The Ways Cigarettes Contribute to GNP*

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I. INTRODUCTION

The cigarette industry is a large enterprise, and the effects of its presence may be seen in many parts of the economy. When industry-sponsored analysts examine the contribution of tobacco to GNP, they focus only on items directly related to the manufacture and sale of tobacco products [6,23]. In contrast, health professionals emphasize the economic impact of diseases caused by smoking [12,19]. There are also other goods and services which would not exist except for the cigarette industry. This paper presents an overview of all of these elements in an attempt to offer a comprehensive outline of the ways in which cigarettes contribute to the Gross National Product.

A traditional view in economics has held that the Gross National Product should only measure productive output. However, it is often difficult to define production exactly. Certain goods and services may develop downstream from a given product which would not exist without that product. These goods and services might be essential to the use of the product, they might supplement the product but not be essential, or they might exist to repair the product or some consequence of its use. A given product might have decidedly negative consequences even when it is used as intended. Whether or not these downstream effects should be included in estimates of the contribution that particular industry makes to GNP depends on the extent to which the effects in question are uniquely determined by the industry.

II. AN EXAMPLE OF DOWNSTREAM EFFECTS

A convenient example of downstream effects of a product is offered by the automobile industry. The nation's system of roads and bridges, much of the oil industry, the network of repair facilities and parts manufacturers, accessory manufacturers, automobile insurance companies, and governmental budgets for patrolling highways are largely fashioned in response to the automobile. Trauma services at hospital emergency departments and often elaborate emergency response teams are also parts of the network of goods and services which exist because of the automobile.

However, even without the automobile, there would be roads and bridges, oil companies, repair shops, insurance companies, law enforcement agencies and hospital emergency rooms. The automobile, though, has shaped the size, character, and complexity of these downstream activities. Thus, it seems reasonable to include these activities in some manner when estimating the economic contribution of the automobile to the national economy.

The category of automobile-associated injuries and deaths, though, illustrates a difficulty with this approach. It is awkward, and probably inappropriate, to count the cost of all injuries

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and fatalities from automobile accidents as economic impacts of the automobile industry. While automobile accidents would not happen if there were no automobiles, these events are usually classified according to proximate causes. These include factors related to automobile design, to be sure, but they also include items such as driving conditions, road design and repair, the automobile's state of repair, the driver's condition (and level of intoxication), and the driver's training and experience. Still, some of the injury, death and destruction of property which results from automobile accidents is directly attributable to the product itself.

Manufacturers bear a large responsibility for the safe performance of their products. A manufacturer's obligation to offer products which are free of hazard has become much stronger over the past twenty years. As an example, from time to time, automobile manufacturers issue recalls of their products to repair potentially dangerous defects. If a manufacturer's product causes injury or damages property, the manufacturer may be held liable. Often, a manufacturer purchases liability insurance to even out the economic risks of selling products which might cause harm. The cost of this insurance and the costs of defending suits and paying settlements above and beyond the cost of insurance usually become part of the price charged for the manufacturer's product. In this direct fashion, harm from commercial products is at least partially accounted for by traditional calculations of a given industry's contribution to the national economy.

III. MEASURING THE GNP ATTRIBUTABLE TO THE TOBACCO INDUSTRY

Background

Tobacco is the most important cause of preventable illness and death in the United States today. Depending on how one chooses to count the bodies, between 350,000 and 500,000 premature deaths occur each year in this country alone because of cigarettes [9,18]. While the use of tobacco products has begun to decline in the United States, it is rising in most of the world [5]. This year, over 5 trillion cigarettes will be consumed around the world, which is more than twice the number consumed in 1960.

Published analyses of the economic impact of the tobacco industry consider either the value of tobacco product sold [6,23] or the cost of illnesses from the use of tobacco [12,19]. No study has examined both aspects of tobacco's effects on the economy at the same time. Furthermore, other goods and services which seem essential to the tobacco industry have usually been overlooked by both sorts of analysis.

Assigning Consequences to the Tobacco Industry

In contrast to the comments above about assigning only a part of the total cost of injury and death associated with automobile accidents to the automobile manufacturers, in the discussion which follows, the cost of all illness and death attributable to tobacco is treated as a part of the economic activity generated by the tobacco industry. Others might choose to apportion only a fraction of these costs to the industry, but to do so ignores key characteristics of tobacco, its consumers, and its manufacturers.

Tobacco is inherently unsafe. Tobacco is the only consumer product which is hazardous when used as intended [24]. Chewing tobacco contains nicotine in concentrations capable of inducing cancer [7], and tobacco smoke is a chemical mixture which includes many toxins [27]. A recent symposium boldly titled A Safe Cigarette actually only examined the considerably more modest topic of whether "less hazardous cigarettes" were possible [11]. The only certain way to avoid harm from tobacco is to avoid tobacco and its smoke.

Clear health consequences from tobacco use are common at levels of consumption actually practiced by the vast majority of smokers, yet the manufacturers have done nothing to discourage the levels of consumption known to cause harm. The fact that tobacco, especially in its most addictive form, the American blend cigarette, is only rarely used with comparative safety contrasts sharply with other legal economic activities which may develop into compulsive use disorders in which free will is undermined, for instance, the consumption of alcoholic beverages and indulgence in legal forms of gambling.

Tobacco use is often an addiction. The free will so prized by 18th century rationalists and so commonly employed in abstract analyses of the economic system today is dramatically subverted by dependence on nicotine [1]. About 60 to 70% of people who use tobacco regularly are addicted to nicotine [17]. Thus, most people who purchase tobacco products do so under a compulsion which contrasts sharply with the independent action of free will assumed in conventional analyses of market behavior [26]. In contrast, only about 10% of those who drink alcoholic beverages are dependent. Furthermore, most compulsive tobacco use begins in childhood or adolescence, before the legal age of consent [13]. If everyone waited until he or she was 18 before smoking the first cigarette, far fewer would become chronic users [14].

The Manufacturers Deny that Tobacco causes Harm. Elaborate obfuscations sponsored by the industry continue to assert that no one knows for sure whether tobacco causes any harm [21]. In fact, the industry continues the aggressive promotion of tobacco use. The annual budget for cigarette marketing in the United States alone is now over $2 billion [9].

Because tobacco is inherently unsafe, its use is largely involuntary, and its manufacturers continue to promote the products while denying that there are any health problems, this analysis will assign all the costs of illness and death from tobacco to the industry itself.

Tobacco and GNP

A traditional analysis of the economic contribution of the tobacco industry for 1983 has been conducted by Chase Econometrics [6]. According to the Chase analysis, the U.S. tobacco industry directly contributed $31.5 billion, or nearly 1%, to GNP in 1983. The industry's direct impact is subdivided into suppliers to the manufacturers, the manufacturing process, wholesale and retail trade, and taxes, as shown in Table 1.

The Chase analysis does not consider a number of goods and services which exist as a direct result of tobacco products being available for consumption, though. These goods and services include:

Ignition Materials. Cigarettes must be lit. Of the 753 billion lights from either matches or lighters struck in the United States in 1986, 93% were used for smoking [15].

Ashtrays. The ashtray is only needed because of smoking. It is standard equipment in every automobile, and most planes, trains, and intercity bus seats are also equipped with these devices. Lobbies, hotel rooms, restaurant tables, and other places of public accommodation have all acquired ashtrays over the past century as well. Each person who smokes has ashtrays of one sort or other. Altogether, there are at least several billion of these accessories in the country.

Breath Fresheners. Breath fresheners are often marketed specifically to people who smoke. One suspects that a disproportionate share of this market consists of adolescents experimenting with tobacco either because of concern about appearances or an attempt at concealment.

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### TABLE 1

<table>
<thead>
<tr>
<th>Source</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Expenditures</td>
<td></td>
</tr>
<tr>
<td>Grocers</td>
<td>2.5</td>
</tr>
<tr>
<td>Tobacco Mfg. Suppliers</td>
<td>2.1</td>
</tr>
<tr>
<td>Tobacco Product Mfg.</td>
<td>4.3</td>
</tr>
<tr>
<td>Wholesalers</td>
<td>3.5</td>
</tr>
<tr>
<td>Retailers</td>
<td>2.4</td>
</tr>
<tr>
<td>Excise &amp; Sales Taxes</td>
<td>9.8</td>
</tr>
<tr>
<td>Income &amp; FICA Taxes</td>
<td>3.7</td>
</tr>
<tr>
<td><strong>Gross Private Domestic Investment</strong></td>
<td><strong>28.3</strong></td>
</tr>
<tr>
<td><strong>Net Exports of Goods and Services</strong></td>
<td><strong>1.9</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31.5</strong></td>
</tr>
</tbody>
</table>

**Smokers’ Vitamins.** Some vitamin preparations are targeted directly to smokers, and others are recommended to this group indirectly because of their supposed value in reducing the risk of cancer.

**Smoker’s Toothpaste and Dental Expenses.** Premium toothpaste and denture cleaning products are available for people who smoke because of the staining problems faced by smokers. People who use tobacco also experience dental problems requiring professional care as a consequence of their tobacco use.

**Air Fresheners.** Air fresheners provide cosmetic odors for covering up unpleasant ones. While most such products do not explicitly indicate that they are intended to mask tobacco smoke, this application is certainly a large part of the market for these products.

**Signs Regulating Smoking.** “No smoking” and “smoking permitted” signs would be unnecessary but for tobacco smoking.

**Personal Cleaning and Grooming.** A fraction of clothes cleaning and repair as well as some personal grooming costs are attributable to tobacco smoke.

**Building Maintenance.** An insurance company received a $500/month reduction in the cost of janitorial service for its main office after the building became smoke-free [25]. The owner of a motel which prohibits smoking estimates that he saves $1,000 per room per year in cleaning and maintenance costs associated with smoking [25].

**Ventilation Costs.** In buildings which permit smoking, more fresh, outdoor air must be heated or cooled to maintain a comfortable indoor environment [2]. In addition to the goods and services provided as a result of tobacco use described above, tobacco products generate other economic activity as a result of the damage they cause in two major categories. These are damage from fires and disease caused by the poisons in tobacco smoke.

**Cigarette Associated Fires.** Cigarettes are engineered to continue burning [10,16]. They are, in effect, fuses. If they self-extinguish, there would be little fire hazard. As a consequence, cigarettes are the most common cause of residential fires in this country, with over 2,000 deaths/year (including many non-smokers and children). Property damage from these fires has been estimated at $410 million for 1984 [3].

The industry contends that the environment should be insulated to minimize the chance of fires starting [16]. This implies multi-billion dollar investments in fire-retardant chemicals, retro-fitting all upholstered furniture and bedding in the country, and the installation of smoke-detection and even sprinkler systems in various sorts of buildings such as hotels and private residences.

The fact that cigarettes are like fuses is a characteristic under the manufacturer’s control, however. It occurs because of fertilizers used on growing tobacco, the selection of tobaccos for the cigarette blend, additives to the blend, and chemical treatments of the cigarette paper [16,20,22]. Cigarettes can be made so that they self-extinguish, as cigars and pipes do. That they are not so made is likely because the manufacturers regard such a product as less desirable.

**Costs of Illness and Death from Tobacco Use.** The major categories of tobacco-caused death are lung cancer, coronary heart disease, and chronic lung disease. Estimates of the direct and indirect costs of the tobacco-attributable fraction of these illnesses have been prepared by the Office of Technology Assessment [12] and are summarized in Table 11.

**Overall Impact of Tobacco on GNP.** The impact of tobacco on the national economy is summarized in Table III. This table includes fire and health items as negatives since these are not desired outcomes. Therefore, the net economic benefit of the tobacco industry is considerably reduced from the levels suggested in industry-sponsored analyses [6,23].

### IV. SUMMARY AND CONCLUSION
This paper has outlined elements which ought to be considered in a complete examination of the economic contribution which the tobacco industry makes to the national economy.

### TABLE 2
Financial Costs Attributable to Smoking, U. S., 1985 [12]

<table>
<thead>
<tr>
<th>Source</th>
<th>Middle Estimate $ Billions</th>
<th>Range $ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care</td>
<td>22</td>
<td>12-35</td>
</tr>
<tr>
<td>Lost Earnings</td>
<td>43</td>
<td>27-61</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>38-95</strong></td>
</tr>
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**Table 3**
The Overall Impact of Tobacco on GNP

<table>
<thead>
<tr>
<th>Source</th>
<th>$ Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Manufacturers</td>
<td>31.5</td>
</tr>
<tr>
<td>Goods and Services Necessary for Tobacco Consumption (unmeasured)</td>
<td></td>
</tr>
<tr>
<td>Cigarette-related Fires and Fire Protection (unmeasured)</td>
<td></td>
</tr>
<tr>
<td>Smoking-related Health Care (unmeasured)</td>
<td>-21.6</td>
</tr>
</tbody>
</table>
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