bring on the market. In other words, consumers' valuation of a product is net of any non-price cost because it expresses what they are willing to pay to purchase the product on the market. For example, the demand for skis (or mountaineering equipment) that consumers bring on the market must be net of the cost of possible accidents. Similarly, what a smoker is willing to pay when he purchases tobacco represents the net value he attaches to tobacco (except for the market price he has to pay for the product). By construction, consumer demand indicates the net value that consumers attach to a good, and a cost-benefit analysis should start by estimating this net value, not by piling costs that consumers already netted out. "[T]here is no good reason why the welfare analysis of regulations that reduce smoking should begin by calculating health benefits," write Levy et al.[89]

> *…. the analyst seems to be saying that he knows what's good for the consumer better than the consumer himself. Such an analyst is unwittingly counting health costs twice by deducting them from a demand from which the consumer has already netted out anything he does not like.*

[88] The court that struck down the regulation ruled that the FDA had not provided evidence that it would lead to a decrease in smoking, as the the FDA claimed. Ibid. 5.

[89] Levy et al. "Tobacco Regulation and Cost-Benefit Analysis." 7. See also Mishan *Cost-Benefit Analysis: An Informal Introduction*. 340.

Otherwise, the analyst seems to be saying that he knows what's good for the consumer better than the consumer himself. Such an analyst is unwittingly counting health costs twice by deducting them from a demand from which the consumer has already netted out anything he does not like. By construction, the economic concept of demand represents the net result of what the consumer likes and doesn't like in a product.

The FDA realized that. In its cost-benefit analysis, the agency explained that the health benefit calculation "tends to overstate the net benefits of reduced smoking because it does not account for lost consumer surplus associated with the activity of smoking."[90] It admitted that the cost-benefit analysis must include as a cost the reduction in consumer surplus that the regulation causes. It compensated for the lost consumer surplus by reducing by 50% the gross health benefits calculated in the first step. This 50% "offset factor" was borrowed from a rough benchmark calculated by economist David Cutler with a simple geometric model.[91] The cost-benefit analysis still produced a net benefit, though.

Cutler's 50% offset factor was not totally arbitrary although it was derived from a simple model resting on questionable assumptions. The 50% estimate, Cutler said, is a "benchmark estimate" that "is perhaps reasonable."[92] It assumes that the demand curve is linear and that smokers underestimate the health impact of smoking, contrary to what Viscusi has shown (and which Cutler acknowledges is a challenge to his estimate). In Cutler's benchmark case, a reduction of smoking increases health benefits by twice the value of the reduction of the "real" consumer surplus. This twofold multiplication factor is just the inverse of the 50% (or ½) offset. Intuitively—although intuition will only lead us part way—the 50% offset comes from the fact that, under Cutler's assumptions, health benefits increase exactly in proportion to the decrease in smoking, while the loss in the "real" consumer surplus is between 0% and 100% (linear average is 50%) as quantity demanded by perfectly informed or unbiased consumers would gradually fall along their linear

90 Food and Drug Administration. "Required Warnings for Cigarette Packages and Advertisements; Proposed Rule." Federal Register, November 12, 2010. 69544, https://www.govinfo.gov/content/pkg/FR-2010-11-12/pdf/2010-28538.pdf.

91 Cutler, David M. "Are We Finally Winning the War on Cancer?" *Journal of Economic Perspective* 22(4) (Fall 2008). 3-26; see notably 16-17.

92 Ibid. 17.

demand curve. (The "real" consumer surplus is the one of perfectly informed or otherwise unbiased smokers.)[93]

A coalition of anti-smoking groups and some economists objected to this indirect introduction of consumer surplus in the analysis. Economist Frank Chaloupka argued that the offset should not exceed 10% (as opposed to 50%), that is, at most 10% of the health gains should be offset by the loss in consumer surplus.[94]

7.2 THE 2011 CBA: A MORE REASONABLE FDA

In a revised cost-benefit analysis for the final rule, the FDA reviewed these objections, recognized certain arguments from behavioral economics, but, interestingly, emphasized the importance of consumer surplus. In the RIA accompanying the final rule, published in 2011, the FDA wrote:

> *The concept of consumer surplus is a basic tool of welfare economics. … In an analysis of benefits based on willingness-to-pay, we cannot reject this tool and still fulfill our obligation to conduct a full and an objective economic analysis under Executive Orders 12866 and 13563 … we note that virtually all studies of the economics of smoking and addiction assume that smoking is pleasurable to smokers.*[95]

The FDA's revised estimates of the offset factor (the proportion of the health gains offset by the smokers' foregone consumer surplus) produced a range of 10% to 93%, instead of the single 50% offset previously used. At the higher extreme of this range, nearly all health gains would be offset by lost consumer surplus. More interestingly, the expanded cost-benefit analysis added an alternative measure of benefits that is closer to how a standard cost-benefit analysis should proceed. This alternative approach produced "a direct estimation of the value to smokers and potential smokers of cessation and avoided

93 Levy et al. in "Tobacco Regulation and Cost-Benefit Analysis" provide a better explanation of the Cutler model than Cutler himself.

94 Chaloupka, Frank J. "Comment on the Food and Drug Administration (FDA) Notice: Required Warnings for Cigarette Packages and Advertisements; Research Report." https://www.regulations.gov/document?D=FDA-2010-N-0568-0686.

95 Food and Drug Administration. "Required Warnings for Cigarette Packages and Advertisements; Final Rule." June 22, 2011. 36714.

initiation, as shown by their willingness to pay for cessation programs."[96] Levy et al. summarize the results of the FDA alternative estimate:

> *This method results in much lower net benefits associated with the regulation—so low, in fact, that they are exceeded by the FDA's upper-range estimate of the costs of the regulation. Thus, getting the method for valuing lost consumer surplus right is not simply an academic question; it may actually determine whether the regulation is admissible from a cost-benefit perspective.*[97]

The FDA, however, did not think that this scenario invalidated the need for the regulation.

7.3 THE CRITIQUE OF THE "PROMINENT ECONOMISTS" AND THE FDA ECONOMISTS' ESTIMATE

The opposition to the FDA's methodology and prudent (or timid) espousal of consumer surplus crystallized in a 2015 *Tobacco Control* article published by nine economists (with Frank Chaloupka as the lead author) who presented themselves in the article as "a group of prominent economists."[98] Using the concepts of behavioral economics, they stated that they "disagree with the FDA's inclusion of conventionally measured consumer surplus as a measure of smokers' loss of welfare." They claimed that:

> *…nearly all of the 'lost pleasure' from tobacco use, as represented by conventionally measured consumer surplus, should not be included as a cost in FDA analyses of the economic impact of its tobacco regulations.*[99]

96 Ibid.

97 Levy et al. "Tobacco Regulation and Cost-Benefit Analysis." 3.

98 Chaloupka, Frank J. et al. "An Evaluation of the FDA's Analysis of the Costs and Benefits of the Graphic Warning Label Regulation." *Tobacco Control* 24 (2015). http://tobaccocontrol.bmj.com/content/early/2014/12/30/tobaccocontrol-2014-052022.full.pdf+html. The authors write (p. 112): "In order to inform this analytic process, a group of prominent economists met in early 2014 to review the approach used by the FDA in its economic impact analysis for the proposed and final GWL [graphic health warnings] rules. This paper summarizes the consensus of this group."

99 Ibid. 117–118.

This criticism repeated the behavioral-economic arguments of Chaloupka, Gruber, and Warner (2015). As shown in Part 5, many reasons, economic and political, suggest to reject the interpretation of behavioral economics that negates consumer surplus.

Around the time of the prominent economists' criticism of the FDA, three of the agency's economists (Elizabeth Ashley, Clark Nardinelli, and Rosemary Lavati) published in their private, professional capacity a journal article emphasizing, in light of the theoretical and empirical literature, the importance of accounting for the (partial) loss of smokers' consumer surplus caused by anti-tobacco regulations:

> *Altogether, the current economics literature currently suggests that at least two-thirds of gross health and longevity benefits of policy-induced smoking cessation are offset by consumer utility losses.*[100]

7.4 THE CORRECT APPROACH

The main benefit of the debate that started in 2010 over the costs and benefits of graphic warnings was to show that the correct way of doing cost-benefit analysis of tobacco regulations is to anchor it in consumer surplus. Consumer surplus depends on each consumer's demand curve, which indicates how much each one values the good under consideration (tobacco in this case). Levy et al. show that "it is not necessary to calculate the health gains of a particular policy and then calculate an offset for foregone enjoyment; it is sufficient simply to look at changes in consumer surplus."[101] Starting with a calculation of health gains and correcting for an offset factor is poor methodology that easily leads the analyst astray.

The Levy et al. article is very important in the whole debate, which it summarizes in its technical details. More importantly, the article demonstrates that Cutler's offset factor of 50% is only a special case, and that it can vary from 0% to 100% depending on whether, at one extreme, we accept the consumer surplus revealed by smokers in the market or, at the other extreme, we believe that behavioral analysts should substitute their own biases for the expressed preferences of "biased" consumers. Levy et al. don't take a position on the

[100] Ashley et al. "Estimating the Benefits of Public Health Policies that Reduce Harmful Consumption." 622.

[101] Levy et al. "Tobacco Regulation and Cost-Benefit Analysis." 12.

degree of smokers' biases, but they "reject the notion that forgone consumer surplus should not be counted as a cost in regulatory impact analysis."

> *Ignoring or downgrading consumer surplus amounts to saying that consumers' preferences are false and that their "real" demand is less than they think it is.*

We should go a bit further than Ashley et al. and Levy et al. Ignoring or downgrading consumer surplus amounts to saying that consumers' preferences are false and that their "real" demand is less than they think it is. It amounts to arbitrarily shifting down the demand that consumers express on the market.[102] In practice, it replaces each individual's preferences by the preferences and values of government leaders and experts. As Part 6 indicated, politicians and government experts are subject to the same cognitive biases and lack of self-control as ordinary consumers, and tend to pursue their own interests. Even if one entertains behavioral doubts on whether consumer surplus should be chopped, it needs at least to be incorporated and openly discussed.

Levy et al. note the difficulty of correctly estimating consumer surplus.[103] This is no doubt true. But as Mishan warned, "[i]n view of the existing quantomania one may be forgiven for asserting that there is more to be said for rough estimates of the precise concept than precise estimates of economically irrelevant concepts."[104]

[102] Appendix A's Figure A-1 provides a more technical and visual representation.

[103] Levy et al. "Tobacco Regulation and Cost-Benefit Analysis." 20.

[104] Mishan. *Cost-Benefit Analysis: An Informal Introduction.* 342.

7.5 A NEW FDA ORIENTATION?

Despite the FDA's 2011 cost-benefit analysis of graphic warnings and the work of some of its economists, there are indications that the agency has been backtracking from its acceptance of consumer surplus as "a basic tool of welfare economics."[105] Levy et al. note that, in the wake of the nine economists' criticism, the FDA's 2016 Deeming rule backed away from explicitly incorporating the loss of consumer surplus in the cost of the proposed regulation.[106] This volte-face is antiscientific and deplorable.

[105] Food and Drug Administration, "Required Warnings for Cigarette Packages and Advertisements; Final Rule," p. 36714.

[106] Levy et al. "Tobacco Regulation and Cost-Benefit Analysis," 6.

PART 8

APPLICATIONS TO CURRENT TOBACCO REGULATION PROJECTS

The foregoing review of the theory behind cost-benefit analysis and consumer surplus is useful when considering the FDA's current projects of mandating nicotine reduction and banning flavors in e-cigarettes (and possibly also the only remaining flavor allowed in combustible cigarettes). Since these two regulations are at least partial bans, they would quite certainly lead, as intended, to fewer adults using tobacco or e-cigarettes. Each regulation would cause a direct cost in terms of foregone consumer surplus.

8.1 NICOTINE REDUCTION

In its ANPRM of March 3, 2018 describing the project of mandating a reduction of nicotine in cigarettes (and potentially other tobacco products) "to minimally addictive or nonaddictive levels," the FDA explains:

> *Nicotine at levels currently found in tobacco products is highly addictive, and addiction to nicotine is the "fundamental reason that individuals persist in using tobacco products" [quoting a Surgeon General report]. … FDA expects that making cigarettes minimally addictive or nonaddictive would reduce tobacco-related harms by promoting*

> *smoking cessation or complete migration to alternative, potentially less harmful noncombusted products and by reducing initiation.*[107]

A major justification seems to prevent minors (and young adults) from initiating smoking:

> *Youth and young adults would experience the greatest benefits from a nicotine tobacco product standard, because many of them may not progress beyond experimentation and, therefore, may not experience dangerous and deadly tobacco-related health effects.*[108]

The FDA asks for information notably about,

> *How should potential consumer surplus or utility loss from the removal of nicotine in cigarettes be considered, given the availability of other sources of nicotine such as ENDS [electronic nicotine delivery systems or e-cigarettes] and the continued availability of combustible tobacco products?*
>
> *If FDA were to finalize a nicotine tobacco product standard, what might be the costs to current smokers?*[109]

These questions are directly relevant to the cost-benefit analysis that will be legally required with the proposed rule and the final rule. Since the net cost to current smokers is given by their lost consumer surplus, the issue can be summarized in the question, How would the reduction of nicotine to "minimally addictive or nonaddictive levels," as anticipated in the ANPRM and promoted by then-Commissioner Scott Gottlieb,[110] reduce the smokers' consumer surplus?

The cost-benefit analysis of nicotine reduction should be transparent and use the correct methodology. The main component of the cost of this public policy would be smokers' lost consumer surplus. Other components to be added on the cost side include the resources used up in the implementation of the regulation, attempts to circumvent it, and

---

107 FDA. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." 11835.

108 Ibid.

109 Ibid. 11834.

110 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on pivotal public health step to dramatically reduce smoking rates by lowering nicotine in combustible cigarettes to minimally or non-addictive levels."

corresponding enforcement activities. What has to be estimated on the benefits side of the policy would be mainly any reduction of resource costs or third-party damages.

Recall that the consumer surplus before the loss generated by the policy is already net of the health costs of smoking in terms of utility, as estimated (and probably overestimated) by the consumers themselves. Adding any improvement of health as a benefit of the policy would be double counting what consumer demand already incorporates. Note also that most cost-benefit theorists would *not* include as a benefit the mere dislike that some people feel for the consumption activities or the lifestyles of others.[111]

The analyst should not yield to the temptation to obscure consumer surplus under a mere cost-effectiveness analysis where the reader is requested to make a guess about the maximum amount of foregone consumer surplus that would be sufficient to produce a net benefit. For a valid scientific cost-benefit analysis to be done—"to use the best available science," as the ANPRM often repeats—foregone consumer surplus must be explicitly recognized and estimated.[112]

For a valid scientific cost-benefit analysis to be done—"to use the best available science," as the ANPRM often repeats—foregone consumer surplus must be explicitly recognized and estimated.

As we saw above, a good argument can be made that the whole reduction in smokers' consumer surplus should be incorporated as a cost in the cost-benefit analysis of the proposed regulation, even if this cost is large—indeed, precisely because this cost is likely to be large. Tobacco has little attraction without nicotine. According to the FDA's preliminary estimates (based mainly on expert guestimates[113]), the number of quitting

111 Mishan. *Cost-Benefit Analysis: An Informal Introduction*. 159-160. Again, the case of minors is different.

112 See Part 7.

113 See the FDA-supported research: Benjamin J. Apelbert et al. "Potential Public Health Effects of Reducing Nicotine Levels in Cigarettes in the United States." *New England Journal of Medicine* 378 (2018). 1725–1733. https://www.nejm.org/doi/full/10.1056/NEJMsr1714617?query=featured_home.

smokers would be very large: five million within one year, 13 million within five years, and even more as the forecast extends into the future.[114] This points to a very large cost in terms of consumer surplus foregone by adult smokers who are driven to quit or can't try tobacco.

These costs in terms of consumer surplus would increase if the nicotine reduction standard is extended to other tobacco products like small cigars, pipe tobacco, or roll-your-own, as the FDA also considers. A few days after the Tobacco Product Standard ANPRM, the agency issued another one on the possible regulation of premium cigars.[115] Worryingly, the ANPRM on Regulation of Premium Cigars does not mention costs and benefits at all.

Some commentators have persuasively argued that the nicotine reduction that the FDA is considering would amount to "a stealth ban on cigarettes and cigars,"[116] "just as whiskey with an alcohol level reduced to 1 percent would no longer be whiskey by any common-use definition."[117] The previous FDA commissioner, Scott Gottlieb, viewed the ANPRM on nicotine reduction as a "milestone … on the road to achieving one of the biggest public health victories in modern history." He mentioned a research scenario[118] according to which, by 2100, in less than a century, "smoking rates could drop from the current 15% to as low as 1.4%."[119] This dream is not new. Already, in the early 20th century, prohibitionist

[114] Food and Drug Administration. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." 11837.

[115] Food and Drug Administration. "Regulation of Premium Cigars: Advance notice of proposed rulemaking." March 26, 2018. https://www.govinfo.gov/content/pkg/FR-2018-03-26/pdf/2018-06047.pdf

[116] Grier, Jacob. "Scott Gottlieb's FDA Is Moving Toward a Stealth Ban on Cigarettes and Cigars." *Reason*. November 26, 2018.

[117] Bates, Clive and Carrie Wade. "Reducing Nicotine in Cigarettes: Challenges and Opportunities." R Street Policy Study No. 115, October 2017. 3, https://www.rstreet.org/wp-content/uploads/2017/10/115.pdf.

[118] See an FDA-supported piece of research: Apelbert, Benjamin J., et al. "Potential Public Health Effects of Reducing Nicotine Levels in Cigarettes in the United States." *New England Journal of Medicine* 378 (2018). 1725-1733. https://www.nejm.org/doi/full/10.1056/NEJMsr1714617?query=featured_home.

[119] Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on Pivotal Public Health Step to Dramatically Reduce Smoking Rates by Lowering Nicotine in Combustible Cigarettes to Minimally or Non-addictive Levels." March 15, 2018.

Lucy Page Gaston was dreaming of "[a] smokeless America by 1925."[120] The problem is that many people like tobacco (as has been true for centuries), and no "nirvana approach"[121] to public policy can change that.

> *The nicotine-reduction regulation would incite smokers to find legal or illegal means to limit the loss of their consumer surplus by finding products that are as close substitutes to pure tobacco as possible (but don't provide as much utility).*

It is important to understand that, if tobacco is stripped of the level of nicotine which is deemed pleasurable, smokers who substitute other products or other forms of nicotine will still lose consumer surplus. Consumer surplus measures what consumers gain *when they consume what they choose instead of consuming something else*. The lost consumer surplus caused by a regulation measures what consumers have to forego when they are prevented from choosing what they want and are forced instead to choose what they consider inferior substitutes—the proof that they are inferior in these individuals' preferences being that they were not chosen before.[122] The nicotine-reduction regulation would incite smokers to find legal or illegal means to limit the loss of their consumer surplus by finding products that are as close substitutes to pure tobacco as possible (but don't provide as much utility).

These considerations reinforce the argument that it is essential to correctly measure the consumer surplus that would be lost by smokers deprived of their preferred choice of tobacco consumption.

120 Tate, Cassandra Tate. *Cigarette Wars: The Triumph of "the Little White Slaver"* (Oxford University Press, 1999). 62.

121 This expression is due to Harold Demsetz, "Information and Efficiency: Another Viewpoint," *Journal of Law and Economics* 12(1) (April 1969).

122 See Hicks, "The Rehabilitation of Consumer Surplus," *Review of Economic Studies* 8(2) (February 1941). 108-116; and Weimer. *Behavioral Economics for Cost-Benefit Analysis*. 30-34.

The 1920s prohibition of alcohol as well as the current war on drugs suggest that legal prohibitions achieve limited success and carry high costs.

It may be argued that the cost of lost consumer surplus by adult smokers would be at least partly compensated by the future health gains among adolescents deprived of cigarettes. Note, however, that some of these adolescent non-smokers might still decide to smoke when they reach adult age, just like adults start doing many things once they have escaped the constraints of minor status, in which case there would be no or little benefits of the regulation. Adult pleasures are tempting once one becomes an adult, and, as professor Richard Klein puts it, "[a]dult pleasures are … generally bad for your health."[123] Moreover, it is not clear to which extent adolescents would be effectively deprived of (not-denicotinized) tobacco products given that neither current tobacco bans for minors nor actions by schools and parents can apparently achieve this result. The 1920s prohibition of alcohol as well as the current war on drugs suggest that legal prohibitions achieve limited success and carry high costs.[124]

At any rate, the correct way to proceed with the cost-benefit analysis of nicotine reduction would be to evaluate how much adults would be willing to pay to avoid this regulation, either for themselves or for their minor children, and to weigh these benefits against the costs of the regulation.

The cost of reducing the level of nicotine in cigarettes would include the costs of the other bans and controls that the FDA hints may be required to support the primary ban. It is

[123] Klein, Richard. "Public Health and the Regulatory State." *Social Science and Modern Society* 51(3) (May/June 2014). 255.

[124] Miron, Jeffrey A. "An Economic Analysis of Alcohol Prohibition." *Journal of Drug Issues* 28(3) (July 1988). 741-762; Jeffrey A. Miron. "The Economics of Drug Prohibition and Drug Legalization." *Social Research* 68(3) (Fall 2001). 835-855; Lloyd D. Jonston et al. "Monitoring the Future national survey results on drug use 1975-2018: Overview, Key Findings on Adolescent Drug Use." Institute for Social Research, University of Michigan, January 2019. https://deepblue.lib.umich.edu/bitstream/handle/2027.42/148123/Overview%202018%20FINAL%20print%201-30.pdf?sequence=1&isAllowed=y. Christopher J. Coyne and Abigail R. Hall. "Four Decades and Counting: The Continued Failure of the War on Drugs." Policy Analysis # 811, April 12, 2017. https://object.cato.org/sites/cato.org/files/pubs/pdf/pa-811-updated.pdf.

envisioned that tobacco products that are cigarette substitutes (such as cigars, for example) could also be subject to compulsory nicotine reduction, that products designed to supplement the level of nicotine in tobacco (with liquid nicotine, for example) should also be banned, and that further controls may be needed to prevent the growth of smuggling and black markets in normal cigarettes. In its ANPRM, the FDA probably underestimates the possible development of contraband and black markets.[125] The death of Eric Garner, a seller of contraband cigarettes, at the hands of NYPD officers reminded us that where a market demand exists, legal or illegal supply will be forthcoming.[126] A study by the R Street Institute sounds the alarm:

> *The severe challenge for FDA is that it really does not know, and perhaps cannot know, how the market will react to such an intervention. Nor do we know how those affected as consumers, suppliers and law enforcement will react to the criminalization of a personal behavior practiced by roughly 38 million Americans and that has always been legal.*[127]

Monetized costs such as the reduction in consumer surplus sometimes translate into large personal costs, especially when the prohibition targets a good in large demand. In his famous 1776 book *The Wealth of Nations*, Adam Smith mentioned the fate of the smuggler, who is really a creation of the law. Smith wrote:

> *[T]he hope of evading such taxes by smuggling gives frequent occasion to forfeitures and other penalties, which entirely ruin the smuggler; a person who, though no doubt highly blameable for violating the laws of his country, is frequently incapable of violating those of natural justice, and would have been, in every respect, an excellent citizen, had not the laws of his country made that a crime which nature never meant to be so. … From being at first, perhaps, rather imprudent than criminal, he at last too often becomes one of the hardiest and most determined violators of the laws of society. By the ruin of the smuggler, his capital, which had before been employed in maintaining productive labour, is absorbed either in the revenue of the state or in that of the revenue-officer, and is employed in*

125 Federal Drug Administration. "Tobacco Product Standard for Nicotine Level of Combusted Cigarettes; Advance Notice of Proposed Rulemaking." 11834; Food and Drug Administration. "Illicit Trade in Tobacco Products after Implementation of an FDA Product Standard." March 15, 2018. https://www.fda.gov/downloads/TobaccoProducts/NewsEvents/UCM601047.pdf.

126 O'Brien, Rebecca Davis, Michael Howard Saul and Pervaiz Shallwan. "New York City Police Officer Won't Face Criminal Charges in Eric Garner Death." *The Wall Street Journal*, December 4, 2014.

127 Bates and Wade. "Reducing Nicotine in Cigarettes: Challenges and Opportunities." 1.

> *maintaining unproductive, to the diminution of the general capital of the society, and of the useful industry which it might otherwise have maintained.*[128]

It is doubtful that a proper cost-benefit analysis would show a net benefit of the radical nicotine reduction that the FDA is proposing. If consumers wanted very low nicotine tobacco products (because, for example, smokers were desperate to quit), these products would be thriving on the market. A virtually nicotine-free cigarette developed by Philip Morris and introduced in 1989 under the name "Next" flopped on the market.[129] Herbal cigarettes exist but are a small niche market, shunned by the vast majority of smokers. But whatever would be the results of a correct cost-benefit analysis, the FDA should reexamine what appears to be its retreat from consumer surplus. As the FDA noted in its own 2011 cost-benefit analysis of graphic warnings, an incomplete cost-benefit analysis ignoring consumer surplus may not even be legal.[130]

8.2 E-CIGARETTE FLAVORS

Similar arguments can be made regarding the cost-benefit analysis that should follow the March 21, 2018 ANPRM on the Regulation of Flavors in Tobacco Products.[131] This regulatory proposal targets flavors in e-cigarettes mainly but also in other tobacco products, including combustible cigarettes (where all flavors except menthol are already banned). The ANPRM requests "information related to the role that flavors play in tobacco products," including "how flavors attract youth to initiate tobacco product use" and "how certain flavors may help adult cigarette smokers reduce cigarette use and switch to potentially less harmful products." Recall that the legal definition of "tobacco products" includes e-cigarettes since the FDA's 2016 Deeming rule. It could also include "any other tobacco products that the Secretary of Health and Human Services by regulation deems to be subject" to the Act.[132]

---

128 Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations.* (1776), Vol. II (Methuen & Co.: 1904). 381-382.

129 Parker-Pope, Tara. "'Safer' Cigarettes: A History." PBS.org, October 2, 2001. https://www.pbs.org/wgbh/nova/article/safer-cigarettes-history/.

130 Food and Drug Administration. "Required Warnings for Cigarette Packages and Advertisements; Final Rule." 36714. See also Part 7 of this paper.

131 Food and Drug Administration. "Regulation of Flavors in Tobacco Products: A Proposed Rule by the Food and Drug Administration."

132 Ibid. 12294.

Contrary to the ANPRM on nicotine reduction, this one on regulation of flavors in tobacco products does not mention consumer surplus in the information requested. It mentions "economic impacts," which the reader may or may not take as including the economic costs and benefits to be considered in a cost-benefit analysis. It mentions "potential benefits" and "potential risks," but it is not clear if these expressions include benefits and costs in the economic sense, that is, as seen by the individuals themselves—as opposed to top-down public health concepts. It does ask "how should FDA access and balance these benefits and risks," but without any hint as to the methodology required to analyze the trade-offs.[133] As previously suggested by the FDA itself, a serious cost-benefit analysis is legally required.

Any restriction on vaping, such as interfering with the flavors preferred by some vapers, will reduce the (adult) vapers' consumer surplus. In the United States, some 10.8 million adults use e-cigarettes,[134] of which 41% use mint- and menthol-flavored.[135] Two-thirds of adults over 25 have used one flavor or another.[136] Banning flavors would mean that at least 4.4 million adult vapers would see their preferred products coercively removed from the market. Non-flavored substitutes are lower in the preference scale of these vapers; if this were not the case, they would have purchased these substitutes without being forced to do so. Thus their consumer surplus is reduced by the removal of their preferred flavors. The cost of this reduction is equivalent to what they would be willing to pay to be spared the regulation. An estimate of this value has to be included in the costs of the regulation. The more people reduce vaping (perhaps by switching to combustible cigarettes), the higher the loss of consumer surplus.[137]

All costs and benefits must be accounted for in a methodologically consistent and transparent way. The bulk of the cost of a regulation banning some flavors would consist of the loss of consumer surplus. Other costs include the use of resources to change production

---

133 Ibid. 12298 and 12299.

134 Mohammadhassan, Mirbolouk et al. "Prevalence and Distribution of E-Cigarette Use Among U.S. Adults: Behavioral Risk Factor Surveillance System, 2016." *Annals of Internal Medicine* 169(7) (2018).

135 See Food and Drug Administration. Statement from FDA Commissioner Scott Gottlieb, M.D., on Proposed New Steps to Protect Youth by Preventing Access to Flavored Tobacco Products and Banning Menthol in Cigarettes, November 15, 2018.

136 Bentley. *A Question of Taste: The Public Health Case for E-Cigarette Flavors*. 23.

137 In terms of Figure A-1 in Appendix A, we can reinterpret dd′ as the new demand curve for e-cigarettes after flavors have been banned. Consumer surplus will have dropped from DEA to dE′′A. The loss in consumer surplus, to be counted as a cost in the cost-benefit analysis, is thus DEA-dE′′A. The same analysis applies to the reduction of nicotine reviewed in the preceding section.

and marketing processes, which would presumably be a small cost compared to foregone consumer surplus. The largest part of the cost besides lost consumer surplus would likely be enforcement costs in the surveillance and prosecution of producers and consumers of forbidden flavored e-cigarettes (or menthol cigarettes), and possibly the jailing of those caught. The costs generated by complementary bans and controls of the means that individuals would find to obtain their preferred flavored products would have to be added in. To realize the real nature of these costs, imagine that another Eric Garner is killed while selling forbidden menthol cigarettes or fruit-flavored e-cigarettes.

As mentioned in the case of nicotine reduction, most cost-benefit theorists would *not* incorporate in the benefits of the regulation the increased utility of those who merely dislike the idea that other adults are having pleasure[138]—by vaping flavored nicotine or smoking a menthol cigarette in the case under consideration. This means that in a society where individuals are free to do what does not harm others, busybodies don't have standing (in the legal sense of the expression). Thus, it is not clear what should be entered on the benefit side of a ban on flavors, although a potential benefit could be what parents are willing to pay to have their children protected from flavored tobacco products.[139] Any cost to the adult vapers (or menthol smokers) themselves has already been deducted from their demand, that is, from what they are willing to pay for the smoking products.

> *It must be emphasized, as previously mentioned and as the FDA fears, that some vapers would switch to combustible cigarettes, either because menthol cigarettes would still be allowed or simply because they would feel that the advantage of e-cigarettes over real cigarettes has disappeared without the option of flavor in the latter.*

[138] Mishan. *Cost-Benefit Analysis: An Informal Introduction*. 159-160.

[139] This of course refers to the parents' "willingness to pay" as a measure of consumer surplus increase from the regulation, not to any general tax payment.

It must be emphasized, as previously mentioned and as the FDA fears, that some vapers would switch to combustible cigarettes, either because menthol cigarettes would still be allowed or simply because they would feel that the advantage of e-cigarettes over real cigarettes has disappeared without the option of flavor in the latter. If, between two goods A and B with some complementarity, you remove some features of B that are deemed desirable, some consumers will switch to A. We don't know how many are likely to make this substitution from e-cigarettes to combustible ones, but it is virtually certain that there would be some. As Guy Bentley wrote, "literature both from testimonials and longitudinal studies shows that flavor varieties assist smoking cessation among adult smokers who switch to vaping."[140] If the flavor does not assist smoking cessation anymore, there will be less of it.

A technical point: It would be a methodological error to separately add to the costs of the proposed regulation the additional future health costs of the vapers who switch or switch back to tobacco. This cost, we must continue to assume, is, like any non-price cost, already deducted from the previous vapers' consumer surplus because it is netted out of their demand curves. Adding it would be double-counting. This instance illustrates again that we must evaluate the cost of a regulation with foregone consumer surplus, instead of using the roundabout and methodologically muddled way of calculating gross health costs and offsetting those with some arbitrary factor to try and reintroduce the lost consumer surplus (or part of it).

On November 15, 2018, FDA Commissioner Scott Gootlieb announced that new steps on flavors would be forthcoming, notably to ban menthol cigarettes[141]—thereby confirming what the ANPRM on flavors suggested. Banning menthol cigarettes or extending the prohibition of flavors to other products such as cigars would further increase the policy's costs in terms of lost consumer surplus. It would also increase the cost of enforcement actions against black market ways to satisfy repressed consumer demand.

As suggested by standards methods of cost-benefit analysis, it can be argued that the whole consumer surplus should be included in a serious cost-benefit analysis of flavor bans. At any rate, the analysis should start from this crucial concept, and any deviation from

140 Ibid. iii.

141 Food and Drug Administration. "Statement from FDA Commissioner Scott Gottlieb, M.D., on Proposed New Steps to Protect Youth by Preventing Access to Flavored Tobacco Products and Banning Menthol in Cigarettes."

it should be carefully justified. Only if the cost-benefit analysis proceeds along these lines can a finding of net benefit be credible. Otherwise, it will look as if government analysts are carrying out the cost-benefit analysis in order to produce a net benefit. This would confirm what economists John Morrall and James Broughel suspect: "RIAs often look more as if they were constructed to justify a particular regulation than done to help decide whether and/or how to regulate."[142]

> *As suggested by standards methods of cost-benefit analysis, it can be argued that the whole consumer surplus should be included in a serious cost-benefit analysis of flavor bans.*

Every economic choice involves a trade-off. The FDA recognizes that a trade-off exists between, on the one hand, leaving adults free to vape flavored nicotine and thus risking that adolescents get access to such products and, on the other hand, banning flavors to protect adolescents and thus removing an alternative for adult smokers. As usual, there are two ways to solve such problems in a society: (1) what we may call a collectivist way, where some organ of government makes a trade-off for everybody and imposes it on a minority (and sometimes on a majority); (2) an individualist and liberal way, where each individual is left free to make his own trade-off, provided he does not harm others. Many in the public-health movement seem to favor the first approach, which justifies the idea of restricting e-cigarettes even if they contribute to reducing tobacco-related diseases and deaths.[143] The FDA should instead follow an individualist model, which is closer to the economic approach and to standard cost-benefit analysis.

As mentioned above, it is not clear that the government can, with prohibitions and coercive laws, solve the problem of adolescents making bad choices. We risk falling into the nirvana fallacy, where a perfect government corrects an imperfect free market. A related

[142] Morrall and Broughel. *The Role of Regulatory Impact Analysis in Federal Rulemaking*. 44.

[143] Bentley. *A Question of Taste: The Public Health Case for E-Cigarette Flavors*.

observation was made by a group of World Bank's bureaucrats assisted by Professor Frank Chaloupka. They wrote:

> *A priori, parents would ideally always be willing and able to protect children from tobacco themselves. If this happened, there would be little need for governments to duplicate such efforts. Perfect parents, however, are rare.*[144]

What is remarkable in this statement is not that it is untrue; obviously, perfect parents are rare—although there is no evidence that good parents are rare. What is remarkable is the implication that perfect governments are less rare, contrary to what is revealed by much research as well as by history and casual observation.[145]

Another aspect of the FDA campaign in the name of children is troubling, and must be added to what was said in Part 4 above. The ANPRM on flavors comes close to assimilating young adults (18 to 24 years old) to adolescents (who are also called "youth," "children," or "kids"). Example of statements to this effect include:

> *… the role flavors play in youth and young adults use …*
>
> *Use of tobacco products, which is facilitated by nicotine exposure and dependence, puts youth and young adults at greater risk for future health issues …*
>
> *Data regarding use of flavored little filtered cigars also demonstrate appeal to youth and young adults.*
>
> *Youth and young adult smokers are disproportionately more likely to smoke menthol than nonmenthol cigarettes …*[146]

8.3 A GOOD DISCIPLINE

By obliterating or chopping consumer surplus, which is the major part of the cost of a coercive policy, any government intervention can show net benefits. For cost-benefit analysis to be impartial and not to turn into a rubber stamp of government decisions, a good discipline is to incorporate the full change in consumer surplus that a public policy

144 Jha et al. *Tobacco Control in Developing Countries*. 164.

145 See Part 6.

146 Food and Drug Administration. "Regulation of Flavors in Tobacco Products: A Proposed Rule by the Food and Drug Administration." 12295-12296; see also 12299.

brings about. FDA interventions, including in nicotine reduction and flavors, should follow that rule—even if, as a behavioral economist might say, it requires much self-control from civil servants.

> *By obliterating or chopping consumer surplus, which is the major part of the cost of a coercive policy, any government intervention can show net benefits.*

PART 9

CONCLUSION AND RECOMMENDATIONS

The presumption of individual liberty and consumer sovereignty that are already implicit in standard cost-benefit analysis should be reaffirmed and reinforced. This implies taking consumer surplus seriously. There is no reason, and certainly no scientific reason, why government officials or their advisers should be allowed to negate the preferences of ordinary people and to favor instead their own preferences and values.

Even when science finds evidence of risk in certain activities, the trade-off between probabilistic cost and benefits must, in general, be left to each individual. An adult's benefits are subjective and cannot be appraised by anybody else. To guard against government's coercive elitism and paternalism, it is important that the FDA's cost-benefit analyses related to tobacco and e-cigarette consumption take due account of the loss in consumer surplus caused by bans.

More precisely, two recommendations follow from the analysis of this paper. The first one is:

#1 Cost-benefit analyses of the FDA's tobacco regulations must provide an estimate of the loss in actual, unmodified consumer surplus, as revealed by smokers' or vapers' choices on the market. This loss in consumer surplus must be included in the cost of the proposed regulation.

Any divergence from this recommendation must be accompanied by a detailed explanation of why the trade-offs between risk and subjective benefits should be made, not by each individual, but by government experts or other political processes. This is the object of a second recommendation:

#2 If the loss in consumer surplus is not entered at its full value on the cost side of a proposed regulation, the FDA must explain (a) why the implied trade-off between smokers' risks and benefits is made by the government and not by each individual vaper or smoker; (b) how the government's political and bureaucratic processes can be trusted to lead to an optimal choice; and (c) why the cognitive biases or lack of self-control of government agents are to be preferred to those of ordinary individuals.

ABOUT THE AUTHOR

Professor **Pierre Lemieux** is an economist affiliated with the Department of Management Sciences at the University of Quebec in Outaouais. He holds graduate degrees in economics and philosophy. Besides lecturing at a few Canadian universities, he has been a consultant for a number of private and public organizations in the world. The author of many books, published mainly in America and France, he is a regular contributor to *Regulation*. He also blogs at Econlib. His latest book is *What's Wrong with Protectionism: Answering Common Objections to Free Trade* (Rowman & Littlefield, 2018). He lives in Maine.

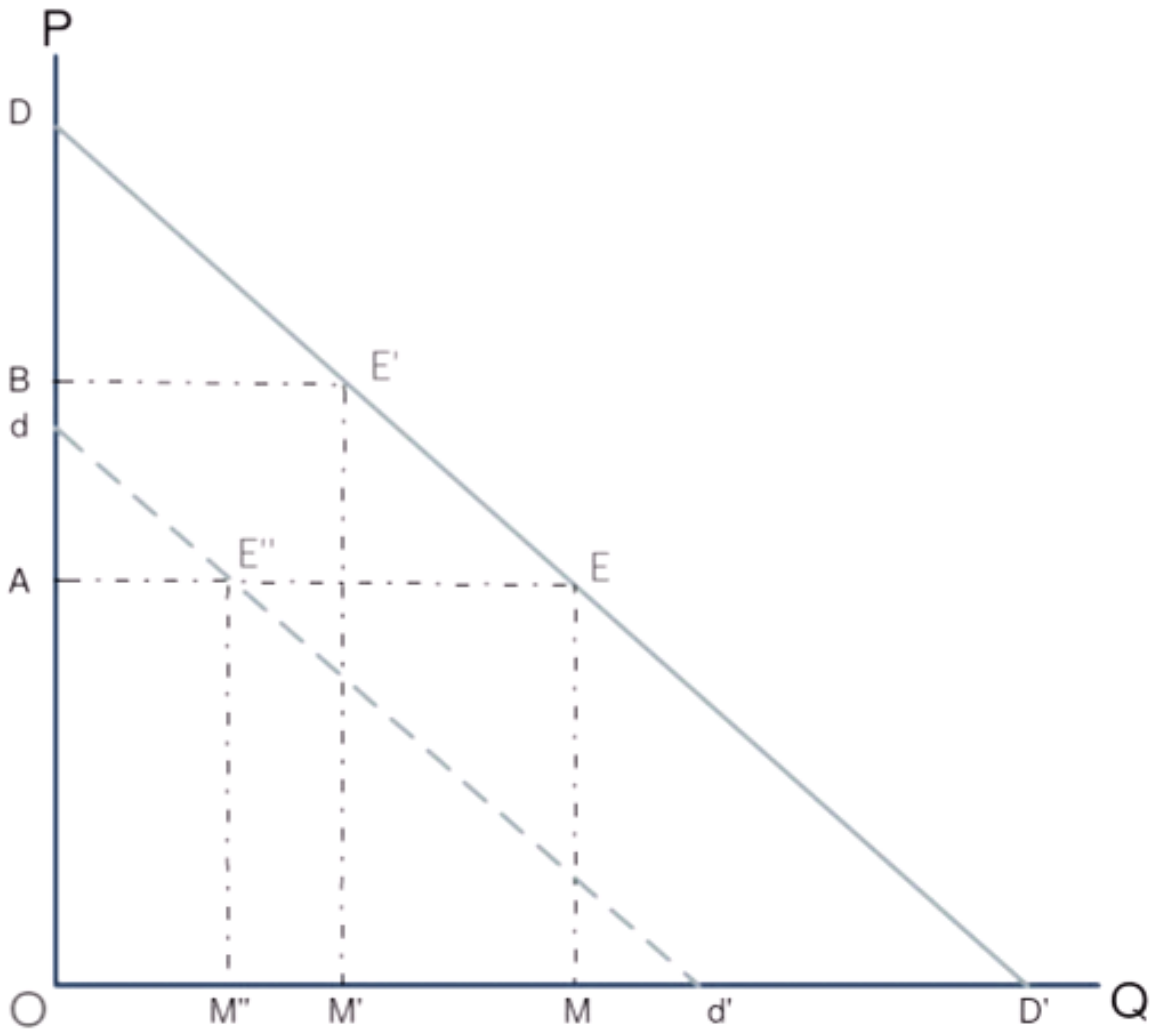
APPENDIX A: GRAPHICAL REPRESENTATION OF CONSUMER SURPLUS

Consider the market for a good X. On Figure A-1, prices are given on the vertical axis, and quantities on the horizontal axis. The market demand curve is DD′, and is made of the summation of the demand curves of all individuals. The demand curve gives the quantity demanded (on the horizontal axis) at every price (on the vertical axis).

Assume the price OA. Then the market equilibrium is at E. Individuals demand (consume) a quantity OM.

Read the other way, the demand curve gives the maximum price individuals are willing to pay in order to purchase different quantities and not pay more than what they get in return. At a quantity OM, the maximum consumers are willing to pay for the last unit is ME=OA.

FIGURE A-1



At E, consumers are willing to pay up to ODEM (their "willingness to pay" or WTP) for good X. But there is only one price on a market, and each consumer pays the same price OA for all the units of the good he buys. At that price, consumers pay OAEM in total. Their consumer surplus is thus DEA. It gives the excess of what the good is worth to consumers over what they have to pay for it on the market.

Let the price increase to OB. The consumer surplus is then reduced to DE'B. If the price decreased, the consumer surplus would increase.

If the market demand curve was dd′ instead and the price stayed at OA, the equilibrium would occur at E′′ and quantity demanded would be M′′. The consumers' WTP would be equal to OdE′′M′′. Since they would pay only OAE′′M′′, their consumer surplus would be dE′′A.

Assume that tobacco (or e-cigarette) consumers bring a demand DD′ on the market. As explained at the end of Part 7, reducing or negating the loss of consumer surplus sustained by smokers as a result of a tobacco regulation amounts to considering that their "real" demand is not DD′ but dd′. Although the consumers think they have a consumer surplus of DEA, it is deemed to be only dE′′A.