No. 02-603

IN THE
Supreme Court of the United States

UNITED STATES TOBACCO CO., UNITED STATES TOBACCO SALES AND MARKETING CO. INC., UNITED STATES TOBACCO MANUFACTURING CO. INC., and UST INC.,
Petitioners,

v.

CONWOOD CO., L.P.; and CONWOOD SALES CO., L.P.,
Respondents.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Sixth Circuit

MOTION FOR LEAVE TO FILE BRIEF AND BRIEF OF WASHINGTON LEGAL FOUNDATION, STEPHEN E. FIENBERG, FRANKLIN M. FISHER, DANIEL L. McFADDEN, and DANIEL L. RUBINFELD AS *AMICI CURIAE* IN SUPPORT OF PETITIONERS

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Date: November 20, 2002

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Pursuant to Rule 37.2 of the Rules of this Court, the Washington Legal Foundation (WLF), Dr. Stephen E. Fienberg, Dr. Franklin M. Fisher, Dr. Daniel L. McFadden, and Dr. Daniel L. Rubinfeld respectfully move for leave to file the attached brief as *amici curiae* in support of Petitioners. Petitioners have consented to the filing of this brief; their letter of consent has been lodged with the Clerk of the Court. Counsel for Respondents declined to consent, thereby necessitating the filing of this motion.

The individual *amici curiae* are three eminent economists (including one Nobel laureate) and one eminent statistician. None has any direct interest in the outcome of this litigation. Each has extensive experience in evaluating the types of economic evidence at issue in this case.

Dr. Stephen E. Fienberg is a professor of statistics and social science and former Dean of the College of Humanities and Social Sciences at Carnegie Mellon University. He served as co-chair of the National Research Council's Panel on Statistical Assessments in the Courts and was editor of the panel's findings published as *The Evolving Role of Statistical Assessments As Evidence in the Courts*, a standard reference work for lawyers and judges. He has served as President of the Institute of Mathematical Statistics and the International Society for Bayesian Analysis, as well as Vice President of the American Statistical Association. He has been elected as a member of the National Academy of Sciences.

Dr. Franklin M. Fisher is a professor of economics at Massachusetts Institute of Technology, where he has taught for more than 38 years. He served as the federal government's chief economic witness in *United States v. Microsoft* and was for many years IBM's chief economic witness in *United States v. IBM*. He is the author of 15 books and well over 100 articles; he has written extensively in the area of antitrust economics. He is a fellow and past President of the Econometric Society and for nine years was the editor of that society's journal, Econometrica.

Dr. Daniel L. McFadden is the recipient of the 2000 Nobel Prize in economics for his work in econometrics. He is the Director of the Econometrics Laboratory and a professor of economics at the University of California, Berkeley. He has taught economic theory, econometrics, and statistics at the graduate level since 1962. He has published seven books and more than 100 professional papers, the majority related to econometric methods and their applications.

Dr. Daniel L. Rubinfeld is a professor of law and economics at the University of California, Berkeley. He served as Deputy Assistant Attorney General in the Justice Department's Antitrust Division during the Clinton Administration. His current research interests relate directly to issues of antitrust enforcement, competition policy, and law and statistics. He is the co-author of two textbooks, "Microeconomics" and "Econometric Models and Economic Forecasts," and the author of more than 100 articles. He is currently a Director of LECG, LLP, which has been employed by Petitioners in connection with this litigation. Other than this brief, Dr. Rubinfeld himself has no involvement in the litigation and no direct interest in its outcome.

The Washington Legal Foundation (WLF) is a public interest law and policy center with supporters in all 50 states. WLF has devoted substantial resources over the years to the promotion of civil justice reform, including tort reform. WLF has appeared as *amicus curiae* in several recent cases in which the Court has addressed the gatekeeping function of federal judges with respect to the admission of expert testimony. *See, e.g., Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999); *General Electric Co. v. Joiner*, 522 U.S. 136 (1997); *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

Amici believe that the quality of decision-making in the federal courts on economic issues is largely dependent on the willingness of federal judges to take seriously their responsibility as gatekeepers, to ensure that unsound scientific and economic evidence is not presented to the finder of fact. In *amici*'s view, the lower federal courts are in need of additional guidance in this area; the record in this case suggests strongly that they are not doing enough to ensure that only sound economic science is being admitted into evidence. Collectively, *amici* possess significant relevant experience regarding the essential components of sound economic

modeling. *Amici* believe that that experience will be of assistance to the Court in reviewing the petition.

Amici are filing this brief because of their interest in ensuring that unsound economic science is excluded from our nation's courts. They have no direct interest, financial or otherwise, in the outcome of this lawsuit.

For the foregoing reasons, Dr. Stephen E. Fienberg, Dr. Franklin M. Fisher, Dr. Daniel L. McFadden, Dr. Daniel L. Rubinfeld, and the Washington Legal Foundation respectfully request that they be allowed to participate in this case by filing the attached brief.

Respectfully submitted,

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QUESTIONS PRESENTED

Amici curiae address the following question only:

Whether the largest damages award in the history of the antitrust laws ($1.05 billion) may be imposed without disaggregating the effects of lawful competition or other marketplace factors and without linking plaintiff's injury to any antitrust misconduct.

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BRIEF OF WASHINGTON LEGAL FOUNDATION, STEPHEN E. FIENBERG, FRANKLIN M. FISHER, DANIEL L. McFADDEN, and DANIEL L. RUBINFELD AS *AMICI CURIAE* IN SUPPORT OF PETITIONERS

INTERESTS OF *AMICI CURIAE*

The individual *amici curiae* are three eminent economists (including one Nobel laureate) and one eminent statistician.[1] None has any direct interest in the outcome of this litigation. Each has extensive experience in evaluating the types of economic evidence at issue in this case.

Dr. Stephen E. Fienberg is a professor of statistics and social science and former Dean of the College of Humanities and Social Sciences at Carnegie Mellon University. He served as co-chair of the National Research Council's Panel on Statistical Assessments in the Courts and was editor of the panel's findings published as *The Evolving Role of Statistical Assessments As Evidence in the Courts*, a standard reference work for lawyers and judges. He has served as President of the Institute of Mathematical Statistics and the International Society for Bayesian Analysis, as well as Vice President of the American Statistical Association. He has been elected as a member of the National Academy of Sciences.

Dr. Franklin M. Fisher is a professor of economics at Massachusetts Institute of Technology, where he has taught for more than 38 years. He served as the federal government's chief economic witness in *United States v. Microsoft* and was

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[1] Pursuant to Supreme Court Rule 37.6, *amici* state that no counsel for a party authored this brief in whole or in part; and that no person or entity, other than *amici*, their employees, and their counsel, contributed monetarily to the preparation and submission of this brief.

for many years IBM's chief economic witness in *United States v. IBM*. He is the author of 15 books and well over 100 articles; he has written extensively in the area of antitrust economics. He is a fellow and past President of the Econometric Society and for nine years was the editor of that society's journal, Econometrica.

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Dr. Daniel L. Rubinfeld is a professor of law and economics at the University of California, Berkeley. He served as Deputy Assistant Attorney General in the Justice Department's Antitrust Division during the Clinton Administration. His current research interests relate directly to issues of antitrust enforcement, competition policy, and law and statistics. He is the co-author of two textbooks, "Microeconomics" and "Econometric Models and Economic Forecasts," and the author of more than 100 articles. He is currently a Director of LECG, LLP, which has been employed by Petitioners in connection with this litigation. Other than this brief, Dr. Rubinfeld himself has no involvement in the litigation and no direct interest in its outcome.

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Amici believe that the quality of decision-making in the federal courts on economic issues is largely dependent on the willingness of federal judges to take seriously their responsibility as gatekeepers, to ensure that unsound scientific and economic evidence is not presented to the finder of fact. In *amici*'s view, the lower federal courts are in need of additional guidance in this area; the record in this case suggests strongly that they are not doing enough to ensure that only sound economic science is being admitted into evidence, and that substantial antitrust judgments are being awarded without adequate proof of damages. Collectively, *amici* possess significant relevant experience regarding the essential components of sound economic modeling. *Amici* believe that that experience will be of assistance to the Court in reviewing the petition.

STATEMENT OF THE CASE

In the interests of brevity, *amici curiae* hereby adopt by reference the Statement of the Case contained in the Petition.

In support of their antitrust damage claim, Respondents (hereinafter "Conwood") relied in large measure on the testimony of Dr. Richard Leftwich, an expert on business valuation. Leftwich arrived at his estimate of Conwood's damages by constructing an economic model intended to approximate the moist snuff sales Conwood would have generated in the 1990-97 period but for the conduct of Petitioners (hereinafter "USTC") that allegedly violated the

antitrust laws. Pet. 8-9. The Sixth Circuit affirmed the district court's decision to admit Leftwich's testimony and damages study under Rule 702 of the Federal Rules of Evidence. Pet. App. 36a-42a. It also affirmed the $1.05 billion judgment entered against USTC. *Id.* 44a. This brief focuses on the admissibility of Leftwich's testimony and damages study, as well as the admissibility of the damages-related testimony of William Rosson, Conwood's CEO; and whether that evidence was sufficient to support the damage award in this case. We do not address the first question raised by the Petition, which focuses on the liability issue.

REASONS FOR GRANTING THE PETITION

There is an increasing need for the Court to establish standards for economic science in antitrust cases and other cases requiring economic modeling for the computation of damage awards. The Court confirmed in *Daubert* the importance of screening all expert testimony to ensure that it is reliable before admitting it into evidence under Rule 702 of the Federal Rules of Evidence. *Daubert v. Merrill Dow Pharmaceuticals, Inc.,* 509 U.S. 579 (1993). The Court later confirmed in *Kumho Tire* that *Daubert*'s framework for analyzing the admissibility of testimony applies to *all* types of expert testimony -- including testimony relating to economic and statistical science -- not merely to expert testimony relating to the physical sciences. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999). Failure by federal courts to exercise their gatekeeping function with respect to expert testimony by economists diminishes the utility of the economics profession in the courtroom, reduces its credibility, creates the possibility of unjust and economically-perverse results, and frustrates the objective of economics to create efficiency in the use and distribution of resources and products.

The Petition amply demonstrates the serious conflict among the federal circuit courts regarding the proof required to establish antitrust damages. Pet. 20-27. *Amici* write separately because they believe that this case provides an important opportunity for the Court to clarify what constitutes the appropriate standard for admissible economic and statistical evidence, an issue that is arising with increasing frequency in federal court proceedings. Self-evidently, evidence that is inadmissible under Rule 702 cannot assist an antitrust plaintiff in meeting its burden in proving damages.

The individual *amici* are economists and a statistician renowned for their expertise in the types of economic evidence submitted by Conwood in support of its claim for damages. In our view, the expert testimony submitted by Conwood in support of its unprecedented $1.05 billion damage award did not meet Rule 702's exacting requirement of reliability and relevance and thus should not have been admitted into evidence. Conwood's damages expert, Dr. Richard Leftwich, submitted an analysis comprised of an unsubstantiated theory, deficient methodology, and the use of a standard tool of economic analysis -- regression analysis. The Sixth Circuit correctly noted that regression analysis is a standard tool for proving antitrust damages. Pet. App. 40a. But the use of a standard economic tool does not by itself render expert testimony reliable, as the appeals court appeared to believe. Rather, *Daubert* also requires a careful examination of the expert's underlying economic theories and methodological assumptions to ensure that the proffered expert testimony is "not only relevant, but reliable." *Daubert*, 509 U.S. at 589. The appeals court's unwillingness to undertake anything more than a rudimentary examination of Leftwich's methodology warrants review by this Court.

I. THE COURT SHOULD CONSIDER WHETHER EVIDENCE SUBMITTED BY CONWOOD ON DAMAGE ISSUES WAS ADEQUATE TO ESTABLISH DAMAGES AND WHETHER IT MET RULE 702's RELEVANCE AND RELIABILITY REQUIREMENT

The sections that follow summarize the results of an analysis of Conwood's damages evidence performed by the four individual *amici*. All four conclude that Conwood's damages evidence (which took the form of testimony by Dr. Richard Leftwich and Conwood CEO William Rosson) did not constitute reliable or relevant economic and statistical science. We conclude that Conwood failed to present economically and statistically sound evidence that it suffered any damages as a result of USTC's actions, and that the trial court should never have admitted into evidence the proffered testimony. *Amici* can only conclude, based on the Sixth Circuit's affirmance of the damage award on the basis of this deficient evidence, that there is considerable confusion in the lower federal courts regarding the quantum and quality of evidence necessary to sustain an award of damages in an antitrust case. Review by this Court is warranted in order to clear up that confusion.

A. An Expert's Use of Standard Economic Tools Does Not Ensure That the Expert's Final Work Product Is Reliable

To be useful in a legal context, a scientific experiment should be both relevant to the question at hand and capable of producing results that are reliable. In the case at hand, Dr. Leftwich was asked by Conwood to estimate damages suffered by Conwood as a result of USTC's alleged unlawful acts. Standards for the economics profession call for such an analysis to develop tests that indicate: (1) whether Conwood

suffered any adverse consequences from USTC's alleged unlawful acts; and (2) if so, the amount of any financial harm due to the alleged unlawful acts.

The analysis is relevant if it derives from a theory of how damages occurred consistent with economic science ("theory of damages"). The analysis should test that economic theory against the relevant facts to determine if damages occurred.[2] If damages are found to have occurred, the analysis should isolate and measure the impact of the alleged unlawful conduct. The analysis is reliable if the empirical application of the theory isolating the alleged misconduct is correctly structured, performed, and tested, and if the results do not substantively change with reasonable choices of specification and data.

In the case at hand, Dr. Leftwich asserted that a "foothold" theory of damages was applicable. This theory posited that alleged unlawful actions by USTC had a greater impact on the growth of Conwood's market share in states where Conwood initially had a small market share than in states where Conwood initially had a large share. Based on this "foothold theory," Dr. Leftwich performed a regression analysis to assess the relationship between Conwood's initial state-level market share and Conwood's subsequent market share growth in two periods, 1984-90 and 1990-97. He found no relationship between initial market share and market share growth in the 1984-90 period preceding USTC's alleged unlawful acts. In the 1990-97 period, he found a positive relationship between initial market share and market share growth. Making the critical assumption that all systematic

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[2] The Court in *Daubert* noted that the trial judge must assess "whether that reasoning or methodology properly can be applied to the facts in issue." *Daubert*, 509 U.S. at 593.

differences in 1990-97 market share growth between small share states and large share states were the result of USTC's wrongful acts, Dr. Leftwich used the results of the regression analysis to estimate Conwood's market share "but-for" USTC's alleged unlawful acts, which he in turn used to calculate damages.

The appeals court correctly noted that regression analysis was a standard tool of economic and statistical science. However, it failed to recognize the lack of a scientific foundation for Dr. Leftwich's "foothold theory" and the inability of Dr. Leftwich's model to isolate the impact of USTC's alleged unlawful acts from the effects of lawful competition or other market forces.

B. Leftwich Provided No Basis in Economic Science for His "Foothold Theory"

Dr. Leftwich neither presented his "foothold theory" with any reference to any accepted economic theory nor did he present it as an extension of an accepted economic theory.[3] As such, Dr. Leftwich failed entirely to provide any proper scientific basis for his analysis.[4] Instead, Dr. Leftwich *assumed* that any change from the 1984-90 period to the 1990-

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[3] Professor David Kaye of Arizona State University identified "severe methodological flaw[s]" in Dr. Leftwich's "foothold theory," concluding that it could not meet the *Daubert* standard. D.H. Kaye, "The Dynamics of *Daubert*: Methodology, Conclusions, and Fit in Statistical and Econometric Studies," 87 VA. L. REV. 1933, 1996-98, 2006-11 (2001).

[4] In fact, a separate analysis by Dr. Leftwich using USTC's expert's data contradicts his "foothold theory": it assumes that any impact of USTC's "bad acts" on Conwood market share is constant across states rather than affecting large-share and small-share states differentially.

97 period in the relationship between initial market share and subsequent changes in market share was due solely to USTC's alleged unlawful actions instead of being due to any other competitive factor that could have a differential impact depending on initial market share. Dr. Leftwich's "foothold theory" itself suggests that other competitive factors could have such an impact. Dr. Leftwich found a change in the relationship, but his *conclusion* that the cause of that change was the alleged unlawful acts of USTC was just an *assumption* that was built into his methodology. Such circular reasoning is unacceptable science: it is incumbent upon the expert to provide a theory of damages with a substantive foundation and to use the facts to test that theory.[5] Since he failed to provide any scientific basis for this relationship, Dr. Leftwich's analysis had no economic relevance.

C. Leftwich's Analysis Failed to Isolate the Impact of USTC's Unlawful Acts

Dr. Leftwich's analysis did not determine the extent to which any changes were caused by USTC's alleged unlawful acts as opposed to lawful and competitive acts. If one accepts Dr. Leftwich's "foothold theory," then changes in other competitive factors also could have a disproportionate influence in small Conwood market share states.[6] Dr.

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[5] This may have required more data than Dr. Leftwich had available or a different theory of damages, but it does not excuse Dr. Leftwich for not formulating a substantive theory of damages. The integrity of the result rests on the application of a scientific methodology, and a lack of data to validate a theory cannot excuse presenting the hypothesis as a scientific conclusion.

[6] Dr. Leftwich argued that it was unlikely for other competitive factors to systematically differ across states, but he failed to recognize

(continued...)

Leftwich, however, assumed that nothing aside from USTC's alleged unlawful acts had any differential impact. Moreover, Dr. Leftwich presented no economic theory to indicate what market share would give Conwood a "foothold."[7]

An appropriate economic analysis of damages would identify the wrongful acts and devise a scientific test to measure their impact as distinct from those of lawful competitive actions. Dr. Leftwich, however, simply defined an impact and assumed that any (and only) acts eventually found to be unlawful, *whatever their identity and extent*, created that impact. Yet the record in this case established that there were a number of competitive factors in the marketplace that were present to a greater degree in the 1990-97 period than in the 1984-90 period and could have affected market shares. These included, for example, the introduction of new brands (especially price-value brands) (Tr. 2259-60), limitations on advertising (Tr. 2261-63), and restrictions on self-service (Tr. 3661-62).

Dr. Leftwich failed to show that these other competitive factors in the marketplace would not have had a disproportionate influence in small Conwood market share states. Nor did he present any reasonable economic argument as to why these other factors could not result in market impacts similar to the one he believes was caused by USTC's alleged unlawful acts. Furthermore, he provided no method for

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[6](...continued)
that the *impact* of these factors could systematically vary across states. Trial transcript ("Tr.") Vol. VII, at 85-92.

[7] Dr. Leftwich's "foothold theory" provides no economic basis for his choice of a 15 or 20 percent threshold separating "large share" from "small share" states when calculating his "but-for" market shares.

apportioning any market impact between lawful and unlawful factors. If these other factors had similar market impacts, then Dr. Leftwich's use of initial Conwood market share as a proxy for the market impact of USTC's alleged unlawful acts would be improper and his findings would lack any probative value.

Instead of recognizing the potential impact of these other factors, Dr. Leftwich simply dismissed them and made the incredible assumption that nothing else other than USTC's alleged unlawful acts had a differential impact across states. Dr. Leftwich provided no basis for making this assumption, and thus he had no basis to conclude that any change in the relationship between initial market share and subsequent growth after 1990 was due solely to USTC's alleged unlawful acts.

D. Rosson's Testimony Does Not Meet the Standards for a Proper Damage Analysis

William Rosson, CEO of Conwood, testified at trial that he believed that Conwood's national market share, absent the alleged actions by USTC, would have been "in the 20s. Mid, say, 22 or 23 percent." Tr. 120. No methodology or data was presented to support this opinion.

When Mr. Rosson opined as to the "but-for" market share, he stepped out of the shoes of a knowledgeable industry executive and into the shoes of a market analyst. At that point Mr. Rosson should have been held to the same standards as any other expert opining on how a market would have performed in a "but-for" world. Mr. Rosson's testimony did not meet the standards that would be applied by economic science. Allowing what is essentially expert economic testimony to be presented with no scientific basis defeats the

intent of the *Daubert* ruling and trivializes the role of economic and statistical analysis in the courtroom.

II. REVIEW IS WARRANTED BECAUSE OF THE INCREASINGLY IMPORTANT ROLE OF ECONOMICS IN THE COURTROOM AND THE RESULTING NEED TO PROVIDE GUIDANCE REGARDING THE APPLICATION OF *DAUBERT* TO ECONOMIC AND STATISTICAL ISSUES

Today, economic and statistical science has an increasingly significant role in the courtroom. It is the basis for measuring damages, and sometimes liability, in a wide range of legal cases. These range from antitrust cases, to labor discrimination cases, to tort cases, to securities cases, to many others. It is critical that economic and statistical science in the courtroom meet the standards of the economics field, as the potential implications of erroneous decisions based on faulty evidence are enormous. Not only can erroneous decisions result in exchanges of dollars between litigants that are either too high or too low, but the precedential value of a misinformed decision can create perverse incentives for market participants that can reduce economic efficiency and harm consumers. Review is warranted in light of the increasingly important role of economic and statistical science in 21st century litigation and the importance of ensuring that such scientific evidence not be misused.

Outside of the legal setting, economic and statistical science imposes many hurdles for research to overcome before it becomes accepted widely. The peer-review process ensures that published research uses an appropriate methodology, can be replicated, has been thoroughly vetted, and recognizes prior work in the area. The process can be arduous and painstakingly slow, but it allows peers in the profession many

opportunities to evaluate, critique, and respond. As a result, "bad science" does not get very far in this process. The hurdles imposed by the peer-review process maintain the standard for economic and statistical science.

The hurdles in the legal process are much more limited. Typically, each side in an antitrust or damages dispute retains an economic expert. Even though by definition, and by law, an expert is a disinterested professional who opines on damages, it may be unclear to jurors and judges whether the testimony of experts is in fact disinterested.[8] Lacking a clearly neutral expert, lay juries and judges understandably may have difficulty distinguishing between simple posturing and legitimate criticisms regarding another expert's work. With only diametrically opposing views to consider, a jury can

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[8] Several court decisions have suggested that the use of a court-appointed, neutral expert could improve matters, but this approach has not been applied widely. Judge Richard Posner has proposed that the use of a neutral expert could assist a court in recognizing better the scientific shortcomings of such expert submissions. Richard Posner, *Antitrust Law* (2nd ed. 2001) at 277-278. He proposed that courts could follow an approach similar to the typical approach for arbitration matters: each party would propose a technical expert who would in turn agree upon a third, neutral expert to be appointed by the court. Judge Posner recently recommended the court use its own expert in a remand to the district court in *High Fructose Corn Syrup Antitrust Litigation*, 295 F.3d 651, 665 (7th Circuit 2002). Professor Daniel Rubinfeld has recommended the use of a neutral expert as being of possible assistance. Daniel Rubinfeld and Peter Steiner, "Quantitative Analysis in Antitrust Litigation," 46 LAW & CONTEMP. PROBS. 69 (1983); Daniel Rubinfeld, "Econometrics in the Courtroom," 85 COLUM. L. REV. 1048 (1985). The National Research Council's Panel on Statistical Assessments in the Courts, co-chaired by Professor Stephen Fienberg, has also recommended increased use of court-appointed experts. Fienberg, ed., *The Evolving Role of Statistical Assessments As Evidence in the Courts* (Springer-Verlag: New York, 1989) at 169-172.

easily fail to see the difference between "good science" and "bad science." As a result, "bad science" is likely to be granted much more credibility before a jury than would occur within the profession. Unjust and socially-harmful outcomes can and will result if "bad science" forms the foundation of the jury's decision.

By granting review in this case, the Court can provide lower courts with desperately needed guidance regarding the proper use of economic and statistical evidence. In addition, guidance is needed regarding the circumstances under which courts may turn to impartial experts for technical assistance, and the circumstances under which such assistance is essential. It may be that there are some circumstances -- with this case a prime example -- in which trial courts cannot effectively perform their gatekeeping function without the assistance of an impartial expert.

Science requires proof or disproof of particular theories using given tools in a methodical way. The standard for admissibility set forth in *Daubert* should require the courts to consider whether the opinions offered by an expert are grounded in theory that has a scientific basis and whether the expert's theory has been validated by sound methodology and data. Whether an opinion offered as science has the veneer of respectability due to the use of standard tools is not a standard that maintains the integrity of the profession. Tools do not by themselves amount to science, just as the use of a hammer does not guarantee that a house will be architecturally sound.[9]

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[9] Professor Franklin Fisher has observed, "Finally, one should make sure that the model used is constructed on sound hypotheses based on theoretical considerations *generated from outside the model itself*. While regression analysis and related econometric techniques are (continued...)

Without a competent scientific framework underlying the analysis, the results of calculations offered by experts are meaningless. For instance, regression analysis measures correlations but does not by itself impart causal meaning to those correlations.[10] Regression analysis is simply a tool for establishing a statistical link between economic theory and real-world data. Without a soundly-based economic foundation and empirical statistical model evaluation, regression analysis merely presents descriptive statistics, without analytic content from which conclusions can properly be drawn.

This distinction between scientific theories and the tools of economic science appears to have been lost on the Sixth Circuit. As a result, it affirmed the trial court's judgment on damages based primarily on its erroneous view that use of regression analysis is sufficient to establish the reliability of

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[9](...continued)
powerful tools for analyzing data, their proper use presupposes an underlying theory of the structure generating those data." Franklin Fisher, "Multiple Regression in Legal Proceedings," 80 COLUM. L. REV. 702, 735 (1980) (emphasis added).

[10] As explained by Professors David Kaye and David Freedman, "Observational studies can establish that one factor is associated with another, but considerable analysis may be necessary to bridge the gap from association to causation. . . ." "Naturally, the value of the statistical analysis depends on the substantive economic knowledge that informs it." Kaye and Freedman, "Reference Guide on Statistics," *Reference Manual on Scientific Evidence* (Federal Judicial Center 2000, 2nd ed.) at 91, 87. Some of the analysis necessary to bridge the gap from association to causation can come from embedding regression models into larger statistical frameworks for assessing causality, but this requires enormous care and empirical as well as substantive support. *See, e.g.*, Peter Spirtes, Clark Glymour, and Richard Scheines, *Causation, Prediction, and Search* (MIT Press 2000, 2nd ed.).

economic and statistical evidence. The fact that a federal appeals court could make such a fundamental error in a field of such enormous importance strongly suggests that this Court should grant review to clarify this critical and recurring area of law. At the same time, we urge it to give further guidance regarding the rules and procedures governing the lower federal courts' exercise of their gatekeeping function.

CONCLUSION

Amici curiae respectfully request that the Court grant the petition for a writ of certiorari.

Respectfully submitted,

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