

Harsha Thirumurthy

Department of Health Policy and Management
Gillings School of Global Public Health
University of North Carolina at Chapel Hill
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EMPLOYMENT POSITIONS AND AFFILIATIONS

- 2007 - present Assistant Professor of Health Economics
 Department of Health Policy and Management
 Gillings School of Global Public Health
 University of North Carolina at Chapel Hill
- 2009-2011 Economist
 Africa Region
 Poverty Reduction and Economic Management Unit
 The World Bank (on leave from UNC-Chapel Hill)
 Washington, DC
- 2008 - present Faculty Fellow
 Carolina Population Center, UNC-Chapel Hill
- 2009 - present Affiliate, Bureau for Research and Economic Analysis of Development
 (BREAD)
- 2006 - 2007 Post-Doctoral Fellow, Center for Global Development, Washington, DC

EDUCATION

- 2006 Ph.D., Yale University, economics (development, health, econometrics)
2003 M.Phil., Yale University, economics
2002 M.A., Yale University, economics
1998 B.A., Oberlin College, economics and physics

RESEARCH AND TEACHING FIELDS

Development economics, health economics, applied econometrics

PUBLISHED PAPERS

1. Lee R, Cui R, Muessig KE, Thirumurthy H, Tucker JD. Incentivizing HIV/STI testing: a systematic review of the literature. *AIDS and Behavior* 2013; Epub ahead of print.
2. Jain V, Byonanebye DM, Liegler T, Kwarisiima D, Chamie G, Kabami J, Petersen ML, Clark TD, Thirumurthy H, Geng EH, Charlebois ED, Kamya MR, Havlir DV, and the SEARCH Collaboration. Changes in population HIV RNA levels in Mbarara, Uganda during scale-up of HIV antiretroviral therapy access. *JAIDS* 2013; in press.
3. Ciu RR, Lee R, Thirumurthy H, Muessig KE, Tucker JD. Microenterprise interventions for sexual risk reduction: a systematic review. *AIDS and Behavior* 2013; E-pub ahead of print.

4. O'Meara WP, Obala A, Thirumurthy H, Khwa-Otsyula B. The association between price, competition, and demand factors on private sector antimalarial stocking and sales in western Kenya: considerations for the AMFm subsidy. *Malaria Journal* 2013; 12(1):186.
5. Mbuagbaw L, Van der Kop ML, Lester RT, Thirumurthy H, Pop-Eleches C, Smieja M, Dolovich L, Mills EJ, Thabane L. Mobile phone text messages for improving adherence to antiretroviral therapy: a protocol for an individual patient data meta-analysis. *BMJ Open* 2013; 3:e002954.
6. Rosenberg M, Pettifor A, Thirumurthy H, Halpern CT, Handa S. The impact of a national poverty reduction program on the characteristics of sex partners among Kenyan adolescents. *AIDS and Behavior* 2013; E-pub ahead of print.
7. Goldstein M, Graff Zivin J, Habyarimana J, Pop-Eleches C, Thirumurthy H. The effect of absenteeism and clinic protocol on health outcomes: the case of mother-to-child transmission of HIV in Kenya. *American Economic Journal: Applied Economics* 2013; 5(2): 58-85.
8. Low C, Pop-Eleches C, Rono W, Plous E, Ndege S, Goldstein M, Thirumurthy H. The effects of home-based HIV counselling and testing on HIV/AIDS stigma among individuals and community leaders in western Kenya: evidence from a cluster randomized trial. *AIDS Care* 2013; 25(S1): 97-107.
9. Thirumurthy H, Chamie G, Jain V, Kabami J, Kwarisiima D, Clark TD, Geng E, Petersen ML, Kamya MR, Charlebois ED, Havlir DV, and the SEARCH Collaboration. Improved employment and children's education outcomes in households of HIV-infected adults with high CD4 counts: evidence from a community-wide health campaign in Uganda. *AIDS* 2013; 27(4):627-634
10. Jain V, Liegler T, Kabami J, Chamie G, Clark TD, Black D, Geng EH, Kwarisiima D, Wong JK, Abdel-Mohsen M, Sonawane N, Aweka FT, Thirumurthy H, Petersen ML, Charlebois ED, Kamya MR, Havlir DV, and the SEARCH Collaboration. Assessment of population-based HIV RNA levels in a rural east African setting using a fingerprick-based blood collection method. *Clinical Infectious Diseases* 2013; 56(4):598-605.
11. Beane CR, Hobbs SH, Thirumurthy H. Results-based financing for non-communicable diseases in low-resource countries and options for US government involvement. *BMC Public Health* 2013; 13:92.
12. Thirumurthy H, Siripong N, Vreeman C, Pop-Eleches C, Habyarimana J, Siika A, Sidle J, Bangsberg DR. Differences between self-reported and electronically monitored adherence among patients receiving antiretroviral therapy in Kenya. *AIDS* 2012; 26(18):2399-2403.
13. Chamie G, Kwarisiima D, Clark TD, Kabami J, Jain V, Geng E, Petersen ML, Thirumurthy H, Kamya MR, Havlir DV, Charlebois ED, and the SEARCH Collaboration. Leveraging rapid community-based HIV testing campaigns for non-communicable diseases in rural Uganda. *PLoS ONE* 2012; 7(8): e43400.

14. Akresh R, Lucchetti L, Thirumurthy H. Wars and child health: evidence from the Eritrean-Ethiopian conflict. *Journal of Development Economics* 2012; 99(2):330-40.
15. Thirumurthy H, Graff Zivin J. Health and labor supply in the context of HIV/AIDS: the long-run economic impacts on antiretroviral therapy. *Economic Development and Cultural Change* 2012; 61(1): 73-96.
16. El-Sadr WM, Holmes C, Mugenyi P, Thirumurthy H, Ellerbrock T, Ferris R, Sanne I, Asiiimwe A, Hirschall G, Nkambule R, Stabinski L, Affrunti M, Teasdale C, Zulu I, Whiteside A. Scale-up of HIV treatment through PEPFAR: a historic public health achievement. *Journal of Acquired Immune Deficiency Syndromes (JAIDS)* 2012; 60:S96–S104.
17. Thirumurthy H, Galarraga O, Larson BA, Rosen S. HIV treatment produces economic returns through increased work and education and warrants continued US support. *Health Affairs* 2012; 31(7):1470-77.
18. Thirumurthy H, Lester RT. mHealth for health behavior change in resource-limited settings: applications to HIV care and beyond. *Bulletin of the World Health Organization* 2012; 90(5):390-392.
19. Thirumurthy H, Pop-Eleches C, Goldstein M, Habyarimana J, Graff Zivin J. Behavioral responses of patients in AIDS treatment programs: sexual behavior in Kenya. *Forum for Health Economics & Policy* 2012; 15(2):1–29.
20. Ickes S, Adair L, Bentley M, Jilcott S, Thirumurthy H, Handa S, Ammerman A. Examination of facilitators and barriers to home-based supplemental feeding with ready-to-use food for underweight children in western Uganda. *Maternal and Child Nutrition* 2012; 8(1):115-129.
21. Thirumurthy H, Haberer J, Habyarmina JP, Pop-Eleches C, Bangsberg DR. Response to “Improving adherence with text message trade-offs: could losing social support be deadly?” [Reply letter] *AIDS* 2011; 25(8):1138-1139.
22. Pop-Eleches C, Thirumurthy H, Habyarmina J, Graff Zivin J, Goldstein M, DeWalque D, MacKeen L, Haberer J, Sidle J, Ngare D, Bangsberg D. Mobile phone technologies improve adherence to antiretroviral treatment in resource-limited settings: a randomized controlled trial of text message reminders. *AIDS* 2011; 25(6):825-834. **(shared first authorship)**
23. Thirumurthy H, Jafri A, Srinivas G, Arumugam V, Saravanan RM, Angappan SK, Ponnusamy M, Raghavan S, Merson M, Kallollikar S. Two-year impacts on employment and income among adults receiving antiretroviral therapy in Tamil Nadu, India: a cohort study. *AIDS* 2011; 25(2):239-46.
24. Holmes CB, Thirumurthy H, Padian NS, Goosby EP. AIDS funds: prevention. [Letter] *Science* 2010; 330:176-77.

25. Graff Zivin J, Thirumurthy H, Goldstein M. AIDS treatment and intrahousehold resource allocations: children's nutrition and schooling in Kenya. *Journal of Public Economics* 2009; 93: 1008-15. **(shared first authorship)**
26. D'Adda G, Goldstein M, Nangami M, Graff Zivin J, Thirumurthy H. ARV treatment and time allocation to household tasks: evidence from Kenya. *African Development Review* 2009; 21: 180-208.
27. Thirumurthy H, Goldstein M, Graff Zivin J. The economic impact of AIDS treatment: labor supply in western Kenya. *Journal of Human Resources* 2008; 43: 511-552.

BOOK CHAPTERS

1. Beegle K, Goldstein M, Thirumurthy H. Microeconomic perspectives on the impacts of HIV/AIDS. In Sahn D (editor), *The Socioeconomic Dimensions of HIV/AIDS in Africa: Challenges, Opportunities and Misconceptions*. Ithaca, NY: Cornell University Press. 2010.
2. Goldstein M, Graff Zivin J, Thirumurthy H. The household impacts of treating HIV/AIDS in developing countries. In Yifu JL and Pleskovic B (editors), Annual World Bank Conference on Development Economics 2009: People, Politics, and Globalization. Washington: The World Bank. 2010.

OTHER WRITING

1. "Antiretroviral Treatment Improves Health of Economy," op-ed in *Daily Nation* newspaper (Kenya), May 30, 2006.
2. Warner RE, McKinnon MH, Thirumurthy H, Nadasen A. Trajectory-modification and correlation effects on light-ion total reaction cross sections. *Physical Review C* 1999; 59(2).
3. Warner RE, Thirumurthy H, Woodroffe J, et al. Reaction cross sections in Silicon of light proton-halo candidates: ^{12}N and ^{17}Ne . *Nuclear Physics A* 1998; 635(3).

ABSTRACTS AND PEER-REVIEWED SCIENTIFIC PRESENTATIONS

Thirumurthy H, Hayashi K, Brewer N. Time preferences predict adherence to antiretroviral therapy and mortality among HIV-infected adults in Kenya. Poster presentation at 8th International Conference on HIV Treatment and Prevention Adherence, 2013, Miami. Abstract no. 174.

Handa S, Rosenberg MS, Pettifor A, Thirumurthy H. How does a national poverty program influence sexual debut among Kenyan adolescents? Oral presentation at Population Association of America (PAA) meetings; 2013; New Orleans.

Thirumurthy H, Chamie G, Kabami J, Jain V, Clark T, Kwarisiima D, Geng E, Petersen ML, Kamya MR, Charlebois ED, Havlir DV, SEARCH Collaboration. Improved employment and children's education outcomes in households of HIV-positive adults with high CD4 counts:

evidence from a community-wide health campaign in Uganda. Oral presentation at International AIDS Society (IAS) conference; 2012; Washington. Abstract no. THAE0102.

Jain V, Kwarisiima D, Liegler T, Clark T, Chamie G, Kabami J, Black D, Amanyire G, Byonanebye D, Geng E, Thirumurthy H, Petersen M, Charlebois E, Kamya M, Havlir D, SEARCH Collaboration. Changes in population-level HIV RNA distribution one year after implementation of key components of an HIV 'test and treat' strategy in rural Uganda. Oral presentation at International AIDS Society (IAS) conference; 2012; Washington. Abstract no. TULBE04.

Chamie G, Kwarisiima K, Clark T, Kabami J, Jain V, Geng E, Petersen M, Thirumurthy H, Kamya M, Havlir DV, Charlebois E, SEARCH Consortium. Integrated community HIV testing campaigns: leveraging HIV infrastructure for non-communicable diseases. Oral presentation at International AIDS Society (IAS) conference; 2012; Washington. Abstract no. MOAE0103.

Handa S, Pettifor A, Thirumurthy H, Halpern C. Effect of a national social cash transfer program on HIV risk behavior in Kenya. Oral presentation at International AIDS Society (IAS) conference; 2012; Washington. Abstract no. FRLBD01.

Jain V, Byonanebye D, Muhaawe J, Kabami J, Black D, Clark T, Chamie G, Geng E, Thirumurthy H, Rooney J, Charlebois E, Amanyire G, Havlir DV, Kamya M, SEARCH Consortium. Patient attitudes toward initiating early antiretroviral therapy at high CD4+ cell counts above national guideline thresholds. Poster presentation at International AIDS Society (IAS) conference; 2012; Washington. Abstract no. TUPE081.

Thirumurthy H, Graff Zivin J. Health and labor supply in the context of HIV/AIDS: the long-run economic impacts on antiretroviral therapy. Oral presentation at Population Association of America (PAA) meetings; 2012; San Francisco.

Jain V, Liegler T, Chamie G, Wong J, Geng E, Thirumurthy H, Aweeka F, Charlebois E, Kamya M, Havlir D, and the MU-UCSF Res Collaboration and SEARCH Consortium. Assessment of Community Viral Load Using a Fingerprick-based Blood Collection Method: Uganda. Oral presentation at Conference on Retroviruses and Opportunistic Infections (CROI); 2012; Seattle. Abstract no. 143LB.

Pop-Eleches C, Thirumurthy H, Habyarmina J, Graff Zivin J, Goldstein M, DeWalque D, MacKeen L, Haberer J, Sidle J, Ngare D, Bangsberg D. Mobile phone technologies improve adherence to antiretroviral treatment in resource-limited settings: a randomized controlled trial of text message reminders. Abstract on conference CD-Rom at the International AIDS Society (IAS) conference; 2010; Vienna. Abstract no. CDB0207.

Lee I-H, Stearns S, Becker C, Thirumurthy H. The effects of orphan fostering on the education, employment, and health of co-residing young adults in metropolitan Cape Town. Poster presentation at the International AIDS Society (IAS) conference; 2010; Vienna. Abstract no. TUPE0505.

Lee I-H, Thirumurthy H, Becker C, Pettifor A. Effect of parental investment on sexual concurrency among young adults in metropolitan Cape Town, South Africa. Poster presentation at American Public Health Association (APHA) meetings; 2009; Philadelphia. Abstract no. 201317.

Emenyonu N, Muyindike W, Habyarimana J, Pop-Eleches C, Thirumurthy H, Ragland K, Bangsberg D. Cash transfers to cover clinic transportation costs improve retention in care in a HIV treatment program in rural Uganda. Poster presentation at Conference on Retroviruses and Opportunistic Infections (CROI); 2009; Montreal. Abstract no. 831.

Thirumurthy H, Saravanan R, Srinivas G, Jafri A, Sreevidya J, Sahu S. The impact of antiretroviral therapy on socio-economic outcomes of HIV-infected patients in Tamil Nadu Family Care Continuum Program, India. Oral presentation at International AIDS Society (IAS) conference; 2008; Mexico City. Abstract no. THAD0204.

Chakravarty S, Thirumurthy H, Nangami MN, Siika AM, Yiannoustos CT, Gichunge C, Wools-Kaloustian K. The impact of a nutrition program on clinical outcomes of patients in an HIV care and treatment program in western Kenya. Poster presentation at International AIDS Society (IAS) conference; 2008; Mexico City.

Graff Zivin J, Goldstein M, Thirumurthy H. AIDS treatment and intrahousehold resource allocations: children's nutrition and schooling in Kenya. Oral presentation at African Economic Research Consortium conference; 2007; Nairobi.

Graff Zivin J, Goldstein M, Thirumurthy H. AIDS treatment and intrahousehold resource allocations: children's nutrition and schooling in Kenya. Oral presentation at Bureau for Research and Economic Analysis of Development (BREAD) conference; 2007; Princeton.

Graff Zivin J, Goldstein M, Thirumurthy H. AIDS treatment and intrahousehold resource allocations: children's nutrition and schooling in Kenya. Oral presentation at Population Association of America (PAA) meetings; 2007; New York.

Goldstein M, Graff Zivin J, Nangami M, Thirumurthy H. HIV/AIDS and socio-economic status: new evidence from a household survey in rural western Kenya. Poster presentation at International AIDS Society (IAS) conference; 2006; Toronto. Abstract no. TUPE0664.

Thirumurthy H, Graff Zivin J, Goldstein MP. The impact of antiretroviral therapy on employment outcomes of HIV-infected individuals and their families: evidence from rural western Kenya. Oral presentation at International AIDS Society (IAS) conference; 2006; Toronto. Abstract no. TUAD0203.

Papas RK, Thirumurthy H, Graff Zivin J, Goldstein M. Gender-related risk factors for physical partner violence among HIV patients and non-diagnosed community residents of rural western Kenya. Abstract on conference CD-Rom at the International AIDS Society (IAS) conference; 2006; Toronto. Abstract no. CDD0178.

INVITED PRESENTATIONS

2013

Duke University Population Research Institute
RAND, Pittsburgh, PA

2012

Brown University, Population Studies & Training Center
Virginia Commonwealth University, Dept. of Health Care Policy
African Studies Association annual meetings
Institute for Health Metrics and Evaluation, Seattle, WA
UNC-Chapel Hill, Triangle Health Economics Workshop
UNC-Chapel Hill, Infectious Diseases seminar
Population Association of America annual meetings. San Francisco, NY.
International AIDS Society (IAS) conference. Washington, DC. (Oral presentation).

2011

The World Bank
RAND, Santa Monica, CA
University of Washington, Department of Economics

2010

International AIDS Society (IAS) conference. Vienna, Austria. (Symposium speaker)
Hewlett/Population Reference Bureau annual conference. Cape Town
University of Michigan, Department of Economics

2009

Duke University, Department of Economics

2008

International AIDS Society (IAS) conference. Mexico City. (Oral presentation)
Annual Bank Conference in Development Economics. Cape Town
Duke University, Department of Economics
The World Bank. Washington, DC
RAND. Arlington, VA
United Nations. New York, NY

2007

University of Zimbabwe
Triangle Health Economics seminar, UNC-Chapel Hill
Population Association of America annual meetings. New York, NY
Duke University Development Economics conference
Bureau for Research and Economic Analysis of Development (BREAD) conference.
Princeton, NJ
African Economic Research Consortium conference, Nairobi

2006 and earlier

International AIDS Society (IAS) conference. Toronto, Canada. (Oral presentation)
RAND. Santa Monica, CA
Williams College, Department of Economics
Center for Global Development. Washington, DC
Michigan State University, Department of Economics
UNC-Chapel Hill School of Public Health
International Food Policy Research Institute. Washington, DC
Northeast Universities Development Consortium Conference. Ithaca, NY
Columbia University School of Public Health

GRANT SUPPORT

Ongoing

TW3-05 (PI: Thirumurthy) 10/01/2013-09/30/2014
International Institute for Impact Evaluation
Optimizing the use of economic incentives to increase male circumcision demand: a randomized trial to compare fixed vs. lottery-based incentives in Kenya
Role: Principal Investigator

TW3-16 (PI: Thirumurthy) 10/01/2013-09/30/2014
International Institute for Impact Evaluation
The use of peer referral incentives to increase demand for voluntary medical male circumcision in Zambia: an impact study
Role: Principal Investigator

1R01HD074925 (PI: Linnemayr) 02/01/2013-01/31/2018
NICHD
Improving drug adherence among adolescents in Uganda using SMS reminders
Role: Subcontract Principal Investigator

OPP1069673 (PI: Thirumurthy) 10/02//2012-09/30/2013
Bill and Melinda Gates Foundation
Compensation for transport costs and lost work associated with VMMC uptake: an intervention to increase VMMC demand among older men in Nyanza Province
Role: Principal Investigator

1R01HD075171 (PI: Yotebieng) 09/25/2012-07/31/2014
NICHD
Conditional cash transfers to increase uptake of and retention of PMTCT services
Role: Investigator

37686 (PI: Cowan) 08/01/2012-07/31/2013
Bill and Melinda Gates Foundation
Piloting and evaluating early infant male circumcision using devices in Zimbabwe
Role: Subcontract Principal Investigator

No grant number (PI: Thirumurthy) 05/01/2012-04/30/2014
University Research Council, UNC-Chapel Hill
Household-level economic impacts of improving water quality in developing countries through household water treatment products: a pilot project in Kibera, Kenya
Role: Principal Investigator

5K01HD061605 (PI: Thirumurthy) 08/15/2011-08/14/2016

NICHD

Preferences, expectations, and the prediction of health and economic behavior

Role: Principal Investigator

5R01MH093241 (PI: Handa)

01/01/2011-12/31/2013

NIMH

Social Cash Transfers, Household Risk and HIV Prevention in Kenya

Role: Investigator

5R01MH087118 (PI: Pettifor)

07/01/2009–02/28/2014

NIMH

Effects of Cash Transfer and Community Mobilization in Young South African Women

Role: Investigator

Completed

No grant number (PI: Thirumurthy)

06/01/2008 – 08/31/2008

Carolina Population Center

Summer-in-Residence grant

Role: Principal Investigator

No grant number (PI: Thirumurthy)

01/01/2008 – 12/31/2008

UNC Office of Global Health

Estimating the demand for male circumcision in western Kenya

Role: Principal Investigator

20070117 (PI: Bangsberg)

08/01/2007-05/14/2009

Operations Research on AIDS Care and Treatment in Africa Award (ORACTA)

Doris Duke Charitable Foundation

Transport Support to Improve ARV Treatment Outcomes in Uganda

Role: Subcontract Principal Investigator

7144565 (PI: Thirumurthy)

05/01/2007-12/31/2008

The World Bank

Adherence to ARV treatment in Kenya

Role: Principal Investigator

No grant number (PI: Goldstein)

09/01/2005-02/28/2007

United States Agency for International Development

Economic Impacts of Disease and Treatment on Household Welfare in Kenya

Role: Investigator

No grant number (PI: Goldstein)

03/01/2004-12/31/2005

The World Bank

Economic Impacts of Disease and Treatment in Kenya

Role: Investigator

No grant number (PI: Thirumurthy)
Social Science Research Council
HIV testing and behavior change
Role: Principal Investigator

06/01/2004-12/31/2004

No grant number (PI: Thirumurthy)
Center for Interdisciplinary Research on AIDS, Yale University
HIV Testing and Behavior Change (Pilot Project in HIV/AIDS Prevention Research Grant)
Role: Principal Investigator

03/01/2004-12/31/2004

FELLOWSHIPS, AWARDS, AND HONORS

2007	New Investigator in Global Health Award, Global Health Council
2005	Yale University Dissertation Fellowship
2005	John F. Enders Fellowship, Yale University
2002-2003	Sasakawa Fellowship, Yale University
2000-2004	Yale University Fellowship
2000	Honorable Mention, NSF Graduate Fellowship Competition
1998	Phi Beta Kappa and Sigma Xi
1998	Joel Dean Prize in Economics, Oberlin College

TEACHING EXPERIENCE

2012	UNC-Chapel Hill, Health economics (master's)
2011	UNC-Chapel Hill, Health economics (master's)
2009	UNC-Chapel Hill, Health economics (master's)
2008	UNC-Chapel Hill, Health economics (master's)
2007	Georgetown Public Policy Institute, International health policy (master's)
2006	Yale University, Teaching Assistant, Development economics (master's)
2003	Yale University, Teaching Assistant, Microeconomics (undergraduate)

PEER REVIEWING ACTIVITY

British Medical Journal, Bulletin of the World Health Organization, Demography, Economic Development and Cultural Change, Forum for Health Economics & Policy, Health Affairs, Health Economics, Journal of African Economies, Journal of Agricultural Economics, Journal of Development Economics, Journal of the European Economic Association, Journal of Health Economics, Journal of Human Resources, Journal of Political Economy, PLoS Medicine, PLoS One, Quarterly Journal of Economics, Review of Economic Studies, Sexually Transmitted Diseases, Social Science and Medicine, The Lancet