

Kathryn Grace

Department of Geography, Environment and Society
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Minneapolis, MN 55455
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Education

Ph.D. Geography, University of California, Santa Barbara, 2008

Dissertation: "Three Essays on Fertility and Family Planning in Guatemala"

M.A. Statistics, University of California, Santa Barbara, 2006

M.S.P.H. Biostatistics, Tulane University School of Public Health, 2004

B.A. Theoretical Mathematics, University of California, Berkeley, 2002

Minor in French Language and Culture

Appointments

- 2016- Assistant Professor, Department of Geography, Environment and Society, University of Minnesota, Twin Cities
- 2012-present Research Scientist, Climate Hazards Group, University of California at Santa Barbara
- 2012-2015 Assistant Professor, Department of Geography, University of Utah
- 2009-2012 Postdoctoral Researcher, Climate Hazards Group (CHG), University of California at Santa Barbara
- 2008-2009 Postdoctoral Fellow, Max Planck Institute for Demographic Research (MPIDR)

Affiliations and Visiting Appointments

- 2016-present Affiliate, Minnesota Population Center (MPC)
- 2016-present Graduate Faculty in Population Studies, MPC
- Summer 2015 and 2016 Visiting Researcher, Institut National d'Etudes Demographic (INED), France
- Summer 2013 Visiting Researcher, Vienna Institute for Demography, Austria
- Summer 2013 Visiting Researcher, University of Ouagadougou, Burkina Faso
- 2012-present Affiliate, Broom Center for Demography, University of California at Santa Barbara
- 2013-2015 Affiliate, Latin American Studies Program, University of Utah

Additional Training

- 2014 U of U Pediatric Grant Writing Workshop in Deer Valley
- 2009 University of Rome – Spatial Econometrics Advanced Institute (SEAI)
- 2009 Max Planck Institute for Demographic Research – Fertility Analysis and Modeling
- 2008 University of Texas – Dallas Summer Spatial Filtering Workshop
- 2005 Stanford Workshop in Formal Demography

Fellowships and Honors

- INED Visiting Researcher Fellowship, 2015
- Demographic and Health Survey (DHS) Population and Reproductive Health Fellowship, 2007
- University of California Graduate Opportunity Fellowship, 2004-05 & 2007-08
- University of California Department of Geography Block Grant Funding, 2006
- Tulane University School of Public Health Dean's Grant, 2004
- Tulane University Public Health Traineeship Award, 2003
- University of California Faculty Wives Scholarship, 2001

University of California Education Abroad Program Scholarship, 1999

Grants and Awards

- \$4,000 *A comparative analysis of the relationship between climate variability, agricultural specialization and children's health: evidence from Kenya and Mali*; Minnesota Population Center Collaborative grant
PI: Maryia Bahktsiyarava (graduate student) and co-PI: Kathryn Grace
Award Period: 2016-2017
- \$1,575 *Can migrants' use of cell phones reduce the climate vulnerability of their communities of origin?*; Institute on the Environment (IonE) minigrant
PI: Kathryn Grace, Jude Mikal, Jack DeWaard
Award Period: 2016-2017
- \$88,000 *Estimating Micro-level Livelihood Characteristics for Vulnerability Mapping Using Household-level Surveys and Remotely Sensed Data*; Kimetrica, a subcontract through USAID
PI: Kathryn Grace
Award Period: 2016
note: funding reduced during project period to \$16,000 because of changes in available funds to Kimetrica
- \$10,000 *Mining Impacts: Andean Nation Development of Environmental/Economic Solutions*; University of Utah's Global Learning Across the Disciplines (GLAD)
co-PI: Kathryn Grace
Award Period: 2015
- \$21,000 *Children's health, water source and agricultural production in a context of climate change: a spatial case study of Burkina Faso*; University of Utah Primary Childrens Hospital Fellowship
PI: Kathryn Grace, Mentor: Ken Smith
Award Period: 2015
- \$12,000 *Central American Fertility in Los Angeles Translation: Informing Statistical Models with Qualitative Context*; University of California, Center for New Racial Studies
co-PI: Kathryn Grace
Award Period: 2013-2014
- \$178,000 *Using Very High Resolution Remotely Sensed Data to Measure Cultivated Area and Land Use in High Fertility Countries*; United States Geological Service (subaward from \$1,000,000 award to UCSB Climate Hazards Group, Famine Early Warning Systems)
PI: Kathryn Grace
Award Period: 2012-2018
- \$274,000 *Examining the Links Between Agriculture and Human Health in a Context of Climate Change: A Case Study of Three West African Countries - Niger, Burkina Faso and Mali*; NASA Research Opportunities in Space and Earth Sciences
PI: Kathryn Grace; Co-I: Greg Husak
Award Period: 2012-2015
- \$3,500 *How Food Insecurity Impacts Contraceptive Use in Early Transitional Societies*; College of Social and Behavioral Sciences, University of Utah
PI: Kathryn Grace
Award Period: 2012-2013

PUBLICATIONS

Refereed Articles (16) * indicates postdoctoral researcher or graduate student at the time of submission

Brown, M.E., J.M. Antle, P. Backlund, E.R. Carr, W.E. Easterling, M.K. Walsh, C. Ammann, W. Attavanich, C.B. Barrett, M.F. Bellemare, V. Dancheck, C. Funk, K. Grace, J.S.I. Ingram, H. Jiang, H. Maletta, T. Mata, A. Murray, M. Ngugi, D. Ojima, B. O'Neill, and C. Tebaldi. 2015. Climate Change, Global Food Security, and the U.S. Food System. 146 pages.

Husak, G and K. Grace. 2016. In search of a global model of cultivation: Using remote sensing technology to examine the characteristics and constraints of agricultural production in the developing world *Food Security*, In Press.

Grace, K., N. Nagle and G. Husak. 2016. Why are some vulnerable children healthy and others stunted? A case study of vulnerability and resilience among very young children in Mali, West Africa *Annals of the Association of American Geographers*, In Press.

Grace, K. and S. Sweeney (authorship is shared equally). 2016. Decomposing Guatemala's fertility stall. *Demography*, In Press.

Grace, K., F. Davenport*, H. Hanson, C. Funk, S. Shukla*. 2015. Examining the Relationship between Temperature, Rainfall and Low Birth Weight in sub-Saharan Africa. *Global Environmental Change*, 35:125-137.

Grace, K. and N. Nagle. 2015. Using High Resolution Remotely Sensed Data to Examine the Relationship between Agriculture and Fertility in Mali. *The Professional Geographer*, 67(4): 641-654.

Grace, K., G. Husak and S. Bogle*. 2014. Estimating Agricultural Production in Marginal and Food Insecure Areas in Kenya Using Very High Resolution Remotely Sensed Imagery. *Applied Geography*, 55:257-265.

Grace, K., M. Brown and A. McNally*. 2014. Examining the link between food price and food insecurity: A multi-level analysis of maize price and birthweight in Kenya. *Food Policy*, 46: 56-65.

Brown, M., K. Grace, K. G. Shively, K. Johnson, M. Carroll. 2014. Using Satellite Remote Sensing and Household Survey Data to Assess Human Health and Nutrition Response to Environmental Change. *Population and Environment*, 1-25.

Grace, K. and S. Sweeney. 2014. Pathways to marriage and cohabitation in Central America. *Demographic Research*, 30(6): 187-226.

Sweeney, S., F. Davenport* and K. Grace. 2013. Combining insights from quantile and ordinal regression: Child malnutrition in Guatemala *Economics and Human Biology*, 11(2):164-177.

Grace, K. and S. Sweeney. 2013. Understanding stalling demographic transition in high-fertility countries: A case study of Guatemala. *Journal of Population Research*, 30:19-37.

Grace, K., F. Davenport*, C. Funk, A. Lerner*. 2012. Child malnutrition and climate conditions in Kenya. *Applied Geography*, 35(1):405-413.

Grace, K., G. Husak, L. Harrison*, D. Pedreros, J. Michaelson. 2012. Using high resolution satellite imagery to estimate cropped area in Haiti and Guatemala. *Applied Geography* 32:433-440.

Mikal, J. and K. Grace. 2012. Against abstinence-only education abroad: Viewing internet use during study abroad as a possible experience enhancement. *Journal of Studies in International Education* 16: 287-306.

Grace, K. 2010. Contraceptive use and intent in Guatemala. *Demographic Research* 23: 335-364.

Submitted Papers (3)

Brown, M., K. Grace, M. Haidara* “Measuring food insecurity: Comparing individual anthropometric measures with the FAO undernutrition metric”; in submission

Grace, K., R. Wei and A. Murray “Using population, health and remotely sensed environmental data to improve food aid distribution in rural West Africa: An application of optimization methods” in submission

Grace, K., L. Frederick*, M. Brown, L. Boukerrou, and B. Lloyd* “How drinking water and food insecurity interact to impact children’s health”

Papers in Progress (3)

Grace, K., V. Hertrich, D. Singare*, G. Husak “Using high resolution rainfall data and detailed migration histories to examine climate vagaries and out-migration in rural Mali”

F. Davenport, K. Grace, C. Funk “The future of infant health and mortality in sub-Saharan Africa: evaluating the relative importance of changes in socio-economics versus climate”

K. Grace, A. Lerner, J. Mikal, G. Sangli “The management of food insecurity and care of young children: A qualitative study of mothers in Burkina Faso”

Other Publications (4)

Thenkabail, P.S., M.E. Brown, K.M. deBeurs, and K. Grace. (2015). Global Land Surface Phenology and Implications for Food Security. In *Land Resources Monitoring, Modeling, and Mapping with Remote Sensing* (pp. 353-363). CRC Press.

Sweeney, S. and K. Grace. 2012. Regression Analysis of Anthropometry Data: A Simulation Study of a Two-Stage Estimator, In *JSM Proceedings*, Health Policy Statistics Section, Alexandria, VA: American Statistical Association.

Grace, K and D.L. Carr. 2009. Fertility in Petén, Guatemala: The impact of the context, the household and the individual on fertility. *MPIDR Working Paper* 2009-037, Max Planck Institute for Demographic Research, September.

Grace, K. 2008. Guatemalan regional fertility patterns 1987-2002. *Demographic and Health Survey Working Paper* WP51, Calverton, Maryland: Macro International.

PRESENTATIONS

Invited Talks

Grace, K. 'Agricultural Variability and the Impact on Children's Health' NASA Land Cover Land Use Change (LCLUC) Webinar. May, 2016, USA.

Grace, K. 'Examining the link between climate change and birthweight in Africa' Famine Early Warning System (FEWS NET) Science Meeting. April, 2016, Santa Barbara, CA.

Grace, K. 'Food insecurity and Children's Health in Africa' Institute for Population Research, The Ohio State University. February, 2016, Columbus, OH.

Grace, K. and G. Husak 'Agriculture and health in a context of climate change: Food availability under different climate scenarios in West Africa' NASA Land Cover Land Use Change (LCLUC) Meeting. April 2015, Washington DC.

Grace, K. 'Fertility, Food Insecurity and Agriculture in West Africa' Pennsylvania State University. May 2014, State College, PA.

K. Grace, N.Nagle. 'Using High Resolution Remotely Sensed Data to Re-Examine the Relationship between Agriculture and Fertility in a Pre-Transitional Setting' Vienna Institute for Demography. May 2013, Vienna, Austria.

Grace, K., and N. Nagle 'Using High Resolution Imagery to Evaluate Fertility and Agriculture' October 2013, Oak Ridge National Laboratory, TN.

Grace, K., M. Brown and A. McNally 'Maize Prices and Low Birth Weight in Kenya' October 2013, University of Tennessee, Knoxville, TN.

Grace, K., M. Brown and A. McNally 'Maize Prices and Low Birth Weight in Kenya' December 2012, Human Health and Ecosystems Workshop at SESYNC in Annapolis, MD.

Grace, K. 'Union formation in Guatemala, Honduras and Nicaragua' March 2011, Auburn University, Auburn, AL.

Grace, K. 'Spatial analysis from a geographer's perspective', April 2010, Brown University, Providence, RI.

Grace, K. 'Using classification trees to analyze contraception in Guatemala', December 2008, University of Iowa, Iowa City, IA.

Grace, K. 'Using Trees to Reveal Better Fruit: Identifying high need populations in Guatemala', December 2008, University of Groningen, Holland.

Papers Accepted for Presentation at Academic Association Meetings

Grace, K., V. Hertrich, D. Singare, G. Husak. 'Examining Rural Sahelian out-Migration in the Context of Climate Change: A Multi-Method Analysis of the Linkages Between Rainfall and Out-migration in Two Rural Villages from 1981-2009' Population Association of America (PAA) Annual Meeting. March 31-April 2, 2016, Washington DC.

Grace, K., R. Wei, A. Murray. 'A Spatial Analytic Framework for Assessing and Improving Food Aid Distribution in Developing Countries' Western Regional Science Association (WRSA) Annual Meeting. February 14-17, 2016, Big Island HI.

Grace, K., L. Frederick, M. Brown, L. Boukerrou, and B. Lloyd. 'The Impacts of Water Quality and Food Availability on Children's Health in West Africa: A Spatial Analysis Using Remotely Sensed Data and Small-Scale Water Quality Data and Country-level Health Data' American Geophysical Union (AGU) Fall Meeting. December 14-18, 2015, San Francisco CA.

K. Grace, N. Nagle and G. Husak. 'Why are some vulnerable children healthy and others stunted?'

A case study of vulnerability and resilience among very young children in West Africa' American Geophysical Union (AGU) Fall Meeting. December 15-19, 2014, San Francisco CA.

K. Grace, F. Davenport, H. Hanson, C. Funk, S. Shukla. 'Examining the Relationship between Temperature, Rainfall and Low Birth Weight: Evidence from 21 African Countries' European Population Conference (EPC). June 25-28, 2014, Budapest, Hungary.

K. Grace, F. Davenport, H. Hanson, C. Funk, S. Shukla. 'Examining the Relationship between Temperature, Rainfall and Low Birth Weight: Evidence from 21 African Countries' Population Association of America (PAA) Annual Meeting. May 2-4, 2014, Boston, MA.

S. L. Lewis-Gonzales, N. Nagle, K. Grace. 'Accuracy of supervised classification of cropland in sub-Saharan Africa American Geophysical Union (AGU) Fall Meeting. December 9-13, 2013, San Francisco, CA.

K. Grace, A. Lerner, G. Sangli. 'Women's Agency and Perception of Vulnerability: A Qualitative Analysis of Breastfeeding, Contraception and Food Insecurity in Burkina Faso' 2013 Annual Sociology of Development Conference. October 25-26, Salt Lake City, UT, USA.

S. Sweeney and K. Grace. 'Immigration and Fertility Change in Los Angeles' 2013 Annual Sociology of Development Conference. October 25-26, Salt Lake City, UT, USA.

K. Grace, N.Nagle. 'Using High Resolution Remotely Sensed Data to Re-Examine the Relationship between Agriculture and Fertility in a Pre-Transitional Setting' Agricultural and Applied Economics Annual Meeting. August 4-6, 2013, Washington, DC, USA.

K.Grace, N.Nagle. 'Using High Resolution Remotely Sensed Data to Re-Examine the Relationship between Agriculture and Fertility in a Pre-Transitional Setting' Population Association of America (PAA) Annual Meeting. April 11-13, 2013, New Orleans, LA, USA.

K. Grace, M. Brown and A. McNally. 'Maize Prices and Low Birth Weight in Kenya' Population Association of America (PAA) Annual Meeting. May 3 - May 5, 2012, San Francisco, CA, USA.
<http://paa2012.princeton.edu/abstracts/122721>

Sweeney, S. and K. Grace. 'Fertility Assimilation Behavior of Los Angeles Immigrants', Population Association of America (PAA) Annual Meeting. March 31 - April 2, 2011, Washington, DC, USA.
<http://paa2011.princeton.edu/abstracts/112304>

Grace, K., F. Davenport and C. Funk. 'Fertility, Child Stunting, and Climate Change: An analysis of recent trends in Kenya', Population Association of America (PAA) Annual Meeting. March 31 - April 2, 2011, Washington, DC, USA.
<http://paa2011.princeton.edu/abstracts/111992>

Grace, K and G. Husak. 'Estimating Cropped Area in Haiti and Guatemala', European Population Conference. 1-5 September, 2010, Vienna, Austria.
<http://epc2010.princeton.edu/abstracts/100512>

Grace, K and G. Husak. 'Using Demographic Data to Estimate Cropped Area in Highly Undernourished Countries', Association of American Geographers Annual Conference. 14-18 April, 2010, Washington D.C., USA.

Grace, K. and S. Sweeney. 'Informal and Formal Union Formation in Three Central American Countries', Population Association of America (PAA) Annual Meeting. April 28 -May 2, 2009,

Detroit, USA.

<http://paa2009.princeton.edu/abstracts/90963>

Grace, K. 'A comparative analysis of contraceptive use and intent in Guatemala', Association of American Geographers Annual Conference. 22-27 March, 2009, Las Vegas, USA.

Grace, K. and D. L. Carr. 'Fertility in Petén, Guatemala: The impact of the context, the household and the individual on fertility behavior', Population Association of America (PAA) Annual Meeting. 17-19 April 2008, New Orleans, USA.

<http://paa2008.princeton.edu/abstracts/80692>

Grace, K. 'Fertility Correlates in Petén, Guatemala', Association of American Geographers Annual Conference. 17-21 April, 2007, San Francisco, USA.

Posters Accepted for Presentation at Academic Association Meetings

Grace, K., F. Davenport, C. Funk. 'The Future of Infant Health and Mortality in Sub-Saharan Africa: Evaluating the Relative Importance of Changes in Socio-Economics versus Climate' Population Association of America (PAA) Annual Meeting. 30 April-2 May 2015, San Diego, USA.

Sweeney, S. and K. Grace. 'Immigrant fertility adaptation and change in Los Angeles', European Population Conference (EPC). June 25-28, 2014, Budapest, Hungary.

Grace, K., A. Lerner, G. Sangli. 'Breastfeeding, Contraception and Food Insecurity in Burkina Faso', Population Association of America (PAA) Annual Meeting. May 2-4, 2014, Boston, MA, USA.

Grace, K., G. Husak and S. Bogle, 'Using Very High Resolution Remotely Sensed Imagery to Estimate Agricultural Production in Two Kenyan Regions: A comparison of marginal and high productive agricultural zones', American Geophysical Conference (AGU), December 9-13, 2013, San Francisco, CA, USA.

Sweeney, S. and K. Grace, 'Assessing immigrant fertility adaptation: Recurrent event models of birth and migration histories', SAM 2012 workshop: The statistical analysis of multi-outcome data. Paris, France.

Grace, K. and S. Sweeney, 'Examining Parity Transitions During Fertility Stall' European Population Conference (EPC). 12-14 June 2012, Stockholm, Sweden.

Grace, K., J. Goldstein and Y.-H. Cheng 'The Susceptibility of Fertility Measures to Random Fluctuations', European Population Conference (EPC). 1-5 September 2010, Vienna, Austria.

Grace, K. and S. Sweeney. 'Melting pot or mixed salad? Exploring assimilation and maintenance of fertility behavior of first and subsequent generation Central American women living in the United States', International Union of the Scientific Study of Population (IUSSP). September 27 - October 2, 2009, Marrakech, Morocco.

<http://iussp2009.princeton.edu/abstracts/92077>

Grace, K. 'Contraceptive use and intent in Guatemala', Population Association of America (PAA) Annual Meeting. April 28 - May 2, 2009, Detroit, USA.

<http://paa2009.princeton.edu/abstracts/90132>

Grace, K., S. Sweeney, and D. L. Carr 'A Spatial and Temporal Analysis of Fertility in Guatemala',

Population Association of America (PAA) Annual Meeting. 17-19 April 2008, New Orleans, USA.
<http://paa2008.princeton.edu/abstracts/81122>

TEACHING AND GRADUATE MENTORSHIP

Committee Chair (Masters): Lori Miles (2014), Delanie Farnham (2015, currently working at Apple Inc.), Seth Bogle (expected 2016), Michael Ryba (advised until Fall 2015)

Committee Membership (Masters): Kaila McDonald (2014, currently working towards PhD at UCLA School of Public Health), Emily Nicolossi (2015, currently working towards PhD at University of Utah, Geography)

Committee Membership (Ph.D.): Marin Bryce (in progress), Han Li (completed PhD 2016), Jacqueline Banks (in progress), Brent Lloyd (in progress)

Undergraduate Mentorship: Maximilian Stiefel (honors thesis 2014, currently PhD student at UC Santa Barbara Geography), Marc Healy (Undergraduate Research Opportunity Program grant recipient, 2013/14)

Teaching Experience

Geography of Health and Health care, University of Minnesota, Department of Geography, Spring 2016

Analytic Methods for Population Research, University of Utah, Department of Geography, Fall 2013

Economic Geography, University of Utah, School of Business, Spring 2013, Spring 2014, Fall 2014, Fall 2015

Global Development, University of Utah, Department of Geography, Spring 2014

Advanced Population Geography, University of Utah, Department of Geography, Spring 2013

Population Geography, University of Utah, Department of Geography, Fall 2012, 2013, 2014, Fall 2015

Guest Lecturer, Malnutrition and climate in Kenya in Spatial Statistics, Spring 2011

Guest Lecturer, Fertility Analysis in Spatial Demography, Winter 2010 and Spring 2012

Teaching Assistant, Center for Spatially Integrated Social Sciences (CSISS) - Spatial Perspectives on Analysis for Curriculum Enhancement (SPACE), UCSB, 2005 - 2007

Graduate Research Mentor (high school summer outreach program), UCSB, 2005 - 2007

Teaching Assistant, Human Geography, UCSB, Summer 2007

Guest Lecturer, Global trends in Fertility for Population Geography, Winter 2007

Teaching Assistant, Center for Spatially Integrated Social Sciences (CSISS) - Population Science Summer Workshop, UCSB, 2005 - 2006

Teaching Assistant, Population Geography, UCSB, Fall 2005

Teaching Assistant, Introductory Statistics, UCSB, 2004 - 2005

PROFESSIONAL SERVICE

Advisory Board Member - Minnesota Population Center (2016-2019)

University of Minnesota, Department of GES, Grants and Awards committee member 2016

Student Poster Judge - American Geophysical Union Annual Meeting 2014

Discussant - Population Association of America Annual Meeting 2015

University of Utah, College of Social and Behavioral Sciences, Appeals Committee 2013 - present

University of Utah, Department of Geography, Graduate Committee 2013 - present

University of Utah, Department of Geography, Colloquia Committee 2012 - present

Session Co-Organizer - Population Association of America Annual Meeting 2014

Moderator - University of Utah, Undergraduate Research Conference 2014

Professional Membership

Association of American Geographers
American Geophysical Union
Population Association of America
American Statistical Association

Reviewer

BMC Nutrition, International Perspectives on Sexual and Reproductive Health, PLOS One, Global Change Biology, Remote Sensing Applications: Society and Environment, Health Science Journal, Health and Place, International Journal of Disaster Risk Reduction, Landscape Ecology, Health Education Journal, Demography, Applied Geography (4), Pan American Journal of Public Health (3), Remote Sensing, Urban Studies, Population Review, PLOS One, Global Environmental Change, Population and Environment

NASA Postdoctoral Program
National Science Foundation Graduate Research Fellowship
EPA Star Graduate Student Fellowship
U of U Air Quality Program Seed Grant Funding Opportunity
NASA SERVIR Applied Sciences Grant Opportunity

COMMUNITY SERVICE

Santa Barbara Charter School Parent Volunteer, 2011-2012
Goleta Family School Parent Volunteer and Goleta Earth Day co-Organizer, 2006 - 2008
Tulane University School of Public Health Student Health Representative, 2003 - 2004
UC Berkeley Student Parent Organization Treasurer, 2001 - 2002
UC Berkeley Family Student Housing Health Worker, 2001 - 2002

Languages and Skills

French, SAS, SPSS, R, ArcGIS, L^AT_EX