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When You Can't Tube...

Impact of YouTube Outage on Rapes

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When You Can’t Tube... Impact of YouTube Outage on Rapes

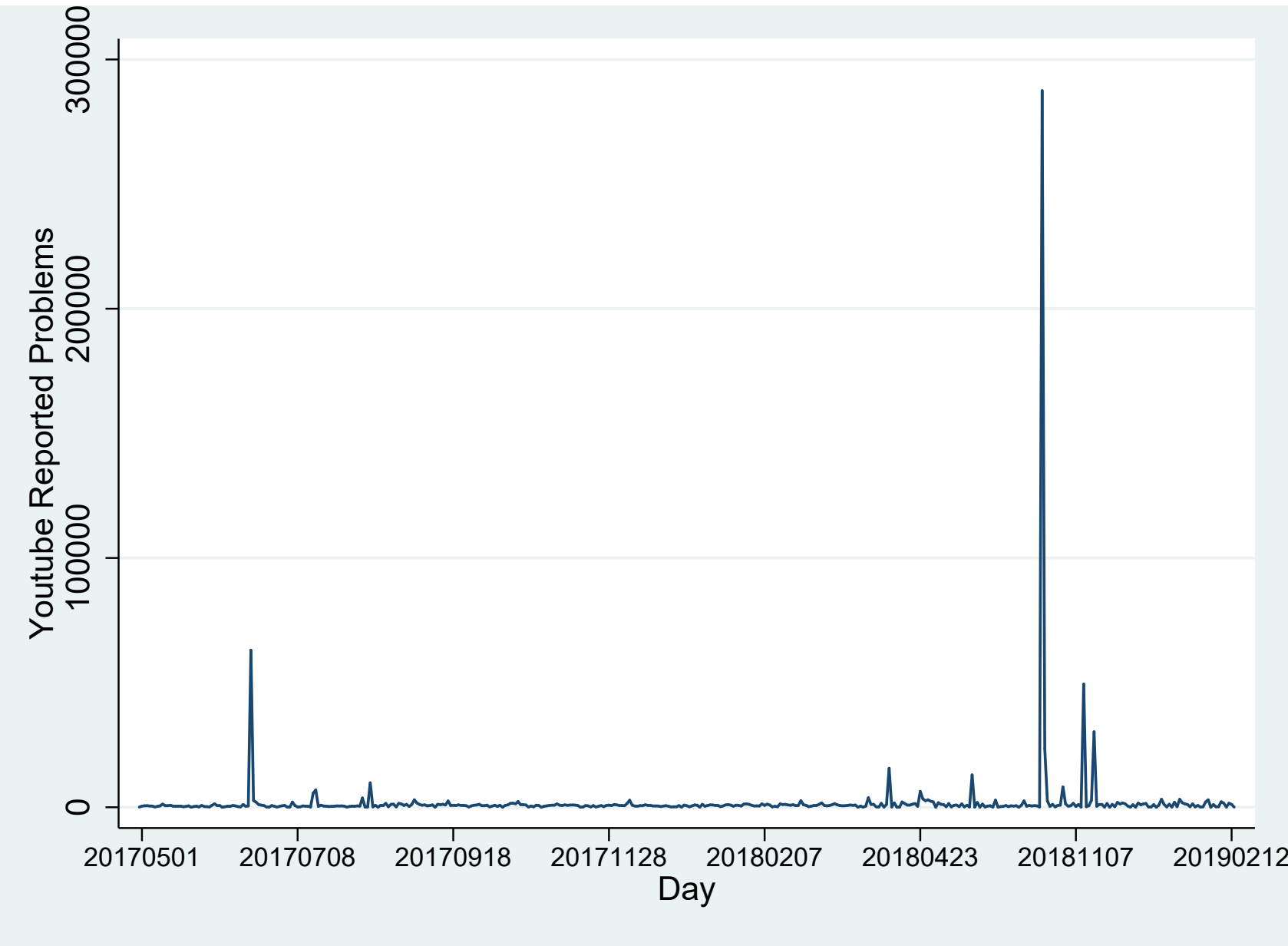
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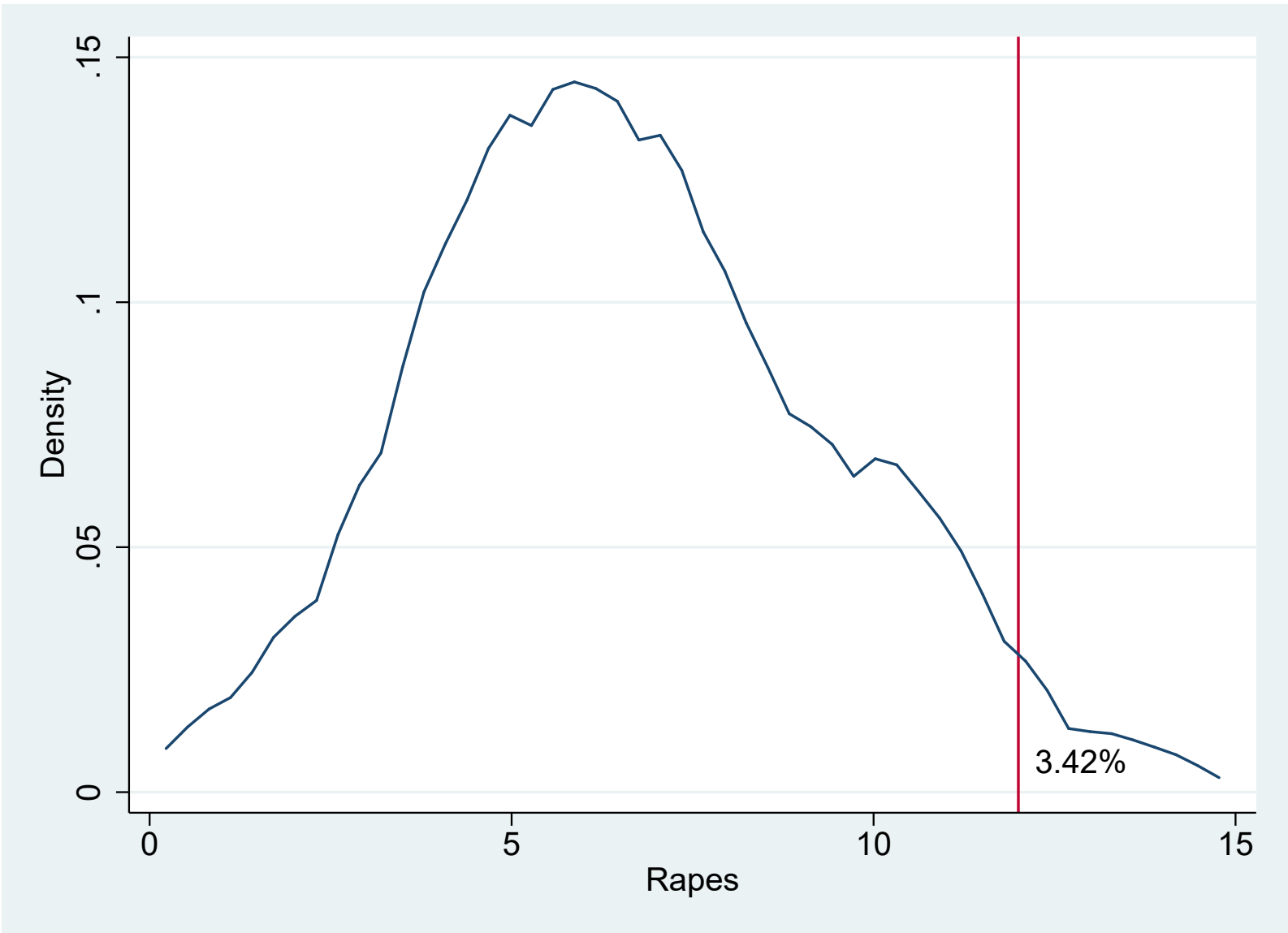
Motivation

- On Tuesday October 16th, 2018, between 9pm and 11pm Eastern time, YouTube experienced a major and rare global service outage
- Using high-frequency data on rapes from the U.S. we find that we document an important increase in rapes in the 24-hour period following the outage
- We then investigate the underlying channels or mechanisms that link YouTube outage and the increase in rapes

Youtube outages, by day



Distributions of rapes: all Tuesdays in the sample - 3.42% of 117 Tuesdays in the sample have more rapes than on Oct. 16th, 2018



Data - 820 “daily” observations

- Time-series data that aggregates reported incidents
 - 295 police departments and sheriffs’ offices (out of an universe of 17,784; ≈2%)
 - Period January 1st, 2017 to March 31st, 2019
- To generate a daily dataset, we normalize the data so that all “days” start at the time of the outage (9pm Eastern time)

Summary Statistics

	Mean	Standard Deviation	Minimum	Maximum
Rapes	6.54	3.21	0	21
Criminal offenses	1686.76	186.44	888	2182
Non-criminal offenses	4820.63	533.67	2358	6692
Alcohol offenses	53.04	21.09	17	140
Drug offenses	187.49	25.72	66	260
Observations	820			

Research Summary

- In the 24-hour period following the outage **rapes increased by ≈ 1.13 SD**
- We explore various competing mechanisms and we suggest that a plausible mechanism is the subsequent increase in pornography viewing
- We present four pieces of evidence:
 - Other crimes (non-sexual related) were not affected by the outage
 - The outage is not related to an increase in drugs or alcohol offenses
 - We do not find support for time substitution
 - The YouTube’s disruption was associated with an important increase in traffic to the online adult video site Pornhub, the world’s biggest pornography site

Estimation Strategy

$$Rapes_t = \alpha + \beta Youtube\ outage_t + \gamma X_t + \epsilon$$

- $Rapes_t$ is total number of rapes on day t
- $Youtube\ outage_t$ is a dummy variable that takes the value one for October 16th and zero otherwise
- X_t includes day of the week dummies (7), month dummies (12), day of the month dummies (31), and a linear time trend (1 to 820).
- To deal with potential heteroskedasticity and serial correlation we follow the standard approach of reporting Newey-West robust standard errors

Increase in rapes in the 24-hour period after the outage

Impact of YouTube outage on rapes

	Dependant Variable: Rapes				
	(1)	(2)	(3)	(4)	(5)
Youtube outage	4.47*** (0.16)	4.41*** (0.25)	4.16*** (0.61)	4.36*** (0.95)	3.62*** (0.84)
R-squared	0.002	0.094	0.105	0.187	0.260
Day of the week	No	Yes	Yes	Yes	Yes
Month	No	No	Yes	Yes	Yes
Day of month	No	No	No	Yes	Yes
Time trend	No	No	No	No	Yes
Observations	820	820	820	820	820

Notes: Newey-West heteroskedasticity- and autocorrelation-consistent standard errors are in parentheses. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

No significant association between YouTube outage and other offenses

Mechanisms: other crimes and offenses

	Criminal offenses			
	(1)	(2)	(3)	(4)
Youtube outage	-24.21 (29.89)	55.68 (86.84)	-18.64*** (2.49)	3.21 (5.50)
Day of the week	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes
Day of month	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes
Observations	820	820	820	820

Notes: Criminal offenses include theft, assault, property crime, theft from vehicle, breaking entering, and theft of vehicle. Non-criminal offenses include traffic, community policing, disorder, and vehicle stop. Newey-West heteroskedasticity- and autocorrelation-consistent standard errors are in parentheses. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

No time substitution

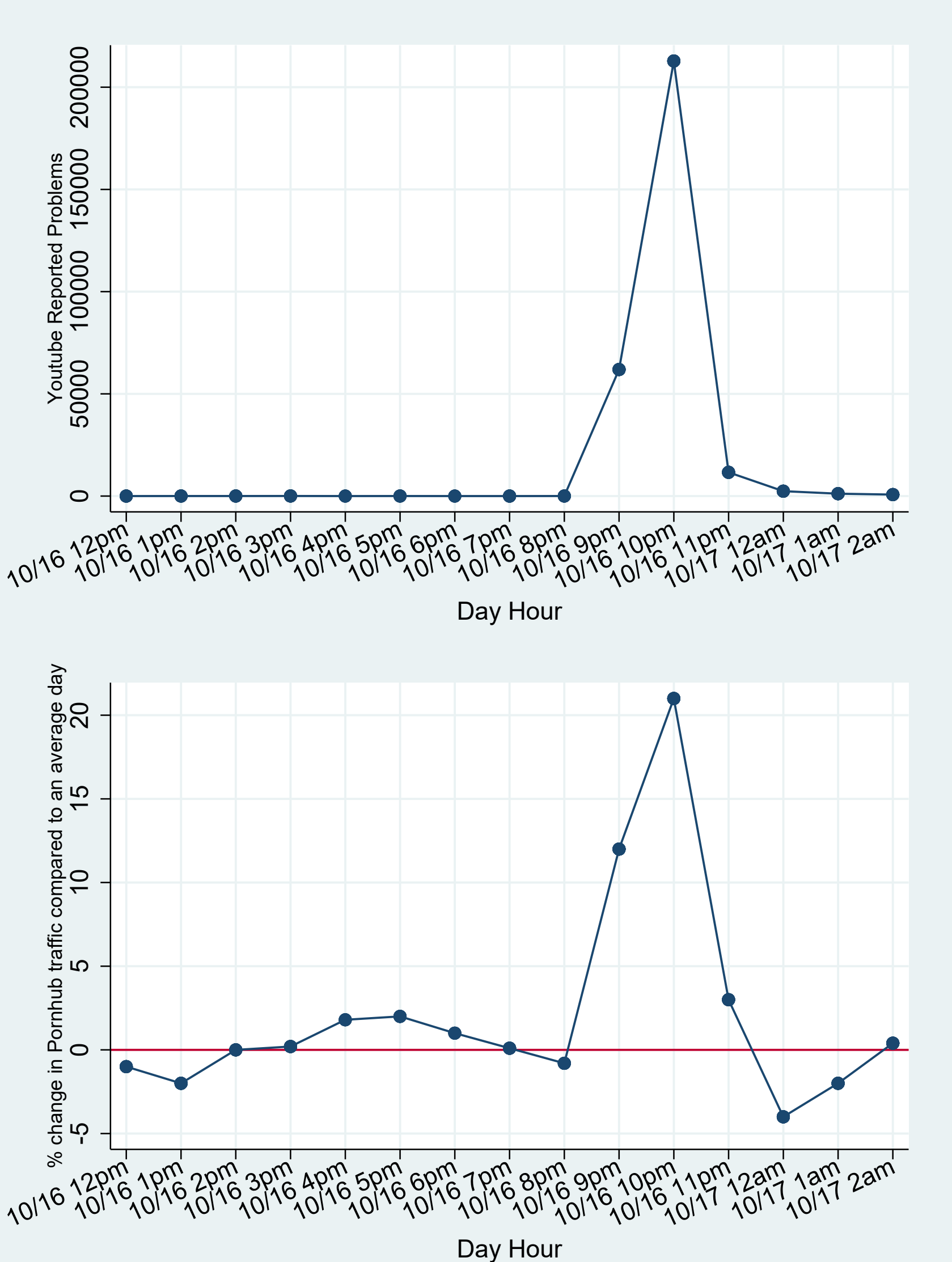
Mechanisms: other crimes and offenses

	Dependant Variable: Rapes					
	(1)	(2)	(3)	(4)	(5)	(6)
During outage	-0.27*** (0.00)	-0.27*** (0.01)	-0.27*** (0.02)	-0.28*** (0.02)	-0.29*** (0.03)	-0.32*** (0.03)
After outage	0.23** (0.10)	0.23** (0.10)	0.23** (0.10)	0.21** (0.10)	0.22** (0.10)	0.19* (0.10)
Hours of the day	No	Yes	Yes	Yes	Yes	Yes
Day of the week	No	No	Yes	Yes	Yes	Yes
Month	No	No	No	Yes	Yes	Yes
Day of month	No	No	No	No	Yes	Yes
Time trend	No	No	No	No	No	Yes
Observations	19,680	19,680	19,680	19,680	19,680	19,680

Notes: The variable Rapes has an hourly average equal to 0.27. Newey-West heteroskedasticity- and autocorrelation-consistent standard errors are in parentheses. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Plausible mechanism: Pornography viewing

YouTube outage and the increase in Pornhub’s traffic



Contribution to the literature on crime decision making

- Rational agents decide whether to engage in criminal activities by comparing benefits and costs of committing a crime (Becker 1968)
- We postulate that pornography increases the utility from raping and decreases the perceived cost of being caught
 - Under the influence of visceral factors individuals decide without fully taking into account the consequences of their acts (see Loewenstein 2000)
- Our results indicate that some of the decisions to rape could be influenced by the emotional state of the individual (being sexually aroused)