

SEBASTIAN G. LINNEMAYR

Senior Economist

Professor, Pardee RAND Graduate School

Co-lead, Behavioral HIV Interest Group

RAND Corporation

September 2017

POSITIONS AND HONORS

2016 – present: Senior Economist, *RAND Corporation*

2016: RAND Silver Medal Award for applying behavioral economics principles to improving HIV care

2015 – present: Co-lead, Behavioral HIV Interest Group, *RAND Corporation*

2013 – 2016: Associate Director, Research and Policy in International Development (RAPID)

2012 – 2016: Full Economist, *RAND Corporation*

2011 – present: Faculty, *Pardee RAND Graduate School (PRGS)*

2009 – 2012: Associate Economist, *RAND Corporation*

2007 – 2009: Post-doctoral Research Fellow working with Professors David Bloom and David Canning, *Program on the Global Demography of Aging (PGDA), Harvard University*

2005 – 2007: Summer intern and external consultant for the *Development Economics Research Group, The World Bank*

2005 – 2007: Research assistant to Pierre Jacquet, Chief Economist, *French Development Agency*

EDUCATION

PhD.–M.Phil. Economics, Inserm U372/Paris School of Economics – Oxford University, 2008 (with Honors)

M.A., International Relations, School for Advanced International Studies (SAIS), Johns Hopkins University, 2004 (joint degree with Oxford University)

M.A., International Business Administration, University of Vienna, 2000 (with Honors)

TEACHING AND MENTORING EXPERIENCE

2016: Behavioral Economics for Public Policy, Pardee RAND Graduate School (PRGS), with Salar Jahedi

2016 – present: Doctoral Committee Member for Gursel Aliyev, Pardee RAND Graduate School (PRGS)

2014 – present: Advisory Committee Member for Larissa Jennings (NIH K01 Award), Assistant Professor at the Johns Hopkins Bloomberg School of Public Health (JHSPH)

2013 – present: Doctoral Committee Member for Chad Stecher, Department of Economics, UCLA

2013 – present: Doctoral Committee Chair for Crystal Huang, Pardee RAND Graduate School (PRGS)

2011 – present: Faculty, Pardee RAND Graduate School

2008/2009: GHP274 Applied Quantitative Methods, Harvard School of Public Health, Instructor (*Derek Bok Award for Excellence in Teaching*)

2007/2008: TA to Prof. Erica Field, Harvard University; Health, Education, and Development Economics

PAPERS PUBLISHED AND UNDER REVIEW

- **Linnemayr S**, Huang H, Luoto J, Kambugu A, Thirumurthy H, Haberer J, Wagner G, Mukasa B.

“Reminding Adolescents to Adhere: One-Year Results from a Randomized Trial of Text Messaging for Improving ART Adherence”. *American Journal of Public Health*, forthcoming.

- Jennings L, Conserve D, Merrill J, Kajula L, Iwelunmor J, **Linnemayr S**, Maman S. “Perceived Cost Advantages and Disadvantages of Purchasing HIV Self- Testing Kits among Urban Tanzanian Men: An Inductive Content Analysis”. *Journal of AIDS & Clinical Research*, forthcoming.

- Jennings L, Mathai M, **Linnemayr S**, Trujillo A, Mak’anyengo M, Montgomery BE, Latkin C, Kerrigan DL. “Economic context and HIV vulnerability in adolescents and young adults living in urban slums in Kenya: a qualitative analysis based on scarcity theory”. *AIDS and Behavior*, forthcoming.

- Wagner GJ, **Linnemayr S**, Goggin K, Mindry D, Beyeza-Kashesya J, Finocchiaro-Kessler S, Robinson E, Birungi J, Wanyenze RK. “Prevalence and correlates of use of safer conception methods in a cohort of Ugandan HIV-affected couples with fertility intentions”. *AIDS and Behavior* 2017, 21(8):2479-2487.

- **Linnemayr S**, Stecher C, Mukasa B. "Behavioral economic incentives to improve adherence to antiretroviral medication". *AIDS* 2017, 31(5):719-726.
- Bogart L, Wagner G, Musoke W, Naigino R, **Linnemayr S**, Maistrellis E, Klein D, Jumamil R, Mukasa B, Bassett I, Giordano T, Wanyenze R. "A comparison of home-based versus outreach event-based community HIV testing in Ugandan fisherfolk communities." *AIDS and Behavior* 2017, 21(2):547-560.
- **Linnemayr S**, Buzaalirwa L, Balya J, Wagner G. "A microfinance program targeting people living with HIV in Uganda: client characteristics and program impact". *Journal of the International Association of Providers of AIDS Care* 2016, 1-7.
- Massad S, Shaheen M, Karam S, Brown R, Glick P, **Linnemayr S** & Khammash U. "Substance use among Palestinian youth in the West Bank, Palestine: a qualitative investigation ". *BMC Public Health* 2016, 16:800.
- Wagner G, **Linnemayr S**, Ghosh-Dastidar B, Currier J, Hoffman R, Schneider S. "Supporting Treatment Adherence Readiness through Training (START) for patients with HIV on antiretroviral therapy: study protocol for a randomized controlled trial". *Trials* 2016, 17:162.
- **Linnemayr S**, Van Abel K, Uscher-Pines L, O'Hanlon C, Nelson C. "Using Insights from Behavioral Economics to Strengthen Disaster Preparedness and Response". *Disaster Medicine and Public Health Preparedness* 2016, 18:1-7.
- **Linnemayr S**, Rice T. "Insights from Behavioral Economics to Design More Effective Incentives for Improving Chronic Health Behaviors, with an Application to Adherence to Antiretrovirals". *JAIDS* 2016, 72(2): e50-2.
- Thirumurthy H, Hayahsi K, **Linnemayr S**, Vreeman R, Levin I, Bangsberg D, Brewer N. "Time preferences predict mortality among HIV-infected adults receiving antiretroviral therapy in Kenya". *PLoS ONE*. 2015; 10(12): e0145245. doi:10.1371/journal.pone.0145245.
- **Linnemayr S**, Stecher C. "Behavioral Economics Matters for HIV Research: The Impact of Behavioral Biases on Adherence to Antiretrovirals (ARVs)". *AIDS and Behavior* 2015, 19(11): 2069-2075.
- Rana Y, Haberer J, Huang C, Kambugu A, Mukasa B, Thirumurthy H, Wabukala P, **Linnemayr S**. "Short Message Service (SMS)-based intervention to improve treatment adherence among HIV-positive youth in Uganda: focus group findings". *PLOS ONE* 2015, 10(4): e0125187.
- **Linnemayr S**. "HIV Prevention through the Lens of Behavioral Economics". *JAIDS* 2015, 68(4): e61-e63.
- Martinez H, Palar K, **Linnemayr S**, Smith A, Derosé KP, et al. "Impact of food support on food security and body weight among HIV antiretroviral therapy recipients in Honduras: a pilot intervention trial". *AIDS Care* 2015, 27(4):409-15.
- Mills E, Lester R, Thorlund K, Lorenzi M, Muldoon K, Kanters S, **Linnemayr S**, et al. "Interventions to promote adherence to antiretroviral therapy in Africa: A network meta-analysis". *Lancet HIV* 2014, Volume 1, No. 3, e104-e111.
- Massad S, Karam S, Brown R, Glick P, Shaheen M, **Linnemayr S** & Khammash U. "Perceptions of sexual risk behavior among Palestinian youth in the West Bank: a qualitative investigation ". *BMC Public Health* 2014, 14:1213.
- Martinez H, Palar K, **Linnemayr S**, Smith A, Derosé KP, et al. "Tailored nutrition education and food assistance improve adherence to HIV antiretroviral therapy: Evidence from Honduras". *AIDS and Behavior*. 2014; ePub ahead of print. DOI: 10.1007/s10461-014-0786-z.
- Canning D, Gunther I, **Linnemayr S** & Bloom, D. "Fertility Choice, Mortality Expectations, and Interdependent Preferences: An Empirical Analysis". *European Economic Review*. 2013; 63: 273-289.
- Datar A, Liu J, **Linnemayr S** & Stecher, C. "The Impact of Natural Disasters on Child Health and Investments in Rural India". *Social Science and Medicine*. 2013; 76:83-9.
- **Linnemayr S**, Glick P, Kityo C, Mugenyi P & Wagner G. "Prospective Cohort Study of the Impact of antiretroviral therapy (ART) on Employment Outcomes among HIV Clients in Uganda". *AIDS Patient Care and STDs*. 2013; 27(12):707-714.
- Mindry D, Wager G, Lake J, Smith A, **Linnemayr S**, et al. "Fertility Desires Among HIV-Infected Men and Women in Los Angeles County: Client Needs and Provider Perspectives". *Maternal and Child Health Journal* 2013; 17(4):593-600

- Wagner G, **Linnemayr S**, Kityo C, Mugenyi P. "Factors Associated with Intention to Conceive and its Communication to Providers among HIV Clients in Uganda". *Maternal and Child Health Journal* 2012; 16(20):510-518.
- Wagner G, Rana Y, **Linnemayr S**, Balya J & Buzaalirwa L. "A Qualitative Exploration of the Economic and Social Effects of Microcredit among People Living with HIV/AIDS in Uganda". *AIDS Research and Treatment* 2012; 2012 (Article ID 318957). DOI:10.1155/2012/318957.
- **Linnemayr S** & Alderman, H. "Almost Random: Evaluating a Large-Scale Randomized Nutrition Program in the Presence of Crossover". *Journal of Development Economics*. 2011; 96(1):106-114.
- **Linnemayr S**, Stearns-Lawson B, Glick P & Wagner G. "Economic Status and Coping Mechanisms of Individuals Seeking HIV Care in Uganda". *Journal of African Economies*. 2011; 20:505-529.
- **Linnemayr S**. "Consumption Smoothing and HIV/AIDS: The Case of Two Communities in South Africa". *Economic Development and Cultural Change*. 2010; 58(3): 475-507.
- Alderman H & **Linnemayr S**. "Anemia In Low Income Countries Is Unlikely To Be Addressed By Economic Development Without Additional Programs". *Food and Nutrition Bulletin*. 2009; 30(3):265-269.
- Alderman H, Ndiaye B, **Linnemayr S**, Ka A, Rokx C et al. "Effectiveness of a Community-based Intervention to Improve Nutrition in Young Children in Senegal: A Difference in Difference Analysis". *Public Health Nutrition*. 2009; 12(5):667-673.
- **Linnemayr S**, Alderman H, & Ka A. "Determinants of Malnutrition in Senegal: Individual, Household, Community Variables and Their Interaction". *Economics and Human Biology* 2008; 6(2):252-263.

OTHER PUBLICATIONS

- Linnemayr S**. Behavioral Economics and HIV: A Review of Existing Studies and Potential Future Research Areas. In: *Behavioral Economics and Healthy Behaviors: Key Concepts and Current Research*. Yaniv Hanoch, Andrew Barnes, Thomas Rice (editors), Routledge Taylor&Francis Group, 2017.
- Glick P & **Linnemayr S**. Family Planning in Sub-Saharan Africa: The Role of Supply and the Rationale for Public Action. In: *People-Powered Growth: The Demographic Dividend and the Future African Lions*. David Canning, Sangeeta Raja, and Abdo Yazbeck (editors), Worldbank, 2016.
- DaVanzo J, **Linnemayr S**, Glick P & Apaydin E. Evaluation of the Population and Poverty Research Initiative (PopPov). Santa Monica, CA: RAND Corporation, 2014.
http://www.rand.org/pubs/research_reports/RR527z1.html.html.
- Linnemayr S**, Ryan GW, Karir V, Liu J & Palar K. Negotiation Strategies for Antiretroviral Drug Purchasers in the United States. Santa Monica, CA: RAND Corporation, 2012.
http://www.rand.org/pubs/technical_reports/TR1237.
- Linnemayr S**, Ryan GW, Liu J & Palar K. Value for Money in Donor HIV Funding. Santa Monica, CA: RAND Corporation, 2011. http://www.rand.org/pubs/technical_reports/TR1158.

RECENT PRESENTATIONS (SELECTED)

- Banbury Conference on Maximizing Impact of New HIV Prevention Technologies in Sub-Saharan Africa 2017, Lloyd Harbor, New York (Invited Participant)
- Los Angeles Global Health Conference 2017, UCLA (Invited Speaker)
- International AIDS Conference 2016, Durban, South Africa (Invited Panel Speaker)
- UPENN LDI CHIBE Behavioral Economics and Health Symposium 2015, 2016, Philadelphia (Presenter)
- Wireless Health 2015, National Institutes of Health (NIH), Bethesda, MD (Presenter)
- 'Future of mHealth and Adherence', NIH 2015 (Invited Participant, Expert Panel)
- Working Group, Microbicide Trials Network (MTN), Washington DC 2015 (Invited Participant)
- Academic Scholarship Conference Series, Children's Mercy Hospital, Kansas City 2015 (Invited Speaker)
- Annual Meeting, Microbicide Trials Network (MTN), Washington DC 2015 (Invited Plenary Speaker)
- Behavioral Economic Principles and their Implications for Treatment Adherence: The Case of HIV/AIDS, NIH Adherence Network Distinguished Speaker Series 2014
- The role of relationships in HIV prevention among young women in Africa, NIH 2014 (Invited Participant)
- Rethinking HIV prevention for young African women, Boston 2014 (Invited Participant)

- International Conference on HIV Prevention and Treatment Adherence 2014, Miami (Presenter)
- Creating Desire for Microbicides, Microbicide Trials Network (MTN), Washington DC 2014 (Invited Speaker)
- Center for Drug Use and HIV Research, New York University, New York 2014 (Invited Speaker)
- Grand Rounds, HIV Center for Clinical and Behavioral Studies, New York 2014 (Invited Speaker)

FIELD WORK AND SURVEY EXPERIENCE

2009 – present: Projects incentivizing ART adherence in Kampala, Uganda (see Research Support below)
 2010, 2011: Fieldwork for a project on nutrition of people in HIV care in two locations in Honduras; implementation of a microfinance project for people living with HIV/AIDS in Uganda
 2006, 2007: *Unit for the Fight against Malnutrition*, Dakar; Impact evaluation of a nutrition intervention in Senegal conducted for the World Bank
 2005: *CHSRD*, Bloemfontein, South Africa; Field work for HIV/AIDS survey

LANGUAGES

German (native), English (fluent), French (fluent), Italian (Intermediate), Spanish (Basic), Armenian (Basic)

REFEREEING

AIDS, AIDS and Behavior, AIDS Care, Demographic Research, Demography, Economic Development and Cultural Change, Economics and Human Biology, Health Economics, Journal of Journal of Business & Economic Statistics, Journal of Development Economics, PLoS ONE, Population Economics, Social Science and Medicine, World Development

REVIEW SECTIONS

NIH Loan Repayment Program (LRP) Review, April 2017
 NIH Special Emphasis Panel, ZRG1 AARR-F(52)/ ZRG1 AARR-K(52), March 2017
 NIH Review PA 14-344 and PA 14-029, January 2017
 NIH Loan Repayment Program (LRP) Review, August 2016
 CDC / National Center for HIV, STD, and TB Prevention Special Emphasis Panel 2016/05 Council ZPS1 GCA 23 R, May 2016
 NIH Adolescent Medicine Trials Network for HIV/AIDS Interventions (ATN) Coordinating Center (CC) (U24) (SEP), 2016/05 ZHD1 DSR-N (51) 1, April 2016
 NIH Special Emphasis Panel, ZHD1 DSR-K SBIR/STTR, December 2015
 NIH Special Emphasis Panel, ZDE1 CF, August 2015
 NIH Special Emphasis Panel ZRG1 AARR G 58 R, March 2015

RESEARCH SUPPORT

ONGOING

R01 1 MH110350-01 (PI: **Linnemayr**) 9/13/17-6/30/22
 NIMH/NIH: Behavioral Economics Incentives to Support HIV Treatment Adherence in Sub-Saharan Africa
 The goal of the study is to develop and test a potentially cost-effective and scalable ART adherence intervention in a two-year randomized controlled trial based on the Information-Motivation-Behavioral Skills theory complemented by Behavioral Economics principles. The intervention will be implemented among 330 clients in HIV care in Uganda, with six months post- intervention observation to evaluate impact persistence.
 Role: Principal Investigator

R34 MH096609 (PI: **Linnemayr**) 7/1/16-6/30/19
 NIMH/NIH: Mobile Technology and Incentives (MOTIVES) for Racial and Ethnic Minorities in Los Angeles
 The goal of the study is to implement propose a mobile technology-based and BE-supported HIV prevention intervention to increase engagement with HIV prevention information and adherence to

testing guidelines. The intervention group will receive weekly text messages with HIV prevention information, and will be encouraged to get re-tested at least once every three months.

Role: *Principal Investigator*

Supplement R01 HD074925-04S1 (PI: **Linnemayr**) 5/1/15-1/31/18
Administrative Supplement to NICHD/NIH: Improving Drug Adherence among Adolescents in Uganda using SMS Reminders

In this administrative supplement, the aim is to evaluate the role of text messages as reminders to participants to maintain high adherence to be able to qualify for small lottery rewards. We implement a randomized controlled trial that tests two different ways of such reminders compared to a control group receiving traditional reminder messages.

Role: *Principal Investigator*

R01 HD074925 (PI: **Linnemayr**) 2/1/2013-1/31/18
NICHD/NIH: Improving Drug Adherence among Adolescents in Uganda using SMS Reminders

The goal of the study is to develop and test potentially cost-effective and scalable short message service (SMS)-based interventions to improve adherence to ART and pre-ART prophylaxis, as well as retention in care among HIV-positive young patients aged 15-24 at two clinics in Uganda. We implement a randomized controlled trial that tests one-way versus two-way text messages, the latter allowing recipients to respond to the message.

Role: *Principal Investigator*

R01MH104086-01A1 (PI: Wagner) 2/1/14-11/30/19
NIMH: Controlled Evaluation of the Adherence Readiness Program for ART Adherence

This multi-site randomized controlled trial will examine effects of an adherence counseling intervention on HIV treatment adherence and virologic suppression over 24 months of follow-up in a sample of 240 participants, as well as a cost-effectiveness analysis.

Role: *Co-Investigator*

COMPLETED (selected)

R21 MH107218 (PI: **Linnemayr**) 1/22/2015-12/31/16
NIMH/NIH: SMS as an Incentive To Adhere (SITA)

This proposal suggests two novel approaches of using SMS messages (provision of information about electronically measured own adherence, as well as in combination with group adherence level of a reference group that we hypothesize to exert normative influence) to improve adherence to ART and pre-ART prophylaxis at Mildmay clinic in Uganda.

Role: *Principal Investigator*

R34 MH096609 (PI: **Linnemayr**) 7/26/2012-5/31/16
NIMH/NIH: Variable Rewards Incentives for ART Adherence in Uganda

The goal of the study is to identify ways for implementing a variable rewards mechanism that is feasible and sustainable in resource-poor settings. Findings will inform the design parameters of a larger, more rigorous evaluation in an R01 application that will focus on the cost-effectiveness and sustainability of the intervention.

Role: *Principal Investigator*

R01 HD067115 (PI: Glick) 9/1/11-8/31/16
NICHD/NIH: Health Risk Behaviors Among Palestinian Youth

The study will collect nationally representative survey data on the risk behaviors, risk perceptions, and emotional well-being of approximately 3,000 youth in the Occupied Palestinian Territories to improve our understanding of the determinants of their attitudes toward and engagement in risk behaviors (e.g., sexual behavior) and the determinants of their mental health and expectations for the future.

Role: *Co-Investigator*

R24MD008818-01 (PI: Kennedy) 8/1/13-7/31/15
NIMHD: Building an Inter-Disciplinary Network on Culture and HIV Risk Perception

This project will build an interdisciplinary network to evaluate the relationship among individual, social and cultural elements of HIV risk perception and behaviors. The interdisciplinary team will share their discipline-specific theories and methods and will develop more comprehensive theories and methods and will then apply these new methods to existing datasets. In addition, the team will apply these new methods to a small pilot study of HIV risk perception in homeless individuals living on Skid Row in Los Angeles.

Role: *Co-Investigator*

R21 HD061267 (PI: Wagner) 2/1/10-1/31/12

NICHD/NIH: Effects of Microcredit on Economic and Social Outcomes of HIV Clients in Uganda

The goal of this exploratory study is to examine the impact of microcredit on income generation and asset management, and how economic well-being is related to mental health, social well-being and sexual risk behavior among HIV clients.

Role: *Co-Investigator*

Contract (PI: **Linnemayr**, Ryan) 8/1/11-2/29/12

AIDS Healthcare Foundation: Negotiation Strategies for Purchasers of Antiretroviral Drugs in the United States

This project lays out the mechanics of the market for antiretroviral drugs in the United States, conducts a case study to present negotiation mechanisms for lower prices used in other OECD countries, and gives an overview of potential negotiation mechanisms available to drug purchasers in the United States.

Role: *Principal Investigator*

Contract (PI: **Linnemayr**, Ryan) 2/1/11-10/31/11

AIDS Healthcare Foundation: Value for Money in Donor HIV Funding

This project uses a case study of the two largest funders of HIV services in developing countries, PEPFAR and the Global Fund to investigate the efficiency with which such services are provided.

Role: *Principal Investigator*

R34MH084675 (PI: Martinez, Wagner) 7/1/08-9/30/11

NIMH: Improving Food Security and Nutrition to Promote ART Adherence in Latin America

This project investigates the role of nutritional counseling and food aid for the adherence to antiretroviral drugs and anthropometric outcomes of clients in HIV care in four health centers in Honduras.

Role: *Co-Investigator*

R03 HD061688 (PI: Datar) 3/1/09-2/28/11

NICHD/NIH: Economics of Natural Disasters and Epidemics

This project investigates the role of natural disasters such as earthquakes as exogenous shocks to child health and mother's child health investments.

Role: *Co-Investigator*