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Introduction

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Several recent survey research conferences have included sessions on the use of geographic information systems (GIS) technology. Sessions have taken place at the European Survey Research Association conferences in 2015 and 2017, the American Association for Public Opinion Research conferences in 2014, 2016, and 2017, and the 2015 International Total Survey Error Conference (TSE15). (See Table 1 for a list of the sessions and the presenters). These sessions have fostered the development of a community of researchers interested in how geospatial tools and data can assist in the collection and analysis of survey data. At the same time, the tools and data have become less costly and more accessible to a wider range of researchers. Most of us now have sophisticated mapping and routing software, with satellite images, built into our smartphones and always accessible. For these reasons, we felt that the time was right for a special issue on this topic. This issue of Survey Research Methods highlights recent research on the use of geospatial tools in surveys with the goals of informing and inspiring others.

The articles in this issue reflect the use of geospatial data and technology throughout the survey life cycle, from sampling and measurement to weighting and analysis. Boryan et al (2017) discuss the use of remote sensing data to inform stratification in agricultural surveys. They find that the best approach combines automated stratification based on remote sensing data with a manual review. Several papers discuss the use of geospatial tools to improve measurement. Carletto et al (2017) compare the measurement of agricultural plots via compass and rope to measurement via GPS devices, providing a through account of the advantages and disadvantages of each method. For a household survey in Nepal, Yabiku et al (2017) compare paper and tablet based methods of collecting respondents' reports of activity spaces, the social contexts in which they live their lives. Wagner & Olson (2017) provided U.S. field interviewers with GPS devices to track how they travel while working and assess the quality of the record-of calls-data interviewers record.

Geospatial tools can also play a role after data collection. Vercruyssen & Loosveldt (2017) consider the difficulties encountered when trying to use online street-view data to make household and neighborhood observations from inside the office. Such observations are potentially useful in developing nonresponse adjustments to survey weights. Hillmert et al (2017) discuss why researchers often wish to control for geographic clustering in analysis of social science data, and compare the results of different methods of doint so. Finally, Bluemke et al (2017) provide an in-depth review of the use of GIS technology in surveys from the perspective of psychology.

While there is certainly more research to be done on how geospatial data and methods can enhance the quality or reduce the cost of survey data and analyses, the contributions in this special issue serve to illustrate the range of what may be possible. We thank the authors and reviewers for their contributions to this issue, as well as the editor of SRM, Ulrich Kohler, and the Production Officer, André Pirralha. We believe that the articles collected in this issue will spark innovative ideas among survey researchers and build new collaborations between survey and GIS specialists.

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Table 1
GIS Sessions at Recent Survey Research Conferences

Session	Presentation Title	Presentation Authors
AAPOR 2014: Geographic Information Systems Methods and Tools for Survey Research	Using GIS-Based Modeling to Understand the Potential for Response Bias in a Web Survey	Ned English, Lee Fiorio, Michael Stern (NORC at the University of Chicago)
	Geoscreening: Effective Use of Locator Services in Survey Recruitment	Timothy Michalowski, Dara Seidl (Abt SRBI)
	Coverage Comparison of Various Methods of Using the Postal Frame for Face to Face Surveys	Stephanie Eckman (Department of Sociology, University of Mannheim)
	The Use and Limitations of Ground Captured GPS Coordinates for Address-Based Samples and In-Person Surveys	Joseph McMichael, Jamie Ridenhour, Michael Keating, Karol Krotki (RTI International)
	Putting GIS on the Survey Research Map: Exploring Geoinformatics Principles for Enhancing Sample Survey Design and Analysis	Trent D. Buskirk, Dennis Dalbey, Nathaniel Bordy, John Zabrenski (Marketing Systems Group (MSG))
ESRA 2015: Uses of Geographic Information Systems Tools in Survey Data Collection & Analysis	Fantasyland: Comparing Subjective and Objective Measures of Farm Land Area in Household Surveys	Sydney Gourlay, Calogero Carletto (World Bank Group), Siobhan Murray (World Agroforestry Centre)
	NORC PLACES: An interactive GIS-enabled tool for sharing and displaying community generated information about location specific obstacles to field work	Kyle Fennell (NORC at the University of Chicago)
	Can you hear me now? GIS applications for sampling and analysis on a survey of aircraft noise annoyance.	Eric Jodts, Michael Giangrande, Pam Broene, Sharon Lohr (Westat)
	A GIS-based technique for sample building: the experience of the ISSP in Italy	Professor Cinzia Meraviglia (University of Eastern Piedmont, Italy), Gianni Bregolin (Quantitas srl / Venice Gateway for Science and Technology, Italy)
ESRA 2015: Enhancing Survey Data with Geocoded Auxiliary Data	Using Geocoded Data as Part of the Multi-level, Multi-Source Approach to Improve Surveys	Tom W. Smith (NORC at the University of Chicago), Jibum Kim (Sungkyunkwan University)
	Using geocoded auxiliary data to predict nonresponse in address-based samples: Are household- level commercial data any better than aggregate-level census data?	Sarah Butt, Kaisa Lahtinen, Rory Fitzgerald (City University London)

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Session	Presentation Title	Presentation Authors
	The use of geo-coded data to develop an interview performance management system	Joel Williams (TNS BMRB)
	Grandparents, Nurseries and Employment Options: The Geography of the return to work for Mothers in the Czech Republic	Thomas Emery (NIDI), Alzbeta Bartova (University of Edinburgh)
	Combining Sample, Survey and Geocoded Auxiliary Data for Predicting Sales Volumes at Gasoline Stations	Kurt Pflughoeft, Sharon Alberg (MaritzCX)
	Examining Neighbourhood Effects on Educational Opportunities: Facing Challenges in Combining Survey Data with Geocoded Auxiliary Data Cross-Nationally	Dafina Kurti (GESIS - Leibniz Institute for the Social Sciences)
	Enhancing Longitudinal Surveys with Geocoded Time-Series Data: Examples from Research on School-to-Work Transitions in Germany	Katarina Weßling, Andreas Hartung, Steffen Hillmert (University of Tuebingen)
TSE15: Uses of Geographic Information Systems Tools in Survey Data Collection & Analysis	Virtual Canvassing: In-Office Methods for Validating the Census Bureau's Address List for the 2020 Census	Michael Ratcliffe, Shonin Anacker, April Avnayim, Christopher Henrie, Tiernan Erickson, Dakota Schuck (U.S. Census Bureau)
	Using GIS to Understand Error Sources in a Web Survey	Ned English, Michael Stern, Ipek Bilgen, Ilana Ventura (NORC at the University of Chicago)
	The Role of Geographic Information in Minimizing TSE for a Large-scale Natural Resource Survey	Emily Berg, Sarah Nusser, Alan Dotts, Zhengyuan Zhu (Iowa State University)
	Using Geospatial Analysis to Inform Household Survey Design Decisions and Harvest Sample Efficiencies	Aliza Kwiat, Rosemary Byrne (U.S. Census Bureau)
	The Value of Self-Reported Frequently Visited Addresses in GPS Assisted Travel Surveys	Timothy Michalowski, Dara Seidl, Rena Peña (Abt SRBI)
AAPOR 2016: New Ideas in Using GIS & Remote Sensing Data for Survey Research	Spatial Modeling through GIS to Reveal Error Potential in Survey Data: Where, What, and How Much	Ned English, Ilana Ventura, Ipek Bilgen, Michael Stern (NORC at the University of Chicago)
	Inserting Unmanned Aircraft into the Applied Research Process	Joe Eyerman, Katrina Ladd, Jonathan Evans, Mark Bruhn, Charlie Knott, Ryan Gordon, Karol Krotki,Safaa Amer (RTI International)

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	The Value of Self-Reported Frequently Visited Addresses in GPS Assisted Travel Surveys	Timothy Michalowski, Dara Seidl (Abt SRBI)
	Exposing Hidden Structures: Targeted LIDAR Use to Support In-office Review and Validation of an Address Frame	John Liadis (U.S. Census Bureau)
	Virtual Canvassing: In-office Methods for Validating the Census Bureau's Address List for the 2020 Census	Michael Ratcliffe (U.S. Census Bureau)
AAPOR 2017: Geographic Information Systems (GIS) Methods and Technology for Survey Research	Demographic Disparities in the Tobacco Retail Environment in Washington, DC: A Districtwide Spatial Analysis	Andrew Anesetti-Rothermel, Morgane Bennett, Elizabeth Hair, onna Vallone, Jennifer Cantrell (Truth Initiative)
	Using GPS to Detect Falsifiers: Some Nuts and Bolts	Marsha Hasson, Victoria Vignare, Susan Genoversa, Brad Edwards (Westat)
	Using GPS Traces to Evaluate Interviewer Efficiency	Kyle Fennell, Ned English, Peter Herman (NORC at the University of Chicago)
	Examining the Fidelity of Location-based Dataset Linkage Using Fitbit Devices	Michael Keating, Julia Brinton, Robert Furberg (RTI International)
ESRA 2017: Uses of Geographic Information Systems Tools in Survey Data Collection & Analysis	Exit Polling and Geolocation Technology	Rene Bautista, David Sterrett, Jennifer Benz (NORC at the University of Chicago), David Pace, Emily Swanson (The Associated Press), Trevor Tompson (NORC at the University of Chicago)
	Geo-Sampling for Establishment Survey Enumeration and Sampling: Nigeria Non-facility Based Health Service Providers Case Study	Justine Allpress, Safaa Amer (RTI International)

Information taken from conference programs. Titles, authors, and affiliations may not much what was given at the conference itself.