



Demystifying R: A Guided Tour

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R for the Rest of Us



Before We Start

Please take the survey at <https://rfortherestofus.com/aea/>

American Evaluation Association

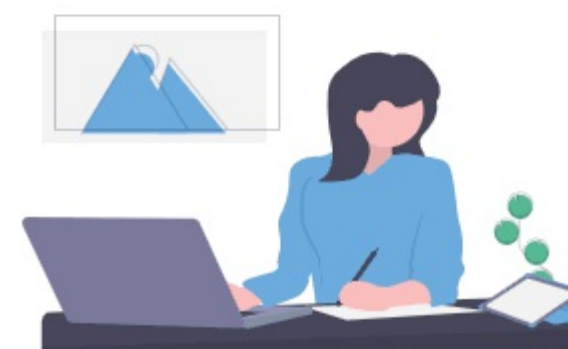
June 11, 2019

Materials for the June 11, 2019 webinar [Demystifying R: A Guided Tour](#) are found on this page. Click any of the items below to see more information.

► R Familiarity Survey

► Follow-Up Q+A

► Materials



Free Course

Getting Started with R is designed to take you through the first, often confusing, steps on your R journey.



Who am I?



What is R?



Download and Install R

The first thing you need to do is download the R software. Go to the [Comprehensive R Archive Network \(aka “CRAN”\) website](#) and download the software for your operating system (Windows, Mac, or Linux).

RStudio



R: Engine



RStudio: Dashboard



Courtesy [Modern Dive](#)



Download and Install RStudio

Download RStudio at the [RStudio website](#). Ignore the various versions listed there. All you need is the latest version of RStudio Desktop.



Packages



Packages

R: A new phone



R Packages: Apps you can download



Courtesy [Modern Dive](#)



Examples of Packages

Tidyverse

[Packages](#)[Articles](#)[Learn](#)[Help](#)[Contribute](#)

R packages for data science

The tidyverse is an opinionated **collection of R packages** designed for data science. All packages share an underlying design philosophy, grammar, and data structures.

Install the complete tidyverse with:

```
install.packages("tidyverse")
```



Examples of Packages

gendercodeR

The goal of gendercodeR is to allow simple recoding of freetext gender responses.

Why would we do this?

Researchers who collect self-reported demographic data from respondents occasionally collect gender using a free-text response option. This has the advantage of respecting the gender diversity of respondents without prompting users and potentially including misleading responses. However, this presents a challenge to researchers in that some inconsistencies in typography and spelling create a larger set of responses than would be required to fully capture the demographic characteristics of the sample.

For example, male participants may provide freetext responses as "male", "man", "mail", "mael". Non-binary participants may provide responses as "nonbinary", "enby", "non-binary", "non binary"

This package uses dictionaries of common misspellings to recode these freetext responses into a consistent set of responses.



Why Use R?



Data Analysis in a Snap

```
nhanes %>%
  skim(weight)

## Skim summary statistics
##   n obs: 10000
##   n variables: 22
##
## — Variable type:numeric —————
## variable missing complete      n mean   sd  p0  p25  p50  p75  p100
##   weight      78      9922 10000 70.98 29.13 2.8 56.1 72.7 88.9 230.7
##   hist
##   ────
```



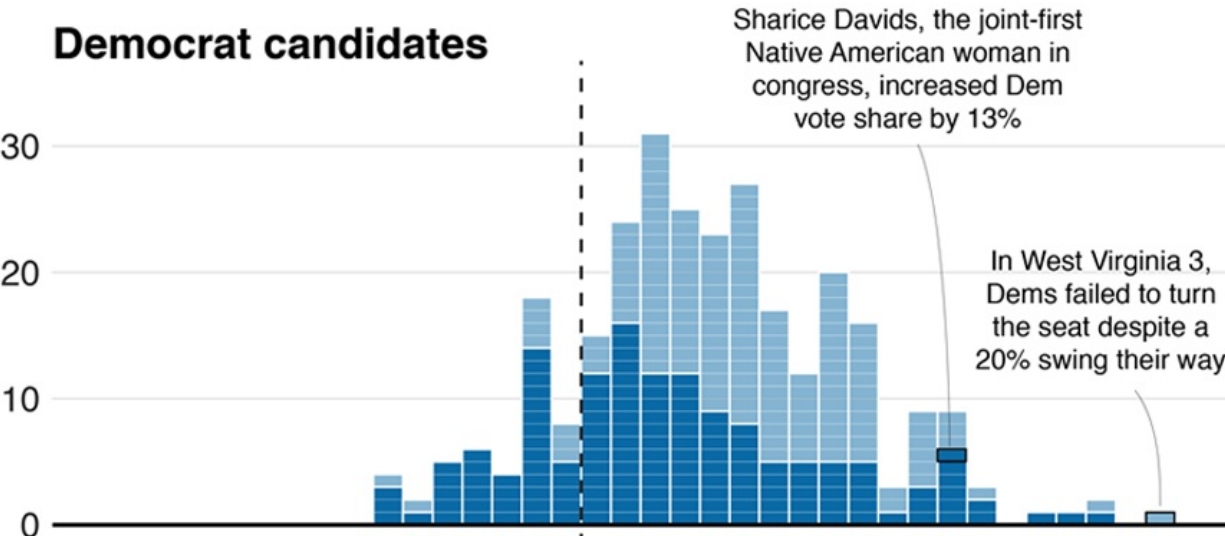
High-Quality Data Visualization



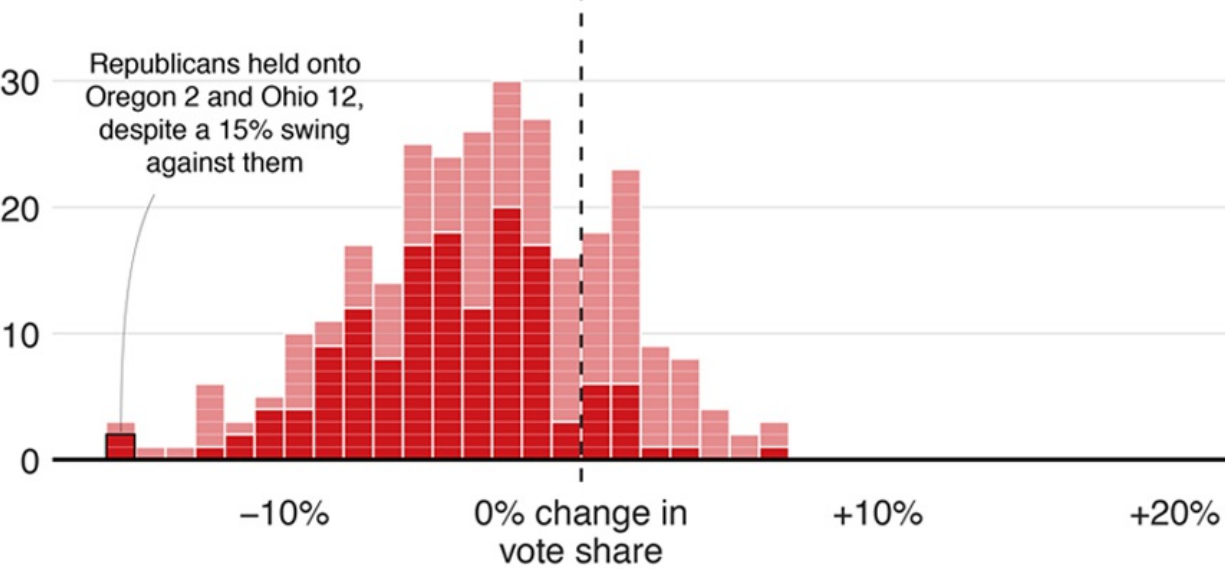
Blue wave

■ Won seat ■ Didn't win

Democrat candidates



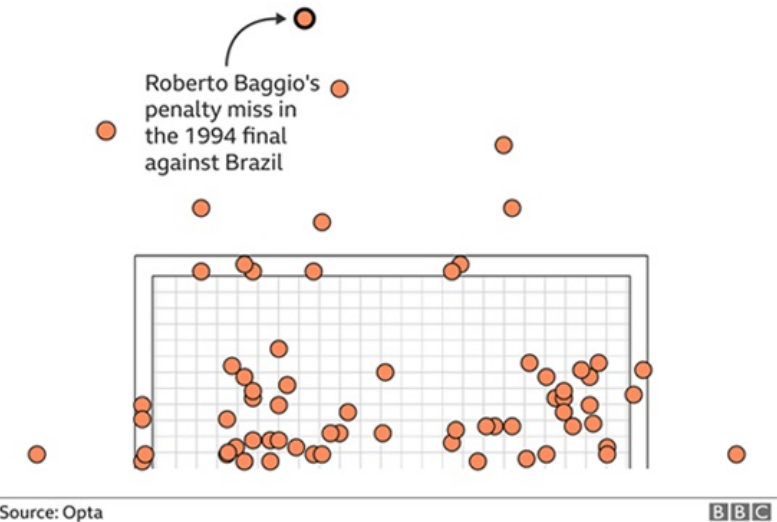
Republican candidates



Source: AP, 19:01 ET

Where penalties are saved

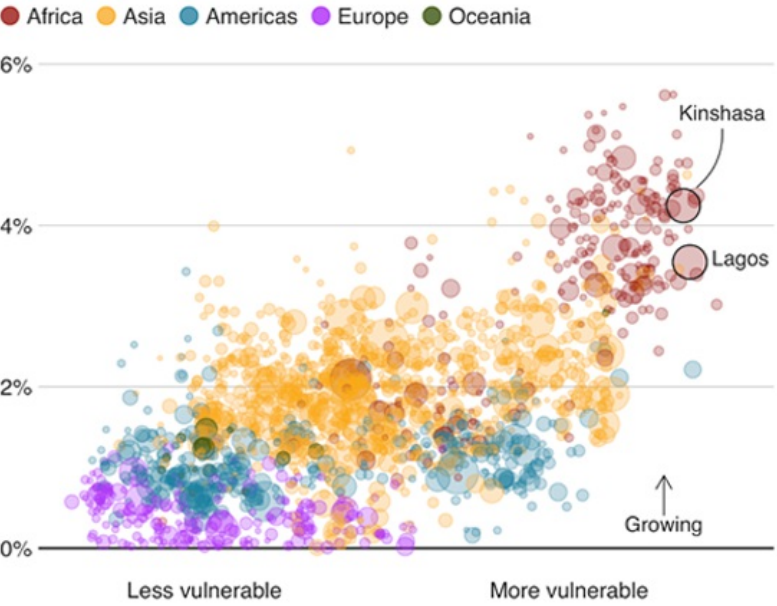
World Cup shootout misses and saves, 1982-2014



Source: Opta

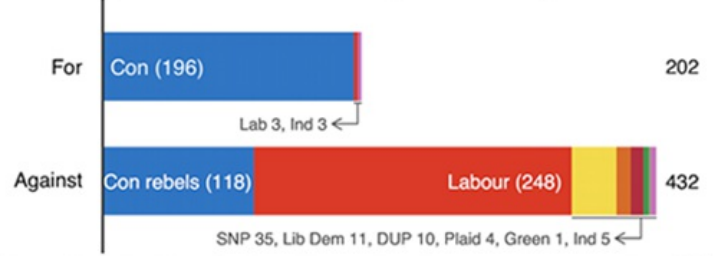
Fast-growing cities face worse climate risks

Population growth 2018-2035 over climate change vulnerability



Source: Verisk Maplecroft. Circle size represents current population.

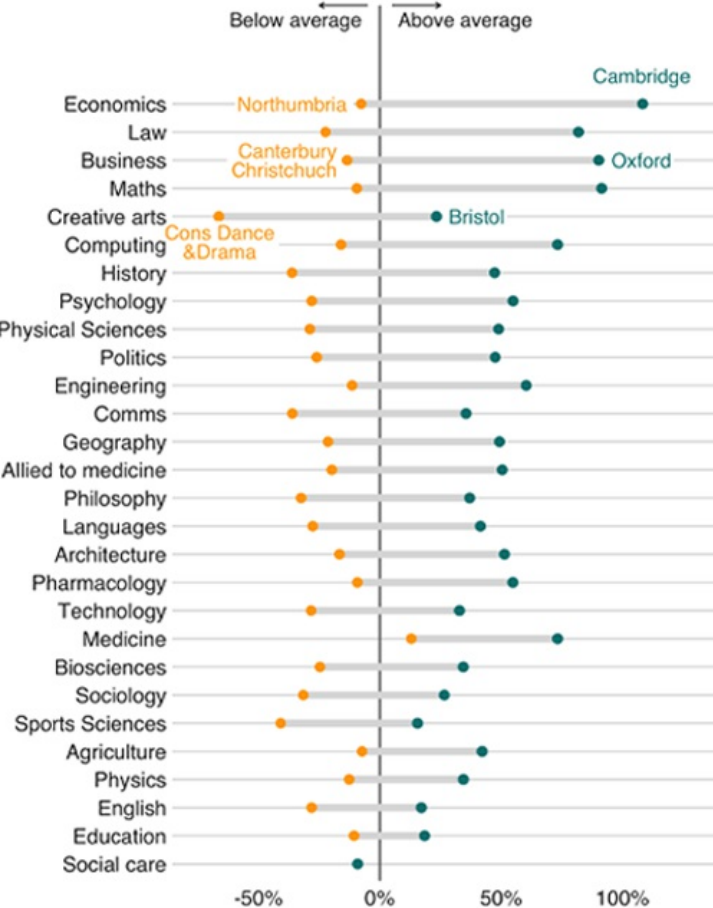
MPs rejected Theresa May's deal by 230 votes



Source: Commons Votes Services. Excludes 'tellers', the Speaker and deputies

Earnings vary across unis even within subjects

Impact on men's earnings relative to the average degree



Source: Institute for Fiscal Studies

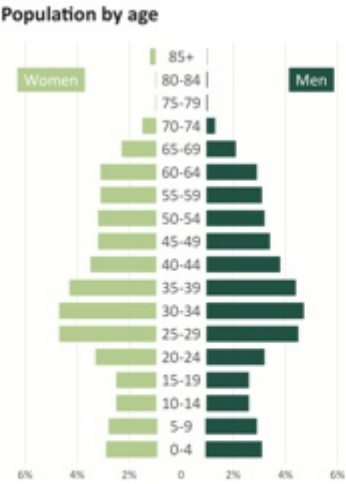


MULTNOMAH

Total population
778,193
Rural population
1%
Net migration, 2010-2016
(per 1,000 population)
41

Federally Recognized Tribes
BP CLUS COQ COW
GR KLA SLZ UMA WSP

Median income
Multnomah \$57,449
Oregon \$53,270



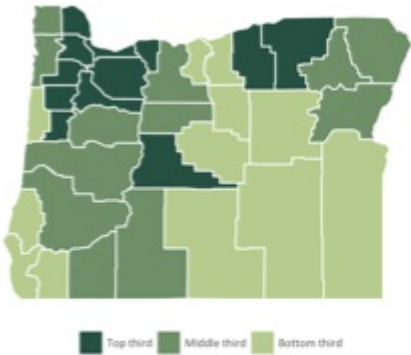
Total land area
466 mi²
Public land
36%



MEDIAN INCOME

Definition: The household income value at which 50% of households in the county earn less and 50% earn more.

Median household income in this report provides a measure of the typical or "middle" income level in a county as well as the overall economic wellbeing for residents. One key drawback is that this measure treats all households equally regardless of the number of people in the household. The size of the household has a big impact on how the income is distributed to individuals. Nonetheless, median household income remains a broadly used measure. It is useful in tracking income growth, which is associated with the ability of residents to meet their needs, and comparing economic conditions across counties.



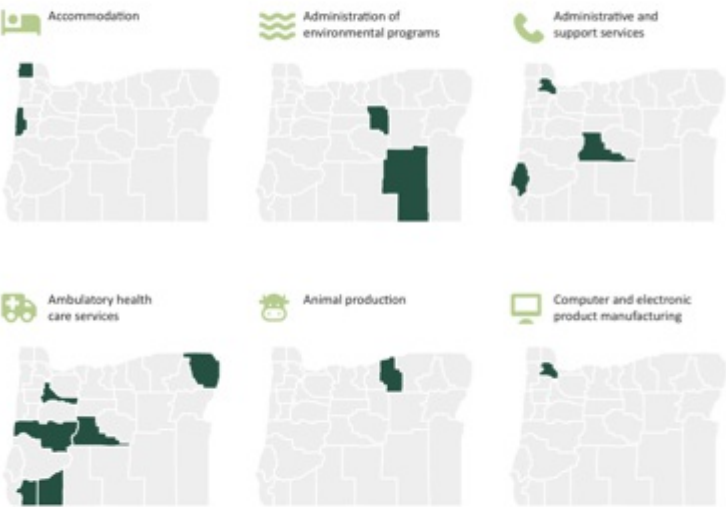
Rank	County	Amount
1	Washington	\$69,743
2	Clackamas	\$68,915
3	Multnomah	\$57,449
4	Hood River	\$56,581
5	Columbia	\$55,146
6	Yamhill	\$54,951
7	Morrow	\$54,441
8	Deschutes	\$54,211
9	Polk	\$54,010
	Oregon	\$53,270
10	Benton	\$52,015
11	Marion	\$50,775
12	Umatilla	\$49,287
13	Clatsop	\$47,492
14	Jefferson	\$47,063
15	Wasco	\$46,814
16	Linn	\$46,782
17	Jackson	\$46,343
18	Union	\$45,564
19	Lane	\$45,222
20	Tillamook	\$43,777
21	Wallowa	\$42,349
22	Douglas	\$42,052
23	Klamath	\$41,951
24	Baker	\$41,722
25	Sherman	\$41,389
26	Lincoln	\$41,303
27	Gilliam	\$40,556
28	Grant	\$40,193
29	Crook	\$39,583
30	Coos	\$39,110
31	Curry	\$38,661
32	Harney	\$38,431
33	Josephine	\$37,867
34	Malheur	\$34,720
35	Lake	\$33,453
36	Wheeler	\$33,400

Source: US Census Bureau, American Community Survey, Table B19013, 2012-2016, 5-year estimates updated annually. Released 2017.

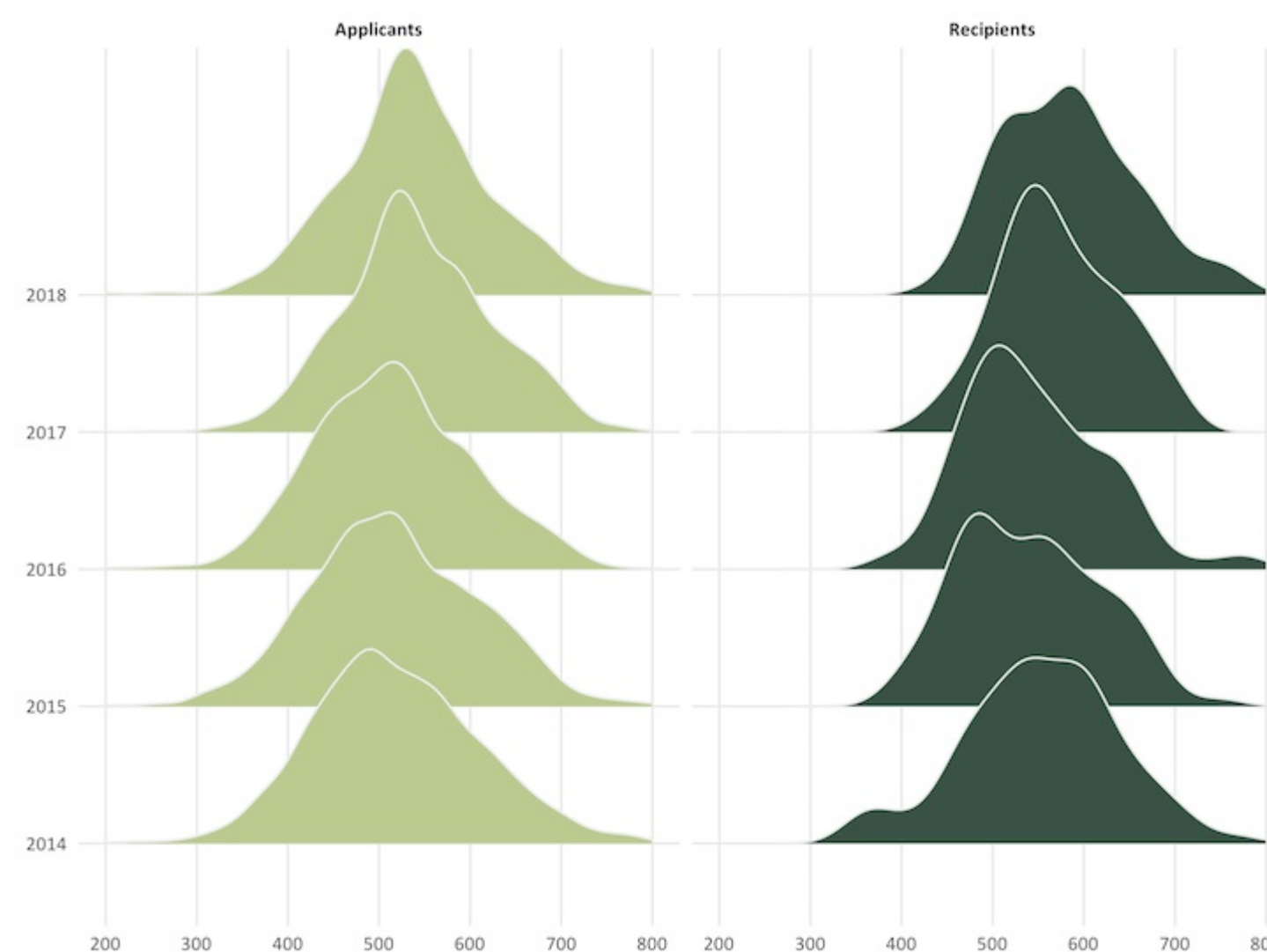
TOP EMPLOYMENT INDUSTRIES

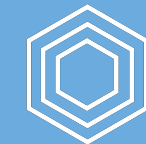
Definition: The three industries with the greatest number of employees in each county, using the 3-digit North American Industry Classification System (NAICS) codes.

Identifying the top three employment industries in each county provides insight about the structure of the local economy. Employment industries have different average wage levels, so the top three figure prominently in determining the total wage earnings of a county. Examining this indicator across the state and between counties suggests notable employment trends and could point to policy opportunities. (Note: Each county profile shows the top three employment industries in ranked order from left to right.)

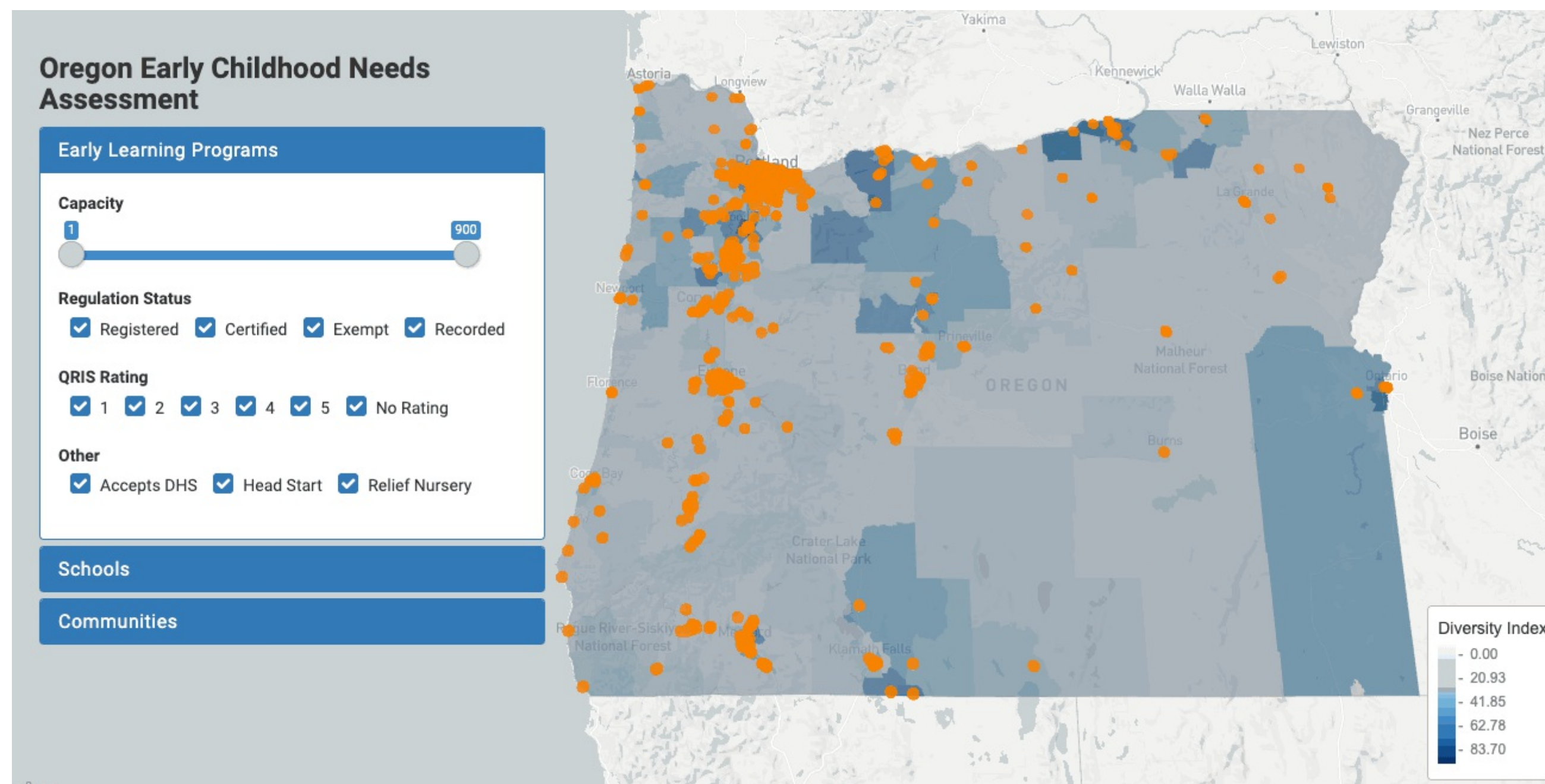


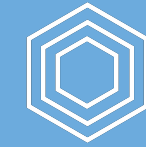
Source: State of Oregon Employment Department, Economic Data 2016, updated annually. Released 2017.



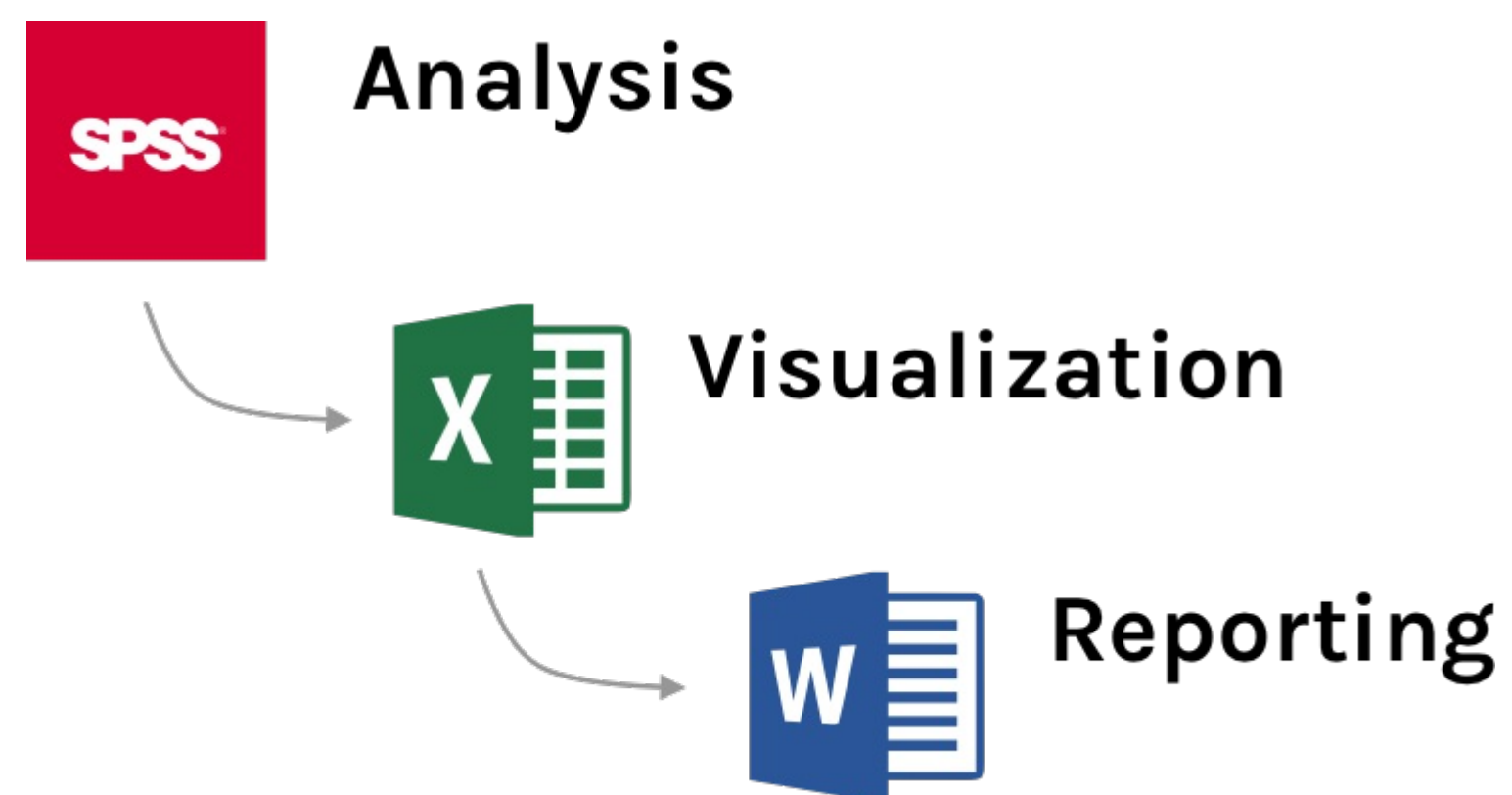


Unique Reporting Possibilities





Use a Single Tool From Data
Import to Final Report





RMarkdown

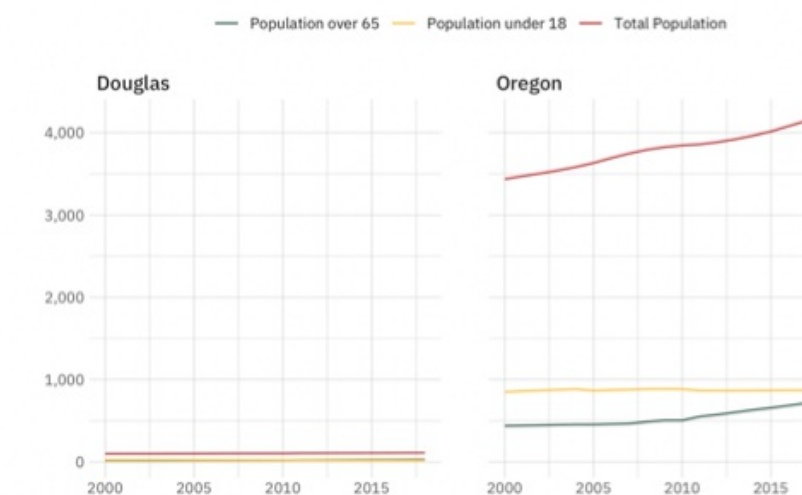
```
77 # Population
78
79 The populations of Douglas County and Oregon are shown below.
80
81 ```{r}
82 population <- read_excel("data/dc-data.xlsx",
83   sheet = "Population") %>%
84   clean_names() %>%
85   gather("geography", "number", -c(indicator, year)) %>%
86   mutate(number = number / 1000) %>%
87   dk_replace_dc() %>%
88   mutate(group = paste(indicator, geography))
89
90 ggplot(population, aes(year, number,
91   group = indicator,
92   color = indicator)) +
93   geom_line() +
94   facet_wrap(~geography) +
95   scale_y_continuous(labels = comma_format()) +
96   dk_remove_color_title +
97   dk_set_colors
98
99 ```
100
```



RMarkdown

Population

The populations of Douglas County and Oregon are shown below.



Word



Give Immediate Feedback

*[A]ll the work is done up front and then for every session ... **I only need to spend 15 minutes generating the report and sending it to them.***

[Using R for Immediate Reporting in Evaluation by Dana Wanzer](#)



R Familiarity Survey



The Best Reason to Learn R



Eileen Parkes
@eileen_parkes

Follow

▼

Today I downloaded "R" 🤔
Can a 37 year old mother of two learn to code?
Watch this space...

9:00 AM - 8 May 2019

262 Retweets 5,830 Likes



💬 555

↻ 262

📁

❤️ 5.8K

✉️


🔒



Tweet your reply



Questions?



ONLINE COURSESWORKSHOPSCUSTOM TRAINING1-ON-1 COACHINGABOUTMY ACCOUNTFREE COURSE

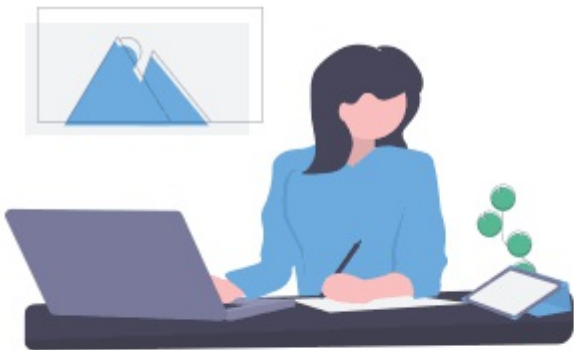
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Start Your R Journey

To join the Q+A and to get all materials from this webinar, please visit <https://rfortherestofus.com/aea/>

Please email me at any point with questions: david@rfortherestofus.com

I have created a coupon code (AEAJUNE2019) that will give you \$50 off the just released [Fundamentals of R course](#). It expires June 30, 2019.