

**CURRICULUM VITAE**  
**Katherine Ann Willyard**

Department of Sociology  
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**October 2018**

**ACADEMIC DEGREES**

Ph.D. 2019 Texas A&M University, Department of Sociology (Expected May 2019)

Dissertation: “The Effects of Organizational, Community, and State Regulatory Characteristics on Oil and Gas Extraction Facility Venting and Flaring Practices”

Committee: Dr. Theresa Morris, Department of Sociology (Chair)  
Dr. Arthur Sakamoto, Department of Sociology  
Dr. Mary Campbell, Department of Sociology  
Dr. Daniel Goldberg, Department of Geography

2017 Funded by National Science Foundation Doctoral Dissertation Research Improvement (NSF-DDRI) Grant, [SES-1702683](#)

2017 Received Dissertation Mentorship with Dr. Randy Becker, Principal Economist, and Special Assistant to the Chief Economist, Center for Economic Studies, United States Census Bureau

M.S. 2014 Texas A&M University, Department of Sociology

Dissertation: “Politics and Power: The 1992 Israeli Loan Guarantees”

Committee: Dr. Harland Prechel, Department of Sociology (Chair)  
Dr. Joseph Jewell, Department of Sociology  
Dr. Michelle Taylor-Robinson, Department of Political Science

B.S. 2008 Texas A&M University, Department of Sociology

**GRADUATE CERTIFICATES**

2015 Geographic Information Systems, Texas A&M University, Department of Geography and Department of Ecosystem Science and Management

2012 Nonprofit Management, Texas A&M University, Bush School of Public Service

## **RESEARCH AND TEACHING INTERESTS**

Geospatial Analysis, Social Inequality, Environmental Sociology, Sociology of Organizations

## **PROFESSIONAL EMPLOYMENT RECORD**

2015 – present            Graduate Researcher, Texas Federal Statistical Research Data Center

2015                        Instructor of Record (Social Problems), Texas A&M University

2014                        Graduate Research Assistant, Texas A&M University, Sociology

2012 – 2014              Academic Advisor, Texas A&M University, Sociology

## **PEER REVIEWED PUBLICATIONS**

### **Manuscripts under Review**

Katherine Ann Willyard. “The Organizational Political Economy of the Environment and Changes in Texas Oil and Gas Flaring Regulations from 1889-1990”

Katherine Ann Willyard. “Variations in Facility Production of and Community Exposure to Texas Oil and Gas Venting and Flaring”

Katherine Ann Willyard. “Who Is Burning Money and Throwing It In the Air?: A Quantitative Analysis of Disproportionality of Texas Oil and Gas Venting and Flaring Practices in 2012”

2018 Recipient of the Rural Sociological Society Graduate Student Paper Award- Natural Resources Research Interest Group

### **Manuscripts in Preparation**

\* Undergraduate student collaborator

Katherine Ann Willyard, Nina Canal\*, Angelina Dumlao\*, Miranda Hooper\*, Will Thompson\*, and Gunnar Schade. “Flaring in Two Texas Shale Areas: Comparison of Bottom-up and Top-down Volume Estimates from 2012 to 2015”

Megan Augustyn, and Katherine Ann Willyard. “Contextual Influences on Help-Seeking Behavior for Intimate Partner Violence”

2016 Federal Statistical Research Data Center Project Approved (TX1392)

### **Research in Progress**

Katherine Ann Willyard, Theresa Morris, and Mary Campbell. “Understanding the Effects of Firm and Establishment Organizational Characteristics, and the Characteristics of Organizational Institutional Environments on Texas Oil and Gas Venting and Flaring Practices Using Restricted Business and Community Data”

2018 Federal Statistical Research Data Center Project Approved (TX1758)

Katherine Ann Willyard. “Super Emitters in the Texas Oil and Gas Extraction Industry: Analyzing Disproportionate Venting and Flaring Volumes Across Facilities, Operators, and Ultimate Parent Companies”

Verna Keith, Mark Fossett, and Katherine Ann Willyard. “Residential Segregation, Neighborhood Disadvantage and Allostatic Load”

Katherine Ann Willyard, Sarah Gatson, and Marissa Cisneros. “The Contextual Effects of Supplemental Nutrition Assistance Program Participation on Health Care Expenditures among Low-Income Adults”

2018 Awarded a Texas Federal Statistical Research Data Center Seed Grant

Megan Augustyn, Amber Crowell, and Katherine Ann Willyard. “Contextual Influences of Crime Reporting, Police Use of Force, School Discipline, and Verbal Bullying”

## **OTHER PUBLICATIONS**

### **Op-Ed Articles**

2017 Katherine Ann Willyard. “The Need for Better Texas Oil and Gas Industry Regulatory Data,” *Texas Tribune* <https://www.tribtalk.org/2017/05/17/the-need-for-better-texas-oil-and-gas-industry-regulatory-data/>

### **Web Applications**

2017 Katherine Ann Willyard. “Texas Community Exposure to Oil and Gas Facility Venting and Flaring Practices in 2012”  
<http://tamu.maps.arcgis.com/apps/webappviewer/index.html?id=05ba58ab4ef1441389289d34395d3587>

### **Data Products**

2017 Katherine Ann Willyard. “The Relationship Between Organizational, Community, and State Regulatory Characteristics and Texas Oil and Gas Extraction Facility Venting and Flaring Practices,” Inter-University Consortium for Political and Social Research  
<http://doi.org/10.3886/E101192V1>

Katherine Ann Willyard. "Texas County Oil and Gas Production, Venting, and Flaring Volumes," Inter-University Consortium for Political and Social Research  
<http://doi.org/10.3886/E100901V1>

## FUNDED GRANTS

- 2017 – 2019 Katherine Ann Willyard (PI) and Theresa Morris (Project Director). National Science Foundation Doctoral Dissertation Research Improvement Grant, [SES-1702683](https://www.nsf.gov/awardsearch/showAward?AWDNO=1702683), "The Effects of Organizational, Community, and State Regulatory Characteristics on Texas Gas Well Venting and Flaring Rates," \$11,954
- 2018 Katherine Ann Willyard, and Sarah Gatson. Seed Grant, Texas Federal Statistical Research Data Center, "The Contextual Effects of Supplemental Nutrition Assistance Program Participation on Health Care Expenditures among Low-Income Adults," \$4,250
- 2018 Katherine Ann Willyard. Texas A&M University, Department of Sociology, Graduate Research Award, "Undergraduate Corporate Structure Data Collection and Training," \$900
- 2017 Katherine Ann Willyard. Texas A&M University, Department of Sociology, Graduate Research Award, "Texas Railroad Commission Digital Map and API Data Purchase," \$3,082
- 2016 Katherine Ann Willyard. Texas A&M University, Department of Sociology, Graduate Research Award, "Texas Railroad Commission Drilling Permit, Production Data, and Regulatory Data Purchase" \$4,135
- 2015 – 2016 Katherine Ann Willyard. Texas A&M University Melburn G. Glasscock Center for Humanities Research Graduate Research Fellowship Program, "Archival Research on the Historical Development of Texas Railroad Commission Venting and Flaring Regulations," \$2,000
- 2015 Katherine Ann Willyard. Texas A&M University, College of Liberal Arts, Professional Development Support Award, "Longitudinal Data Analysis Workshop," \$2,337
- 2015 Katherine Ann Willyard. Texas A&M University, Department of Sociology, Graduate Research Award, "Texas Railroad Commission Programmed Data Purchase," \$765
- 2011 Katherine Ann Willyard. Texas A&M University, Department of Sociology, Graduate Research Award, "Archival Research on the Development of United States Loan Guarantee Policy," \$600

## AWARDS

2018 Exxon Mobil Best Oral Presentation Award for the presentation “Flaring in Two Texas Shale Areas: Comparison of Bottom-Up and Top-Down Volume Estimates from 2012 to 2015,” \$500

2018 Rural Sociological Society Graduate Student Paper Award- Natural Resources Research Interest Group for the article, "Who Is Burning Money and Throwing It In the Air?: A Quantitative Analysis of Disproportionality of Texas Oil and Gas Venting and Flaring Practices in 2012," \$100

2017 United States Department of Commerce, Census Bureau, Center for Economic Studies Dissertation Mentorship, Mentor is Dr. Randy Becker, Principal Economist and Special Assistant to the Chief Economist

2017 Texas A&M University GIS Day Paper Completion, 2<sup>nd</sup> Place Award for the paper “Comparing Block Group and Facility Analysis of Disproportionate Community Exposure to Texas Oil and Gas Venting and Flaring Practices in 2012,” \$100

2015 Texas A&M University Graduate Teaching Academy, Academy for Future Faculty Fellowship

2014 International Interdisciplinary Social Sciences Graduate Scholar Award, \$500

2011 Southwestern Social Science Association, Best Graduate Presentation- Visual Sociology for the display “Separation Barriers,” \$100

## **SCHOLARSHIPS**

2014 Texas A&M University, Texas Aggie Graduate Grant, \$1,500

2011 Texas A&M University, Bush School of Public Service, Online Student Scholar Award, \$1,000

2011 Texas A&M University, Department of Sociology, Academic Recognition Scholarship, \$1,000

## **FEDERAL STATISTICAL CENSUS RESEARCH DATA CENTER (RDC) PROJECTS**

### **Active RDC Projects**

2018 – 2023 Katherine Ann Willyard (PI). “Organizational Characteristics of Organizational Institutional Environments and Texas Oil and Gas Venting and Flaring Practices,” TX 1758

2016 – 2019 Megan Augustyn (PI), and Katherine Ann Willyard. “Improving the Quality of the National Crime Victimization Survey and Police Public Contact Survey to

Better Understand the Determinates of Help-Seeking Behavior Among Victims of Intimate-Partner and Sexual Assaults,” TX 1392

### **RDC Proposals In Development**

- 2018 Verna Keith (PI), Mark Fossett, and Katherine Ann Willyard. “Residential Segregation, Neighborhood Disadvantage and Allostatic Load”
- 2018 Katherine Ann Willyard (Co-PI), Sarah Gatson (Co-PI), and Marissa Cisneros. “The Contextual Effects of Supplemental Nutrition Assistance Program Participation on Health Care Expenditures among Low-Income Adults”
- 2018 Megan Augustyn (Co-PI), Amber Crowell (Co-PI), and Katherine Ann Willyard (Co-PI). “Contextual Influences of Crime Reporting, Police Use of Force, School Discipline, and Verbal Bullying”

### **Completed RDC Projects**

- 2016 – 2018 Johnelle Sparks (PI) and Katherine Ann Willyard. “Examining the Impact of Segregation on Racial/Ethnic and Educational Differences in Allostatic Load Levels and Mortality Risks,” TX 1341

### **PRESENTATIONS**

#### **Papers Presented at Conferences**

\* Undergraduate student collaborator

- 2018 Katherine Ann Willyard, Nina Canal\*, Angelina Dumlao\*, Miranda Hooper\*, William Thompson\*, and Gunnar Schade. “Estimation of Texas Flaring and Venting Volumes from upstream Oil and Gas Facilities Using Texas Railroad Commission Reports and National Oceanic and Atmospheric Administration Satellite Imagery, 2012-2015,” Presented at the Annual Texas A&M Conference on Energy\*

\*Awarded the Exxon Mobil Best Oral Presentation Award, \$500

- 2018 Megan Augustyn, and Katherine Ann Willyard. “Improving the Quality of the National Crime Victimization Survey and Police Public Contact Survey in order to Better Understand the Determinates of Help-Seeking Behavior among Victims of Intimate-Partner Violence and Sexual Assaults,” Presented at the Annual Federal Statistical Research Data Center Annual Research Conference
- 2018 Katherine Ann Willyard. “Disproportionalities in Facility Production of and Community Exposure to Oil and Gas Venting and Flaring,” Presented at the American Sociological Association Annual Meeting, Innovative Perspectives on Environmental Justice Paper Session

- 2018 Katherine Ann Willyard. "Who Is Burning Money and Throwing It in the Air?: A Quantitative Analysis of Disparities in Texas Oil and Gas Extraction Facility Venting and Flaring Practices in 2012," Presented at the Rural Sociological Society Annual Meeting
- 2017 Megan Augustyn, and Katherine Ann Willyard. "Contextual Influences on Help-seeking Behavior for Intimate Partner Violence," Presented at the American Society of Criminology Annual Meeting
- 2017 Katherine Ann Willyard. "Comparing Block Group and Facility Analysis of Disproportionate Community Exposure to Texas Oil and Gas Venting and Flaring Practices in 2012," Presented at Texas A&M GIS Day\*

\*Received 2<sup>nd</sup> Place Paper Presentation Award, \$100

- 2017 Katherine Ann Willyard. "Community Exposure to Texas Gas Well Venting and Flaring Emissions in 2012," Presented at the Southwestern Social Science Association Annual Meeting
- 2016 Harland Prechel, and Katherine Ann Willyard. "Organizational Political Economy and Greenhouse Gas Emissions: A Multilevel Analysis of the United States Energy Sector," Presented at the Annual Federal Statistical Research Data Center Annual Research Conference
- 2015 Katherine Ann Willyard. "Corporate-State Relations and State Environmental Policy: A Historical Study of Texas Flaring Regulations, 1930-2013," Presented at the American Sociological Association Annual Meeting, Environmental Sociology Round Table Session
- 2014 Katherine Ann Willyard. "Understanding United States Foreign Policy in the Middle East: The 1992 Israeli Loan Guarantee Showdown," Presented at the International Interdisciplinary Social Science Conference Annual Meeting\*

\*Received the International Interdisciplinary Social Sciences Graduate Scholar Award, \$500

- 2014 Katherine Ann Willyard. "The 1992 Israeli Loan Guarantees: A Key to Understanding Political Power in the United States' Middle East Foreign Policy," Presented at the Southwestern Social Science Association Annual Meeting

### **Posters Presented at Conferences**

- 2011 Katherine Ann Willyard. "Separation Barriers," Presented at the Southwestern Social Science Association Annual Meeting\*

\*Awarded the Visual Sociology Best Graduate Presentation, \$100

**Invited Lectures**

2011 Katherine Ann Willyard. “Graduate Student Dissertation Research in a Federal Statistical Research Data Center (FSRDC): The Effects of Organizational Characteristics and the Characteristics of Organizational Institutional Environments on Texas Oil and Gas Venting and Flaring Practices,” Presented at the Rocky Mountain Federal Statistical Research Data Center

**Lectures at Texas A&M University**

2018 Ernesto Amaral, and Katherine Ann Willyard. “Introduction to Bayesian Models Using Stata,” Presented at the Texas Federal Statistical Research Data Center

2018 Katherine Ann Willyard. “Graduate Student Dissertation Research in a Federal Statistical Research Data Center (FSRDC): The Effects of Organizational Characteristics and the Characteristics of Organizational Institutional Environments on Texas Oil and Gas Venting and Flaring Practices,” Presented the Texas Federal Statistical Research Data Center

2017 Katherine Ann Willyard. “Graduate Student Dissertation Research in a Federal Statistical Research Data Center (FSRDC): The Effects of Organizational Characteristics and the Characteristics of Organizational Institutional Environments on Texas Oil and Gas Venting and Flaring Practices,” Presented the Texas Federal Statistical Research Data Center

2016 Katherine Ann Willyard. “Corporate-State Relations and State Environmental Policy: Texas Oil and Gas Flaring Regulations, 1890-2014,” Presented the Glasscock Center Library

2016 Katherine Ann Willyard. “Graduate Student Dissertation Research in a Federal Statistical Research Data Center (FSRDC): The Effects of Organizational Characteristics and the Characteristics of Organizational Institutional Environments on Texas Oil and Gas Venting and Flaring Practices,” Presented the Texas Federal Statistical Research Data Center

**COURSES TAUGHT AT TEXAS A&M UNIVERSITY**

**Instructor of Record- Full Responsibility**

2015	Spring	SOCI 316	Social Problems
	Summer	SOCI 316	Social Problems

**Guest Lecturer**

2014 SOCI 230 Classical Sociological Theory “The Nature and Types of Social Theory”



2017 SOCI 335 Sociology of Organizations “Resource Dependence Theory”

## **SERVICE**

### **Texas A&M University**

2018	Texas A&M Aggie Undergraduate Research Leader
2012-2016	ATMentors, College of Liberal Arts
2013-2014	Diversity Committee, Department of Sociology, elected
2012-2013	Sociology Club Advisor, appointed

## **Discipline**

2018	Natural Resources Panel Chair, Fossil Fuels and Public Perception Panel, Annual Meeting of the Rural Sociological Society, appointed
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## **STUDENTS SUPERVISED**

### **Corporate Structure Data Collection Undergraduate Mentees**

Garrison Reed	Completed 2017
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### **Environmental Program Senior Thesis Group Advisees**

Nina Canal	Completed 2017
Angelina Dumlao	Completed 2017
Miranda Hooper	Completed 2017
William Thompson	Completed 2017

### **Texas A&M Aggie Research Leadership Program Undergraduate Mentees**

Nina Canal	Completed 2018
Angelina Dumlao	Completed 2018
Miranda Hooper	Completed 2018
William Thompson	Completed 2018

## **PROFESSIONAL AFFILIATIONS**

American Sociological Association  
Southwestern Social Science Association  
Rural Sociological Society

## **RESEARCH SKILLS**

**Facilitating Large Restricted Federal Data Analysis**

Administered 1900, 1910, 1920, 1930, and 1940 IPUMS- USA 100% count micro-level Census data files located at Texas A&M University

Managed and analyzed restricted business, community, health and crime data available at a Federal Statistical Research Data Center

Currently granted Special Sworn Status (SSS) by the United States Census Bureau

### **Quantitative Analysis**

Contextual analysis

Difference-in-Difference estimation

Econometric models for dealing with excess zeros

Econometrics for experimental economics

Generalized linear mixed modeling for clustered and longitudinal data

Two-step multilevel analysis to deal with large level-two sample sizes

### **Spatial Analysis**

ArcGIS

ArcPy

GeoDa

GRASS

K-Nearest neighbor analysis

QGIS

Bayesian Spatial Modeling with R-INLA & MCMC

Spatial statistics

### **Statistical Software**

Stata

SAS

R

MATLAB

Excel

### **Other Programming Skills**

Python

VBA

HTML

CSS

### **Qualitative Analysis**

Archival research

Content analysis

Focus groups  
Historical comparative analysis  
Interviews  
Participant observation  
Program evaluations

### **Qualitative Software**

ATLAS.ti  
Qualtrics

### **Quantitative Datasets**

Annual Survey of Public Employees and Payroll  
American Community Survey (Public and Restricted Versions)  
Business Register/Standard Statistical Establishment List (Restricted)  
Census Annual Estimates of Population  
Census of Mining (Restricted)  
Census Small Area Income Population Estimates  
Compustat  
County Business Patterns  
Decennial Census (Public and Restricted Versions)  
Economic Research Service SNAP Policy Database  
Greenhouse Gas Reporting Program  
Integrated Public Use Microdata Series- United States (Restricted)  
Lexis Nexis Corporate Affiliations  
Longitudinal Business Database (Restricted)  
Medical Expenditure Panel Survey  
National Health Interview Survey (Public and Restricted Versions)  
National Center for Charitable Statistics  
National Cooperative Soil Survey/States Soil Geographic dataset  
National Crime Victimization Survey (Public and Restricted Versions)  
Police-Public Contact Survey (Public and Restricted Versions)  
Report of Organizations (Restricted)  
Risk-Screening Environmental Indicators  
Suomi National Polar-Orbiting Partnership Visible Infrared Imaging Radiometer Suite Global  
Gas Flaring Observed from Space  
State Soil Geographic Database  
Texas Railroad Commission Databases  
Topologically Integrated Geographic Encoding and Referencing/Line Shapefiles  
Toxic Release Inventory  
Uniform Crime Reporting Program  
United States Department of Agriculture SNAP Policy Database  
United States Department of Agriculture Local Food Directories

### **ADMINISTRATIVE AND TEACHER TRAINING**

## **Research Ethics**

Data Stewardship Training  
Title 26 Awareness Training

## **Diversity and Inclusiveness**

Building a Community of Respect in the Classroom  
Enhancing Teaching and Learning for All Students with Universal Design and Technology  
Working with Students with Disabilities

## **Communication**

Assertiveness Training  
Interpersonal Communication Skills  
Understanding Communication Styles  
Working in a Team Environment

## **Teaching**

Effective Exam Item Creation  
High Impact Practices and Measuring Effectiveness  
Humanizing Education, Learning, and Leadership On/Offline  
Metacognition  
Questioning Skills and Techniques  
Strategies to Promote Active Learning  
Technology Enhanced Approaches for Engaging Students in Large Classes  
Techniques in Lecturing  
The Six Pillars of Engagement  
Teaching College Writing

## **Advising**

Fundamentals of Managing Departmental Records  
Goal Setting  
Intrusive Academic Advising: An Effective Strategy to Increase Student Success  
Organizational Alignment and Culture

## **Student Safety**

Brutality 101- Bullying in Higher Education  
Emergency Preparedness  
QPR Suicide Prevention Gatekeeper  
Responding to Reports of Sexual Harassment  
Shots Fired on Campus