```
state_ts <- function(data, state_ts, column='guns_sold', outer_zeros_to_na=TRUE) {</pre>
 1
 2
       d <- data %>%
 3
             filter(state == state_ts & (year >= 2000)) %>%
 4
             arrange(year, month.num) %>%
 5
             select_('year', month='month.num', value=column)
       # d$value[d$value == 0] <- NA
 6
 7
       series <- ts(d$value, start=c(d$year[1],d$month[1]), end=c(last(d$year),</pre>
    last(d$month)), frequency = 12)
 8
       if (outer_zeros_to_na) series <- replace_outer_zeros(series)</pre>
 9
       series
10
    }
11
12
    ts to dataframe <- function(t, value.name='value') {
        df <- data.frame(year=as.numeric(floor(time(t))),</pre>
13
14
                    month=as.numeric(round(1+(time(t) - floor(time(t))) * 12)),
15
                    value=as.matrix(t))
16
        colnames(df) <- c('year', 'month', value.name)</pre>
17
        df
18
    }
19
20
    state data <- function(all, state , total, total.seas,</pre>
21
                             normalize=T, adj_seasonal=T, column='guns_sold') {
22
        state <- state_ts(all, state_, column)</pre>
23
        if (adj seasonal) {
24
             pct <- seas(state) %>% final()
25
             if (normalize) pct <- pct / total.seas * 100</pre>
26
        } else {
27
             if (normalize) pct <- state / total * 100</pre>
28
             else pct <- state</pre>
29
        }
30
        pct
31
    }
32
33
34
    replace_outer_zeros <- function(x) {</pre>
35
        for(i in 1:length(x)){
36
             if(x[i] != 0) break
37
             if(x[i] == 0) x[i] \leftarrow NA
38
39
        for(i in length(x):1){
             if(x[i] != 0) break
40
41
             if(x[i] == 0) x[i] \leftarrow NA
42
        }
43
        Х
44
    }
45
    # d <- state ts(all, 'Louisiana', 'permit')</pre>
46
47
48
    df2ts <- function(df, col) {</pre>
49
        stopifnot(inherits(df, "data.frame"),
50
51
                    "year" %in% colnames(df),
52
                    "month" %in% colnames(df),
53
                   col %in% colnames(df))
54
        ts(df[, col], start=c(df[1,"year"], df[1,"month"]), frequency=12)
```

56 } 57