BST270_Final_Proj

2025-01-22

Reproducing "Marriage Isn't Dead — Yet" Figures

Data are available via on the FiveThirtyEight GitHub (https://github.com/fivethirtyeight/data/tree/master/marriage). First we load the data:

```
# read in data
both_sexes_df <- read.csv("./data/both_sexes.csv")
divorce_df <- read.csv("./data/divorce.csv")
women_df <- read.csv("./data/women.csv")
```

Next we simplify dataframes by removing unneeded columns (ie. columns unrelated to education level and race/ethnicity). We also drop na entries and convert divorce rates to marriage rates.

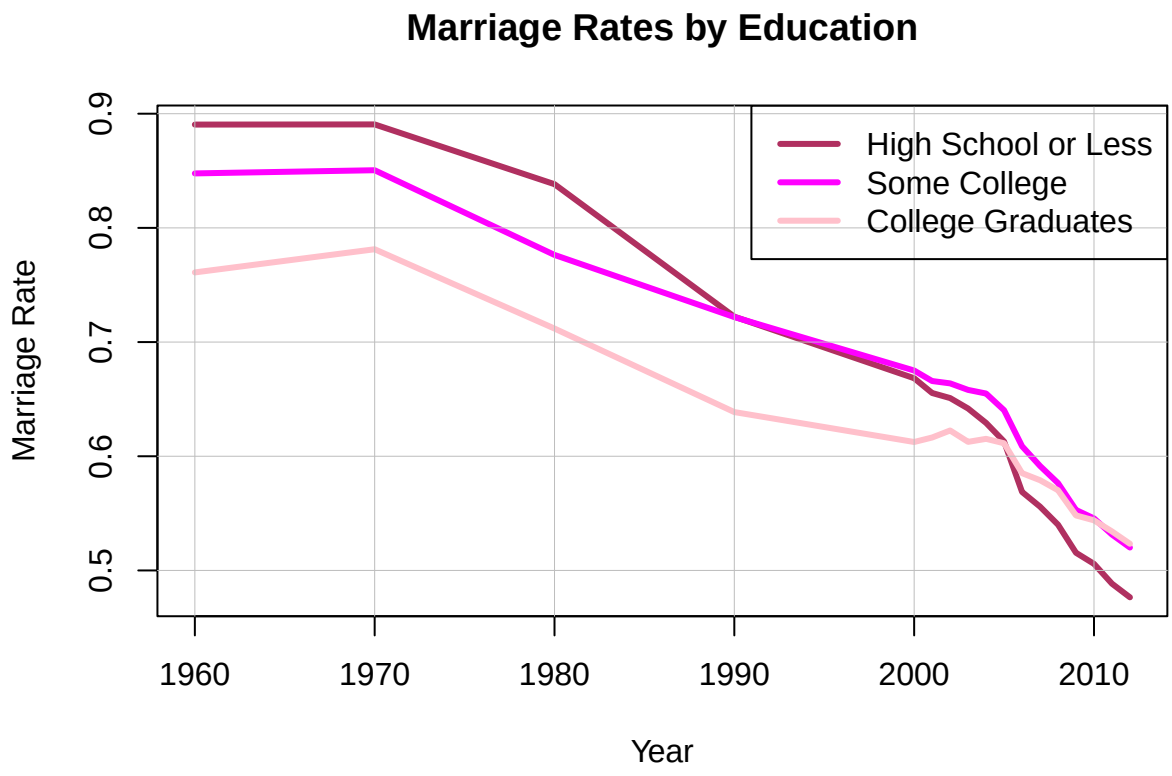
The columns we use are `HS_2534 - High school graduate or less (EDUCD < 65), age between 25 and 34`, `SC_2534 - Some college (EDUCD >= 65 & <= 100), age between 25 and 34`, and `BAp_2534 - Bachelor's degree or more (EDUCD > 100), age between 25 and 34` for the education plot and `White_2534 - Non-Hispanic white, age between 25 and 34`, `Black_2534 - Black or African-American, age between 25 and 34`, and `Hisp_2534 - Hispanic of any race` for the race/ethnicity plot.

```
# Filter both_sexes.csv

# Education
both_sexes_edu_filt_df <- both_sexes_df[, c("year", "HS_2534",
                                            "SC_2534", "BAp_2534")]
# remove na's from HS_2534, SC_2534, BAp_2534 columns
both_sexes_edu_filt_df <- both_sexes_edu_filt_df[!is.na(both_sexes_edu_filt_df$HS_2534) |
                                                   !is.na(both_sexes_edu_filt_df$SC_2534) |
                                                   !is.na(both_sexes_edu_filt_df$SC_2534),]
# convert to marriage rates
both_sexes_edu_filt_df$HS_2534 <- 1- both_sexes_edu_filt_df$HS_2534
both_sexes_edu_filt_df$SC_2534 <- 1- both_sexes_edu_filt_df$SC_2534
both_sexes_edu_filt_df$BAp_2534 <- 1- both_sexes_edu_filt_df$BAp_2534

# Race & Ethnicity
both_sexes_race_eth_filt_df <- both_sexes_df[, c("year", "White_2534",
                                                 "Black_2534", "Hisp_2534")]
# remove na's from HS_2534, SC_2534, BAp_2534 columns
both_sexes_race_eth_filt_df <- both_sexes_race_eth_filt_df[
                                  !is.na(both_sexes_race_eth_filt_df$White_2534) |
                                  !is.na(both_sexes_race_eth_filt_df$Black_2534) |
                                  !is.na(both_sexes_race_eth_filt_df$Hisp_2534),]
# convert to marriage rates
both_sexes_race_eth_filt_df$White_2534 <- 1- both_sexes_race_eth_filt_df$White_2534
```

```
both_sexes_race_eth_filt_df$Black_2534 <- 1- both_sexes_race_eth_filt_df$Black_2534
both_sexes_race_eth_filt_df$Hisp_2534 <- 1- both_sexes_race_eth_filt_df$Hisp_2534
```

Figure 1: Marriage Rates by Education and Race - Ages 25-34

```
# Plot Marriage Rates for Education Level
matplot(both_sexes_edu_filt_df$year, cbind(both_sexes_edu_filt_df$HS_2534,
                                           both_sexes_edu_filt_df$SC_2534,
                                           both_sexes_edu_filt_df$BAp_2534),
        type = "l", lty = 1,lwd=3,
        col = c("maroon", "magenta", "pink"), xlab = "Year",
        ylab = "Marriage Rate", main = "Marriage Rates by Education")
grid(nx = NULL, ny = NULL,
     lty = 1,
     col = "gray",
     lwd = 0.5)
legend("topright", legend = c("High School or Less", "Some College",
                              "College Graduates"),
       col = c("maroon", "magenta", "pink"),
       lty = 1, lwd=3)
```



```r
matplot(both_sexes_race_eth_filt_df$year, cbind(both_sexes_race_eth_filt_df$White_2534,
                                                both_sexes_race_eth_filt_df$Black_2534,
                                                both_sexes_race_eth_filt_df$Hisp_2534),
        type = "l", lty = 1,lwd=3,
        col = c("forestgreen", "darkgreen", "lightgreen"), xlab = "Year",
        ylab = "Marriage Rate", main = "Marriage Rates by Race")
grid(nx = NULL, ny = NULL,
     lty = 1,
     col = "gray",
     lwd = 0.5)
legend("topright", legend = c("Non-hispanic White", "Black", "Hispanic"),
       col = c("forestgreen", "darkgreen", "lightgreen"),
       lty = 1, lwd=3)
```

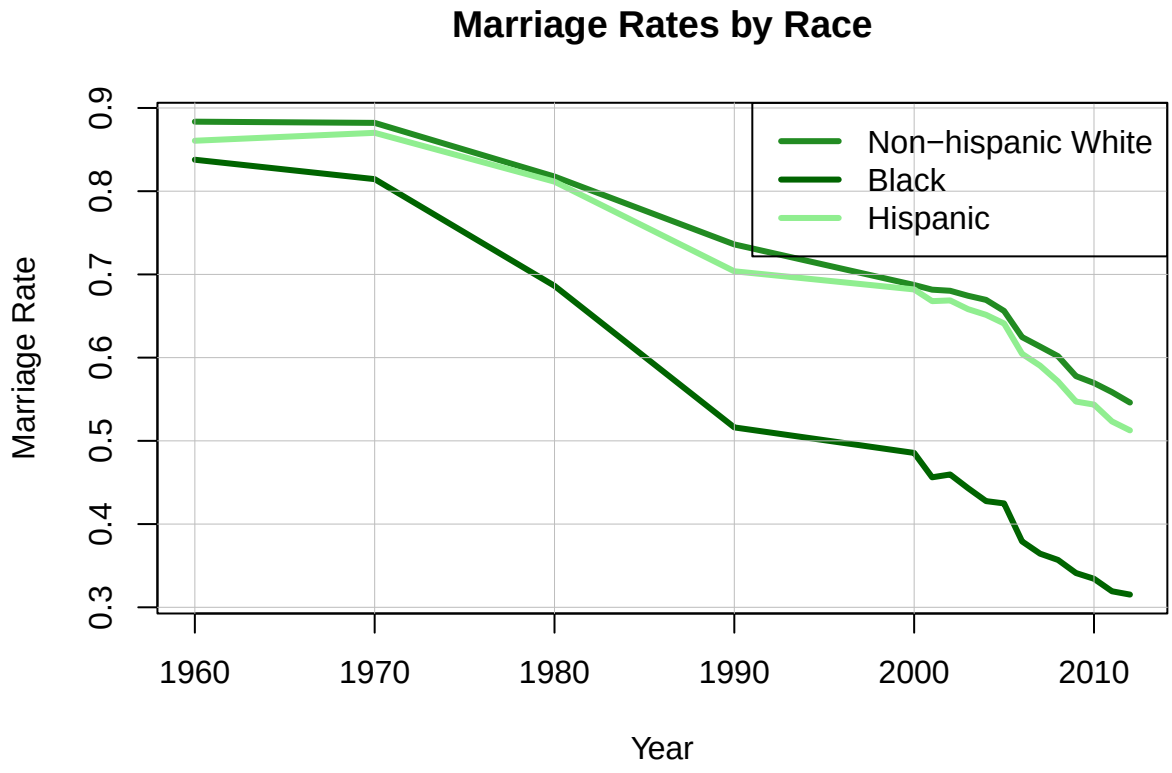
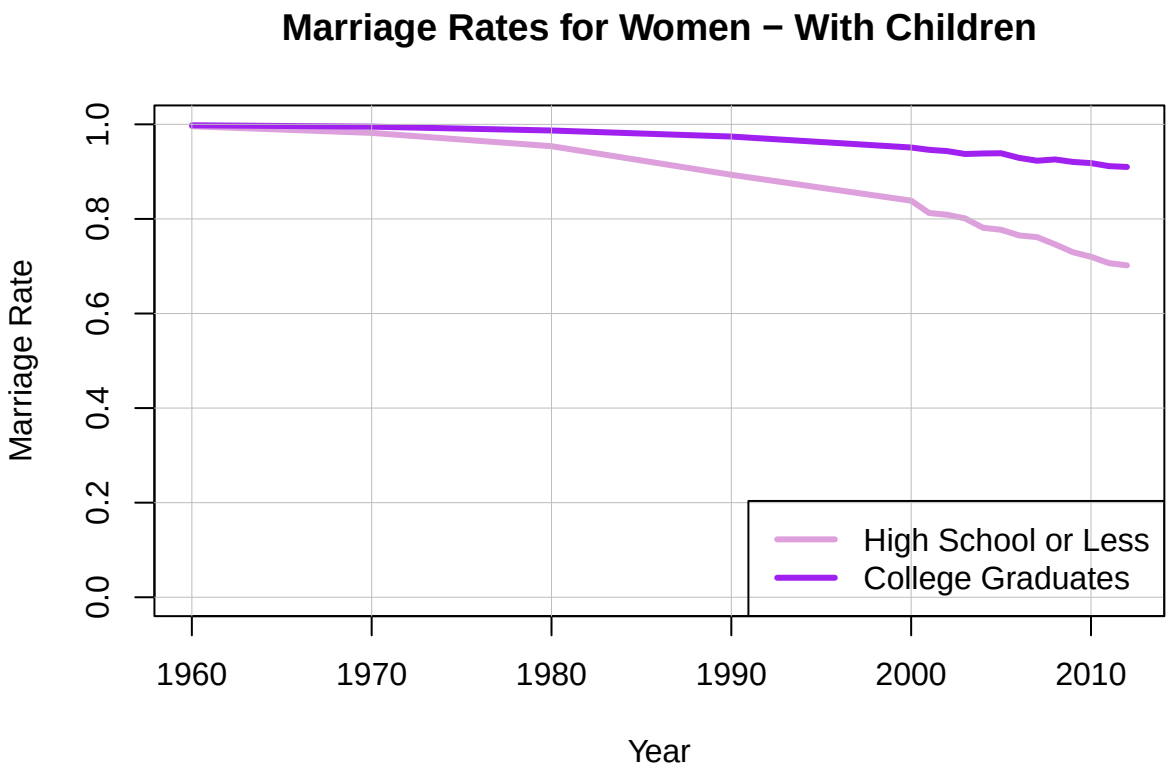


Figure 3: Marriage Rates for Women by Education - Ages 25-34

```r
# Filter women.csv

# With Children
women_df_with_children <- women_df[, c("year", "kids_HS_2534", "kids_BAp_2534")]

# remove na's from kids_HS_2534 and kids_BAp_2534 columns
women_df_with_children <- women_df_with_children[!is.na(women_df_with_children$kids_HS_2534) |
```

```
                                                    !is.na(women_df_with_children$kids_BAp_2534),]
# convert to marriage rates
women_df_with_children$kids_HS_2534 <- 1- women_df_with_children$kids_HS_2534
women_df_with_children$kids_BAp_2534 <- 1 - women_df_with_children$kids_BAp_2534


# Without Children
women_df_without_children <- women_df[, c("year", "nokids_HS_2534", "nokids_BAp_2534")]

# remove na's from nokids_HS_2534 and nokids_BAp_2534 columns
women_df_without_children <- women_df_without_children[
                              !is.na(women_df_without_children$nokids_HS_2534) |
                              !is.na(women_df_without_children$nokids_BAp_2534),]
# convert to marriage rates
women_df_without_children$nokids_HS_2534 <- 1- women_df_without_children$nokids_HS_2534
women_df_without_children$nokids_BAp_2534 <- 1 - women_df_without_children$nokids_BAp_2534
```

```
# With Children
matplot(women_df_with_children$year, cbind(women_df_with_children$kids_HS_2534,
                                           women_df_with_children$kids_BAp_2534),
        type = "l", lty = 1,lwd=3,
        col = c("plum", "purple"), xlab = "Year",
        ylab = "Marriage Rate", main = "Marriage Rates for Women - With Children",
        ylim = c(0,1))
grid(nx = NULL, ny = NULL,
     lty = 1,
     col = "gray",
     lwd = 0.5)
legend("bottomright", legend = c("High School or Less",
                                 "College Graduates"),
       col = c("plum", "purple"),
       lty = 1, lwd=3)
```




```
# Without Children
matplot(women_df_without_children$year, cbind(women_df_without_children$nokids_HS_2534,
                                               women_df_without_children$nokids_BAp_2534),
        type = "l", lty = 1,lwd=3,
        col = c("plum", "purple"), xlab = "Year",
        ylab = "Marriage Rate", main = "Marriage Rates for Women - Without Children",
        ylim = c(0,1))
grid(nx = NULL, ny = NULL,
     lty = 1,
     col = "gray",
     lwd = 0.5)
legend("bottomright", legend = c("High School or Less",
                                 "College Graduates"),
       col = c("plum", "purple"),
       lty = 1, lwd=3)
```

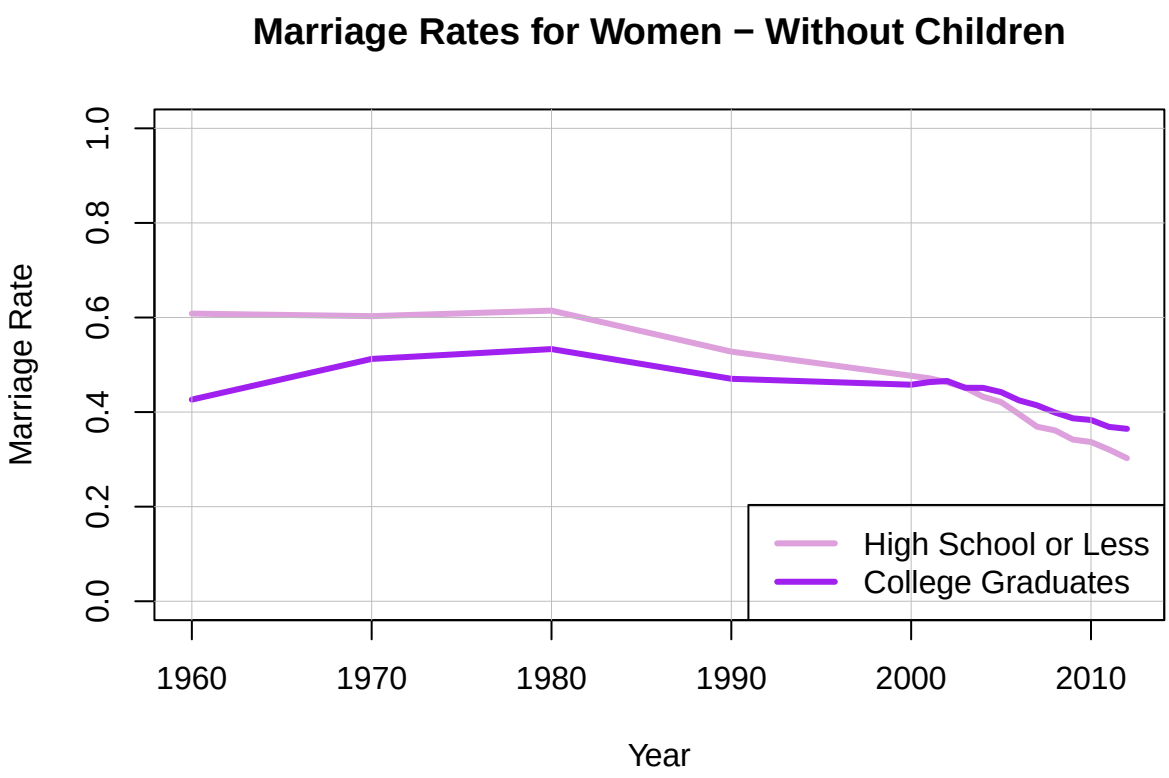


Figure 4:

Divorce Rates by Education

```
# Divorce rates
divorce_edu_df <- divorce_df[,c("year", "HS_3544", "SC_3544", "BAp_3544")]
divorce_edu_df <- divorce_edu_df[
                      !is.na(divorce_edu_df$HS_3544) |
                      !is.na(divorce_edu_df$SC_3544) |
                      !is.na(divorce_edu_df$BAp_3544) ,]
```

```
# Divorce Plot
matplot(divorce_edu_df$year, cbind(divorce_edu_df$HS_3544,
                                   divorce_edu_df$SC_3544,
                                   divorce_edu_df$BAp_3544),
        type = "l", lty = 1,lwd=3,
        col = c("turquoise", "blue", "lightblue"), xlab = "Year",
        ylab = "Divorce Rate", main = "Divorce Rates by Education - Ages 35-44",
        ylim = c(0,0.25))
grid(nx = NULL, ny = NULL,
     lty = 1,
     col = "gray",
     lwd = 0.5)
legend("topleft", legend = c("High School or Less",
```

```
                                "Some College",
                                "College Graduates"),
       col = c("turquoise", "blue", "lightblue"),
       lty = 1, lwd=3)
```