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1 library(readr)
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:
10 # https://www.bls.gov/tus/atususersguide.pdf
11
12 # Average number of non-holiday weekdays each year
13 ANNUAL_WORKDAYS = 251
14
15 # Read ATUS export
16 atus <- read_csv("atus_00006.csv", col_types="ciidiid")
17
18 # Convert years to a factor
19 atus$year <- as.factor(atus$YEAR)
20
21 # Flag for non-holiday weekdays
22 atus$workday <- (atus$DAY >= 2 & atus$DAY <= 6 & atus$HOLIDAY == 0)
23
24 # Flag for those that worked at home at all
25 atus$homeworkers <- (atus$workingfromhome > 0)
26
27 # Flag for those that worked at least 7 hours at home (~ 35 hours a week)
28 atus$homeworkers.fullday <- (atus$workingfromhome >= 420)
29
30 # Flag for wage-workers (not self-employed)
31 atus$wageworkers <- (atus$CLWKR <= 5)
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")
38
39 # Join descriptions
40 atus <- atus %>%
41   left_join(occ2, by = c("OCC2" = "occ2")) %>%
42   rename(occupation = description)
43
44 # Counts and means for all employees by homemaker or not
45 atus.totals <- atus %>%
46   filter(fulltime & workday & wageworkers) %>%
47   group_by(year, homeworkers.fullday) %>%
48   summarise(
49     n = sum(WT06) / ANNUAL_WORKDAYS
50   )
51
52 write_csv(atu.s.totals, "results/atus.totals.csv")
53
54 # Count and means for all employees that worked at home for any time
55 atus.anytime.totals <- atus %>%

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

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