

CENTER FOR EFFECTIVE GLOBAL ACTION

ANNUAL REPORT

2013-2014



The Center for Effective Global Action (CEGA) designs and tests solutions for the problems of poverty, generating actionable evidence for policy-makers in less developed countries. Using rigorous field trials, behavioral experiments, and tools from data science, we measure and maximize the impacts of economic development programs throughout the world.

DESIGN

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Female members of small farmer group, Rangpur, Bangladesh
Photo Credit: BRAC



Child prepares to leave for BRAC primary school, Bangladesh
Photo Credit: Connor Ashleigh, AusAID

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FROM THE DIRECTORS

Over the last decade, advances in data science have opened a new frontier in market research.

Today's firms can analyze web clicks and transactions at massive scale, generating rich information about consumer preferences. Utilities are deploying wireless "smart" meters to track households' electricity and water use in real-time.

And GPS-enabled phones are being used to crowdsource a wealth of information—from traffic jams and market prices, to restaurant wait-times and neighborhood maps.

A \$20-billion industry has emerged around the analysis of "big data" from online services and enterprises.

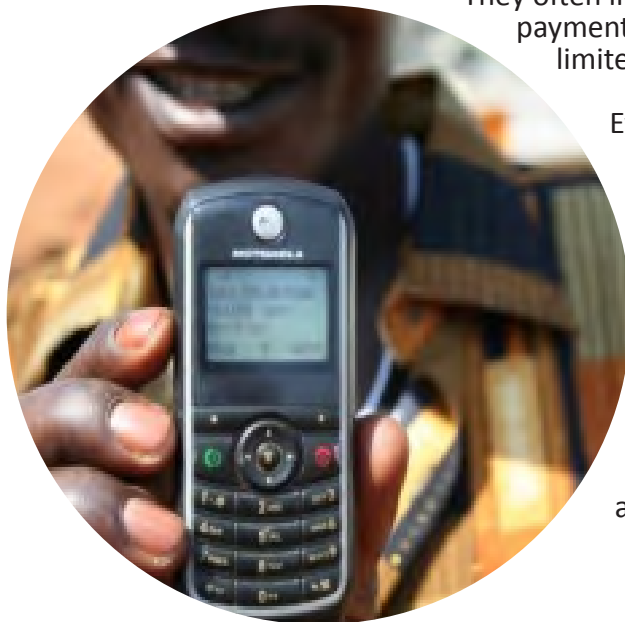
But in less developed countries, consumer demand has proven harder to capture. And the poorest households are nearly invisible...

They often live in remote rural areas, without access to data services and electronic payment systems. They buy goods from market stalls and street vendors with limited capacity to track inventories and transactions.

Even centrally managed data, like census and demographic surveys, are relatively sparse in most developing countries.

CEGA is working to bridge this information gap. Using sensors, mobile phones, and microsattellites, we have begun generating granular, real-time insights about low-income households and communities: from the water they consume and the assets they own, to their crop yields and risk-sharing practices.

These relatively low-cost data can be collected at scale, with high frequency. Combined with household surveys, they could help illuminate the lives of the poor... and ultimately improve the design of anti-poverty policies.



Mobile money transfer in Kenya.
Photo credit: Give Directly.

In 2014, CEGA has supported several projects at the intersection of data science and development—from temperature sensors that measure women’s cookstove adoption, to SMS-based behavioral games that characterize household time use.

We are also exploring privacy and safety concerns related to new digital data streams.

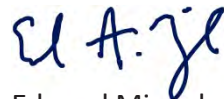
These efforts have contributed significantly to the Center’s growth over the last year.

As we move into 2015, CEGA will remain focused on ***effective global action***. This requires a creative process of discovery, to identify better solutions to the problems of poverty. It requires the translation of research into practical, actionable evidence that can be implemented by governments.

But foremost, it requires rich information about the lives of the poor, so that their needs and aspirations become more visible to the world. This is one of many ways that data science will transform global development in the years to come.



Temina Madon
Executive Director



Edward Miguel
Faculty Director

OUR WORK

CEGA tackles economic and social challenges across a range of sectors, from health and environment to agriculture and tech. Our work is focused into initiatives, each supporting a portfolio of innovative field trials and scale-ups in developing countries. The resulting lessons are synthesized into actionable intelligence and decision tools for policy-makers.



Agriculture



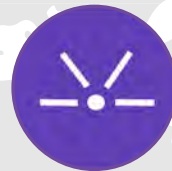
Technology & Infrastructure



Health



Climate & Environment



Measurement



Transparency



Global Networks



AGRICULTURE



In 2013-14, ATAI funded 5 evaluations led by CEGA affiliates working in Africa and South Asia

Over \$2.4 million was invested overall this year to investigate adoption and impact of agriculture technology programs

More than 70 percent of poor people in developing countries live in rural areas. The **Agricultural Technology Adoption Initiative** (ATAI) develops strategies to accelerate rural development, by modernizing agriculture and increasing profits for small-scale farmers. This \$10 million research program is managed jointly by CEGA and the Jameel Poverty Action Lab (J-PAL) and has funded more than 30 experiments since 2010. Each trial tests a novel strategy to promote the profitable use of agricultural technologies by African and South Asian farmers.

In 2013-14, we awarded \$1.1 million to CEGA affiliates, to test innovative solutions for livestock rearers in Pakistan, onion farmers in Senegal, maize farmers in Kenya and Uganda, and rice farmers in India. To share the lessons from completed studies, we hosted an event in May for 200 academics, policy-makers, and donors. At the conference, Berkeley researchers described an experiment in India with *swarna-sub1*, a flood-tolerant rice variety that generates major impacts on yields. The rice acts like an insurance policy for the poorest farmers, enabling them to invest in fertilizer without worrying about bad weather. Bolstered by this evidence, the International Rice Research Institute is now scaling up the seed to 10 million farmers.¹

The event also highlighted One Acre Fund, an NGO that has partnered with CEGA researchers to design a novel loan product for Kenyan maize farmers. Repayment of the loan is timed with the harvest cycle, enabling households to feed their families and capture higher prices for maize. The successful loan will now be scaled-up to the NGO's 300,000 farmers in Kenya.²



Farmers in paddy-field of hybrid rice seed, Bangladesh
Photo Credit: BRAC

1. Manzoor Dar, Alain de Janvry, Kyle Emerick, David Raitzer and Elisabeth Sadoulet. "Flood-tolerant rice reduces yield variability and raises expected yield, differentially benefiting socially disadvantaged groups." *Nature*. November 2013.

2. Marshall Burke and Ted Miguel. "Selling low and buying high: An arbitrage puzzle in Kenyan villages." *Job Market Paper*. November 2013.

TECH & INFRASTRUCTURE



DIL's portfolio of faculty projects grew to 35 projects across 20 developing countries in FY14

400 industry, government, & social sector experts engaged in the DIL ecosystem

500 students engaged in the DIL ecosystem

In the last two years, CEGA has developed a strong focus on the role of technology in economic development. Central to these efforts is the **Development Impact Lab (DIL)**, a USAID-funded initiative focused on the design and evaluation of technologies for developing regions. Co-managed by the Blum Center for Developing Economies, DIL has created a vibrant meeting place for engineers and economists.

The initiative funds teams of researchers who work across disciplines to design solutions to the problems of poverty. These projects combine technological innovation with the design of policy interventions that address market failures, weak institutions, natural resource depletion, and other challenges in development.

Examples include a low-power cellular tower that provides phone service for remote communities¹, a low-cost power meter that provides “pay-as-you-go” electricity², and mobile applications that connect small-scale farmers with crop buyers.³ Each of these innovations is being rigorously field tested, and the results from evaluation will be used for redesign and scale-up.

In the last year, DIL has launched more than 20 new projects in 22 countries. This includes early-stage prototypes and test deployments, as well as rigorous field evaluations conducted at scale. To build the portfolio, DIL ran a series of competitions in 2013-14, attracting more than 150 applications.



Powerline installation in Rajasthan, India
Photo Credit: Gram Power

1. K. Heimerl, S. Hasan, K. Ali, E. Brewer, T. Parkih. “Local, Sustainable, Small-Scale Cellular Networks.” 2013.
2. E. Brewer, F. Carpena, A. Fowlie, J. Rosa, C. Wolfram, “Rural Solar Microgrids in India.” 2013.
3. P. Gertler, C. McIntosh, L. Falcao. “E-Warehousing for Smallholder Farmers in Uganda.” 2013.

HEALTH



4 funded
reproductive health
evaluations in 4
African countries

CEGA's health program integrates tools from development economics and psychology to improve outcomes in developing countries. In 2013 we launched a new project, the **Behavioral Economics in Reproductive health Initiative** (BERI), with seed funding from the Hewlett Foundation.

BERI explores whether “nudges,” inspired by behavioral economics, can improve reproductive outcomes in Sub-Saharan Africa and South Asia.

In 2014 we hosted our first research competition, awarding \$250,000 to 6 pilot research projects in sub-Saharan Africa.

Each project explores a different behavioral “nudge”—from an integrated career and family planning program for Ugandan youth¹, to messaging that increases the salience of maternal mortality for husbands in Zambia.²

To spark new research ideas, the Center hosted a matchmaking conference in Spring 2014, connecting CEGA researchers with four large-scale NGOs (BRAC, PSI, Pathfinder and FHI360).

We also developed a toolkit for applying behavioral economics to reproductive health programs; this has now been shared with more than 20 health care organizations serving low-income households throughout the world.



Mobile Clinic, Ghana
Photo Credit: Shanthi Manian

1. Dana Carney and Paul Gertler. “The Role of Soft Skills in Pregnancy and Work in Uganda.” 2013.

2. Nava Ashraf. “Maternal Mortality Risk and the Gender Gap in Desired Fertility in Zambia.” 2013.

CLIMATE & ENVIRONMENT



15+ ongoing
evaluations on 4
continents

With energy demand on the rise in developing countries, CEGA researchers have been studying policies and technologies that can mitigate environmental degradation, especially in rapidly industrializing nations like China and India. At the heart of our work is a series of experiments with efficient, reliable energy technologies—from clean cookstoves and solar microgrids, to housing improvements and energy-saving appliances. We are also testing new technologies and services for poor rural farmers, who are particularly vulnerable to changes in climate and the environment.

CEGA is increasingly taking advantage of innovative measurement tools, like micro-satellite data, “smart” meters, and mobile data platforms, to capture trends and outcomes associated with energy and environment interventions.

In the summer of 2014, we partnered with the World Bank’s Development Impact Evaluation Initiative (DIME) to host 2 workshops on this topic. The meetings, held in Kigali, Rwanda and Berkeley, connected engineers with social scientists and practitioners, to explore the integration of new tools into the design and evaluation of climate change programs.

In 2015, we aim to expand our portfolio in climate and environment, by promoting access to novel measurement technologies, fostering new opportunities for faculty research, and identifying partners, like the World Bank, that are committed to building the evidence base in environmental protection and climate change mitigation.



Lago de Yojoa, Honduras
Photo Credit: Lauren Russell

MEASUREMENT



Funded 7 innovative measurement studies led by 9 graduated students

To understand the process of economic development, we need tools that can reliably and precisely measure outcomes—from household assets and student test scores, to market prices and voting behavior. The private sector has invested heavily in measurement tools, recognizing that accurate data and forecasting can drive innovation, capture cost efficiencies, and increase profits. But most NGOs and public sector agencies still struggle with older, more expensive data collection practices—like pen-and-paper surveys and manual data entry.

In 2013-14, CEGA launched an initiative to improve the precision, reliability, and timeliness of field data. In partnership with Berkeley's Institute for International Studies, we offered grants for the design of rugged, lower-cost measurement devices for use in remote, resource-poor environments. The Center made 7 awards to interdisciplinary teams of graduate students, each designing a durable wireless sensor or mobile phone tool for long-term, non-intrusive monitoring of household behavior.

We also partnered with Google and Innovations for Poverty Action (IPA) to launch an initiative to help development NGOs build appropriately sized monitoring and evaluation systems.

As part of the project, CEGA is piloting microsatellite, sensor, and mobile data systems that enable accurate reporting of program impact. These new tools will be integrated into CEGA research projects as well, to strengthen the credibility of the evidence we provide to policy-makers.



Mezuri Sensor Build, Portland State University
Photo Credit: The SWEETLab

TRANSPARENCY



35 PhD students
trained in transparency
strategies

185+ affiliated
researchers

over 14,000 blog views
from 14 countries

In recent years, several influential economic findings have been tarnished by scientific dishonesty, publication bias, and calculation errors. This has created a widespread perception that the body of evidence used by policy-makers is fragile, at best. This is especially problematic for economic research, since a single study can inform policies that affect millions of people.

The **Berkeley Initiative for Transparency in the Social Sciences** (BITSS), launched by CEGA in 2012, is an a global network of researchers committed to strengthening scientific integrity. In 2013, CEGA convened the BITSS network for its second annual meeting. This gathering resulted in a call to action, published in the journal *Science*, that encourages the scientific community to better monitor the quality and credibility of research findings. The article received widespread online coverage and was featured in international media outlets.¹

To engage the next generation of researchers in open, transparent practices, BITSS held a summer institute in 2014, attended by 32 graduate students and junior faculty members (representing 13 US universities, 6 international universities, and four research non-profits).

We also sponsored sessions on transparency at academic professional societies and research conferences throughout the year.

These activities have positioned BITSS as the intellectual hub for interdisciplinary discussions on transparency in policy research.



BITSS Annual Meeting
Photo Credit: CEGA

1. E. Miguel, C. Camerer, K. Casey, J. Cohen, K. M. Esterling, A. Gerber, R. Glennerster, D. P. Green, M. Humphreys, G. Imbens, D. Laitin, T. Madon, L. Nelson, B. A. Nosek, M. Petersen, R. Sedlmayr, J. P. Simmons, U. Simonsohn, M. Van der Laan. 2014. "Promoting Transparency in Social Science Research." *Science*, 10.1126/science.1245317.

GLOBAL NETWORKS



EASST & BRAC
funded 5 evaluations
across 4 countries in
Africa and South Asia

BIC supported 4
evaluations in Latin
America and the
Caribbean

One of CEGA's largest efforts is our "**Global Networks**" initiative, which fosters research networks in low- and middle-income countries. The Center currently supports three such networks, headquartered in East Africa, Bangladesh, and Latin America. Through these programs, we fund North-South research collaboration and facilitate the dissemination of evidence through local voices.

The **East Africa Social Science Translation (EASST)** Collaborative is a multi-institution research network that promotes the evaluation of development programs in East Africa. In October 2013, EASST hosted its 2nd annual Impact Evaluation Summit in Dar es Salaam, Tanzania in partnership with local research partner Twaweza. The summit engaged 50 faculty, students, and development practitioners from East Africa in discussion of new and ongoing research. EASST also hosted 3 East African visiting researchers at UC Berkeley in 2013-14 and hosted a policy-maker at the African Population and Health Research Centre in Nairobi, Kenya.

The **BRAC-CEGA Learning Collaborative** promotes rigorous program evaluation to inform the investments of BRAC, the largest development NGO in the world. In April 2014, CEGA and BRAC partnered with the World Bank, CLEAR, J-PAL, and IPA to host a workshop for policy-makers in Dhaka, Bangladesh.

In addition, the program hosted semester-long visits to UC Berkeley for 2 BRAC visiting researchers. One researcher, now a PhD student at Berkeley, is co-authoring a study of migration in Bangladesh. This research project has been funded by the Collaborative and has informed the design of a new BRAC program.¹



Microfinance Workshop , Tanzania
Photo Credit: BRAC

1. Narayan Das, Alain de Janvry, Sakib Mahmood, and Elisabeth Sadoulet. "Migration as a Risky Enterprise: A Diagnostic for Bangladesh". Working Paper, February 2014. University of California at Berkeley.



130+ developing
country researchers
and practitioners
trained in impact
evaluation

CEGA's newest partnership is with the Inter-American Development Bank (IDB). The **Berkeley – IDB Collaborative** (BIC) was developed to institutionalize the role of impact evaluation throughout Latin America and the Caribbean. In 2013, BIC hosted a two-week executive education program for 60 IDB staff and government officials, representing 10 countries in the region. After the workshop, CEGA faculty and students continued to work on the evaluation of 4 IDB-funded development projects, including an electrification program in Ecuador and a low-income housing development on Mexico. In addition, 20 IDB staff participated in a yearlong distance-learning course on data analysis and field methods, taught by CEGA faculty and hosted on the EdX online platform. CEGA is planning to adapt this curriculum into a massive open online course (MOOC), making all content available to the public.

VISITING SCHOLARS

Each year, CEGA invites visiting researchers from South Asia and Sub-Saharan Africa to spend a semester at UC Berkeley (or another CEGA-affiliated university) to audit courses, participate in seminars, and collaborate with faculty on new or ongoing projects. These scholars are empowered, via hands-on learning, to conduct rigorous evaluations and translate findings into better public policy.

The 2013-2014 academic year welcomed five visiting scholars to UC Berkeley:

Marziana Mahfuz Nandita, Senior Research Associate, BRAC Research and Evaluation Division, Bangladesh
Tenant farmer access to credit in Bangladesh

Reajul Alam Chowdhury, Senior Research Associate, BRAC South Sudan
Impact evaluation of the Targeting the Ultra Poor program

Anette Adong, Research Analyst, Economic Policy Research Center Uganda
Novel sale offers to promote adoption of fertilizer and other farm inputs

Samuel Oti, Senior Researcher, African Population and Health Research Center, Kenya
Community-based prevention of cardiovascular disease in slums

Alebel Bayrau Weldesilassie, Director Poverty & Sectoral Research, Ethiopian Development Research Institute
Incentives and financial literacy training to promote savings in the informal sector

YEAR IN REVIEW

2013

- ▶ Sept 19-20, 2013
Mobile Money: Technology to Transform Transactions
[Gates Foundation](#)
- ▶ October 5, 2013
EASST Symposium on Impact Evaluation in African Development
[Twaweza](#)
- ▶ October 25, 2013
CEGA Research Retreat (R²) 2013
- ▶ October 25, 2013
2013 Symposium on Economic Experiments in Developing Countries (SEEDEC)
[Norwegian School of Economics](#)
- ▶ December 12-13, 2013
Promoting Research Transparency in Social Science Research: Innovation, Collaboration, Impact
- ▶ December 19, 2013
Working Group in African Political Economy
[National Science Foundation \(NSF\)](#)

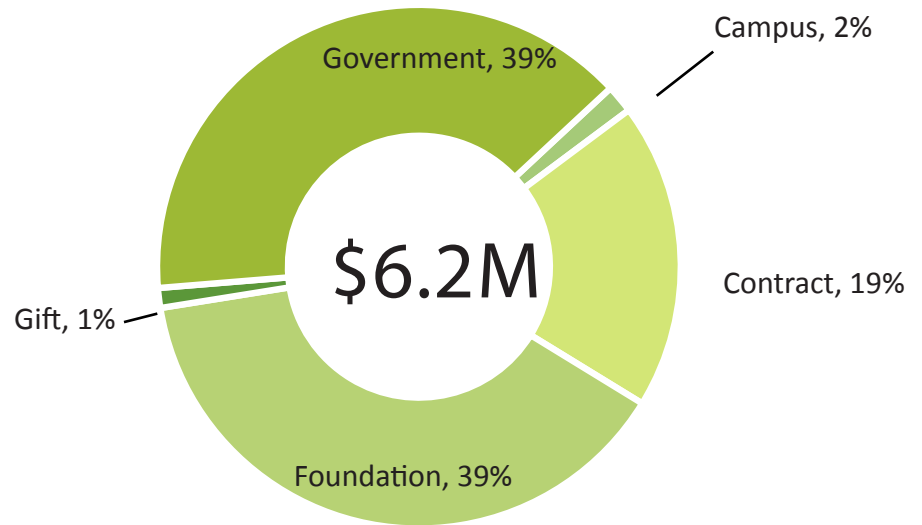
2014

- ▶ January 5, 2014
Research Transparency: Pre-Analysis Plans and other Approaches for Economics - AEA Annual Meeting
- ▶ March 7, 2014
Revealing the Demand for Pro-Poor Innovations
[US Agency for International Development \(USAID\)](#)
- ▶ April 11, 2014
The Tyranny of Experts: A conversation with Bill Easterly
- ▶ May 1, 2014
Evidence to Action: Building Markets for Small Scale Farmers
[Abdul Latif Jameel Poverty Action Lab \(J-PAL\)](#)
- ▶ May 8-9, 2014
BREAD Conference on Development Economics
[Bureau for Research and Economic Analysis of Development](#)
- ▶ May 15, 2014
Pacific Conference for Development Economics (PacDev) 2014
- ▶ May 16-17, 2014
Working Group in African Political Economy (WGAPE)
[National Science Foundation \(NSF\)](#)
- ▶ June 2-6 2014
BITSS Summer Institute: Transparency Practices for Empirical Social Science Research
[Center for Open Science](#)
- ▶ June 16-21, 2014
Annual EASST Impact Evaluation Summit in Kigali, Rwanda

FINANCES

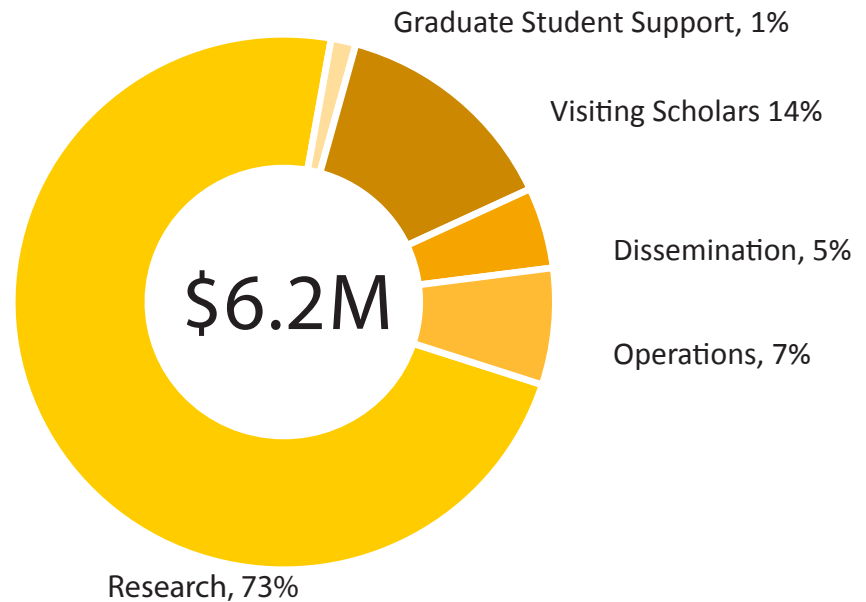
2013 - 2014 Revenue

Government	\$2,442,000
Foundation	\$2,403,000
Contract	\$1,176,000
Campus	\$108,000
Gift	\$76,000
Total Revenue	\$6.2 Million



2013 - 2014 Expenses

Research	\$4,517,000
Visiting Scholars	\$855,000
Operations	\$437,000
Dissemination	\$304,000
Graduate Student Support	\$92,000
Total Expenses	\$6.2 Million



SUPPORTERS

CEGA relies on contributions from organizations and individuals who share our commitment to rigorous research, evidence-based policy-making, and investment in the next generation of development innovators.

\$100,000+

Anonymous Donor
Arnold Foundation
Bill and Melinda Gates Foundation
Child Relief International
Hewlett Foundation
InterAmerican Development Bank
Sloan Foundation
U.K. Department for International Development
U.S. Agency for International Development

\$15,000-\$99,999

Institute for International Studies, UC Berkeley
College of Natural Resources, UC Berkeley
College of Letters and Sciences, UC Berkeley

\$5,000-\$14,999

Haas School of Business, UC Berkeley
Salil & Arpita Pitroda
Anand Radhakrishnan
Doug Wyatt
Charles Levin
Matt Lynde

Under \$5,000

Stephen Abel
Jennifer and Brian Blatnik
Ellen Levin
Jon Tolson

PEOPLE

Leadership

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Temina Madon, Executive Director

Faculty Advisory Committee

Paul Gertler, UC Berkeley
Craig MacInosh, UC San Diego
Elisabeth Sadoulet, UC Berkeley
Manisha Shah, UC Los Angeles
Ernesto Dal Bo, UC Berkeley

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Interns

Adrian Castron
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Anna Fenimore
Femke Oldham
Nancy Pham
Nerissa Nance
Khanh Nguyen
Brad Sagara
Sarah White

Every day, CEGA measures the effects of “real-world” programs and policies, generating evidence that governments and NGOs use to fight poverty.



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