American cigarette manufacturers’ ability to pay damages: overview and a rough calculation

Jeffrey E Harris

Abstract
The American cigarette industry’s ability to pay large damage awards and settlement costs is not limited to its current annual profits of $7.6 billion, or $0.31 per pack. Much larger liability payments could be financed through increased wholesale cigarette prices or higher excise taxes. An increase in the federal cigarette excise tax of 50 cents per pack could yield an estimated $10.8 billion annually in net revenues available for liability costs, while the industry would still retain $5.4 billion, or $0.25 per pack, in pre-tax profits.

An increase in cigarette price from its current $1.88 per pack to the full, monopoly profit-maximising level of $4.08 per pack would make more than $32 billion available annually for liability payments or pre-taxed profits.

Introduction
As an increasing number of state and local governments file suit against American cigarette manufacturers, and as more courts set trial dates for class-action suits on behalf of smokers, the possibility looms larger that tobacco companies may be required to pay out large sums to comply with court-imposed damage awards, to reach private out-of-court settlements, or to buy some sort of immunity sanctioned by the US Congress.

In early 1996, the Liggett Group, a relatively small company with a 2% American market share, reportedly settled with the Castano class-action plaintiffs and some state attorneys general for combined amounts exceeding $2 million annually (about 20% of current pre-tax income) for 25 years. By August, rumours had surfaced of a legislative proposal whereby the industry would contribute to a super-fund for 15 years—in annual payments escalating from $6 billion in 1997 to $10 billion in 2001 and thereafter—in return for immunity from future liability suits, a cap on possible damages from pending actions, and a reprieve from regulation by the Food and Drug Administration.

These recent developments pose a larger question.

How much can American cigarette makers pay?
In 1995, American smokers spent $45.8 billion to consume 24.35 billion packs of cigarettes. Of the $45.8 billion spent on cigarettes, approximately $13.0 billion went toward payment of excise taxes levied by federal, state, and local governments; $12.7 billion went to retailers and wholesalers; and $20.1 billion went to cigarette manufacturing companies. Of the $20.1 billion in manufacturers’ receipts, an estimated $7.6 billion was reported as operating profit, whereas the remaining $12.5 billion went for cigarette production and marketing, including the costs of tobacco leaf.

Thus, in 1995, Americans paid an average of $1.88 for each pack of cigarettes, of which 52 cents went to excise taxes; 52 cents went to retailers and wholesalers; and 83 cents went to cigarette manufacturers. Of the 83 cents per pack received by manufacturers, about 38 cents were reported as operating profit.

In some discussions, the current industry-wide total of $7.6 billion in annual operating profits is taken to be a practical upper limit on the cigarette industry’s ability to pay damages and settlement costs arising from products liability and related litigation. Such a position is unwarranted, however, because it incorrectly assumes that cigarette manufacturers will not or cannot raise cigarette prices to finance damages.

Industry’s ability to pay damages
In reality, the industry’s ability to pay damages is bounded by the maximum amount of money it could extract from smokers if the price of cigarettes were set at its full, monopoly profit-maximising level. A rough calculation—given in the appendix below—suggests that the maximum price of cigarettes in the United States is currently about $4 per pack. At such a price, annual pre-tax profits would exceed $32 billion annually.

The requisite increase in retail cigarette price can be achieved either by governmental excise-tax levies or by manufacturers viewing wholesale price revisions. In view of the fact that the American cigarette industry is a five-firm oligopoly, however, it would be administratively and legally simpler for any governmental authority to raise cigarette taxes and earmark the proceeds for a liability settlement. Consider, for example, a settlement sanctioned by government in which Congress
raised the federal excise tax by 50 cents to the
pence when cigarettes were retail for about $2.38
per pack—well below the full monopoly
price—and manufacturers were permitted to
retain an operating margin of 25 cents per
pack. As detailed in the appendix, such a
scheme would create a fund of about $10.8 bil-
lion annually in new governmental tax
revenues—an amount exceeding the industry-
wide mega-payments proposed last summer—
while manufacturers would still earn about
$5.4 billion in pre-tax profits. Based on current
estimates of the "litigation discount" in
cigarette-makers' stock prices, manufacturers
and their shareholders would quite likely
accept a cut in profits of $2.2 billion in return
for dissolving the cloud of liability that
currently hangs over the industry.

In contrast with a price increase authorised
by government, manufacturers could raise
prices on their own. In that case, a price
increase of $0.50 per pack would require
manufacturers to raise their wholesale cigarette
prices in concert by about 60%. In view of the
high barriers to entry and extremely high
concentration of market power in the cigarette
industry, a coordinated price increase of this
magnitude is hardly infeasible, but it is not
without antitrust problems. The task of
coordinating price increases to finance liability
payments would be even more complicated if a
settlement were reached or damages were
imposed on only one manufacturer. For example,
if a large manufacturer such as Philip
Morris (currently with 46% of American sales)
were subject to a separate judgment, then its
ability to finance damage payments through
price increases could hinge on the propensity
of RJ Reynolds (26% market share), Brown &
Williamson (18% share), and other smaller
firms to raise their prices in tandem.

As noted in the appendix, my calculations
require specific assumptions about the shape of
the demand curve for cigarettes. Since my
assumptions may be in error, the calculations
have to be taken as rough estimates. Still, my
results support the conclusion that the Ameri-
can cigarette industry's ability to pay for liability
damages far exceeds the $7.6 billion in
operating profits that it currently earns.

Consumers’ demand for cigarettes is consid-
ered by economists to be insensitive to price
increases. That means the industry can pass on
a very large fraction of its potential damage and
settlement costs to consumers. Although the
shareholders and management of cigarette
companies might incur substantial losses, the
fact is that most of the money will ultimately
come from those people who continue to
smoke.

Critiques by the editor and an anonymous referee are gratefully
acknowledged. The author is solely responsible for the opinions
expressed here.

Appendix
Calculation of the full, monopoly
profit-maximising price of cigarettes
Let $p$ denote the average retail price of
cigarettes; $q$, the number of packs consumed
annually; and $c$, the unit cost of a pack of
 cigarettes. To keep the analysis manageable, I
assume that unit cost $c$ per pack of cigarettes
does not depend on the quantity $q$ that is pro-
duced and sold. Thus, the amount $(p-c)$ re-
presents the profit per pack of cigarettes. In
1995, we have: $p_0 = $1.88 per pack; $q = 24.35
 billion packs; $(p_0 - c) = $0.31 per pack; and
$c = $1.57 per pack (where the subscript "0"
refers to specifically to 1995 values). By this
method of accounting, the unit cost $c$ includes
not only manufacturers' cost of production,
but also excise tax payments to governments
and the amount that retailers and wholesalers
keep for themselves.

To further simplify the calculation, I assume
a linear demand curve. That is, the relationship
between the retail price $p$ and quantity
consumed $q$ is governed by the equation:
$p = A - Bq$, where $A$ and $B$ are positive
numbers. For a linear demand curve, the price
elasticity of demand (that is, the percentage
drop in consumption resulting from a 1% rise
in price) is given by the formula:
$E = p/(Bq)$.

I assume that, in 1995, the price elasticity $E_0$
was equal to 0.4. From the values of $p_0$, $q_0$, $A$,
and $B$ in 1995, I compute that,$\frac{1}{2}(A + c)$,
which comes to a retail price of $4.08 per pack. At that price, the maximum profit would be given by the formula:
\[
\frac{1}{2}(A - c)^2 / B,
\]
which amounts to $32.5 billion annually. At the full monopoly price, total cigarette consumption would be reduced from its current level to \( \frac{1}{2}(A - c)/B \), which equals 13.0 billion packs annually.

This simple linear model can be used to compute the impact of a price increase of any other magnitude. As discussed above, if the federal excise tax were raised to the point where the retail price were \( p_r = 2.38 \) per pack, then the quantity demanded would be \( q_d = (A - p_r)/B \), which comes to 21.76 billion packs annually. Gross tax proceeds would equal \( (p_r - c)q_d \), which amounts to $17.63 billion. Annual cigarette consumption would decrease by \( q_d - q_i = 2.59 \) billion packs. With current governmental taxes equal to \( t = 0.53 \) per pack, the gross proceeds would be offset by a tax loss equal to \( t(q_d - q_i) \), or $1.37 billion. That leaves a net increase of $16.26 billion in excise tax revenues. If manufacturers were permitted to retain an operating margin of $0.25 per pack, their profits would equal 0.25\( q_d \), which comes to $5.44 billion. Net tax proceeds available for liability payments would therefore equal $10.82 billion annually. Some observers may object that the reduction in cigarette demand of 2.59 billion packs will mean lost wages and income taxes. Because American cigarette manufacturers are diversified, multinational, consumer-product firms, I believe it is fair to assume that the assets currently employed to produce and sell those 2.59 billion packs of cigarettes could be productively re-allocated elsewhere.

One group of economists claims to have measured a long-run price elasticity of demand for cigarettes as high as 0.8, based solely upon pre-1985 data on states' tax receipts. Such an extreme finding has thus far not been replicated, and may not apply to the post-1985 period. Even if the long-run price elasticity of demand were as high as 0.8, the linear model would nonetheless yield a monopoly profit of $18 billion annually.

More complex models designed to predict the impact of large price increases are currently under development. Although the linear model is simple to manipulate and may be reasonably accurate for small increments in price, it appears to overstate the impact of large price increases on cigarette use and thus to underestimate the maximum monopoly profit attainable in the American cigarette market.