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# UNITED STATES BANKRUPTCY COURT SOUTHERN DISTRICT OF NEW YORK

In re: RESIDENTIAL CAPITAL, LLC, *et al.*, Debtors. Case No. 12-12020 (MG) Chapter 11 Jointly Administered

# EXPERT REPORT OF WILLIAM H. GREENE, PH.D.

December 14, 2012

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# I. EXPERT WITNESS DISCLOSURE AND STATEMENT OF BACKGROUND AND QUALIFICATIONS

- I, William H. Greene, have been asked to serve in an expert witness capacity by counsel to The Bank of New York Mellon Trust Company, N.A., Deutsche Bank Trust Company Americas, and Deutsche Bank National Trust Company, in their capacities as trustees or indenture trustees for certain mortgage or home equity lines of credit backed securitization trusts. I hereby submit the following expert witness disclosure regarding testimony on the statistical estimation of total Repurchase Liabilities for the Trusts subject to *Debtors' Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of RMBS Settlement Agreements* and the *Debtors' Supplemental Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of RMBS Settlement Agreements* ("Proposed Settlement").
- 2. I am the Robert Stansky Professor of Economics at New York University's Leonard N. Stern School of Business ("Stern"), concentrating in the field of econometrics and applied statistics. I am the author of *Econometric Analysis*, a statistics textbook widely used in the fields of Economics, Sociology, Political Science, Medical Research, Transport Research, and Environmental Economics. I joined New York University's faculty in 1982 and have served as the Chair of the Economics Department at Stern as well as the Director of the doctoral program. I serve as the Editor-in-Chief of the journal *Foundations and Trends in Econometrics* (since 2004) and am the incoming Editor-in-Chief of the *Journal of Productivity Analysis*. I have served as a member of the Committee on Economic Education for the American Economic Association. I have also served as a visiting professor at American University and several other universities in the U.S. and abroad.

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- 3. I possess extensive experience in the application of statistics to economic issues and have provided expert testimony and analyses to a wide variety of organizations, including Fannie Mae, the Center for Applied Value Analysis, the American Society of Composers, Authors and Publishers (ASCAP), the Robert Wood Johnson Foundation, the World Bank, the United States Postal Rate Commission, and the American Express Corporation.
- 4. I am the author of scores of scholarly articles published in top journals such as the *American Economic Review, Journal of Econometrics*, and *Econometrica*. In addition, I frequently present my scholarly research at top conferences around the world. I teach numerous courses at Stern, including Econometrics, Mathematical Statistics, and Advanced Topics in Microeconomics and am also the author of LIMDEP statistical software, which has been recognized for years as one of the top software tools for the estimation of limited and qualitative dependent variable models.
- 5. I hold a B.S. in Business Administration from the Ohio State University and a Ph.D. in Econometrics from the University of Wisconsin, Madison. My resume, including my publications for at least the previous ten years, and my testimony experience for at least the past four years, are attached to this report as **Attachment I**.

# II. SCOPE OF WORK

6. My assignment in connection with this matter is to address, from a statistical and economic perspective, estimation methodologies pertaining to collateral loss and repurchase liabilities in the 392 trusts that are subject to the Proposed Settlement and to address certain findings in the *Expert Report of Bradford Cornell, Ph.D.* I express no expert opinion as to the appropriateness of considering a causal link between breach and default in assessing repurchase liability. My analysis presupposes that the causal link is

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analytically significant, even though I am informed that there is great legal debate on its merit. My expert opinion should be considered in relation to the *Expert Report of Bradford Cornell, Ph.D.*, in which Dr. Cornell attempts to quantify the causal link between breach and default.

- 7. While all the conclusions set forth in this report are my own, certain professionals at the financial advisory and consulting firm Duff & Phelps, working under my direction, have provided me analytical support. In performing my analyses, I and/or others at Duff & Phelps, working under my direction, have reviewed, among other information, the following:
  - Limited Objection to Debtors' Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of the RMBS Trust Settlement Agreements
  - Objection to the Debtor's Second Supplemental Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of the RMBS Trust Settlement Agreements
  - Expert Report of Bradford Cornell, Ph.D.
- 8. Attachment II includes a listing of the documents that were reviewed and/or considered in forming the basis for my conclusions. I reserve the right to update Attachment II as additional documentation is reviewed and considered.

# **III. SUMMARY OF CONCLUSIONS**

# Conclusion 1: Statistical Significance is an Inappropriate Test to Determine a 27 Month Cut-off

9. Dr. Cornell relies on the statistical significance of his estimated causal relationship between breach and default to establish a 27 month cut-off. Statistical significance at the 95% confidence level, as used by Dr. Cornell, cannot determine definitively that a relationship does not exist between breach and default after that 27 month period. Rather,

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statistical significance only allows confidence that a finding of positive relationship is unlikely to be spurious. Dr. Cornell should also have considered real-world and economic evidence to determine whether an outright 27 month cut-off is appropriate.

# Conclusion 2: ResCap's Known Repurchases Contradict Dr. Cornell's Results

10. A finding of a relationship extending beyond 27 months is consistent with ResCap's historical willingness to agree to repurchase loans with a default date beyond 27 months from securitization, even if the loan was current at the 27 month mark. In addition, repurchase requests regarding many such loans are currently pending.

#### Conclusion 3: Dr. Cornell's Analysis is Insufficient to Support His Conclusions

11. In addition to his inconclusive results, Dr. Cornell's statistical methodology has serious flaws. The statistical relevance of his 27 month cut-off is questionable since, all else equal, performing the same analysis on a larger sample would provide increased precision in finding a statistically significant relationship between breaches and default beyond 27 months. Even though it is not possible to predict with certainty whether increasing the sample size used in the analysis would produce different results, given the importance of the 27 month cut-off in his analysis, Dr. Cornell should have employed a larger sample.

# Conclusion 4: Dr. Cornell's Sample is not Random

12. Dr. Cornell's methodology for determining how long the relationship between breaches and defaults is statistically significant is flawed. He eliminates specific loans from the originally generated random sample in each month of his analysis. By removing a nonrandom group of loans each month, Dr. Cornell utilizes a sample that is progressively less random each month to determine the overall relationship between the sample and the original population of loans. Without a random sample, Dr. Cornell's t-statistics used to

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infer statistical significance may be biased, and, consequently, his results may not be reliable.

# Conclusion 5: Dr. Cornell Provides No Support for Using 90-Day Delinquency as a Predictor of Future Defaults

13. Dr. Cornell makes the assumption that employing 90 day delinquency at 27 months is an acceptable predictor of future default. In his analysis, I see no statistical evidence to support this assumption, and I see no test to determine whether 60 day delinquency is also a predictor of future breach-associated defaults. In addition, I see no support in Dr. Cornell's analysis as to whether loans that are delinquent in months other than the 27<sup>th</sup> month are likely to default. Given the importance of the projected loss figure in the analysis — \$18 billion of projected losses compared to \$5.6 billion of recognized losses — Dr. Cornell should have broadly considered the correlation between delinquency and future default and not solely his unsubstantiated 90-day measure.

# Conclusion 6: Dr. Cornell Fails to Account for Other Causes of Breach

14. The methodology employed by Dr. Cornell consists only of a binary variable for the presence of a material breach. By ignoring the other potential causal factors relevant to default, such as vintage and product type, the methodology returns results that may lead to incorrect inferences about the level of statistical significance.

# IV. THE METHODOLOGY EMPLOYED BY DR. CORNELL PRODUCES UNRELIABLE RESULTS

- (i) Statistical Significance is an Inappropriate Test to Determine a 27 Month Cut-off
- 15. Dr. Cornell's estimate of total repurchase liability hinges on a methodology that estimates the relationship between default and breach to end after 27 months beyond the date which

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the loan was securitized. The methodology employs a series of 19 regressions in which the dependent variable is whether the loan defaulted after a time horizon and the independent variable is whether it was determined that the loan had a material breach. The analysis finds that after 27 months, the impact of a breach on the probability of default is not significantly different from zero at the 95% confidence level. Due to the lack of a significant coefficient on breach after 27 months, Dr. Cornell concludes there is no association between breach and default after 27 months.

16. The methodology employed by Dr. Cornell leads to an estimate for the total repurchase liability that is unreliable and speculative, because it implausibly relies only on the statistical significance to establish a 27 month cut-off for the causal relationship between breach and default. The statistical testing that is employed by Dr. Cornell can be used to determine whether results showing that a relationship is present are statistically different than zero. Statistical significance cannot, however, definitively conclude that no relationship exists. Dr. Cornell incorrectly infers that if there is no significance at a 95% confidence level, then there is no relationship, which caused him to inappropriately disregard substantial losses that occur after his 27 month cut-off.

#### (ii) ResCap's Known Repurchases Contradict Dr. Cornell's Results

17. In assessing his statistical findings, Dr. Cornell should consider real-world and economic evidence to determine whether a 27 month cut-off is appropriate. By relying only on the statistical significance of the relationship between breach and probability of default, Dr. Cornell's analysis underestimates the repurchase liability by assuming that no statistical significance implies no relationship. Such an assumption is both statistically and economically unfounded and contradicts ResCap's actual repurchase behavior.

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Specifically, Dr. Cornell ignores that ResCap agreed to at least 676 repurchase requests for which the loan defaulted after 27 months from securitization (see Table 1).<sup>1</sup> Furthermore, 173 loans that were never 90+ days delinquent in the first 27 months resulted in agreed-upon repurchases by ResCap. These 173 loans do not include the 470 pending repurchase requests on loans that were not 90+ days delinquent in their first 27 months. Making the assumption that ResCap would not generally agree to repurchase loans in which the breach were not associated with the default, these successful put-backs indicate that 27 months is not a reliable cut-off in reference to successful put-backs.

Table 1: ResCap Repurchase Data									
Liquidated After		First D90+ After	Last D90+ Prior to						
Status	Month 27	Month 27	Month 27						
Agreed Upon	676	173	1980						
Pending	914	470	414						

Source: RC-9019\_0045459 and RC-9019\_00056670

# (iii) Dr. Cornell's Analysis is Insufficient to Support His Conclusions

18. Dr. Cornell's analysis is limited to the 819 observations from a sample of 1,500 loans for which there is payer history as well as a determination of whether or not the loan has a material breach. Furthermore, the range of sample sizes actually used in the monthly default regressions is 548 observations in the 18 month regression down to 313 observations in the 36 month regression. That notwithstanding, the 36 month regression still finds a t-statistic of 1.32, which provides statistical significance at the 80% confidence level — hardly the zero relationship between default and breach that Dr. Cornell infers from his analysis. That there is 80% confidence in a statistical relationship

<sup>&</sup>lt;sup>1</sup> RC-9019\_0045459 and RC-9019\_00056670 (PLS Demand Data provided by the Debtor).

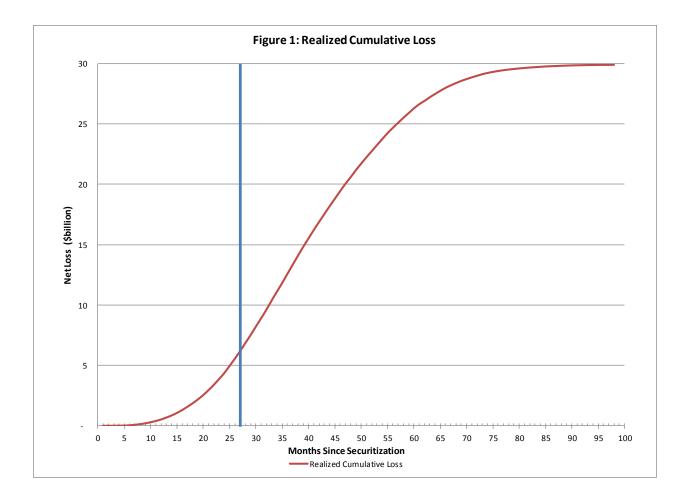
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between breach and default requires an analysis to, at the very least, explore whether the 27 month cut-off is a factor of a small sample or whether, even with a larger sample, the results are stable. Combining the 80% confidence with the economic evidence presented by ResCap's actual repurchase history would not lead me to conclude that 27 months is an appropriate cut-off. It would lead me to undertake additional work and request more data to determine whether 36 months, or any other number of months, would be a more appropriate cut-off.

19. The importance of understanding the precision of the 27 month cut-off is underscored by the significant impact on the estimate of collateral loss associated with changes in that cut-off. For example, as shown in Figure 1, if, with a larger sample size, Dr. Cornell had found increased significance beyond 27 month, this would have led to a large increase in Realized Cumulative Losses.<sup>2</sup> For example, based on cumulative losses published in ResCap's investor relations website (Vision) and supplemented with Intex data to account for certain information not reported in Vision, an increase from 27 to 36 months would increase cumulative losses by about \$6.4 billion, or from \$5.6 billion to approximately \$12 billion, more than doubling Dr. Cornell's estimate of realized losses. Dr. Cornell's projected additional losses would also increase as the "stock of delinquent loans" would increase by an approximately \$2 billion if the cut-off were 36 months. Because of the need to fully understand the potential impact of movement in his 27 month cut-off, Dr. Cornell should have used a larger sample in order to reduce the level of imprecision in his analysis.

 $<sup>^{2}</sup>$  An error in the 27 month cut-off not only materially affects losses, it is also asymmetric, meaning that the effect of extending the 27 month cut-off results in a relatively larger change in losses than a similar-sized contraction in the time horizon.

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# (iv) Dr. Cornell's Sample is not Random

20. Dr. Cornell's methodology for determining how long the relationship between breaches and defaults displays statistical significant is flawed because it eliminates specific loans from the originally generated sample in each successive month of his analysis. By removing a non-random group of loans each month, Dr. Cornell utilizes a sample that is progressively less random as each month passes in order to determine the overall relationship between the sample and the original population of loans. Because the sample is not random, Dr. Cornell's inferences regarding statistical significance may be biased, and his results may not be reliable.

# (v) Dr. Cornell Provides No Support for Using 90-Day Delinquency as a Predictor of Future Defaults

- 21. Dr. Cornell employs an assumption that serious delinquency (defined in his Report as 90+ days delinquent, in foreclosure, or in REO at 27 months) is an acceptable predictor of future default. Specifically, he states that "I make the simplifying assumption for this purpose that seriously delinquent balances as of month 27 will generate losses for the Trusts."<sup>3</sup> While the assumption may be simplifying it may also serve to inappropriately limit the future losses in his analysis to 90+ day delinquent loans by failing to consider whether loans that are 60+ days delinquent at the 27 month mark may also be similarly likely to default in the future. According to delinquency, foreclosure, and REO information from third-party data source Intex, employing 60+ day delinquency as a predictor of future default would, by itself, increase the "stock of delinquent loans" (Line 2 of Dr. Cornell's Table 2) by approximately \$3 billion. Given this observed increase, it is worth noting that the correlations of, both, 90+ days and 60+ days delinquent to eventual default are very similar — 0.422 for 90+ days and 0.416 for 60+ days — giving no basis to show that 90+ days delinquent is a materially better predictor of eventual default than 60+ days delinquent.
- 22. Dr. Cornell's calculation of projected losses from default is limited and unsupported in two ways. As noted here, the consideration of only loans that are 90+ days delinquent is a limiting factor. In addition, he employs his unreliable 27 month cut-off, even though the cut-off was determined in relation to defaulted loans and not in relation to delinquent loans. I see no statistical evidence to support this assumption, and I see no evidence to distinguish whether 60+ days delinquent is an inferior predictor of future defaults in

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<sup>&</sup>lt;sup>3</sup> Expert Report of Bradford Cornell, Ph.D. at 24–25.

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comparison to 90+ days delinquent. In addition, there appears to be no support in Dr. Cornell's analysis to show whether loans that are delinquent in months other than the 27<sup>th</sup> month are likely to default. Given the importance of the projected loss figure in the analysis — \$18 billion of projected losses, as compared to \$5.6 billion of recognized losses — Dr. Cornell should have more broadly considered the correlation between delinquency and future defaults.

- 23. By utilizing Dr. Cornell's own calculations presented in Table 2 of his report, it is possible to observe the impact of utilizing 60+ day delinquency instead of 90+ day delinquency over different time horizons. Table 2 presents an approximate replication of the methodology used in Dr. Cornell's Trust Losses Due to Material Underwriting Defects. Note that my analysis attempts to demonstrate changes in breach associated losses by using 60+ days delinquency with different time horizons within Dr. Cornell's methodological framework; however, I do not agree with the appropriateness of the methodology.
- As shown in column 2 of Table 2, utilizing 60+ days delinquency instead of 90+ days delinquency would increase total losses on loans with material defects by approximately \$700 million. In addition, if the cut-off were to increase from 27 months to 36 months or to 42 months, the result would be an increase in total losses on loans with material defects of approximately \$3.6 billion (column 5) and \$5.1 billion, respectively (column 6). A potential \$5.1 billion increase in losses associated with breach is materially significant, and Dr. Cornell's report does not demonstrate sufficient support to substantiate 90+ day delinquency at the 27 month cut-off as a predictor of eventual default.

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	(1)	(2)	(3)	(4)	(5)	(6)
		Change from Cornell Table 2				
					Use 60	Use 60
					Days	Days
		Use 60			Delinq.	Delinq.
		Days	Use 36	Use 42	& 36	& 42
	Cornell	Delinq.	Months	Months	Months	Months
1 Recognized losses	\$5.6	+\$0.0	+\$6.4	+\$10.8	+\$6.4	+\$10.8
2 Stock of delinq. Loans	\$18.0	+\$3.0	+\$2.1	+\$1.1	+\$4.6	+\$3.3
3 Average severity	55.6%	55.6%	55.6%	55.6%	55.6%	55.6%
4 Losses on delinq. Loans	\$10.0	+\$1.7	+\$1.1	+\$0.6	+\$2.5	+\$1.9
5 Estimated total losses	\$15.6	+\$1.7	+\$7.6	+\$11.4	+\$9.0	+\$12.6
6 Missing data adjustment	\$3.2	+\$0.0	+\$0.0	+\$0.0	+\$0.0	+\$0.0
7 Estimated total losses	\$18.8	+\$1.7	+\$7.6	+\$11.4	+\$9.0	+\$12.6
8 % of losses with breach	40.4%	40.4%	40.4%	40.4%	40.4%	40.4%
9 Loss on loans w/ breach	\$7.6	+ <b>\$0.7</b>	+\$3.1	+ <b>\$4.6</b>	+\$3.6	+\$5.1

# Table 2: Replication of Cornell Report Table 2 with Additional Scenarios (\$billions)

Note: Column 1 provides figures from *Expert Report of Bradford Cornell, Ph.D.*, Table 2. Columns 2–6 present incremental increases based on calculations from Vision and Intex. By combining two data sources, I include information from all 392 Trusts subject to the Proposed Settlement.

# (vi) Dr. Cornell Fails to Account for Other Causes of Breach

25. The methodology employed by Dr. Cornell consists only of one independent variable: a dummy variable for the presence of a material breach. By ignoring the other potentially causal factors relevant to default, such as vintage and product type, the methodology returns results that may lead to incorrect inferences about statistical significance, because the relationship between breach and default may change over time or by product. Furthermore, the mix of products in the combined 392 Trusts may shift over time. Failing to account for changes in product mix can lead to bias and erroneous inferences about the statistical significance of the coefficient on material breach.

# V. RESERVATION OF RIGHTS AND COMPENSATION DISCLOSURE

26. Although my study is based upon the current record, and I am in a position to render conclusions at this time based upon such information, my study is ongoing, and expert

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witness deposition testimony has not been completed. Specifically, I have been unable to review any of the work papers associated with Dr. Cornell's work, and Dr. Cornell's deposition has not been taken. Accordingly, I reserve the right to revise or expand any expert conclusions to reflect any additional conclusions that I may formulate based upon newly acquired information or arising from reflection and reconsideration of the conclusions based upon views expressed by expert witnesses, if any, and upon further study and information, including, among other things, documentary and testimonial evidence introduced subsequently.

- 27. Duff & Phelps charges a rate of \$835 per hour for my professional services, and I have no financial interest in the outcome of this matter.
- 28. This report is not to be reproduced, distributed, disclosed or used for any purposes other than the above-referenced proceedings without prior written approval.

Respectfully Submitted,

By:

William H. Greene, Ph.D. December 14, 2012

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# **ATTACHMENT I**

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# WILLIAM H. GREENE

Stern School of Business Kaufman Management Center 44 West Fourth Street, Rm. 7-78 New York, NY 10012-1126 212-998-0876 FAX: 212-995-4218 wgreene@stern.nyu.edu www.stern.nyu.edu/~wgreene

Professor of Economics and Statistics Editor, Journal of Productivity Analysis Editor, Foundations and Trends in Econometrics

# **EDUCATION**

Ph.D. Econometrics, 1976, University of Wisconsin, Madison (*The Structure of Production in the U.S. Electric Power Industry*) M.A. Economics, 1974, University of Wisconsin, Madison B.S. Business Administration, 1972, Ohio State University

### ACADEMIC EMPLOYMENT

Robert Stansky Professor, Stern School of Business, NYU, 2011-Toyota Motor Corp. Professor of Economics, Stern School of Business, NYU, 2007-2011 Professor of Economics, Stern School of Business, New York University, 1989-present Affiliated Professor, Statistics, IOMS Department, Stern School of Business, 2006-Jules Backman Fellow, Stern School of Business, 2006-2007 Entertainment and Media Faculty Fellow, Stern School of Business, 2000-2006 Chair, Department of Economics, Stern School of Business, New York University, 1996-2001 Director, Ph.D. Program, Stern School of Business, NYU, 1989-1995. Associate Professor, Stern School of Business, New York University, 1982-1989 Assistant Professor, Department of Economics, Cornell University, 1976-1981 Editor in Chief, *Foundations and Trends in Econometrics*, 2004-Editor in Chief, *Journal of Productivity Analysis*, 2012-

#### ACADEMIC APPOINTMENTS

Distinguished Adjunct Professor, School of Business, Curtin University, Australia, 2012-Visiting Lecturer, Georgetown University, 2012 Visiting Lecturer, University of Aarhus, Denmark, 2012 Visiting Lecturer, National University of Ireland, Galway, 2011, 2012 Distinguished Adjunct Professor, Monash University, 2010-Honorary Professor, University of Sydney, 2010-Committee on Economic Education, American Economic Association, 2008-Distinguished Adjunct Professor, American University, 2006-Associate, Info-Metrics Institute, American University, 2006-Lecturer, IFS/CEMMAP, University College, London, 2003– Lecturer, Institute of Fiscal Studies, Madrid, Spain, 2009, 2010 Invited Professor, University of Lugano, 2004 -External Affiliate, Center for Health Economics, University of York, UK, 2006- (Scientific Advisory Board)

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Adjunct Professor, Center for Health Economics, Monash University, Monash, Australia, 2009-2010 Visiting Lecturer, University of Queensland, June, 2010 Visiting Lecturer, University of Bergen, Norway, September, 2007 Royal Economic Society, Visiting Lecturer, University of York, UK, November, 2002 Visiting Scholar, Federal Reserve Bank, Chicago (June, 2002) Visiting Lecturer, University of Umea (Sweden), 1996. Visiting Professor, Pennsylvania State University, 1995 Visiting Lecturer, University of Lund (Sweden), 1993 Visiting Lecturer, University of Oxford, 1992, 1994 Visiting Lecturer, University of Sydney, Sydney, Australia, 1990, 1993, 1995, 1997, 1999 Visiting Lecturer, State University of New York at Binghamton, 1977 Research Assistant, Institute for Research on Poverty, University of Wisconsin, 1973 Teaching Assistant, Department of Economics, University of Wisconsin, 1972-1973

# ACADEMIC CONSULTATION

City and Metropolitan Planning, University of Utah, 2012-International Finance Corp (IFC) (Reviewer Project for BEPZA), 2012-Medicare Payments Commission (MedPac) Technical Experts Panel, 2011 The National Academies U.S. Department of Agriculture University of Medicine and Dentistry, New Jersey (UMDNJ), 2004 -American Economic Association, Committee on Economic Education, 2006-National Center for Smart Growth, University of Maryland, 2004-Alan M. Voorhees Transportation Center Rutgers University, Consultant, 2003 School of Nursing, New York University and University of Buffalo, 2002-Institute for Transport and Logistics Studies, University of Sydney, 2000-Robert Wood Johnson Medical School University of Medicine and Dentistry of New Jersey, 2003-Department of Politics, Ohio State University

#### EXPERT TESTIMONY AND PROFESSIONAL CONSULTING ACTIVITIES

United States v. American Society of Composers, Authors and Publishers, 559 F.Supp.2d 332 (S.D.N.Y. 2008) (Deposition and trial testimony) United States v. American Society of Composers, Authors and Publishers, 1:09-cv-07069-DLC (S.D.N.Y. 2010) (Deposition and trial testimony) Agency for Healthcare Research and Quality (Served as consultant)

# **OTHER EMPLOYMENT**

Duff and Phelps, LLC, Expert Affiliate, 2012-Center for Applied Value Analysis, 2011-American Society of Composers, Authors and Publishers (ASCAP), 2006-AHRQ - Agency for Healthcare Research and Quality, 2008, 2010-Healthways, Inc., 2010 Econometric Software, Inc., President, 1985-present MarCom Group, Inc., 2010-Lockheed-Martin Corp., 2008 Econsult Corporation, 2008 Robert Wood Johnson Foundation, 2005-Booz-Allen, 2010-Huron Consulting Group, 2007 World Bank, 2005 LEGC Corporation, 2004 Intercontinental Hotels, Consultant, 2004 Autoridade Da Concorrência - Portuguese Telecommunications Commission, 2004-

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Department of Defense, The United States Navy, consultant, 2004 Fannie Mae, Consultant 2003, 2004 Resource Consultants, Inc., Washington, D.C., Consultant, 1986, 2002 Office for National Statistics, UK, 2003 Revenue Management Systems, Inc., Consultant, 2002-6 Continents Hotels (Formerly Bass Hotels), Consultant, 2000, 2002-World Health Organization, Consultant, 2001-United States Postal Rate Commission, 2000 Lecturer, InterAmerican Development Bank, 2000 United States Postal Rate Commission, Consultant, 2000 Laurits R. Christensen Associates, Consultant, 2000 Ortho Biotech, Consultant, 1998 The Analysis Group, Consultant, 1998-2009 The Reader's Digest Association, Consultant, 1993-1997 Ebasco, Inc., Consultant, 1993 The American Express Corporation, Consultant, 1989-1992 The Joint Council on Economic Education, Consultant, 1987-1996 The Urban Institute, Consultant, 1988-1992 Center for Health Policy Research, Consultant, 1988-1994 Center for Naval Analyses, Washington, D.C., Consultant, 1980-1995 Niagara Mohawk Power Corporation, Syracuse, New York, Consultant, 1983-1986 Senior Consultant, National Economic Research Associates, New York, 1981-1982 Civil Aeronautics Board, Washington, D.C., Consultant 1980

# TEACHING

Econometrics I Econometrics of Panel Data Statistics and Data Analysis Mathematical Statistics Entertainment, Media, Technology: Economics and Markets Principles of Economics Microeconomics Macroeconomics Intermediate Microeconomics Advanced Topics in Microeconomics Topics in Econometrics

#### PROFESSIONAL ASSOCIATIONS AND AWARDS

American Economic Association American Statistical Association Econometric Society Fellow, *Journal of Econometrics Who's Who in the World*, Marquis Publications, 1999-2005 *Who's Who in Science and Engineering*, Marquis Publications, 2001 *Who's Who in America*, Marquis Publications, 2002 *Who's Who in Business Higher Education*, Marquis Publications, 2003 Richard T. Ely dissertation award, University of Wisconsin, Economics, 1976

# **EDITORIAL POSITIONS**

Editor in Chief, *Journal of Productivity Analysis*, 2013-Editor in Chief, *Foundations and Trends: Econometrics*, 2004-Associate Editor, *Journal of Productivity Analysis*, 1992-present

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Associate Editor, *Journal of Economic Education*, 1993-present Associate Editor, *Evidence for Health Policy*, 2002-present Editorial Board, *The Journal of Choice Modeling*, 2007-Editorial Board, *Applied Economics and Business Letters*, 2008-

# **PUBLISHED RESEARCH**

#### 2013 (forthcoming)

Accounting for Attribute Non-Attendance and Common-Metric Aggregation in a Probabilistic Decision Process Mixed Multinomial Logit Model: A Warning on Potential Confounding, with D. Hensher and A. Collins, 2013, forthcoming *Transportation*.

Modelling charitable donations: A latent class panel inverse hyperbolic sine heteroskedastic tobit approach, With M. Harris, K. Taylor and S. Brown, forthcoming *Journal of the Royal Statistical Society*, 2013.

"Predicting Transportation Outcomes for LEED-ND Pilot Projects," *Journal of Planning Education and Research*, 2013, forthcoming, with R. Ewing, M. Zhang, M. Greenwald, M. Bogaerts.

"How Confident Can We be About Confidence Intervals for Firm Specific Inefficiency Scores from Parametric Stochastic Frontier Models," with P. Wheat and A. Smith. Forthcomig *Journal of Productivity Analysis* 

"U.S. Navy Promotion and Retention by Race and Sex," with A. Golan and H. Perloff, January, 2010, Forthcoming *Southern Economic Journal* 

"Heterogeneity in Ordered Choice Models: A Review with Applications to Self-Assessed Health," forthcoming, *Journal of Economic Surveys*, with T. Weterings, M. Harris and B. Hollingsworth.

Preference Heterogeneity in Contingent Behaviour Travel Cost Models with On-site Samples: A Random Parameter versus a Latent Class Approach, forthcoming *Ecological Economics*, with S. Hynes

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"What Drives Morningstar Individual Stock Ratings?" *Submitted to Finance Research Letters*, with Robert Brooks, Mark Harris and Shelley Naylor

#### **Environmental Economics**

"IS LEED-ND PRODUCING MORE SUSTAINABLE DEVELOPMENT?," With R. Ewing, M. Greenwald, M Zhang and M. Bogaerts, 2012

Prediction of Transportation Outcomes for LEED-ND Pilot Projects," Journal of Planning Education and Research. With R. Ewing and M. Greenwald

#### WORK IN PROGRESS

"Accounting for Attribute Nonattendance and Common Metric Aggregation in a Probabilistic Decision Process Mixed Multinomial Logit Modeo, with David Hensher, Sydney Ujniversity

"Learning and Fatigue Effects Revisited," with M. Czajkowski and M. Giergicizny (University of Warsaw)

"The Role of Perception, Macro and Institutional/Governance Variables in Tax Evasion: Evidence from EU-27, with M. Fethi

"Econometric Modeling of Economic Bads," with M. Harris, P. Srivastava and X. Zhao, August, 2010

A One Stage Random Effect Counterpart to the FEVD model with an application to UK electricity distribution utilities," with Alan Wall and Luis Orea, 2011

Stochastic Frontiers using a Fixed Effect Vector Decomposition Approach with an Application to ICT and Rgional Productivity in Spain," with Luis Orea and Alan Wall, 2011

"Modeling Obesity Levels with Latent Class Models," with Mark Harris and Preety Srivastava (Monash), 2006,2010

"Ordered Choices: How Friendly is the Bus Driver?" Prepared for IATRB, Jaipur India, December, 2008. (With David Hensher)

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"A Bivariate Latent Class Correlated Generalized Ordered Probit Model with an Application to Modeling Obesity Levels in the U.S., February 2008 (with Mark Harris, Bruce Hollingsworth and Pushkar Mitra).

Fixed Management and Time Invariant Efficiency in a Random Coefficients Models (with Antonio Alvarez and Carlos Arias, University of Oviedo), submitted *Journal of Business and Economic Statistics*.

# **OTHER RESEARCH**

Correlation in the Bivariate Poisson Regression, June, 2007

"Non-Gaussian Stochastic Frontier Models, *Journal of Applied Econometrics* (with Mike Tsionas and Subal Kumbhakar), 2006.

"Heteroscedastic Control for Random Parameters and Error Components in Firm Failure Models" Submitted to *Journal of Applied Econometrics*, with David Hensher and Stewart Jones

A Structural Model of the Effect of Retiree Health Insurance on Early Retirement, Submitted to *The Journal of Health Economics*, with Kaan Tunceli and Pamela Farley Short.

"Contextual Drivers of Resource Durability: Explaining Differences in the Longevity of Top Hollywood Stars," with Jamal Shamsie and Danny Miller,

"The Bias of Fixed Effects Estimators for Panel Binary Choice Models," with Chirok Han and Peter Schmidt.

Recent Developments in Estimation of Stochastic Frontier Models with Panel Data

"Quality of Life and Hemoglobin Levels in Cancer Patients with Anemia," with E. Berndt, P. Cremieux, and S. Finkelstein

"Hierarchical Bayesian Estimation of Discrete/Continuous Choice Models," with Asim Ansari, December, 1998

"Efficiency, Luck, and Producer Inefficiency: A New Interpretation of Composed Error Models," with J. Nelson.

"Use and Interpretation of the Lagrange Multipliers in Restricted Regression," with Terry Seaks (University of North Carolina), June 1989.

"A Convenient Parameterization of a Duration Model with Heterogeneity," 1989.

"Does the Tobit Model Underpredict?" with D. Crawford, 1986.

"EM Estimation of the Bivariate Probit Model," 1985.

"The Demand for Deductibles in Private Health Insurance, A Probit Model with Sample Selection Bias: Comment," 1982.

"Maximum Likelihood Estimation of Limited Dependent Variable Models," 1981.

"Multivariate Analysis of Survival Data: An Appraisal Using Bangladeshi Mortality Data," with B. Edmonston and K. Smith, 1981.

"Estimation of the Criterion Function in Sample Selection Models," 1981.

"OLS Estimation in a Model Where a Macrovariable is Explained by Aggregates and Contemporaneous Disturbances are Equicorrelated: Comment," 1981.

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"Computing an Asymptotic Covariance Matrix for a Moment Estimator of the Tobit Model," 1981. "On Forecasting Using Regression Models with Omitted Variables," 1980.

"Forecasting Regional Energy Demand: The Case of New York State," 1979.

"The Effectiveness of Electric Utility Regulation in a Period of Changing Economic Conditions, with R. Smiley, 1979.

"Marginal Cost of Electricity Production by Customer Class for New England Utilities: An Application of Statistical Cost Analysis," 1977.

"Estimation and Prediction from Aggregates when Aggregates are Measured More Accurately than their Components: Some Further Results," 1975.

School Location and Student Travel: Analysis of Factors Affecting Mode Choice Final Report Prepared for: Development, Community and Environment Division U.S. Environmental Protection Agency Reid Ewing and Sophie Hartshorn, Rutgers University; Naveen Juvva and Venky Shankar, University of Washington, and Will Schroeer

Nested Random Effects Estimation in Unbalanced Panel Data: Comment.

#### WORKING PAPERS

Hynes, S. and Greene, W. (2011). Estimating recreation demand with on-site panel data: an application of a latent class truncated and endogenously stratified count data model. Discipline of Economics, National University of Ireland Galway Working Paper Series No. 177.

"Changes in Bank Status: Consumer Shifts Into or Out of the Financial Mainstream," With S. Rhine, FDIC, November, 2011.

"A One-Stage Random Effect Counterpart of the fixed-effects Vector Decomposition model with an Application to UK Electricity Distribution Utilities," with A. Wall and L. Orea, University of Ovideo, Department of Economics, Efficiency Series Working Paper 1, 2011

"Stochastic Frontiers Using a Fixed Effects Vector Decomposition Approach with an Application to ICT and Regional Productivity in Spain," with A. Wall and L. Orea, University of Ovideo, Department of Economics, Efficiency Series Working Paper 4, 2011

"Revealing Additional Dimensions of Preference Heterogeneity in a Latent Class Mixed Multinomial Logit Model," Stern Working Paper EC-10-17, 2010 with D. Hensher

"Social Exclusion and the Value of Mobility," ITLS-WP-10-14, University of Sydney, 2010, with J. Stanley,

D. Hensher, G. Currie and D. Vella-Brodrick

"Does Scale Heterogeneity Across Individuals Matter? An Empirical Assessment of Alternative Logit Models," ITLS-WP-10-15, University of Sydney, 2010, with D. Hensher.

"Fixed Effects Vector Decomposition: A Magical Solution to the Problem of Time Invariant Variables in Fixed Effects Models?" Stern Working Paper, 10-04, February, 2010

"Ordered Choices and Heterogeneity in Attribute Processing," ITLS (University of Sydney), Working Paper ITLS-WP-09-02, January, 2009

"Testing Hypotheses About Interaction Terms in Nonlinear Models," Stern Working paper, EC-09-08

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"Does teaching load affect faculty size?" IZA Discussion Paper Series, Number 3996, February, 2009.

'Accounting for Exogenous Information on Decision Maker Processing Strategies in Models of Discrete Choice: Attribute Exclusion Strategies in Airline Choice', Sydney University, Institute of Transport and Logistics Studies, July. Rose, J.M., Hensher, D.A., Greene, W.H., Washington, S.P. and Black, I. (2008):

Modeling Ordered Choices, NYU/Stern Department of Economics Working paper 08-26. (With David Hensher)

A Bivariate Latent Class Correlated Generalized Ordered Probit Model with an Application to Modeling Observed Obesity Levels, by William Greene, Mark N. Harris, Bruce Hollingworth, and Pushkar Maitra, Working Paper EC-08-18,

A Stochastic Frontier Model with Correction for Selection, Working Paper EC-08-09,

Correlation in the Bivariate Poisson Model, Working Paper EC-07-15.

Fixed and Random Effects in Models for Count Data, Working Paper EC-07-16.

Functional Form and Heterogeneity in Models for Count Data, Working Paper EC-07-10.

Discrete Choice Modeling, Working Paper EC-07-04.

A General Approach to Incorporating 'Selectivity' in a Model,, Working Paper EC-06-10

"Mixed Logit and Heteroscedastic Control for Random Coefficients and Error Components," ITLS-WP-06-04, University of Sydney, Institute of Transport Studies

Greene, William H., M. Filippini and M. Farsi (2005) "Application of Panel Data Models in Benchmarking Analysis of the Swiss Electricity Distribution Sector" (Working Paper). Center for Energy Policy and Economics, Swiss Federal Institute of Technology (CEPE-ETH).

Accounting for Exogenous Information on Decision Maker Processing Strategies in Models of Discrete Choice: Attribute Exclusion Strategies in Airline Choice. ITLS-WP-05-15 University of Sydney, Institute of Transport Studies

Censored Data and Truncated Distributions, NYU/Stern Economics, Working Paper 05-08, May, 2005

Interpreting Estimated Parameters and Measuring Individual Heterogeneity in Random Coefficient Models, NYU/Stern Economics, Working Paper 04-08, May, 2004.

Alvarez, Antonio, Arias, Carlos, and Greene, William, 2004. "Accounting for unobservables in production models: management and inefficiency." *Economic Working Papers at Centro de Estudios Andaluces*. no. E2004/72: 1-20.

Efficiency Measurement in Network Industries: Application to the Swiss Railway Companies, <u>CEPE</u> <u>Working Paper No. 32</u>, Centre for Energy Policy and Economics (CEPE), Zurich, June .(2004) with Farsi, M. Filippini M.

Distinguishing Between Heterogeneity and Inefficiency: Stochastic Frontier Analysis of the World Health Organization's Panel Data on National Health Care Systems, Working Paper, 03-10, April, 2003.

Fixed and Random Effects in Stochastic Frontier Models, Stern School of Business, Department Of Economics, Working Paper 02-16, 2002

A Latent Class Model for Discrete Choice Analysis: Contrasts with Mixed Logit. ITS-02-08 University of

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Sydney, Institute of Transport Studies

Convenient Estimators for the Panel Probit Model: Further Results, Stern School of Business, Department of Economics, Working Paper 02-06, 2002

Behavior of the Fixed Effects Estimator in Nonlinear Models, Stern School of Business, Department of Economics, Working Paper 02-05, 2002

A Latent Class Model for Discrete Choice Analysis: Contrasts with Mixed Logit, Sydney University, Institute of Transport Studies, working Paper ITS-02-08 (with David Hensher).

Mixed Logit Models: the State of Practice, Sydney University, Institute of Transport Studies, working Paper ITS-02-01 (with David Hensher).

Choosing between Conventional, Electric and LPG/CNG Vehicles, Sydney University, Institute of Transport Studies, working Paper ITS-01-05 (with David Hensher).

Estimating Econometric Models with Fixed Effects, Stern School of Business, Department of Economics, Working Paper 01-10, 2001

Fixed and Random Effects in Nonlinear Models, Stern School of Business, Department of Economics, Working Paper 01-01, 2001

Simulated Likelihood Estimation of the Normal-Gamma Stochastic Frontier Model, Stern School of Business, Department of Economics, Working Paper 00-05, 2000

Gender Economics Courses in Liberal Arts Colleges: Further Results, Stern School, Department of Economics, Working Paper 98-6.

Marginal Effects in the Censored Regression Model, Stern School, Department of Economics, Working Paper 98-05.

FIML Estimation of Sample Selection Models for Count Data, Stern School, Department of Economics, Working Paper 97-02.

"Marginal Effects in the Bivariate Probit Model," Stern School of Business, Department of Economics, Working paper #EC-96-11

"Sample Selection in Models the Poisson Regression Model," Stern School of Business, Department of Economics, Working paper #95-06, 1995.

" Accounting for Excess Zeros and Sample Selection in Poisson and Negative Binomial Regression Models" Stern School of Business, Department of Economics, Working paper #94-10, 1994.

"Frontier Production Functions," Stern School of Business, Department of Economics, 93-20, 1993

"A Statistical Model for Credit Scoring," Stern School of Business, Dept. of Economics, Working paper # 92-29, 1992.

"On the Power of a Test for Normality," GBA Working Paper Number 86-106, November 1986. "The Determinants of Rating Assignment and Performance," with A. Marcus, Center for Naval Analyses, CRC528, 1985. 12-12020-mg Doc 2835 Filed 02/04/13 Entered 02/04/13 17:15:03 Main Document Pg 35 of 43

# **FUNDED RESEARCH**

2011-2013 Australian Research Council: Gravity Models for International Trade (With Mark Harris, Laszlo Matyas and Laszlo Konya
2011-2013 Australian Research Council: Latent Class Models for Self Assessed Health (With Bruce Hollingsworth, Mark Harris, Paula K Lorgelly, John Wildman, and Nigel Rice)
2010-2015 Robert Wood Johnson Foundation, Nursing Labor Supply
2005-2010 Robert Wood Johnson Foundation. Nursing Supply
2004 World Bank, Macroeconomic Productivity and Efficiency
2004-2005 Autoridade Da Concorrência – Portuguese Telecommunications Commission
2004 National Center for Smart Growth, University of Maryland
2002-2003 World Health Organization
2003 Alan M. Voorhees Transportation Center Rutgers University, Consultant
2003 Fannie Mae
2000- Institute for Transport and Logistics Studies, University of Sydney
1989-1992 The American Express Corporation, Consultant

#### SHORT COURSES AND LECTURE SERIES

Australian National University, Canberra, 2013 (forthcoming) Georgetown University, 2012 American University, 2009, 2010, 2012 University of Aarhus, Denmark, 2012 Treasury Department, Wellington New Zealand, 2012 National University of Ireland, Galway, July, 2012 CEMMAP, IFS, University College London, Discrete Choice, 2002 - 2012 CEMMAP, IFS, University College London, Frontier and Efficiency Models, 2002 - 2012 Queens University, Brisbane, Microeconometrics, 2010 IFS, Madrid, Frontier and Efficiency Estimation, 2008 - 2011 University of Sydney, Discrete Choice Models, 2000 - 2011 National University of Ireland, Galwasy, Microeconometrics, 2011, 2012 York University, UK, Microeconometrics, 2010 UAB, Barcelona, Frontier Modeling, 2011 University of Lugano, Discrete Choice Models, 2000 - 2011 Oslo, University of Oslo, Microeconometrics, 2008 University of Lund, Sweden, Discrete Choice, 2000 University of Maastricht, Discrete Choice, June, 2008 Waginengen, Holland,, Discrete Choice, June, 2008

# **RECENT AND FORTHCOMING PRESENTATIONS**

#### 2012 (and Pending)

(Annual Health Econometrics Workshop, New York, September 28, 2012)
13th International Conference on Travel Behaviour Research, Toronto 15-20, July 2012
Western Australia Economic Association, Perth, June, 2012
Microeconometrics Conference, National University of Ireland, Galway, July, 2012
19<sup>th</sup> Annual Conference of the European Association of Environmental and Resource Economists, Prague, June 2012. With S. Hynes.
Transportation Research Board, 9<sup>th</sup> Annual Meeting, January, 2012
University of Connecticut, February 2012, March 2012
Syracuse University, March, 2012
University of Connecticut, April, 2012
Consumer Finance, with S. Rhine, FDIC, Memphis, TN, April, 2012
Info-Metrics Institute, May, 2012
University of Aarhus, Denmark, May, 2012

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Treasury Depaertment, New Zealand, June, 2012 Curtin University, June, 2012 National University of Ireland, Galway, July 2012 University of Leeds, Health Economics, September, 2012 University of Siena, Health Economics, December, 2012 Saffari, S.E., Robiah Adnan, and Greene, W. (2012). Solving Overdispersion Problem Using a Right Censored Poisson Regression Model with Excess Zeros. In The 1st International Statistical Conference: Proceedings of the 1st ISM Conference, Malaysia. Saffari, S.E., Robiah Adnan, and Greene, W. (2012). Handling of Over-Dispersion of Count Data via Truncation using Hurdle Poisson Regression Model. In Conference on Computer Science and Computational Mathematics: Proceedings of the CCSCM, Malaysia.

#### 2011

Saffari, S.E., Robiah Adnan, and Greene, W. (2011). Hurdle Poisson Regression Models with Right Censored Count Data. In National Science Postgraduate Conference: Proceedings of the NSPC, Malaysia. Saffari, S.E., Robiah Adnan, and Greene, W. (2011). Handling of over-dispersion of count data via truncation using Zero-Inflated Poisson Regression Model. In International Seminar on the Application of Science and Mathematics: Proceedings of ISASM, Malaysia. CEMMAP, Institute for Fiscal Studies, Discrete Choice, January, 2011 CEMMAP, Institute for Fiscal Studies, Frontier Estimation, February, 2011 Efficiency and Productivity Estimation, IFS, Madrid, March 2011 Frontier Estimation, University of Barcelona, March, 2011 State University of New York at Albany, April, 2011 Econometrics in Sports, University of Oviedo, May, 2011 Econometric Methods: National University of Ireland, June, 2011 Spatial Econometrics, University of Rome, June, 2011 Stochastic Frontiers and Efficiency Estimation, EWEPA, Verona, June, 2011 Resource Economics, University of Toulouse, June, 2011 Discrete Choice Models, Efficiency Measurement, Health Economics, University of Lugano, June, 2011 Environmental and Resource Economics, July, 2011, with S. Hynes Frontier Methods for Regulators and Practitioners, Georgia State University, July, 2011 Annual Health Econometrics Workshop, Minneapolis, October, 2011, Keynote address MedPac, Panel discussion, Washington DC, November 2011 Southern Economic Association, November, 2011 The International Seminar on the Application of Science & Mathematics, 1-3 November, 2011, Malaysia. Poisson Regression Models

#### 2010

2009

Allied Social Social Science Association: Research in Economic Education, session organizer, January, 2010 Qualitative Choice Modeling, Health Econometrics and Data Group, University of York, January, 2010 Saffari, S.E., Robiah Adnan, and Greene, W. (2010). Zero-Inflated Negative Binomial Regression Model with Right Censoring Count Data. In Faculty of Science Postgraduate Conference: Proceedings of FSPGC, Malaysia, 2010 CEMMAP. Institute for Fiscal Studies. Discrete Choice. January. 2010 CEMMAP, Institute for Fiscal Studies, Frontier Estimation, February, 2010 Middlesex University, UK, February, 2010 University of Kentucky, March, 2010 Michigan State University, April, 2010, Discrete Choice Models Institute of Fiscal Studies, Madrid, Spain, Frontier Modeling, April, 2010 Discrete Choice Models, Efficiency Measurement, Health Economics, University of Lugano, June, 2010 Econometric Modeling, Florence (NYU), July, 2010 Transport Research, Department of Economics, Monash University, Australia, July, 2010 American Agricultural Economics Association, 50 Years of Ordered Choice Modeling, Denver, July, 2010 Microeconometrics, University of Queensland, July, 2010 Allied Social Science Association, January, 2009 CEMMAP, Institute for Fiscal Studies, Discrete Choice, January, 2009

- CEMMAP, Institute for Fiscal Studies, Frontier Estimation, February, 2009
  - Institute of Fiscal Studies, Madrid, Stochastic frontiers, March, 2009

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International Conference on Transport Research, Harrogate, Leeds, UK, March 2009 Camp Econometrics, Lake Placid, New York, April, 2009 Jordan River Converence Presentation, Indiana University, April, 2009 European Worlshop on Efficiency and Productivity, Pisa, June 2009 Swiss University Consortium, Discrete Choice Modeling, June 2009 Anadolu International Conference in Economics, Eskisehir, Turkey, June 2009 Biometrics, BSRBA, Sao Paulo Brazil, July, 2009 Panel Data Econometrics, Sao Paulo, July, 2009 Health Econometrics, NBER/University of Chicago, October, 2009 Latent Class Models for Obesity, Department of Economics, Louisiana State University, November, 2010 Simulation Based Estimation, Louisiana State University, November, 2010 2008 IATRB, India, December, 2008 (With David Hensher) Health Econometrics, Keynote Speaker, Milan, December, 2008 Crete, Discrete Choice, August, 2008 Agency for Health Care Research and Quality (AHRQ), Rockville, MD, August, 2008 Asia Pacific Productivity Conference, Taipei, July, 2008 North American Productivity Workshop, NYU, June, 2008 Maastricht, Discrete Choice, June, 2008 Health Econometrics, Tilburg, June 2008 (With Mark Harris) Health Economics, Swiss University Consortium, June, 2008 Academy Health, June 2008 FDIC, May 2008 (With Sherrie Rhine) Intellectual Property Entertainment & Sports Law Society (IPELS) of New York University School of Law, April 2008 Wesleyan College, March, 2008 Policy and Economic Research Council, Beijing, March 7, 2008 Peking University, March 9, 2008 University of Manchester, UK, February, 2008 Stochastic Frontier Modeling, IFS/CEMMAP, February, 2008 Discrete Choice Modeling, IFS/CEMMAP. UK, January, 2008 2007 American Economic Association, Committee on Economic Education, January 2007 American Economic Association, ASSA Meeting, January, 2007 Discrete Choice Modeling, IFS/CEMMAP. January, 2007 Stochastic Frontier Modeling, IFS/CEMMAP, February, 2007 Sample Selection in Nonlinear Models, Manchester University (UK), February 2007 Efficiency Estimation, European University Consortium, Airolo, March, 2007 Panel Data Modeling, American University, May, 2007 Stochastic Frontier Modeling, University of California, Irvine, June, 2007 European Workshop on Efficiency and Productivity (Keynote presentation), June, 2007 Discrete Choice Modeling, University of Wageningen, June, 2007 Health Econometrics Workshop, Bergen, Norway, September, 2007 Bivariate Poisson Model, Midwest Econometrics Group, St. Louis, October, 2007 Stochastic Frontier Modeling, Center for Naval Analyses, November, 2007 2006 Stochastic Frontier Modeling, IFS/CEMMAP, January, 2006 Discrete Choice Modeling, "Camp Econometrics," Conference on Econometrics, Saratoga, NY, Feb. 2006 Discrete Choice Modeling, IFS/CEMMAP. February, 2006 Simulation Based Discrete Choice Modeling, University of Bristol, UK, February, 2006 Efficiency Estimation, European University Consortium, March, 2006 Health Economics Conference, University of Wisconsin, Madison, June, 2006 Discrete Choice Modeling, American University, June, 2006 Panel Data Conference, Cambridge, UK, July, 2006 Midwest Econometrics Group, Cincinnati, October, 2006 Workshop on Empirical Research in Operations Management, Wharton, Univ. of Pennsylvania, 9/29/06 2005 Allied Social Science Association, AEA, Computational issues in econometrics, January, 2005 Discrete Choice Modeling, CEMMAP, London, Nonlinear Panel Data Models, January, 2005

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Mixed Logit Modeling, University of York, UK, January, 2005 Mixed Logit Modeling, University of Reading, UK, January, 2005 Political Methodology and Social Sciences, Featured Speaker, Ohio State University, March, 2005 European University Consortium, Ph.D. Program, Airolo, Switzerland, March, 2005 Institute of Fiscal Studies, CEMMAP, London, Nonlinear Panel Data Models, April, 2005 IMF/World Bank; Stochastic Frontier Modeling, May 17, 2005 European Workshop on Efficiency and Productivity Analysis, June, 2005 Authors Meeting, Prentice-Hall Publishers, September, 2005 Midwest Econometrics Group, Keynote Speaker, October, 2005 Ellison Institute for World Health, Oslo, November, 2005 2004 Rensselaer Polytechnic Institute, Fixed Management, November 2004 American Public Health Association, November, 2004 Midwest Econometrics Group, October, 2004 (pending) University of North Carolina: "The Intersection of Nursing and Health Services Research," May, 2004. Asian Conference on Efficiency and Productivity, University of Queensland, Australia, July, 2004 (pending) Australian Meetings of the Econometric Society, July, 2004. Department of Economics, University of Melbourne, July, 2004. Department of Statistics and Department of Pharmacy, University of Western Australia, Perth, July, 2004. Conference on Economic Education, Adelaide, Australia, July, 2004 (pending) Discrete Choice Modeling, Workshop on Endogeneity, Estes Park, CO, June 2004 (pending) Federal Reserve Conference on Community Banking, Chicago, April, 2004 Frontier Production Functions and Efficiency in Health Care, University of Lugano, Switzerland, March, March 1-5, 2004 Cambridge University, February, 2004 London School of Economics, March, 2004 Discrete Choice Modeling, CEMMAP, London, Nonlinear Panel Data Models, February, 2004 Institute of Fiscal Studies, CEMMAP, London, Nonlinear Panel Data Models, February, 2004 NYU Conference on Computational and Biological Learning, January, 2004 Institute for Agricultural Development in Central and Eastern Europe (IAMO) in Halle (Saale), Germany, 2003 Workshop on Large Farm Management, November 26-28, 2003 in Halle (Saale). Wagner School of Public Service, NYU, November, 2003 Athens University of Business and Economics, November, 2003 Health Economics, Minorca, Spain, September, 2003 European Workshop on Productivity and Efficiency, Oviedo, Spain, September 2003 Midwest Econometrics Group, Columbia, MO, October, 2003 University of Connecticut, Storrs, Department of Economics, October, 2003 (pending) Strategic Management Conference, Seattle (with Jamal Shamsie), August, 2004 Western Economic Association, International, Denver, July, 2003 (pending) Center for Naval Analyses, Washington, D.C., Binary Choice Modeling, June, 2003 Hellenic Workshop on Productivity, University of Patras, Greece, June, 2003 University College, London, Discrete Choice Methods, April, 2003 University of Notre Dame, Panel Probit Model February 4, 2003 University of Lugano, Panel Data Methods, Switzerland, January, 2003 World Health Organization, Efficiency Estimation, Geneva, Switzerland, January, 2003 American Economic Association, Session in honor of Dan McFadden, Logit Modeling January, 2003 2002 Chicago Federal Reserve - Consumer Economics Group, Panel Data Methods, December, 2002 Department of Economics, York University, Stochastic Frontiers and Panel Data, UK, November, 2002 Health Economics Research Group, University of York, UK, Panel Probit Model, November, 2002 Environmental Economics, University of York, Logit Modeling, November, 2003 University College, London, Stochastic Frontier Estimation, November 2002 Institute for Fiscal Studies, London (CEMMAP), Panel Data and Frontier Estimation, November, 2002 Oxford University, UK, Stochastic Frontier Estimation, November, 2002 Texas A&M University, Social Science Statistics (Political Science, Sociology, Economics, Statistics), Panel Data, November, 2002

Georgia Productivity Conference (Journal of Econometrics), University of Georgia, Athens, Stochastic

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Frontiers, October, 2002 Syracuse University, Economics, Stochastic Frontiers, October, 2002 Midwest Econometrics Group, Columbus, Panel Probit Model, October, 2002 Centers for Disease Control, Econometric Methods, August, 2002 Asian Conference on Productivity, Panel Data and Frontier Estimation, Taiwan, July, 2002 Chicago Federal Reserve, June, Panel Data Methods, 2002 North American Productivity Workshop II, Union College, Stochastic Frontier Estimation, June, 2002 European Productivity Research Conference, Stochastic Frontier Estimation, University of Leicester, UK, April, 2002 State University of New York, Economics, Stochastic Frontier Estimation, Binghamton, March, 2002 Indiana University, Scholarship of Teaching and Learning, Teaching and Computation, February, 2002 2001 University of Alabama, Birmingham, Microeconometric Methods, December 7, 2001 SUNY Binghamton, November 2, Panel Data, 2001 University of Illinois at Chicago, School of Public Health, Panel Data Methods, October 12, 2001 Stern School, Management and Strategy, Structural Modeling, September 20, 2001 University of Basel, Switzerland, Models for Credit Scoring, , June 18, 2001 University of Texas, Austin, Fixed and Random Effects for Nonlinear Models, April 13, 2001 University of Illinois, Fixed and Random Effects for Nonlinear Models, April 20, 2001 Federal Reserve Board, Research Conference on Consumer Banking, April 5, 2001 New York University, Economics, Fixed and Random Effects for Nonlinear Models, March 26, 2001 Stern Japan Center Technical Symposium Organized and arranged presentations, and commentary, March, 2001 American Economic Association, Teaching Statistics and Econometrics, January 6, 2001 Research Conference honoring Ryuzo Sato's 70<sup>th</sup> birthday, Lenox, MA, FIML Estimation of Models for 2000

Count Data with Sample Selection, , September, 2000.
 InterAmerican Development Bank, July 2000, Lectures on Discrete Choice Models
 North American Productivity Workshop, Stochastic Frontier Models Union College, June, 2000
 Dept. of Statistics, Stern, Simulation Estimation of Stochastic Frontier Models, October 19, 2000

#### 1999 and earlier

Indiana University, 1992, 1998 Southern Economics Association, 1998 Food and Drug Administration, 1997, American Economics Association, New York 1994, Boston 1998, New Orleans, 1999 Amherst College 1997, 1998, 1999, Middlebury College, 1999 University of Oviedo, 1998 University of Lund, 1996 University of Umea, 1995 University of North Carolina, Sydney University, 1992, 1995, 1996, 1999 University of Melbourne, 1993 Oxford University, University of Bristol, Queens University, Econometric Society, Southern Economic Association, American Political Science Association, Society for Political Methodology, Transportation Research (World Conference), American Economic Association

#### **INTERNAL COMMITTEE ASSIGNMENTS**

Faculty Senate (alternate), NYU, 2009-

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Senior Faculty Review Committee, Stern/NYU, 2006-2010 Faculty Grievance Committee, Stern, 2005-Faculty Council, Stern School of Business, 2003-Chair, Department of Economics, Stern School of Business, 9/1/96-6/30/01 Director, Doctoral Program, Stern School of Business, 8/1/89-8/1/95 Chairman, Ph.D. Committee, 1987-1988 Economics Area Coordinator for the Ph.D. Program, 1985-1988, 1998-2000 Chair, Computer Resources Committee, 1991-1995.

# **RECENT DOCTORAL DISSERTATIONS**

Rebecca Sela Jamie Diaz Abigail Hornstein (Wesleyan University) Richard Carrizosa Akhmed Umyarov Karthik Balakrishnan John Lee, Steinhardt School, NYU Seunghan Nam, Stern School, NYU Seunghan Nam, Stern School, NYU Kalin Kolev, Stern, NYU Rachel Sachem, NYU Jennifer Tucker, Stern, NYU Other Stern Doctoral Committees (approximately 40 since 1990):

# SERVICE

Scientific Committee, Program Organizer, Australian Health Economics Workshop, 2012 Allied Social Science Association, AEA, Economic Education Session organizer, January, 2010 Program Committee, Health Econometrics Workshop, Rome, June, 2010 Scientific Committee, North American Productivity Workshop, Houston, 2010, 2012 Intel Science Talent Search, Bronx HS of Science, 2010, Schreiber HS, Port Washington, 2011, 2012 New York State Education Association, Undergraduate paper competition, judge, 2008, 2009. Economics Department Review, Binghamton University, April, 2008 North American Productivity Workshop, conference organizer at Stern, 2006, 2008 American Economic Association, Committee on Economic Education, 2006-Economics Department Reviews, University of Illinois, Chicago Intel Science Talent Search, 2003, 4 students, 2004, 4 students, 2005 3 students, 2009, 2 students Long Island Science and Engineering Competition, mentor to two students, 2002. United Nations, WHO, Meeting on Health System Performance, New Orleans, 2001 Intel Science Search, directed two semifinalists, 1998 and one semifinalist, 1999-2002, 2003 Nobel Prize Committee, Economics nomination essay, 1999 VSAE - Holland's National Econometrics Game, Board of directors, 1998-1999, 2006 Global Kids, advisory board, 1997-2002 UK Panel on allocation of funds for research on panels and survival data, 1996 National Science Foundation, proposal review, numerous National Research Council Panel on Evaluation of AIDS Intervention, 1991 Tenure and Promotion reviews: Syracuse University, University of Arizona, Boston University, University of Virginia, Cornell University, University of Texas, University of Missouri, numerous others Joint Council on Economic Education, board, 1993

# JOURNAL REVIEWS and EDITORIAL REVIEW

African Journal of Plant Science	Applied Statistics
American Economic Review	American Journal of Agricultural Economics
American Journal of Political Science,	American Political Science Review,
American Sociological Review	Pharmacology
Cambridge University Press,	Diabetic Medicine,
Econometrica,	Land Degradation and Resource Management,
Health Economics,	Journal of the American Statistical Association,
Journal of Applied Econometrics,	Journal of Econometrics,
Journal of Economic Education,	Journal of Economic Literature
Journal of Health Economics	Journal of Marketing Research
Journal of Peace Research,	Journal of Productivity Analysis,
Journal of Population Economics,	Journal of Official Statistics,
Journal of Business and Economic Statistic.	s Review of Economics and Statistics,
Journal of Political Economy,	International Economic Review,
Management Science	Management and Decision Economics
Oxford Bulletin of Economics and Statistics	, Transportation,
Transportation Research, Statistic	es in Medicine,
Economic Inquiry,	John Wiley and Sons,
Oxford University Press	National Science Foundation
Environmental and Resource Economics	Journal of Sports Economics
Journal of the Operations Research Society	Political Analysis
BMC Health Services Research	
and numerous others	

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# **ATTACHMENT II**

# DOCUMENTS AND SOURCES CONSIDERED

# Legal Filings & Supporting Reports

- Debtors' Motion Pursuant To Fed. R. Bankr. P. 9019 for Approval of the RMBS Trust Settlement Agreements, June 11, 2012
- Debtors' Supplemental Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of the RMBS Trust Settlement Agreements, August 15, 2012
- Expert Report of Bradford Cornell, Ph.D.
- Limited Objection to Debtors' Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of the RMBS Trust Settlement Agreements (Amherst)
- Objection to the Debtor's Second Supplemental Motion Pursuant to Fed. R. Bankr. P. 9019 for Approval of the RMBS Trust Settlement Agreements (Triaxx)

# **Reference Material**

- GMAC ResCap Vision Website
- Intex Solutions
- Bloomberg Terminal

# **Other Sources**

PLS Demand Data Provided by the Debtor

- RC-9019\_00045459.xls
- RC-9019\_00056670.xls