SMPE assignment, Improve a Graph

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Original Graph

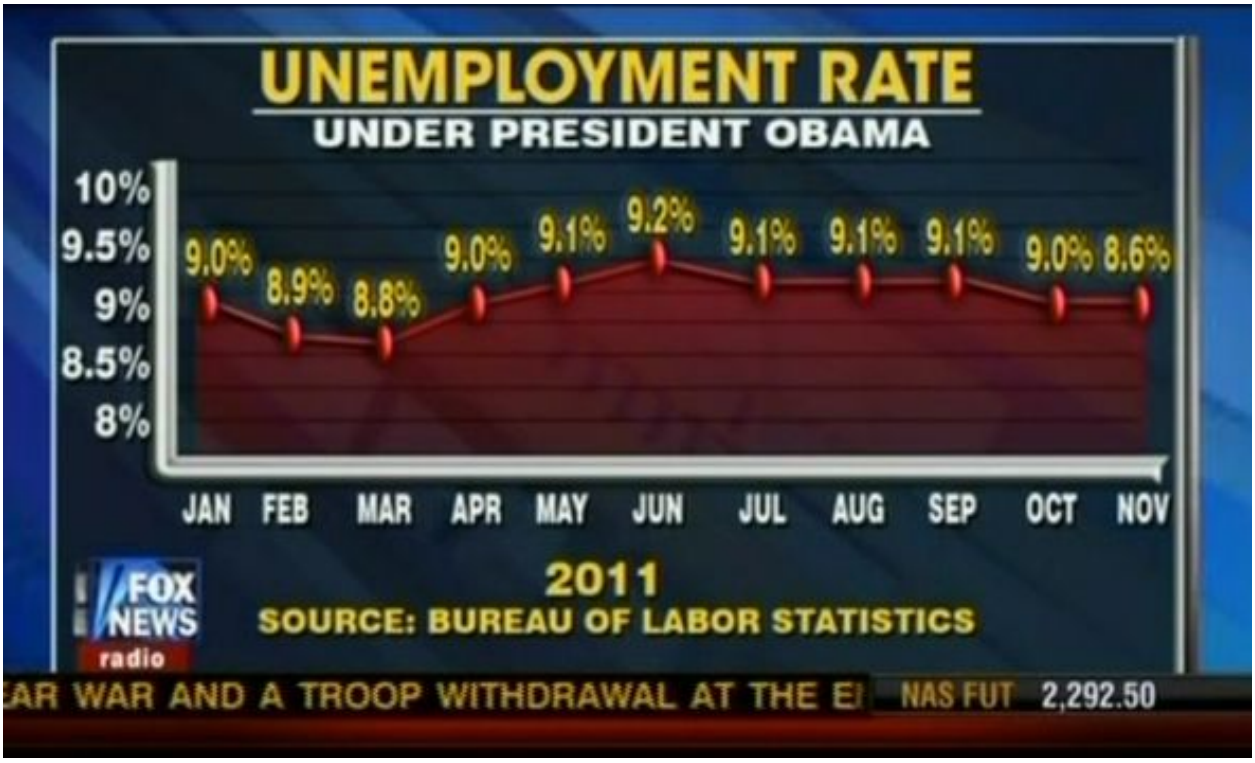


Figure 1: Unemployement Rate in US (2011)

In this paper we will discuss a graph shown above, which is taken from a news by foxnews.com. The purpose of this graph is to show the monthly unemployment rate growth in the United States from January until November 2011.

Comments on the Graph

1. The first thing we noticed is that on November 2011, the value 8.6% is incorrectly plotted as 9.0%. Even though this is a trivial error, it's very misleading.
2. It may already obvious for most people, but it's may be better to add labels for the x-axis and y-axis.
3. It is true that there is no country with 0% unemployment rate, however 8% is considered too high as the minimum value. Also 10% is too low for the maximum value of y-axis. According to https://www.theglobaleconomy.com/rankings/unemployment_outlook/ in 2011 the highest unemployment rate is about 30%, and a country unemployment rate can get as low as below 1%. When the range of y-axis is to small, it makes the unemployment rate seems to be unstable.

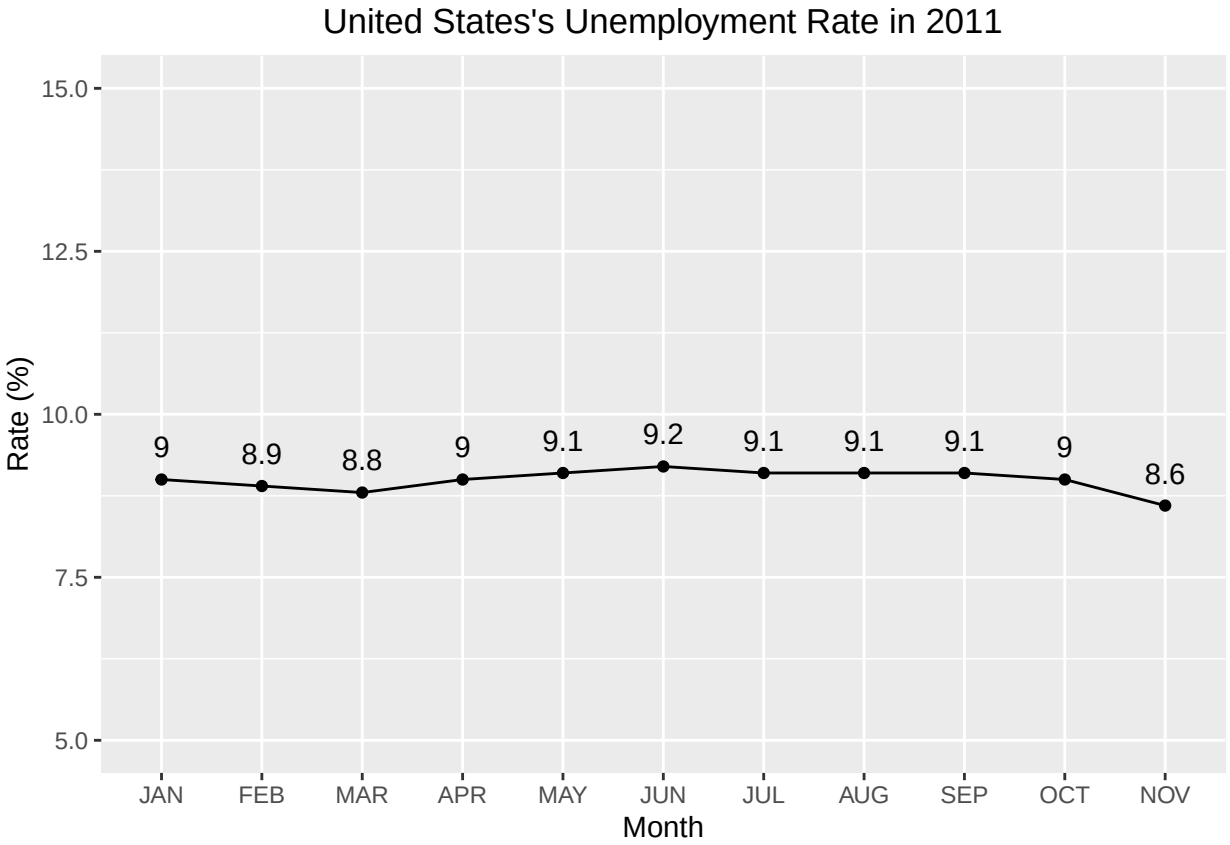
4. Rather than putting "%" all over the graph, it is better to be informed in the label of y-axis.
5. The use of the color red is making the audiences perceive the displayed numbers as high values (indicates a crisis).

Building the Graph with ggplot2

We will build our graph according to the data shown on the original graph and some improvements correspond to the comments.

1. Correct placement for unemployment rate in November.
2. We add appropriate labels for both x and y axis.
3. As we have mentioned in the comments it is necessary to change the range of unemployment rate, therefore we will use 15% as maximum value and 5% as minimum value.
4. Remove the '%' in the data points and place it together with the corresponding label.
5. The use of red area below the lines is unnecessary thus we remove it. Then, for the line and points we use black, which is more neutral.

```
# Build the data frame
df <- data.frame(
  Month=c("JAN", "FEB", "MAR", "APR", "MAY", "JUN", "JUL", "AUG", "SEP", "OCT", "NOV"),
                Rate=c(9.0, 8.9, 8.8, 9.0, 9.1, 9.2, 9.1, 9.1, 9.1, 9.0, 8.6)
  )
# Plot the data using ggplot2
library(ggplot2)
p <- ggplot(
  data=df,
  aes(x=factor(Month,
    level=c("JAN", "FEB", "MAR", "APR", "MAY", "JUN", "JUL", "AUG", "SEP", "OCT", "NOV")),
    y=Rate, group=1))+geom_line()+geom_text(aes(label=Rate), nudge_y = 0.5)+
    geom_point()+ylim(5.0, 15.0)+ggtitle("United States's Unemployment Rate in 2011")+
    theme(plot.title = element_text(hjust = 0.5))
p + labs(x = "Month", y = "Rate (%)")
```



Conclusion

After some appropriate modifications, we can see now that actually the unemployment is more or less stable and even decreasing at the end of the year. Even though it seems to be less appealing, we can consider that this presentation is more relevant.