Journal of Law and Economics

Volume 65
Number 6 *(S2: A Special Issue in Honor of Sam Peltzman)*

Article 8

11-1-2022

In the Beginning: The Creation of the Economic Expert in Antitrust

Kenneth G. Elzinga
Kenneth.Elzinga@chicagounbound.edu

In the Beginning: The Creation of the Economic Expert in Antitrust

Kenneth G. Elzinga *University of Virginia*

Abstract

Today one cannot imagine antitrust litigation without the use of economic experts. Defendants and plaintiffs alike pay handsomely for their reports and testimony. However, the use of economists as expert witnesses did not begin until the iconic case of *United States v. United States Steel,* when two prominent economists, Francis Walker and Jeremiah Jenks, testified on behalf of the Department of Justice and United States Steel. Drawing on the original trial transcript, this paper assesses their role in the litigation. While their level of theoretical sophistication and empirical analysis falls short of today's standards, the testimony of Walker and Jenks featured some of the same elements of expert testimony that continue today and analysis that was a precursor to the Chicago School's perspective on competition.

1. Introduction

In 1890, Congress passed the Sherman Antitrust Act (15 U.S.C.A. secs. 1–7).[1] Nothing in the act requires economists to offer expert opinions as part of its enforcement. Nor has the Supreme Court ever required expert economic testimony in Sherman Act litigation.[2] Today, however, it would border on malpractice to try a major antitrust case without the use of expert testimony from economists. Stigler (1983, p. 46) observes that antitrust now occupies the talents of economists "ranging from Nobel prize winners to graduate students no better known than the Unknown Soldier." As an authority on price theory, Stigler also observed that

For their comments on an earlier draft, the author thanks John Howard Brown, William S. Comanor, Daniel Crane, Claire Friedland, L. Jackson Howell, Jr., William Landes, Sam Peltzman, F. M. Scherer, Taylor A. Thiessen, and Lawrence J. White and also thanks Sara Bensley and Heeth Varnedoe for their contributions. The usual disclaimer applies.

[1] There is no evidence that economists played an important role (indeed, any role) in the passage of the Sherman Act. The *Congressional Record* contains no sign of an economist testifying about antitrust legislation. "Congress . . . considered one antimonopoly bill after another without ever . . . calling on the advice of professional economists" (Thorelli 1954, p. 120).

[2] There is no economic language in the text of the Sherman Act. The term "competition" does not appear, nor do terms such as "barriers to entry," "relevant market," or "market concentration"—all of which came later. The language of economics made its way into antitrust enforcement through the judicial and executive branches of government, not legislation.

[*Journal of Law and Economics,* vol. 65 (November 2022)]
 0022-2186/2022/6504-0047$10.00

"the rate of compensation for economists in this activity is not in violation of the federal minimum wage law" (Stigler 1983, p. 49).Where did this begin?

The creation of the economic expert in antitrust litigation took place in a Sherman Act case brought by the US Department of Justice (DOJ) against the United States Steel Corporation.[3] Antitrust scholars and practitioners know this case as *United States v. United States Steel Corp.* (251 U.S. 417 [1920]; hereafter, *USS*). Francis Walker on behalf of the DOJ[4] and Jeremiah Whipple Jenks on behalf of United States Steel are the Adam and Eve of economic experts. In a fashion, all the economic experts who follow are descendants of these two dueling economists.

It goes beyond the boundaries of this paper to describe fully the use of economic experts in antitrust today (for details, see White 2010; Slottje 1999; Houthakker 1999; Scherer 1999; MacKie-Mason and Pfau 1999; Fox and Halverson 1984; Rowe 1984; Brozen 1984; Areeda 1984; Millstein 1984; Stigler 1988; Kovacic 1992).[5] However, there is nothing new under the sun when it comes to tactics used by counsel to undermine and denigrate the testimony of economic experts. During their time on the stand, both Walker and Jenks were subject to criticisms that are common today. For example, much of their examination involved either defending the veracity of the data they used in their analysis or criticizing the data used by the opposing expert. Both economists were confronted with the "have you ever met a payroll" form of questioning, designed to belittle the real-world applicability of an economist's understanding of a particular industry. More substantively, the conceptual reference to a but-for world, which anchors much of economic analysis in antitrust litigation today, was put forward by Walker and Jenks, particularly Walker, and a basic paradigm of the Chicago School of economics was prominent in the testimony of Jenks.[6]

2. The Basics of the Case

Before describing the role that Walker and Jenks played, it is instructive to review the legal trajectory of the iconic case in which they appeared. The DOJ filed suit against the United States Steel Corporation in 1911, claiming that the corporation was a conspiracy, was a monopoly, and restrained trade. Four years later,

[3] This conclusion is based on a database of economists who submitted reports or testified as experts in federal antitrust cases. This is consistent with the speculation of White (2010, p. 231), who wrote that *United States v. United States Steel Corporation* (*USS*) was "possibly the first" appearance of an economist, citing the Supreme Court's reference to an unnamed economist who testified in the matter.

[4] When Walker testified, there was not yet an Antitrust Division of the US Department of Justice (DOJ). The division was founded in 1919, a year before the Supreme Court's ruling but after the trial in the district court (see DOJ 2018).

[5] White (2010) mentions the 1970s as the period when the participation of economists in antitrust took off, citing Barnett (2001). The seven editions of Kwoka and White (2019; previously published in 1984, 1989, 1999, 2004, 2009, and 2014) indirectly point to the importance of economic testimony in antitrust cases.

[6] The trial testimony of Walker and Jenks often is more informative than an attempt to summarize it. This testimony was unearthed through the archival collaboration of my research assistant, Heeth Varnedoe, and Sara Bensley, Professor of Legal Research and Emerging Legal Technology Specialist at the University of Florida Levin College of Law.

the district court held in favor of United States Steel (223 F. 55 [1915]). The lower court ruled that the evidence was insufficient to show that the company was a monopoly or that its conduct unduly restrained trade. The DOJ appealed, and the case went directly to the Supreme Court.[7] Originally resulting in a tied bench in 1917, the case was retried in 1920, having been delayed by World War I.[8]

In 1920, the district court's opinion was upheld by the Supreme Court. Two characteristics of the Court's opinion merit reiteration here. First, *USS* produced three sentences that have had a long shelf life in antitrust: "But we must adhere to the law, and the law does not make mere size an offense, or the existence of unexerted power an offense. It, we repeat, requires overt acts, and trusts to its prohibition of them and its power to repress or punish them. It does not compel competition, nor require all that is possible" (251 U.S. 451). In addition, Justice Joseph McKenna claimed that the "Corporation did not achieve monopoly . . . and it is against monopoly that the statue is directed, not against the expectation of it, but against its realization" (251 U.S. 445). While monopoly could have been realized, it did not happen.

Second, McKenna reprimanded the DOJ for being of two minds about the case it had brought. Was United States Steel a company whose antitrust offense was making life easier for its competitors, sheltering them under a price umbrella? Or was it a company whose antitrust offense was predatory conduct against its rivals?[9] As McKenna wrote, "The Government does not hesitate to present contradictions. . . . In one, competitors (the independents) are represented as oppressed by the superior power of the Corporation; in the other they are represented as ascending to opulence by imitating that power's prices which they could not do if at disadvantage from the other conditions of competition; and yet confederated action is not asserted. If it were this suit would take on another cast. The competitors would cease to be the victims of the Corporation and would become its accomplices" (251 U.S. 449). Walker's testimony on behalf of the DOJ did not contain this purported contradiction. He viewed United States Steel as a company that elevated the price of steel products to the benefit of other steel producers; he did not testify that the company lowered prices or engaged in the predatory

[7] The Expediting Act of 1903 (15 U.S.C. secs. 28–29) gave high priority to antitrust suits, allowing appeals to skip the circuit court and go directly before the Supreme Court.

[8] There were numerous federal antitrust cases decided prior to the Supreme Court's 1920 decision in *USS*. Some of these decisions are part of the pantheon of antitrust, such as *United States v. Addyston Pipe & Steel* (175 U.S. 211 [1899]), *Northern Securities Co. v. United States* (193 U.S. 197 [1904]), *Dr. Miles Medical Co. v. Park* (220 U.S. 373 [1911]), *Standard Oil Co. of New Jersey v. United States* (221 U.S. 1 [1911]), and *United States v. American Tobacco Co.* (221 U.S. 106 [1911]).

[9] The Court's decision was 4–3. It would have gone the other way if Justice Louis Brandeis and Justice Clark McReynolds had not recused themselves. Brandeis had authored a book entitled *The Curse of Bigness* in which the United States Steel Company played a prominent part. McReynolds was at the DOJ when the case was first brought. Comanor and Scherer (1995, p. 264) argue that while United States Steel won its antitrust battle with the DOJ, the firm "has slowly but surely lost its lead in an industry that repeatedly felt impelled to seek government protection from foreign competition." They conclude that the DOJ's "failed monopolization suits [planted] the seeds of subsequent complacency, flabbiness and decline" (Comanor and Scherer 1995, p. 265).

tactics attributed at the time to Standard Oil of New Jersey and the American Tobacco Company.

2.1. Francis Walker for the Department of Justice

Francis Walker was to the dismal science born. He was the son of Francis Amasa Walker, a professor of political economy at Yale University who became the first president of the American Economic Association and later the president of the Massachusetts Institute of Technology (MIT).[10] Walker (the son) received a BS from MIT (1892) and a PhD from Columbia University (1895). He also studied at three German universities, where his research focused on the coal, iron, and steel industries. Several years before his testimony in *USS,* Walker published an article in the *Economic Journal* on the Beef Trust (Walker 1906). At the time of his testimony, Walker was employed by the Bureau of Corporations as deputy commissioner of corporations and had been involved in the preparation of two reports about United States Steel that were issued by the bureau (for the reports, see Smith 1911).

In short, Walker was a student of the steel industry before he took the stand as an economic expert. In this regard, he was a precursor to all the economists to follow whose credentials as an expert are based on a combination of graduate training in economics and research about a particular industry. From Walker's day forward, familiarity with the market and the generation of data about that market became essential ingredients of an economist's credibility as an expert.

2.2. Jeremiah W. Jenks for the United States Steel Company

Just as the DOJ used a prominent economist as its economic expert, United States Steel countered with a prominent economist of its own. Jeremiah W. Jenks was educated at the University of Michigan and received his doctorate at the University of Halle. He held professorships at Cornell University and New York University. Just as Walker had a record of accomplishment outside the academy, so did Jenks. However, unlike Walker, whose government work centered on industry studies, Jenks was engaged primarily in tax and immigration policy. Part of Walker's education was in Germany, as was Jenks's, but Jenks's work on taxes and immigration took him around the world.

Jenks, like Walker's father, became president of the American Economic Association in 1906–7. Though his publications centered mostly on immigration, Jenks was the author of a book entitled *The Trust Problem* (1900), which figured prominently in his testimony. One of Jenks's most unusual credentials was his

[10] Francis Amasa Walker also became chief of the Bureau of Statistics. Such was his prominence in both statistics and economics that he became president of the American Statistical Association (1882) and president of the American Economic Association (1886). The American Economic Association's lifetime achievement award is the Francis A. Walker Medal.

membership on the legislative drafting committee that led to the Clayton Antitrust Act of 1914 (15 U.S.C. secs. 12–27).[11]

2.3. *Walker versus Jenks*

In a pecking order of economists, Jenks outranks Walker. Jenks became president of the American Economic Association, an encomium Walker (the son) never achieved. Relative to Walker, Jenks had academic appointments at more distinguished institutions. In addition, Jenks authored a book on monopolies and cartels. While neither Jenks nor Walker is a household name among economists today, Brown (2007) argues that Jenks was a precursor to the contemporary field of industrial organization.[12]

Because economists played no important role in the passage of the Sherman Act, and because the Sherman Act did not require the use of economic analysis in its enforcement, one might expect that the testimony of Walker and Jenks would not play a prominent role in the opinion of the Court in *USS*. That turned out to be the case. That said, the first two economists to give expert testimony had solid credentials; Walker and Jenks had résumés comparable to those of economists who testify in antitrust cases today.

3. The Context of the Case

While Walker and Jenks were subject to the same courtroom practices for expert testimony that is familiar today, their experience differed in two executional regards. First, Walker and Jenks did not submit expert reports prior to the trial, nor were they deposed prior to their trial testimony.[13] Today, it would be rare for economic experts to testify in court without first being deposed about the content of their testimony. The deposition usually focuses on the economist's expert report that will be the basis of any testimony at trial. Today, there may be multiple economic experts on each side of an antitrust case.[14] Second, the testimonies

[11] While economists were absent from the drafting of the Sherman Act, by the time of the Progressive Era they had a seat at the table in the formation of antitrust policy—at least on the legislative side. The committee of which Jenks was a member was headed by John Bates Clark, a prominent US economist. The American Economic Association's John Bates Clark Medal goes to an American economist under the age of 40 who has made notable contributions to economic scholarship.

[12] The basis for Brown's claim is that Jenks was "one of the first economists in this country to empirically analyze the behavior of firms in an imperfectly competitive industry" and that his "conception of the effects of market structure was very similar to the structure-conduct-performance model developed by [Edward S.] Mason and his followers after 1939" (Brown 2004, p. 87). Brown (2004, 2007), however, makes no mention of Jenks's participation in *USS*.

[13] I find no record of an expert report by Walker or Jenks or of their being deposed prior to giving their expert testimony in *USS*.

[14] Adam Smith's economic principle of specialization and division of labor now applies in antitrust enforcement. The conventional division of labor for economic experts is class certification in class-action cases, liability (the anticompetitive or procompetitive character of the issue at hand), and damages, with each side offering estimates of economic harm and to whom.

of Walker and Jenks did not take place in front of a district judge. Rather, both economists testified before a court-appointed master[15] (or special examiner).

3.1. Walker's Testimony

For those familiar with the testimony of economic experts today, a major surprise in the Walker testimony is the objection by opposing counsel to Walker's economic analysis as "argument"—and Walker's peculiar response to this objection. Walker's economic analysis involves drawing conclusions (or expert opinion) from price data and would not be considered "argument" today. Indeed, the core of his analysis is that the level of competition could be determined from the study of price behavior. Counsel for United States Steel claimed that for Walker to draw conclusions from price data was inadmissible. Consider this testimony by Walker, describing an exhibit about steel prices: "Before considering the form of this price line, it should be noted that where prices are competitive in the iron and steel market, the line or curve showing such prices generally has a rapidly fluctuating character, or at least changes, usually, from month to month; but if artificial conditions prevail in the fixing of the prices, the price does not tend to fluctuate from month to month, but remains at the same level for several months at a time, and often for longer periods" (Transcript of Rec., p. 2623, *USS*). By today's standards, this testimony is not surprising: prices purportedly fluctuate more under competitive conditions than under what Walker calls "artificial conditions." However, United States Steel's counsel (Richard V. Lindabury) objected to this testimony as "argument" and threatened the suspension of Walker's testimony subject to the ruling of the judge (rather than the master). The DOJ's counsel (Jacob M. Dickinson) called his bluff (Transcript of Rec., p. 2625):[16]

Lindabury. I think we shall have to suspend this examination and go to Philadelphia to see whether the Court wants this kind of testimony.

Dickinson. All right; we will go there.

Lindabury. This gentleman is hired to come here and make an argument.

Note Walker's interjection to this dispute between opposing lawyers (Transcript of Rec., p. 2625):

Walker. I beg your pardon; I am not hired to come here and make an argument—

Lindabury. I suppose you are doing it for love.

Walker. I am doing it at the direction of my superior officers, and quite unwillingly.

[15] The use of a master was not unique to *USS*. A master was appointed in three prominent antitrust cases decided earlier by the Court: *Standard Oil Co. of New Jersey v. United States*, *United States v. American Tobacco Co.*, and *United States v. United Shoe Machinery Co.* (247 U.S. 32 [1918]). Apparently, it did not go well. One source concludes, The use of a master "left much to be desired; it insulated the court responsible for the trial of the case from the witnesses and the evidence and resulted in the presentation to the court of an undigested mass of testimony and exhibits" (US Senate 1975, p. 1336). Anyone who reads the testimonies of Walker and Jenks will be struck by the master's passivity.

[16] For clarity, in some cases the transcript has been modified by inserting the name of each person asking or answering a question.

Lindabury. At whose direction?
Walker. At the direction of the Secretary of the Department of Commerce and Labor. I have other things to do.

In short, counsel for United States Steel implied that Walker's testimony should be disregarded because the witness for the DOJ was a hired gun. This is an early form of a criticism that aims to undermine economic testimony by suggesting that the economist is merely paid to make some argument for one side, a tactic that began with Walker and remains in play today. What makes Walker's response peculiar is his claim that his testimony is not tainted; he was not hired to make an argument but was merely doing his job. Meanwhile, most contemporary expert economists are even asked how much they are being paid to testify.

3.2. Walker's Use of the But-for World

After this brouhaha over whether he could continue, Walker set forth an analytical paradigm often used in contemporary antitrust cases: the but-for world (a form of counterfactual reasoning). While he never used the term, the but-for paradigm lies behind much of Walker's analysis and was pathbreaking as an economic paradigm in antitrust. Walker maintained that one could look at prices of steel products sold under what he contended were competitive conditions (the but-for world) and compare them with prices that he claimed were set under monopoly or cartel conditions (what Walker called "artificial conditions"). The first set of prices were those that would be charged but for the market power purportedly held by United States Steel. If prices do not behave as they would in the but-for world, Walker concluded those prices reflected the market power of United States Steel. The comment that follows illustrates much of Walker's testimony (Transcript of Rec., pp. 2628–29):

> Taking next the period subsequent to the organization of the Steel Corporation we find that prior to its organization the price of rails had been for several months continuously at $26 per ton, and that almost immediately after its formation the price was raised to $28 per ton. From that date, namely, May, 1901, until the end of the period shown in the diagram, namely to December, 1911, the price of rails remained absolutely unchanged at $28 per ton, although there were very marked changes in the conditions of supply and demand for rails, and marked changes in the prices of other iron and steel products, and particularly products quite similar to rails. The absolute lack of any relation between the prices of rails and the influences of supply and demand during this long period is a positive indication of the existence of artificial conditions of price control.[17]

The attorney for United States Steel objected to Walker being permitted to offer an expert opinion or argument as to whether his data showed the "conditions"

[17] Elbert Gary, the head of United States Steel, admitted that prices were often fixed. In response to the Panic of 1907, Gary said that "prices should *always* be reasonable. . . . The mere fact that the demand is greater than the supply does not justify an increase in price, nor does the fact that the demand is less than the supply justify lowering prices. What we want is stability—the avoidance of violent fluctuations" (Tarbell 1925, p. 206).

of competition or monopoly in a market: "I object to the opinion of the witness as to what the absence of conditions or the presence of conditions shows, and his statement with regard to price control, and his assumptions from the matters he has stated, because in that respect his answer is merely an opinion or argument of no evidential value and does not come within any rules of law that ever existed anywhere in the civilized world" (Transcript of Rec., p. 2629). This kind of objection, common to Walker's testimony, would not carry weight today. Expert economists cannot testify as to the law; they do offer opinions (or make arguments) as to economics.

Permitted to testify, Walker presented the two strands of his economic analysis. First, he compared steel prices before the organization of United States Steel with steel prices after the company was formed (an intertemporal form of but-for analysis). Second, he compared prices of some steel products for which United States Steel did not have a dominant share of supply with other products for which the company had a dominant share of supply (a cross-sectional form of but-for analysis). By way of illustration (Transcript of Rec., pp. 2629–30):

> The existence of an artificial control of the price of rails during the period since the organization of the Steel Corporation, when it has remained as stated at a uniform level, is plainly indicated by comparing it with the price movement of billets, which during that period fluctuated very widely. For example, the price of billets in June, 1902, was over $32 a ton and, again, in May, 1907, it was more than $30 a ton. In between those two dates, namely, in October, 1904, the price of billets fell to less than $20 a ton, and, again, in December, 1911, the price of billets was less than $20 a ton. In other words, there was a change in the price of billets of $12 a ton during the period in which there was no change at all in the price of rails. These two products, as I have stated, are those which may be most fairly compared among the products which are quoted in the market.

Even though Walker's training was in economics, his testimony often favored the expression "artificial control of the price" or "artificial conditions." Economic experts today would not use the adjective "artificial" in their testimony. However, they routinely compare prices considered to be competitive with those they consider noncompetitive.

On the basis of his understanding of economic theory, Walker claimed that when "market conditions are really competitive," prices fluctuate as demand and supply conditions change (Transcript of Rec., p. 2634). In the case of certain steel products whose supply was largely controlled by United States Steel, Walker did not find this to be the case. The price of steel beams, for example, did not change for months when the prices of other steel products were falling. The pricing phenomenon that Walker described later came to be called "administered prices" by some economists. Figure 1 is an example of one of the many tables Walker prepared during his investigation of steel prices. Walker references this table in the following (Transcript of Rec., p. 2634–37):

> Where the market conditions are really competitive, the prices of iron and steel products, of the kinds here under consideration, naturally tend to fluctuate from month to month

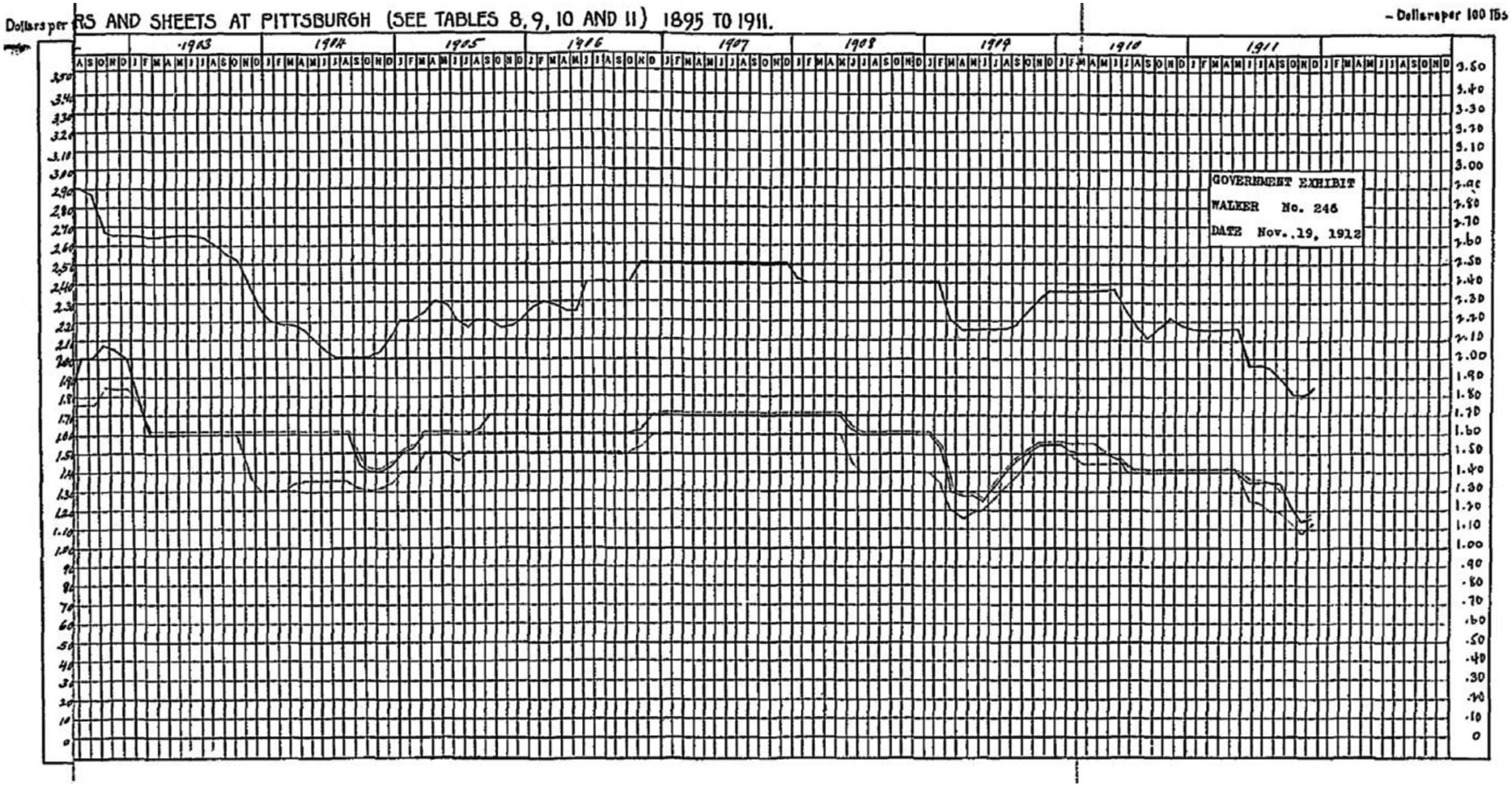

Figure 1. Average monthly prices of steel beams, plates, bars, and sheets at Pittsburgh, 1895–1911 (*United States v. United States Steel Corp.* (251 U.S. 417 [1920], government exhibit no. 246, diagram IV).

and from time to time, and do not tend to run at uniform prices for a long period of months together.

The price of beams remained at that point without change during the rest of that year, and for the five succeeding months in the next year. This gives a period of about nine months during which there was no change in the price of beams. While the price of beams was still held up at this high point, at the end of the period just indicated the prices of certain other products of a similar character, which were influenced by competitive conditions, were falling very rapidly. Thus plates declined from a high point of about \$2.85 in September, 1899, to a point of about \$1.70 in May, 1900. That is to say, while beams were constant at about \$2.25 per hundredweight, plates fell from about \$2.85 per hundredweight to about \$1.70 per hundredweight. Plates are a very similar product, so far as price goes, and where the two products are sold under competitive conditions the price level is generally about the same, and even where they are sold under conditions of artificial control, the prices which are made are seldom far apart, if that control is complete.

In contemporary expert testimony that makes use of intertemporal price data, the economist will be asked to justify the date at which some economic inflection purportedly took place. This familiar line of questioning as to when a competitive market turns tail (what Walker refers to later as "[a] distinct break") goes back to *USS* and began with Walker (Transcript of Rec., p. 2675–76):

Dickinson. That period of low prices in the United States in 1911 began at what time?

Walker. A distinct break occurred in May, 1911, and the prices declined to a considerably lower point by November of the same year.

Dickinson. What sort of a market was that in the United States?

. . .

Walker. It was a competitive market.

For counsel to question expert economists about the reliability and accuracy of their data is standard fare in antitrust litigation. This tactic also goes back to *USS* with the examination of Walker. On direct examination, Walker was asked about the source of his statistical analysis of prices and output for steel products. He testified at length about the comprehensive nature of his data gathering, availing himself of "all available sources" (Transcript of Rec., p. 2667):

Dickinson. State from what sources you prepared these tables.

Walker. I examined all available sources of information regarding market prices or prices current in the two countries, England and Germany, and selected the products for which I could make comparisons with similar products in the United States by getting the prices. For England the sources used were the quotations published in the Iron and Coal Trades Review.

To underscore Walker's familiarity with his data and thereby enhance his credibility as a witness, the DOJ attorney asked him about his travels, even so far as to identify the government officials who helped Walker understand the industry and the data he used (Testimony of Rec., p. 2668–69):

Dickinson. Have you not been in Germany?

Walker. I have been to Germany frequently and have met a great many of the leading men in the iron and steel trade in Germany and the people who are connected with the publication of the news. . . .

Dickinson. State who the official was.

Walker. Herr Geheimrat von der Leyen.

Dickinson. State who he was.

. . .

Walker. He is one of the highest officials in the railway administration of Prussia and of the Imperial Railways, too.

In some cases the information as to prices of the products selected was not obtainable from the journal Stahl and Eisen, and in such cases I took the prices from other authoritative sources. One other source was a trade journal entitled "Glückauf."

Dickinson. State what that was.

Walker. It is an authoritative journal for the coal and iron industry and publishes regular prices current for the said industry.

Counsel for United States Steel recognized the centrality of Walker's price data to his analysis and endeavored to undermine its veracity. In a tactic also common today, the attorney for United States Steel tried to pin Walker down as to whether his price data reflected transaction prices (Transcript of Rec., p. 2687):

Lindabury. Did you compare these Iron Age quotations with the prices that you got from these manufacturers?

Walker. To a certain extent; yes, sir.

Lindabury. Did you compare them to an extent sufficient to find that the prices gotten by the manufacturers were not the Iron Age quotations?

Walker. We did not believe they would be exactly the same, because they included different grades of goods, and not a uniform base quality, so that the prices would not be the same.

Lindabury. But you took only base prices from the Iron Age and put them into your table. Why did you not take the base prices only, obtained by these manufacturers? That was not difficult, was it?

Walker. I think it would have been difficult to get the information exactly in that form.

In an important question-and-answer session with United States Steel counsel, Walker claimed that fluctuating prices generally meant that competition prevailed—but not necessarily. He conceded that "under absolutely monopolistic control," a seller may change prices over time. The problem of distinguishing how much fluctuation is enough (to infer competitive pricing) and how much is too little (to infer administered pricing) began with Walker as an economic expert (Transcript of Rec., pp. 2717–19):

Lindabury. Then, as I understand, taking the fluctuations by themselves, without regard to the course of other products, they do not indicate competitive conditions, or anything else. Is that right?

Walker. No; that is not so. Even if a person knew nothing about the iron and steel trade whatever, or any other product, he could still tell from these charts that certain prices were clearly competitive, and others were prices maintained by artificial control.

. . .

Lindabury. Do the fluctuations that are shown on your charts, one or all of them, at different times, generally indicate competitive conditions, or do they not, in and of themselves?

Walker. In most cases the fluctuating prices indicate competitive conditions; but fluctuations of prices may occur from other causes; that is to say, even where the price of a commodity is under absolutely monopolistic control, its prices may fluctuate from powerful causes, such as strikes, or extraordinary changes in demand or supply, which compel the monopolistic seller of the product to lower his price somewhat, or give him an opportunity to get more than he has already been content with. Of course, when it comes to a strike or other violent disturbance of the market, the prices will fluctuate. In general, however, apart from very marked changes in supply and demand, possibly sometimes in increasing power on the part of the combination which controls these prices, apart from those things, the fluctuation in prices will, generally speaking, be indicative of competitive price-making; and the horizontal prices for the products which are here depicted are invariably indicative of artificially controlled prices.

For years, attorneys have sought to undermine the credibility of economic experts because they have never met a payroll. The implication is that if economists have not run a business in a particular market, they lack the real-world experience to opine about competitive conditions in that market. This line of questioning has its taproot in *USS* and began with Walker's cross-examination as an attempt to denigrate the economist. Note the mind-numbing repetition (Transcript of Rec., pp. 2678, 2680, 2683):

Lindabury. You had neither bought nor sold steel products?
Walker. No, sir.
Lindabury. You had not manufactured steel products?
Walker. No, sir.
Lindabury. Had you ever been in an iron ore mine?
Walker. No, sir.
Lindabury. Had you ever been in any steel works?
Walker. No, sir.
. . .
Lindabury. Were you interested in ores at that time?
Walker. Not financially, no.
Lindabury. You did not own any ore properties?
Walker. No, sir.
Lindabury. You were not engaged in mining ore?
Walker. No, sir.
Lindabury. Or in transporting ore?
Walker. No, sir.
Lindabury. Or in converting ore?
Walker. No, sir.
Lindabury. Or in selling ore?
Walker. No, sir.
. . .
Lindabury. Could you tell by the operation of the plants, as you witnessed them, whether they were under competitive or non-competitive conditions?

Walker. Not by watching the machinery.
Lindabury. Or the operations of the men?
Walker. Not by watching the laborers work; but perhaps, I do not know but what I may have gotten information from the people who were managing the works.

Given his academic pedigree, Walker's inability to cast his testimony in economic parlance is surprising. Nonetheless, he did put forth a testable hypothesis: that the prices of steel products could be compared before and after the formation of United States Steel and that on the basis of the behavior of these prices an economist could conclude whether there was (in Walker's words) "competitive price-making" or whether prices were "artificially controlled." However, in defending his testimony, Walker avoided using the word "theory" and claimed that his conclusions were based on something different. When challenged by the attorney for United States Steel as to whether his analysis was grounded in economic theory, Walker's response was more like that of a fact witness than an expert witness (Testimony of Rec., p. 2719):

Lindabury. Your whole testimony is based upon that theory, is it not?
Walker. It is not based on theory, but upon my knowledge of the business.

While his analysis may have been simplistic, what is striking today is how Walker's testimony featured many of the same elements found in contemporary antitrust litigation: comparing price (or output) in a but-for world with actual market conditions, explaining the reliability of the data used, and showing familiarity (if not employment) in the market at issue.

3.3. Jenks's Testimony

The trial testimony of Jeremiah Jenks began in a way that has become conventional in antitrust cases: softball questions of who the witness is, educational background, and prior work as an economist. Walker never faced this set of softball questions because, at the outset, the very basis of his testimony was challenged by the attorney for United States Steel (David A. Reed). Later in Jenks's testimony, the DOJ attorney (Dickinson) pulled no punches in challenging the credentials of United States Steel's expert economist. However, this is how it began (Testimony of Rec., p. 11757, *USS*):

Reed. Professor Jenks, where do you live?
Jenks. 36 Gramercy Park.
Reed. What is your occupation?
Jenks. I am Professor of Government in New York University.
Reed. How long have you been connected with the New York University in that way?
Jenks. Since the 1st of July 1912.
Reed. Prior to that, what was your occupation?
Jenks. I was professor of economics and politics of Cornell University for 21 years.

Jenks, like Walker, was then asked questions as to what qualified him to offer opinions about competition and monopoly in the steel industry. Jenks responded that he had studied several industries (such as salt and whiskey) and, of special relevance to the *USS* litigation, he had studied the steel industry. This line of questioning has become standard fare in economic testimony today (Testimony of Rec., pp. 11759–60):

Jenks. As a matter of private study in 1886 and for two or three years following I had made a special study of the Michigan Salt Association and of what at that time was the whisky trust.

. . . In 1898 I was asked by the United States Industrial Commission to take special charge of their investigation into industrial combination and trusts, and I had the general charge of that investigation until the close of the commission's work; that is, from 1898 until 1901, when I stopped.

. . .

Reed. Did you investigate any steel companies at all?

Jenks. A number of steel companies were investigated at that time; the American Tin Plate Company, the National Steel Company, the American Steel Hoop Company, the Federal Steel Company and the American Steel & Wire Company; also Jones & Laughlin, and the National Shear Company, I recall, and a number of the other smaller iron and steel companies. The United States Steel Corporation was organized shortly before the taking of testimony in connection with this investigation closed, and Mr. Schwab, I believe, was the one witness that appeared in connection with the United States Steel Corporation.

As the economic expert for the defendant, Jenks devoted much of his testimony to criticizing the statistical analysis on which Walker relied rather than offering his own empirical analysis. This asymmetry remains today in antitrust enforcement. The plaintiff's economic expert offers evidence; the defendant's expert critiques that evidence. The criticism may go to the integrity of the data or the use to which it is put or both, as between Walker and Jenks.

Jenks's chief criticism of Walker's analysis was that reported prices may not represent transaction prices. Consequently, any conclusion about the degree of price competition based on reported prices is suspect. In this regard, in the *USS* litigation, Jenks provided a foretaste of a spirited debate about administered prices in the steel industry that would surface again. The interpretation of data on steel prices is a controversy that later involved prominent economists such as George Stigler and Gardiner Means of Berle-Means fame, who coined the term "administered prices."[18] Walker and Jenks anticipated this debate and were the first to wage it in a judicial forum.

In the testimony that follows, Jenks found fault with the price data relied on by

[18] Reinforcing the same caveat Jenks made in his testimony, Stigler (1963, p. 267) concluded that the most "important flaw in the doctrine of rigid prices is that it is concerned only with the behavior of *quoted* prices. Economists have always suspected that the nominally rigid quoted prices did not represent at all accurately the actual behavior of the prices at which important transactions take place." This work by Stigler is part of a compendium by the Subcommittee on Antitrust and Monopoly that contains papers by prominent economists including Means, Morris A. Adelman, William Fellner, John M. Clark, Alfred Kahn, and Abba P. Lerner. Several of these papers connect with the Walker-Jenks debate on the economic meaning of rigid price behavior. The primary industry involved in this particular debate is steel, with automobiles and pharmaceuticals tied for second place.

Walker because, Jenks contended, the data were not transaction prices. The implication is that only actual prices are appropriate. Book prices, reported prices, company price lists—they all might mask the true state of competition (Transcript of Rec., pp. 11765–66):

Reed. Professor Jenks, I now call your attention to Government Exhibit No. 249, Volume V, part 1, page 1656, which purports to show the simple average price of ten iron and steel commodities in the United States, and the average money price from January 1, 1895[,] to April 1, 1901, as contrasted with the average money price from April 1, 1901[,] to February, 1909, and I ask you whether, in your opinion, that is a scientifically fair method of testing or of contrasting prices before and after the organization of the United States Steel Corporation, which took place about April 1, 1901.

. . .

Jenks. There are a number of reasons why that seems to me incomplete and unscientific. In the first place, the quotations in the Iron Age, or in the reports of the American Iron & Steel Association, do not represent actual buying and selling prices, but simply the general trend of prices in these special commodities at that time, and more frequently, perhaps, the general asking price by some of the leading sellers. In the second place, the selection of a short period of years to represent an average price which shall be taken as a base is always dangerous, is likely to be misleading, and very often does misrepresent actual conditions.

There are two notable aspects of the testimony by Jenks. The first is the theoretical paradigm Jenks used to dismiss the DOJ's contention that United States Steel was a monopoly. Unlike Walker, who relied almost solely on price data, Jenks put forth a theory of competition that had seeds of the Chicago School that did not blossom until decades later in antitrust scholarship, enforcement, and litigation. The second is the scorching attack the DOJ attorney made on Jenks's credibility on the basis of his writings. I shall take these up in turn.

3.4. Jenks: Precursor of the Chicago School

Because the DOJ had accused United States Steel of charging low prices as well as high prices (recall McKenna's reference to the contradictions in the government's case), Jenks was asked to explain the economic circumstances when a firm might successfully engage in predatory tactics against its rivals. Counsel for United States Steel initially asked Jenks to draw a comparison between the steel industry and local retail businesses. In what must have seemed extraordinary testimony at the time, Jenks claimed that successful predatory pricing was more likely to happen in retailing than in capital-intensive industries like steel (Transcript of Rec., pp. 11771–73):

Reed. Is there any reason why conditions should be different in the steel business than in a cigar store or a grocery store or a milk route?

Jenks. Yes.

Reed. Why should there be any difference?

Jenks. A method that has been at times followed, or that might readily be followed—both are true—to put a competitor out of business is to go into a local territory where he is doing business and sell his product within his special local market at a rate so low that in order to meet that low rate he must sacrifice his profits and probably sell at a loss until he is driven out of business. In the case of a milk route, for example, that you have cited, that business is confined to a small locality, and that would be a practicable plan there. That would also be true in the case of a local tobacco dealer, for example, that you spoke of. The larger establishment could sell at a low rate in his special locality, and with his small market he could be driven out, while they could keep up their profit by sale elsewhere.

In the steel business, on the other hand, the well-equipped steel producers in this country have markets that are practically general throughout the country for their various products. In consequence, any attempt to cut the price of that special product against a manufacturer would mean that the cut would have to be general the country over, so that the large establishment that attempted to force the smaller establishment out of business would itself be meeting losses on a much larger scale, on a scale proportionate to the extent of its sales, and under those circumstances it could not put the smaller producer out of business.[19]

Jenks. (Continuing) . . . [W]henever there comes a lowering of prices in any one product or in any line of products the country over, the large establishment is attacking not merely one, but he is attacking all of the different competitors, and any large producer that attempts to put a small steel producer out must try to put them all out.

Reed. He cannot fight one without fighting all?

Jenks. He cannot fight one without fighting practically all of them, because, as I said before, practically all of the steel producers that have well-equipped establishments have markets the country over.

Reed. And for those reasons the fight could not be confined to a particular individual or a particular locality?

Jenks. It could not be confined to a particular individual or a particular locality. He must fight all producers and all products, substantially.

In the preceding inquiry, Jenks staked out his position that predatory pricing against diversified firms that operate across the country is unlikely to succeed, the reason being that the target firms could change their product mix as a strategic response so that the putative predator would shoulder larger losses. In short, according to Jenks, if a firm like United States Steel engages in predation, it will shoot itself in the foot. Asked whether United States Steel had the power to engage in predatory tactics, Jenks explained why he thought not (Testimony of Rec., pp. 11773–74):

Reed. In your opinion, has the United States Steel Corporation power to put out of business its competitors or any important one of them?

. . .

Jenks. . . . The only way in which the Steel Corporation could drive out of business its competitors or any important one of them would be by selling at a lower price and at a price so low that it would amount to a loss to its victim not only on one grade of steel, but a variety of grades of steel, not only in one locality, but in practically all localities in the

[19] Lawrence White, who read an earlier draft of this paper, wondered if Jenks was implying in this portion of his testimony that steel manufacturers had most-favored-nation agreements, or at least understandings, with their customers.

country; and in so doing it must meet the competition of not merely one of its competitors, but of practically all of its competitors, and in so doing it would itself lose, in making the attempt, in proportion to the extent of its sales as compared with the sales of practically all of them, and that, in my judgment, would be ruinous to the Steel Corporation.

Jenks's answer is a precursor to the analysis of predation put forth with more rigor by McGee (1958) and later by other economists in the *Journal of Law and Economics* (Telser 1966; Elzinga 1970), the primary outlet for the Chicago School on matters of antitrust. This economic perspective on predatory pricing later became embedded in the Court's decisions in *Matsushita Electronic Co. v. Zenith Radio Corp.* (475 U.S. 574 [1986]) and *Brooke Group Ltd. v. Brown and Williamson Tobacco Corp.* (509 U.S. 209 [1993]).

Jenks was asked to generalize as to whether a dominant firm, for example one with a 75 percent share of market, would have any advantage over smaller competitors. His response was in the Chicago School grain: probably not.[20] Here is how Jenks put it (Testimony of Rec., pp. 11844–45, 11847):

Dickinson. If a large combination controls from 75 per cent. upward of the output, with its manufacturing plants favorably located in different sections of the country, will new capital be likely to be invested in such business unless the profits of the combination are put very high?

Jenks. That would depend upon two considerations; one is what you mean by "very high," and another would be as to the men who had capital to invest in that line of industry, their experience, their facilities, their opportunities. Business men are, as a rule, when times are good, ready to invest capital if they think they can get good returns on the capital invested, and the circumstances again, in this question as in the other, are not complete enough so that the answer can be made more definite than that.

Jenks. . . . I have known, in testimony in different cases, of relatively speaking small competitors who were perfectly willing to invest their capital and enter the field against larger competitors, with no fear, apparently.

In the testimony that follows, Jenks claimed that a dominant firm could not sustain prices "above what might be a normal competitive price" (Testimony of Rec., p. 11849). If that were to happen, the resulting profits would act like a magnet attracting new entrants that would cause that firm "to lose his market." Without using the economic term du jour, Jenks put forward the economic proposition that if a market is contestable, even a firm with a 100 percent share of its market is vulnerable in the long run to new entry (Testimony of Rec., p. 11850):

Jenks. I may go still further and say no producer or no group of producers could, even if they had 100 per cent. of the market and were producing 100 per cent. of the market, keep their prices abnormally high and make abnormal profits for any great length of time. They might for a little while, and of that we have plenty of experience.

Dickinson. They could do it until the other concerns could equip themselves for doing it?

Jenks. They could for a while. Any producer can put a price where he pleases and take the consequence, and the consequence is that he immediately begins to lose his market.

[20] An example would be the small firms, purportedly driven from the market by du Pont de Nemours & Co., that reentered the market and sold out to du Pont (Elzinga 1970).

Any conclusion drawn by an economist is subject to the criticism that other economists disagree. This is obvious in a courtroom where there are economic experts on each side whose opinions are in conflict. The credibility of an economic expert often has been called into question because economics is not an exact science. Casting doubt on the ability of economic analysis to draw trustworthy conclusions got its start in *USS*. Note the questioning of Jenks by the DOJ attorney (Testimony of Rec., p. 11843):

Dickinson. Economics and finance is not an exact science, is it?

Jenks. Economics and finance is pretty nearly if not quite an exact science as regards principles and tendencies. The premises upon which one bases one's conclusions are often very complex; there are large numbers of them, so that it is difficult at times to cover the entire field of one's investigations in such a way as to be certain of the complete final conclusion.

Dickinson. There are different schools and conflicting views even among gentlemen of your calling, are there not?

Jenks. No one could question that.

Walker was not alone in being questioned about not having practical experience or employment in the steel industry. Jenks faced these questions as well. He gave them short shrift (Testimony of Rec., p. 11851–52)

Dickinson. How long does it take to build a rolling mill? Do you know?

Jenks. I do not know.

Dickinson. How long would it take to duplicate the plants of the Carnegie Company? Have you any idea?

Jenks. You mean the actual plants?

Dickinson. I mean what I say.

Jenks. The plants? I have no definite idea as to that. It would be a period of certainly several months, possibly a year or two at least.

Dickinson. You think it might be done in a year or two?

Jenks. I should think it would take as long as what I have said, several months or a year.

Dickinson. Or a year?

Jenks. Maybe longer. I make no pretense to being a steel expert.

The lack of embarrassment that both Walker and Jenks displayed to this line of questioning set the table for economists for years to come. The same demeanor was present many years later, when another Cornell University professor of economics handled an attack on his credibility with wit and aplomb. On becoming chairman of the Civil Aeronautics Board, Alfred Kahn was being lectured by the head of a major airline as to important differences in various airplanes. Kahn waved off the endeavor, remarking that, to an economist, all the different airplanes were simply "marginal costs with wings" (McCraw 2009, p. 224).

3.5. The Problem of Jenks: "The Trust Problem" and His Massachusetts Report

Jenks was the author of *The Trust Problem,* published in 1900, 14 years before he took the stand on behalf of United States Steel. This was one of his credentials establishing him as an economic expert. On the basis of his cross-examination by the DOJ attorney, one wonders if the attorneys for United States Steel had read this book and whether they would have put Jenks on the stand if they had.

On cross-examination, Jenks was confronted with language in the book that was at odds with his testimony on behalf of United States Steel. Even more damaging than his book was a report Jenks authored for the Massachusetts Commission on the Cost of Living (2010).[21] Some examples of the contradiction between what Jenks had written and his testimony in *USS* follow (Testimony of Rec., pp. 11853, 11854–55):

Dickinson. Did you publish a book called “The Trust Problem”?

Jenks. Yes, sir.

. . .

Dickinson. I will read from page 65 of that book, as follows:

“A large combination, controlling from 75 per cent. upward of the output, with its manufacturing plants favorably located in different sections of the country, would certainly have a decided advantage in freight rates, especially if its products were bulky, over any competitor who would set up in business, unless that competitor were to enter the contest with substantially equal capital.”

Do you recall writing that?

. . .

Jenks. Yes; I think I wrote that.

Dickinson. On the same page I will read as follows:

“If such a rival entered the field there would be in operation manufacturing plants which, on the whole, could readily supply one-half more product than the country needed. It may readily be granted that if capital were on hand to be invested in such large amounts, the new organization could force the old combination to sell at former competitive rates or lower. Those however who take the position that potential competition will prevent prices from going at all above former competitive rates, overlook the fact that new capital is not at all likely to be invested under such circumstances, unless the profits of the combination are put very high indeed.”

Did you write that?

. . .

Jenks. I think I wrote that.

Dickinson. (Continuing reading) . . . “This power of destructive competition alone, which may depend solely upon its large capital shrewdly invested, is sufficient to enable it to crush out any small rival. On the other hand, if a rival powerful enough to meet its cuts in substantially all markets were to enter the contest, it would be with the absolute certainty that, instead of securing high prices and the consequent high profits of the existing combination, the result must inevitably be a competition so fierce that prices would be forced below usual competitive rates, and profits would entirely disappear. . . .”

Did you write that?

Jenks. I wrote that.

Jenks had criticized Walker for using nominal steel prices that were reported in trade journals like *Iron Age*. Cross-examination revealed that Jenks also used nominal prices drawn from similar sources in his prior analysis of the steel in-

[21] The lengthy report includes a chapter on the influence of industrial combinations on prices. The transcript reveals that Jenks was the author of this chapter. However, nowhere in the report is Jenks given credit for authoring the chapter on trusts.

dustry. The conflict between Jenks's testimony in *USS* and his earlier writings was evident and fully displayed in the record. However, there is no evidence from the transcript that Jenks was embarrassed or apologetic about the conflict. Jenks was content to testify, "I wrote that."

Having established that in his earlier writings Jenks also had used data on reported prices (similar to Walker), the attorney for the DOJ then established that Jenks also had performed a "comparative study" (similar to Walker's) of steel products made by "independent competitors" with those made under the "apparent influence of the trusts" (Transcript of Rec., p. 11884). Jenks admitted that this paradigm was one he too had used. Pursuing this line of questioning, as would any skilled antitrust attorney today, the DOJ's counsel did not let up, because the use of Jenks's own words proved irresistible (Transcript of Rec., p. 11898):

> *Dickinson*. Turn to page 420 [of the report by Jenks], the following: (Reading)
>
> "The diagram, line F, shows clearly all these movements. The effect of the United States Steel Corporation on prices is noted particularly in the long level lines, showing that the same price was maintained absolutely, usually for a period of months, if not years; that was when the change came, it was a sudden prompt change to a level distinctly higher or lower, where the intention was to maintain the price. . . ."
>
> You wrote that, did you?
>
> *Jenks*. I wrote that.

In antitrust law, there is nothing comparable to a statute of limitations on the past publications of economic experts. That is why antitrust attorneys usually comb the prior writings of economic experts to learn if positions they take in the matter at hand conflict with prior positions, either in other antitrust cases or in their academic writings. Perhaps it was the testimonial experience of Jenks that got this practice started. It still bears fruit.

John Maynard Keynes, when confronted with evidence of a position he once took that differed from his current view, parried by responding: "When the facts change, I change my mind. What do you do, sir?"[22] In the case of Jenks, when confronted with prior writings that seemed to contradict his testimony in the *USS* litigation, he simply acknowledged that he had written what was quoted, without making any attempt to explain the conflict between the two. Perhaps the fact that Walker and Jenks were the first economic experts allowed Jenks to escape the courtroom relatively unscathed.

Neither Walker nor Jenks was directly subject to the standard cross-examination trope of how much they were being compensated for their testimony. In the case of Walker, this could be because of his status as a government employee testifying on behalf of the DOJ. While he did briefly confront the charge that he was hired, Walker was never asked about compensation. In the case of Jenks, he was never

[22] There is no primary source attributing this quotation to Keynes, and some speculate that it is apocryphal. When Paul Samuelson (1970 winner of the Nobel Prize in Economics) was asked on *Meet the Press* about changing views across different editions of his textbook, he answered, "Well when events change, I change my mind. What do you do?" Samuelson made a similar remark later in his career but attributed it to Keynes. See O'Toole (2011).

asked how much he was being paid for his consulting services. The implication behind the question, of course, is that the economist expert is a hired gun. According to Friedland (1993, p. 782), when George Stigler was asked by opposing counsel whether he was being paid for his testimony, he responded, "I hope so."

3.6. *The Influence of Walker and Jenks on the Courts*

The testimony of Walker and Jenks had no discernible effect on the outcome of *USS*. The district court's opinion acknowledged that two economists had offered testimony in the case. When discussing the price of steel, reference was made to the economists on each side: "Two learned experts have been called, one by the government, and one by the Steel Corporation, who draw different conclusions as to whether there was an increase or decrease in the price of iron and steel products. The deductions of both are supported by weighty contentions and numerous enlightening charts" (223 F. 55, 80 [1915]).[23] One interpretation of how the district court viewed the testimony of Walker and Jenks was that their lack of impact can be attributed to the novelty of their role: neither testimony held any weight in the courtroom, perhaps because the appearance of experts at the time was unconventional or because economists did not yet have the narrative skills to provide compelling testimony. Another interpretation is that the two competing economists fought to a draw; the testimony of one negated the other. Jenks may have neutralized Walker's analysis but may have also neutralized his own testimony through prior writings. Regardless, at the trial court level, the net influence of expert testimony was zero.

In the Supreme Court's opinion, no reference is made to Walker or Jenks by name in either the majority opinion by McKenna or the dissent by Justice William R. Day. McKenna flippantly refers to "an author and teacher of economics whose philosophical deductions had, perhaps, fortification from experience as Deputy Commissioner of Corporations and as an employee in the Bureau of Corporations" (251 U.S. 448), an obvious reference to Walker. However, in ruling for United States Steel, McKenna never cites Jenks's testimony in support.[24] Perhaps this is because Jenks's prior writings would have been fodder for the dissent.

4. Conclusion

At the time of their expert economic testimony in *USS,* neither Walker nor Jenks would have been called an antitrust economist. The taxonomy of "antitrust economist" or "competition economist" or "industrial organization economist"

[23] With 12,151 pages of testimony and close to 4,000 pages of government and United States Steel exhibits, the circuit court was certainly not scraping the barrel for evidence and information (Tarbell 1925, p. 238).

[24] Tarbell (1925, p. 319) attributes US Steel's victory to the company's legal strategy to portray the firm as a "good trust." Lindabury, the chief attorney for United States Steel, believed "it was the conduct of the Corporation which saved it" and Gary's "conviction that sound ethics are the basis of all sound business" (Tarbell 1925, p. 320). Mark Twain famously described Gary and United States Steel together as "the good corporation" (Tarbell 1925, p. 320).

did not exist.[25] Economics, as a profession, was a small tribe at the time and did not have the specialization and division of labor it has today.[26] In addition, both Walker and Jenks made their reputations outside the world of antitrust. Nonetheless, they were practitioners of the dismal science who merited the title economic expert in *USS*.

The first two economists to present expert testimony in a Sherman Act case were well credentialed to do so. Walker and Jenks both had doctoral degrees in economics; they both had published research relevant to their testimony. Nonetheless, the marginal productivity of the two economic experts to the case was minimal. The Court's opinion does not accord any importance to their testimony. However, Walker and Jenks walked the same path as hundreds of antitrust economists who have offered expert testimony, and modern antitrust enforcement relies on their work.

References

American Economic Review. 1921. Report of the Secretary of the American Economic Association for the Year Ending December 20, 1920. *American Economic Review* 11:183–85.

Areeda, Phillip E. 1984. Are Economists Taking Over? Pp. 23–42 in *Antitrust Policy in Transition: The Convergence of Law and Economics,* edited by Eleanor M. Fox and James T. Halverson. Chicago: Section of Antitrust Law of the American Bar Association.

Barnett, Thomas O. 2001. Competition Law and Policy Modernization: Lessons from the U.S. Common-Law Experience. Paper presented at the Lisbon Conference on Competition Law and Economics. Lisbon, November 16.

Brown, John Howard. 2004. Jeremiah Jenks: A Pioneer of Industrial Organization? *Journal of the History of Economic Thought* 26:69–89.

———. 2007. Jeremiah Whipple Jenks. Pp 179–82 in *Pioneers of Industrial Organization: How the Economics of Competition and Monopoly Took Shape,* edited by Henry W. de Jong and William G. Shepherd. Northampton, MA: Edward Elgar.

Brozen, Yale. 1984. Are Economists Taking Over? Pp. 23–42 in *Antitrust Policy in Transition: The Convergence of Law and Economics,* edited by Eleanor M. Fox and James T. Halverson. Chicago: Section of Antitrust Law of the American Bar Association.

Comanor, William S., and F. M. Scherer. 1995. Rewriting History: The Early Sherman Act Monopolization Cases. *International Journal of the Economics of Business* 2:263–90.

DOJ (Department of Justice). 2018. History of the Antitrust Division. Justice.gov, December 13. https://www.justice.gov/atr/history-antitrust-division.

Elzinga, Kenneth G. 1970. Predatory Pricing: The Case of the Gunpowder Trust. *Journal of Law and Economics* 13:223–40.

[25] From Adam Smith on, economists have been interested in competition and monopoly. The trajectory of this interest to the specialized field of industrial organization is told in Brown (2007).

[26] The membership of the American Economic Association in 1920 was only 2,301 (*American Economic Review* 1921). In 2019, nearly 100 years later, the membership was almost 10 times larger at 21,134 (American Economic Association, AEA Membership and Subscriptions by Class [https://www.aeaweb.org/about-aea/table-members]).

Fox, Eleanor M., and James T. Halverson, eds. 1984. *Antitrust Policy in Transition: The Convergence of Law and Economics*. Chicago: Section of Antitrust Law of the American Bar Association.

Friedland, Claire. 1993. On Stigler and Stiglerisms. *Journal of Political Economy* 101:780–83.

Houthakker, Hendrik S. 1999. Expert Testimony by Economists: What Makes It Effective? Pp. 1–10 in *The Role of the Academic Economist in Litigation Support,* edited by Daniel J. Slottje. Amsterdam: North-Holland.

Kovacic, William E. 1992. The Influence of Economics on Antitrust. *Economic Inquiry* 30:294–306.

Kwoka, John E., Jr., and Lawrence J. White, eds. 2019. *The Antitrust Revolution*. New York: Oxford University Press.

MacKie-Mason, Jeffrey K., and Richard Pfau. 1999. Inducements to Advocacy: The Economist as Independent Expert. Pp. 207–28 in *The Role of the Academic Economist in Litigation Support,* edited by Daniel J. Slottje. Amsterdam: North-Holland.

Massachusetts Commission on the Cost of Living. 1910. *Report of the Commission on the Cost of Living.* Boston: Wright & Potter. https://babel.hathitrust.org/cgi/pt?id=hvd.hnvcpk&view=1up&seq=5.

McCraw, Thomas K. 2009. *Prophets of Regulation*. Cambridge, MA: Belknap Press of Harvard University Press.

McGee, John S. 1958. Predatory Price Cutting: The Standard Oil (N.J.) Case. *Journal of Law and Economics* 1:137–69.

Millstein, Ira M. 1984. Are Economists Taking Over? Pp. 23–42 in *Antitrust Policy in Transition: The Convergence of Law and Economics,* edited by Eleanor M. Fox and James T. Halverson. Chicago: Section of Antitrust Law of the American Bar Association.

O'Toole, Garson. 2011. When the Facts Change, I Change My Mind. What Do You Do, Sir? Quote Investigator, July 22. https://quoteinvestigator.com/2011/07/22/keynes-change-mind/.

Rowe, Frederick M. 1984. Are Economists Taking Over? Pp. 23–42 in *Antitrust Policy in Transition: The Convergence of Law and Economics,* edited by Eleanor M. Fox and James T. Halverson. Chicago: Section of Antitrust Law of the American Bar Association.

Scherer, Frederic M. 1999. Economic Consulting, Fire Fighting, and Similar Adventures. Pp. 129–36 in *The Role of the Academic Economist in Litigation Support,* edited by Daniel J. Slottje. Amsterdam: North-Holland.

Slottje, Daniel J., ed. 1999. *The Role of the Academic Economist in Litigation Support*. Amsterdam: North-Holland.

Smith, Herbert Knox. 1911. *Report of the Commissioner of Corporations on the Steel Industry*. Washington, DC: Government Printing Office.

Stigler, George J. 1963. Administered Prices and Oligopolistic Inflation. Pp. 262–76 in *Administered Prices: A Compendium on Public Policy, Subcommittee on Antitrust and Monopoly*. US Senate Committee on the Judiciary. 88th Cong., 1st Sess.

———. 1983. *The Economist as Preacher*. Chicago: University of Chicago Press.

———. 1988. The Economist as Expert. Pp. 123–37 in *Memoirs of an Unregulated Economist*. New York: Basic Books.

Tarbell, Ida M. 1925. *The Life of Elbert H. Gary: The Story of Steel*. New York: D. Appleton.

Telser, L. G. 1966. Cutthroat Competition and the Long Purse. *Journal of Law and Economics* 9:259–77.

Thorelli, Hans B. 1954. *The Federal Antitrust Policy: Origination of an American Tradition*. Baltimore: Johns Hopkins Press.

US Senate. 1975. Committee on the Judiciary. *The Antitrust Improvements Act of 1975: Hearings on S. 1284 before the Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary* (statement of Thomas E. Kauper, appendix C). 94th Cong., 1st Sess., June 16.

Walker, Francis. 1906. The "Beef Trust" and the United States Government. *Economic Journal* 16:491–514.

White, Lawrence J. 2010. Economics, Economists, and Antitrust: A Tale of Growing Influence. Pp 226–48 in *Better Living through Economics,* edited by John J. Siegfried. Cambridge, MA: Harvard University Press.