

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

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| UNITED STATES OF AMERICA, |) | |
| |) | |
| Plaintiff, |) | |
| |) | |
| v. |) | Civil No. 99-CV-02496 (GK) |
| |) | |
| PHILIP MORRIS USA INC., |) | |
| f/k/a PHILIP MORRIS INC., <i>et al.</i> , |) | |
| |) | |
| Defendants. |) | |

**UNITED STATES' WRITTEN DIRECT EXAMINATION OF
JONATHAN GRUBER, Ph.D.**

1 **Q: Please introduce yourself to the Court.**

2 A: My name is Jonathan Gruber.

3 **I. BACKGROUND AND QUALIFICATIONS**

4 **Q: Where are you currently employed?**

5 A: I am currently a Professor of Economics at the Massachusetts Institute of Technology, or
6 MIT.

7 **Q: Other than your involvement in this case, have you ever been retained as a
8 testifying expert?**

9 A: Yes. In 2001, I was retained as an expert in a case involving managed care. In recent
10 years, I have been retained by and testified on behalf of the states attorneys general in
11 several cases filed by non-participating tobacco manufacturers (in New York, Tennessee,
12 and Oklahoma) related to the Master Settlement Agreement (MSA) and associated
13 statutes.

14 **A. EDUCATION AND ACADEMIC POSITIONS**

15 **Q: Please describe for the Court your educational background.**

16 A: I obtained my undergraduate degree in economics from MIT in 1987. I then attended
17 Harvard University, where I received a Ph.D. in economics in 1992.

18 **Q: After you obtained your doctorate from Harvard, please describe for the Court
19 your professional experience.**

20 A: Immediately following graduation in 1992, I became an Assistant Professor of
21 Economics at MIT. I served in that capacity until 1995, at which time I became the
22 Castle Krob Associate Professor of Economics at MIT. I remained in that position until
23 1997, when I took a leave from MIT to become the Deputy Assistant Secretary for

1 Economic Policy at the United States Treasury Department. I returned to MIT the
2 following year with a promotion to full Professor. I have served as a Professor of
3 Economics at MIT ever since.

4 **Q: What courses do you currently teach at MIT?**

5 A: I teach graduate and advanced undergraduate courses in public finance, as well as an
6 undergraduate course in microeconomics.

7 **B. PROFESSIONAL APPOINTMENTS**

8 **Q: What professional appointments have you held?**

9 A: I am a Research Associate at the National Bureau of Economic Research (NBER), which
10 is the leading academic economic research institution in the country not affiliated with a
11 particular university. Since 1996 I have directed the NBER's Program on Children,
12 which focuses on the economics of issues pertaining to children. I also served as a
13 Faculty Research Fellow at the NBER from 1992-1998. I have served as a co-editor of
14 the *Journal of Public Economics*, the leading journal in my field, since 2001, and also
15 served as the Associate Editor from 1997 through 2001. I am the Associate Editor of the
16 *Journal of Health Economics*, the leading field journal in health economics, a position I
17 have held since 2001, after having served as co-editor from 1998 through 2001. Since
18 2001, I have also served on the editorial board of the *B.E. (Berkeley Electronic) Journals*
19 *in Economic Analysis and Policy*.

20 **C. HONORS AND AWARDS**

21 **Q: Have you been recognized for your work in economics?**

22 A: Yes.

23 **Q: Please describe for the Court the honors you have received.**

1 A: In 2004, I was appointed a Member of the Institute of Medicine. I was appointed a
2 Member of the National Academy of Social Insurance in 1996. In 2003, I received the
3 Richard Musgrave Prize for the best paper in the *National Tax Journal*. In 1995 I
4 received the American Public Health Association's Kenneth Arrow Award for the
5 Outstanding Health Economics Paper of 1994. In 1995, I was one of only 15 scientists
6 nationwide to receive the National Science Foundation's Presidential Faculty Fellowship,
7 which was a research grant. I received the Sloan Foundation Research Fellowship – also
8 a research grant – that same year. In 1994 I received the FIRST Award from the National
9 Institute of Aging. That award provided a research grant for research on health insurance
10 and retirement.

11 **D. PUBLIC SERVICE**

12 **Q: You said earlier that you worked at the Treasury Department as the Deputy**
13 **Assistant Secretary for Economic Policy. What did that job entail?**

14 A: I was essentially the economic point person for the Treasury Department on issues of
15 interest to the Secretary or Deputy Secretary.

16 **Q: What sorts of issues were these?**

17 A: I worked on a variety of issues, but my main areas of focus were health care policy,
18 tobacco regulation, and environmental regulation. Other areas I was involved with
19 included child care policy, electricity deregulation, personal bankruptcy, and student
20 loans.

21 **Q: What was your role with respect to tobacco regulation?**

22 A: I first became involved with tobacco-related issues as part of an inter-agency task force to
23 evaluate the Proposed Resolution agreed upon between tobacco manufacturers (including

1 the defendants in this case) and the states attorneys general in April, 1997. (U.S. Exhibit
2 42,978).

3 **Q: What did you do as a member of this inter-agency task force?**

4 A: I participated in the evaluation of a number of aspects of the 1997 Proposed Resolution.
5 My primary focus was on two aspects. First, I focused on the evaluation of the overall
6 financial implications of the Proposed Resolution for the tobacco industry. In that
7 context, I highlighted the very positive stock market reaction to the Proposed Resolution,
8 suggesting that this was believed to be a beneficial outcome for the industry. Second, I
9 focused on the evaluation of the proposed “youth lookback” provision included in the
10 Proposed Resolution, which imposed a financial assessment on the tobacco industry if
11 youth smoking rates exceeded some target level.

12 **Q: What conclusion did the task force draw about the youth lookback provision?**

13 A: The task force concluded that the youth lookback provision included in the 1997
14 Proposed Resolution was unlikely to be very effective in reducing tobacco industry
15 incentives to attract youths to smoking.

16 **Q: Have you addressed the deficiency or deficiencies identified by the task force in the
17 proposed remedy you have developed?**

18 A: Yes.

19 **Q: We will come back to those issues later. But for now, were you involved in other
20 tobacco-related activities while at the Treasury Department?**

21 A: Yes, I also worked with an inter-agency task force on legislation to comprehensively
22 regulate youth smoking in the United States. This legislation was known as the McCain
23 bill.

1 **Q: What did you do as a member of the task force?**

2 A: My primary responsibility was to improve on the financial mechanisms contained in the
3 Proposed Resolution, which were intended to remove the incentive for the tobacco
4 industry to attract youth to smoking. I also worked on other financial aspects of the
5 McCain bill, including the base and annual payments to be made by the tobacco industry,
6 and the possible uses of any revenues generated by the legislation.

7 **Q: Was the McCain bill ultimately enacted?**

8 A: No. The bill was never passed by Congress.

9 **Q: Did you perform any work on the development or planning of this case while at the**
10 **Treasury Department?**

11 A: No.

12 **Q: After you left the Treasury Department, have you continued to conduct tobacco-**
13 **related research?**

14 A: Yes. Tobacco-related research has been and continues to be a major focus of my work.

15 **Q: Turning to U.S. Exhibit 89,458, is that a copy of your curriculum vitae?**

16 A: Yes.

17 **E. SCHOLARLY PUBLICATIONS**

18 **Q: Your curriculum vitae says that you are the author or a co-author of 61 journal**
19 **articles relating to economics. Is that correct?**

20 A: Yes.

21 **Q: In what scholarly publications have your journal articles appeared?**

22 A. The articles I have authored or co-authored have appeared in such publications as the
23 *American Economics Review*, the *Quarterly Journal of Economics*, the *Journal of*

1 *Political Economy*, the *Journal of Public Economics*, and the *Journal of Health*
2 *Economics*, among others.

3 **Q: How many of the articles that you have written or co-authored have been peer**
4 **reviewed?**

5 A. I have authored or co-authored 56 peer-reviewed articles.

6 **Q: How many other professional papers have you authored or edited?**

7 A: Other than the journal articles described above, I have authored 30 other published
8 articles, including six review essays, as well as three edited volumes, and a textbook.

9 **Q: Have you written professional papers on the economics of smoking and health?**

10 A: Yes. I have written numerous articles on the economics of smoking and health, including
11 *Is Addiction 'Rational'? Theory and Evidence* published in the *Quarterly Journal of*
12 *Economics* in 2001; *The Economic Impacts of the Tobacco Settlement*, published in the
13 *Journal of Policy Analysis and Management* in 2002; and *Youth Smoking in the 1990s:*
14 *Why Did it Rise and What are the Long Run Implications*, which was published in the
15 *American Economic Review* in 2001. I also edited a volume entitled *Risky Behavior*
16 *Among Youth: An Economic Analysis*, which was published in 2001. I contributed a
17 chapter to that volume entitled *Youth Smoking in the U.S.: Evidence and Implications*.

18
19 **II. OVERVIEW OF REMEDY TO REDUCE INCENTIVES FOR RICO**
20 **VIOLATIONS**
21

22 **Q: What were you asked to do in this case?**

23 A: I was asked to develop a forward-looking remedy to reduce the incentive for the
24 defendants to engage in future RICO violations that make their brands appealing to
25 young people. Broadly speaking, the remedy is an outcome-based remedy that imposes a

1 financial assessment on the defendants if, and only if, they fail to meet targeted
2 reductions in smoking by 12-20 year olds.

3 **Q: Please explain for the Court how the assessment would be levied.**

4 A: The proposed remedy would not impose any financial assessment on defendants if they
5 meet targeted reductions in youth smoking. Each individual defendant will be assessed
6 \$3,000 per youth by which the defendant exceeds its target levels of youth smoking. The
7 targets themselves involve reductions in youth smoking of 6% per year between 2007 and
8 2013, for a total reduction of 42%.

9 **Q: What does the \$3,000 represent?**

10 A: The \$3,000 assessment represents an estimate of the upper limit on the lifetime proceeds
11 that a defendant would earn from making their brands appealing to young people.

12 **Q: Why use an upper limit on these proceeds?**

13 A: The goal of this remedy is to ensure that defendants have no financial incentive to make
14 their brands appealing to young people beyond the targeted levels. Only by choosing a
15 financial assessment that is an upper limit on the amount that a defendant would earn by
16 making their brands appealing to young people, do we remove that financial incentive.

17 **A. OUTCOME-BASED VS. INPUT-BASED APPROACHES**

18 **Q: Please explain more fully for the Court what you mean by an “outcome-based”
19 remedy.**

20 A: Two types of remedies which could be used to reduce the incentive for defendants to
21 engage in future RICO violations that make their brands appealing to young people are
22 outcome-based and input-based remedies. By an outcome-based remedy, I mean that
23 financial assessments imposed on defendants are tied to the level of youth smoking,

1 relative to a target. In contrast, an input-based approach would impose a financial
2 assessment on the defendants based on specific actions that they take, or do not take, to
3 make their brands appealing to young people. Examples of such actions are cigarette
4 advertisements, cigarette sampling, direct mail marketing, and price promotions.

5 **Q: Is there any reason why the outcome-based approach is to be preferred to an input-**
6 **based approach?**

7 A: Yes. A disadvantage of input-based approaches is that there are a large number of
8 actions that defendants can take to make their brands appealing to young people. It
9 would be difficult for the Court to comprehensively monitor and restrict all of those
10 actions. These actions, taken together, lead to increases in youth smoking. Therefore,
11 rather than a complex scheme that requires the Court to continuously monitor each of
12 defendant's actions, the outcome-based approach instead monitors the outcomes of those
13 actions, youth smoking, which can be more readily measured. Moreover, because the
14 defendants themselves have the best knowledge about how to make their brands
15 appealing to young people, an outcome-based remedy allows the defendants to choose
16 the avenue of youth smoking reduction that is most efficient and effective.

17 **Q: Why do you say that it will be hard for the Court to comprehensively monitor and**
18 **restrict defendants' actions to make their brands appealing to young people?**

19 A: I think that it will be hard to comprehensively monitor and restrict defendants' actions to
20 make their brands appealing to young people for three reasons. The first reason is the
21 sheer number of possible actions that defendants can take to make their brands appealing
22 to young people, which the Court would have to continuously monitor. The second
23 reason is that it may be very difficult for the Court to monitor and restrict this enormous

1 array of activities, largely because the information needed to monitor these actions is
2 under the control of the defendants themselves. The third reason is that defendants have
3 shown an ability to adapt in order to circumvent the intent of restrictions on their
4 behavior.

5 **Q: Can you provide examples that help explain these shortcomings of an input-based**
6 **approach?**

7 A: Yes, I can.

8 **Q: Using examples, can you more fully explain the first shortcoming of an input-based**
9 **approach that you identified for the Court?**

10 A: With respect to the sheer number of possible actions that defendants have taken and, in
11 many instances, continue to take to make their brands appealing to young people, there
12 are certainly dozens of ways that defendants can market to youth. As described to me by
13 Frank Chaloupka, an expert on the impact of prices and policies on youth smoking, a
14 non-comprehensive list would include actions such as:

- 15 • cigarette advertisements on billboards
- 16 • cigarette advertisements on transit
- 17 • cigarette sampling
- 18 • cigarette brand product or logo placement in movies
- 19 • cigarette brand sponsored public entertainment events
- 20 • cigarette brand sponsorships
- 21 • cigarette brand magazine advertising
- 22 • direct mail
- 23 • corporate communications

- 1 • specialty item distribution
- 2 • cigarette brand promotions that reduce price at retail
- 3 • point of sale advertising at retail
- 4 • other point of sale marketing

5 As you can see, monitoring this list alone, which is certainly far from comprehensive,
6 would create an enormous burden for the Court. Moreover, it is certainly true that there
7 are many other defendants' actions that are unobserved by experts today that can make
8 cigarette brands appealing to young people.

9 **Q: You also mentioned difficulty caused by defendants' control over information. Can**
10 **you more fully explain this difficulty to the Court?**

11 A: In attempting to monitor and restrict defendants' actions that make their brands appealing
12 to young people, the Court suffers from an information deficit. The information
13 necessary to assess these actions is under the control of the defendants themselves and is
14 often not available to either the public or perhaps even to the Court. For example, David
15 Beran, Philip Morris's Executive Vice President of Strategy, Communications and
16 Consumer Contact, testified that Philip Morris does not make information such as
17 disaggregated advertising and promotional expenditures (See Trial Tr. at 19,343) and the
18 impact of promotions on sales (Id. at 19,389) available to the public. Mr. Beran also
19 testified that Philip Morris does not disclose what it pays to stores under its Retail
20 Leaders program for product placement and promotion. Id. at 19,343. Burdening the
21 Court with constant information access issues could be quite costly and could inherently
22 lead to limitations on the availability of information.

23 **Q: You also mentioned as a shortcoming the ability of defendants to adapt their**

1 **behaviors in order to circumvent the intent of restrictions on their efforts to make**
2 **their brands appealing to young people. Can you explain this point in more detail**
3 **to the Court?**

4 A: Defendants have a history of strategically moving from one marketing medium to another
5 and effectively harnessing new mediums in unpredictable ways, as United States experts
6 Dr. Dean Krugman and Dr. Robert Dolan have testified. Written Direct Testimony of
7 Dean Krugman, Ph.D. at 101-102; Written Direct Testimony of Robert J. Dolan, Ph.D. at
8 146. As is demonstrated by the testimony of Dr. Dolan, when faced with restrictions on
9 any particular form of advertising (such as television advertising), the industry has
10 continually responded by shifting to other forms (such as outdoor advertising). In
11 particular, Dr. Dolan highlights that the restrictions on print and billboard advertising
12 under the MSA, rather than lowering total marketing and promotion expenditures, have
13 simply led to a shift towards price-based promotions. Written Direct Testimony of
14 Robert J. Dolan, Ph.D. at 145.

15 **Q: Is there an existing structure that has attempted to restrict defendants' youth**
16 **marketing activities using an input-based approach or strategy?**

17 A: Yes, this was a major focus of the MSA.

18 **Q: Does the application of the MSA provide any guidance regarding the efficacy of an**
19 **input-based approach?**

20 A: Yes, it does. While I am not an expert on the effects of the MSA on marketing and
21 promotion to youth, Dr. Dolan is, and his testimony makes clear that the MSA has not
22 been successful in reducing overall marketing and promotion aimed at young people. As
23 Dr. Dolan stated:

1 The MSA's restrictions on inputs, i.e. the way companies can
2 engage in marketing, does present challenges to the companies.
3 Because of the MSA, the companies did modify their marketing
4 practices. **As they had in the past, however, they were able**
5 **to draw on their marketing expertise to come up with a**
6 **revised marketing approach to achieve their objectives or**
7 **outputs.**

8 Written Direct Testimony of Dr. Robert Dolan, 146:13-16 (emphasis added).

9 **Q: Does this mean that input-based approaches to restrict the actions of the tobacco**
10 **industry are useless?**

11 A: No, input-based approaches have value. While it is difficult to comprehensively monitor
12 and restrict many of defendants' actions on the input side, there is a set of obvious actions
13 that can be monitored and restricted. Continuing to monitor and restrict these actions,
14 such as the use of cartoon characters to advertise to children, is a useful complement to
15 the outcome-based approach described here.

16 **Q: Does your outcome-based approach address the shortcomings of the input-based**
17 **approach to which you have testified?**

18 A: Yes, it does.

19 **Q: How does your outcome-based approach address these shortcomings?**

20 A: The outcome-based approach addresses these shortcomings by directly measuring the
21 results of defendants' actions to make their brands appealing to young people, rather than
22 attempting to restrict each individual action. This directly corrects for the shortcomings
23 of input-based approaches that were described above. Instead of trying to monitor and

1 restrict a large set of inputs, the Court would now be required to monitor only one data
2 series, the youth smoking rate. Instead of trying to constantly battle the information
3 deficit that it faces with respect to defendants about their input-based approaches to make
4 their brands appealing to young people, the Court would use publicly-available survey
5 data that is not under the control of the defendants. And by using the outcome of ultimate
6 interest, the outcome-based approach reduces the ability of defendants to evade the
7 restrictions. If defendants take actions to make their brands appealing to young people,
8 that will be reflected in the use of their products by young people, and will lead to
9 assessments on the defendants.

10 **Q: Does your outcome-based approach deter defendants from future RICO violations,**
11 **such as the use of marketing that appeals to youth?**

12 A: Yes, it does.

13 **Q: How does the outcome-based approach do so?**

14 A: The outcome-based approach deters defendants from such future actions by reducing
15 their financial incentive to engage in such actions. If youth use their product above the
16 target levels, defendants will pay an assessment that exceeds their gain from appealing to
17 such youth. So, for example, defendants won't use promotions that make their products
18 appealing to youth if they don't financially benefit from appealing to those youths.

19
20 **B. REMEDY IS FORWARD LOOKING**

21 **Q: Why do you call this a forward-looking remedy?**

22 A: This outcome-based remedy is forward-looking in two senses. First, most directly,
23 assessments are based on future actions that the defendants take to make their brands

1 appealing to young people. Second, more indirectly, the incentives for defendants (or
2 other tobacco manufacturers) to commit future RICO violations will depend on the
3 expected net returns from such violations. If this remedy is put in place, it will raise the
4 defendants' assessment of the likelihood that future violations will result in similar
5 remedies. This will have a "chilling" effect on the willingness of any tobacco
6 manufacturer to engage in such future violations.

8 **III. TARGETS**

9 **Q: Earlier you mentioned certain targeted reductions in youth smoking. Please remind**
10 **the Court of the targeted reductions contained in your proposal.**

11 A: The targeted reductions in youth smoking are 6% per year from 2007-2013, for a total of
12 a 42% reduction in youth smoking by 2013, compared to a 2003 baseline. These targeted
13 reductions apply to each defendant: each defendant must decrease youth use of their
14 product by 6% per year from 2007-2013.

15 **Q: What is the basis for these targets?**

16 A: The basis for these targets is the 1997 Proposed Resolution between tobacco
17 manufacturers and the states. The 1997 Proposed Resolution was an agreement between
18 tobacco manufacturers and the states to settle civil litigation against the manufacturers in
19 exchange for payments to states and Federal regulation of tobacco products. In addition,
20 this Resolution included a provision whereby tobacco manufacturers would make
21 payments if they did not reduce youth smoking to specified target levels. The targets in
22 my proposed remedy were chosen so as to result in the same overall percentage reduction
23 in youth smoking that was agreed to in that Proposed Resolution.

1 **Q: What do you mean by same percentage reduction in youth smoking?**

2 A: In the 1997 Proposed Resolution, the tobacco manufacturers – including defendants in
3 this case – agreed to targets for reductions in youth smoking from a base measured over
4 the 1986-1996 period. From that base level, tobacco manufacturers agreed to targeted
5 reductions in youth smoking of 30% by year 5 (following enactment of the Resolution),
6 50% by year 7, and 60% by year 10. Since the defendants voluntarily agreed to these
7 targets as part of the Proposed Resolution, they form the basis for this forward-looking
8 remedy.

9 **Q: Have you prepared a demonstrative to illustrate this point?**

10 A: Yes, I have.

11 **Q: I am showing you U.S. Exhibit 18,263. What does this demonstrative show?**

12 A: This demonstrative shows the targets for youth smoking reduction put in place by the
13 1997 Proposed Resolution, under the assumption that this Resolution had been enacted in
14 1998. In that case, the targeted reduction in youth smoking would be 30% by 2003,
15 rising to 50% by 2005, and then to 60% by 2008. This is shown on the first line of the
16 demonstrative.

17 **Q: What has happened to youth smoking since the 1997 Proposed Resolution?**

18 A: Youth smoking has fallen. In fact, youth smoking by 2003 had already fallen by the
19 targeted 30% amount specified in the Proposed Resolution. This is illustrated by the
20 white box on the second line of the demonstrative, which shows the reduction in youth
21 smoking already achieved by 2003.

22 **Q: Do the targets included in the forward looking remedy account for this fall in youth**
23 **smoking since 1997?**

1 A: Yes, the targets have been chosen to account for the fact that youth smoking has already
2 decreased since the 1997 Proposed Resolution. Thus, defendants effectively get credit
3 for the reduction that has already occurred from 1997-2003.

4 **Q: How does the rate of reduction for youth smoking under your proposed targets**
5 **compare to that under the targets of the Proposed Resolution?**

6 A: This comparison is illustrated in the next two rows of the demonstrative, U.S. Exhibit
7 18,263. The final row shows the scheduled reductions from 2003 levels that I mentioned
8 earlier: 6% in 2007; 12% by 2008; and so on until reaching 42% in 2013. Since these
9 reductions are off the base of smoking in 2003, and since youth smoking had already
10 fallen by 30% between 1986-96 and 2003, this schedule results in reductions that
11 ultimately reach the same level as in the Proposed Resolution, but at a slower rate. This
12 is illustrated in the second row of the demonstrative. Relative to the original 1986-1996
13 baseline, youth smoking had already fallen by 30% by 2003. My proposed remedy
14 would target reductions, relative to that original baseline, of 34% by 2007 (or 4% in
15 addition to the preexisting 30% decline), 38% by 2008, and so on until an ultimate
16 reduction of 59% by 2013. This is slightly lower than the ultimate target imposed by the
17 Proposed Resolution, due to rounding, but on a slower time frame. That is, relative to the
18 Proposed Resolution, in each year the targeted reductions in youth smoking are lower.

19 **Q: You stated that youth smoking has already fallen by 30%. You also stated that the**
20 **ultimate targeted reduction in youth smoking is 60%. Why then is the remaining**
21 **necessary reduction 42%, rather than 30%?**

22 A: The remaining necessary reduction is 42% because the forward looking remedy proposes
23 targeted reductions off the 2003 youth smoking level, not the original 1986-1996 youth

1 smoking level used as the baseline in the Proposed Resolution. The 2003 youth smoking
2 level is 70% as high as the level from 1986-1996. Thus, an additional reduction of 30%
3 from that original 1986-1996 baseline is the same as a 42% reduction from the 2003
4 baseline (because 42% of 70% is the same as 30% of 100%).

5 **Q: How do you propose measuring whether defendants meet their targets?**

6 A: I propose that this be done by using the National Survey on Drug Use and Health
7 (NSDUH). This existing nationally representative survey was augmented in the wake of
8 the proposed McCain legislation to have the type of large sample sizes and brand-specific
9 smoking information necessary to implement an outcomes-based remedy such as the
10 forward looking remedy proposed here.

11 **Q: Why is brand-specific information important?**

12 A: Brand-specific information on smoking is important because it allows for the
13 computation of the manufacturer-specific share of youth smokers, thereby assessing
14 individual defendants for their failure to meet their specified reductions in youth
15 smoking.

16 **Q: Why are your assessments levied on a manufacturer-specific basis rather than on an
17 industry-wide basis?**

18 A: Industry-wide targets and monetary assessments result in a “free rider” problem, whereby
19 manufacturers, particularly small manufacturers, can increase youth use of their product,
20 knowing that they will bear only a share of the industry-wide assessment (potentially
21 only a very small share) for missing the youth smoking targets. This share of the
22 assessment for any manufacturer may be below the full benefits of having a consumer
23 dedicated to their product for many years. Because they bear only a portion of the

1 monetary assessment, each individual manufacturer lacks the full incentive to meet the
2 targets. Under the manufacturer-specific assessment, each individual defendant would
3 bear the complete assessment from making their brands appealing to young people and
4 therefore has the full incentive to reduce the number of youths using their products.

5 **Q: Why don't you take into account in your analysis the fact that smokers may switch**
6 **brands over their lifetime, or the fact that smokers who most frequently use one**
7 **brand may still smoke other brands occasionally?**

8 A: The goal of this remedy is to ensure that no defendant benefits financially from making
9 their brands appealing to young people beyond the targeted levels. To fully ensure that a
10 defendant is not encouraged to make their brands appealing to young people, it is
11 necessary to base the calculation on the condition that the smoker will remain loyal
12 throughout their life and will not switch to or occasionally make use of other brands. If
13 assessments on defendants are reduced to account for brand loyalty, then defendants
14 could undo the incentives from this remedy by increasing their brand loyalty.

15 **Q: Do you have an opinion about whether the targeted 42% reduction in youth**
16 **smoking is feasible?**

17 A: Yes, I believe that this is a feasible reduction in youth smoking.

18 **Q: Why?**

19 A: I believe that this reduction is feasible for three reasons. First, the reduction is based on
20 levels agreed to by the defendants as part of the 1997 Proposed Resolution. Second, as
21 experts in this case have repeatedly testified, there are clear marketing changes that
22 defendants can undertake that will make their brands less appealing to young people.
23 Third, even absent any non-price actions that lower youth smoking, the defendants could

1 meet their targets simply by raising prices. At the best estimate of the elasticity of youth
2 smoking initiation with respect to price, this would require a 42% increase in cigarette
3 prices. Such an increase over a seven-year period is within the past experience of the
4 tobacco industry.

5 **Q: What is the best estimate of the elasticity of youth smoking initiation with respect to**
6 **price?**

7 A: The best estimate of the elasticity of youth smoking initiation with respect to price is an
8 elasticity of -1; that is, that each 10% increase in cigarette prices leads to a 10% reduction
9 in youth initiation.

10 **Q: How did you reach the conclusion that this is the best estimate?**

11 A: I reached that conclusion based on my own research in this area, a reading of research by
12 others, and consultation with Dr. Frank Chaloupka.

13 **Q: Why did you rely on Dr. Chaloupka?**

14 A: While I have published in this area and am very familiar with research on youth smoking,
15 Dr. Chaloupka has more recently published in this area, and is more up-to-date on the
16 issue of how prices affect youth. This has been and continues to be a central theme of his
17 research and I consider him the leading expert in this area.

18 **Q: How did you conclude that, based on a price sensitivity of -1, defendants could meet**
19 **the proposed targets?**

20 A: If the price elasticity of youth smoking is -1, then a 42% reduction in youth smoking
21 would require a 42% increase in net cigarette prices. Such an increase is feasible for the
22 defendants over the seven-year period from 2007-2013. Based on data I received from
23 Dr. Chaloupka, increases in real cigarette prices of similar magnitudes over seven years

1 have been seen several times since 1975. For example, from 1993 through 2000, real net
2 cigarette prices rose by 46%.

3 **Q: Since 1975, is 46% the greatest real price increase over a seven-year time period?**

4 A: No, it is not. From 1995 through 2002, real cigarette prices rose by 62%.

5 **Q: Professor Gruber, are you suggesting that defendants must raise their real cigarette**
6 **prices by 42% in order to meet these targets?**

7 A: No, I am not. As I have emphasized, defendants have a variety of mechanisms through
8 which they can reduce youth use of their products. Higher prices is only one of those
9 mechanisms. What I am pointing out here is that, were the defendants to choose to only
10 use higher prices to meet the targeted reduction, it would not involve price increases
11 outside the historical norm. But I expect that defendants would use a broader range of
12 mechanisms to meet the targets, so that prices would not have to rise by 42%. Indeed, a
13 major advantage of this output-based remedy is that the defendants are encouraged to use
14 whatever means necessary to meet the targets.

15 **Q: Does your remedy provide defendants with an incentive to violate RICO up to the**
16 **target levels?**

17 A: No, it does not for three reasons. First, below the target levels there are no new
18 incentives to commit RICO violations that do not exist outside of my remedy. Second,
19 my understanding is that the United States is seeking additional remedies which would
20 deter RICO violations at all levels of youth smoking. Third, even below the target levels,
21 the remedy deters actions that may have the effect of pushing youth smoking above the
22 target levels.

23

1 **IV. ASSESSMENTS**

2 **Q: You've indicated that if defendants fail to meet their targets, a \$3,000 financial**
3 **assessment would be imposed per youth by which the target is missed. What is the**
4 **basis for that assessment?**

5 A: The \$3,000 assessment amount was chosen to be the estimated upper limit on the
6 proceeds that a defendant could earn by selling their product to a smoker who began
7 smoking as a young person.

8 **Q: How did you estimate that upper limit?**

9 A: I estimated the upper limit by computing the present discounted value of proceeds that a
10 defendant would earn from a smoker who began smoking from the ages of 12 to 20 years
11 old. I computed this amount in several steps. First, I measured the likelihood that an
12 individual continues to be alive and to smoke at each future age, given that they were a
13 youth smoker. Second, I measured the typical number of cigarettes smoked by smokers
14 of each age, given that they were a youth smoker. Third, I computed an after-tax
15 proceeds amount per cigarette. Fourth, I multiplied the results from the first three steps
16 to obtain an expected proceeds amount in each future year for an individual who began
17 smoking as a youth. Fifth, I discounted all future proceeds to today's dollars using
18 weighted average cost of capital, and summed them.

19 **Q: Let's walk through each of these steps. The first step is to measure the likelihood**
20 **that a youth smoker continues to live and to smoke at future ages. How did you**
21 **measure that likelihood?**

22 A: I used the 2001-2003 National Health Interview Survey (NHIS) data to compute the age-
23 specific quit rate for smokers, given that they smoked regularly as a youth. The NHIS is

1 the most commonly-used nationally representative source of data on smoking in the
2 United States. I also use data from the Social Security Administration and from Dr.
3 Timothy Wyant to compute the age-specific mortality rate for smokers. I calculate the
4 likelihood that a youth smoker continues to live and to smoke at future ages by applying
5 these mortality and quit rates.

6 **Q: The second step is to compute the typical number of cigarettes smoked by smokers**
7 **of each age, given that they were a youth smoker. How did you make that**
8 **computation?**

9 A: I once again used the 2001-2003 NHIS to compute the average number of cigarettes
10 smoked by smokers of each age, given that they smoked regularly as a youth.

11 **Q: The third step involves computing the proceeds that defendants expect to earn per**
12 **cigarette smoked. How did you compute these proceeds?**

13 A: In computing the potential proceeds that a defendant could earn from an individual who
14 began smoking regularly as a youth, I wanted to pick a number large enough to ensure
15 that no defendant would earn proceeds from making their brands appealing to young
16 people. Thus I chose to use the greatest real proceeds amount per cigarette for Philip
17 Morris, the largest manufacturer. Based on a review of data provided by Professor
18 Franklin Fisher (Professor Fisher's curriculum vitae is at U.S. Exhibit 78,531), a noted
19 economist, Philip Morris experienced its greatest real proceeds amount per cigarette in
20 1992. In that year, Philip Morris earned proceeds of 3 cents per cigarette (4 cents in 2004
21 dollars).

22 **Q: Why did you choose Philip Morris' proceeds for 1992?**

23 A: I chose this amount for proceeds to ensure that I was using an upper bound on possible

1 proceeds per cigarette, so as to ensure that defendants would not have a financial
2 incentive to make their brands appealing to young people. Since manufacturers change in
3 size over time (after all, Philip Morris was a small company in 1950), it is important to
4 consider the possible proceeds from a company growing to be the largest, and possibly
5 most profitable, in the industry. Moreover, given the uncertainty surrounding the factors
6 that affect cigarette pricing, it is important to consider the highest proceeds level to
7 ensure that no benefits are obtained from individuals above the target amount who begin
8 smoking as youth.

9 **Q: Why do you use Professor Fisher's proceeds amounts rather than a more traditional**
10 **measure of manufacturer profits?**

11 A: The goal of this exercise, once again, is to ensure that no defendant earns money by
12 making their brands appealing to young people. The major difference between proceeds
13 and traditional profit measures (such as operating profit) are advertising and general
14 administrative costs. Yet these costs are not relevant for the marginal youth smoker that
15 is just above the company's target. For that very last youth smoker above the target, the
16 company will only have to expend the marginal costs of producing cigarettes for that
17 smoker, and not other costs (as described above) associated with the larger market.

18 Therefore, the correct measure of the value of appealing to that last smoker is proceeds.

19 **Q: Did you adjust Professor Fisher's proceeds amounts in any way for your**
20 **calculations?**

21 A: Yes, I did. Professor Fisher's proceeds numbers were on a before-tax basis. The
22 financial incentives for a defendant to make their brands appealing to young people will
23 depend on after-tax proceeds. I therefore reduced the proceeds amount by 40% to

1 account for corporate income taxation at the Federal and state levels.

2 **Q: You said that you based your calculation on proceeds for 1992. How did you apply**
3 **this past proceeds figure to current and future years?**

4 A: I brought the proceeds number forward to 2004 using actual inflation rates. From 2005
5 onwards, I assume that proceeds increase by 3% per year to account for inflation. In
6 addition, I wanted to account for the possibility that defendants might meet these youth
7 smoking targets by raising their prices over the 2007-2013 period, and that such price
8 increases could raise future proceeds per cigarette. To account for this, I first consider
9 the maximum price increase required to meet the targets, 42%, as discussed above. I then
10 translated that 42% increase in prices into a 50.4% increase in proceeds over the 2007-
11 2013 period.

12 **Q: What was the basis for this translation of price increase to proceeds increase?**

13 A: This translation follows the relationship between price increase and proceeds increase
14 over the 1993-2000 period. This period also saw a sizeable price increase (46%) over a
15 seven-year period. This 46% price increase led to a 55% increase in proceeds for Phillip
16 Morris, implying a 1.2% increase in proceeds for each 1% increase in price. Applying
17 that relationship to the potential 42% price increase from 2007-2013 yields a proceeds
18 increase of 50.4% ($42\% * 1.2 = 50.4\%$).

19 **Q: What is the next step in your calculation?**

20 A: The fourth step in my calculation is to multiply the results of the first three steps to obtain
21 an expected proceeds amount in each future year for a smoker.

22 **Q: In the fifth step, you then discount these future proceeds to today's dollars. How**
23 **did you do this discounting?**

1 A: I discounted future proceeds to today's dollars using the most recent weighted average
2 cost of capital (WACC) for Phillip Morris, 7.59%. The WACC is a measurement of what
3 it would cost Philip Morris to go out into the financial marketplace and acquire those
4 funds.

5 **Q: Once the \$3,000 assessment amount is computed, how is it used?**

6 A: The \$3,000 assessment amount is not used at all until a defendant misses their target. If
7 that occurs, the \$3,000 assessment is multiplied by the number of youth smokers by
8 which the defendant misses their target, subject to a "double-counting" adjustment.

9 **Q: How is the number of youth smokers by which a defendant misses their target**
10 **computed?**

11 A: The number of youth smokers by which a defendant misses their target is computed in
12 two steps. First, for each defendant, using data from the NSDUH, the excess of their
13 youth smoking percentage over the target youth smoking percentage can be computed.
14 Second, this excess percentage can be multiplied by the number of youth age 12-20 from
15 the U.S. Census to determine a number of youth misses.

16 **Q: And what is the "double-counting" adjustment?**

17 A: If the assessment were paid on each youth smoker by which the targets were missed in
18 each year, youth smokers who smoke in more than one year would be double-counted.
19 Therefore, in computing the assessment in years starting from the second year in which
20 assessments are levied, the assessment amount is only for new misses from the target: the
21 net change in the stock of youth smokers, adjusting for the natural attrition as youths
22 move from age 20 to age 21. That is, if 2007 is the first year in which assessments are
23 levied, then from 2008 onwards, the assessments are only on the net increase in the

1 number of misses over the previous year, accounting for natural attrition. The assessment
2 applies only to this net increase in the number of misses, in order to avoid double-
3 counting.

4 The following example illustrates how this adjustment works. Suppose that in 2008 a
5 defendant missed their target by 1 million youth smokers. Suppose that in 2009 they also
6 missed by 1 million youth smokers. Finally, suppose that 20% of that defendant's youth
7 smokers in 2008 were 20 year olds. This implies that the 1 million by which the target is
8 missed in 2009 includes 800,000 of those by which the target was previously missed, plus
9 200,000 new misses (to replace the 200,000 who became 21 years old). So the
10 assessment would only be applied on the 200,000 new misses in the year 2009.

11 **Q: You set the assessment amount for years in the future – why set it now, rather than**
12 **when assessments are potentially due?**

13 A: As described above, the assessment amount is a function of four factors: mortality/quit
14 rates; intensity; proceeds; and discount rates. For each of these factors, I set the
15 assessment amount now for three reasons. First, setting the assessment amount now
16 provides ease of application for the Court. Second, by setting the assessment amount
17 now, we provide certainty to defendants as they plan future actions that might make their
18 brands appealing to young people. Third, I have no reason to believe that there would be
19 significant differences in this number if calculated in future years. In addition, for
20 proceeds, there is another reason to set the assessment amount today, which is that
21 reported proceeds are under the control of the defendants. If the assessment amount is
22 based on future reported proceeds, then the defendants will have an incentive to minimize
23 these reported proceeds, undercutting the goal of the assessment.

1 **Q: Professor Gruber, please remind the Court why you are proposing this forward-**
2 **looking remedy.**

3 A: This remedy provides a strong incentive for defendants to reduce activities which make
4 defendants' cigarette brands appealing to young people. Further, this remedy is narrowly
5 tailored in that it only applies if defendants fail to reach their targeted reduction rates.

6 **Q: Thank you Professor Gruber.**