Before the
UNITED STATES COPYRIGHT ROYALTY JUDGES
Washington, D.C.

In the Matter of MECHANICAL AND DIGITAL PHONORECORD DELIVERY RATE ADJUSTMENT PROCEEDING	Docket No. 2006-3 CRB DPRA

REBUTTAL TESTIMONY OF

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RIAA Trial Ex. 81

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I. INTRODUCTION

A. Executive Summary

I was retained by Jenner & Block LLP on behalf of the Recording Industry Association of America ("RIAA") in the proceeding to set a reasonable royalty rate for compulsory licenses to make and distribute phonorecords ("mechanical licenses") under Section 115 and Section 801(b) of the Copyright Act. In that regard, I have been asked to review, evaluate, and rebut, if appropriate, the analyses and opinions contained in the amended expert report of William M. Landes (the "Landes Report"), dated October 29, 2007, which was submitted by the music publishers. Specifically, I have been asked to comment on four key issues stemming from the analyses and opinions in the Landes Report: a) An economic analysis of risk and reward; b) A discussion of cents rate royalties as compared to percentage of revenue royalties; c) An analysis of "ringtone" licensing agreements; and d) An analysis of the supply of songwriters and songs under the mechanical rate. This report sets forth my opinions in this matter based on the information available and the analyses I have performed through the date of this report. This report, and my opinions contained herein, are subject to change or modification should additional relevant information become available which bears on my analyses.

Based on my education, training, and experience in evaluating economic and financial issues in legal proceedings and the information I have considered in this case, I have conducted my analyses under Section 115 and Section 801(b) of the Copyright Act. Specifically, I have accounted for the Section 801(b) objectives: a) To maximize the availability of creative works to the public; b) To afford the copyright owner a fair return for his or her creative work and the copyright user fair income under existing economic conditions; c) To reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk, and contribution to opening new markets for creative expressions and media for their communication; and d) To minimize any disruptive impact on the structure of the industries

involved and on generally prevailing industry practices.[1] I have also assessed the reasonableness of the analyses contained in the Landes Report as they relate to a reasonable mechanical royalty rate.

Based on my analyses to date, it is my opinion that Professor Landes' analysis does not support his conclusions that the mechanical royalty rates offered by the publishers and songwriters are reasonable under the principles set forth in Section 115 and Section 801(b) of the Copyright Act.

B. Expert Qualifications

I am a Professor of Economics at Southern Methodist University in Dallas, Texas and a Senior Managing Director of FTI Consulting, Inc. I have published over 120 articles and written or edited 15 books. I have taught courses on industrial organization, labor economics, law and economics, and econometrics, among others. I have lectured at universities in North America, Europe, Australia, and the Middle East. I am a reviewer for the National Science Foundation, a consultant to the United Nations Economic Development Programme, a reviewer for the Social Science Research Council of Canada, and I have served as a consultant to the Swiss Competition Commission. I have significant experience in evaluating economic issues in the context of royalty rate determinations in intellectual property disputes, and considerable experience in assessing labor market performance in employment disputes. My academic C.V. is attached as Appendix 1 to this report, and includes a list of all publications I authored within the preceding ten years. My professional resumes for both my intellectual property and labor economics practices are attached hereto as Appendix 2 and Appendix 3, respectively, and contain lists of all intellectual property and labor matters in which I testified as an expert at trial or by deposition within the last 4 years.

[1] 17 U.S.C. §801(b)(1).

C. Information Considered

In performing my analyses and forming my opinions and conclusions, I have considered data and information from various sources, all of which are reasonably relied upon by experts in my field. These sources include: discovery items produced by the parties to the case (e.g., license agreements); deposition and hearing testimony (e.g., regarding the music industry's business and financial practices); and documents or information obtained from independent sources (e.g., publicly available information regarding the music industry and articles discussing economic principles applicable to this case). A complete list of this information is attached as Appendix 4. I have also relied upon my professional experience and expertise, gathered over many years as a professional economist, both in academic and consulting settings.

D. Background on the Recording and Music Publishing Industries

In order to properly assess the reasonableness of the prospective mechanical royalty rate, it is imperative to consider some of the more recent trends in the music industry. According to the most recent data collected for the RIAA, the overall size of the U.S. sound recording industry in 2006 was approximately $11.5 billion.[2] This marked a decrease of approximately 6% when compared to the overall size of the industry in 2005.[3] According to RIAA data, the U.S. sound recording industry has fallen in total dollar value every year since 2000, except in 2004.[4] In a similar manner, since 2001, physical sales of music (i.e., CDs and music videos) have slipped every year except 2004.[5] As an example, in 2006, the number of CDs sold declined by approximately 13% over the prior year.[6] Additionally, the price of a CD actually decreased annually in real terms from 2003 through 2006 when adjusted for inflation, even though bonus content has increased.[7] Testimony from Roger Faxon of EMI Music Publishing indicates that

[2] "2006 Consumer Profile," RIAA.
[3] "2006 Year-End Shipment Statistics," RIAA.
[4] "2006 Consumer Profile," RIAA.
[5] "2006 Year-End Shipment Statistics," RIAA.
[6] "2006 Year-End Shipment Statistics," RIAA.
[7] "The CD: A Better Value than Ever," August 2007, RIAA.

wholesale CD prices have declined over the time period from 2001 to the present.[8] Conversely, digital music sales increased approximately 63% in terms of units sold and 74% in terms of dollar value in 2006 from the prior year.[9] Digital music sales have increased every year since those figures were first recorded in 2004. Mobile music, which includes ringtones, ringbacks, music videos, full length downloads, and other mobile music, also increased in 2006 both in terms of units shipped and dollar value.[10]

While these increases in digital sales are significant, they do not make up for the decline in physical CD sales or the decline in retail or wholesale revenues. As Bruce P. Benson (a colleague at FTI who studied digital margins) shows, the average wholesale price for digital albums is low compared to the average wholesale price for CD albums (which has continued to decline in recent years), and this has not been offset by reductions in manufacturing or distribution costs in the transition to digital music.[11] Although digital singles may be profitable, overall, average revenue per song is down and fewer recordings are being sold.[12] Moreover, the overall value of digital sales remains small relative to the physical market where sales have dropped sharply.[13] In sum, digital has not been the solution to the declining market faced by the record companies.

A primary cause of the decline of overall revenues in the recording industry is piracy. Music piracy is a very real problem for the industry, with over 1 billion files illegally downloaded per month.[14] According to the Institute for Policy Innovation, music piracy results in $12.5 billion of economic losses annually and 71,060 jobs lost in the U.S. alone.[15] While some forms of piracy have been on the music industry's radar since at least 1980, within the past decade technological

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[8] Hearing Testimony of Roger Faxon, p. 528, 1/29/08. Also see summary data from RIAA Factory Shipments and Returns Report.
[9] "2006 Year-End Shipment Statistics," RIAA.
[10] "2006 Year-End Shipment Statistics," RIAA. Master ringtunes are also known as mastertones.
[11] Testimony of Bruce P. Benson, 04/08, pp. 4, 19.
[12] Testimony of Bruce P. Benson, 04/08, pp. 4, 18, 23.
[13] Testimony of Bruce P. Benson, 04/08, p. 19.
[14] http://legislative.nashvillesongwriters.com/news.php?viewStory=76.
[15] http://www.riaa.com/faq.php. See also www.ipi.org.

advances have caused counterfeiting of sound recordings and illegal file sharing of digital music to soar.[16]

The record companies have had to adjust to the changing economic conditions of the music industry through aggressive cost cutting, artist portfolio reduction, and layoffs, and, as Mr. Finkelstein explained, the reductions are ongoing and likely to continue.[17] As Terri M. Santisi (an additional witness for the RIAA) shows, the impact of the decline in the music industry has had a different effect on music publishers.[18] While there is disagreement about the impact of these recording industry trends on the music publishing industry, some analyses suggest that publishers and songwriters have been relatively unaffected by recent events. For instance, music publishing revenue is expected to increase at least 4% per year through 2013.[19] Additionally, the music publishing business is viewed as "lucrative," with Wall Street investment banks "engaging in aggressive bidding wars for lucrative music catalogues."[20] A 2006 Universal Music Group presentation characterizes music publishing as a low risk, high margin business.[21] On the other hand, according to the Nashville Songwriters Association International, "America has LOST TWO-THIRDS of its PROFESSIONAL SONGWRITERS over the past decade due to illegal downloading, piracy, radio deregulation and corporate mergers."[22] [Emphasis in original.] To try to understand the reality of the situation, I considered data developed by Linda McLaughlin (one of RIAA's experts in the first phase of the case), Mr. Benson, and Ms. Santisi.

Analyses and testimony by Ms. McLaughlin, Mr. Benson, and Ms. Santisi reflect a number of important considerations regarding the business side of the music industry. First, the profitability of the music publishing industry is several times higher than the recording industry.[23] Second, I

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[16] For example, the infamous Napster software was created in the late 1990s, and by 2005, U.S. consumers with an Internet connection were paying for less than 50% of the music they acquired. See http://www.riaa.com/newsitem.php?news_year_filter=1999&resultpage=&id=6446F9E7-95A3-F900-5648-43B6CCEFC6EB and "New Life for CDs?" Ed Christman, Billboard, 4/1/06.

[17] "Global Music Industry: Just the Two of Us," Credit Suisse, 6/19/06, p. 29 and http://www.emigroup.com/Press/2004/press6.htm. See also the Testimony of Ron Wilcox, p. 18, and Testimony of Colin Finkelstein, p. 3300.

[18] Testimony of Terri M. Santisi, 04/08, pp. 23-32.

[19] Lieberman, David, "Music Dealers Find Creative Outlets," USA Today, 9/18/06.

[20] Jacobs, Andrew, "Music's Hottest Star: The Publisher," The New York Times, 4/24/06.

[21] http://www.vivendi.com/ir/download/pdf/UMG_MLConf_120906.pdf.

[22] http://legislative.nashvillesongwriters.com/news.php?viewStory=76. I note that this document, which discusses the mechanical rate, does not attribute this decline to the magnitude of the rate.

[23] See Testimony of Terri M. Santisi, 04/08, pp. 44 and Table A; See Testimony of Bruce P. Benson, 04/08, pp. 24-25.

understand that the level of investment by recording companies is a significant order of magnitude higher than that of music publishers, both in terms of dollars i.e., billions versus millions and percentage of revenue.[24]

With these circumstances as a backdrop, my analysis in the following sections will illustrate that the mechanical royalty rates Professor Landes embraces and endorses (i.e., those offered by the publishers and songwriters as part of their direct case), and the arguments he makes in support of them, are not reasonable under the principles set forth in Section 115 and Section 801(b) of the Copyright Act. I first discuss the position of the publishers and songwriters, as embodied in the opinions of Professor Landes.

II. EVALUATION OF PROFESSOR LANDES' OPINIONS

Professor Landes' position is based on a unilateral view, i.e., that of the publishers and songwriters, of the rewards to be earned by the various stakeholders in the music industry. However, the principles set forth in Section 115 and Section 801(b) of the Copyright Act require the reasonableness of the mechanical rate to be evaluated by referencing the positions of all stakeholders. The following analysis considers this broader view.

A. Summary of Landes Report

Professor Landes opines that a statutory rate should be set at a level that both provides "adequate incentives for creative efforts" and "limits access costs."[25] In Professor Landes' opinion, the statutory rate "becomes a ceiling on rate negotiations" but "does not set a floor."[26] This, in turn, forms the basis for his opinion that an "excessively high" statutory rate would only have a "negligible impact on both incentives to create music and access costs."[27] However, Professor

[24] Testimony of Linda McLaughlin, 11/28/06, pp. 3-18 and Testimony of Terri M. Santisi, 04/08, pp. 5, 10-13.
[25] Amended Expert Report of William M. Landes, 10-29-07, p. 11.
[26] Amended Expert Report of William M. Landes, 10-29-97, p. 12.
[27] Amended Expert Report of William M. Landes, 10-29-07, p. 12.

Landes warns that setting a rate too low will "discourage the creation and availability of new works."[28]

Additionally, Professor Landes proffers that "licensing schemes that work well and for which institutions and procedures are in place should be preferred over new approaches."[29] Consequently, a cents rate royalty "should receive deference over a percentage of revenue rate, unless there are significant new economic considerations favoring a percentage rate."[30]

In evaluating the publishers' and songwriters' proposal for the statutory mechanical royalty rates, Professor Landes relies on two primary benchmarks: (1) the ratio between amounts paid for sound recordings and musical works under typical license agreements for synchronization rights and (2) "voluntary agreements for ringtones and, in particular, mastertones" that were negotiated over the "past few years."[31] Professor Landes concludes that "song creators' share of the total royalties for the song and sound recording tends to be 20 percent" for mastertones and tends to be 50% for synchronization rights. He asserts that if the proposed rates provide publishers and songwriters between 20% and 50% of the total content costs then the rates are reasonable.[32]

To summarize, the publishers and songwriters are proposing distinct statutory rates on the following items: physical phonorecords, permanent downloads, limited downloads, interactive streaming, and ringtones.[33] Notably, they do not propose a rate to cover products/services not currently in the market. Professor Landes ultimately opines that the various rates proposed by the publishers and songwriters, which he did not develop, are reasonable.[34]

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[28] Amended Expert Report of William M. Landes, 10-29-07, p. 16.
[29] Amended Expert Report of William M. Landes, 10-29-07, p. 21.
[30] Amended Expert Report of William M. Landes, 10-29-07, p. 21.
[31] Amended Expert Report of William M. Landes, 10-29-07, p. 24.
[32] Amended Expert Report of William M. Landes, 10-29-07, pp. 25 - 26.
[33] Amended Expert Report of William M. Landes, 10-29-07, p. 3.
[34] Amended Expert Report of William M. Landes, 10-29-07, p. 49.

B. Analyzing Risk and Return

1. Profits and Firms

A recurring theme throughout the Landes Report is that setting the mechanical rate too low will hurt the creative efforts of songwriters. Professor Landes argues, "The prescription to provide incentives for creation through a fair return for creative work calls our attention to the potential problems that would arise from setting a compulsory rate that is so low that it does not provide adequate financial incentives for persons to create music."[35] Professor Landes argues that "***Modest increases*** in a penny rate for the compulsory license will not disrupt or require modification of pricing or require or discourage record companies or online music service providers from developing new and innovative products."[36] First, the "modest increases" Professor Landes refers to is the proposal to raise the rate from 9.1 cents to 12.5 cents per song for physical CDs and to 15 cents per song for permanent downloads. However, increases of over 37% for CDs and almost 65% for permanent downloads as requested by the publishers and songwriters amount to much more than "modest increases." Second, Professor Landes performs no analyses whatsoever regarding his assertion that this significant increase will have no effect on the record companies. As discussed in Section I.D above, although the most significant capital investments are being made by the recording companies, the most significant profits are being earned by the music publishers. It is quite possible that a higher mechanical rate may lead record companies to respond in a way that decreases the expected return to individual songwriters by cutting back on new recordings. To evaluate the potential ramifications of increasing the mechanical rate, it is important to understand the economics of the risk/return equation.

Over the past century, economists have frequently analyzed the reasons for the existence of profits. Three possible reasons that have been most often considered are risk taking, disequilibrium and monopoly power.[37] Given the context of the Landes Report, I will focus on

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[35] Amended Expert Report of William M. Landes, 10-29-07, p. 11.

[36] Amended Expert Report of William M. Landes, 10-29-07, p. 21. Emphasis added.

[37] Clarkson, Kenneth W. and Roger Leroy Miller (1982), *Industrial Organization: Theory, Evidence, and Public Policy*, New York: McGraw-Hill Book Company, p. 26.

the relation of risk taking to profits. Any person who ventures to establish a business runs the risk of failure, and profits are a reward for taking this risk. Workers who agree to work for a specified wage avoid risk to a great extent. But a business owner has no guarantee that his revenues will exceed his costs. If the business fails, the owner's wealth will decline. Since most persons are risk-averse, the potential reward (i.e., profit) for taking risk must be high enough to encourage an entrepreneur to accept the risk involved.[38] As economist William Shepherd explains, "[T]he reward for accepting risk is a higher than average level of expected return. Consequently, economists and financial analysts apply the concept of a risk return relationship: Investments with higher risk must offer higher average returns."[39] The risk bearing theory of profits explains why a high risk firm, such as a record company, should have a higher average (i.e. normal) profit compared to a firm with a lower risk, such as a music publisher or a songwriter.[40]

In a dynamic free market system, economic profits serve as a signal guiding the decisions of thousands of market players (buyers, sellers, input providers). Profits send a signal that consumers desire the product that is generating a profit. This in turn signals producers to purchase more inputs to produce more of this profitable product. But there is an inherent risk in predicting the desires of a consumer prior to the producer procuring inputs with its capital. Producers that make good forecasts profit from their good judgment. Producers that make poor forecasts suffer economic losses and may lose all or part of the capital that they have put at risk. Again, Professor Landes has not explicitly dealt with the issue of how the proffered mechanical rates will impact the recording companies (besides his cursory statement that they will not be discouraged or disrupted), but it is important to understand the role that earning a reasonable return plays in the existence and viability of a firm (or a set of firms like the recording companies).

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[38] Clarkson, Kenneth W. and Roger Leroy Miller (1982), *Industrial Organization: Theory, Evidence, and Public Policy*, New York: McGraw-Hill Book Company, p. 26.

[39] Shepherd, William G. (1985), *The Economics of Industrial Organization*. 2nd edition, Englewood Cliffs, NJ: Prentice-Hall.

[40] McGuigan, James R. Charles Moyer and Frederick H. Deb. Harris, (1999), *Managerial Economics: Application, Strategy, and Tactics*, Cincinnati: South-Western College Publishing.

It is well understood in elementary economic theory that the main purpose of a firm is to earn profits. Because firms play a vital role in a market economy, economists have researched the reason for the existence of the firm, starting with the seminal works of Nobel Laureates Ronald Coase (1937) and Kenneth Arrow (1963).[41] Professor Landes selectively cites Professor Coase[42] for his argument that transaction costs in the music industry are low and therefore no reason exists for copyright owners and users not to transact mutually agreeable contracts, even at a rate below the compulsory mechanical rate.[43] Professor Armen Alchian and others[44] who follow from the same academic tradition as Professors Coase[45] and Landes provide a different analysis of the development of the firm and of the marketplace.[46] Professor Coase relies on the existence of transaction costs inherent in a market as the basic explanation of the existence of firms. Alchian and Demsetz "do not disagree" with the Coase view but go further to argue that firms exist to coordinate productive resources and to reduce opportunism.[47]

The marketplace for music is an extremely complex network of transactions internal to firms and in markets between firms. As with all products that involve complex processes and highly specialized inputs, it takes team production to produce the final recording for the marketplace. The music or recording production team consists primarily of the recording company (including its A&R staff), the featured artist, a producer, other performers, other songwriters, and the publishers. Recording companies are the central coordinating and contracting agent. The recording companies contract with the other participants, work with the others in developing the product, undertake marketing efforts, set up production runs, arrange the infrastructure and contractual relationships necessary for distribution, account for and pay royalties, assess and forecast song demand, and line up financing. From the start of the music creation process to the

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[41] Coase, Ronald H. (1937), "The Nature of the Firm," *Economica*, 4, pp. 386-405, and Arrow, Kenneth J. (1963)., "Control in Large Organizations," *Management Science*, 10, pp. 397-408.

[42] Amended Expert Report of William M. Landes, 10-29-07, pp. 13, 14, and 15.

[43] Amended Expert Report of William M. Landes, 10-29-07, pp. 9, 10 and 14.

[44] Alchian, A. and H. Demsetz. (1972), "Production, Information Costs and Economic Organization, *American Economic Review*, 62, pp. 777-795, Klein, B., R. Crawford and A. Alchian (1978), "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics*, 21, pp. 297-326, Alchian, A. and William Allen (1964), *Exchange and Production*, Belmont, CA: Wadsworth Publishing Company.

[45] Coase, Ronald H. (1937), "The Nature of the Firm," *Economica*, 4, pp. 386-405.

[46] Amended Expert Report of William M. Landes, 10-29-07, at p. 17, par. 34, contains a partial description of the very team production concept discussed here.

[47] Alchian, A. and Harold Demsetz (1972), "Production, Information Costs and Economic Organization," *American Economic Review*, 62, pp. 777-795.

ultimate step of "breaking"[48] an artist, the recording company is coordinating this labyrinth of inputs to the final product and ultimately taking the largest share of the risk for success. By assuming the role of central contracting and coordinating agent and financier, the record company becomes the residual claimant (claims on any revenues left over after all other costs are met) and the profits they earn will be generally related to their ability to reduce risk. The more skilled the record company is at reducing the myriad of risks involved in the team production of recordings, the more sales it will make and the more copyright royalties will accrue to the creative artists and publishers.

Professor Landes notes the importance of a commensurate risk-return rationale when he and Professor Posner discuss the relationship between a book publisher and an author, which shares similar characteristics to the relationship between record companies and the publishers and songwriters:

> ...[D]o principles as *droit* moral, which entitles authors to reclaim copyright from assignees after a fixed period of years or entitling artists to royalties on resales of their art by initial (or subsequent) purchasers, increase or reduce the incentive to create new works? The answer suggested by economic analysis is that, contrary to intuition, such principles reduce the incentive to create by preventing the author or artist from shifting risk to the publisher or dealer. A publisher (say) who must share any future speculative gains with the author will pay the author less for the work, so the risky component of the author's expected remuneration will increase relative to the certain component. If the author is risk averse, he will be worse off as a result.[49]

In sum, as this well developed body of economic theory makes clear, the returns to all of the parties in this rate setting process must be taken into account. The second and third factors listed in Section 801(b) of the Copyright Act explicitly recognize the significance of this important

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[48] "Sour Notes," New York Post, Feb 10, 2008.

[49] Landes, William M. and Richard A. Posner, (1989) "An Economic Analysis of Copyright Law," *The Journal of Legal Studies*, 18, pp. 325-363.

economic principle. It is essential in contemplating a rate change that the risk/reward impact be considered with respect to all of the parties ultimately taking the risk in this music creation process, not just the publishers and songwriters. Given the relative risks involved in the recording business and music publishing, one would expect the former to have *higher* profit margins, reflecting the enormous risky investments required. In the current marketplace, with the current rates, the opposite is true.

2. Derived Demand and the Impact of the Decline in the Music Market on Record Companies and Music Publishers and the Relevance of Other Revenue Streams.

The background facts discussed above also demonstrate other flaws in arguments made by Professor Landes. First, Professor Landes suggests that the royalty rate for musical compositions should be increased in order to ensure that the publishers and songwriters earn as much or more in mechanical income as they have in past years.[50] I am not aware of the existence of any serious economic theory or literature whatsoever to support such an argument. Markets do not exist to ensure a level of revenue that a seller believes it should receive.

A well-known concept in economics is that of derived demand. That is, some resources or products are inputs in the production of some final other product. The demand for the input is derived from the underlying demand for the final product.[51] In this matter, the demand for recorded music creates the demand for musical compositions that are often owned or controlled by music publishers. As Ms. Santisi shows, revenues to be derived from the use of musical works come almost exclusively from the exploitation of sound recordings.[52] If sound recordings command less in the marketplace and demand is down for sales of sound recordings that will necessarily impact the demand for musical compositions and ultimately the compensation publishers receive. This dynamic should be even more pronounced given the relative investment that the two parties make in the music industry. In a period of declining revenues, there is less revenue to cover the fixed costs that are incurred by both record companies and music publishers.

[50] Amended Expert Report of William M. Landes, 10-29-07, p. 32.
[51] Baumol, W. and A. Blinder, Economics, 10th Edition, New York: Thomson, 2006, p. 398.
[52] See Testimony of Terri M. Santisi, 04/08, pp. 17-22.

In the creation, marketing and distribution of the sound recordings from which both record companies and music publishers profit, record companies incur fixed and semi-variable costs that are at much higher levels than those which the music publishers incur.[53] Less revenue means there is less revenue to cover these fixed costs and less residual surplus to be divided between record companies and music publishers. Thus, a declining recording industry will hurt both record companies and music publishers.

Professor Landes seemingly assumes that the only incentive for creating compositions by songwriters is mechanical royalty income. Such an assumption would be incorrect as an economic matter. Music publishers earn almost all of their revenues only after the record companies make their significant investment in the creation, marketing, and distribution of sound recordings for sale. But once that occurs, music publishers have multiple, significant revenue streams that follow from those record company investments. As Ms. Santisi shows, the major music publishers earn significant portions of their income from each of mechanical royalties, performance royalties, and synchronization royalties, and each revenue stream is derived primarily from the exploitation of sound recordings. In contrast, record companies earn the vast majority of their revenues from sales of sound recordings, ringtones, or subscription services -- all products that involve the payment of mechanical royalties.[54]

In this sense, the impact of this proceeding is asymmetrical. If the royalty rate declines, music publishers may or may not receive less revenue in the form of mechanical royalties, depending on whether the decrease stimulates sufficient additional production and sales of recordings to make up the difference. Further, any such decline would be felt in only one of publishers' three major revenue streams. Moreover, given the publishers' lack of capital intensive investment and the already significant incentives to write songs (discussed below), a declining mechanical royalty rate is very unlikely to have any impact on the number of songwriters or the creation of songs.

In contrast, if the royalty rate increases, it will increase the cost of virtually all of the products that the record companies sell, because most of their revenues come from the sale of sound

[53] See Testimony of Terri M. Santisi, 04/08, pp. 10-17.
[54] See Testimony of Terri M. Santisi, 04/08, pp. 17-22.

recordings subject to the mechanical rate.[55] Such an increase in cost means, to be sure, less profit for record companies, but also may lead to decreasing investment in new sound recordings, in marketing, in finding and promoting new artists, etc. Because it is the sound recording that reaches the public and is the commodity that consumers desire and purchase, an increase in the mechanical royalty rate, given the already difficult times existing in the record industry, will certainly mean that record companies will be forced to continue to slash expenses or investment or both -- a response to declining revenues that can only occur for so long.

Finally, the diverse revenue streams that music publishers receive are not possible unless and until record companies make a sound recording and market it for sale to the public. Record companies are incentivized to create sound recordings only if they believe they can make sufficient revenue leading to positive economic profits; in that calculus, all revenue streams would be considered, but sales provide the vast majority. Thus, whether to expend the significant capital to create a sound recording at all depends to a great extent on the potential costs and profits of sales of sound recordings (whether in physical or digital format). Music publishers have a different calculus. They have strong incentives to get their songs made into sound recordings because that is the gateway to all of their prospective revenue streams. **Inducing a record company to create a sound recording through a lower mechanical rate thus makes sense for music publishers because once they do so, many other revenue streams open up for them.** Reduced to its essence, the creation, marketing and distribution of mechanical royalty producing products -- downloads, CDs, ringtones -- promote the music publishers' other revenue streams (performance and synch licensing revenues).

C. Cents Rate vs. Percentage Rate

Professor Landes' unilateral view of the mechanical royalty rates proposed by the publishers and songwriters also leads him to believe "the Copyright Owners' proposal for a penny rate for physical products and permanent downloads, rather than a rate calculated as a percentage of CD (and permanent download) price, is reasonable."[56] Professor Landes sets forth two main

[55] Cf. Testimony of Terri M. Santisi, 04/08, p. 22.
[56] Amended Expert Report of William M. Landes, 10-29-07, p. 34.

arguments for this position: a) record companies can and do negotiate for rates below the statutory rate and to change the structure of the rate would be disruptive; and b) historically, mechanical license rates have not varied directly with the price of recorded music.[57] In essence, Professor Landes is arguing against flexibility in the mechanical rate by advocating its circumvention through negotiation and by standing on tradition.

As to the first reason, given the extensive discussion regarding transaction costs in his testimony, it is interesting to see Professor Landes endorse a situation that would actually increase transaction costs. Especially in the situation of new delivery formats or methods (e.g., mastertones, downloads, subscription services), it would significantly reduce transaction costs for the industry to have a percentage rate that applies to all situations. Under the system proposed by Professor Landes, when a new format comes into existence, either the existing cents rate must be used -- which may be wholly uneconomical for the new format -- or there is essentially no rate, which has the effect of eviscerating the compulsory license. For example, imagine that in the next five years someone invents a new model for digital delivery that would be successful at a retail price of 50 cents per song. Assuming the record company received half of that "all-in" (for both the sound recording and musical work rights), it would get 25 cents. Then, assuming the proposed download rate applied, music publishers would receive 15 cents of that 25 cents and the record companies would retain only 10 cents. This would result in the publishers receiving higher compensation for the product than the record companies -- an absurd outcome. Alternatively, if no existing mechanical rate applied for this new format, this would require copyright owners and record companies to negotiate individually over the proper level of royalty, increasing transaction costs and potentially delaying introduction of the new product. A percentage rate that applies to new as well as existing products would address this problem.

Second, many things have changed since it was first decided how the statutory mechanical license rate would be calculated in 1909. To name a few examples, sheet music sales no longer dominate the industry, recordings are not made of shellac and wax, and songwriters and publishers have additional sources of revenue from synchronization and broadcast performance and through products like ringtones and music videos. Consequently, it is unreasonable to argue

[57] Amended Expert Report of William M. Landes, 10-29-07, pp. 34 - 35.

that changing from a cents rate to a percentage rate would be disruptive merely because it is a change from how things have been done in the past. Indeed, I understand that the industry already applies a percentage rate for the purpose of paying mechanical royalties to copyright owners from non-U.S. jurisdictions, almost all of which have percentage-based royalty requirements.[58] The music publishers are actually proposing percentage rates (based on both retail and wholesale revenues) for on-demand streaming, limited downloads, and ringtones -- demonstrating that the cost to adjust to a percentage rate is not prohibitive.

In my experience patent royalties almost always are paid on a percent of revenue basis. This is no accident, for when two parties to a licensing agreement adopt a percentage royalty rate, they share the economic benefit and/or disappointment of both robust and less than robust sales of the licensed product. This rate flexibility is an economically reasonable outcome in the face of uncertainty. In addition, because a percent rate is inflation neutral, it not only is fair to both parties in time of inflationary pressure or deflation, but eliminates the need to adjust the rate frequently in a time of inflation, which lowers overall transaction costs. Further, prices for recorded music vary widely across different formats, distribution methods, geography, etc. As an example, physical CD retail prices range from $6.98 and under (3.6% of net shipments in 2006) to over $18.98 (0.2% of net shipments in 2006), with $13.98 and $18.98 being the most prevalent price points.[59] It is impossible to predict how the parameters of content type, format, network, platform, usage rules, functionality, bundling, and business model discussed in the Testimony of Ron Wilcox will mix to dictate the delivery models in place by the end of 2012.[60] Such variance suggests that a percentage rate is a more appropriate royalty structure as it will capture this variation in a proportionate manner which a fixed rate cannot and it will allow the copyright owner and copyright user to share the impact of this price variation. Flexibility in the mechanical rate is of high importance in order to maintain a workable framework for all of the stakeholders in the music business, not just the publishers and songwriters, and to allow record companies to take the risks necessary to keep "growing the pie" in a way that benefits both record companies and music publishers.

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[58] For instance, Germany, the U.K. and Canada all have percentage rate royalties associated with some aspect of music uses based on rate-setting proceedings. See "The Note," I, Spring 2007, NMPA.

[59] Based on summary data from RIAA Factory Shipments and Returns Report.

[60] November 29, 2006 Testimony of Ron Wilcox, pp. 9-13.

D. Analysis of Ringtone Licensing Agreements

After arriving at the conclusion that it is reasonable for publishers and songwriters to receive an increasing share of the basket of rewards based on a cents rate, the Landes Report goes on to reference "voluntary agreements" for ringtones as viable economic evidence as to the reasonableness of the publishers' and songwriters' proposed statutory royalty rate.[61] Professor Landes goes so far as to employ the various ringtone agreements and their respective rates as the lower end of his opined "reasonable" range of royalties.[62] However, Professor Landes' analysis and ultimate reliance on these agreements is flawed.

First, the ringtone industry is very different from the music industry both on the demand and the supply side. Consumers use ringtones very differently than they use other forms of recorded music. Depending on the particular consumer, music is an emotional experience, relaxing, spiritual, a passion, a helpful component if one wishes to dance, and/or important as a means of structuring one's time and enhancing one's overall level of utility. It is recognized that music can have powerful influence on brain functioning and in battling symptoms of disease that inflict the brain.[63] However, the ringing of a cell phone is an alert that signals the user to answer the phone, whether the ring sounds like the Bell telephones of yesteryear or sounds like a snippet of a current, popular song. While it may be more pleasurable for the user to hear a song than a pre-programmed ring, the result is the same: the user scrambles to answer the call and extinguish the sound. Thus, the demand for recorded music (the demand for listening to music as entertainment) is different from the demand for the necessary signaling process of a cellular phone.[64]

On the supply side, firms in the telecommunications industry sell ringtones to consumers as one more feature or add-on in their efforts to garner convoyed sales from selling cellular services to

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[61] Amended Expert Report of William M. Landes, 10-29-07, p. 24.

[62] Amended Expert Report of William M. Landes, 10-29-07, p. 26.

[63] Sacks, Oliver (2007), *Musicophilia*, New York: Random House.

[64] Cf., Krasilovsky, M. W. and Shemel, S (2007), *This Business of Music*, 10th edition, New York: Watson-Guptill Publications, p. 423 – 426.

consumers.[65] There are other sellers as well, ringtone aggregators, but they seem to be a declining portion of the market.[66] A telecommunication provider sells the ringtone option just as they sell rhinestone faces for the cell phone or leather cell phone covers. The very fact that a cellular operator can charge, for example, $2.50 for a portion of a song as a mastertone versus the $0.99 that Apple charges for the same song in its entirety shows that the products and the economic considerations are very different. The simple reason behind this difference is that a ringtone is a high-margin add-on feature of a cell phone that has no relation to the capital investment of a cellular operator in the provision of a network for making voice and data calls. Conversely, a song sold on iTunes is the primary revenue source of an alternative delivery model for recorded music. Therefore, using a ringtone license agreement as a "comparable" royalty for a mechanical license for a sound recording is inappropriate.

Secondly, ringtones are clearly not the equivalent of full recordings. They normally have a maximum length of "30 or 45 seconds."[67] The brevity of the tune inherently differentiates a ringtone from a full song and reinforces the discussion just presented on why these are "apples and oranges" serving entirely different purposes. Indeed, ringtones are not even necessarily music, as evidenced by the number one position of the "Super Mario Brothers Theme" on Billboard's 2006 and 2007 Year End Charts listing the most popular ringtones.[68] In essence, Professor Landes is comparing two very different products and surmising that license agreements for those products would be comparable. This is a flawed assumption, and Professor Landes provides no reason to think that the underlying demand for the two products is in any way similar.

Thirdly, as described in the Testimony of Ron Wilcox, the mastertone agreements were negotiated in the context of a much wider value proposition.[69] Specifically, the recording

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[65] For example, see http://www.wireless.att.com/learn/ringtones-downloads/tones-graphics/ringtones.jsp and http://products.vzw.com/index.aspx?id=music_ringtone. In fact, "wireless carriers, eager to convince music fans that they have access to the best content, are more than willing to write big checks" for exclusive rights to music in the form of ringtones, ringback tones and/or whole-song or video downloads. See Nowlin, Sanford, "Cell Carriers Cutting Big Music Deals," San Antonio Express-News, 1/17/08.

[66] The "major labels have cut deals directly with carriers, leaving ringtone aggregators out of the loop entirely." See Gibbs, Colin, "Turning out; Mobile music space facing rash of challenges," RCR Wireless News, 10/22/07.

[67] Amended Expert Report of William M. Landes, 10-29-07, p. 40.

[68] http://www.billboard.biz/bbbiz/charts/yearendcharts/index.jsp#.

[69] November 29, 2006 Testimony of Ron Wilcox, pp. 23 – 30.

companies engaged in "horse-trading" with the music publishers, agreeing to a high introductory royalty rate on mastertones while receiving in the same NDMA agreements major concessions regarding the mechanical rates to be applied to the "DualDisc" format CDs, locked content, multi-session products, and music video. For example, the record companies had invested large amounts of capital to create and bring to market the DualDisc format, which featured both CD and DVD formats of the same album on alternate sides of a single disc in order to make the album more accessible to the user. In exchange for the music publishers giving up their position that this format required the payment of two mechanical royalties per song, which would have made the format economically unviable for the record companies, the record companies acceded to the music publishers' demands on mastertone royalty rates.

Further, in order for license agreements to be comparable, they must have time coherence. The mechanical rates being contemplated now are for the next five years. It is analytically incongruent to put weight on agreements that pertain to a market that was understood to be fleeting at the time. It is likely that the rates in the mastertone agreements will be obsolete in the near future, as consumers gain the ability to create their own mastertones based on recordings purchased through other means, rather than buying them from cellular operators and ringtone aggregators.[70]

An additional problem with the ringtone benchmark is the fact that when the rates for mastertones were negotiated, the publishers knew that this new product would become a market substitute for sales of the existing polyphonic and monophonic ringtones on which they were already being paid royalties. By contrast, the recording companies were receiving no revenues on those existing products. This meant that the publishers had added leverage in the negotiations -- they had less reason to rush mastertones into the marketplace -- and would demand a price compensating for the resulting loss of sales of polyphonic and monophonic ringtones.

In sum, because (1) the economics of the industries are so different, (2) the reasons for consumer demand and supply are so different, and (3) the bargaining process over the ringtone agreements

[70] For instance, Apple is already offering the ability to create a ringtone by turning a purchased song into a custom ringtone for only an additional 99 cents. See http://www.apple.com/itunes/store/ringtones.html.

was not a simple, arms-length proposition, the ringtone agreements should not be considered in any way as comparable to the parties negotiating to find common ground on a new mechanical rate. Consequently, a negotiation between music publishers and record companies would differ considerably from the negotiations that occurred for the various ringtone agreements. Professor Landes failed to account for this reality in his analysis.

E. The Mechanical Royalty and the Supply of Songwriters

As I discussed above, one of the maintained hypotheses of the Landes Report is the notion that songwriters will drop out of the songwriting industry if the mechanical rate isn't set at the rates the publishing industry has proposed and that he has endorsed. I counted at least 14 instances where Professor Landes repeats over and over again the notion that the rate must be sufficiently high so as to "provide incentives to create music."[71] Part of the lynchpin of his argument is that if the Court sets the mechanical rate at "too low" a level, such a low rate will also "ultimately reduce the number of new works available to consumers."[72] Publicly available data from ASCAP, a membership association of composers, songwriters, and music publishers, contradicts Professor Landes' argument. This data shows that the number of members of ASCAP increased by over 14% from 2006 to 2007 and now has over 315,000 members.[73] The mechanical rate was set at the same level (9.1 cents per song) in both 2006 and 2007 and was at 8.5 cents per song for the two years preceding that.[74]

Further, fluctuation in the supply of songwriters based on the level of the mechanical royalty rate is a very unlikely event based on well known labor economics theory. In labor economics, hedonic wage theory is a well-established construct. Individuals, in an effort to maximize their happiness, choose among different occupations or jobs. Every job is characterized by a number of attributes; for instance, the wage, benefits, safety risk, flexibility, location, pleasantness, etc. Individuals select into the occupation or job that maximizes their happiness given their preferences over these various attributes. In order to attract a sufficient number of workers, firms

[71] Amended Expert Report of William M. Landes, 10-29-07, pp. 8, 11, 12, 15, 16, 17, 18, 19, 26, 27, 29, 31, 32, and 48.
[72] Amended Expert Report of William M. Landes, 10-29-07, p. 19.
[73] http://www.ascap.com/press/2008/0208_financial.aspx.

seeking to fill jobs that involve substantial risk, rigid schedules or rules, or are in undesirable locations must pay higher wages to compensate workers for the unpleasant attributes of the position. This is known as a compensating wage differential. On the other hand, jobs that are risk-free (in terms of physical risk), offer substantial flexibility, or offer other non-pecuniary benefits (e.g. fame) can still attract sufficient numbers of workers even when paying low wages. In fact, if firms pay high wages on top of these other positive qualities, there will be an excess supply of workers in the industry, resulting in unemployment (i.e., more individuals seeking work than there are jobs available). Borjas summarizes these ideas:

> Although we have derived the hedonic wage function in terms of a single job characteristic – the probability of on-the-job injury – the model clearly applies to many other job characteristics, such as whether the job involves repetitive and monotonous work, whether the job is located in an amenable physical setting (southern California versus northern Alaska), whether the job involves strenuous physical work, and so on. The key implication of the theory is easily summarized: As long as *all* persons in the population agree on whether a particular job characteristic is a 'good' or 'bad,' good job characteristics are associated with low wage rates and bad job characteristics are associated with high wage rates.[75]

The occupation of songwriter in the music industry may be characterized as a relatively pleasant, risk-free job (in terms of physical risk), with flexibility in terms of when and where to work. In addition, being a songwriter offers other non-pecuniary benefits such as the opportunity to meet famous individuals, attend parties or award shows, as well as the "warm-glow" feeling of hearing one's songs being performed. Santos (1976) refers to such non-monetary benefits as "psychic income," and notes that artists have strong preferences for this type of income.[76]

As a result of all these non-monetary benefits, the wages being paid represent a small fraction of the overall compensation accrued by songwriters. This claim is supported by the data in Alper

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[74] http://www.copyright.gov/carp/m200a.html.

[75] Borjas, G. (2008), *Labor Economics*, 4th Edition, New York: McGraw-Hill, p. 230.

[76] Santos, F.P. (1976), "Risk, Uncertainty, and the Performing Artist," in M. Blaug (ed.) *The Economics of the Arts*, Boulder, CO: Westview Press, p. 257.

and Wassal (2006).[77] According to the U.S. Census Bureau, data from 2000 indicates that artists (broadly defined) work fewer hours per week than other professionals in the experienced labor force (37.9 hrs/wk versus 39.4 hrs/wk), fewer weeks per year (44.2 versus 45.7), are less likely to work full-time (56% versus 59.8%), and are more likely to be self-employed (31.5% versus 6.6%).

Summarizing these arguments, Throsby states: "Two important feature of artists as business enterprises that distinguish them from other firms in the economy are, first, that creativity is an essential input into their production processes and, second, that the primary incentive to innovation is likely to be non-financial."[78] Throsby also states: "The primary desire to create art as a principal occupation must be recognized as the essential driving force behind an artist's labor supply decisions. In this respect artists may be seen as similar to academics, researchers, and other professionals where nonpecuniary motives relating to work satisfaction exert a significant influence on patterns of time allocation."[79] Empirical studies confirm these claims. Jeffri found that painters in the U.S., by and large, pursue art at the expense of income.[80] Seventy percent of artists surveyed indicated they had forgone lucrative opportunities that were not artistically satisfying on multiple occasions.

In addition to hedonic wage theory, the so-called tournament theory in labor and personnel economics offers additional insight into the structure of the music industry. Tournament theory helps one understand why the arts and entertainment industry pays extremely lucrative salaries to a handful of "superstars," but pays, by comparison, miniscule salaries to many. Labor markets are characterized by a tournament-type pay structure if: (i) "winners" are uncertain, (ii) the "winner" is selected on the basis of relative performance (to other contestants), and (iii) the rewards for "winning" are concentrated among a minority of contestants such that there is a large

[77] Alper, N. and G. Wassall (2006), "Artists Careers and Labor Markets," in the Handbook of the Economics of Art and Culture, Ch. 23, edited by V. Ginburgh and D. Throsby, Amsterdam: North-Holland.
[78] Throsby, D. (2006), "An Artistic Production Function: Theory and an Application to Australian Visual Artists," *Journal of Cultural Economics*, 30, pp. 1-14. Specifically, see p. 2.
[79] Throsby, D. (1994), "The Production and Consumption of the Arts: A View of Cultural Economics," *Journal of Economic Literature*, 32, pp. 1-29. Specifically, see p. 17.
[80] Jeffri, J. (1991), *The Artists Training and Career Project: Painters*, Columbia University, Research Center for Arts and Culture.

difference in the rewards of winners and losers.[81] The songwriting industry meets these criteria given that a few songwriters may be identified as superior to the masses in an uncertain competition, and the rewards to be identified as one of the top songwriters are significantly greater than the rewards earned by most songwriters.

The logic behind employing a tournament-type pay structure is straightforward. A large pay-off for a few success stories serves as motivation to all workers, thereby inducing greater effort and output by all workers. Borjas summarizes this idea succinctly:

> As we will see, tournaments exist because they elicit the 'right' amount of effort from workers when it is difficult to measure a worker's actual productivity, but it is easier to contrast the productivity of one worker with that of another. Because the players in these contests know that winning the tournament entails fame and fortune, whereas losing entails obscurity and low salaries, both parties will try very hard to win.[82]

Thus, even if the mechanical rate is lowered or left at the current level, songwriters will still exist in large numbers and create numerous new works in an effort to be "discovered," and thus rewarded with such lucrative (monetary and non-monetary) pay-offs.

The notion that the "big payoff" is a sufficient inducement for artists has existed since at least Santos (1976).[83] Santos states that artists are risk-takers, and are willing to accept a higher probability of low earnings as long as it coincides with a small probability of substantial rewards. Thus, labor economic theory does not support Professor Landes' hypothesis that songs and songwriters will decline if a higher mechanical rate is not recommended by this tribunal.

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[81] Ehrenberg, R.G. and R.S. Smith (2009), *Modern Labor Economics: Theory and Public Policy*, 10th Edition, Pearson Education: New York, p. 382.

[82] Borjas, George (2008), Labor Economics, 4th edition: Irwin McGraw Hill: New York, pp. 462- 463.

[83] Santos, F.P. (1976), "Risk, Uncertainty, and the Performing Artist," in M. Blaug (ed.) *The Economics of the Arts*, Boulder, CO: Westview Press.

In sum, there is little reason for concern that a reduction in the mechanical rate would unduly affect the creation of new songs. The incentives would still exist that cause songwriters to undertake that profession even knowing that the odds are long that they will be highly successful.

III. OPINIONS AND CONCLUSIONS

The purpose of my analysis was to review, evaluate and rebut, if appropriate, the opinions set forth in this matter by Professor William M. Landes. Professor Landes believes that the rate increases proposed by the publishers and songwriters are fair and reasonable, and that the current cents rate structure should be maintained.

Based on my analyses to date, it is my opinion that Professor Landes' analyses do not support his conclusions that the mechanical royalty rates offered by the publishers and songwriters are reasonable under the principles and factors set forth in Section 115 and Section 801(b) of the Copyright Act. It is my opinion that a reasonable mechanical royalty rate would be a percentage of revenue rate, which would better allocate the risks and rewards between publishers and record companies, would self-adjust for inflationary or deflationary aspects of the economy and/or the music industry, and would be flexible enough to respond to the rapidly changing business model for delivering music to consumers. Further, any reliance on "ringtone" license agreements as a benchmark for the mechanical royalty rates being debated in this matter is fatally flawed. Finally, economic theory does not support the assertion that a lower mechanical royalty rate will harm the supply of songwriters or the creation of new songs.

I declare under penalty of perjury that the foregoing testimony is true and correct.

Date: 4-3-05

Daniel J. Slottje

APPENDIX 1

FTI

APPENDIX 1

April 2008

CURRICULUM VITAE

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Academic Experience:

Assistant Professor (1983)
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Assistant Professor (1984 - 1988)
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Faculty Member (July 1988)
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Associate Professor (1989-1995)
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Professional Memberships:

American Economic Association
Southern Economic Association
American Statistical Association
Econometric Society

Other Professional Activities:

Consultant to:
United Nations Development Programme

Reviewer for:
The National Science Foundation
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Cambridge University Press
Oxford University Press

Member of:
Scientific Committee for International Conference on Gini and Lorenz, May 2005, Siena, Italy

International Program Committee for International Conference on Time Series Econometrics, Finance and Risk, July 2006, Perth, Australia

Fellow:
Journal of Econometrics, 2008

Referee for:
American Economic Review
Communications in Statistics
Econometric Theory
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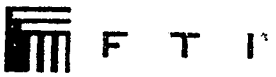
Economic Journal
Empirical Economics
European Economic Review
Industrial Relations



Industrial Relations and Labor Review
Journal of American Statistical Association
Journal of Applied Econometrics
Journal of Business and Economic Statistics
Journal of Econometrics
Journal of Economic Surveys
Journal of Human Resources
Journal of Public Economics
Review of Economics and Statistics
Review of Economic Studies
And many others.

Founding Editor of:
Research on Economic Inequality (1989-1998)

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Journal of Economic Inequality (2003)

Associate Editor of:
NAFTA: The Business and Law Review of the Americas
Journal of Economic Surveys
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Publications:

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"The Gamma Distribution and the Size Distribution of Income Reconsidered," Atlantic Economic Journal Vol. 15 (1987), 86, with D. J. Molina.

"Labor Supply Decisions, Human Capital Attributes and Inequality in the Size Distribution of Earnings in the U.S.: 1952-81," Journal of Human Resources, Vol. 22 (1987), 82-100, with Joyce R. Shackett.

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Books:

The Generalized Fechner-Thurstone Direct Utility Function and Some Applications, (1988), with R. L. Basmann, K. J. Hayes and D. J. Molina, Springer-Verlag Publishing Co.

The Structure of Earnings and the Measurement of Income Inequality, (1989), North-Holland.

Macroeconomic Activity and Income Inequality in the U.S., (1989), with J. Haslag and W. Russell, JAI Press.

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Measuring the Quality of Life Across Countries, (1991), with G. Scully, J. Hirschberg, and K. Hayes, Westview Press.

Some New Methods for Measuring and Describing Economic Inequality, (1994), with R. L. Basmann and K. J. Hayes, JAI Press.

Crisis on the Rio Grande: Economic Development on the Mexico-Texas Border, (1994), with D. Betts, Westview Press.

Pay and Performance in the NBA, (1997), with M. Buchanan, JAI Press.

Measuring Trends in U.S. Income Inequality, (1998), with H. Ryu, Springer-Verlag.

Income Inequality, Poverty and Economic Welfare, (eds.), (1998) with B. Raj, Springer-Verlag.

The Role of the Academic Economist in Litigation Support, (ed.), (1999), North-Holland.

Measuring Market Power, (ed.), (2002), North-Holland.

Patent Activity and Technical Change in U.S. Industries, (2005), with Mike McAleer, North-Holland.

Economic Damages in IP Matters (editor), (2006), John Wiley & Son Publishing.

The Impact of Antitrust Enforcement on US Industries, under review, North-Holland.

Book Reviews:

Dynamics of Income Distribution, by John Creedy for Journal of the American Statistical Association (1987).

The Standard of Living by A. Sen for Economic Development and Cultural Change (1990).

Lifetime Income Distributions and Redistribution, by Ann Harding for Journal of Economic

Literature (1995).

A Theory of Earnings Distributions, by R. Von Weizacker for Journal of Income Distribution (1995).

Top Heavy, by Ed Wolff for Journal of Comparative Economics (1996).

Papers:

1. "Impact of Marriage and Children on Worklife Expectancy," under revision, with D. Millimet and M. Nieswiadomy.
2. "Regressions Subject to Linear Restrictions," under revision, with J. Hirschberg.

Papers Given:

1. Latin American Econometric Society Meetings, Mexico City, Mexico, July 1982, with R. L. Basmann and D. J. Molina.
2. Joint Session of American Economic Association and Econometric Society Meetings, San Francisco, CA, December 1983, with R. L. Basmann and D. J. Molina.
3. Association for Evolutionary Economics Meetings, San Francisco, CA, December 1983.
4. Mid-South Economics Association Meetings, Little Rock, AR, February 1984, with Don MacDonald.
5. Southwest Economics Association Meetings, Fort Worth, TX, March 1984, with M. Nieswiadomy.
6. Southern Economic Association Meetings, Atlanta, GA, November 1984, with Joyce Shackett.
7. World Congress of the Econometric Society, Boston, MA, August 1985, with Ravi Batra.
8. Southern Economic Association Meetings, Dallas, TX, November 1985, with Ravi Batra
9. Southwest Economics Association Meetings, San Antonio, TX, March 1986, with B. B. Reagan.
10. Southwest Economics Association Meetings, San Antonio, TX, March 1986, with J. Haslag and T. Fomby.
11. Southwest Economics Association Meetings, San Antonio, TX, March 1986, with K. Hayes.
12. Southwest Economics Association Meetings, San Antonio, TX, March 1986, with R. L. Basmann.

13. Summer North American Econometric Society Meetings, Durham, NC, June 1986, with D. J. Molina.

14. Summer North American Econometric Society Meetings, Durham, NC, June 1986, with R. L. Basmann.

15. Southern Economics Association Meetings, New Orleans, LA, November 1986 with R. Batra.

16. Southern Economics Association Meetings, New Orleans, LA, November 1986 with K. Hayes.

17. American Statistical Association Meetings, San Francisco, CA, August 1987, with K. J. Hayes and J. G. Hirschberg.

18. Econometric Society Meetings, Chicago, IL, December 1987, with D. Black and K. Hayes.

19. Southern Economics Association Meetings, San Antonio, TX, November 1988, with K. Hayes and J. Hirschberg.

20. Southern Economics Association Meetings, San Antonio, TX, November 1988, with M. Nieswiadomy.

21. American Statistical Association Meetings, San Diego, CA, January 1989, with K. Hayes and J. Hirschberg.

22. Southwest Finance and Amalgamated Disciplines, Dallas, TX, March 1990, with J. Haslag and M. Nieswiadomy.

23. World Congress of the Econometric Society, Barcelona, Spain, August 1990, with R. Basmann and K. Hayes

24. World Congress of the Econometric Society, Barcelona, Spain, August 1990, with R. Basmann and K. Hayes

25. American Public Policy Association Meetings, San Francisco, CA, October 1990, with K. Hayes and P. Byrnes.

26. Southern Economics Association Meetings, New Orleans, LA, November 1990, with K. Hayes, M. Nieswiadomy and E. Wolff.

27. Southern Economics Association Meetings, New Orleans, LA, November 1990, with Charlie Diamond, E. Maasoumi and M. Nieswiadomy.

28. International Workshop on Discrimination and Segregation, Ramat Gan, Israel, June 1991, with K. Hayes and J. G. Hirschberg.

29. International Workshop on Discrimination and Segregation, Ramat Gan, Israel, June 1991, with K. Hayes and J. G. Hirschberg.

30. Western Economics Association, Seattle, WA, July 1991, with K. Hayes and Peter Lambert.

31. International Meeting on Income Inequality and Poverty, Siena, Italy, October 1991, with K. Hayes, M. Nieswiadomy and E. Wolff.

32. Sesquicentennial Conference on Inequality, University of Notre Dame, September 1992, with N. Balke.

33. Sesquicentennial Conference on Inequality, University of Notre Dame, September 1992, with K. Hayes, M. Nieswiadomy and E. Wolff.

34. Southern Economics Association Meetings, Washington, D.C., November 1992, with H. Ryu.

35. Southern Economics Association Meetings, Washington, D.C., November 1992, with J. Hirschberg.

36. Southern Economics Association Meetings, New Orleans, LA, November 1993, with J. Hirschberg.

37. ASSA Meetings, Boston, MA, January 1994, with R. L. Basmann.

38. NSF Conference on Equity, Distribution and Growth, Honolulu, Hawaii, August 1994, with H. Ryu.

39. Biannual Conference of International Association of Income and Wealth, New Brunswick, Canada, August 1994, with B. Raj.

40. UpJohn Institute/Donner Foundation Conference on Fringe Benefits and Labor Costs, Kalamazoo, Michigan, November 1994, with Steve Woodbury.

41. Southern Economics Association Meetings, Orlando, Florida, November 1994, with S. Woodbury.

42. Southern Economics Association Meetings, Orlando, Florida, November 1994, with J. Hirschberg, J. Lye and V. Martin.

43. World Congress of the Econometric Society, Tokyo, Japan, August 1995, with H. Ryu.

44. Southern Economics Association Meetings, New Orleans, Louisiana, November 1995, with Shlomo Yitzhaki and S. Zandvakili.

45. Texas Econometrics Camp, San Antonio, Texas, February 1996, with H. Ryu.

46. Asian Meetings of Econometric Society, Perth, Australia, July 1996, with E. Maasoumi and J. Hirschberg.

47. Asian Meetings of Econometric Society, Perth, Australia, July 1996, with B. Raj.

48. Biannual Conference of International Association of Income and Wealth, Lillihammer, Norway, August 1996, with S. Yitzhaki and S. Zandvakili.

49. American Economic Association Meetings, New Orleans, January 1997, with S. Yitzhaki.

50. Texas Econometrics Camp, Corpus Christi, Texas, February 1997, with B. Raj.

51. American Statistical Association, Dallas, August 1998, with E. Castillo and J. Sarabia.

52. Southern Economic Association, Baltimore, Nov. 1998, with J. Hirschberg.

53. American Statistical Association, Baltimore, August 1999, with C. Dagum.

54. World Congress of the Econometric Society, Seattle, August 2000, with H. Ryu.

55. Swiss Competition Commission, Geneva, Switzerland, January 2001.

56. State Bar of Texas Asian Pacific Interest Section, Austin, April 2001.

57. American Law Firm Association, Labor and Employment Section, Dallas, October 2001.

58. Econometric Society Australasian Meeting, July 2002.

59. State Bar of Texas Intellectual Property Section, Austin, February 2003.

60. General Electric Co., Litigation Counsel Meeting, Southburg, Ct., October 2004, with C. Gerardi, and B. Imburgia.

61. Southern Economic Association, New Orleans, LA, November 2004, with T. Fomby.

62. Law Seminars International, Philadelphia, PA., October 2006.

APPENDIX 2

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APPENDIX 2

Daniel J. Slottje, Ph.D.

Telephone: 214-397-1708

Professional Experience

Dr. Slottje is a Senior Managing Director with FTI Consulting, Inc. He resides in the firm's Dallas office. Dr. Slottje has provided consulting services to clients in various industries. He has significant experience in litigation consulting in *intellectual property* matters including patent infringement issues, copyrights and trademarks as well as trade secrets. In addition to advising counsel, he has provided testimony in these matters as well as in others. Dr. Slottje is a Professor of Economics at Southern Methodist University in Dallas, Texas and is a former partner in an international consulting firm.

Education and Certification

Dr. Slottje received his Bachelor of Arts from Clemson University in 1979 and his Ph.D. in Economics from Texas A&M University in 1983. He has published more than 120 articles and written several books on many economic issues. His papers have appeared in the American Economic Review, Econometric Reviews, the Journal of Econometrics, the Review of Economics and Statistics, the Journal of Applied Econometrics and the Journal of Business and Economics Statistics, among others.

Professional Activities

Dr. Slottje is a member of the American Economic Association, the American Statistical Association, and the Econometric Society. He has advised the United Nations Development Programme. He is a reviewer for the National Science Foundation, the Social Science Research Council of Canada, Oxford and Cambridge University Presses, as well as serving as a referee for many journals including the American Economic Review, the Review of Economics and Statistics, the Journal of Applied Econometrics, the Journal of Econometrics, and the Journal of Business and Economic Statistics. Dr. Slottje was named to the "applied econometrician hall of fame" in 1999 and ranked in the top three in the world (out of over 5000 people) in applied econometrics, based on number of published articles in top econometrics journals. He was named Fellow, Journal of Econometrics, in 2008.

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Selected IP Engagement Experience

Types of Cases

- Patent Infringement
- Copyright Infringement
- Trademark Infringement
- Trade Secret Misappropriation
- Unfair Competition

Types of Studies Performed

- Lost Profit Analysis
- Reasonable Royalty Analysis
- Disgorgement of Profit Analysis
- Replacement Cost/Design-Around Analysis
- Econometric Analysis of Markets

Representative IP Studies Performed

Dr. Slottje has significant IP experience in matters involving telecommunications; semiconductors; avionics; data management; business process and other software, biotech; computer and printing industries; exercise equipment; photographic equipment; oil industry equipment; ceiling fans; sports equipment; electronic securities; trading industry; aircraft industry; ascetic acid industry; banking industry and others.

Selected Publications

Below are select publications. A complete list is available in Dr. Slottje's curriculum vitae.

1. "Patent Activity and Technical Change," Journal of Econometrics, Vol. 139 (2007), 355-375, with R. Basmann and M. McAleer.
2. "Econometric Analysis of Copyrights," Journal of Econometrics, Vol. 139 (2007), 303-317, with D. Millimet and M. Buchanan.
3. "Intellectual Property Litigation Activity in the USA," Journal of Economic Surveys, Vol. 20 (2006), 715-729, with S. Hoti and M. McAleer.
4. "US Case Law and Economic Damages in Patent Litigation," in Economic Damages in IP Matters, edited by Daniel Slottje, New York: John Wiley & Son Publishing (2006), 3-12, with C. Perry and B. Whitaker.
5. "The Law of Demand and Lost Profits Analysis," in Economic Damages in IP Matters, edited by Daniel Slottje, New York: John Wiley & Son Publishing (2006), 113-132, with RL Basmann, M. Buchanan and E. Maasoumi.
6. "The Use of Statistics in Copyright Cases," in Economic Damages in IP Matters, edited by Daniel Slottje, New York: John Wiley & Son Publishing (2006), 201-212, with D. Millimet and M. Nieswiadomy.

7. "A Realistic Look at the Cost of Litigation," Executive Counsel, Vol. 2 (2005), 38-40 with B. Whitaker.

8. "A New Measure of Innovation: The Patent Success Ratio," Scientometrics, Vol. 63 (2005), 421-429, with M. McAleer.

9. "Copyright Damages and Statistics" International Statistical Review, Vol. 71 (2003), 557-564 with R. Basmann.

10. "Economics, Damages Analysis and Georgia-Pacific," in High Technology Litigation Course book, Austin: State Bar of Texas, Ch. 4, 2003 with C. Perry.

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Testimony History

Professor Slottje has appeared live at trial approximately 80 times and given over 175 depositions from 1987 to the present. Herein is his testimony history since 2004.

Case Style	*Cause No.*	*Court*	*Testimony Type*
Flegles, Inc. v. Truserv Corp.	CA 03-CI-00005	Commonwealth of Kentucky, Carlisle Circuit Court	Trial 7-28-04
Euclid & Wickliffe Services, Inc. v. **Allied Signal Power Systems, Inc. and Honeywell Power Systems, Inc.**	53Y 181 00895 02	American Arbitration Association East Providence, Rhode Island	Arbitration 12-17-04
Tristrata Technology, Inc. v. **Long's Drug Stores, CVS, Inc., Rite Aid, Inc., Walgreen Co., Guthy Renker Corporation, Victoria Principal Productions, Inc., A Natural Advantage, Medi-Cell Laboratories, Peter Thomas Roth, CCA Industries, Inc., and Mary Kay, Incorporated**	C.A. No. 01-127-JJF	U.S. District Delaware	Trial 03-08-05 03-09-05
Xenium S.A. de C.V. v. Regent Hotels Worldwide, Inc.	12 296/JNK	International Court of Arbitration, Dallas	Arbitration 04-20-06
Avid Identification Systems, Inc. v. **Philips Semiconductors, Inc., Philips Semiconductor Manufacturing, Inc., The Crystal Import Corporation, and Datamars, SA**	2:04-CV-183	U.S. District Eastern District of Texas, Marshall Division	Trial 05/24/06
Orion IP, LLC v. **Mercedes-Benz USA LLC, et al**	6:05-CV-322	U.S. District Court Eastern District of Texas, Tyler Division	Trial 05/25/07

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Case Style	*Cause No.*	*Court*	*Testimony Type*
Trading Technologies International, Inc. v. **eSpeed, Inc., et al.**	C.A. No. 03-612 (KAJ)	U.S. District Court for the Northern District of Illinois, Eastern Division	Trial 09/28/07
Butler County Commissioners v. **Utility Service & Supply, Shell Oil Company, Vanguard Plastics, Inc., Orangeburg Industries, Inc. & Endot Industries, Inc.**	CV 2001 07 1492	Court of Common Pleas Butler County, Ohio	Deposition 4-9-04
Ford, et al. v. **Bimbo Bakeries USA, Inc., et al.**	BC271391	Superior Court of California County of Los Angeles, Central District	Deposition 4-14-04
TIGI Linea LP et al. v. The Kroger Company	CV 1234 CC	U.S. District Court Northern District of Georgia Atlanta Division	Deposition 4-29-04 4-30-04
TIGI Linea LP et al. v. CVS Pharmacy, Inc.	CV 1235 CC	U.S. District Court Northern District of Georgia Atlanta Division	Deposition 4-29-04 4-30-04
TIGI Linea LP et al. v. Target Corporation	CV 1341 CC	U.S. District Court Northern District of Georgia Atlanta Division	Deposition 4-29-04 4-30-04
Flegles, Inc. v. Truserv Corp.	CA 03-CI-00005	Commonwealth of Kentucky, Carlisle Circuit Court	Deposition 7-12-04
Perfect Putter Co., Clark Collins and Patrick Riley v. **Callaway Golf Company, Callaway Golf Sales Co., Odyssey Golf, and Kerry Keena**	02-14342-CIV-PAINE	U.S. District Court Southern District of Florida	Deposition 8-30-04
King of Fans, Inc. v. **Litex Industries, Inc.**	03-61637-CIV-COOKE	U.S. District Court Southern District of Florida	Deposition 9-22-04

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Case Style	*Cause No.*	*Court*	*Testimony Type*
eSpeed, Inc.; Cantor Fitzgerald, L.P.; and CFPH, L.L.C. v. BrokerTec USA, L.L.C.; BrokerTec Global, L.L.C.; Garban, LLC; ICAP PLC; OM AB; and OM Technology (U.S.), Inc.	C.A. No. 03-612 (KAJ)	U.S. District Delaware	Deposition 01-26-05
Tristrata Technology, Inc. v. **Long's Drug Stores, CVS, Inc., Rite Aid, Inc., Walgreen Co., Guthy Renker Corporation, Victoria Principal Productions, Inc., A Natural Advantage, Medi-Cell Laboratories, Peter Thomas Roth, CCA Industries, Inc., and Mary Kay, Incorporated**	C.A. No. 01-127-JJF	U.S. District Delaware	Deposition 02-08-05
Fujitsu Limited v. Cirrus Logic, Inc., et al.	No. 103-CV-009885	Superior Court of California County of Santa Clara	Deposition 3-15-05 3-16-05
The Nautilus Group, Inc. v. **Icon Health & Fitness, Inc.**	CV 02-2420P	U.S. District Court Western District of Washington at Seattle	Deposition 3-29-05
Danny Bednar, William Sekly v. **Allstate Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Indemnity Company, Greg Bleiffer et al.**	BC 240813	Superior Court of California County of Los Angeles, Central Civil West	Deposition 04-05-05
Danny Bednar, William Sekly v. **Allstate Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Indemnity Company, Greg Bleiffer et al.**	BC 240813	Superior Court of California County of Los Angeles, Central Civil West	Deposition 05-03-05

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Case Style	*Cause No.*	*Court*	*Testimony Type*
East Bay Municipal Utility District, v. **Shell Oil Company, Shell Chemical Company, AND DOES 1 THROUGH 100, INCLUSIVE**	04-431386	Superior Court of California, City and County of San Francisco	Deposition 10-10-05
Tantivy Communications, Inc. v. **Lucent Technologies**	2-04CV-79 (TJW)	U.S. District Court Eastern District of Texas Marshall Division	Deposition 10-21-05
Melissa Fukuchi, individually and on behalf of all other similarly situated v. **Pizza Hut, Inc.**, a California Corporation, And Does 1 through 50, Inclusive	BC302589	Superior Court of California, County of Los Angeles Central	Deposition 01-19-06
David Jurado and Penny Schultz v. **Hewlett-Packard Company**	CV 025620	Superior Court of California, County of San Joaquin	Deposition 04-10-06
Nutrition 21, LLC v. **General Nutrition Corporation**	6:05-CV-228(LED)	U.S. District Court, Eastern District of Texas Tyler Division	Deposition 10/27/06
Ellen Schaaf, v. **SmithKline Beecham Corporation d/b/a/ GlaxoSmithKline; SmithKline Beecham Corporation; and GlaxoSmithKline**	1:04-CV-2346-GET	U.S. District Court, Northern District of Georgia Atlanta Division	Deposition 1/17/07
In re: Apollo Group, Inc. Securities Litigation	CV 04-2147-PHX-JAT	U.S. District Court, District of Arizona	Deposition 2/2/07
Orion IP, LLC v. **Hyundai Motor America**	6:05-CV322-LED	U.S. District Court, Eastern District of Texas, Tyler Division	Deposition 2/15/07

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Case Style	*Cause No.*	*Court*	*Testimony Type*
Network-1 Security Solutions, Inc. v. **D-Link Corporation and D-Link Systems, Incorporated**	6:05-cv-00291	U.S. District Court Eastern District of Texas, Tyler Division	Deposition 3/28/07
Miguel Garcia v. **Lowe's Company, Inc.; Lowe's Home Centers, Inc.; Lowes' HIW, Inc.; Dedicated Delivery & Install Services, Inc.; Victor Manuel Montes, doing business as Cash Cow; and DOES 1-100 inclusive**	GIC 841120	Superior Court of the State of California for the County of San Diego	Deposition 5/30/07
Trading Technologies International, Inc. v. **eSpeed, Inc., et al.**	C.A. No. 03-612 (KAJ)	U.S. District Court for the Northern District of Illinois, Eastern Division	Deposition 09/07/2007
Greg Randall, Cynthia Peterson, and Terry Head, on behalf of themselves and all others similarly situated and on behalf of the general public v. **Costco Wholesale Corporation, a Washington corporation doing business as Costco, and DOES 1 through 100, inclusive**	BC 296369	Superior Court of the State of California for the County of Los Angeles	Deposition 09/13/2007
MS Perry Company, Inc. and ANISA International, Inc. v. **Mary Kay Inc.**	05-00857	US District Court of Dallas County, 68th Judicial District	Deposition 12/05/2007
Dennis Johnson and Arnold Rosenfeld, individually and on behalf of others similarly situated v. **GRUMA CORPORATION, a Nevada corporation, dba MISSION FOODS CORPORATION**; and DOES 1 through 100, inclusive	1220026252	JAMS Arbitration Los Angeles, CA	Deposition 03/28/2008

Highlighted text denotes party(ies) Dr. Slottje assisted.

APPENDIX 3

APPENDIX 3

Daniel J. Slottje, Ph.D.

Telephone 214-397-1703

Professional Experience

Dr. Slottje is a Senior Managing Director with FTI Consulting, Inc. He resides in the firm's Dallas office. Dr. Slottje has provided consulting services to clients in various industries. He has significant experience in litigation consulting in labor/employment matters. In addition to advising counsel, he has provided testimony in these matters as well as in others. Dr. Slottje is a Professor of Economics at Southern Methodist University in Dallas, Texas and is a former partner in an international consulting firm.

Education and Certification

Dr. Slottje received his Bachelor of Arts from Clemson University in 1979 and his Ph.D. in Economics from Texas A&M University in 1983. He has published more than 120 articles and written several books on many economic issues. His papers have appeared in the American Economic Review, Econometric Reviews, the Journal of Econometrics, the Review of Economics and Statistics, the Journal of Human Resources, the Journal of Labor Research, Research in Labor Economics, the Journal of Applied Econometrics and the Journal of Business and Economics Statistics, among others.

Professional Activities

Dr. Slottje is a member of the American Economic Association, the American Statistical Association, and the Econometric Society. He has advised the United Nations Development Programme. He has served as a consultant to many firms on labor and employment issues including the U.S. Postal Service. He is a reviewer for the National Science Foundation, the Social Science Research Council of Canada, Oxford and Cambridge University Presses, as well as serving as a referee for many journals including the American Economic Review, the Review of Economics and Statistics, the Journal of Applied Econometrics, the Journal of Econometrics, and the Journal of Business and Economic Statistics. Dr. Slottje was named to the "applied econometrician hall of fame" in 1999 and ranked in the top three in the world (out of over 5000 people) in applied econometrics, based on number of published articles in top econometrics journals. He was named Fellow, Journal of Econometrics, in 2008.

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Selected Labor/Employment Engagement Experience

- Analysis of Class Certification Issues in Labor/ Employment matters.
- Analysis of Hour/Wage claims.
- Discrimination Analysis.
- Analysis of FLSA claims.
- Quantification of damages in wrongful termination claims.
- Performed wage studies in collective bargaining negotiations.
- Productivity/Wage Studies.
- Analyzed Appropriateness of Job Search.
- Lost Earnings Analysis.
- Analyzed compensation/benefit packages for employees.
- Valued Stock Option Plans for employees.
- Seniority System and Compensation Structure Analysis

Representative Labor/Employment Studies Performed

- Analyzed Hour/Wage claims in matters for clients in many industries including national bakeries, insurance companies, restaurant chains, mail order firms, national retailers, security firms, national financial industry firms and others.
- Analyzed discrimination claims in matter for national beverage company.
- Analyzed discrimination claims for international pharmaceutical company.
- Analyzed discrimination claims for national express delivery company.
- Analyzed discrimination claims in matter for national home improvement company.
- Analyzed Fair Labor Standards Act claims in courier driver industry.
- Analyzed Fair Labor Standards Act claims in national baking industry.
- Analyzed discrimination claims in several matters for different national supermarket chains.
- Analyzed discrimination claims in matter for national athletic shoe retailer.

- Analyzed discrimination claims for national sugar producer.
- Analyzed discrimination claims for national computer firm.
- Analyzed discrimination claims for convenience stores.
- Performed wage studies for international telecommunications company.
- Analyzed compensation structure/productivity measurement for U.S. Postal Service.
- Analyzed wrongful termination claims for national trucking firms.
- Analyzed wrongful termination claims for national healthcare providers.
- Analyzed wrongful termination claims for national cosmetics firm.
- Valued Stock Option plans for national computer manufacture
- Analyzed appropriateness of job search for banking industry firms and others.

Selected Publications

Below are select publications. A complete list is available in Dr. Slottje's curriculum vitae.

1. "Bounding Estimates of Wage Discrimination," Research in Labor Economics, Vol. 23 (2004), 215-233, with J. Hirschberg.
2. "Estimating Worklife Expectancies: An Econometric Approach," Journal of Econometrics, Vol. 113 (2003) 83-114, with M. Nieswiadomy, H. Ryu and D. Millimet.
3. "Measuring Human Capital and Its Distribution", Journal of Structural Change and Economic Dynamics, Vol. 11 (2000), 67-94, with C. Dagum.
4. "Estimating the Density of Unemployment Duration Based on Contaminated Samples or Small Samples", Journal of Econometrics, Vol. 95 (2000), 131-156, with H. Ryu.
5. "Productivity Slowdown in the United States: Some New Evidence from the Level Shift Hypothesis," Economic Inquiry, Vol. 37 (1999), 226-241, with B. Raj and J. Dolmas.
6. "A New Method for Detecting Discrimination in Labor Markets," Journal of Econometrics, Vol. 61 (1994), 23-42, with K. Hayes and G. Scully.

Testimony History

Professor Slottje has appeared live at trial approximately 80 times and given over 175 depositions from 1987 to the present. Herein is his testimony history since 2004.

Case Style	***Cause No.***	***Court***	***Testimony Type***
Flegles, Inc. v. Truserv Corp.	CA 03-CI-00005	Commonwealth of Kentucky, Carlisle Circuit Court	Trial 7-28-04
Euclid & Wickliffe Services, Inc. v. **Allied Signal Power Systems, Inc. and Honeywell Power Systems, Inc.**	53Y 181 00895 02	American Arbitration Association East Providence, Rhode Island	Arbitration 12-17-04
Tristrata Technology, Inc. v. **Long's Drug Stores, CVS, Inc., Rite Aid, Inc., Walgreen Co., Guthy Renker Corporation, Victoria Principal Productions, Inc., A Natural Advantage, Medi-Cell Laboratories, Peter Thomas Roth, CCA Industries, Inc., and Mary Kay, Incorporated**	C.A. No. 01-127-JJF	U.S. District Delaware	Trial 03-08-05 03-09-05
Xenium S.A. de C.V. v. Regent Hotels Worldwide, Inc.	12 296/JNK	International Court of Arbitration, Dallas	Arbitration 04-20-06
Avid Identification Systems, Inc. v. **Philips Semiconductors, Inc., Philips Semiconductor Manufacturing, Inc., The Crystal Import Corporation, and Datamars, SA**	2:04-CV-183	U.S. District Eastern District of Texas, Marshall Division	Trial 05/24/06

Case Style	*Cause No.*	*Court*	*Testimony Type*
Orion IP, LLC v. **Mercedes-Benz USA LLC, et al**	6:05-CV-322	U.S. District Court Eastern District of Texas, Tyler Division	Trial 05/25/07
Trading Technologies International, Inc. v. **eSpeed, Inc., et al.**	C.A. No. 03-612 (KAJ)	U.S. District Court for the Northern District of Illinois, Eastern Division	Trial 09/28/07
Butler County Commissioners v. **Utility Service & Supply, Shell Oil Company, Vanguard Plastics, Inc., Orangeburg Industries, Inc. & Endot Industries, Inc.**	CV 2001 07 1492	Court of Common Pleas Butler County, Ohio	Deposition 4-9-04
Ford, et al. v. **Bimbo Bakeries USA, Inc., et al.**	BC271391	Superior Court of California County of Los Angeles, Central District	Deposition 4-14-04
TIGI Linea LP et al. v. The Kroger Company	CV 1234 CC	U.S. District Court Northern District of Georgia Atlanta Division	Deposition 4-29-04 4-30-04
TIGI Linea LP et al. v. CVS Pharmacy, Inc.	CV 1235 CC	U.S. District Court Northern District of Georgia Atlanta Division	Deposition 4-29-04 4-30-04
TIGI Linea LP et al. v. Target Corporation	CV 1341 CC	U.S. District Court Northern District of Georgia Atlanta Division	Deposition 4-29-04 4-30-04
Flegles, Inc. v. Truserv Corp.	CA 03-CI-00005	Commonwealth of Kentucky, Carlisle Circuit Court	Deposition 7-12-04

Case Style	*Cause No.*	*Court*	*Testimony Type*
Perfect Putter Co., Clark Collins and Patrick Riley v. **Callaway Golf Company, Callaway Golf Sales Co., Odyssey Golf, and Kerry Keena**	02-14342-CIV-PAINE	U.S. District Court Southern District of Florida	Deposition 8-30-04
King of Fans, Inc. v. **Litex Industries, Inc.**	03-61637-CIV-COOKE	U.S. District Court Southern District of Florida	Deposition 9-22-04
eSpeed, Inc.; Cantor Fitzgerald, L.P.; and CFPH, L.L.C. v. BrokerTec USA, L.L.C.; BrokerTec Global, L.L.C.; Garban, LLC; ICAP PLC; OM AB; and OM Technology (U.S.), Inc.	C.A. No. 03-612 (KAJ)	U.S. District Delaware	Deposition 01-26-05
Tristrata Technology, Inc. v. **Long's Drug Stores, CVS, Inc., Rite Aid, Inc., Walgreen Co., Guthy Renker Corporation, Victoria Principal Productions, Inc., A Natural Advantage, Medi-Cell Laboratories, Peter Thomas Roth, CCA Industries, Inc., and Mary Kay, Incorporated**	C.A. No. 01-127-JJF	U.S. District Delaware	Deposition 02-08-05
Fujitsu Limited v. Cirrus Logic, Inc., et al.	No. 103-CV-009885	Superior Court of California County of Santa Clara	Deposition 3-15-05 3-16-05
The Nautilus Group, Inc. v. **Icon Health & Fitness, Inc.**	CV 02-2420P	U.S. District Court Western District of Washington at Seattle	Deposition 3-29-05

Case Style	*Cause No.*	*Court*	*Testimony Type*
Danny Bednar, William Sekly v. **Allstate Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Indemnity Company, Greg Bleiffer et al.**	BC 240813	Superior Court of California County of Los Angeles, Central Civil West	Deposition 04-05-05
Danny Bednar, William Sekly v. **Allstate Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Indemnity Company, Greg Bleiffer et al.**	BC 240813	Superior Court of California County of Los Angeles, Central Civil West	Deposition 05-02-05
East Bay Municipal Utility District, v. **Shell Oil Company, Shell Chemical Company, AND DOES 1 THROUGH 100, INCLUSIVE**	No. 04-431386	Superior Court of California, City and County of San Francisco	Deposition 10-10-05
Tantivy Communications, Inc. v. **Lucent Technologies**	NO. 2-04CV-79 (TJW)	U.S. District Court Eastern District of Texas Marshall Division	Deposition 10-21-05
Melissa Fukuchi, individually and on behalf of all other similarly situated v. **Pizza Hut, Inc.**, a California Corporation, And Does 1 through 50, Inclusive	NO. BC302589	Superior Court of California, County of Los Angeles Central	Deposition 01-19-06
David Jurado and Penny Schultz v. **Hewlett-Packard Company**	CV 025620	Superior Court of California, County of San Joaquin	Deposition 04-10-06
Nutrition 21, LLC v. **General Nutrition Corporation**	6:05-CV-228(LED)	U.S. District Court, Eastern District of Texas Tyler Division	Deposition 10/27/06

Case Style	*Cause No.*	*Court*	*Testimony Type*
Ellen Schaaf, v. **SmithKline Beecham Corporation d/b/a/ GlaxoSmithKline; SmithKline Beecham Corporation; and GlaxoSmithKline**	1:04-CV-2346-GET	U.S. District Court, Northern District of Georgia Atlanta Division	Deposition 1/17/07
In re: Apollo Group, Inc. Securities Litigation	CV 04-2147-PHX-JAT	U.S. District Court, District of Arizona	Deposition 2/2/07
Orion IP, LLC v. **Hyundai Motor America**	6:05-CV322-LED	U.S. District Court, Eastern District of Texas, Tyler Division	Deposition 2/15/07
Network-1 Security Solutions, Inc. v. **D-Link Corporation and D-Link Systems, Incorporated**	6:05-cv-00291	U.S. District Court Eastern District of Texas, Tyler Division	Deposition 3/28/07
Miguel Garcia v. **Lowe's Company, Inc.; Lowe's Home Centers, Inc.; Lowes' HIW, Inc.; Dedicated Delivery & Install Services, Inc.; Victor Manuel Montes, doing business as Cash Cow; and DOES 1-100 inclusive**	GIC 841120	Superior Court of the State of California for the County of San Diego	Deposition 5/30/07
Trading Technologies International, Inc. v. **eSpeed, Inc., et al.**	C.A. No. 03-612 (KAJ)	U.S. District Court for the Northern District of Illinois, Eastern Division	Deposition 09/07/2007

Case Style	*Cause No.*	*Court*	*Testimony Type*
Greg Randall, Cynthia Peterson, and Terry Head, on behalf of themselves and all others similarly situated and on behalf of the general public v. **Costco Wholesale Corporation, a Washington corporation doing business as Costco, and DOES 1 through 100, inclusive**	BC 296369	Superior Court of the State of California for the County of Los Angeles	Deposition 09/13/2007
MS Perry Company, Inc. and ANISA International, Inc. v. **Mary Kay Inc.**	05-00857	US District Court of Dallas County, 68th Judicial District	Deposition 12/05/2007
Dennis Johnson and Arnold Rosenfeld, individually and on behalf of others similarly situated v. **GRUMA CORPORATION, a Nevada corporation, dba MISSION FOODS CORPORATION**; and DOES 1 through 100, inclusive	1220026252	JAMS Arbitration Los Angeles, CA	Deposition 03/28/2008

Highlighted text denotes party(ies) Dr. Slottje assisted.

APPENDIX 4

APPENDIX 4: List of Information Considered

A. Items Produced by the Parties

CO Trial Ex. 03 (0218-22) CO04008133 - 81
CO Trial Ex. 08 (0101-25)
CO Trial Ex. 11 (0017-22, 0024, 0028, 0029, 0034, 0036-40, 0042-44)
CO Trial Ex. 13 (0151-53, 0155-68, 0170-73, 0175-77)
CO Trial Ex. 24 (0252, 0295, 0296, 0298, 0317, 0318, 0328, 0329, 0332, 0344, 0351, 0375, 0376, 0397, 0403-05, 0407, 0411, 0413-15, 0417, 0419, 0422, 0426)

B. Pleadings and Discovery

Depositions:
10/3/2007 Margaret E. Guerin-Calvert Deposition
10/11/2007 David J. Teece Deposition
10/2/2007 William Martin Landes Deposition

Testimony:
11/29/2006 Testimony of Ron Wilcox
11/30/2006 Testimony of Margaret E. Guerin-Calvert
11/30/2006 Testimony of Professor David J. Teece
11/30/2006 Testimony of Linda McLaughlin
1/29/2008 Mechanical and Digital Phonorecord Delivery Rate Adjustment Proceeding Hearing Transcript (A.M. Session) (Opening Statement)
1/29/2008 Mechanical and Digital Phonorecord Delivery Rate Adjustment Proceeding Hearing Transcript (P.M. Session) (Opening Statement & Roger Faxon testimony)
2/7/2008 Testimony of William M. Landes, Ph. D (A.M. Session)
2/7/2008 Testimony of William M. Landes, Ph. D (P.M. Session)
2/11/2008 Testimony of William M. Landes, Ph. D (A.M. Session)
2/11/2008 Testimony of William M. Landes, Ph. D (P.M. Session)
2/13/2008 Testimony of Linda McLaughlin and Colin Finkelstein
2/14/2008 Testimony of Colin Finkelstein
2/19/2008 Testimony of David J. Teece (A.M. Session)
2/19/2008 Testimony of David J. Teece (P.M. Session)

Other:
2/3/1998 37 CFR Part 307, Adjustment of Royalty Payable Under Compulsory License for Making and Distributing Phonorecords; Rates and Adjustment of Rates
National Music Publishers' Association, Inc.'s, The Songwriters Guild of America's, and The Nashville Songwriters Association International's Motion in Limine to Exclude Evidence Relating to Revenues Generated from Non-Mechanical Licenses
10/29/2007 Amended Expert Report of William M. Landes
11/30/06 Statement of Roger Faxon
4/4/2008 Report of Bruce Benson
4/4/2008 Report of Terri Santisi
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C. Information from Independent Sources

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