7/16/2019 atus.R

```
library(readr)
 1
 2 library(dplyr)
 3 library(reshape2)
 4 library(survey)
 5
 6
   # Export 6 from ATUS
 7
    # "Time spent working from home by broad occupation, class of worker, and hours worked w/
    weekday and holiday flags (2003-2015) w/ CSV
 8
 9
    # ATUS estimation formulas, see page 37:
   # https://www.bls.gov/tus/atususersquide.pdf
10
11
12
   # Average number of non-holiday weekdays each year
   ANNUAL WORKDAYS = 251
13
14
15
   # Read ATUS export
    atus <- read_csv("atus_00006.csv", col types="ciidiiid")</pre>
16
17
18
   # Convert years to a factor
19
   atus$year <- as.factor(atus$YEAR)</pre>
20
   # Flag for non-holiday weekdays
21
   atus$workday <- (atus$DAY >= 2 & atus$DAY <= 6 & atus$HOLIDAY == 0)</pre>
22
23
   # Flag for those that worked at home at all
24
25
    atus$homeworkers <- (atus$workingfromhome > 0)
26
27
   # Flag for those that worked at least 7 hours at home (~ 35 hours a week)
    atus$homeworkers.fullday <- (atus$workingfromhome >= 420)
28
29
   # Flag for wage-workers (not self-employed)
30
31
    atus$wageworkers <- (atus$CLWKR <= 5)</pre>
32
33
   # Flag for fulltime
34
   atus$fulltime <- (atus$UHRSWORK1 >= 35)
35
36 # Load ATUS OCC2 code mapping
37
   occ2 <- read_csv("atus-occ2.csv", col_types="ic")</pre>
38
39 # Join descriptions
    atus <- atus %>%
40
41
      left join(occ2, by = c("OCC2" = "occ2")) %>%
      rename(occupation = description)
42
43
44 # Counts and means for all employees by homeworker or not
45
    atus.totals <- atus %>%
      filter(fulltime & workday & wageworkers) %>%
46
      group by(year, homeworkers.fullday) %>%
47
48
      summarise(
49
        n = sum(WT06) / ANNUAL WORKDAYS
50
51
    write_csv(atus.totals, "results/atus.totals.csv")
52
53
54 # Count and means for all employees that worked at home for any time
   atus.anytime.totals <- atus %>%
```

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```
filter(fulltime & workday & homeworkers & wageworkers) %>%
 56
 57
      group_by(year) %>%
 58
      summarise(
         n = sum(WT06) / ANNUAL WORKDAYS,
 59
         mean.mins = sum(workingfromhome * WT06) / sum(WT06)
 60
      )
 61
 62
 63
    write csv(atus.anytime.totals, "results/atus.anytime.totals.csv")
 64
 65
    # Count of fullday homeworkers
    atus.fullday.totals <- atus %>%
 66
      filter(fulltime & workday & homeworkers.fullday & wageworkers) %>%
 67
 68
      group by(year) %>%
 69
      summarise(
 70
         n = sum(WT06) / ANNUAL WORKDAYS
 71
 72
    write_csv(atus.fullday.totals, "results/atus.fullday.totals.csv")
 73
 74
 75
    # Counts and means by occupation
 76
    atus.anytime.occ.totals <- atus %>%
      filter(fulltime & workday & homeworkers & wageworkers) %>%
 77
      group by(year, occupation) %>%
 78
 79
      summarise(
 80
         n = sum(WT06) / ANNUAL_WORKDAYS,
         mean.mins = sum(workingfromhome * WT06) / sum(WT06)
 81
 82
      )
 83
    write csv(atus.anytime.occ.totals, "results/atus.anytime.occ.totals.csv")
 84
 85
    # Compute share of employees that worked at home for any time by industry
 86
    atus.anytime.occ.shares <- atus %>%
 87
      filter(fulltime & workday & wageworkers) %>%
 88
 89
      group by(year, occupation, homeworkers) %>%
      summarise(
 90
         n = sum(WT06) / ANNUAL WORKDAYS
 91
 92
      ) %>%
 93
      mutate(
 94
         share = n / sum(n)
 95
      )
 96
    write csv(atus.anytime.occ.shares, "results/atus.anytime.occ.shares.csv")
97
98
    # Count of fullday homeworkers by occupation
99
     atus.fullday.occ.totals <- atus %>%
100
      filter(fulltime & workday & homeworkers.fullday & wageworkers) %>%
101
      group_by(year, occupation) %>%
102
103
      summarise(
104
         n = sum(WT06) / ANNUAL WORKDAYS
105
106
    write csv(atus.fullday.occ.totals, "results/atus.fullday.occ.totals.csv")
107
108
    # Create 3-year pooled ATUS data
109
     atus.pooled <- atus %>%
110
      filter(FALSE)
111
112
```

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```
113
    atus.pooled <- cbind(pool.year = character(), atus.pooled)</pre>
114
115
    for (year in 2004:2014) {
       for (y in (year - 1):(year + 1)) {
116
117
         temp <- atus %>%
118
           filter(year == y)
119
120
        temp <- cbind(pool.year = as.character(year), temp)</pre>
121
122
         atus.pooled <- rbind(atus.pooled, temp)</pre>
123
       }
124
     }
125
126
    atus.pooled$pool.year <- as.factor(atus.pooled$pool.year)</pre>
127
128
     # Pooled count and means for all employees that worked at home for any time
     atus.pooled.anytime.totals <- atus.pooled %>%
129
130
       filter(fulltime & workday & homeworkers & wageworkers) %>%
131
       group by(pool.year) %>%
132
       summarise(
         n = sum(WT06) / (ANNUAL WORKDAYS * 3),
133
         mean.mins = sum(workingfromhome * WT06) / sum(WT06)
134
      )
135
136
137
    write_csv(atus.pooled.anytime.totals, "results/atus.pooled.anytime.totals.csv")
138
139
    # Pooled counts and means by occupation
    atus.pooled.anytime.occ.totals <- atus.pooled %>%
140
      filter(fulltime & workday & homeworkers & wageworkers) %>%
141
142
       group by(pool.year, occupation) %>%
143
       summarise(
         n = sum(WT06) / (ANNUAL WORKDAYS * 3),
144
         mean.mins = sum(workingfromhome * WT06) / sum(WT06)
145
      )
146
147
    write csv(atus.pooled.anytime.occ.totals, "results/atus.pooled.anytime.occ.totals.csv")
148
149
```