

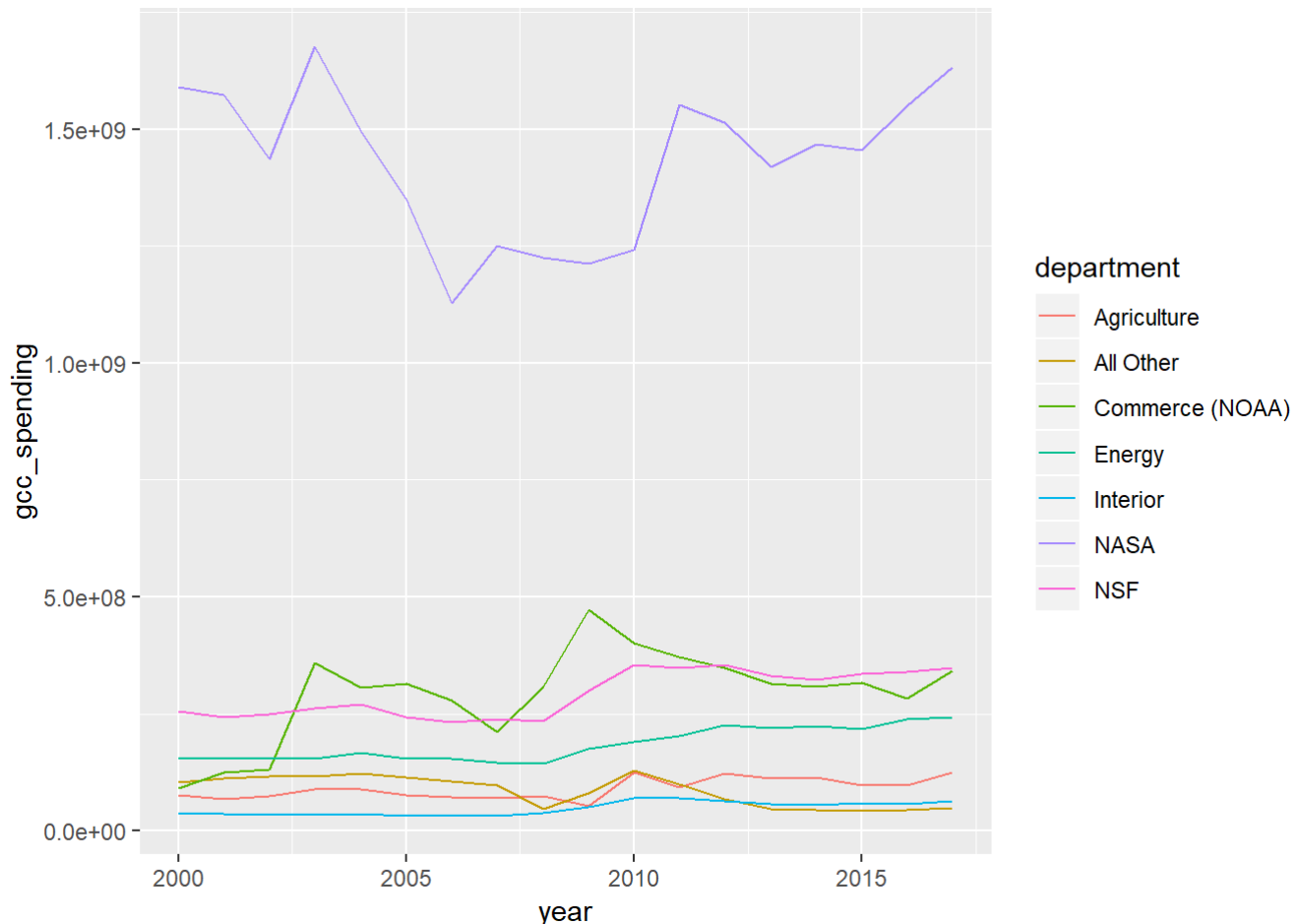
Assignment3

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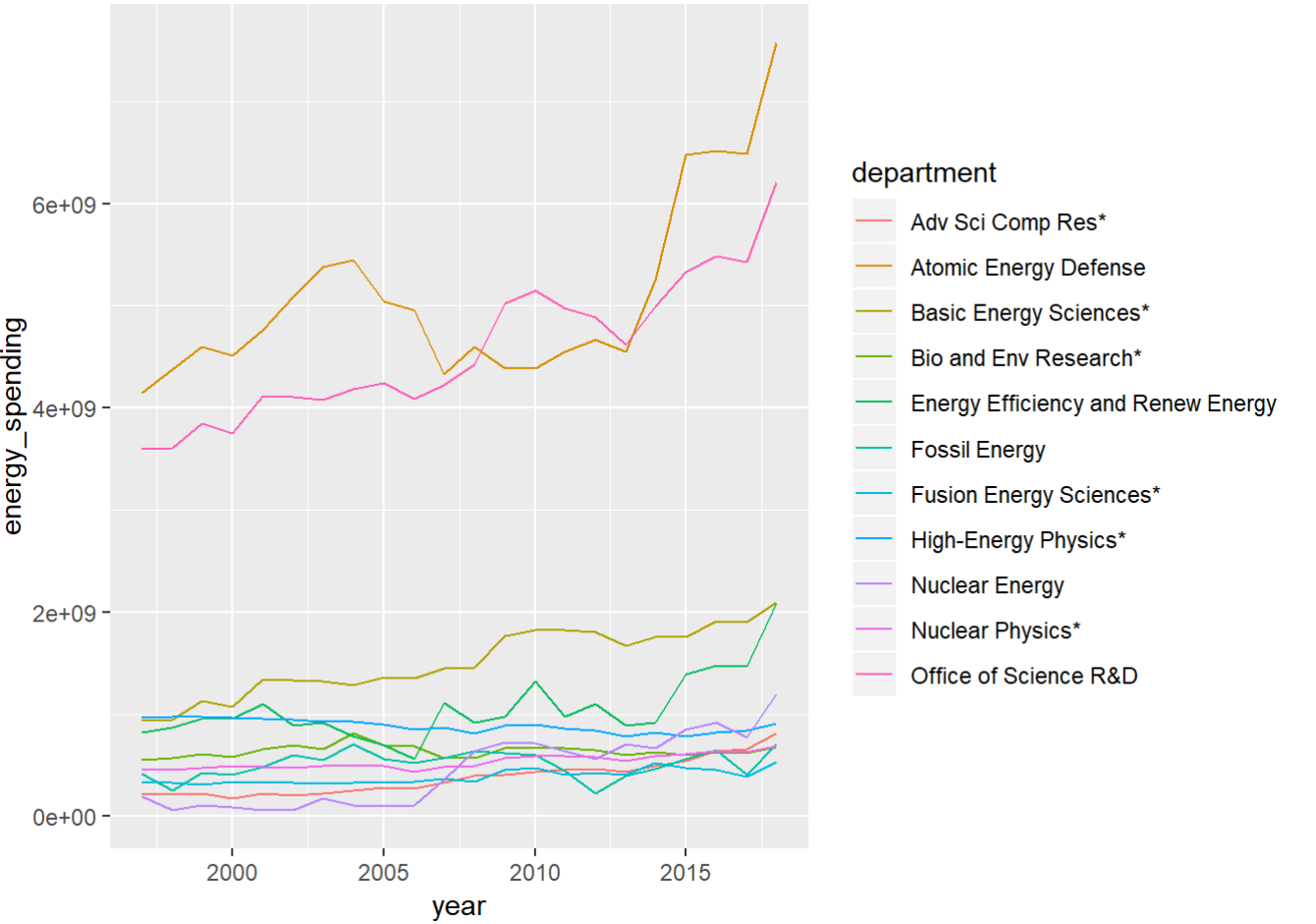
Homework 3 - Investigate the data

This is the report for the investigation of the data. I first plotted the data of the gcc spending of different departments in different year.

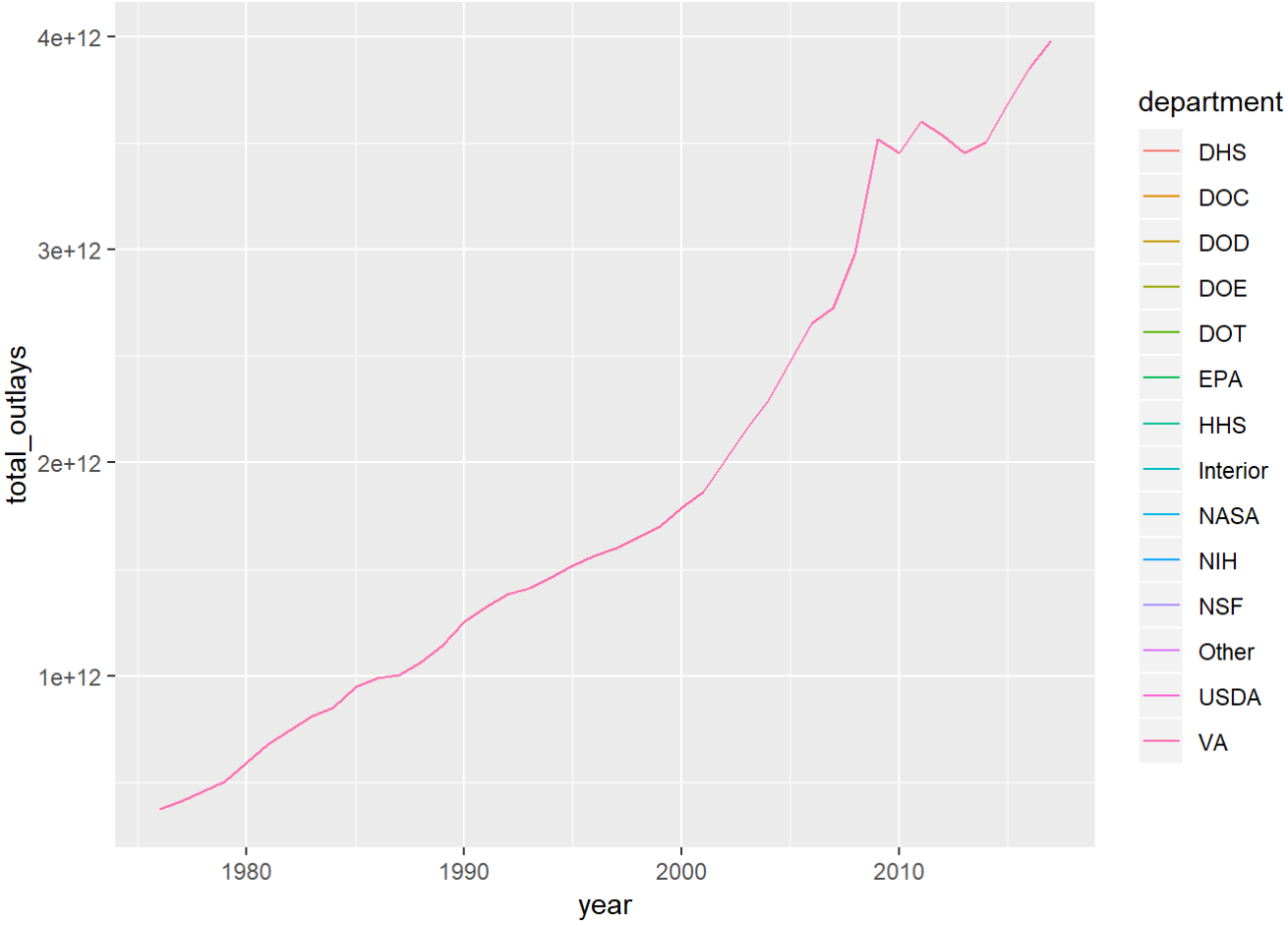
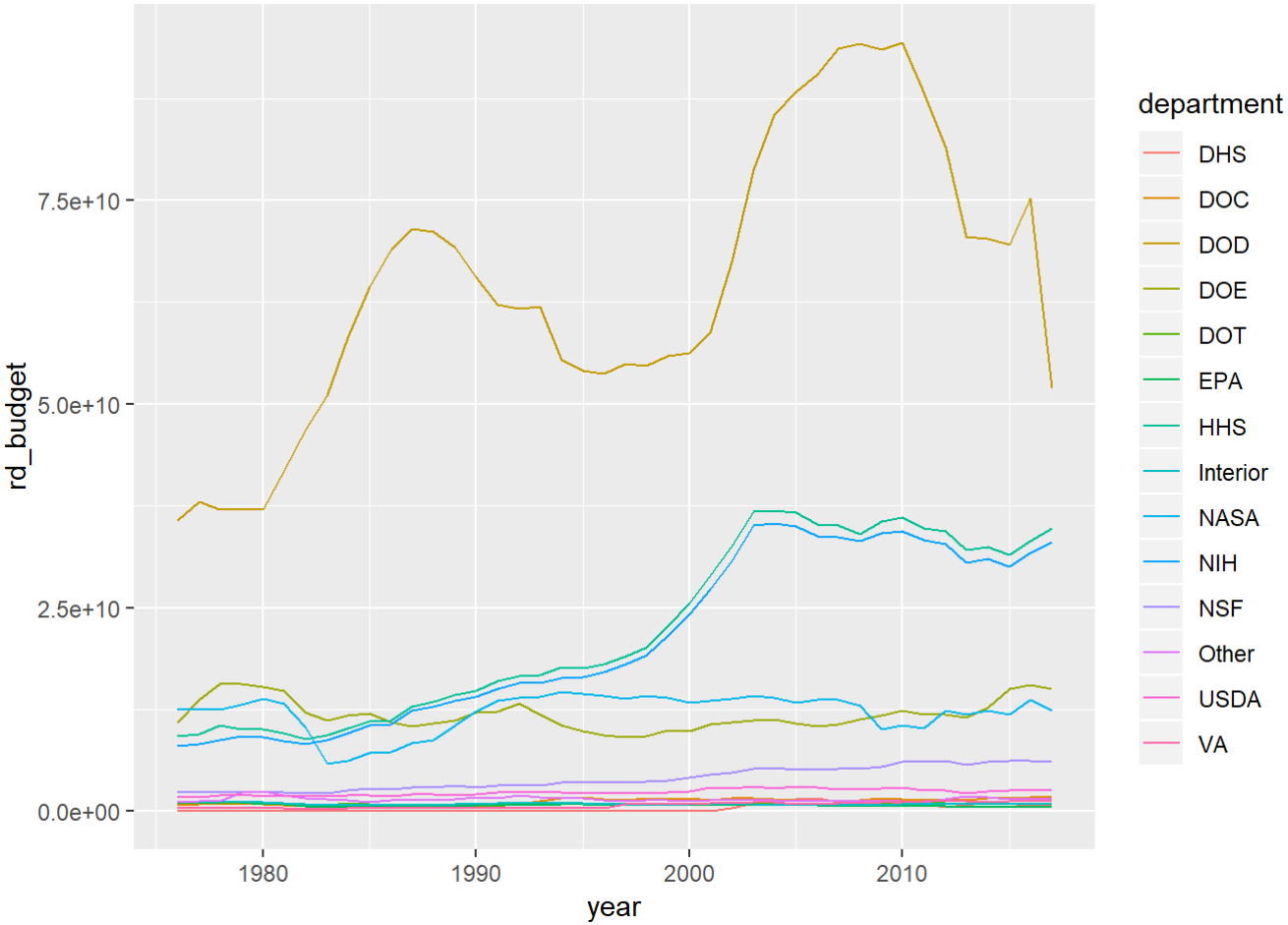


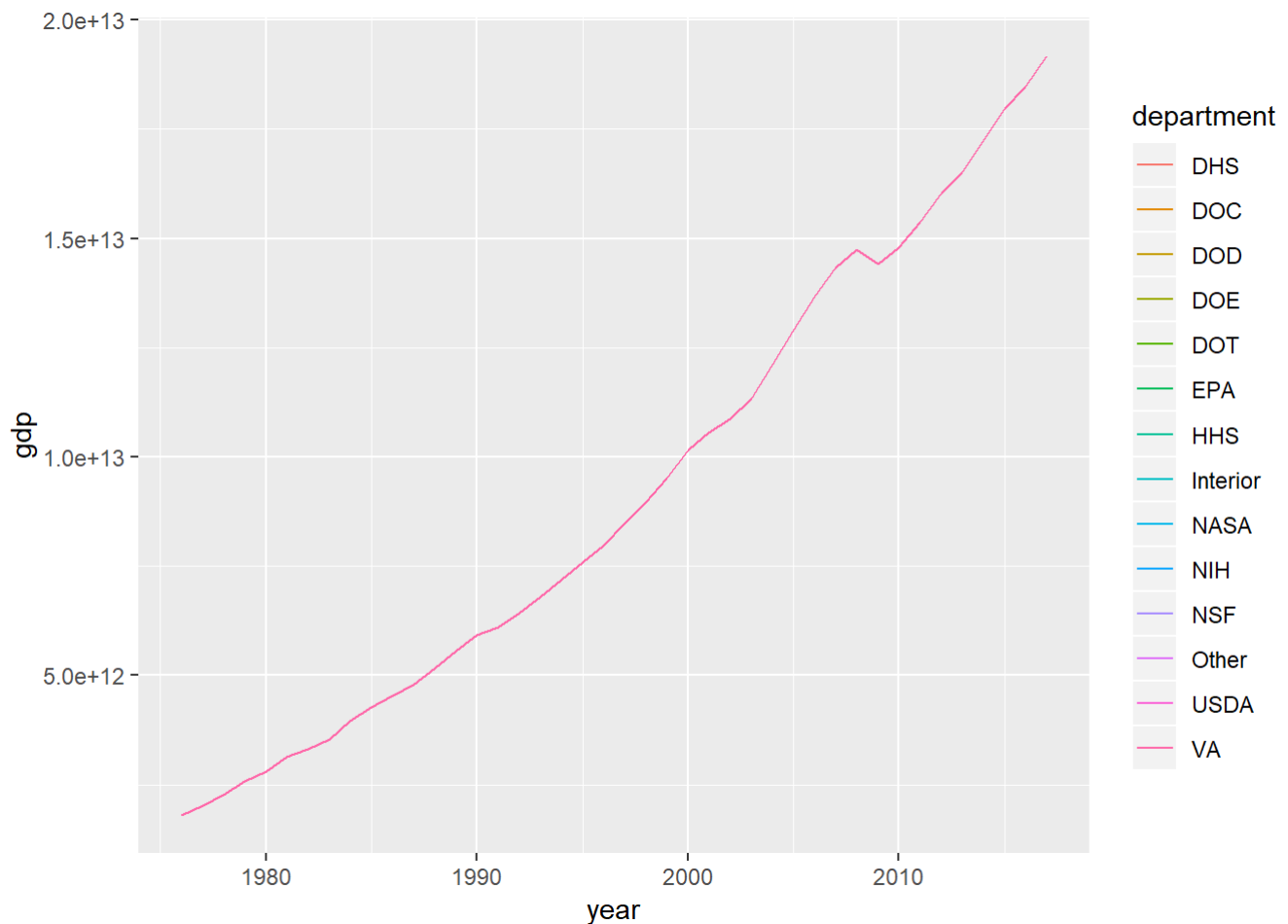
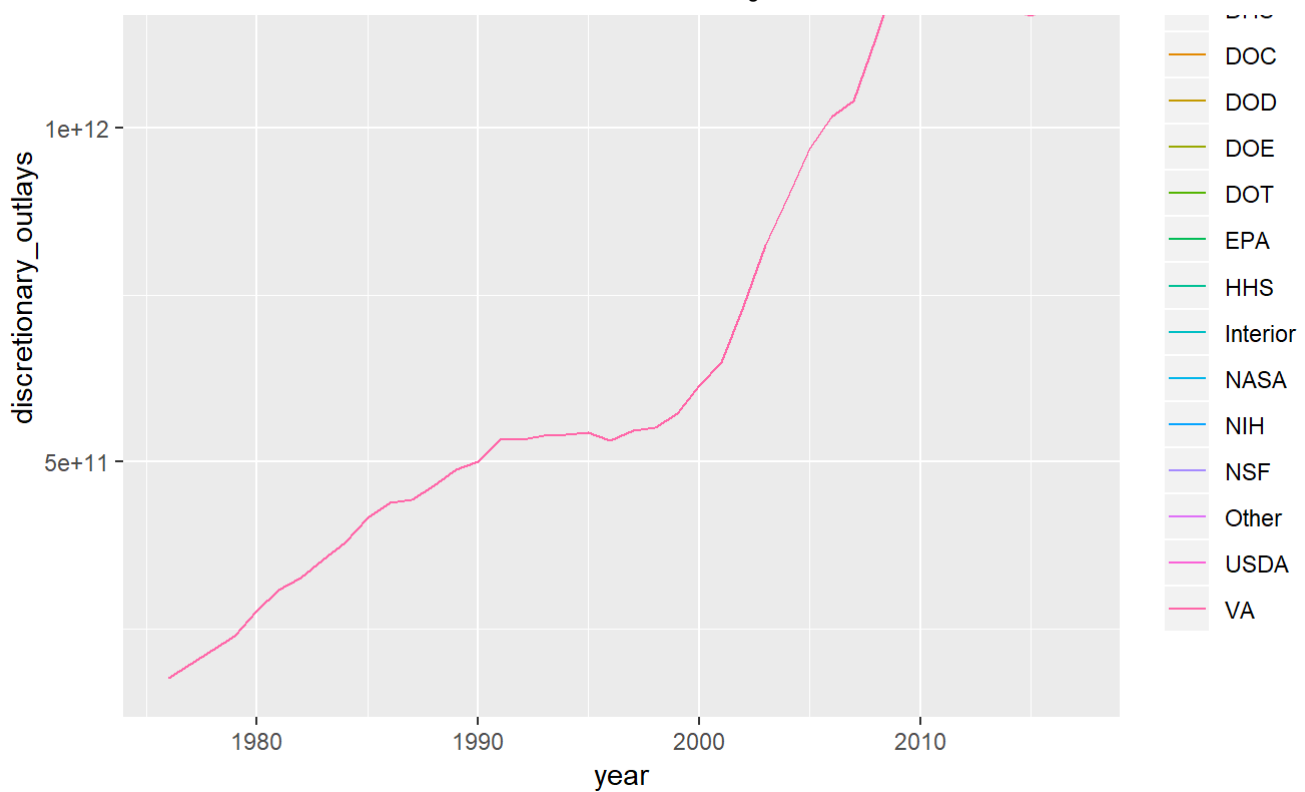
The plot shows that the gcc_spending varies of the department NASA, NSF, Commerce(NOAA). Overall, the gcc_spending increases along with the year.

The next plot shows the energy spending of the department across the years.



The next plots show the data of the fed of departments across the years

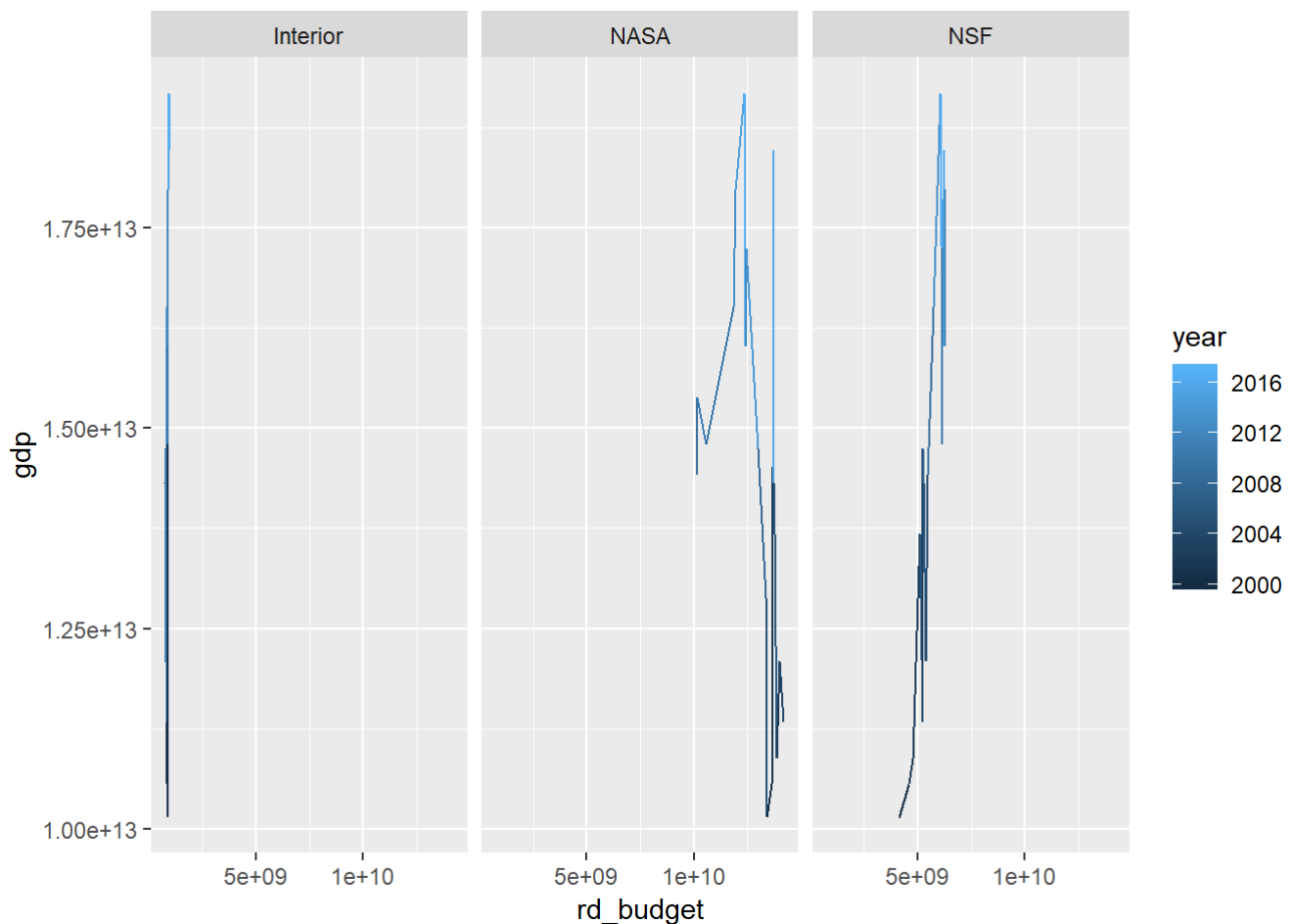




Because except the research and development data, in which different departments have different budget across the year. The plot shows the budgets of departments across the years. However, in the data of Total Federal Government spending in inflation-adjusted (constant) dollars, we find that departments share the same value per year. This is the same to the data of Total Discretionary Federal Government spending in inflation-adjusted (constant) dollars and GDP. There are the three plots only have one line.

Run the regression

```
##
## Call:
## lm(formula = FEC$rd_budget ~ FEC$gdp)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -5.581e+09 -5.460e+09 -9.339e+08  5.544e+09  7.857e+09
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  6.283e+09  3.732e+09   1.683  0.0983 .
## FEC$gdp      4.515e-06  2.534e-04   0.018  0.9858
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 5.028e+09 on 52 degrees of freedom
## Multiple R-squared:  6.108e-06, Adjusted R-squared:  -0.01922
## F-statistic: 0.0003176 on 1 and 52 DF, p-value: 0.9858
```



The r-square of the regression is 6.107725910^{-6} . However, the p-value of the coefficient is 0.9858495