Pierre Y. Cremieux, Ph.D.
Analysis Group, Inc.
pcremieux@analysisgroup.com
(617) 425 8135

Matthew S. Wild, Esq.
White & Case LLP
mwild@whitecase.com
(212) 819 8385

USE OF REGRESSION ANALYSIS IN LITIGATION
February 21, 2006

Bibliography

Slide	Footnote	Case Law
#7	A regression is a "generally accepted method for proving antitrust damages."[1]	*Conwood Co. v. United States Tobacco Co.*, 293 F.3d 768, 793 (6th Cir. 2002).
#7	"An event study is a statistical regression analysis that examines the effect of an event on dependent variable, such as a corporation's stock [and] … is an accepted method for the evaluation of materiality damages" in a securities fraud litigation.[2]	*In re Imperial Credit Indus., Inc. Securities Litig.*, 252 F. Supp.2d 1005, 1014 (C.D. Cal. 2003) (citations omitted).
#7	"[I]t is clear that a regression analysis … may serve to prove a plaintiff's [racial discrimination] case."[3]	*Bazemore v. Friday*, 478 U.S. 385, 400 (1986).
#7	"[M]ultiple regression analysis … has often been used to calculate lost profits."[4]	*Newport Ltd. v. Sears, Roebuck & Co.*, Civ. A. No. 86-2319, 1995 WL 328158 at *2 (E.D. LA May 30, 1995).
#11	*T statistic* - At least one court has insisted upon a 95% degree of confidence rejecting results based upon a 85% degree of confidence.[5]	*FTC v. Swedish Match*, 131 F. Supp .2d 151, 161 n.10 (D.D.C. 2000) ("While it may be true that there is no bright line between an eighty-five (85) percent statistical significance level and more typically accepted level of confidence such as ninety-five (95) percent, defendants have simply not convinced the Court … to accept conclusions at this lesser level of confidence").

#16	*Data may be incomplete* - Courts generally admit models with this flaw,[6]	*See, e.g., U.S. Information Systems, Inc. v. Int'l Brotherhood of Electrical Workers Local Union Number 3,* 313 F. Supp.2d 213, 232 (S.D.N.Y. 2004) ("sample size will not skew the results … Accordingly, small sample size goes to the weight rather than to the reliability (and admissibility) of a study"); *United States v. City of Yonkers*, 609 F. Supp. 1281, 1288 (S.D.N.Y. 1984) (small sample size does not make results "unreliable").
#16	*Data may be incomplete* - but often find that they lack credibility.[7]	*See, e.g., Int'l Bhd. of Teamsters v. United States*, 431 U.S. 324, 340 n.20 (1977) ("small sample size may, of course, detract from the value of such evidence"); *Mayor of Philadelphia v. Educ. Equal. League*, 415 U.S. 605, 621 (1974) ("the District Court's concern for the smallness of the sample … was also well founded"); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 723 (D.C. Cir. 2001) ("the number of data points … were few … Assessing such data's statistical significance in establishing the proposition … is thus highly speculative"); *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1076 (D.D.C. 1997) ("The number of SKUs in the sample was not provided to the Court …. Therefore, the Court would not give much weight to this evidence standing alone").
#16	*Data may be biased* - Courts often exclude models based upon biased data.[8]	*See, e.g., City of Tuscaloosa v. Harcros Chemicals, Inc.*, 158 F.3d 548, 566 (11th Cir. 1998) ("we find that … a small portion of [the expert's] data … is fundamentally flawed, and the evidence based thereon is consequently unreliable and must be excluded"); *In re Polypropylene Antitrust Litig.*, 93 F. Supp. 2d 1348, 1355 (N.D. Ga. 2000) ("Opinions based upon erroneous data, of course, must be excluded"); *U.S. Info. Sys., Inc.*, 313 F. Supp. 2d at 235 ("Dr. Dunbar's data sample therefore cannot provide the basis for his testimony"); *but see Louis Trauth Dairy*, 925 F. Supp. at 1253 ("Problems in [the] selection of a sample bear on the weight of the testimony, not its admissibility").

#16	*Necessary variables are omitted* - Courts generally do not exclude models with this flaw,[9]	*See, e.g., Bazemore*, 478 U.S. at 400 ("Normally, failure to include variables will affect the analysis' probativeness, not its admissibility").
#16	*Necessary variables are omitted* - unless the movant can demonstrate that the omitted variable(s) affected the outcome of the analysis.[10]	*See,e.g., Bazemore*, 478 U.S. at 400 ("There may, of course, be some regressions so incomplete as to be inadmissible as irrelevant"); *Polypropylene*, 93 F. Supp.2d at 1365 (movant cannot prevail on a *Daubert* motion by "[m]erely pointing to economic conditions that may affect the dependent variable," but "must introduce evidence to support its contention that failure to include those variables would change the outcome of the analysis"); *In re Indus. Silicon*, 1998 WL 1031507 at *3 ("a party cannot successfully challenge the admissibility of a regression analysis by simply pointing to a laundry list of possible independent variables that were not included").
#16	*Necessary variables are omitted* - In antitrust cases, however, Judge Posner as well as the Eighth Circuit en banc have rejected econometric models because they failed to account for non-conspiratorial causes of price changes. These opinions did not explain the showing that was required.[11]	*See Blue Cross & Blue Shield United of Wisconsin v. Marshfield Clinic*, 152 F.3d 588, 594 (7th Cir. 1998) (Posner, Ch. J.) (the expert "failed to correct for the effect of market share on the Clinic's prices. … [N]o reasonable jury could estimate the plaintiffs' damages from the reports of the plaintiffs' experts"); *Bloomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan, Inc.*, 203 F.3d 1028, 1038 (8th Cir. 2000) (*en banc*) ("the expert's model is fundamentally unreliable because of his heavy (if not exclusive reliance on evidence that is not probative of conspiracy, coupled with his failure to consider significant external forces that served to raise the price").
#16	*Model fails to account for a change over time in the relationship between the dependent and independent variables* - At least one court has discredited an analysis with this flaw where a party demonstrated that the flaw affected the outcome.[12]	*Coates v. Johnson & Johnson*, 756 F.2d 524, 542 (7th Cir. 1985) ("The district court therefore could have accepted … that the Chow test was the proper test and could discount the probative value of the pooled analysis").

#16	*Model fails to account for a change over time in the relationship between the dependent and independent variables* - Another court noted, however, that no "authority would require use of a Chow test in this case."[13]	*Dukes v. Wal-Mart Stores, Inc.*, 222 F.R.D. 137, 157 (N.D. Cal. 2004).
#24	*Market factors* - One court observed that "[w]ith respect to changes in price, changes in cost are one obvious explanatory variable."[14]	*Polypropylene*, 93 F. Supp. 2d at 1365.
#24	*Market factors* - One court observed that "the effect of … demand … might impact price levels."[15]	*In re Aluminum Phosphide Antitrust Litig.*, 893 F. Supp. 1497, 1504 (D. Kan. 1995).
#24	*Market factors* - One court observed that "the effect of supply … might impact price levels."[16]	*In re Aluminum Phosphide Antitrust Litig.*, 893 F. Supp. 1497, 1504 (D. Kan. 1995).
#24	*Market factors* - Judge Posner held that where the expert "failed to correct for the effect of market share on [plaintiff's] prices, … no reasonable jury could estimate damages."[17]	*Blue Cross*, 152 F.3d at 594.

Additional Sources – Econometrics

Pindyck, Robert S., with Rubinfeld, D. L., *Econometric Models and Economic Forecasts***,** McGraw Hill, Fourth edition, 1998.

Greene, William H., *Econometric Analysis,* Prentice-Hall, Fifth edition, 2003.