

Name of the researcher: **Ramón E. Key Hernández**
Date of birth: **28/04/1965**
URL for web site: <http://www.iesa.edu.ve/profesores-e-investigacion/profesores/110=key>
ORCID ID: **0000-0002-5719-9079**

EDUCATION

University of Colorado Boulder, Graduate College of Arts and Science, Economics Department, Boulder, Colorado, The United States of America

Ph.D. Economics 28/08/1995 – 14/05/1999
M.A. Economics 28/08/1995 – 09/08/1997
Diploma Economics (Economics Institute) 28/08/1994 – 31/07/1995

Universidad Central de Venezuela, Facultad de Ciencias Económicas y Sociales, Escuela de Economía, Caracas, Venezuela

B.S. Economics 10/01/1984 – 15/12/1989

CURRENT POSITION

Euro-Mediterranean Center on Climate Change

Visiting Researcher 01/10/2020 – present

- Develop a general equilibrium model framework to study the Nexus Energy - Water - Food Production in world-scale models.

Instituto de Estudios Superiores en Administración (IESA) - Centro Internacional de Energía y Ambiente (CIEA), Caracas, Venezuela

Full-time Professor, and Coordinator of CIEA 01/07/2016 – present

- As **coordinator** of CIEA-IESA, I work actively to attract grant-funded policy-oriented projects for the center and promote public policy debates. I design and deliver open and in-company training programs in the energy value chain for Latin American countries. I have international experience working with such programs for Colombia, Panamá, Mexico, Ecuador, and Guyana.
- As a **researcher and CGE modeler**, I built up models to study the effects of alternative model specification of technology in the domestic impact of removing fuel-oil subsidies; to study the impact of outmigration in national economies, and the widespread effects of productivity shocks in the energy sector.
- As a **professor of graduate students**, I teach Managerial Economics, Macroeconomics, the Political Economy of Oil, and CGE modeling for public policy analysis. Thesis supervisor in energy issues for MBA and Public Management students.
- As a **professor of Executive Education**, I teach Petroleum Economics, and Business Environment.
- As an invited **instructor of the ECOMOD Network (CGE Modeling and data science network)**, I teach Applied CGE Modeling (in Washington DC and the Czech Republic in December and July 2019 respectively).

PREVIOUS POSITIONS

IDEA International, Panamá, Panamá

Full-time Senior Economist for Latin America and the Caribbean 01/10/2014 - 30/08/2015

- Fiscal risk analysis, and elaboration of mitigation strategies for national and local governments (Federal State of Tabasco - Mexico).
- Elaboration of manual for Fiscal Budgeting for results-development (Guyana).
- Instructor in budgeting-for-results and value-for-money methodologies for public-servants officials in ministries of economy and finance in developing countries.

Petróleos de Venezuela S.A. (PDVSA), Caracas, Venezuela

Manager of Economic Analysis, Corporate Planning Office

01/05/2004 – 15/09/2014

- Design and implementation of an **integrated online information system** for handling:
 - i) Operational, economics, and financial indicators for all the joint-ventures (JV) in the oil and gas sector (32 JV, indicators includes geo-referencing); and,
 - ii) Economic-evaluation-system for individual, and multiple, integrated projects in oil-and-gas.
- Design and implementation of a **CGE modeling system** for the full assessment of the macroeconomic impact of large-scale energy projects and the impact of energy policy (Dynamic CGE model).
- Development of **energy scenarios**, global crude oil demand estimation, and crude-oil balance relevant for the Corporation Business Plan.
- Economic evaluation, and **economic-impact- assessment of energy projects** (crude oil and gas production, refining, power generation)
- Analysis and monitoring of energy markets

Universidad Central de Venezuela, Facultad de Ciencias Económica y Sociales, Escuela de Economía, Caracas – Venezuela

Part time, Associate Professor

01/05/2004 – 15/09/2014

- As a professor, I taught Microeconomics, and Seminars in Energy Economics.
- Thesis supervisor for undergrads students interested in natural resource economics.
- As a **researcher and CGE modeler**, I built up models to study the effects of removing fuel-oil subsidies on CO2 emissions in developing countries, and the domestic impact of oil production cuts in OPEC countries.

Embassy of Venezuela in the United States of America, Washington DC, USA

Energy Attaché

01/03/2003 – 30/04/2004

- Coordinator of economic analysis of energy issues handled by the Embassy

Petróleos de Venezuela S.A. (PDVSA), Caracas, Venezuela

Senior Economist, Corporate Planning Office

01/06/1999 – 28/02/2003

- Coordinator of economic analysis of energy projects, energy policy, and macroeconomic conditions (global and domestic)

LAGOVEN (a subsidiary of PDVSA), Caracas, Venezuela

Analyst, Corporate Planning Office

15/02/1990 - 15/07/1994

- Economic analysis of energy projects, energy policy, and macroeconomic conditions (global and domestic)

FELLOWSHIPS

Economist Programme for Doctoral Studies, FUNDAYACUCHO – LASPAU

Scholarship for Doctoral Studies in University of Colorado Boulder, USA

28/08/1994 – 14/05/1999

SUPERVISION OF GRADUATE STUDENTS

Tutor of students in MBA, Master in Finance, and Master in Public Administration in IESA, Caracas, Venezuela:

- *Natural Gas Subsidies in Venezuela*; Adriana Peraza, Felix Salazar, July 2018.
- *Proposal for the Recovery of the Venezuelan Oil Industry*; Mario Aletti, Federico Fragachán, July 2018.
- *A Business Opportunity: The Case of the Accumulation of Oil in the José Antonio Anzoátegui Petrochemical Complex between 2009 and 2014*; Antonio Daher Herrera, José De Sousa, Julio 2018.
- *Effect of exchange rate distortions on the profitability of energy projects: the case of natural gas*; Anibal Melchor, Joashua Romero, Julio 2018.
- *Removal of Fuel Subsidies in Brazil: A Relevant Case for Venezuela?*; Patiño Isabella, Andrés Salcedo, Julio 2019.
- *Reform of gasoline and diesel subsidies in Mexico (2008-2019)*; Simón Martínez, IESA, Julio 2020.
- *Determinants of inclusion of photovoltaic solar energy in the electricity grid of Mexico, Argentina, and Uruguay: possible implications of energy policy for Venezuela*; David Rubio, Julio 2020.

- *Political Economy of Fuel Subsidies in Venezuela: Estimation of a Compensatory Fund for the Most Vulnerable Sectors*; José Cuello y Adolfo De Lima, Julio 2020.

Tutor of Ph.D. Student in Universidad Central de Venezuela, Caracas:

- *Influence of Financial Markets on the Petroleum Prices 1986-2017: A system Dynamic Approach*; Omar Chique, expected culmination December 2020.

PUBLICATIONS

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- Blanco E., Key R. (2019). “Nuevos retos de la competitividad en Venezuela: el caso de los servicios energéticos”. Debates IESA, Vol. XXIV, No 4, October – December. Caracas, pp. 31 – 34.
- Key R., Villarroel C. (2019). “Transformaciones en el mercado energético mundial: implicaciones para Venezuela”. Debates IESA, Vol. XXIV, No 4, October – December. Caracas, pp. 38 – 40.
- Key R., Hernández J., Monsalve D., Curiel C., Obuchi R., Cárdenas D., Oliveros A., Lalaguna G. (2019). “Por qué y cómo reducir los subsidios a los servicios en Venezuela”. Debates IESA, Vol. XXIV, July – September. Caracas, pp. 40 – 45.
- Key R., Villarroel C. (2019). “Reflexiones sobre el colapso y recuperación de la industria petrolera en Venezuela”. Chapter in the book *La Industria Petrolera en la era Chavista, crónica de un colapso*. Oliveros L. (editor). Ediciones UCAB, ISBN 978-980-244-921-7. Caracas, pp. 149 – 168.
- Key R., Villarroel G. (2019). “The collapse and recovery of the oil sector and their implications for the Venezuela economy: an assessment using a CGE framework”. EcoMod 2019, Ponta Delgada, Azores, Portugal. July.
- Key R., Villarroel C., Monsalve D., Gómez J. (2018). “El desafío energético de Panamá”. *Debates IESA*, Vol. XXIII, No 4, October – December. Caracas, pp. 9 - 12.
- Key R., Villarroel G. (2018). “Oil production collapse in Venezuela: domestic implications using a CGE framework”. Ecomod 2018, Venice, Italy, July.
- Key R., Villarroel (2018). “El petróleo será insuficiente: el colapso de la industria petrolera y la crisis venezolana”. Debates IESA, Vol. XXIII, No2, April – June, pp. 26 – 33.
- Key R. (2017). “Incidencia de lo económico en la institucionalidad ambiental” (2017). Chapter in the book *Hacia una nueva institucionalidad ambiental en Venezuela*. Gabaldón A. (editor). Grupo Orinoco. Caracas, pp. 87 - 103.
- Key R., Villarroel G. (2017). “Subsidies to the energy sector in Venezuela: the effects of their removal considering inter-fuel substitution”. Ecomod 2017, Liubljana, Slovenia, July.
- Key R., Villarroel G. (2017). “Out-migration in Venezuela in the XXI Century: an assessment of the potential GDP loss by using a computable general equilibrium framework”. Ecomod 2017, Liubljana, Slovenia, July.
- Key R. (2016). “Petróleo y Economía Nacional: Consideraciones sobre reactivación”. Chapter in the book: *¿Tiene Futuro Venezuela como país petrolero*. Gabaldón A. (editor). Grupo Orinoco, Caracas, pp. 17-31.
- Key R., Villarroel G. (2015). “Heterodox vs. Orthodox Adjustment in Venezuela: An Assessment of the effects of the restriction on imports Using a General Equilibrium Model” (2015). EcoMod 2015, Boston, USA, July.
- Villarroel C., Key R. (2014). “Domestic Impact of Production Cuts in OPEC Countries: The cases of Nigeria and Venezuela”. EcoMod 2014, Bali, Indonesia, July.
- Villarroel C., Key R. (2013) “Impacto Doméstico de los recortes de producción de la OPEP: Los casos de Nigeria y Venezuela. Nueva Economía/Año XXI, N° 38, November, pp.111-156.
- Key R., Villarroel G. (2013). "The effects of adjustment programs and the Increase of fossil fuel prices in the domestic market: the case of Venezuela in 1989". EcoMod 2013, Prague, Czech Republic, July.
- Key R., Villarroel C. (2013). “Los efectos de los programas de ajuste y el incremento de los precios de la gasolina en el mercado doméstico: el caso de Venezuela en 1989”. Nueva Economía/ Año XX, N°37, April, pp.39-71.
- Villarroel C., Key R. (2012). “Remoción de los subsidios a la energía y sus efectos sobre las emisiones de CO2 en Venezuela” (2012), with Claudina Villarroel. Nueva Economía/ Año XIX, N° 36, November, pp. 41-77.
- Villarroel C., Key R. (2012). "Removal of energy subsidies and its effects on the CO2 Emissions in Venezuela". EcoMod 2012, International Conference on Economic Modeling. Seville, Spain, July.

Key R. (2010). "Política Petrolera y su interacción con la Política Económica" (2010). Nueva Economía/ Año XVIII, N° 32, November, pp. 153-194.

RESEARCH MONOGRAPH

- Key R. et al. (2020). "Estimation of the effects of service subsidies on the Venezuelan economy and identification of reform opportunities that allow efficient income redistribution". Policy Report for the British Embassy in Caracas, Venezuela, February.
- Obuchi R., Saez F, Key R. (2019). "Scoping study on challenges and opportunities for Venezuela to access and implement an international bail-out program". Policy Report for the British Embassy in Caracas, Venezuela, December.
- Key R. (2019). "Medium-term economic-energy scenarios for the natural gas business in Venezuela". Project Report for CARDON-IV, Gas Energy Latin America, Caracas, Venezuela, August.
- Key R. (2019). "Estimation of the effects of service subsidies on the Venezuelan economy and identification of reform opportunities that allow efficient income redistribution". Policy Report for the British Embassy in Caracas, Venezuela, February.
- Gabaldón A., Larrañaga FJ, Key R. (2018). "Recovery Plan for the National Oil Industry". Project Report, Grupo Orinoco, Caracas, Venezuela, July.
- Key R., Villarroel C. (2017). "Subsidies to the Energy Sector in Venezuela: Quantification, consequences, and the effects of their removal considering inter-fuel substitution relationships". Project Report for the Andean Development Corporation (CAF), Caracas, Venezuela, July.
- Key R. et al. (2017). "Reduction of the LPG subsidy in Venezuela, Price mechanism for efficient consumption ". Policy Report for the British Embassy in Caracas, Venezuela, February.
- Key R. (2015). "Macroeconomic Scenarios for Venezuela during the period 2015 -2017". Project Report for IPD Latin America, October.
- Key R. et al. (2015). "A Results-Based Budgeting for Guyana". Project Report for IDEA International, Panamá, Panamá, August.
- Abreu J., Key R. (2014). "Las Asociaciones Público-Privadas (APP) y la Gestión para Resultados de Desarrollo (GpRD): Oportunidades de Sinergia en LAC para los GSN". IDEA International, October.
- Key R. (2014). "Evaluación del Riesgo Fiscal en Tabasco: Principales Hallazgos y Recomendaciones". Project Report, IDEA International, Panamá, Panamá, August.
- Bayar A., Key R. (2011). "Impacto Macroeconómico del Plan Siembra Petrolera: Resultados de Modelo de Equilibrio General Computable Dinámico de la Economía Venezolana". Project Report prepared for PDVSA, Caracas, Venezuela.
- Key R, et al (2011). "Simulación Dinámica de los Efectos de Fijación de Topes de inversión sobre los Volúmenes de producción y Flujo de Caja de PDVSA". Report prepared for PDVSA, Caracas, Venezuela, June.
- Key R., Ramirez K. (2008). "Propuesta para el establecimiento de un sistema de bandas de precios en la OPEP". Report prepared for PDVSA, February.
- Key R. et al (2008). "Evaluación y Análisis de la Crisis Financiera Global y su impacto en el mercado petrolero y el país". Report prepared for PDVSA, Caracas, Venezuela, September.
- Key R. et al. (2007). "Análisis de Riesgo de Proyectos Integrados de Producción y Mejoramiento de Crudo Extra-Pesado de la Faja del Orinoco". Report prepared for PDVSA, Caracas, Venezuela.
- Key R. (2003). "Visión Energética de los Estados Unidos: Una Visión Hemisférica?". Report prepared for the Embassy of Venezuela in the USA, Washington DC, USA.
- Key R. (2002). "Consideraciones sobre los Costos Unitarios de Producción de PDVSA". Report prepared for PDVSA, Caracas, Venezuela, November.
- Key R. (2002). "Evaluación Entorno Económico Nacional e Implicaciones para PDVSA: Bajo la amenaza de un esquema de Control de Cambios". Report prepared for PDVSA, Caracas, Venezuela, October.
- Collective document (2000). "Escenarios Nacionales más allá del 2006". Report prepared for the Ministry of Planning and Development, PDVSA-MPD, Caracas, Venezuela.

ORGANIZATION OF INTERNATIONAL CONFERENCES

European Experiences in Renewable Energy and Climate Change

25/09/2019 – 25/09/2019

Caracas, Venezuela.

*Organized with the Chambers of Commerce of the United Kingdom, Italy, Germany, FEDEUROPA, and the Local representative of the **European Union**.*

Participation of 2 local experts, and 3 international experts; 250 attendees.

FUNDING RECEIVED SO FAR

Outlining a Subsidy Reform Proposal of Basic Services in Venezuela – Bilateral Assistance initiative of the British Embassy for the period 2019 – 2020; Call July 15 2019; September 1 2019 – March 30 2020. **Principal researcher.**

Scoping study on challenges and opportunities for Venezuela to access and implement an international bail-out program - Bilateral Assistance initiative of the British Embassy for the period 2018 – 2019; Call September 1 2018; October 1 2018 – January 15 2019. **Co-principal researcher** (1 of 3).

Estimating the effects of service subsidies in the Venezuelan economy and identifying opportunities for reform, allowing efficient income redistribution - Bilateral Assistance initiative of the British Embassy for the period 2018 – 2019; Call July 15 2018; September 1 2018 – March 30 2019. **Principal researcher.**

Diagnose and recovering proposal for the oil industry in Venezuela - Multiple donor project for the year 2018; Call March 1 2017; July 1 2017 – July 31 2018. **Co-principal researcher** (1 of 3).

LPG Subsidies Reform in Venezuela – Climate Change initiative of the British Embassy for the period 2016-2017; Call July 15 2016; September 1 2016 – March 30 2017. **Principal researcher.**

Energy Subsidies in Venezuela and inter-fuel substitution (CGE Modeling perspective) – Corporación Andina de Fomento (CAF) Energy, Environment and Development Competition; Call June 30 2016; October 1 2016 – April 30 2017. **Principal researcher.**
