A TALE OF TWO ADVERTISING CHANNELS

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THE BRIEF

A client would like to know

- How many customers does TV and radio advertising drive directly to their website?
- What uplift in website traffic can be attributed to recent TV and radio advertising due to brand awareness?

THE CHALLENGES

- The TV and radio data has estimated viewership figures and contains errors and omissions
- Many of the TV and radio adverts overlap
- The pattern of website traffic has high noise compared to the signal we are looking for

DATA SCIENCE OCCURS!

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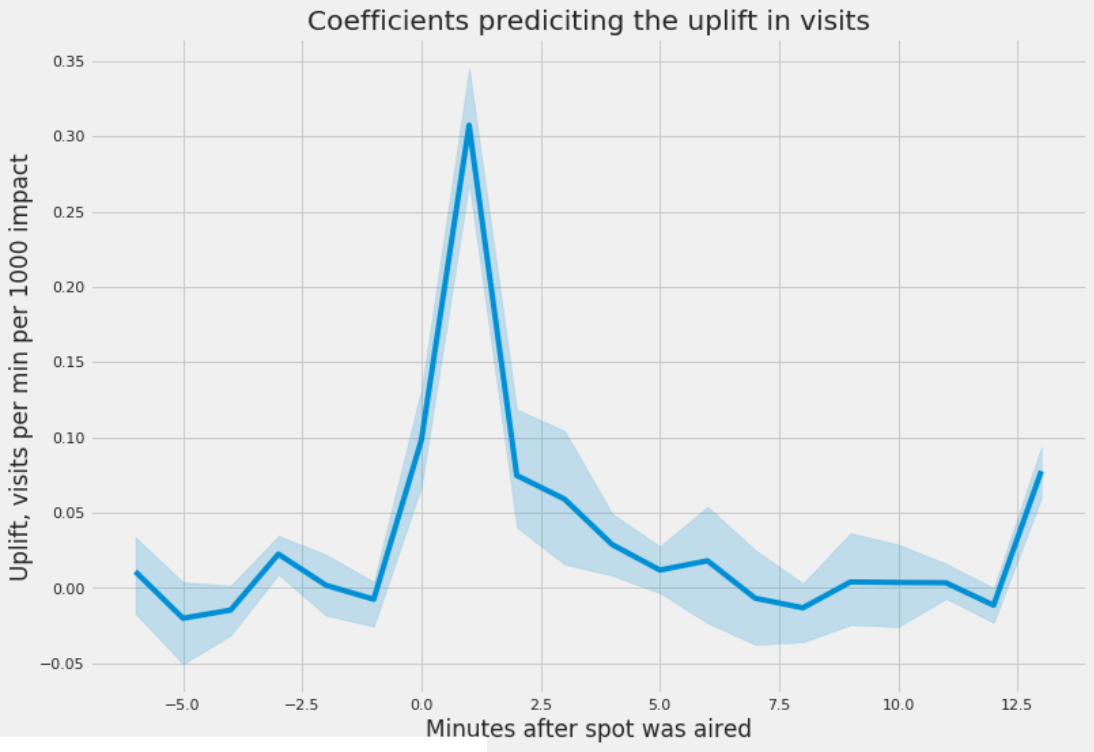
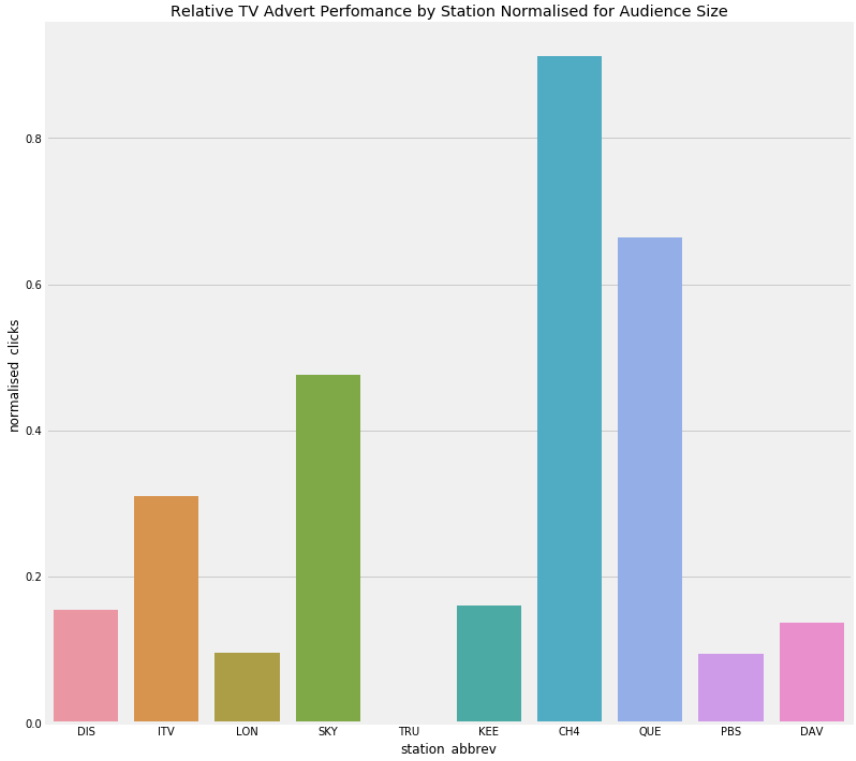
TV RESULTS - IMMEDIATELY ATTRIBUTABLE UPLIFT

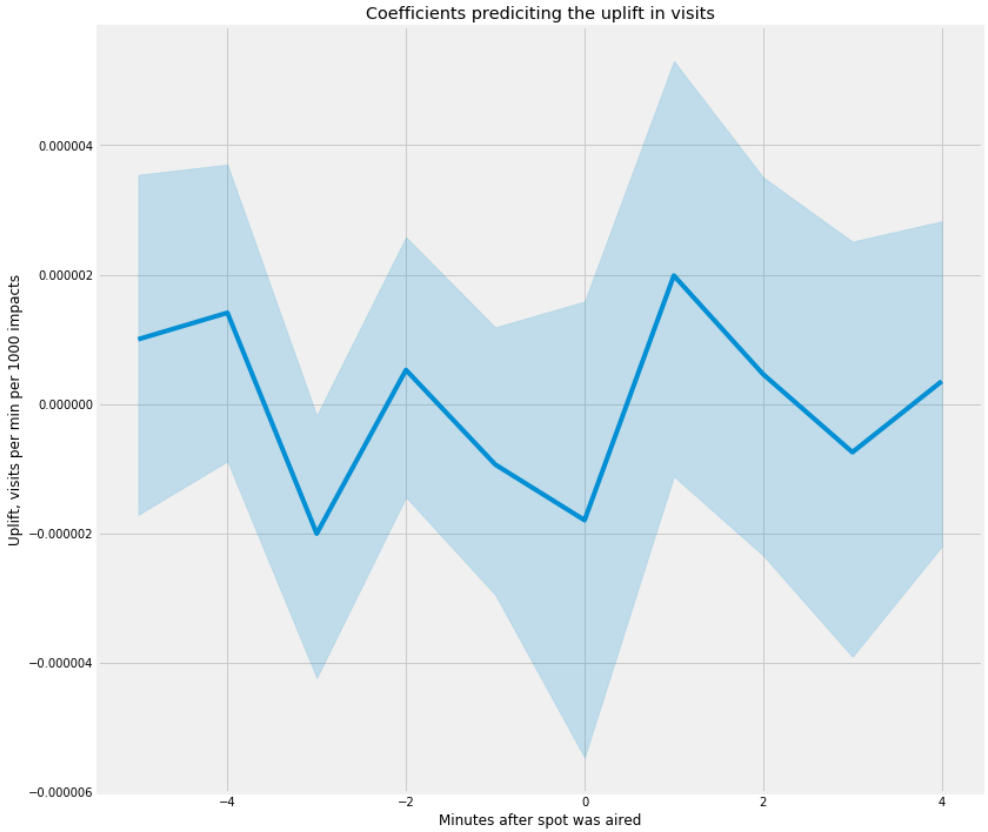
- Uplift in visits of about 3 visits per minute per 10000 impacts immediately after advert
- Directly attributable signal returns to baseline within around 5 minutes

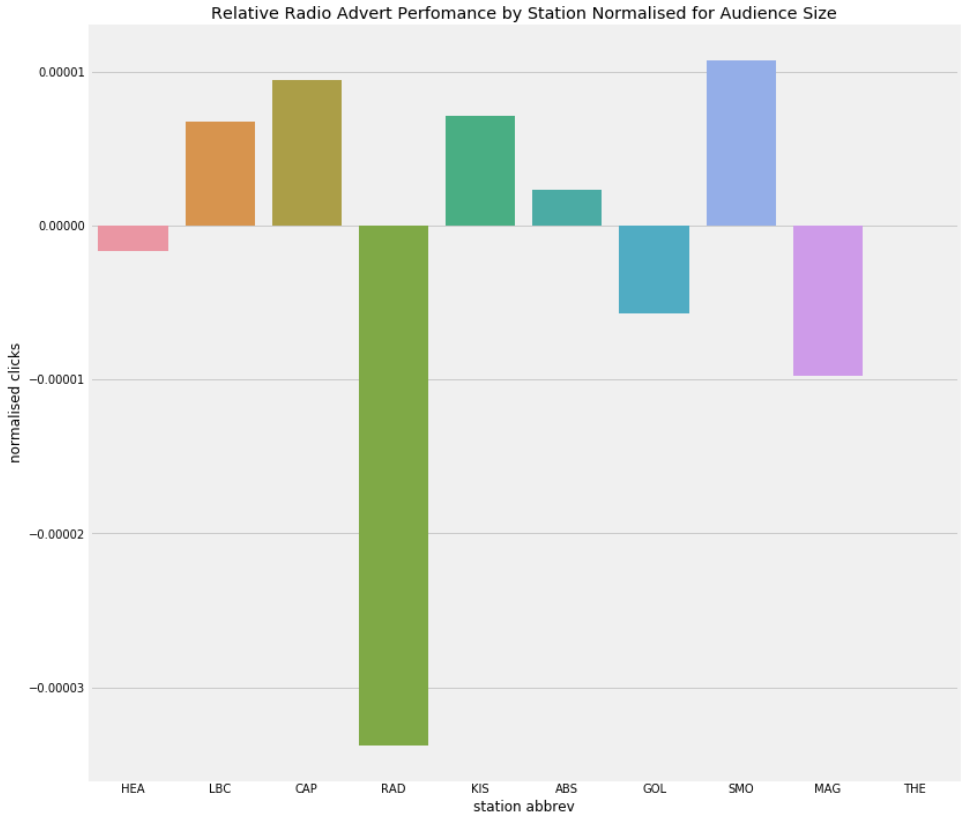




RADIO RESULTS - IMMEDIATELY ATTRIBUTABLE UPLIFT

- No observable effect!
- None, zilch, nada, zip!





CLIENT

HA HA! .... BUT SERIOUSLY!

RADIO HAS BRAND IMPACT RIGHT?

I MEAN MAYBE IT DOES NOT DRIVE WEB TRAFFIC DIRECTLY ...

... BUT BRAND AWARENESS!

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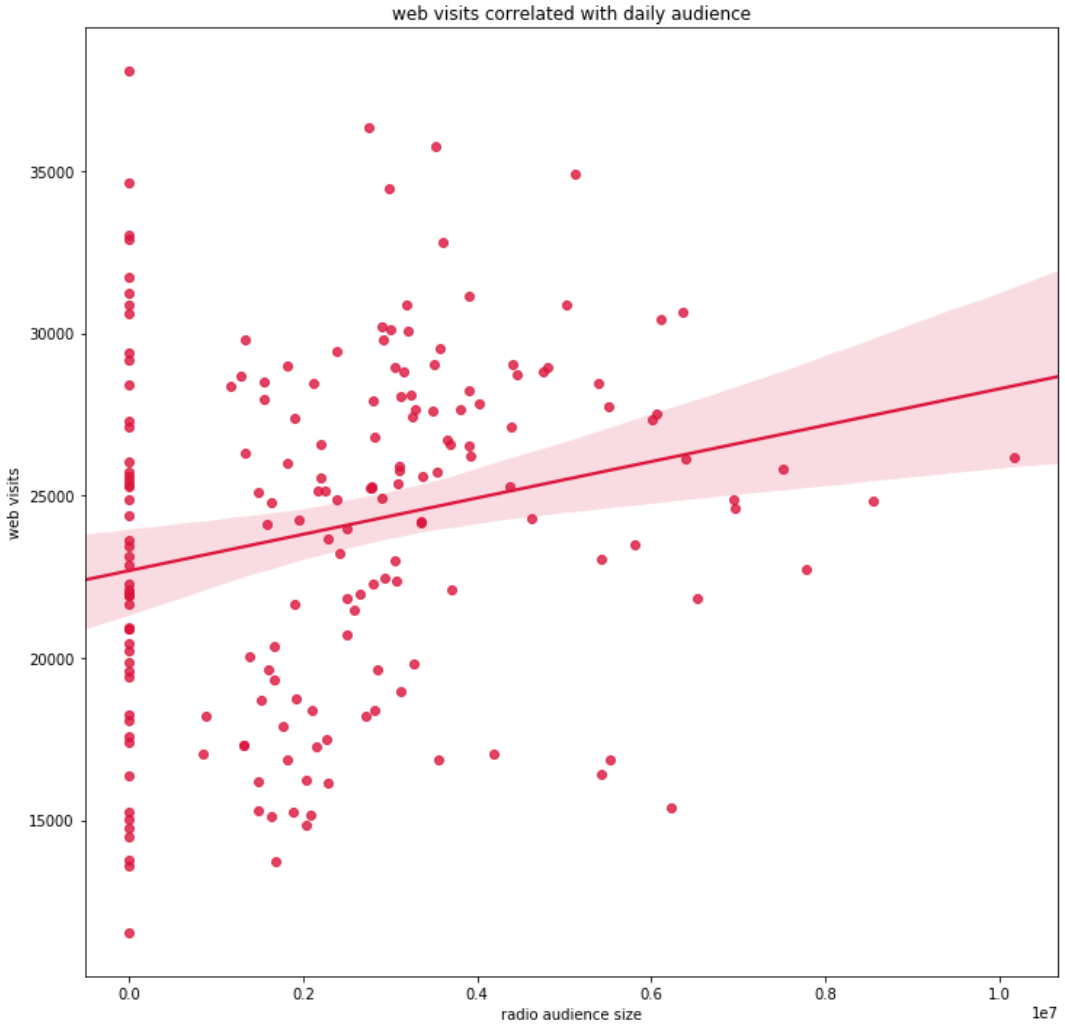
RADIO RESULTS – DAILY UPLIFT

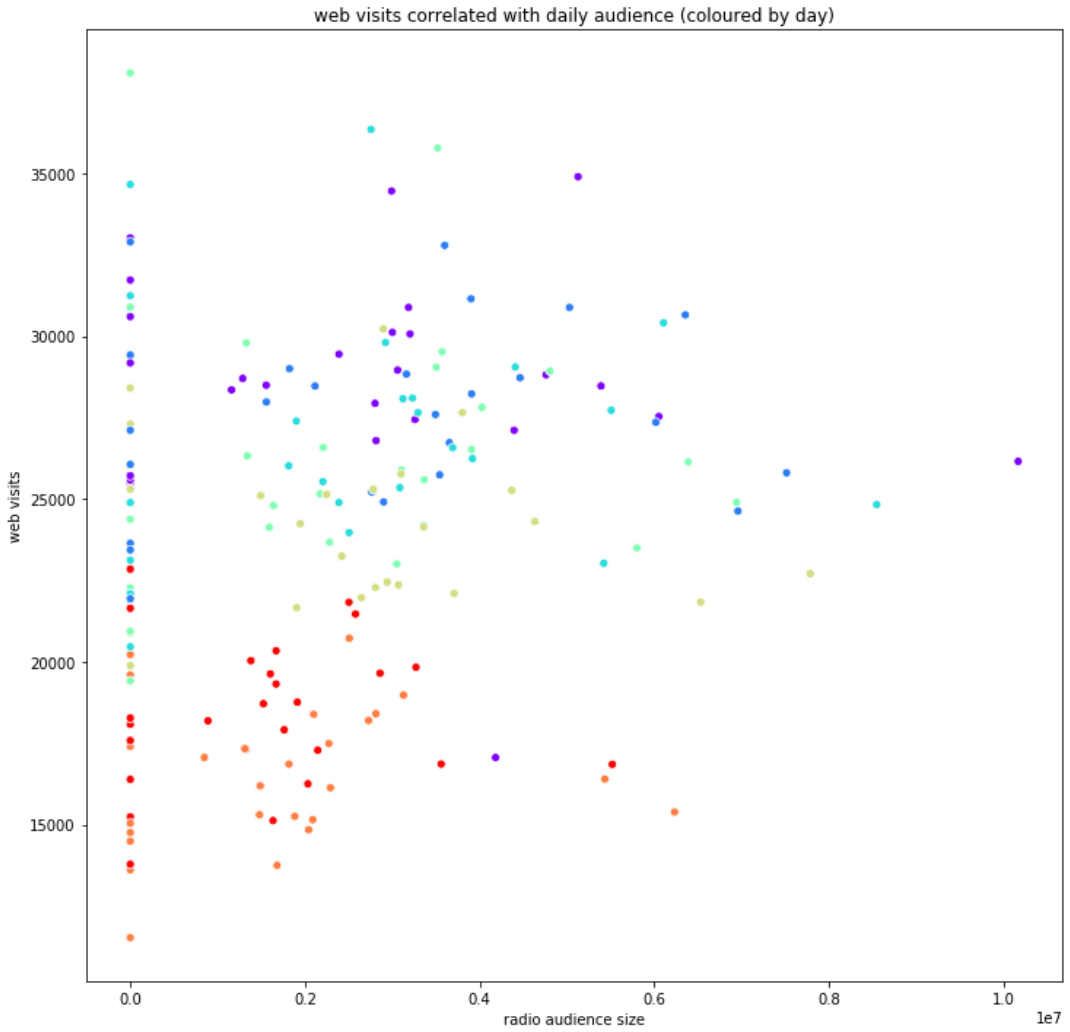


Client says "Aha! Correlation!"

We say "Uh sorry hang on a moment!"

"Have you heard of Simpsons Paradox?"

RADIO RESULTS – DAILY UPLIFT



Client says "Aha! Correlation"

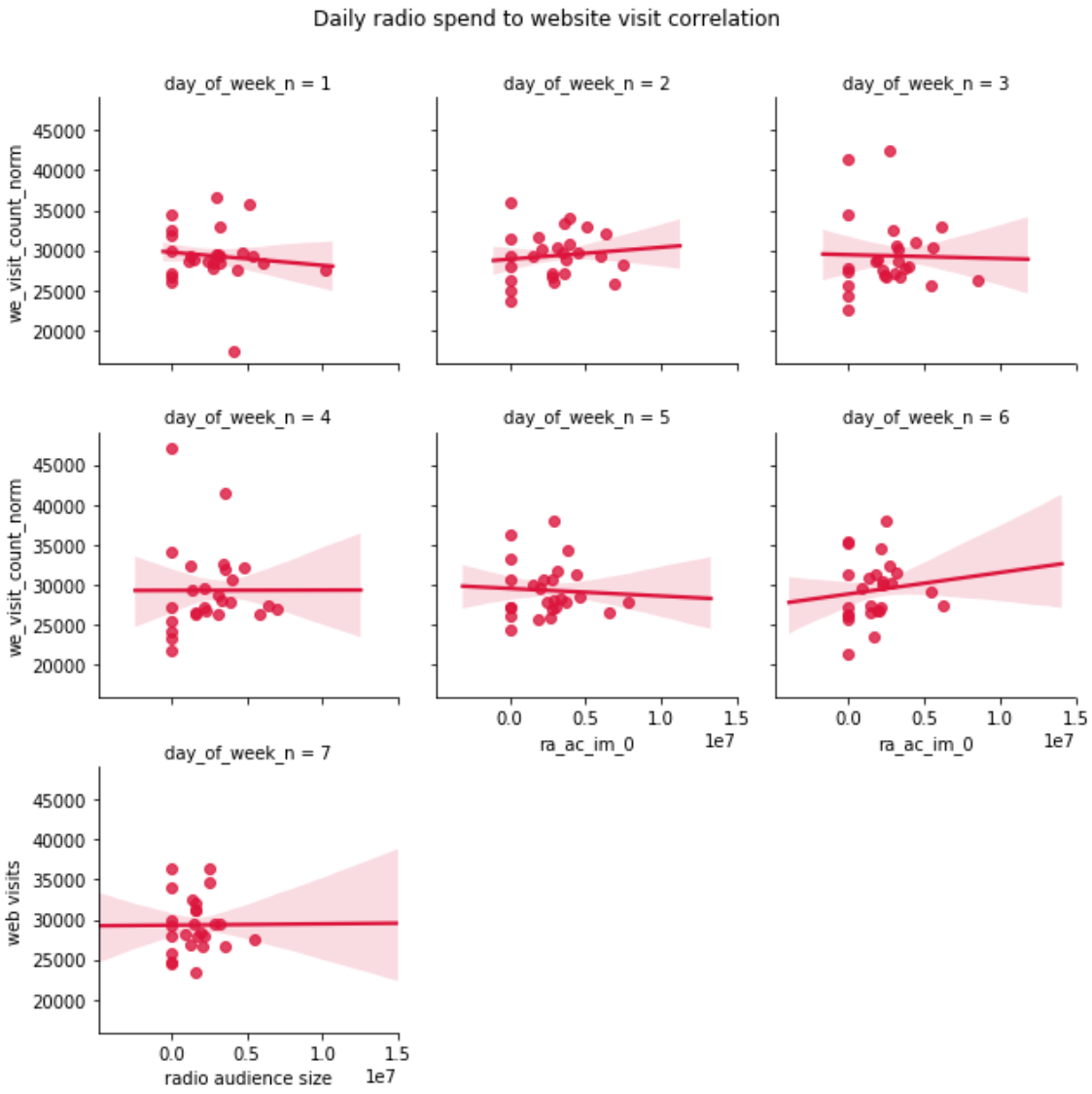
We say "Uh sorry hang on a moment!"

"Have you heard of Simpsons Paradox?"

"Tell me more"

"Simpson's paradox is a situation in which a trend appears in separate groups of data but disappears or reverses when those groups are combined"

RADIO RESULTS – DAILY UPLIFT



"I'm afraid you are just seeing that you have chosen to advertise more on the days of the week when you already expected more customers"

Client says

"Oh gosh that is a really interesting statistical anomaly"

CLIENT

THIS IS ALL VERY INTERESTING BUT OUR RADIO ADVERTISING AGENCY TOLD US THAT OUR RADIO AD CAMPAIGNS INCREASED OUR SALES LAST YEAR BY UP TO

38%

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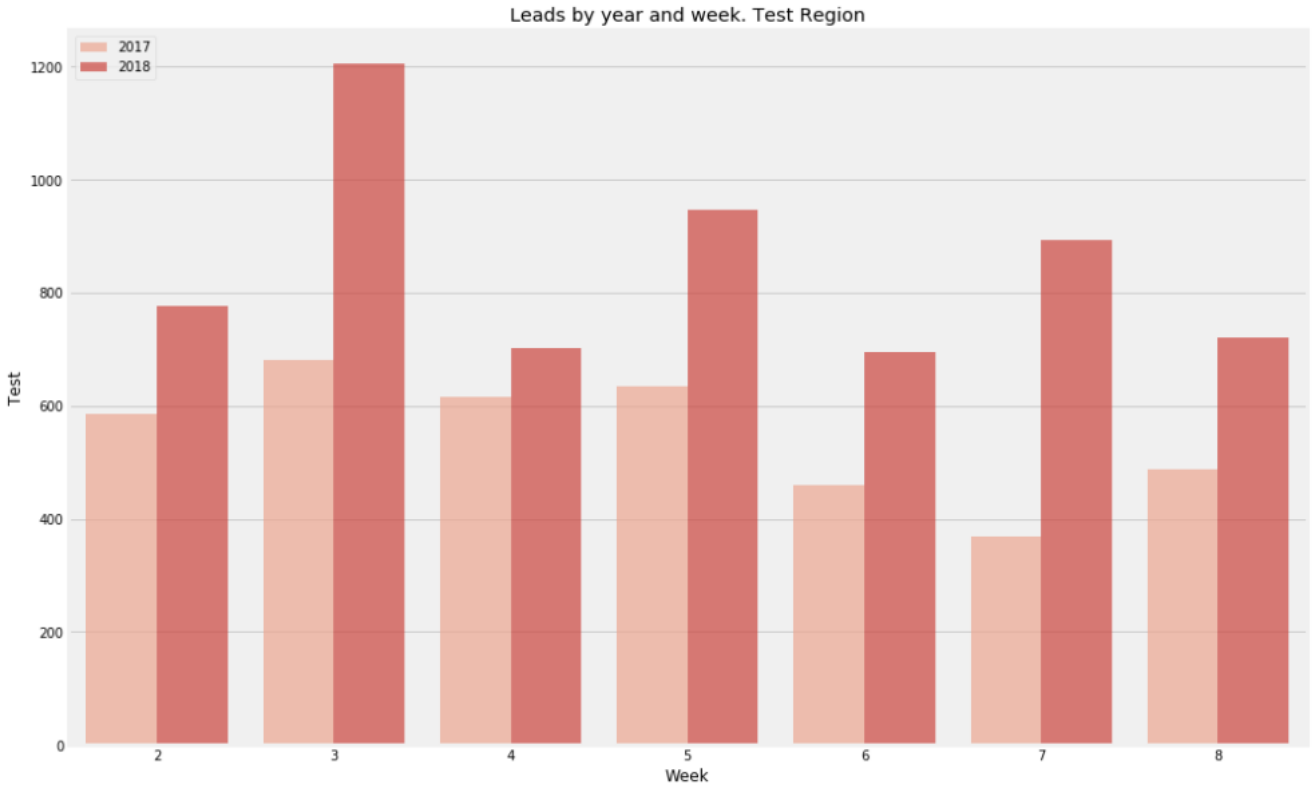
TV RESULTS – DAILY UPLIFT

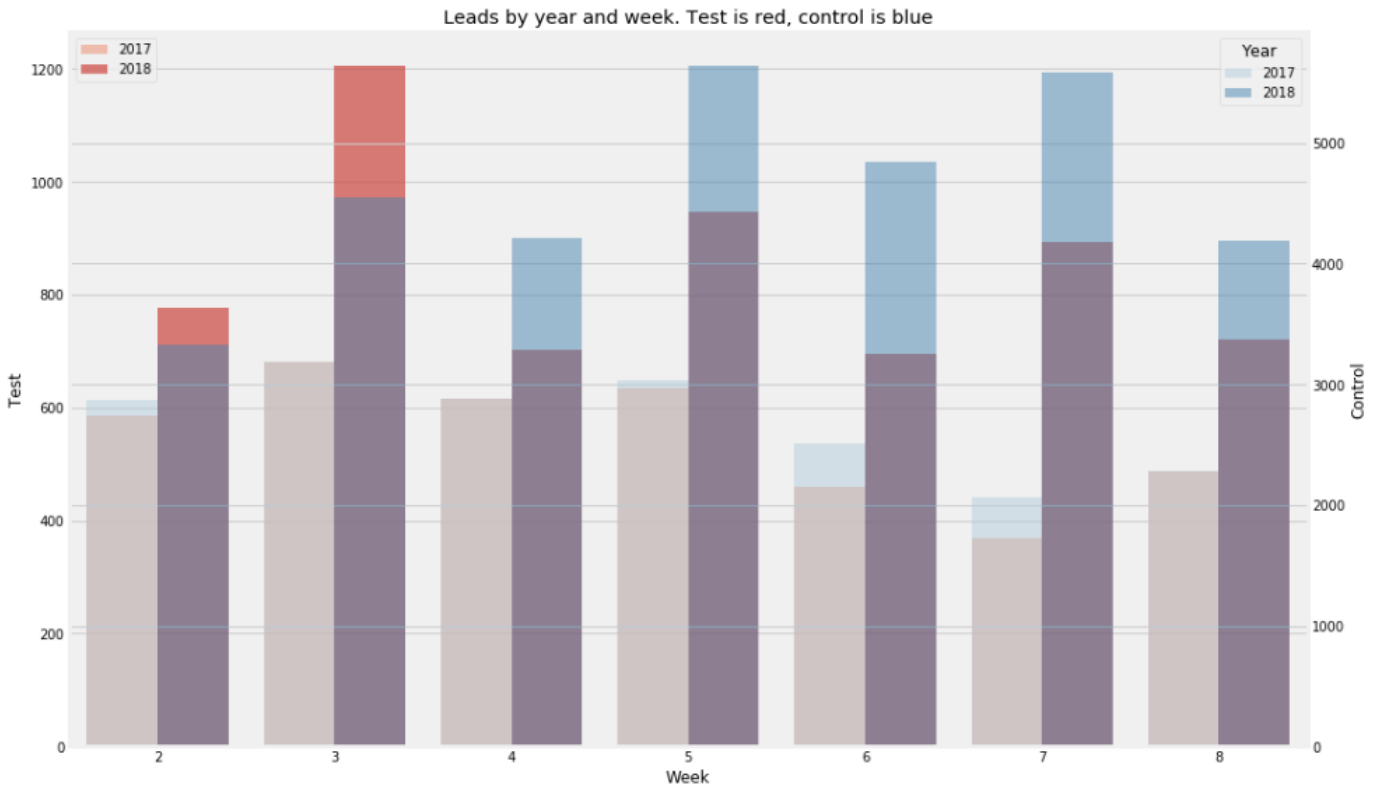


"We looked into those claims and there was a year on year uplift"

"Great! .... Right?"

"Well ..."

TV RESULTS – DAILY UPLIFT



"We looked into those claims and there was a year on year uplift"

"Great! .... Right?"

"Well the control group showed very similar uplift, better if anything. A statistical T-Test indicated that radio and non-radio areas did not show a significant difference "

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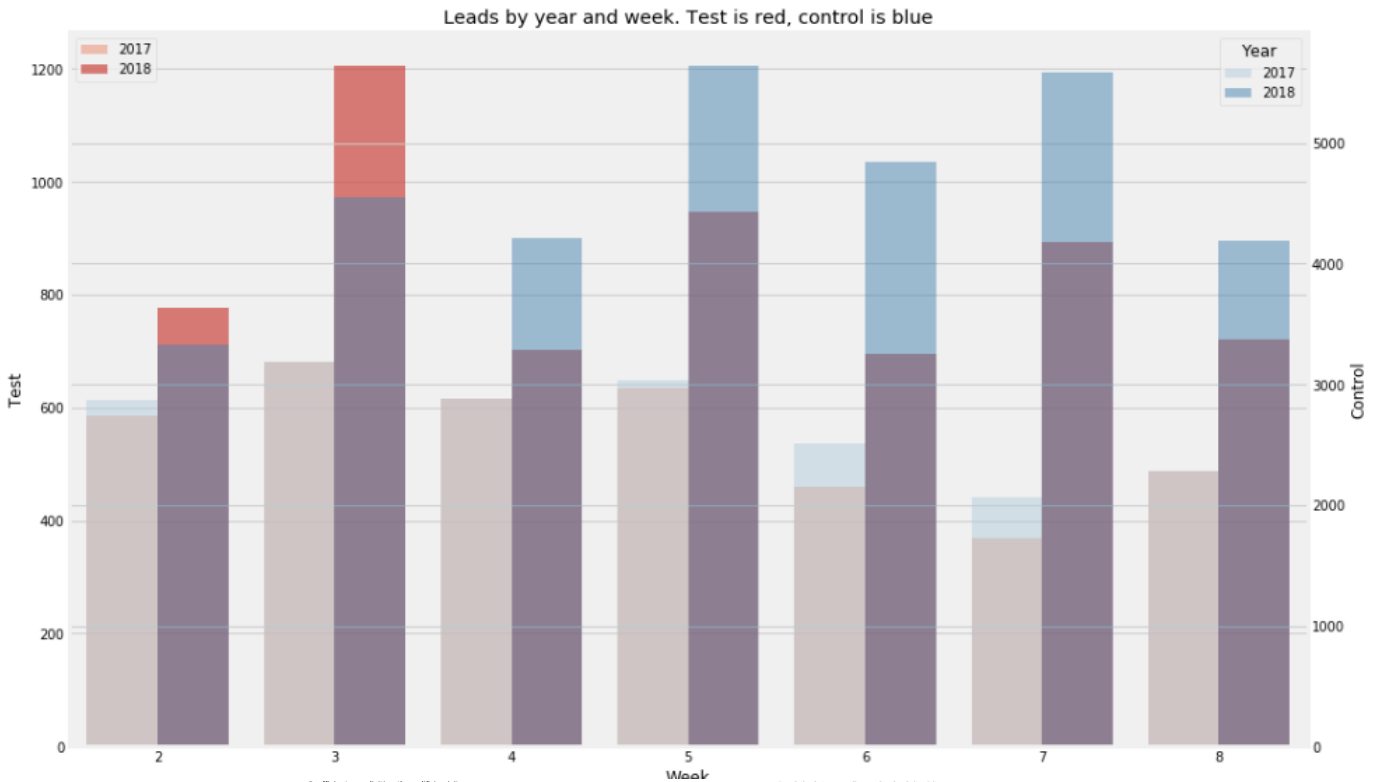
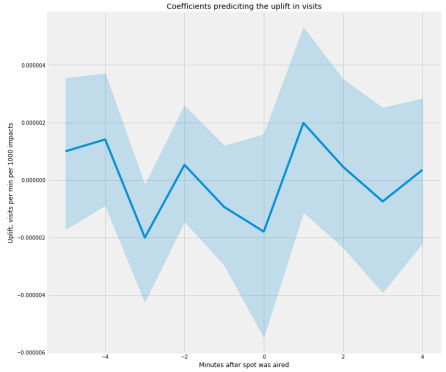


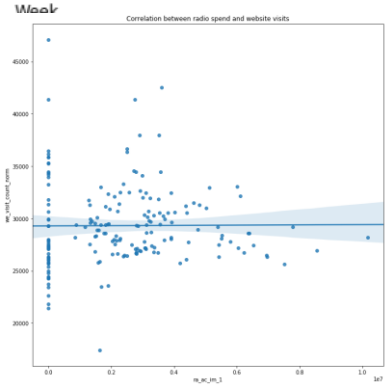
"We looked into those claims and there was a year on year uplift"

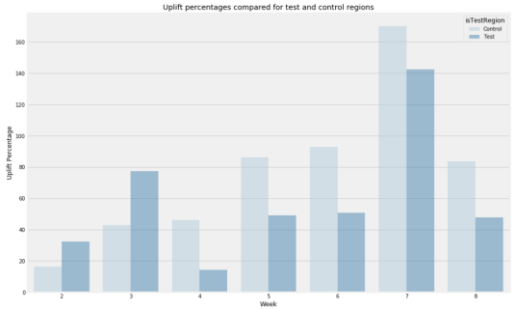
Client "Great! .... Right?"

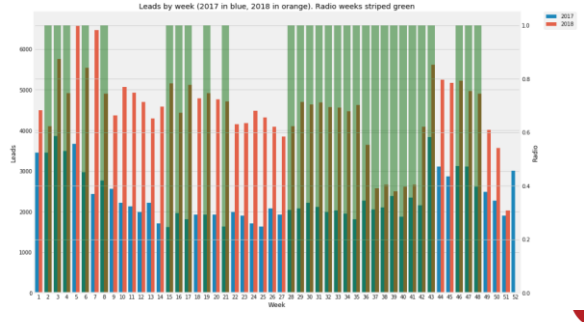
"Well the control group showed very similar uplift, better if anything. A statistical T-Test indicated that radio and non-radio areas did not show a significant difference "

"Well that is surprising, but the evidence does seem to suggest you are right about radio!"









... AND FINALLY THE GOOD NEWS

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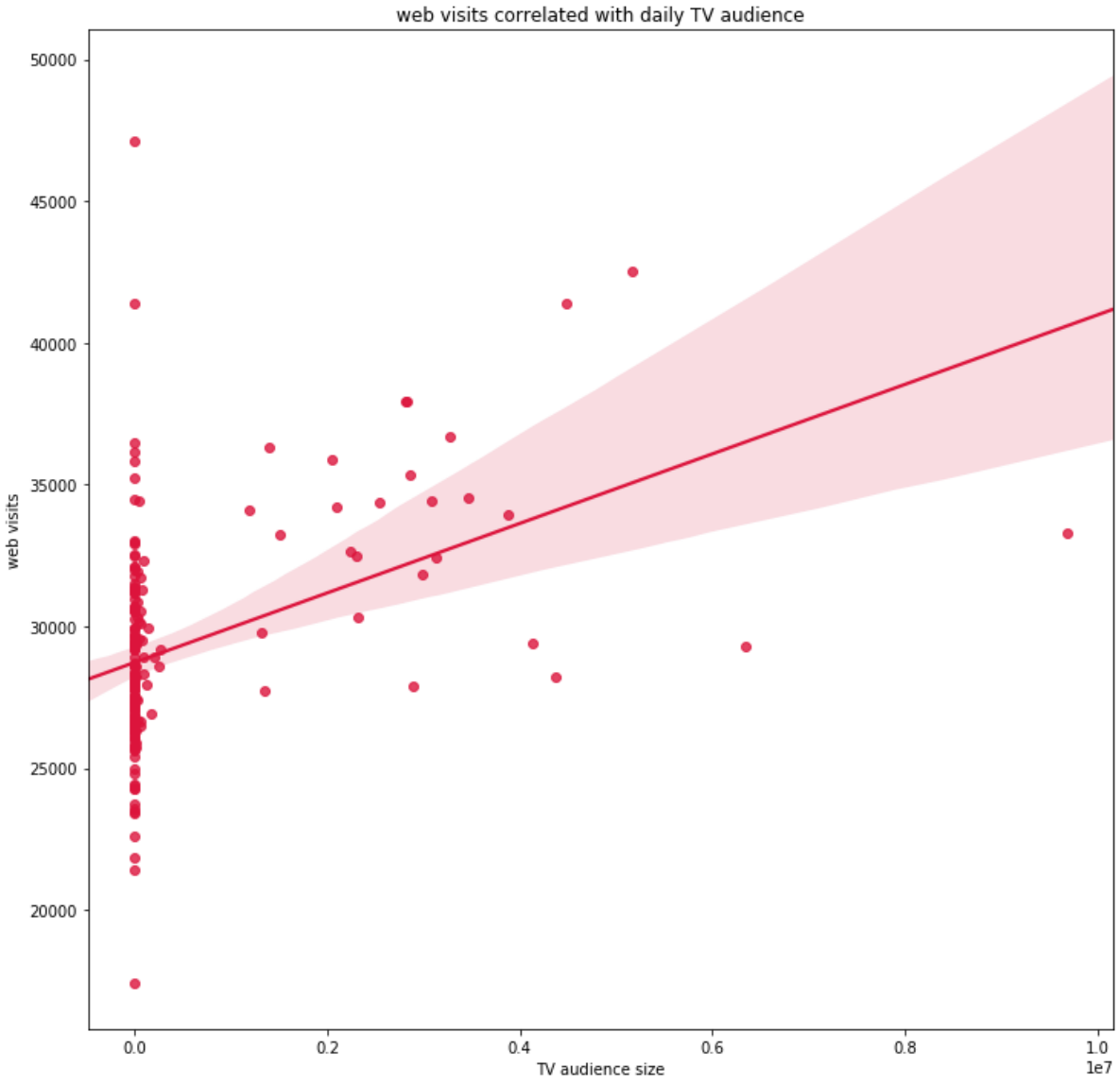
TV RESULTS – DAILY UPLIFT

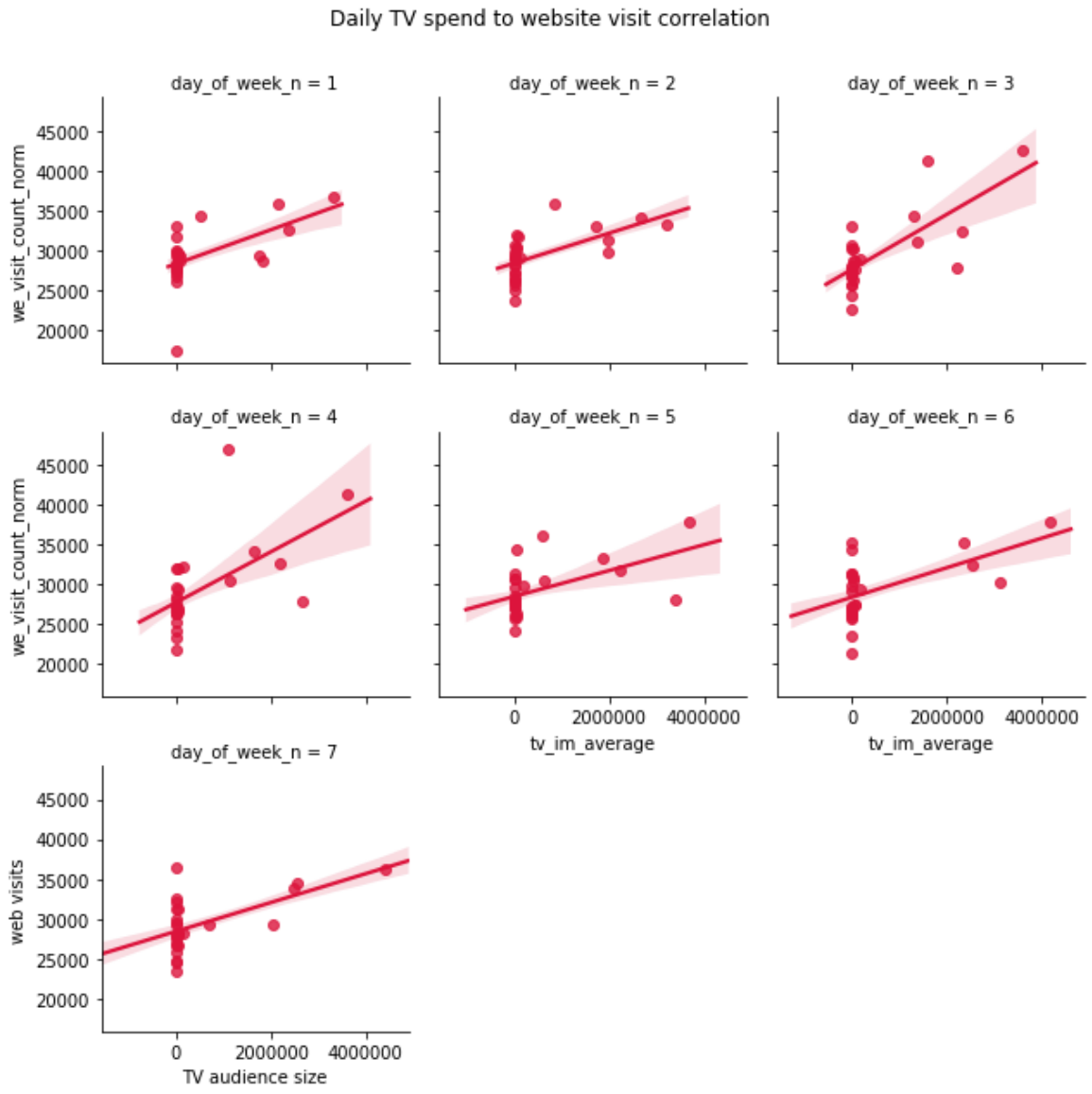


"We do have some good news for you though. Look at this TV graph"

Client "I'm not getting caught that way again. What do the daily correlations look like"

"We are glad you asked, they look fine!"

TV RESULTS – DAILY UPLIFT



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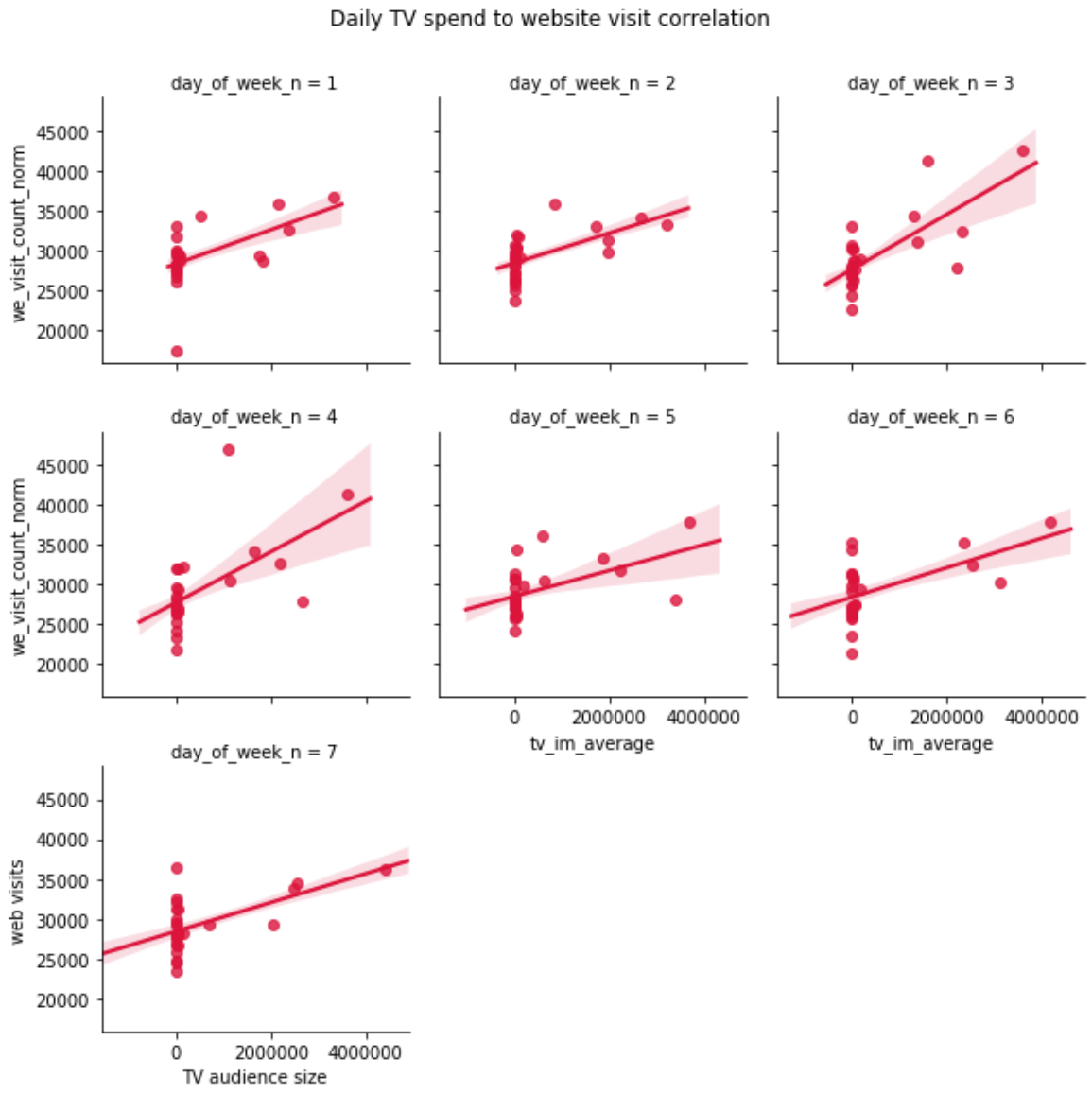
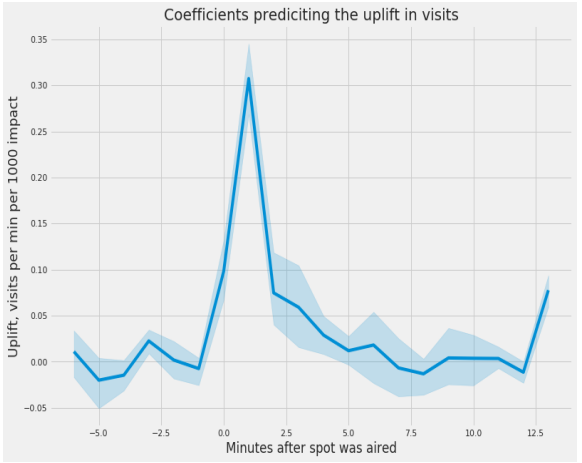
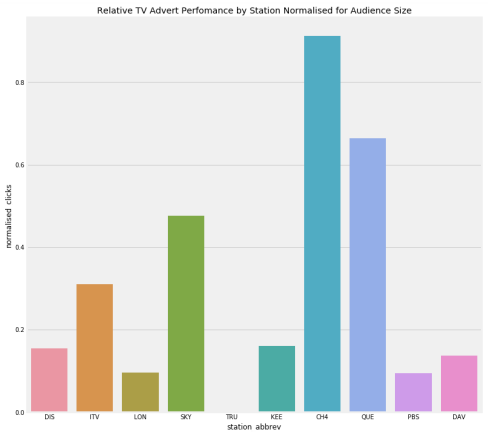


"We do have some good news for you though. Look at this TV graph"

Client "I'm not getting caught that way again. What do the daily correlations look like"

"We are glad you asked, they look fine! ... and so do our studies over other time ranges"





LESSONS LEARNED

- Be aware of statistical paradoxes
- Check for significance of results
- Check data processing and assumptions
- When looking at time dependent data check different timescales

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WE ARE HIRING

Data Analyst using Python

Data Scientist using Python

Other fun roles too ...

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