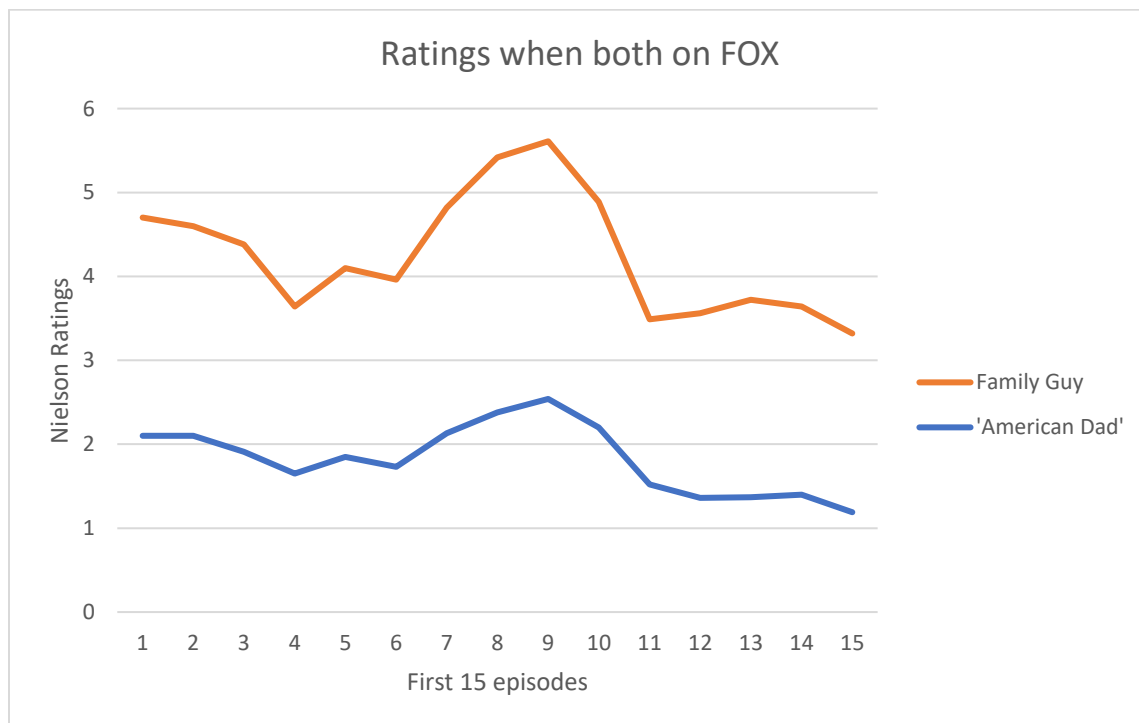


How Did Moving to TBS Effect American Dad's Ratings?

I am an artist who loves cartoons and one of my favorite animators is Seth Mcfarlane. Seth Mcfarlane is known for a variety of shows, but two of his most famous are Family Guy and American Dad. Family Guy has stayed on FOX. However, American Dad changed stations from FOX to TBS in 2014. How exactly has this change to TBS effected American Dad? I plan to explore this question using a differences-in-differences(DID) framework.

I want to determine the causal effect of the network change. I cannot just naively compare the ratings between the 2013 season with the 2014 season. I would not know whether a decrease or increase in ratings was the result of a movement to TBS or because of other factors. To more accurately isolate the causal effect of network movement, I need to compare the 2014 season of American Dad on TBS to its counterfactual. In layman terms, I would need to compare the show to an alternative reality where the 2014 season of American Dad never moved to TBS. This is not possible. But, one could use Family Guy's 2014 season as an approximation of this counterfactual because of the similarities of the shows. Family Guy, obviously, is not the same as American Dad. But, with a DID framework, causal effect analysis is still possible if the two shows share similar trends in ratings prior to the treatment.

A DID method cannot be valid unless the parallel trends assumption holds. So, I plotted the 2013 season's ratings for both shows using *Excel*. Each show had different number of episodes per season. To account for this, I only plotted the first 15 episodes. I believe that based off the plot, the parallel trend assumption is met.



Now I can create an estimate of the causal effect that the movement to TBS had on American Dad. Calculating the DID estimate through a regression, I find that the movement to TBS had a negative impact on ratings of -0.8259 for the television show American Dad. As expected, moving from a major network such as FOX to TBS does significantly decrease television ratings.

Regression Results:

call:

```
lm(formula = rate ~ post + AD + TBS.interaction, data = data)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-0.95737	-0.32119	-0.06964	0.12129	2.47263

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	2.3419	0.1218	19.233	< 2e-16	***
post	-0.2145	0.1767	-1.214	0.22849	
AD	-0.7128	0.1684	-4.232	6.56e-05	***
TBS.interaction	-0.8259	0.2559	-3.227	0.00186	**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.558 on 74 degrees of freedom

Multiple R-squared: 0.5707, Adjusted R-squared: 0.5533

F-statistic: 32.79 on 3 and 74 DF, p-value: 1.37e-13