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Ezra Haber Glenn

Working with the American Community Survey in R

A Guide to Using
the acs Package

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Preface

The purpose of this monograph is twofold: first, to familiarize readers with the US Census American Community Survey, including both the potential strengths and the particular challenges of working with this dataset; and second, to introduce them to the `acs` package in the R statistical language, which provides a range of tools for demographic analysis with special attention to addressing these issues.

In particular, the `acs` package includes functions to allow users (a) to create custom geographies by combining existing ones provided by the Census, (b) to download and import demographic data from the American Community Survey (ACS) and Decennial Census (SF1/SF3), and (c) to manage, manipulate, analyze, plot, and present this data (including proper statistical techniques for dealing with estimates and standard errors). In addition, the package includes a pair of helpful “lookup” tools, one to help users identify the geographic units they want and the other to identify tables and variables from the ACS for the data they are looking for, and some additional convenience functions for working with Census data.

Acknowledgments

Planners working in the USA all owe a tremendous debt of gratitude to our truly excellent Census Bureau, and this seems as good a place as any to recognize this work. In particular, I have benefited from the excellent guidance the Census has issued on the transition to the ACS: the methodology coded into the `acs` package draws heavily on these works, especially the *Compass* series cited in the package man pages [7].

I would also like to thank my colleagues in the Department of Urban Studies and Planning at MIT, including Joe Ferreira, Duncan Kincaid, Jinhua Zhao, Mike Foster, and a series of department heads—Larry Vale, Amy Glasmeier, and Eran Ben-Joseph—who have provided consistent and generous support for my work on the `acs` package and my efforts to introduce programming methods in general—and R in particular—into our Master in City Planning program. Additionally, I am

grateful for the graduate students in my “Quantitative Reasoning and Statistical Methods” classes over the years, who have been willing to experiment with R and have provided excellent feedback on the challenges of working with ACS at the local level.

The original coding for the `acs` package was completed with funding from the Puget Sound Regional Council, working with Public Planning, Research, & Implementation. Portions of this work have been previously presented at the Conference for Computers in Urban Planning and Urban Management (Banff, Alberta, 2011) and the ACS Data Users Conference (Hyattsville, MD, 2015), as well as at workshops and webinars of the Puget Sound Regional Council, the Mel King Institute for Community Building, the Central Massachusetts Regional Planning Agency, and the Orange County R User Group. I am indebted to the organizers and attendees of these sessions for their early input as well as to the excellent R user community and subscribers to the `acs` users listserv for their ongoing feedback.

Finally, a big thank you to my wife Melissa (for lending me her degree in statistics and public policy) and my children Linus, Tobit, and Mehitabel (for being such strong advocates of open-source software); all four have been patient while I tracked down bugs in the code and helpful as I worked through examples of how we make sense of data.

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