Discussion of Lewis and Nguyen

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Summary of Results

- What is the lift attributable to display advertising?
- Use data from natural experiment on Yahoo front page
- Main results summarized on Table 3
- Analysis basically clean and convincing

Table 3: Main Results of the Effects of Advertising on Search

	Control			Search Lift from Advertising				
Searches	Estimate	OLS T-stat	Cluster T-stat	Estimate	OLS T-stat	Cluster T-stat	Percentage Lift	Competitor/ Own
Samsung Galaxy Tab Advertising Campaign								
Samsung Galaxy Tab	958	19.78	20.57	424	6.20	6.32	44.3%	1.00
All Competitors	16,662	89.87	82.42	994	3.79	3.81	6.0%	2.34
Apple Ipad	9,851	68.64	63.21	857	4.23	4.25	8.7%	2.02
Motorola Xoom	663	17.23	16.74	151	2.79	2.79	22.8%	0.36
Blackberry Playbook	317	11.92	11.34	71	1.89	1.90	22.4%	0.17
Viewsonic	18	2.55	3.00	14	1.39	1.39	77.2%	0.03
Acura Advertising Campaign								
Acura	3,539	38.12	38.34	1,555	11.84	11.78	43.9%	1.00
All Competitors	401,927	445.80	389.84	12,035	9.43	9.44	3.0%	7.74
Volkswagen	5,840	52.12	48.24	894	5.64	5.62	15.3%	0.58
Hyundai	5,399	50.05	46.94	853	5.59	5.55	15.8%	0.55
Lexus	3,907	42.54	39.37	631	4.86	4.85	16.2%	0.41
Volvo	2,183	31.39	29.31	478	4.86	4.75	21.9%	0.31
Progressive Auto Insurance Advertising Campaign								
Progressive	4,104	42.41	42.76	1,135	8.30	8.34	27.6%	1.00
All Competitors	23,035	106.84	99.34	327	1.07	1.08	1.4%	0.29
Allstate	2,968	38.09	36.52	124	1.12	1.13	4.2%	0.11
USAA	7,870	62.30	56.97	187	1.05	1.06	2.4%	0.17
Safeco	214	10.01	9.73	29	0.96	0.97	13.6%	0.03
Nationwide Insurance	880	20.64	19.81	54	0.90	0.91	6.2%	0.05

Table 4: Robustness Checks Limiting the Sample to the First Impressions

	Full Sample	Limited to the first impression			Limited to users who were delivered one impression		
	Daily Total Search Lift	Daily Total Search Lift	Lower Bound 95% CI	Upper Bound 95% CI	Daily Total Search Lift	Lower Bound 95% CI	Upper Bound 95% CI
Samsung Galaxy Tab Advertising Campaign							
Samsung Galaxy Tab	424	503	190	817	-41	-603	521
All Competitors	994	257	-964	1,478	228	-1,893	2,348
Acura Advertising Campaign							
Acura	1,555	1,037	466	1,607	250	-724	1,224
All Competitors	12,035	10,161	4,259	16,062	7,437	-2,516	17,389
Progressive Auto Insurance Advertising Campaign							
Progressive	1,135	433	-234	1,100	607	-426	1,639
All Competitors	327	326	-1,225	1,877	237	-2,184	2,659

Econometric Questions

- The point estimates have borderline significance despite the number of observations
- This is a problem for measuring advertising lift in general
- Problem- lifts are probably small and variance
- Attention to efficient estimation could be useful

Econometric Questions

- Control variables may improve efficiency- e.g. time effects or user covariates
- Efficiency gains might be possible through weighting schemes or modeling serial correlation
- Inequality constrained regression (e.g. imposing lifts are not negative) could also improve efficiency if you are willing to swallow the assumption

Econometric Questions

- Why use a linear probability model with errors clustered on the user level?
- The motivation is to account for “user level random effects”
- The problem being solved here is not clear

Econometric Questions

- Why use a linear probability model?
- This does not impose restrictions that we know are true (e.g. the dependent variable must be zero or one)
- Efficiency gains are often possible from imposing such restrictions
- T-stats are probably incorrect

Econometric Questions

- Why use a linear probability model with errors clustered on the user level?
- The motivation is to account for “user level random effects”
- The problem being solved here is not clear

Experimental design questions

- Treatment is a function of whether users return for subsequent visits
- The authors argue that this does not influence results somewhat convincingly
- However, standard A/B tests may not adequately deal with these problems
- Need to consider dynamic selection
- This is a multiple treatment effects problem- e.g. number of exposures
- This certainly needs to consider dynamic selection
- More generally- what are the principles of experimental design for A/B tests when treatment depends on participation?

Economic Questions

- Given the measured lifts, why do advertisers buy these spots?
- It is hard to believe that the conversion generated through search would pay for the expense of the ad
- 424 incremental tablet searches, even at a 10 percent conversion rate is only 40 additional tablets

Economic Questions

- If there are returns display advertising, they must lie elsewhere
- Literature in marketing tells us that effects of branding are very persistent
- Consumers take time to learn and often display considerable inertia in choices
- If advertisers can convince consumers to switch brands, they will receive a long run stream of benefits
- This suggests a dynamic model of the consumer

Economic Questions

- While dynamic effects are **much** more difficult to measure, we may be getting the wrong answer on the returns to advertising by only looking at short run numbers
- If long run benefits are present, platforms could benefit by providing tools to advertisers to measure longer run lift
- Because we lack convincing estimates of the long run, advertising may be inefficiently high or low