

# Erniel B. Barrios

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**Professor of Statistics**  
**School of Statistics**  
**University of the Philippines Diliman**

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University of the Philippines, Diliman, Quezon City 1101  
Philippines

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- Professor 12
- Elected Member, International Statistical Institute
- Editor-in-Chief, The Philippine Statistician, since 2010, indexed by Scopus since 2015
- In the editorial board for some International Journals
- Contributed in International Encyclopedia of Statistical Sciences (Elsevier)
- Published more than 50 papers in ISI-Indexed Journals
- UP Scientist III
- 2010 Gawad Chancellor sa Natatanging Guro
- Advised/Co-Advised 116 graduate students
- SEARCA Regional Professorial Chair, 2016-2017
- Centennial Professorial Chair
- Member, CHED Technical Panel for Science and Mathematics
- Chair, CHED Technical Committee for Statistics

## RESEARCH INTEREST

COMPUTATIONAL STATISTICS; NONPARAMETRIC METHODS; SAMPLING THEORY  
LARGE AND HIGH DIMENSIONAL DATA (INCLUDING BIG DATA); DATA MINING AND ANALYTICS  
SPACE AND TIME DEPENDENCIES; APPLICATIONS (CONSUMER BEHAVIOR MODELING, FORECASTING)  
- DEVELOPED THE COMPUTATIONAL STATISTICS LABORATORY AT THE SCHOOL OF STATISTICS

## EDUCATION

**University of the Philippines Diliman**

1990: PhD (Statistics)

**University of the Philippines Diliman**

1987: MS (Statistics)

**University of the East**

1985: BS (Statistics), Cum Laude

## OTHER TRAININGS

**Euro-Philippines Network in Banking and Finance (University of Limoges/  
University Birmingham/University of the Philippines Consortium)**

2006: Seminar on Banking and Finance

**University of Washington**

1997: Post-Doctoral Fellow (Bio-Economics)

**The Ohio State University**

1989: Visiting Research Scholar

## WORK EXPERIENCE

- Since 2005: Professor, School of Statistics, University of the Philippines Diliman
- 1995-2005: Associate Professor, School of Statistics, University of the Philippines Diliman
- 1989-1995: Assistant Professor, School of Statistics, University of the Philippines Diliman
- 1987-1989: Instructor, School of Statistics, University of the Philippines Diliman
- 2008-2014: Dean, School of Statistics, University of the Philippines Diliman
- 2013: Visiting Professor, Business School, Karlstad University, Sweden
- 2006: Visiting Researcher: Asian Development Bank Institute, Tokyo, Japan.

## AWARDS

- 2012-2017: UP Scientist III
- 2009-2011: UP Scientist I
- 2010: Natatanging Guro (Outstanding Teacher), Gawad Chancellor, UP Diliman
- 2016-2017: SEARCA Regional Professorial Chair
- 2008-2015: UP Centennial Professorial Chair

## MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- Since 2012: **Elected Member**, International Statistical Institute
- Since 2009: **Member**, International Association of Statistical Computing
- Since 2006: **Member**, Econometric Society
- Since 2011: **Member**, East Asia Economic Association
- Since 1989: **Life Member**, Philippine Statistical Association, Inc.

## COMMITTEES

- 2009-2017: Chair, CHED Technical Committee for Statistics
- 2009-2017: Member, CHED Technical Panel for Science and Mathematics
- 2006-2013: Chair, Technical Committee on Survey Designs, National Statistical Coordination Board

## EDITORIAL EXPERIENCE

- 2010-Present: Editor-in-Chief, The Philippine Statistician, Philippine Statistical Association, Inc. (**Indexed in Scopus since 2015**).
- 2014-Present: Associate Editor, Communications for Statistical Applications and Methods, Korean Statistical Society and Korean International Statistical Society
- 2013-Present: Editorial Board, Statistics, Optimization & Information Computing, International Academic Press
- 2012-Present: Editorial Board, Statistics Research Letters, Science & Engineering Publishing Co.
- 2011-Present: Editorial Board, Open Journal of Statistics, Scientific Research Publishing
- 2008, Co-Editor: Philippine Management Review, UP College of Business Administration
- 1999-2001: Associate Editor, Social Science Diliman, University of the Philippines Diliman.

## PUBLICATIONS

1. M. Esmenda, **E. Barrios**, (2018), Robust Estimation of Multilevel Model with Structural Change, *forthcoming in Communications in Statistics-Computation and Simulation*.
2. M. Cervo, D. Mendoza, **E. Barrios**, L. Panlasigui, (2017), Effects of Nutrient-Fortified Milk-Based Formula on the Nutritional Status and Psychomotor Skills of Prechool Children, *Journal of Nutrition and Metabolism*.
3. J. Eustaquio, **E. Barrios**, (2017), Nonparametric Hypothesis Testing in Clustered Survival Model, *Communications in Statistics-Computation and Simulation*, 46(7)\_\_\_.
4. J. Lansangan, **E. Barrios**, (2017), Simultaneous Dimension Reduction and Variable Selection in Modeling High Dimensional Data, *Computational Statistics and Data Analysis*, 112:242-256.
5. S. Villejo, **E. Barrios**, J. Lansangan (2017), Robust Estimation of a Dynamic Spatio-Temporal Model with Structural Change, *Journal of Statistical Computation and Simulation*, 87(3):506-519.
6. C. Manalaysay and **E. Barrios** (2017), Semiparametric Principal Components Poisson Regression on Clustered Data, *Communications in Statistics-Simulation and Computation*, 46(2):1547-1557.
7. R. Guilatco and **E. Barrios** (2017), Nonparametric Estimation of a Switching Regression Model, *Communications in Statistics-Simulation and Computation*, 46(2):840-854.
8. I. Gauran and **E. Barrios** (2017), Nonparametric Modeling of Clustered Customer Survival Data, *Communications in Statistics-Simulation and Computation*, 46:603-618.
9. K. Santos and **E. Barrios** (2017), Improving Predictive Accuracy of Logistic Regression Model Using Ranked Set Samples, *Communications in Statistics-Simulation and Computation*, 46:78-90.
10. D. Del Prado and **E. Barrios**(2016), Small Area Estimation with Spatio-Temporal Mixed Model, *The Philippine Statistician*, 65(2):1-36.
11. M. Poblador and **E. Barrios** (2016), Control Chart for Monitoring Autocorrelated Process with Multiple Exogenous Inputs, *Communications in Statistics-Simulation and Computation*, 45:3373-3393.
12. A. Asaad and **E. Barrios** (2015), Nonparametric Bootstrap Test in a Multivariate Spatial-Temporal Model: A Simulation Study, *The Philippine Statistician*, 64(1):1-16.
13. E. Barrios (2015), Robustness, Data Analysis, and Statistical Modeling: The First 50 Years and Beyond, *Communications for Statistical Applications and Methods*, 22(6):543-556.
14. M. Cervo, L. Llido, **E. Barrios**, L. Panlasigui, (2014), Effects of Canned Pineapple Consumption on Nutritional Status, Immunomodulation, and Physical Health of Selected School Children, *Journal of Nutrition and Metabolism*, Vol 2014, Article ID 861659,9 pages, 2014, DOI: 10.1155/2014/861659.
15. R. Veron Cruz and **E. Barrios** (2014), Estimation Procedure for a Multiple Time Series Model, *Communications in Statistics-Simulation and Computation* , 43(10):2415-2431.
16. J. Umali and **E. Barrios** (2014), Nonparametric Principal Components Regression, *Communications in Statistics-Simulation and Computation*, 43 (7):1797-1810.
17. M. Abrigo, R. Lavado, **E. Barrios**, B. Gozun (2014), Estimating the Efficiency of Philippine Public High Schools Using Spatio-Temporal Stochastic Frontier Analysis, *DLSU Business and Economics Review*, 23(2):80-87.
18. J. Guarte and **E. Barrios** (2013), Nonparametric Hypothesis Testing in a Spatial-Temporal Model: A Simulation Study, *Communications in Statistics-Simulation and Computation*, 42(1):153-170.
19. **E. Barrios** (2012), Sampling from a Skewed Population: The Sampling Design of the 2011 Survey of Enterprises in the Philippines, *The Philippine Statistician*, 60:129-132.
20. M. Mancenido and **E. Barrios** (2012), An AR-Sieve Bootstrap Control Chart for Autocorrelated Process Data, *Quality and Reliability Engineering International*, 28:387-395.
21. E. Santos and **E. Barrios** (2012), Nonparametric Decomposition of Time Series Data with Inputs, *Communications in Statistics-Simulation and Computation*, 41:1693-1710.

22. **E. Barrios** and J. Lansangan (2012) Forecasting Customer Lifetime Value: A Statistical Approach, *Philippine Management Review*, 19: 23-34.
23. **E. Barrios**, Z. Albacea, J. Guarate (2012), The Statistical Science: Local and Global Directions, in V. Miralao and J. Agbisit, *Philippine Social Sciences: Capacities, Directions, and Challenges*, Quezon City: Philippine Social Science Council.
24. L. Santos and **E. Barrios** (2011), Small Sample Estimation in Dynamic Panel Data Models: A Simulation Study, *Open Journal of Statistics*, 1(2):58-73.
25. W. Campano and **E. Barrios** (2011), Robust Estimation of a Time Series Model with Structural Change, *Journal of Statistical Computing and Simulation*, 81(7):909-927.
26. **E. Barrios**, J. Lansangan, and J. Daquis (2011), Impact Assessment of the E-AGRIKultura Project: Philippines, Chapter 6 in D. Grimshaw and S. Kala, eds., *Strengthening Rural Livelihoods: The impact of information and communication technology in Asia*, pp. 89-108, Warwickshire: Practical Action Publishing and International Development Research Centre.
27. R. Bastero and **E. Barrios** (2011), Robust Estimation of a Spatiotemporal Model with Structural Change, *Communications in Statistics- Simulation and Computation*, 40(3):448-468.
28. **E. Barrios** (2011), Bootstrap Methods, *The Philippine Statistician*, 60:129-132.
29. C. Mina and **E. Barrios** (2010), Profiling Poverty with Multivariate Adaptive Regression Splines, *Philippine Journal of Development*, 69(2):55-97.
30. A. Sobrevinas and **E. Barrios** (2010), Impact of the Rice Trade Policy Reforms on Household Welfare in the Philippines, *Philippine Journal of Development*, 68(1):15-39.
31. M. Chernick, W. Gonzalez-Manteiga, R. Crujeiras, and **E. Barrios** (2010), Bootstrap Methods, in M. Lovric, ed., *International Encyclopedia of Statistical Sciences*, N.J: Springer. pp. 169-174.
32. H. Marcoyannopolou-Fojas and **E. Barrios** (2010), Subclinical Atherosclerosis Determined by Pulse Wave Velocity in Overweight and Obese Rural Filipino Subjects, *Atherosclerosis Supplements*, 11(2), 57.
33. J. Almeda, **E. Barrios** (2010), Teaching Experiments for a Course in Introductory Statistics, in C. Reading, ed., *Data and Context in Statistics Education: Towards An Evidence-Based Society*. Proc. of the 8th International Conference on Teaching Statistics, Ljubljana, Slovenia.
34. L. Panlasigui, C. Bayaga, **E. Barrios**, K. Cochon, (2010), Glycaemic Response to Quality Protein Maize Grits, *Journal of Nutrition and Metabolism*, Vol 2010, Article ID 697842, 6 pages, 2010, DOI: 10.1155/2010/697842 .
35. C. Dumanjug, **E. Barrios**, and R. Lansangan (2010), Bootstrap Procedures in a Spatial-Temporal Model, *Journal of Statistical Computing and Simulation*, 80(7):809-822 .
36. **E. Barrios** and L. Lavado (2010), Spatial Stochastic Frontier Models, Discussion Paper Series No. 2010-08, *Philippine Institute for Development Studies*, May 2010.
37. **E. Barrios** (2010), Generating Small Area Statistics from Household Surveys Conducted by NSO/Small Area and SubDomain Estimation of Selected Socio-Economic Indicators, Manila: MIMAP Philippines.
38. **E. Barrios** (2010), Teaching of Statistical Consulting in the Philippines, *The Philippine Statistician*, 59:103-107.
39. C. Mina and **E. Barrios** (2009), Profiling Poverty With Multivariate Adaptive Regression Splines, Discussion Paper Series No. 2009-29, *Philippine Institute for Development Studies*, September 2009.
40. H. Marcoyannopolou-Fojas and **E. Barrios** (2009), Pulse Wave Velocity Determination as a Tool for Preventing Cardiovascular Disease in a Rural Filipino Population, *Atherosclerosis Supplements*, 10(2), p.e633.
41. R. Lansangan and **E. Barrios** (2009), Principal Components Analysis of Nonstationary Time Series Data, *Statistics and Computing*, 19(2): 173-187.
42. R. Lavado and **E. Barrios** (2008), Spatial-Temporal Dimensions of Efficiency Among Electric Cooperatives in the Philippines, Discussion Paper Series No. 2008-29, *Philippine Institute for Development Studies*, November 2008.

43. A. Gabriel, **E. Barrios**, and P. Azanza (2008), Modeling the Thermal Death of Salmonella Typhimurium in Citrus Systems, *Journal of Food Process Engineering*, 31(5):640-657.
44. **E. Barrios** (2008), Infrastructure and Rural Development: Household Perceptions on Rural Development, *Progress in Planning*, 70(1):1-44.
45. E. Francisco, L. De Dios, **E. Barrios**, A. Tijam (2008), The Contribution of Copyright-Based Industries in the Philippines, in National Studies on Assessing the Economic Contribution of Copyright-Based Industries , Creative Industries Series No. 2, World Intellectual Property Office, pp.3-92..
46. **E. Barrios** and G. Sarte (2008), Monitoring Sustainable Agriculture in Southeast Asia, *International Journal of Sustainable Development and World Ecology*, 15:95-102..
47. **E. Barrios** (2007), Model-Based Predictive Estimation with Coverage Error, *Bulletin of the International Statistical Institute*, LXII:4398-4401.
48. A. Nalica and **E. Barrios** (2007), Approaches in Forecasting Cereal Production, *The Philippine Statistician*, 56:85-102.
49. Quilang J P, Basiao Z U, Pagulayan R C, Roderos R R, and **Barrios E B** (2007), Meristic and Morphometric Variations in the Silver Perch, *Leipotherapon plumbeus* (Kner, 1864), from three Lakes in the Philippines, *Journal of Applied Ichthyology*, 23:561-567, doi:10.1111/j.1439-0426.2007.00862.x.
50. Amarra S, Bongga D, Penano-Ho L, Cruz F, Solis J, and **Barrios E** (2007), Effect of Iodine Status and Other Nutritional Factors on Psychomotor and Cognitive Performance of Filipino Schoolchildren, *Food and Nutrition Bulletin*, 28:47-54.
51. **E. Barrios** (2007), Dynamics of Development in Rural Communities, ADBI Discussion Paper No. 73, *Asian Development Bank Institute*, Tokyo, Japan, May 2007 (<http://www.adbi.org/files/dp73.rural.communities.development.infrastructure.pdf>).
52. **E. Barrios** (2007), Convergence in Agriculture of Some Asian Countries, ADBI Discussion Paper No. 71, *Asian Development Bank Institute*, Tokyo, Japan, May 2007(<http://www.adbi.org/files/dp71.agricultural.growth.convergence.pdf>).
53. **E. Barrios** (2007) Spatial Effect in the Efficient Access of Rural Development, ADBI Discussion Paper No. 65, *Asian Development Bank Institute*, Tokyo, Japan, May 2007(<http://www.adbi.org/files/dp65.rural.development.efficiency.access.pdf>).
54. **E. Barrios** (2007), Access to Rural Development: Household Perceptions on Rural Development, ADBI Discussion Paper No. 61, *Asian Development Bank Institute*, Tokyo, Japan, February 2007(<http://www.adbi.org/files/dp61.access.rural.development.pdf>).
55. O. Landagan and **E. Barrios** (2007), An Estimation Procedure for a Spatial-Temporal Model, *Statistics and Probability Letters*, 77:401-406.
56. **E. Barrios** and K. Komoto (2006), Some Approaches in the Construction of a Sustainable Development Index for The Philippines, *International Journal of Sustainable Development and World Ecology*, 13:277-288.
57. J. Guarte and **E. Barrios** (2006), Estimation Under Purposive Sampling, *Communications in Statistics- Simulation and Computation*, 35:277-284.
58. A.Nalica and **E. Barrios** (2005), On The Statistical Aspects of Sustainable Development Index in The Philippines, *The Philippine Statistician*, 54:63-70.
59. Y.Ruru and **E. Barrios** (2003), Poisson Regression Analysis of Malaria Incidence In Jayapura, Indonesia, *The Philippine Statistician*, 52:27-38.
60. B. Fermin and **E. Barrios** (2002), Autologistic Models with Autocorrelated Errors for an Aquatic Phenomenon, *The Philippine Statistician*, 51:43-52.
61. **E. Barrios** (2001), Design and Analysis of Experiments, Quezon City:Helena Books.
62. M. Guzman, P. Arinto, R. Alcantara, E. Barrios, N. Ocampo, C. Marcial, J. Malicsi (1998), Living Language ,Quezon City: ORC-ERP-CIDS University of the Philippines.
63. B. Dumelod, R. Ramirez, C. Tiangson, **E. Barrios**, L. Panlasigui (1999), Carbohydrate Availability of arroz caldo with □-carageenan, *International Journal of Food Science and Nutrition*, 50:283-289.

64. **E. Barrios** (1998), Small Area and Sub-Domain Estimation of Selected Socio-Economic Indicators, *MIMAP Research Paper Series No. 36*.
65. **E. Barrios** (1996), Generating Small Area Statistics from Household Surveys Conducted by NSO, *MIMAP Research Paper Series No. 29*.
66. **E. Barrios** (1996), National Testing for Indicators of Sustainable Development, *Philippine Council for Sustainable Development Website*.
67. Z. Abuso, L. Cabella, L. Tuazon, and **E. Barrios** (1996), Red Tide Monitoring in Carigara Bay Central Philippines, In: V. Vigers, K. Ong, C. McPherson, N. Millson, I. Watson, and A. Tang (eds). *ASEAN Marine Environmental Management: Quality Criteria and Monitoring for Aquatic Life and Human Health Protection*, p. III-38 to III-66. Proceedings of the ASEAN-Canada Technical Conference on Marine Science, Penang, Malaysia: EVS Environment Consultants, North Vancouver and Department of Fisheries Malaysia.
68. **E. Barrios** (1991), A Statistical Model for Risk Assessment on Philippine Volcanic Hazard Zones, *The Philippine Statistician*, 41:35-45.
69. **E. Barrios** and T. Diaz (1990), The Use of Semiparametric Models in Time Series Analysis, *The Philippine Statistician*, 39:39-51.

### PAPERS IN PROGRESS

1. M. Borlongan, **E. Barrios**, J. Lansangan, Robust Simultaneous Confidence Interval Estimation of Principal Component Loadings, *under review in Communication in Statistics-Simulation and Computation*.
2. **E. Barrios**, R. Olivares, S. Data, Robust Estimation in Clustered Multiple Time Series with Structural Change, *under review in Communication in Statistics-Simulation and Computation*.
3. M. Lucagbo and **E. Barrios**, Estimation of Isotonic Spatio-Temporal Model with Clustering, *under review in Communications in Statistics-Computation and Simulation*.
4. M. Ang and **E. Barrios**, Cross-Country Comparison of Maternal Mortality Ratio, *in preparation*.
5. M. Torres and **E. Barrios**, Sparse Nonparametric Discrete Choice Model for High Dimensional Data, *in preparation*.
6. J. Guarte and **E. Barrios**, Nonparametric Inference in a Spatial-Temporal Model, *in preparation*.
7. S. Balagbis and **E. Barrios**, Estimation in Spatial-Temporal Models with Structural Change and Spatial Heterogeneity, *in preparation*.
8. R. Esquierres and **E. Barrios**, Semiparametric Spatial-Temporal Models with Order Restrictions, *in preparation*.
9. **E. Barrios** and R. Lavado, Spatial-Temporal Stochastic Frontier Model, *in preparation*.
10. J. Santos and **E. Barrios**, Robust Inference in Semiparametric Spatial-Temporal Models, *in preparation*.
11. E. Matammu and **E. Barrios**, Robust Inference in Spatial-Temporal Models with Volatility, *in preparation*.
12. R. Lemence and **E. Barrios**, Testing for the Presence of Structural Change and Spatial Heterogeneity, *in preparation*.
13. V. Alao and **E. Barrios**, J. Lansangan, Semiparametric Estimation of Mixed Analysis of Covariance Model, *in preparation*.
14. E. Paragas and **E. Barrios**, Estimation of a High Dimensional Multi-level Model, *in preparation*.
15. G. Saavedra and **E. Barrios**, J. Lansangan, Robust Inference in Regression Models, *in preparation*.

### RECENT MEETINGS, CONFERENCES AND OTHER PRESENTATIONS

1. **2017, Philippines (Plenary Speaker):** Big Data and Official Statistics in the Philippines, **AIM Conference on Big Data and Analytics**.
2. **2017, South Africa (Keynote Speaker):** Nonparametric Test of Volatility in Multiple Time Series, **4<sup>th</sup> African International Conference in Statistics**.

3. **2016, Maryland, USA (Invited International Speaker):** Robust Estimation of Clustered Multiple Time Series with Structural Change, **E. Barrios**, R. Olivares, S. Data **10<sup>th</sup> Annual Statistics and Probability Day (in Honor Prof. Bimal K. Sinha, University of Maryland Baltimore County)**
4. **2015, Singapore:** Session Organizer-Robust Methods in Big Data Analysis, **9<sup>th</sup> Conference of the Asian Regional Section of the IASC, International Association of Statistical Computing-International Statistical Institute.**
5. **2015, Rio de Janeiro, Brazil:** Robust Estimation of a Multilevel Model with Structural Change, **E. Barrios**, MJ Esmenda, **60<sup>th</sup> World Statistics Congress of the International Statistical Institute.**
6. **2015, Rio de Janeiro, Brazil:** Simultaneous Dimension Reduction and Prediction Optimization: Methods and Applications to High Dimensional Data ,J. Lansangan, **E. Barrios**, **60<sup>th</sup> World Statistics Congress of the International Statistical Institute.**
7. **2014, Kuala Lumpur, Malaysia:** Session Organizer – Computational Statistics, **Regional Statistics Conference, International Statistical Institute.**
8. **2014, Geneva, Switzerland:** Nonparametric estimation of a switching regression model , **E. Barrios**, R. Guilatco, **21<sup>st</sup> International Conference on Computational Statistics and 5<sup>th</sup> IASC World Conference.**
9. **2014, Geneva, Switzerland:** Semiparametric principal components Poisson regression on clustered data , K. Manalaysay, **E. Barrios**, **21<sup>st</sup> International Conference on Computational Statistics and 5<sup>th</sup> IASC World Conference.**
10. **2014, Geneva, Switzerland:** Estimation of isotonic spatio-temporal model with clustering , M. Lucagbo, **E. Barrios**, **21<sup>st</sup> International Conference on Computational Statistics and 5<sup>th</sup> IASC World Conference.**
11. **2014, Geneva, Switzerland:** Simultaneous dimension reduction and variable selection in modeling high dimensional data , J. Lansangan, **E. Barrios**, **21<sup>st</sup> International Conference on Computational Statistics and 5<sup>th</sup> IASC World Conference.**
12. **2014, Geneva, Switzerland:** Nonparametric hypothesis testing for clustered survival model , J. Eustaquio, **E. Barrios**, **21<sup>st</sup> International Conference on Computational Statistics and 5<sup>th</sup> IASC World Conference.**
13. **2014, Maryland, USA:** Computational Statistics Methods in Spatial-Temporal Models, **E. Barrios**, **8<sup>th</sup> Annual Statistics and Probability Day, University of Maryland Baltimore County**
14. **2013, London, UK:** A Control Chart Design for Monitoring Autocorrelated Processes with Multiple Exogenous Inputs Under Model Uncertainty, S. Poblador, **E. Barrios**, **6<sup>th</sup> International Conference of the ERCIM WG On Computational and Methodological Statistics.**
15. **2013, Hongkong, SAR:** Semiparametric Poisson Regression Models in Clustered Data, E. De Vera, **E. Barrios**, **59<sup>th</sup> World Statistics Congress of the International Statistical Institute.**
16. **2013, Hongkong, SAR:** Using principal component scores as stratification variable: An alternative to multiple frame sampling methodology, K. Santos, **E. Barrios**, **59<sup>th</sup> World Statistics Congress of the International Statistical Institute.**
17. **2013, Hongkong, SAR:** Modelling clustered survival data with cured fraction, A. Nalica, I. Gauran, **E. Barrios**, **59<sup>th</sup> World Statistics Congress of the International Statistical Institute.**
18. **2013, Hongkong, SAR:** Dynamics of development in rural communities, **E. Barrios**, G. Sarte, **59<sup>th</sup> World Statistics Congress of the International Statistical Institute.**

## RECENT BUSINESS CONSULTANCIES

**Consultant, Philippines, 2017, Data Mining, FMCG:** Analysis of data from different sources to explain sales movement. Consumer and other business insights extracted are used in formulating strategic directions for the company.

**Consultant, Philippines, 2011-2017, Customer Satisfaction Survey, Transmission Lines:** Developed a customer assessment framework and scale. Conduct a survey. Aggregate the scale into a customer satisfaction index.

- Consultant, Philippines, 2007-2016, Clinical Trials, Beverage Company,** Construction, Implementation, and Analysis of clinical trials to provide empirical evidence on the metabolic effects of certain beverage products.
- Consultant, Philippines, 2012-2016, Reservoir Management, Electricity Generation:** Coaching/Mentoring of reservoir engineers on output/production forecasting and simulation, introduce stochastic behavior into physical and chemical processes related to geothermal energy extraction.
- Consultant, Philippines, 2008-2015, Business and Consumer Insights, FMCG:** Analysis of home panel data, sales data, and other data in extracting consumer and other business insights used in formulating strategic directions for the company.
- Consultant, Philippines, 2005-2006, Data Mining for Business and Consumer Insights, Telecommunication Company:** The usage database (SAS Warehouse) of customer activity of a telecommunication company is mined for information on influencers of certain activities (acquisition, patronage, and loyalty), price sensitivity, tenure and revenue generation, lifetime value analysis, effect of promotion and other marketing activities. Results are used in the plans and programs of the marketing group, the customer care group, and the sales group.
- Consultant, Philippines and India, 2000-2006, Business and Consumer Insights Modeling and Analysis, Beverage Company:** Analyses data on various marketing activities, develop the empirical link between sales and marketing activities. The predictive models are used in developing marketing strategies, pricing decisions, risk analysis and other sensitive management decisions. Presented statistical analysis to top management for an efficient formulation of strategic marketing plans.

## RECENT DEVELOPMENT STUDIES/OFFICIAL STATISTICS

- 2017, Mongolia: Consultant, Mongolia Labor Force Survey (UN International Labor Organization).**  
Develop sampling design and estimation procedures for LFS. Recommend field operation strategies in the implementation of the design. Assist in the estimation of key development indicators from the survey.
- 2017, Philippine Statistics Authority, Improvement/Development of Sampling Designs.**  
Provide technical advice on the improvement of sampling designs for: Family Income and Expenditure Survey; Labor Force Survey; Backyard Poultry and Livestock Survey; Palay Production Survey; Corn Production Survey, and Dairy Farm Survey. Provide technical lead in the development of Commercial and Municipal Fisheries Surveys.
- 2016, Asian Development Bank: Consultant, 2016 Key Indicators.**  
Write sections in the Key Indicators 2016 publication of ADB, focusing on Sustainable Development Goals indicators in Asia and the Pacific and the possible use of Big Data to complement gaps in official statistics generated by National Statistical Offices in the region.
- 2016, Lao PDR: Consultant, Second Lao Labor Force Survey (UN International Labor Organization).**  
Develop sampling design and estimation procedures for LLFS. Recommend field operation strategies in the implementation of the design. Assist in the estimation of key development indicators from the survey.
- 2016, Philippines: Consultant, Big Data and Official Statistics Project (PARIS 21).**  
Facilitate and document the workshop examining concepts and definitions of Big Data and the possible uses in the generation of official statistics in the Philippines.
- 2015-2016, Philippines: Team Leader, Survey of Agrarian Reform Beneficiaries.**  
Develop sampling design and estimation procedures for a survey to assess impact of the Agrarian Reform Program. Survey uses a Computer-Aided Personal Interview (CAPI). Provide overall technical lead for the project.
- 2015, Philippines: Consultant, Informing the Data Revolution Project (PARIS 21).**  
Piloting the implementation of the data revolution within the NSDS process. Ensure that the development of an NSDS in a country is facilitated and enhanced with the technological, institutional and organizational recommendations of the “Informing the Data Revolution” project and in particular, the roadmap recommendations.



- 2015, Nepal: Consultant, Third Nepal Labor Force Survey (UN International Labor Organization).**  
Develop sampling design and estimation procedures for NLFSIII. Recommend field operations strategy in the implementation of the design. Assist CBS of Nepal in the estimation of key development indicators from the survey.
- 2015, Philippines: Team Leader, Rapid Assessment of Agriculture and Fisheries Modernization Act (AFMA) (Department of Agriculture-National Agriculture and Fisheries Council).**  
Coordinate activities of the impact assessment team, write some chapters of the impact assessment report.
- 2015, Philippines: Team Leader, Impact Assessment of Agrarian Reform Communities Development Project (The World Bank).**  
Developed the impact assessment design, construct the survey design and prepared the quantitative analysis on the impact assessment of the project.
- 2012-2013, Philippines: Principal Investigator, Mapping the ICT Industry, Department of Science and Technology (Philippine Government).**  
Developed a framework to assess the economic contribution of the ICT Industry to the whole economy. The project aims to develop a profile on various segments of the ICT Industry that will subsequently facilitate planning and intervention for growth and development of the sector. The study analysed secondary data as well as survey data from various stakeholders of the ICT industry.
- 2012-2014, Philippines: Statistical Consultant, Philippine Food Security Information System (UN Food and Agriculture Organization).**  
Provide statistical advice on the development of indicators and analysis of various facets of food security in the Philippines that is made available to the public thru the web.
- 2012-2013, Philippines: Principal Investigator, Development of Sampling Design for Census of Philippine Business and Industry, National Statistics Office (Philippine Government).**  
Developed a sampling design and draw sample enterprises and establishments for the 2012 Census.
- 2012, Philippines: Principal Investigator, Development of Sampling Design for Survey of Enterprises in the Philippines, National Statistics Office (The World Bank),**  
Developed a sampling design and draw sample enterprises for the first enterprise-based survey of businesses in the for the conduct of livestock and poultry survey in the Philippines.
- 2012, Philippines: Principal Investigator, Development of Sampling Design for Livestock and Poultry Survey, Bureau of Agricultural Statistics, Department of Agriculture (Philippine Government,**  
Developed and pilot-tested a sampling design for the conduct of livestock and poultry survey in the Philippines.
- 2009-2010, Philippines: Principal Investigator, The Linkage Between ICT and Sustainable Rural Livelihood, (IDRC-ENRAP Project)**  
Developed a framework to assess and predict the possible impact of ICT in sustaining rural livelihood in the Philippines.
- 2008, Philippines: Statistician, Impact Assessment Team, Mindanao Settlements Sustainable Area Development (Japan Bank for International Cooperation).**  
Developed the study design, construct the survey design and prepared the quantitative analysis on the impact assessment of the project.
- 2008, Japan: Consultant, Asian Development Bank Institute.**  
Contribute in the preparation of a book manuscript on contract farming.
- 2007, Thailand: Consultant/Rapporteur, Expert Consultation Workshop (UN FAO-RAP).**  
Expert consultation workshop on the generation of farmer's income data, served as resource person and rapporteur for the workshop.
- 2007, Philippines: Consultant, Small Area Estimation of Health Indicators (HPDP-USAID).**  
Using the 2003 National Demographic and Health Survey and Census of Population 2000, the Empirical Best Linear Unbiased Predictor (EBLUP) is used to estimate some health indicators at the provincial level.
- 2007, Philippines: Monitoring and Evaluation Specialist, Impact Assessment of Belgian Agrarian Reform Community Support Project (Belgian Government)**

Using the project's logical framework, the project's impact is assessed using the Agrarian Reform Communities Level of Development Assessment (ALDA) and data from the Philippine Statistical System. Small Area Estimates (ARC-level) were computed. A stochastic frontier model is also developed to compare the impact of a single vs. integrated programs for households to efficiently access factors of production.

**2004-2005, Philippines: Team Leader, Monitoring Poverty Alleviation in the Rural Sector (WB-ASEM Technical Assistance for Poverty Monitoring and Analysis).**

Review the literature on welfare economics specifically on issues of equity and sustainability. Develop a logical framework on how the government intervention can be monitored towards its eventual goal of poverty alleviation in the rural sector. Designed instruments for a participatory impact assessment of poverty alleviation and rural development in the context of client satisfaction survey, design a sampling strategy that will effectively sample stakeholders of government programs for the sector. From the survey, developed policy options that are participatory in nature and recommend a methodology of participatory monitoring of the welfare among rural communities and in monitoring the dynamics between government intervention and rural development.

**2003-2004, Philippines: Principal Project Advisor, Census of Fisheries Evaluation Survey (Philippine Bureau of Agricultural Statistics).**

Developed the general research design in the conduct of an evaluation survey of the Philippine census of fisheries conducted in 2003. Developed the sampling design, guided the personnel of the Philippine Bureau of Agricultural Statistics in implementing the data collection strategies, in data processing, in analysing and interpreting results. Guided the personnel in writing the technical report and presenting results of in various meetings participated by stakeholders of the Census of Fisheries. Facilitated the documentation and storage of data from census of fisheries evaluation survey. The project implemented a comprehensive capacity building strategy for a government agency in the conduct of a census evaluation survey. This is the first time such a study in conducted in the Philippines.

**2005, Philippines: Statistician, Estimation of the Contribution of Copyrighted Industries in the Philippines (World Intellectual Property Office).**

Census and surveys of establishments are used in estimating the contribution of copyrighted industries in employment and production/output. Results are used as benchmark of how much portion of the Philippine economy should be monitored for concerns related to intellectual property.

**2003-2004, Philippines: Statistical Methods/M&E Specialist, CASCADE Impact Assessment Study (European Union).**

Designed the survey methodology and data gathering instruments based on the framework developed by the study experts. Designed the data processing system and supervise its operation. Supervise the encoders and quality specialist, assist the Team Leader in preparing the documentation for the monthly monitoring reports, assists the study team in report-generation.

**2002-2003, Philippines: Coordinating Consultant/Principal Investigator, Capacity Building for Operationalizing a Rural Development and a Natural Resource Management Plan Performance Indicator System Project (World Bank-Country Assistance Program).**

Developed the framework on how the Department of Agriculture, Department of Agrarian Reform, and Department of Environment and Natural Resources interact towards fostering rural development (dominated by poverty alleviation-related issues since almost 2/3 of the rural households are under the poverty threshold). The framework allows for the monitoring of the impact of the government intervention (major final outputs) on outcome and goal level (sustainable rural development with equity). Anchored on the framework, adopted theories of rural development in constructing econometric models relating output of government agencies concerned with the rural sectors and natural resource management to the target sector outcomes (rural/sustainable development). The models will provide a means to benchmark the performance of rural development agencies vis-à-vis target outputs.

**2003, Philippines: Statistical Methods Specialist, Grains Sector Development Project (Asian Development Bank).**

Develop statistical capabilities of the Bureau of Agricultural Statistics personnel in survey sampling, statistical forecasting and other statistical methods applicable in agricultural statistics. Provided guidance in the conduct and assessment of various statistical activities geared towards data generation in agriculture and fisheries.

**2002, Cambodia: Statistician, Cambodia National Health Survey (The World Bank/UN WHO).**

The survey collected household and individual level data covering 21 provinces in Cambodia. The survey is aimed to provide province-level information on the key health indicators as well as compare the current health status of the people with those five years ago (project benchmark). Improved the sampling design, coordinated with the programmer on how the encoding scheme can be developed. From the database, generated the indicators, dummy tables, and other information used in preparing the report.

**2001-2002, Philippines: Statistician/Economist, SZOPAD Social Fund: Impact Assessment Study (World Bank).**

Developed the sampling design, survey questionnaires and the analysis scheme in the impact assessment of the fund. There was no baseline study, hence, a purposively selected sample non-project sites were drawn in addition to a probability sample of project sites. The household survey focused on living conditions, access to basic services, and perceptions on issues like self-assessment of poverty, peace and development, among others. Community level data and case studies were also collected to augment the household data and the secondary data based on project documents/reports. Project impact was determined by comparing the beneficiaries and the non-beneficiaries and their perception on certain issues prior to the project.

## THESIS STUDENTS

1. **Abon, MOS, 1990:** A Crop Production Model for Soybeans in Nueva Ecija
2. **Asuncion, MOS, 1990:** Completion of and Achievement in a 4-Year Degree Program at Saint Mary's College of Bayombong
3. **Ferino, MOS, 1991:** A Model for Philippine Rice Production
4. **Perido, MOS, 1991:** Forecasting Coffee Farm Prices and the National Level Using Regression Models
5. **Cruz, MOS, 1991:** Forecasting Models for Quarterly Gross Domestic Product: Gross Value Added Components
6. **Acabal, MOS, 1992:** Factors Affecting Income and Expenditures of Palay Farming Households in the Province of Iloilo
7. **Manuel, MOS, 1992 :** Regression Analysis and Validation of Survey Data
8. **Natalio, MOS, 1993:** Models on the Interaction Between Health and Socio-Economic Development
9. **Olea, MOS, 1994:** Regression Analysis on the Nutrient Conversion on the Milkfish Brackishwater Ponds
10. **Janagap, MOS, 1996 :** Estimating Genetic Parameters Using Variance Components and Simulated Data
11. **Jhocson, MOS, 1996:** Analysis of Unbalanced Data in Upland Rice Experiment
12. **Trani, MOS, 1997:** Smoothing of Curve Values of Selected Anthropometric Measurements of Filipinos
13. **Guirindola, MOS, 1998:** Application of Selected Discrete Discriminant Models on the Self-Concept of High School Seniors
14. **Fermin, MS, 2001:** Fitting Logistic and Autologistic Models with Autocorrelated Errors Using Backfitting
15. **Ruru, MOS, 2002:** A Study on Malaria Risk Factors in Jayapura, Indonesia Using Poisson Regression Analysis
16. **Medina, MS, 2002:** Computing Aspects of Markov Switching Models with Time-Varying Transition Probabilities
17. **Dimalapang, MOS, 2003:** Comparing Two Classif. Methods: Analysis of Health and Nutrition Indicators from the 1999 MICS
18. **Damian, MOS, 2004:** Statistical Modeling of the Water Quality of Pasig River
19. **Guarte, MS, 2004:** Estimation Under Purposive Sampling

20. **Suratos, MOS, 2005:** Sparse Spatial Autoregressive Modeling of Poverty in the Philippines
21. **Komoto, MOS, 2005:** Sparse Principal Component Analysis of Sustainable Development Index
22. **Landagan, MS, 2005:** Estimation in a Generalized Spatio-Temporal Modeling
23. **Cubinar, MS, 2005:** Sampling Design Enhancements of Establishment Surveys
24. **DeLosReyes, MS, 2006:** Comparison of Some Estimation Procedures in Surveys of Skewed Population
25. **Lansangan, MS, 2006:** A Method of Attaining Sparsity of Principal Components in Time Series Data (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2008).
26. **Hosseinzadeh, MOS, 2006:** E-Marketing Strategy for Travel Industry
27. **Hebron, MS, 2006:** Comparison of Different Housing Start Indices in the Philippines
28. **Gabriel, MS (Food Science), 2007:** Predictive Thermal Inactivation Model of Salmonella
29. **Dumanjug, MS, 2007:** Bootstrap Procedures in an Iteratively Estimated Spatial-Temporal Model Typhimurium in Citrus Systems
30. **Sinsioco, MOS, 2007:** Forecasting Models for the Philippine Monthly Average Stock Price Index
31. **Sangay, MOS, 2007:** Expenditure Efficiency Among Bhutanese Households
32. **Martinez, MS, 2008:** An Estimation Procedure for Multivariate Spatial Temporal Model in Small Area Estimation
33. **Gulles, MOS, 2008:** Estimating the Proportion of Vitamin A Deficiency Among Children Aged 6 Months to 5 Years.
34. **Dela Rosa, MOS, 2008:** Nonparametric Krigging Using Additive Models
35. **Dela Cruz, MOS, 2008:** Health Expenditures and Food Consumption Patterns of Filipino Households
36. **Campano, MS, 2008:** An Estimation Procedure of an ARIMA Model in the Presence of Structural Change (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2008)
37. **Sobrevenas, MOS, 2008:** A Nonparametric Analysis of the Impact of Rice Trade Policy Reform on the HH Welfare in the Philippines (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2009).
38. **Mina, MOS, 2008:** Unearthing Poverty with MARS: Application of Multivariate Adaptive Regression Splines in Identifying Household Poverty Correlates in the Philippines (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2009).
39. **Gatpatan, MS, 2008:** Estimation of a Response Surface Model Using Backfitting
40. **Gonzales, MOS, 2009:** Culture, Corruption, and the Prospects for Change: A Statistical Study
41. **Capuyan, MOS, 2009:** Clustering Based on Principal Components and Technical Efficiency Estimates
42. **Dincog, MOS, 2009:** Estimation of Transfer Function Models Through Backfitting
43. **Lemence, MS, 2009:** Nonparametric Testing of Structural Change and Spatial Heterogeneity in Spatial-Temporal Models (Winner DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2009)
44. **Balagbis, MS, 2009:** Estimation of Panel Models with Structural Change
45. **Santos L, MS, 2009:** Small Sample Estimation in Dynamic Panel Data Models
46. **Bastero, MS, 2009:** Robust Estimation of a Spatiotemporal Model in Epidemic (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2010)
47. **Guarte, PhD, 2009:** Nonparametric Bootstrap Inference in a Spatial-Temporal Model (Finalist DOST-PCASTRD Outstanding Dissertation in Advanced Science and Technology, 2010)
48. **Umali, MS, 2010:** Nonparametric Principal Components Regression
49. **Devera, MS, 2010:** Semiparametric Poisson Regression for Clustered Data (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2010)
50. **Santos E, MS, 2010:** Decomposition of Multicollinear and Time Series Data Using Backfitting and Additive Models
51. **Daquis, MS, 2010:** Nonparametric Transfer Function Models with Localized Temporal Effects (Finalist DOST-PCASTRD Outstanding Thesis in Advanced Science and Technology, 2010).
52. **Santos J, MS, 2010:** Robust Inference in Semiparametric Spatiotemporal Models
53. **Matammu, MS, 2010:** Testing for Presence of Structural Change and Spatial Heterogeneity in Spatiotemporal Models with Temporal Volatility
54. **Giron, MS, 2010:** Discrete Choice Generalized Additive Models Using High Dimensional Data

55. **Kwong, MS, 2010:** Nonparametric Model Based Estimation in Survey Sampling
56. **Garcia, MS, 2010,** Detection of Influential Observations in Regression Model with High Dimensional Predictors.
57. **Guilatco, MS, 2010:** Nonparametric Estimation of the Switching Regression Model
58. **San Diego, MS, 2010:** Nonparametric Comparison of Predictive Accuracy
59. **Mancenido, MOS, 2011:** An AR-Sieve Bootstrap Control Chart for Autocorrelated Process Data
60. **Manalaysay, MS, 2011:** Semiparametric Principal Component Poisson Regression on Clustered Data
61. **Estiaga, MOS, 2011:** Bootstrapping Penalty Analysis in Sensory Evaluation of Pizza Products
62. **Santos K, MS, 2011:** Predictive Accuracy of Fitted Logistic Regression Model Using Ranked Set Samples
63. **Salagubang, MS, 2011:** Outlier Detection in High Dimensional Data In The Context of Clustering
64. **Esquierres, MS, 2011:** Semiparametric Spatial-Temporal Model
65. **Mantuano, MS, 2011:** Comparison of Predictive Ability of Two Competing ARMA Models Via Cross-Spectral Analysis
66. **Gonzales, MOS, 2011:** Credit Card Application Scoring System
67. **Abrijo, MOS, 2011:** Estimating Counterfactual Schooling Outcomes Using Inverse Propensity Score Reweighting.
68. **Dimapilis, MOS, 2012:** AR-Sieve-Based Prediction Interval For Sustainable Development Index.
69. **Ofina, MS, 2012:** Autologistic Spatial-Temporal Modeling.
70. **Poblador, MS, 2012:** A Control Chart Design for Monitoring Autocorrelated Process with Multiple Exogenous Inputs Under Model Uncertainty.
71. **Gauran, MS, 2012:** Nonparametric Modelling of Clustered Survival Data.
72. **Lavina, MOS, 2012:** Assessing the Impact of Short-Term Shocks to Inflation Forecasts
73. **Veron Cruz, MS, 2012:** Estimation of a Model for Multiple Time Series.
74. **Paglinawan, MOS, 2013:** Comparison of Regression Estimator and Ratio Estimator: A Simulation Study.
75. **Torres, MS, 2013:** Sparse Nonparametric Discrete Choice Model for High Dimensional Data.
76. **Esmenda, MS, 2013:** Robust Estimation of Spatio-Temporal Multilevel Model with Structural Change.
77. **Lucagbo, MS, 2013:** Estimation of Isotonic Spatio-Temporal Model with Clustering.
78. **Asaad, PhD, 2013:** Nonparametric Bootstrap Inference in a Multivariate Spatial-Temporal Model.
79. **Ang, MOS, 2014:** Cross-Country Analysis of Maternal Mortality Ratio.
80. **Del Prado, PhD, 2014:** Spatio-Temporal Mixed Model in Small Area Estimation of Data from Rotated Panel Surveys.
81. **Lansangan, PhD, 2014:** Simultaneous Dimension Reduction and Variable Selection in Modeling High Dimensional Data.
82. **Eustaquio, MS, 2014:** Nonparametric Hypothesis Testing in Clustered Survival Model.
83. **Tobias, MS, 2014:** A Comparison of Parametric and Nonparametric Estimation of Multiple Input Transfer Function Model.
84. **Olivares, MS, 2014:** Robust Estimation of Clustered Multiple Time Series with Structural Change
85. **Data, MS, 2014:** Estimation of Independent Multiple Time Series Model with Structural Change.
86. **Paragas, MS, 2014:** Estimation of Multilevel Model with High Dimensional Data.
87. **Oberos, MOS, 2014:** Estimation in Repeattive Surveys: The Case of Employment Data. (w/ J. Lansangan)
88. **Abeto, MOS, 2014:** SPCR-Based Control Chart for Autocorrelated Processes with High Dimensional Inputs. (w/ J. Lansangan)
89. **Ramos, MS, 2014:** Estimation of Multiple Time Series with Volatility. (w/ J. Lansangan)
90. **Villejo, MS, 2015:** Robust Estimation of a Dynamic Spatio-Temporal Model with Structural Change. (w/ J. Lansangan)
91. **Saavedra, MS, 2015:** Robust Inference in Regression Models. (w/ J. Lansangan)
92. **Alao, MS, 2015:** Semiparametric Estimations of Mixed Analysis of Covariance Model. (w/ J. Lansangan)
93. **Borlongan, MS, 2016:** Robust Simultaneous Confidence Interval Estimation of Principal Component Loadings. (w/ J. Lansangan)
94. **Raguindin, MS, 2016:** Semiparametric Probit Model for High Dimensional Clustered Data. (w/ J. Lansangan)

95. **Da-ano, MS, 2016:** Robust Inference in a Heteroscedastic Multilevel Linear Model with Structural Change. (w/ J. Lansangan)
96. **Estoy, MS, 2016:** Quantile Regression and REML Approach for Robust Regression of Clustered Data. (w/ J. Lansangan)
97. **Arbizo, MOS, 2016:** Time Series Forecasting Models for New Serologically Confirmed HIV Cases in the Philippines.
98. **Claveria, MS, 2016:** A Nonparametric Regression-Based Test for Overdispersion. (w/ J. Lansangan)
99. **Retumban, MS, 2016:** Robust Estimation of a Nonlinear Regression Model: Hybrid of a Modified Forward Search Algorithm and Bootstrap. (w/ J. Lansangan)
100. **Macapinlac, MS, 2016:** Estimation Procedure for a High Dimensional Dynamic Autoregressive Model. (w/ J. Lansangan).
101. **Nieto, MOS, 2016:** Episodes of Urinary Tract Infection in Post-Renal Transplant Patients Based on Count Regression Models.
102. **Bangos, MOS, 2017:** Multilevel Models for Norms in Consumer Acceptability Surveys.
103. **Ancog, PhD, 2017,** Switching Meta-Regression Model in High Dimensional Data. (w/ J. Lansangan)
104. **Redondo, MS, 2017,** Hybrid Estimation Procedure of Poisson Autoregressive PAR(p) Model Using Backfitting Alogirithm. (w/ J. Lansangan)
105. **Malabanan, MS, 2017,** Estimation of a Semiparametric Spatiotemporal Model with Mixed Frequency. (w/ J. Lansangan)
106. **Llenaresas, MS, 2017,** Estimation of a Dynamic Semiparametric Model with Localized Temporal Effects. (w/ J. Lansangan)
107. **San Juan, MS, 2017,** Testing for Presence of Clustering Effect in Multilevel Model with High Dimensional Predictors. (w/ J. Lansangan)
108. **Ragas, MS, 2017,** Poisson Autoregressive Hidden Markov Process with Poisson Regression Type Measurements. (w/ J. Lansangan)
109. **Lopez, MS, 2017,** AR Estimation from Data with Measurement Error. (w/ J. Lansangan)
110. **Vicente, MOS, 2017,** Profiling Common Practice Period Western Art Music Through Traditional Music Analysis and Statistical Methods. (w/ J. Lansangan)
111. **Veun, MOS, 2017,**Sampling Design Proporal for Household Survey in Cambodia with Provincial Domain. (w/ K. Santos)
112. **Norasane, MOS, 2017,** Survey Design for Quarterly Labor Force Survey in Lao PDR. (w/ K. Santos)
113. **Navongsa, MOS, 2017,** Model-Based Estimation of Lao Household Business Income. (w/ K. Santos)
114. **Ocenar, MS, 2017,** Anomaly Detection in Clustered Multiple Time Series. (w/ J. Lansangan)
115. **Santos, MS, 2017,** Modified Gene Shaving Algorithm – A Dimension Reduction and Clustering Method. (w/ J. Lansangan)
116. **Yarcia, MOS, 2017,** A Method of Tracing Income Distribution from Grouped Data. (w/ J. Lansangan)

## CURRENT GRADUATE STUDENTS

1. **Santos, PhD:** Robust methods in cognitive diagnosis models
2. **Magallanes, PhD:** Geographically weighted spatiotemporal modesl
3. **Elnas, PhD:** Spatiotemporal self-exciting threshold models
4. **Daarol, PhD:** Longitudinal models
5. **Tobias, PhD:** Nonparametric transfer function models
6. **Claveria, PhD:** Nonparametric test for overdispersion
7. **Redondo, PhD:** Nonparametric changepoint analysis of count data
8. **Celoso, MS:** Dynamic spatiotemporal models for count data
9. **Romansoc, MS:** Longitudinal models
10. **Pascual, MOS:** Pattern recognition from internet usage data
11. **Murillo, MS**

12. **Collado, MS**
13. **Manalac, MS**
14. **Aracid, MS**
15. **Abacan, MS**
16. **Ortiz, MOS**
17. **Lopez, MOS**
18. **Vergara, MOS**