BLS - LAUS - Example

Datasets

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Contents

Preamble

```
rm(list = ls())
pklist <- c("tidyverse", "choroplethr", "choroplethrMaps")
source("/Users/geerolf/Drive/work/code-sample/R/load-packages.R")
options(tibble.print_max = 100)
```

The documentation for the LAUS is available here: https://www.bls.gov/lau/
The flat data files of the LAUS are: https://download.bls.gov/pub/time.series/la/

Loading

```
load("la.area_type.RData")
load("la.data.0.RData")
load("la.series.RData")
load("la.measure.RData")
load("la.area.RData")
load("la.data.2.AllStatesU.RData")
load("la.data.3.AllStatesS.RData")
load("la.state_region_division.RData")
```

State-level LAUS

Data Structure

```
la.series %>%
  filter(area_type_code == "A") %>%
  mutate(series_id = series_id %>% paste) %>%
  as.tibble %>%
  head
```

```
## # A tibble: 6 x 12
##   series_id area_type_code area_code measure_code seasonal srd_code
##   <chr>     <fct>          <fct>            <int> <fct>       <int>
## 1 "LASST01~ A              ST010000~            3 S               1
## 2 "LASST01~ A              ST010000~            4 S               1
## 3 "LASST01~ A              ST010000~            5 S               1
## 4 "LASST01~ A              ST010000~            6 S               1
## 5 "LASST02~ A              ST020000~            3 S               2
## 6 "LASST02~ A              ST020000~            4 S               2
## # ... with 6 more variables: series_title <fct>, footnote_codes <fct>,
## #   begin_year <int>, begin_period <fct>, end_year <int>, end_period <fct>
```

Downloading

Crosswalk states:

```
load("/Users/geerolf/Drive/work/datasets/crosswalks/crosswalk.state.main.RData")
```

```
BLS.LAUS.state <- la.data.2.AllStatesU %>%
  mutate_at(vars(series_id, period), funs(paste)) %>%
  select(-footnote_codes) %>%
  bind_rows(la.data.3.AllStatesS %>%
              mutate_at(vars(series_id, period), funs(paste)) %>%
              select(-footnote_codes)) %>%
  right_join(la.series %>%
               filter(area_type_code == "A") %>%
               mutate(series_id = series_id %>% paste),
             by = "series_id") %>%
  left_join(la.state_region_division %>%
              mutate(state.name = srd_text %>% paste) %>%
              select(srd_code, state.name),
             by = "srd_code") %>%
  left_join(la.measure %>%
              mutate(measure_text = measure_text %>% paste),
             by = "measure_code") %>%
  left_join(crosswalk.state.main,
             by = "state.name") %>%
  mutate(month = period %>% substr(2, 3) %>% as.numeric,
         yearmonth = year + (month - 1)/12,
         variable.desc1 = paste(measure_text, "(LAUS)"),
         variable = NA,
         variable = ifelse(measure_code == 3, "UNR", variable),
         variable = ifelse(measure_code == 4, "UN", variable),
```

```
         variable = ifelse(measure_code == 5, "EMP", variable),
         variable = ifelse(measure_code == 6, "LF", variable),
         variable = paste0(variable, "_", seasonal, "_LAUS")) %>%
  select(variable, variable.desc1, state.code, state.name, yearmonth, value) %>%
  arrange(variable.desc1)
```

Saving and Looking

```
save(BLS.LAUS.state, file = "BLS.LAUS.state.RData")

BLS.LAUS.state %>%
  as.tibble %>%
  head
```

```
## # A tibble: 6 x 6
##   variable   variable.desc1    state.code state.name yearmonth   value
##   <chr>      <chr>             <chr>      <chr>          <dbl>   <dbl>
## 1 EMP_S_LAUS employment (LAUS) AL         Alabama        1976  1392154
## 2 EMP_S_LAUS employment (LAUS) AL         Alabama        1976. 1391975
## 3 EMP_S_LAUS employment (LAUS) AL         Alabama        1976. 1392137
## 4 EMP_S_LAUS employment (LAUS) AL         Alabama        1976. 1393177
## 5 EMP_S_LAUS employment (LAUS) AL         Alabama        1976. 1394591
## 6 EMP_S_LAUS employment (LAUS) AL         Alabama        1976. 1396510
```

County-level LAUS

Data Structure

```
la.series %>%
  mutate(series_id = series_id %>% paste %>% gsub(" ", "", .)) %>%
  # F is counties and equivalent
  filter(area_type_code == "F") %>%
  left_join(la.measure %>%
              rename(variable.desc1 = measure_text),
            by = "measure_code") %>%
  select(series_id, measure_code, variable.desc1) %>%
  as.tibble %>%
  head
```

```
## # A tibble: 6 x 3
##   series_id            measure_code variable.desc1
##   <chr>                       <int> <fct>
## 1 LAUCN010010000000003            3 unemployment rate
## 2 LAUCN010010000000004            4 unemployment
## 3 LAUCN010010000000005            5 employment
## 4 LAUCN010010000000006            6 labor force
## 5 LAUCN010030000000003            3 unemployment rate
## 6 LAUCN010030000000004            4 unemployment
```

Downloading

```
BLS.LAUS.county <- la.data.0 %>%
  mutate_at(vars(series_id, period), funs(paste)) %>%
  select(-footnote_codes) %>%
  right_join(la.series %>%
               filter(area_type_code == "F") %>%
               select(-footnote_codes) %>%
               mutate(series_id = series_id %>% paste),
             by ="series_id") %>%
  left_join(la.measure,
            by = "measure_code") %>%
  mutate(month = period %>% substr(2, 3) %>% as.numeric,
         yearmonth = year + (month - 1)/12,
         value = value %>% as.numeric,
         fips = series_id %>% substr(6, 10) %>% as.numeric,
         variable.desc1 = paste(measure_text, "(LAUS)"),
         variable = NA,
         variable = ifelse(measure_code == 3, "UNR", variable),
         variable = ifelse(measure_code == 4, "UN", variable),
         variable = ifelse(measure_code == 5, "EMP", variable),
         variable = ifelse(measure_code == 6, "LF", variable)) %>%
  select(variable, variable.desc1, fips, yearmonth, value) %>%
  filter(!is.na(value)) %>%
  arrange(variable, variable.desc1, fips, yearmonth)
```

```
## Warning in function_list[[k]](value): NAs introduced by coercion
```

Saving and Looking

```
save(BLS.LAUS.county, file = "BLS.LAUS.county.RData")

BLS.LAUS.county %>%
  as.tibble %>%
  head
```

```
## # A tibble: 6 x 5
##   variable variable.desc1     fips yearmonth value
##   <chr>    <chr>             <dbl>     <dbl> <dbl>
## 1 EMP      employment (LAUS)  1001     1990  15469
## 2 EMP      employment (LAUS)  1001     1990. 15487
## 3 EMP      employment (LAUS)  1001     1990. 15693
## 4 EMP      employment (LAUS)  1001     1990. 15744
## 5 EMP      employment (LAUS)  1001     1990. 15824
## 6 EMP      employment (LAUS)  1001     1990. 15891
```

Computing Environment

```
Sys.time()
```

```
## [1] "2018-09-27 15:10:48 PDT"
```

```
sessionInfo()
```

```
## R version 3.5.1 (2018-07-02)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: macOS High Sierra 10.13.6
##
## Matrix products: default
## BLAS: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] bindrcpp_0.2.2        choroplethrMaps_1.0.1 choroplethr_3.6.3
##  [4] acs_2.1.3             XML_3.98-1.16         forcats_0.3.0
##  [7] stringr_1.3.1         dplyr_0.7.6           purrr_0.2.5
## [10] readr_1.1.1           tidyr_0.8.1           tibble_1.4.2
## [13] ggplot2_3.0.0         tidyverse_1.2.1
##
## loaded via a namespace (and not attached):
##  [1] nlme_3.1-137        sf_0.6-3            lubridate_1.7.4
##  [4] RColorBrewer_1.1-2  httr_1.3.1          rprojroot_1.3-2
##  [7] tools_3.5.1         backports_1.1.2     utf8_1.1.4
## [10] rgdal_1.3-4         R6_2.2.2            rpart_4.1-13
## [13] spData_0.2.9.3      Hmisc_4.1-1         DBI_1.0.0
## [16] lazyeval_0.2.1      colorspace_1.3-2    nnet_7.3-12
## [19] withr_2.1.2         sp_1.3-1            tidyselect_0.2.4
## [22] gridExtra_2.3       compiler_3.5.1      cli_1.0.0
## [25] rvest_0.3.2         htmlTable_1.12      xml2_1.2.0
## [28] scales_1.0.0        checkmate_1.8.5     classInt_0.2-3
## [31] rappdirs_0.3.1      digest_0.6.15       foreign_0.8-70
## [34] rmarkdown_1.10      base64enc_0.1-3     jpeg_0.1-8
## [37] pkgconfig_2.0.2     htmltools_0.3.6     maps_3.3.0
## [40] htmlwidgets_1.2     rlang_0.2.2         readxl_1.1.0
## [43] rstudioapi_0.7      bindr_0.1.1         jsonlite_1.5
## [46] acepack_1.4.1       magrittr_1.5        Formula_1.2-3
## [49] geosphere_1.5-7     Matrix_1.2-14       fansi_0.3.0
## [52] Rcpp_0.12.18        munsell_0.5.0       proto_1.0.0
## [55] stringi_1.2.4       yaml_2.2.0          RJSONIO_1.3-0
## [58] plyr_1.8.4          grid_3.5.1          maptools_0.9-3
## [61] WDI_2.5             crayon_1.3.4        lattice_0.20-35
## [64] haven_1.1.2         splines_3.5.1       mapproj_1.2.6
## [67] hms_0.4.2           knitr_1.20          pillar_1.3.0
## [70] uuid_0.1-2          rjson_0.2.20        reshape2_1.4.3
## [73] glue_1.3.0          evaluate_0.11       latticeExtra_0.6-28
## [76] data.table_1.11.4   modelr_0.1.2        png_0.1-7
## [79] RgoogleMaps_1.4.2   cellranger_1.1.0    gtable_0.2.0
## [82] assertthat_0.2.0    broom_0.5.0         e1071_1.7-0
## [85] class_7.3-14        survival_2.42-3     tigris_0.7
## [88] units_0.6-0         cluster_2.0.7-1     ggmap_2.6.1
```