

**CURRICULUM VITAE**  
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## EDUCATION

<u>Institution and Location</u>	<u>Date and Degree</u>	<u>Major</u>
University of Pennsylvania Department of Economics Philadelphia, Pennsylvania	1979, Postdoctoral	Econometrics
University of California, Berkeley College of Arts and Letters Berkeley, California	1975, Ph.D.	Mathematics
University of California, Berkeley College of Arts and Letters Berkeley, California	1972, M.A.	Mathematics
University of the Philippines College of Arts and Sciences Diliman, Quezon City, Philippines	1966, M.S.	Mathematics
University of the Philippines College of Engineering Diliman, Quezon City, Philippines	1960, B.S.	Geodetic Engineering

## FACULTY APPOINTMENTS

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment Title</u>
1983-present	University of the Philippines School of Economics Diliman, Quezon City, Philippines	Professor of Economics
1986	University of Andalas Department of Economics and Management Padang, West Sumatra, Indonesia (Under the Midwest Universities Consortium for International Activities (MUCIA) World Bank IX Education Project, University of Wisconsin-Madison)	Visiting Professor of Economics
1978-1983	University of the Philippines School of Economics Diliman, Quezon City, Philippines	Associate Professor of Economics
1977-1978	University of the Philippines at Los Baños Institute of Agricultural Development Summer Program in Economics Los Baños, Philippines	Lecturer

**FACULTY APPOINTMENTS** (continued)

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment Title</u>
1976-1977	University of the Philippines College of Arts and Sciences Diliman, Quezon City, Philippines	Associate Professor of Mathematics and Economics
1975	University of the Philippines College of Arts and Sciences Diliman, Quezon City, Philippines	Assistant Professor of Mathematics
1971-1974	University of California Berkeley University Extension Department of Urban Affairs Berkeley, California	Instructor of Mathematics
1966-1975	University of the Philippines College of Arts and Sciences Diliman, Quezon City, Philippines	Instructor of Mathematics (On study leave)
1963-1965	University of the Philippines College of Arts and Sciences Diliman, Quezon City, Philippines	Instructor of Mathematics

**CONSULTANCIES AND RESEARCH PROJECTS**

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment Title</u>
1999	Resource Management International/ UPecon Foundation/Asian Development Bank "Residential Demand for Electricity in the Philippines", Part of the Project on Consumer Impact Assessment: A Study of the Impacts of Electric Power Restructuring in the Philippines School of Economics Diliman, Quezon City, Philippines	Principal Investigator
1997	UPecon Foundation/Department of Health/ US Agency for International Aid "Project Effects on Households and Communities", Study I of the Evaluation of the Philippine Health Development Project School of Economics Diliman, Quezon City, Philippines	Principal Investigator

**CONSULTANCIES AND RESEARCH PROJECTS** (continued)

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment Title</u>
1992	Department of Education, Culture, and Sports Educational Planning Model Project Pasig City, Philippines	Principal Investigator
1989-1990	National Economic Development Authority Validation of a Semestral Econometric Model Pasig City, Philippines	Principal Investigator
1988-1989	National Economic Development Authority Regional Econometric Modelling Project Pasig City, Philippines	Principal Investigator
1983-1986	Philippine Institute of Development Studies Econometric Modelling Project Makati City, Philippines	Principal Co-Investigator
1983-1985	Office of the President of the Philippines Home Development Mutual Fund Makati City, Philippines	Consultant for Corporate Planning

**ADMINISTRATIVE APPOINTMENTS**

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment Title</u>
2000-2001	University of the Philippines School of Economics Diliman, Quezon City, Philippines	Department Chairman
1997-1998 1988-1993 1985-1986 1977-1978	University of the Philippines School of Economics Diliman, Quezon City Philippines	Director for Finance
1997-1998 1988-1993 1985-1986 1977-1978	Philippine Center for Economic Development Finance and Administrative Division Diliman, Quezon City Philippines	Division Chief III
1992-1994 1981-1985	University of the Philippines School of Economics Diliman, Quezon City, Philippines	Director for Graduate Studies and Fellowships

#### **ADMINISTRATIVE APPOINTMENTS** (continued)

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment Title</u>
1991	University of the Philippines School of Economics Diliman, Quezon City, Philippines	Secretary
1976-1977	University of the Philippines Natural Science Research Center Diliman, Quezon City, Philippines	Member, Executive Advisory Council
1975-1977	University of the Philippines Office of the President Diliman, Quezon City, Philippines	Program Development Associate

#### **HONORS AND AWARDS**

<u>Dates</u>	<u>Award</u>
1982-present	Vidal A. Tan Professorial Chair in Mathematical Economics, University of the Philippines, Diliman, Quezon City, Philippines
2002	Most Outstanding Book for 2002, University of the Philippines, Diliman, Quezon City, Philippines
1997	Outstanding Researcher, University of the Philippines, Diliman, Quezon City, Philippines
1993	Outstanding Published Paper for 1993, National Academy of Science and Technology, Taguig, Rizal, Philippines
1991	Most Outstanding Faculty for 1989-1990 and 1990-1991, University of the Philippines, Diliman, Quezon City, Philippines
1979	Rockefeller Foundation Postdoctoral Fellow
1971	Community College Instructor Credential (Valid for Life), The California Community Colleges, California
1966-1969	Rockefeller Foundation Scholar (Doctoral studies in mathematics)
1963-1965	National Science Development Board Scholar (MS program in mathematics)
1962	First Prize, National Heroes Essay Contest (M. H. del Pilar), University of the Philippines, Diliman
1962	Honorable Mention, National Heroes Essay Contest (M. L. Quezon), University of the Philippines, Diliman

### **HONORS AND AWARDS** (continued)

<u>Dates</u>	<u>Award</u>
1955-1960	Bureau of Lands Scholar in Geodetic Engineering
1955-1960	University/College Scholar, University of the Philippines, Diliman
1954	Valedictorian, Masbate High School, Philippines
1950	Valedictorian, Masbate Elementary School, Philippines

### **PUBLICATIONS**

#### **Books**

*Introductory Mathematical Economics*. Quezon City: University of the Philippines Press (2001)

*Introduction to Statistics and Econometrics*. Quezon City: University of the Philippines Press (Forthcoming)

#### **Articles**

"Short-Run Residential Demand for Electricity in Rural Electric Cooperatives Franchise Areas", *The Philippine Review of Economics*, (Forthcoming).

"On the Parametric Linear Complementarity Problem", *Journal of Optimization Theory and Applications*, Vol. 95, No.2, November 1997.

"A Note on  $E_2$ -Matrices", *Linear Algebra and Its Applications*, Vol. 259, July 1, 1997.

"Q-Matrices and Boundedness of Solutions to Linear Complementarity Problems," *Journal of Optimization Theory and Applications*, Vol. 83, No.2, 1994.

"On a Class of Semimonotone  $Q_0$ -Matrices in the Linear Complementarity Problem", *Operations Research Letters*, Vol. 13, No. 2, 1993.

"Some Properties of Explicitly Quasiconcave Functions", *Journal of Optimization Theory and Applications*, Vol. 74, No. 3, 1992.

"A Top-Down Multiregional Econometric Model of the Philippines", *Philippine Review of Economics and Business*, Vol. 29, No. 1, 1992.

"A Top-Down Econometric Model for a Philippine Region", *Philippine Review of Economics and Business*, Vol. 28, No. 2, December, 1991.

"Operations Research", *Philippine Science Encyclopedia: Mathematics and Physical Sciences*, National Research Council of the Philippines, 1991.

**PUBLICATIONS** (continued)

"Strict Convexity of the Upper Level Sets of Strictly Quasiconcave Functions", *Philippine Review of Economics and Business*, Vol. 27, No. 1, June, 1990

"Regression by Minimum Sum of Absolute Errors: A Note on Perfect Multicollinearity", *Philippine Review of Economics and Business*, Vol. 20, No. 1, March 1983

"On the Use of Linear Programming for Family Planning Resource Allocation", *Philippine Review of Economics and Business*, Vol. 19, 1982

"Nonnegative Approximate Solutions to an Econometric Model with Prescribed Goals", *Philippine Review of Economics and Business*, Vol. 18, Nos. 1 and 2, 1981

"Research in Mathematics", *Guide to Research and Scientific Reporting*, S. De Leon and V.S. Claudio (eds), Manila: Merriam School and Office Supplies Corp., 1980

**UNPUBLISHED WORKS**

**Book**

*Prelude to Calculus*, with Charles J. Burke, University of California Extension, Berkeley (1973)

**Reports/Papers**

"Short-Run Residential Demand for Electricity in the Philippines", Report submitted as part of the Consumer Impact Assessment Project, Resource Management International/Upecon Foundation/Ian Pope & Associates, May 2001

"Economic Profile of the Production Sector: Philippines, 1978-1997", Report submitted as part of the Consumer Impact Assessment Project, Resource Management International/Upecon Foundation/Ian Pope & Associates, May 2001

"Project Effects on Households and Communities", Study 1 of the Philippine Health Development Project Evaluation, Upecon Foundation, December, 1997.

"A Note on the Parametric Linear Complementarity Problem", Final Report, Philippine Center for Economic Development Research Project, October, 1996.

"A Class of Completely- $Q_0$  Matrices", Final Report, Philippine Center for Economic Development Research Project, 1995.

"A Note on Isotone Solutions of the Parametric Linear Complementarity Problem", Discussion Paper 9404, School of Economics, University of the Philippines, Quezon City, July 1994.

"A Characterization of Q-Matrices", Discussion Paper No. 9202, School of Economics, University of the Philippines, Quezon City, February 1992.

**UNPUBLISHED WORKS** (continued)

"Validation of a Semestral Econometric Model of the Philippine Economy", (with Dr. E. de Dios and Dr. J. Yap), Final Report, Training and Development Issues Project, National Economic and Development Authority, MetroManila, May 9, 1990

"Developing a Nationally-Linked Regional Model", (with Dr. Cayetano Paderanga, Jr.), Final Report, Regional Development Coordination Staff, NEDA, MetroManila, 1988

"Comments on the Economic-Demographic Model of Thailand", Interim Study Directors' Meeting on Economic-Demographic Modelling for Selected ESCAP Countries, Bangkok, Thailand, August 23-28, 1985

"A Semestral Econometric Forecasting Model of the Philippine Economy", (with Dr. Manuel F. Montes), Final Report, Philippine Institute for Development Studies, 1985

"A Linear Programming Model for Charging a Single Induction Furnace", Engineering Equipment, Inc., MetroManila, 1983

"The Economic Effects of an Investment in Construction", Home Development Mutual Fund, Makati, 1983

"Demand for Health Services in the Philippines: A Survey of the Literature", Primary Health Care Study, Institute of Public Health, University of the Philippines, 1981

"A Survey of Resource Allocation Models for Family Planning Programs", Commission on Population, 1980

"Cost-effectiveness Analysis and Optimal Resource Allocation: The Philippine Family Planning Program", (with Dr. Ernesto M. Pernia), 1978

"Optimal Scheduling in a Single Processor", Technical Report, Natural Science Research Center, U.P., 1976

**SPECIAL INTERESTS**

Mathematical Economics  
Operations Research  
Econometrics  
Mathematics

**FAMILIARITY WITH QUANTITATIVE SOFTWARE**

Mathematical Software:	Mathematica
Statistical Software:	EViews Stata

### MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

<u>Dates</u>	<u>Organization</u>
1997	American Association for the Advancement of Science
1996	New York Academy of Sciences
1977	Mathematical Society of the Philippines
1978-present	Philippine Economic Society (Life Member)
1977-present	National Research Council of the Philippines (Regular Member)
1987	Operations Research Society of the Philippines
1970	American Mathematical Society

### SERVICE TO PROFESSIONAL PUBLICATIONS

<u>Dates</u>	<u>Journal</u>	<u>Service</u>
1994 1992, 1991	<i>Journal of Optimization Theory and Applications</i> Plenum Press, New York, N.Y	Referee
1993	<i>Journal of Matrix Analysis and Applications</i> Society for Industrial and Applied Mathematics Philadelphia, USA	Referee
1993	<i>Journal of Economic Behavior and Organization</i> North-Holland, Amsterdam	Referee
1993	Matimyas Matematika Institute of Science and Mathematics Education University of the Philippines, Quezon City	Referee

### OTHER PROFESSIONAL SERVICES

<u>Dates</u>	<u>Institution and Location</u>	<u>Appointment</u>
1992	UPecon Foundation/US Agency for International Aid, Health Policy Development Project School of Economics, Diliman, Quezon City	Member, Exec. Committee
1991	Department of Health/Philippine Institute for Development Studies Joint Research Project on Baseline Studies in Health Care Financing Makati City, Philippines	Research Advisor
1988-1991	National Economic Development Authority Training and Development Issues Project Makati City, Philippines	Member, Steering Committee

**SPEAKER IN SEMINARS, WORKSHOPS, CONVENTIONS (Last 8 Years)**

<u>Date</u>	<u>Topic, Institution, and Location</u>
2001	"Strange Attractors and Sensitive Dependence on Initial Conditions", School of Economics, University of the Philippines
2000	"Household Electricity Consumption: Data from the Household Energy Consumption Survey" School of Economics, University of the Philippines
1999	"Quantitative Methods in Economics" Foreign Service Institute Cadetship Program School of Economics, University of the Philippines
1998	"Macroeconomic Modelling for Forecasting and Policy Evaluation" The South East Asian Central Banks Research and Training Centre Kuala Lumpur, Malaysia
1996	"The Use of Mathematics and Statistics in the Teaching of Economics" Economics Faculty Workshop University of the Philippines, Iloilo City, Philippines
1996	"The Mathematical Approach to Economic Analysis" Teachers' Workshop, University of the Philippines, Cebu City
1996	"Building a Regional Econometric Model" University of the Philippines Faculty Forum/National Economic Development Authority, Cebu City
1995	"Generalizing Euler's Theorem" School of Economics, University of the Philippines, Quezon City
1994	"Homothetic Production Functions and the Cost-Minimizing Firm" School of Economics, University of the Philippines, Quezon City
1994	"Macroeconomic Modelling for Forecasting and Policy Evaluation" The South East Asian Central Banks Research and Training Centre Taipei, Republic of China
1994	"Population Change, Women's Role and Status and Development" UN Economic and Social Commission for Asia and the Pacific Bangkok, Thailand