PANEL 1A
COMMUNICATING SCIENCE AND PUBLIC POLICIES FOR NATURAL RESOURCE CONSERVATION

Moderator
Alejandra Engler: Universidad de Talca

Panelists
ERIN SILLS: North Carolina State University
RODRIGO ARRIAGADA: Pontificia Universidad Católica de Chile, CESIEP

Theme
Global trends such as demographic changes, increasing consumption, environmental degradation and climate change, are placing significant and potentially unsustainable pressures on the availability of natural resources such as land, water and ecosystems. The implications of such deterioration are evident. Natural resources provide means to produce food, water for drinking and raw materials for a wide range of industries. Natural landscapes and wildlife reserves are also major factors in attracting tourism. Moreover, several studies on environmental assessments have documented a correlation between degrading natural resources and increasing vulnerability. The link between welfare and the environment in developing countries has gained attention of international development agencies and policy makers as a first step toward reducing the deleterious effects of economic development on the sustainability of natural resources. In this sense, the socio-economic and environmental impact of public environmental-related policy (ERP) have become a major concern for policy-makers, governmental and non-governmental agencies and scholars that have seen social and economic sustainability of rural areas and the conservation of natural resources at risk. Decisions about policy interventions should be supported by evidence on their causal effects. A full understanding of the underlying causal mechanisms that explain the social, economic and environmental outcomes of an ERP, the evaluation of policy impacts, impact heterogeneity and spatial spillover provide useful information for policy design. There is recognition that the use of scientific evidence can help to develop better public policies; however, the challenge of bringing science closer to decision makers remains.

The objective of this panel is to provide insights into how science can provide credible evidence to support policy design towards the conservation of natural resources and the challenges scientists and policy makers face in building effective communication channels.

PANEL 1B
GESTIÓN DE POLÍTICAS PARA LA AGRICULTURA BASADAS EN EVIDENCIA EN ALC

Moderador
Jaime Flores: Instituto Interamericano de Cooperación para la Agricultura (IICA)

Panelistas
PATRICIO RIVEROS: Oficina de Estudios y Políticas Agrarias-MINAGRI, Chile
DANIEL LEMA: Universidad del CEMA, Argentina
JOAQUÍN ARIAS: Instituto Interamericano de Cooperación para la Agricultura (IICA)
PEDRO MARTEL: Banco Interamericano de Desarrollo
EDUARDO RAMIREZ: Área Agricultura y Desarrollo- RIMISP

Temática

El creciente interés por la gestión de políticas basadas en evidencia parte de la necesidad de alcanzar mayor eficacia y eficiencia de las políticas públicas para lograr resultados e impactos positivos sobre la agricultura y las poblaciones rurales. Este enfoque va depender de que exista la evidencia en cantidad y calidad necesarias (pruebas rigurosas sobre lo que funciona o no funciona) y de que dicha evidencia sea utilizada apropiadamente en el ciclo de políticas.

El enfoque de políticas basadas en evidencia suele referirse al proceso sistemático de recolección, valoración y uso de la investigación como base para la toma de decisiones de política. Una definición más pragmática (porque solo se aspira que la evidencia incida en las políticas) se refiere al uso de toda la información y conocimiento existentes, incluida la mejor evidencia disponible sobre lo que funciona y lo que no funciona, en la gestión de políticas públicas para la agricultura. Es una tarea difícil porque la relación entre investigación, las políticas y la práctica, es compleja, multifactorial, no lineal y altamente contextual. Además, el diseño de políticas es inherentemente un proceso político, por lo tanto no es siempre viable o bienvenida la evidencia como base para la toma de decisiones.

El enfoque de políticas basadas en evidencia genera varias preguntas que son relevantes de abordar. Qué puede apropiadamente considerarse como evidencia cuando existen tantos insumos posibles para el diseño de políticas, como son investigaciones de alto rigor científico, investigaciones empíricas, encuestas, sondeos, estadísticas, evaluaciones de políticas, modelos económicos de análisis cuantitativo o cualitativo, o conocimiento de expertos. Siendo que las problemáticas relacionadas con el desarrollo sostenible del sector agrícola son diversas y complejas, mientras que los recursos públicos son escasos, qué se debe investigar y qué tipo de evidencias deben generarse como insumos para el diseño de políticas. En consecuencia, será necesario realizar cambios en los procesos y agendas de investigación enfocadas en temas de políticas (en lugar de intereses puramente académicos). Cuál es el verdadero potencial de uso de la evidencia en el ciclo de políticas si la gestión misma es inherentemente un proceso político (porque involucra la selección de problemas económicos y sociales a resolver). Finalmente, cómo las apelaciones a la evidencia cambian los debates políticos sobre preguntas particulares relacionadas con la agricultura o pueden marginar temas relevantes para la política.

Si los objetivos de la política son múltiples (a veces se complementan y se contraponen entre sí), la evidencia científica puede ser abundante y proveniente de muchas fuentes, lo que hace difícil para los decidores de políticas considerar y valorar su aporte.

Otras preguntas relacionadas con la viabilidad de implementar políticas basadas en evidencia se refieren a cómo influye en dichos procesos el nivel de las capacidades técnicas de los encargados de formular políticas. Cómo mejorar los hallazgos y la comunicación de los resultados de la investigación y cómo ayudar a vincular las evidencias con los resultados de las políticas. Qué avance hay en el desarrollo de sistemas de monitoreo y aprendizaje, no solo para seguir el progreso, hacer los ajustes necesarios y evaluar la efectividad de las políticas, sino también para aprender lecciones para el futuro.

El propósito del panel es contribuir a mejorar la eficacia y eficiencia de las políticas públicas para lograr resultados e impactos positivos sobre la agricultura y las poblaciones rurales, promoviendo procesos para generar evidencia científica orientada a la gestión de políticas, y la práctica de uso de evidencia en la gestión de políticas públicas para la agricultura. El Objetivo es Debatir sobre el valor, práctica, implicaciones y retos para América Latina y el Caribe de la gestión de políticas públicas para la agricultura basada en evidencia.

Los temas específicos del panel incluyen:
- Avances en la gestión de políticas basadas en resultados y cómo encaja la evidencia científica.
- Papel de los sistemas de información y conocimiento en la gestión de políticas públicas para la agricultura y qué tipo evidencia debe generarse para alimentar el ciclo de políticas para la agricultura.
- ¿Cuáles son las prioridades de investigación, y las relaciones necesarias entre la academia, centros de investigación, y gestores de política pública para la agricultura?

PANEL 2A
POVERTY, AGRICULTURE AND RURAL DEVELOPMENT

Moderator
Lilyan Fulginiti: University of Nebraska-Lincoln

Panelists
WILL MARTIN: International Food Policy Research Institute (IFPRI)
AMPARO PALACIOS: The World Bank

Theme

Dr. Martin's presentation is based on "Poverty Impacts of Widely-Adopted CGIAR Innovations" published recently with co-authors D. Laborde, S. Tokgoz, T. Lallemant, and Fahd Majeed. The authors indicate that the Consultative Group on International Agricultural Research (CGIAR) represents a substantial commitment to agricultural research and development for poverty reduction. While partial evidence--such as sizeable elasticities on CGIAR R&D investments in productivity and yield regressions—suggest these investments have likely had substantial impacts on global poverty, we are not aware of any previous attempts to measure the impact of the CGIAR on global poverty. This study attempts to do so, first by utilizing two different approaches to measuring the impact of CGIAR R&D on productivity, and then by using models for 300,000 households to assess the impacts of these productivity gains on poverty at a global level. The first approach to assessing the impact on productivity uses estimates of the knowledge stock based on distributed lags on CGIAR investment, together with elasticity estimates of their impact taken from the econometric literature. The second approach uses model-based estimates of productivity gains by commodity, and a Delphi survey to attribute these gains between CGIAR and non-CGIAR investment. The results of the elasticity-based approach turn out to be very sensitive to the lag structure — with a 50-year lag resulting in a very large impact, while the more traditional 30-year lag yields almost no change in productivity or poverty because of the time profile of CGIAR investments. Our estimates suggest that total agricultural productivity growth between 1993 and 2013 reduced the global poverty headcount by almost 200 million. The elasticity approach with a 50-year lag suggests that CGIAR research reduced the global poverty headcount by around 75 million, while the Delphi approach suggested a reduction of roughly 40 million.

Dr. Palacios contends that stylized facts drive research agendas and policy debates, and provide a sense of importance, help frame the inquiry and are used to galvanize resources. But, stylized facts have to be informed and updated based on reliable data. Yet, robust stylized facts, systematically obtained with reliable methodologies and comparable data across countries, and settings within countries, are often hard to come by. As a result, academic debates and policies rely too often on outdated or poor-quality statistics, or just unrepresentative case study evidence.

The household survey panel data collected under the Living Standards Measurement Study–Integrated Surveys on Agriculture (LSMS-ISA) Initiative provide a unique opportunity to take up this challenge in one of the most data deprived regions of the world. Over the period 2008–2020, nationally representative surveys are to be conducted in eight African countries, accounting for 45 percent of the population in Sub-Saharan Africa (SSA). In these countries, four or more waves of detailed information are collected on households' economic activities, their income and well-being, with special attention to agriculture. They also include a number of methodological innovations such as data gathering at the individual and plot level, enabling more gender disaggregated analysis. The data are made publicly available one year after their collection. The "Agriculture in Africa – Telling Myths from Facts" project led by the World Bank, is an example of what can be done when data are available and are used to revisit common wisdom on African agriculture and its farmers' livelihoods in the areas of agricultural technology, market engagement and structural transformation. Additionally, the LSMS-ISA datasets have contributed to an increase in the study on agriculture from researchers all over the world. Overall, the findings underscore the high academic and policy return from investing in regular, nationally representative data collection and continuous examination of conventional wisdoms. Evidence-based policy-making requires sound facts as

well as sound inference. In the absence of either one of these two features, researchers and policymakers alike risk flying blind.

PANEL 2B
ECONOMICS OF GRAPES AND WINES IN NEW WORLD COUNTRIES

Moderator
Julian Alston: University of California-Davis

Panelists
JULIAN ALSTON: University of California, Davis
ALEJANDRO GENNARI: Unidad para el Cambio Rural (UCAR), Argentina
YERKO MORENO: Universidad de Talca

Theme
Dr. Alston has entitled his remarks "(Some of) the Economics of Pests and Diseases Affecting California Grape and Wine Production". Case studies of various pests and diseases of grapevines in California are used to illustrate issues that are important for the economics of pests and diseases of grapes and wine, including: (i) vines are propagated vegetatively and typically grafted; (ii) pests and diseases can destroy long-lived productive capital (i.e., vines); (iii) adoption of resistant varieties may be hindered by longevity of existing stock and marketing implications; and (iv) chemical technologies may have significant implications for farm worker health and safety and the environment. Some attention will be paid to historical context and international spillovers in presenting these case studies.

Dr. Gennari, in collaboration with Dra. María Jimena Estrella Orrego, has entitled his remarks "The new challenge for the Argentinean wine industry: moving from classical productivity to systemic productivity". The Argentinean wine industry faces a critical moment regarding the strategic model it should adopt. This decision will impact the domestic and foreign markets for must and wine and the tourism sector. After the export boom of 2003-2013, many variables have suffered changes and this requires new strategies. During the last 25 years grape production has varied with a strong trend towards reduction. Many reasons can explain this: vine eradication; varietal reconversion with more than 77,000 hectares changing from low quality high yielding varieties towards high quality with low yields; technological change; and water availability. All these variables directly influence physical productivity (hg/ha), factor productivity (kg/m3), financial productivity (U$D/bottle) and systemic productivity (added value/ha).

Under this complex scheme, two different models arise. On the one hand, the quality model based on a differentiation strategy. This model clearly segments products and territories and works under a strong vertical and horizontal integration scheme. The growth of enotourism is a natural result of this model. On the other hand, the quantity model with a strong industrial and distribution concentration and mainly devoted to low quality wines for the domestic market and grape must for the foreign market.

For both models and for the whole Argentinean wine industry, the main limitation for productivity growth is water far ahead of the classical factors of production such as capital and labor. As a public good, water management requires a comprehensive view to understand the whole system along with the different stakeholders involved. A well-functioning water management scheme would allow for a better performance and increased global competitiveness of the Argentinean wine industry.

Dr. Moreno will present an overview of how the Chilean agricultural sector has become one of the main contributors to export earnings over the last three decades and the key contributions that the wine sub-sector has made in this process. The presentation will also deal with the main cultivars and recent production trends. Current and future technical challenges will also be discussed including topics like climate change, labor availability and industry sustainability.

PANEL 3A
THE RAPID STRUCTURAL TRANSFORMATION OF DAIRY MARKETS

Moderator
Alberto Valdés: Universidad Católica de Chile

Panelists
FRANK SCRIMGEOUR: The University of Waikato, New Zealand
STEPHAN VON CRAMON-TAUBADEL: George-August University, Germany
ALEJANDRO ACOSTA: Food and Agriculture Organization of the United Nations

Theme
The world's population is projected to increase by more than one billion people within the next 15 years, reaching 8.5 billion in 2030. Although in some regions population growth rate will decline, continued population growth in the coming decades is inevitable. Population growth combined with a rise in income will lead to an increase in the global demand for animal food source (AFS) products. According to OECD-FAO (2016) the global demand for dairy products is projected to be 23% higher in 2025 than in 2015. The food security outcome of this market trends is still uncertain. The increase in consumption of AFS products could lead to a reduction in the proportion of undernourished people and the generation of new employment opportunities for the poor; however, an additional demand for feed could also lead to an increase in staple food prices. The net result of these developments will depend on the level of performance and functioning of livestock food markets.

Enhancing efficient and inclusive food markets is a fundamental factor to increase the level of food security and income for the poorest. However, during the last year dairy markets have gone through a structural transformation process associated with mergers and consolidations that have led to increases in industry concentration, a decrease in the number of producers, and an increase in the scale of operations. These market trends could bring economic sectoral growth opportunities while at the same time posing social development challenges. Thus, it is likely that policy-makers will have to trade gains in one area against losses in other areas. The aim of this panel is to provide insights into the challenges and opportunities arising from the rapid structural transformation of dairy markets.

PANEL 3B
IMPACT ASSESSMENT OF AGRICULTURAL PROJECTS IN LATIN AMERICA

Moderator
Lina Salazar: Inter-American Development Bank

Panelists
SEBASTIEN GACHOT: Inter-American Development Bank
CESAR LOPEZ RIVAS: Inter-American Development Bank
MARIO GONZALEZ-FLORES: Inter-American Development Bank
LINA SALAZAR: Inter-American Development Bank

Theme
In the last ten years, the Inter-American Development Bank has reinforced its commitment to design and implement rigorous impact evaluations with the purpose to assess the effectiveness of its interventions. This session will consist of four impact evaluations of agricultural projects financed by the Inter-American Development Bank. The session will begin with a short introduction on the work of the Inter-American Development Bank in Agriculture and the emphasis that has been placed on the implementation of rigorous impact evaluations. This will be followed by the panelists' presentations. The abstracts of the papers to be presented are below:

Agricultural Input Subsidies in Haiti: *Jeremie Gignoux, Karen Macours, Dan Stein, Kelsey Wright and Sebastien Gachot*
Agricultural input subsidies have been used widely as a tool to boost agricultural productivity and output. However, even though this practice represents an important pillar of agricultural policy in Latin America and the Caribbean, little emphasis has been placed on the evaluation of the effectiveness of such schemes. The Inter-American Development Bank, in collaboration with the Paris School of Economics, has conducted two separate impact evaluation studies in Haiti to analyze the effects of agricultural input donations to support rice and horticulture production. The program evaluated distributed, through a voucher scheme, agricultural inputs (fertilizers and pesticides, among others) to smallholder farmers in the North and North-East of Haiti. Using a Randomized Control Trials, the impact evaluations show that input distribution did not have significant impacts on increasing yields nor the value of production. In fact, negative impacts on rice production have been found.

Unraveling the Threads of Decentralized Community-Based Irrigation Systems on the Welfare of Rural Households in Bolivia: *Cesar Lopez-Rivas, Lina Salazar, Mario Gonzalez-Flores*
This paper estimates the impact of the National Irrigation Program with a Watershed Approach (PRONAREC), that finances the construction and rehabilitation of small irrigation systems in *campesino* communities in Bolivia. We use a unique cross-sectional data set collected from a sample of 1,682 farmers (583 beneficiaries and 1,099 controls) for the 2014-2015 agricultural cycle. To measure program effectiveness, we exploit the special features of the program design by comparing two rounds of program participants: treated communities are those that received the program first, while control communities are those that were in the pipeline to receive the treatment at a later period. This strategy controls for program placement and self-selection bias at the community level, and we control for individual self-selection based on observable characteristics with the implementation of Propensity Score Matching. The results show that participation in the program improved the value of agricultural production, triggered a deeper process of technological change that led to the adoption of complementary inputs, strengthened farmers' access to markets, and increased household income. Additionally, there is evidence that beneficiary communities of PRONAREC have more advanced and structured irrigation systems, including formalized WUAs and water rights for irrigation.

Measuring Spillovers in Technology Adoption Programs: A Two-stage Randomized Control Trial in the Dominican Republic: *Julián Aramburu, Lucas Figal, Alessandro Maffioli and Lina Salazar*
This paper measures the direct impacts and the spillover effects of agricultural technology adoption on income, food security and productivity using an experimental approach. Specifically, we exploit a two-stage randomization conducted at the geographic and producer levels to estimate the causal effects of adopting irrigation and grassland rehabilitation technologies. The context of analysis is the Agricultural Program for Technological Innovation (PATCA) implemented in the Dominican Republic which aimed at increasing agricultural productivity and income of small-farmers by encouraging technological adoption. To meet this objective, we collected a comprehensive household survey for a sample of 2,214 farmers including direct beneficiaries, indirect beneficiaries and controls. The results show that technology adoption improved income and food security, moreover these effects are intensified overtime which implies the existence of a learning curve or learning by doing process. Different patterns of adoption and results on productivity measures are found for each of the technologies analyzed. Also, the assessment of spillover effects did not validate the hypotheses that indirect effects might take place at the geographical level. In fact, the results present evidence that liquidity constraints are the most important determinant of technology adoption for untreated farmers located in beneficiary subzones (indirect beneficiaries).

The multiple benefits of a Natural Resource Management Intervention: The Case of PAGRICC in Nicaragua: *Mario González Flores and Leonardo Corral*
Natural Resource Management Programs (NRMP) have the potential to not only improve the natural resource base in a sustainable manner, but they also have the potential to bring about broader impacts, such as improving productivity, food security, and overall welfare to farmers that are part of these programs. Importantly, in the context of climate change NRMPs can also contribute to reducing vulnerability (adaptation) by promoting the adoption of technologies that can decrease the likelihood of losses due to intense dry seasons or weather shocks, such as floods and slides. Measuring the impact of

NRMPs on these various indicators in a rigorous manner is vital to inform program and policy design. This paper measures the impact of a natural resource management component implemented by the Environmental Program for Disaster Risk and Climate Change Management (PAGRICC) in Nicaragua. The evaluation uses panel data from 519 treated households and 514 controls. The identification of the control communities mitigates for potential program placement bias. Multiple evaluation methods are used to account for possible selection bias based on observed and non-observable characteristics. Specifically, the paper uses a combination of Propensity-Score-Matching with a Differences-in-Differences model (Pooled OLS, Random Effects Mixed Model, Fixed Effects, and complementary analysis of a sub-sample on Common Support, and a model using Inverse Probability Weights). The results show that the program had a positive impact on the adoption of technologies promoted, productivity levels (measured as the value of production per hectare for annual crops), a decrease on production losses, and an increase in total sales of milk during the dry season. These results indicate that the Program reduced vulnerability, restored the natural resource base, improved productivity and the overall welfare of beneficiary farmers.