Phillips Graph

2022-10-18

```
fredRaw = read.csv("fredgraph.csv")
```

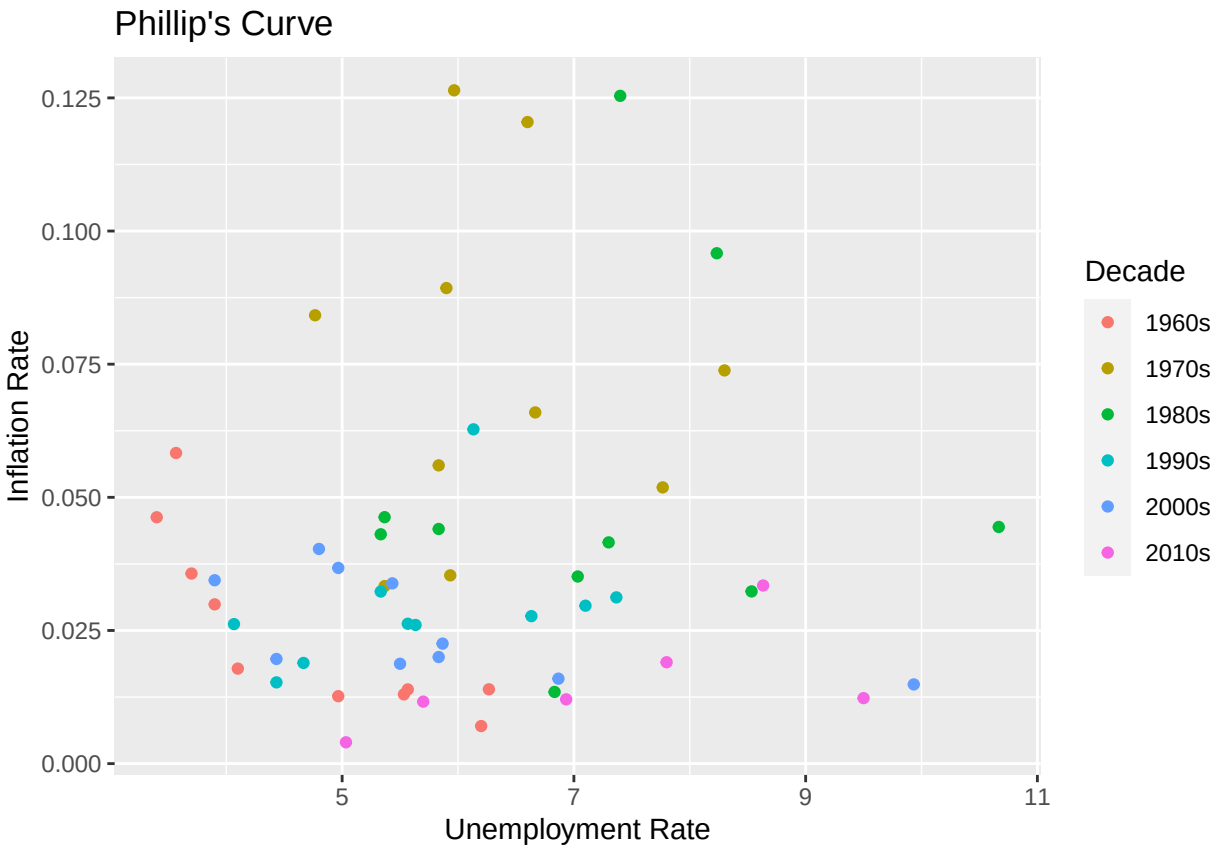
```
fred <- fredRaw %>%
  mutate(year = as.numeric(strtrim(DATE, 4)),
         month = as.numeric(substring(DATE, 6, 7))) %>%
  filter(year >= 1959) %>%
  filter(month == 10) %>%
  transform(prev_cpi = c(NA, CPIAUCSL[-length(CPIAUCSL)])) %>%
  mutate(
    cpi_change = (CPIAUCSL - prev_cpi) / prev_cpi,
    dec = substr(DATE, 1, 3),
    ade = "0s",
    decade = paste(dec, ade, sep = "")
  ) %>%
  filter(year >= 1960) %>%
  mutate(unemployment = as.double(UNRATE))

fred %>%
  summarise(year, unemployment, cpi_change)
```

```
##    year unemployment  cpi_change
## 1  1960     6.266667 0.013959823
## 2  1961     6.200000 0.007051713
## 3  1962     5.533333 0.013004335
## 4  1963     5.566667 0.013934606
## 5  1964     4.966667 0.012660967
## 6  1965     4.100000 0.017845694
## 7  1966     3.700000 0.035695538
## 8  1967     3.900000 0.029903700
## 9  1968     3.400000 0.046259843
## 10 1969     3.566667 0.058325494
## 11 1970     5.833333 0.056000000
## 12 1971     5.933333 0.035353535
## 13 1972     5.366667 0.033333333
## 14 1973     4.766667 0.084185681
## 15 1974     6.600000 0.120464441
## 16 1975     8.300000 0.073834197
## 17 1976     7.766667 0.051869723
## 18 1977     6.666667 0.065940367
## 19 1978     5.900000 0.089295320
## 20 1979     5.966667 0.126419753
## 21 1980     7.400000 0.125383604
## 22 1981     8.233333 0.095831710
## 23 1982    10.666667 0.044436545
## 24 1983     8.533333 0.032334922
```

```
## 25 1984     7.300000 0.041543027
## 26 1985     7.033333 0.035137702
## 27 1986     6.833333 0.013455657
## 28 1987     5.833333 0.044055522
## 29 1988     5.333333 0.043063584
## 30 1989     5.366667 0.046273206
## 31 1990     6.133333 0.062764831
## 32 1991     7.100000 0.029653626
## 33 1992     7.366667 0.031219748
## 34 1993     6.633333 0.027693030
## 35 1994     5.633333 0.026033341
## 36 1995     5.566667 0.026263076
## 37 1996     5.333333 0.032314032
## 38 1997     4.666667 0.018907563
## 39 1998     4.433333 0.015257732
## 40 1999     4.066667 0.026198213
## 41 2000     3.900000 0.034434989
## 42 2001     5.500000 0.018748804
## 43 2002     5.866667 0.022535211
## 44 2003     5.833333 0.020018365
## 45 2004     5.433333 0.033849478
## 46 2005     4.966667 0.036746778
## 47 2006     4.433333 0.019653956
## 48 2007     4.800000 0.040311367
## 49 2008     6.866667 0.015958028
## 50 2009     9.933333 0.014876564
## 51 2010     9.500000 0.012297839
## 52 2011     8.633333 0.033447277
## 53 2012     7.800000 0.019035678
## 54 2013     6.933333 0.012073049
## 55 2014     5.700000 0.011640056
## 56 2015     5.033333 0.004004700
```

```
fred %>%
  ggplot(aes(x = unemployment, y = cpi_change, color = decade)) +
  geom_point() +
  labs(
    title = "Phillip's Curve",
    x = "Unemployment Rate",
    y = "Inflation Rate",
    color = "Decade"
)
```


Phillip's Curve
0.125
0.100
0.075
0.050
0.025
0.000
Inflation Rate
5
7
9
11
Unemployment Rate
Decade
1960s
1970s
1980s
1990s
2000s
2010s