ROBERT H. SMITH SCHOOL OF BUSINESS

Winning or Losing: Impact of Leadership (S)election on Contribution Behavior in Online Communities

Jui Ramaprasad, University of Maryland

joint work with

Divinus Oppong-Tawiah, York University

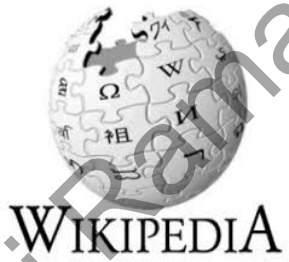
Geneviève Bassellier, McGill University

Research Question

What is the impact of leadership selection on candidate contributions?

Motivation

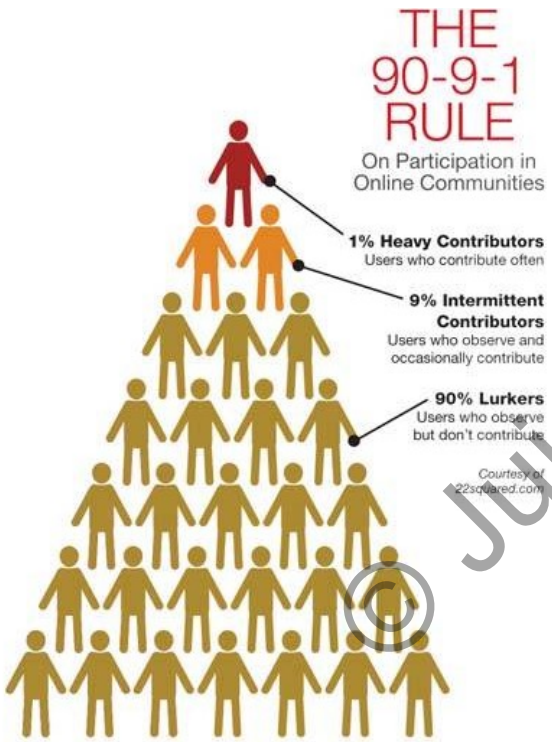
Online Communities



What if everyone were a lurker?

That is, what if all users were content consumers but not content creators?

Contribution in Online Communities



- Contributions follow a power-law distribution in online communities
- Top 1% of members contribute over 90% of the content

Contribution in Online Communities

- Contribution is critical for sustaining online communities (Wasko & Faraj 2005; Ransbotham & Kane 2011)
- Potential leaders contribute more in online communities (Huffaker 2010)

English Wikipedia (update)	
Articles	5,666,267
Pages	45,167,237
Files	869,761
Edits	840,984,418
Users	33,815,928
Admins	1,209
Active users	127,812

0.4%

Leadership in Online Communities

- Antecedents to leadership:
  - Motivation (Butler et al. 2007)
  - Network position (Dahlander and O'Mahony 2011)
  - Expertise (Wasko and Faraj 2005)
  - Coordination capabilities (Dahlander and O'Mahony 2011)
  - Being sociable (Oppong-Tawiah et al. 2016)

What happens to contribution <u>after</u> members are selected to become leaders?

Online Communities (OCs)

- A central concern of online communities is how to organize themselves to be self-sustaining
- **Contribution of content is crucial for sustaining OCs!** (Wasko & Faraj 2005; Ransbotham & Kane 2011)
- Wikipedia: Potential admins' contributions are critical for sustaining the community

Research Objectives

- Understand the impact of leadership selection on candidate contributions.
  - Is there a difference in contribution behavior between successful and unsuccessful candidates (at the margin) following an election? (Regression Discontinuity Design)
  - What is the effect of successfully becoming an admin on contribution behavior? (Matching)
  - What is the effect of failing to become an admin on contribution behavior? (Matching)

Bottom line (1)

- Yes!
  - There is a difference in contribution behavior between successful and unsuccessful candidates
  - We see that successful candidates contribute less across most of the 17 different edit types (more to come) than unsuccessful candidates in the one month following the election.
  - But we don't know if this a result of successful candidates decreasing their contributions or unsuccessful candidates increasing their contributions.

Bottom line (2)

- How does selection impact contributions of the successful candidates? And unsuccessful?
  - successful candidates contribute less than they were pre-RfA
  - unsuccessful candidates did not change their contributions.

How might the election impact contribution behavior?

What is the impact of leadership status?

- Depends on how being elected is perceived:
  - Is being elected a reward for past performance? (Levina and Arriaga 2014)
  - Or is being elected an incentive for future performance? (Milgrom and Roberts 1992, Pendergast 1999, Lazear 2004, Goes et al. 2016))

What is the impact of online leadership selection on contributions ?

	Successful Candidates	Unsuccessful Candidates
Positive Impact	+ boosted morale, new and flexible ways to contribute (reward)	+ high incentives to achieve social distinction in future (incentive)
Negative Impact	- no incentive to pursue further social status (incentive)	- dampened morale, reduced passion and loyalty to the OC (reward)

This is theoretical puzzle, which we hope to resolve in our empirical study.

Research Question

What is the impact of online leadership selection on candidates' subsequent online contribution behaviors?

Research Setting

Roles in Wikipedia

Role	Description	Function
Wikipedians (Editors)	Volunteers who write and edit Wikipedia's articles, unlike readers who simply read them.	Wikipedians do a wide variety of tasks, from fixing typos and removing vandalism to resolving disputes and perfecting content, but are united in a desire to make human knowledge available to every person on the planet.
Admins (Sysops)	Editors who have been granted the technical ability to perform certain special actions on the English Wikipedia	Admins have the ability to block and unblock user accounts, IP addresses, and IP ranges from editing, edit fully protected pages, protect and unprotect pages from editing, delete and undelete pages, rename pages without restriction, and use certain other tools.
Bureaucrats	Wikipedia users, usually administrators, with the technical ability to perform certain actions	Bureaucrats have the ability to add the administrator, bureaucrat, interface administrator, account creator, pending changes reviewer, or bot user group to an account, and to remove the administrator, interface administrator, account creator, IP block exemption, pending changes reviewer, or bot user group from an account

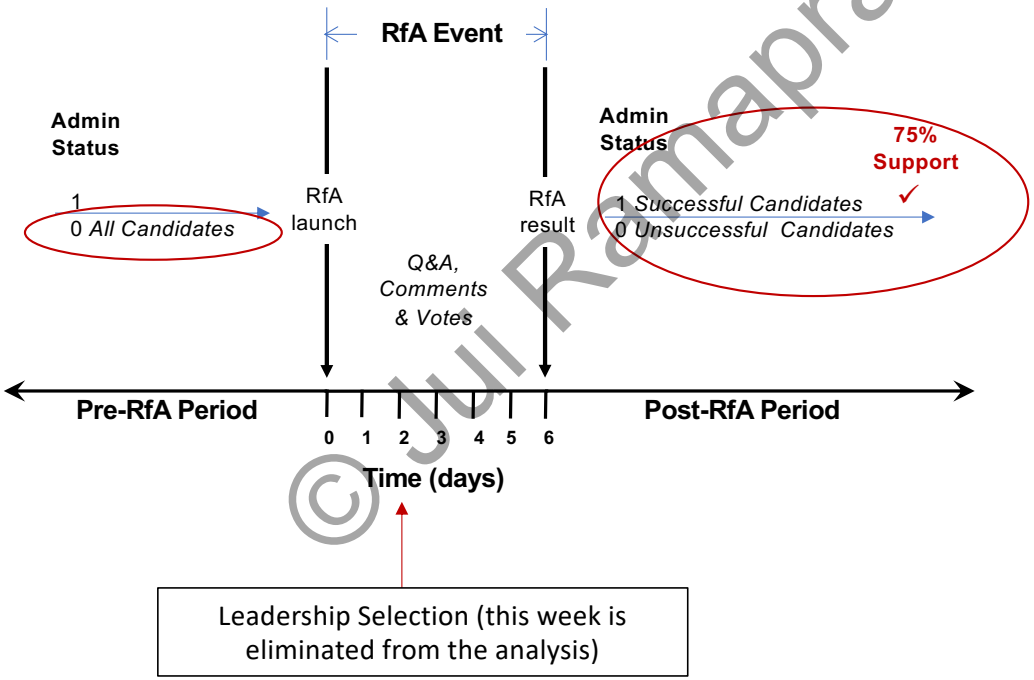
Becoming an Admin – a Democratic Process

- Editors can request at any time to be considered for Admin
- Editors must answer three standard questions (an any other that can arise from community members)
  - What administrative work they intend to take part in;
  - What are their best contributions;
  - What is their experience in editorial conflicts and how they intend to manage conflict-related stress in the future.

Becoming an Admin – a Democratic Process

- All registered members of Wikipedia can vote
  - Voters examine a broad range of evidence including a strong edit history, diverse experience, civil interaction with other users, policy understanding, and conflict resolution skills among other
- Transparent process: editors can see who approves or opposes, and voters can communicate with candidates
- Bureaucrat manages the election
  - Reads votes and voter's comments
  - Candidates with more than 75% support votes are generally successful
- Depending on the year, between 30% to 70% of candidates are successful

Wikipedia Request for Adminship (RfA)



What is the impact of online leadership selection on candidates' subsequent online contribution behaviors?

Research Objectives

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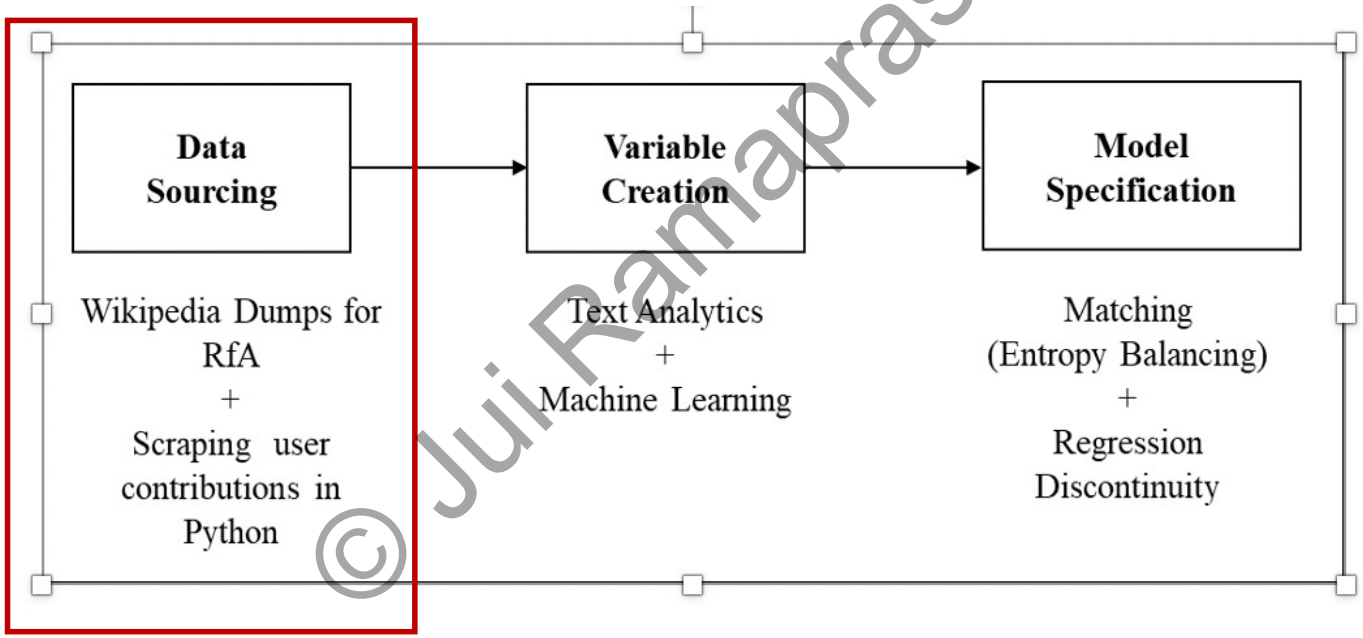
Research Process



Data

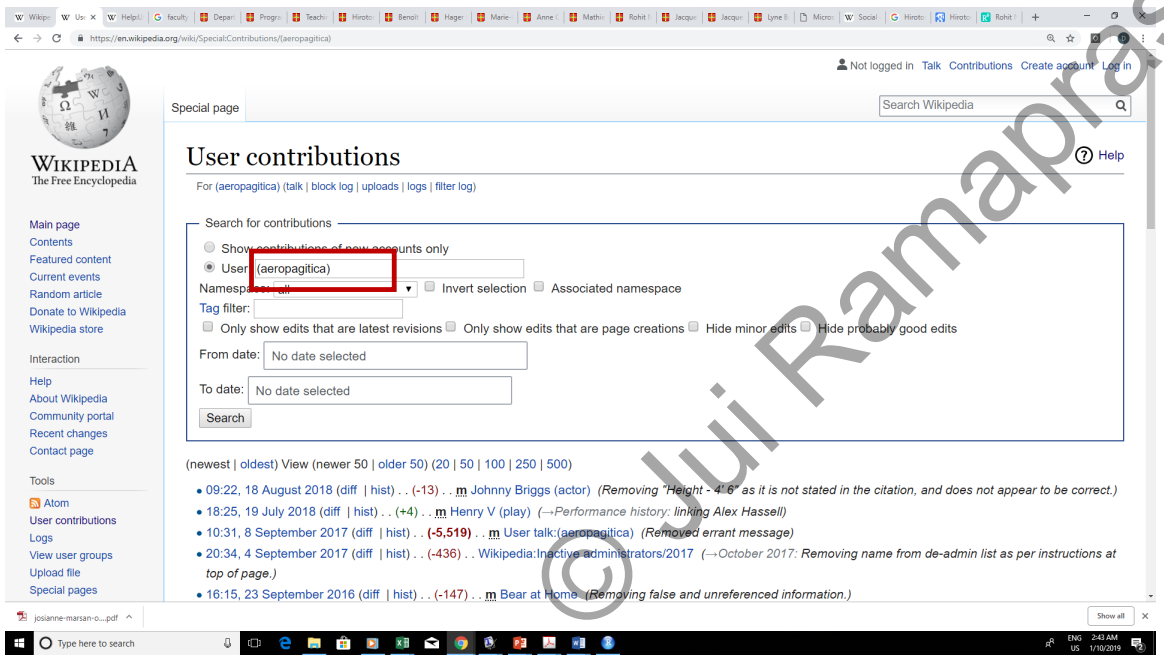
- RfA process & User Contributions
- Years: January 2004 – December 2013
- 2368 unique candidates
- 3664 RfA bids → event of interest

Wikipedia RfA Data (West et al.2014)

Voter	Candidate	Vote	Result	Date	Text
NoSeptember	(aeropagitica)	1	1	3/4/2006 15:24	'''Support''', he is doing good work and will do fine as an adr
Krash	(aeropagitica)	1	1	3/4/2006 21:30	'''Support'''. No big deal. He's an asset. --
Raven4x4x	(aeropagitica)	1	1	3/5/2006 0:27	'''Support''' although some more interaction would be nice.
Rogerd	(aeropagitica)	1	1	3/5/2006 3:42	'''Support''' good editor --
JIP	(aeropagitica)	1	1	3/5/2006 21:15	'''Extra support with knobs on'''. I've had a few encounters v
Master Jay	(aeropagitica)	1	1	3/6/2006 22:36	'''Support''' could use the mop, bucket, and squeegee well.
ILovePlankton	(aeropagitica)	-1	1	2/28/2006 2:05	'''Oppose''' Not enough interaction with other people. He o
JStewart	(aeropagitica)	-1	1	2/28/2006 5:22	'''Oppose''' needing some more talk page edits. --
DaGizza	(aeropagitica)	-1	1	2/28/2006 7:40	'''Weak Oppose''' Aeropagitica's speech convinced me a littl
JJay	(aeropagitica)	-1	1	2/28/2006 9:07	'''Oppose'''. Seems to lack experience with active participat
Geogre	(aeropagitica)	-1	1	2/28/2006 11:18	'''Weakly''' oppose on the basis of time on project. Having e
Jonathunder	(aeropagitica)	-1	1	2/28/2006 13:57	'''Oppose''', per JJay. Please keep building the encyclopedia
Dlyons493	(aeropagitica)	-1	1	3/1/2006 20:56	'''Oppose''' for now, fully expect to support next time round
Zaheer89	(aeropagitica)	-1	1	3/2/2006 1:58	'''Oppose''' as above.
Sarah Ewart	(aeropagitica)	-1	1	3/4/2006 0:54	'''Oppose''' per JJay and low talk edits.
Xoloz	(aeropagitica)	-1	1	3/5/2006 19:37	'''Oppose''' per Geogre. More time is needed for the user to
Ghirlandajo	(aeropagitica)	0	1	2/28/2006 9:45	'''Neutral'''. Good candidate but needs more experience. --
Grutness	(aeropagitica)	0	1	2/28/2006 23:08	'''neutral''', leaning towards support. Good user, but needs a
Xaosflux	(aeropagitica)	0	1	3/1/2006 4:29	'''Neutral''' very little use of Talk or User talk areas, admins r

Allows us to calculate the percentage of support votes, and ultimately the support vote margin (needed for the RDD)

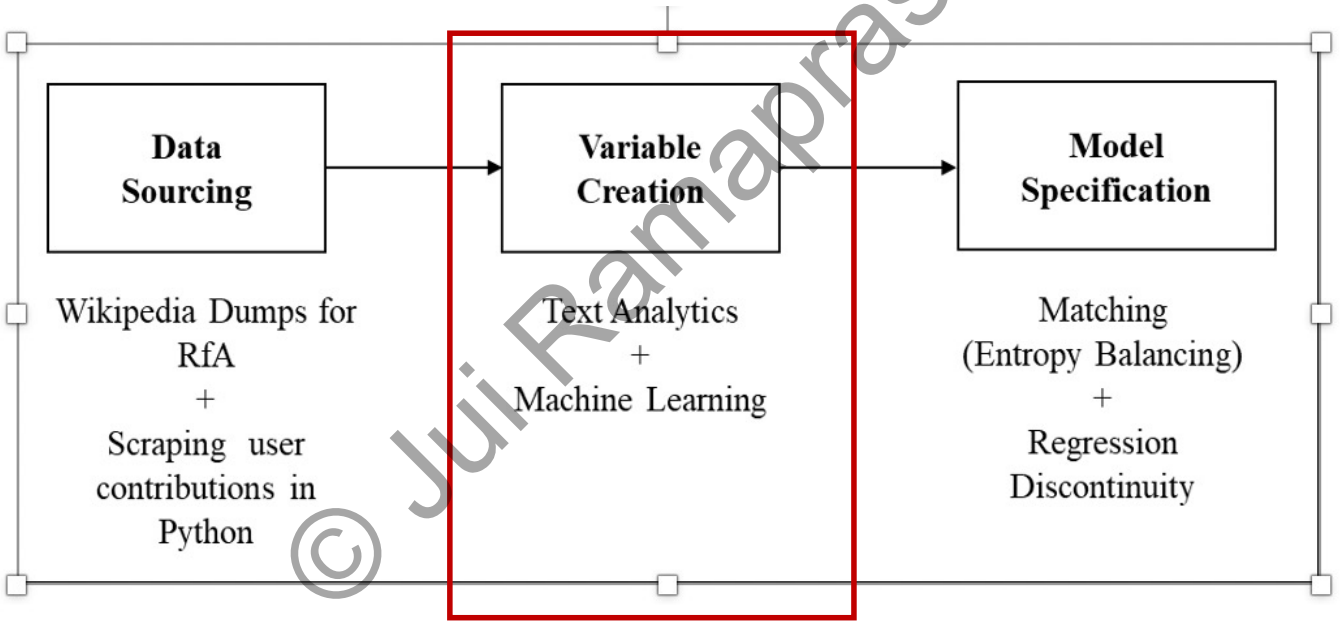
User Contribution Data



- Username
- List of edits
- Date & time of edit
- Edit history
- Changes made
- Number of bytes changed
- Current name of edited page
- Edit summary
- New page created?
- Edit was minor?

Editing on Wikipedia

Research Process



Variable Creation: Edit Categorization

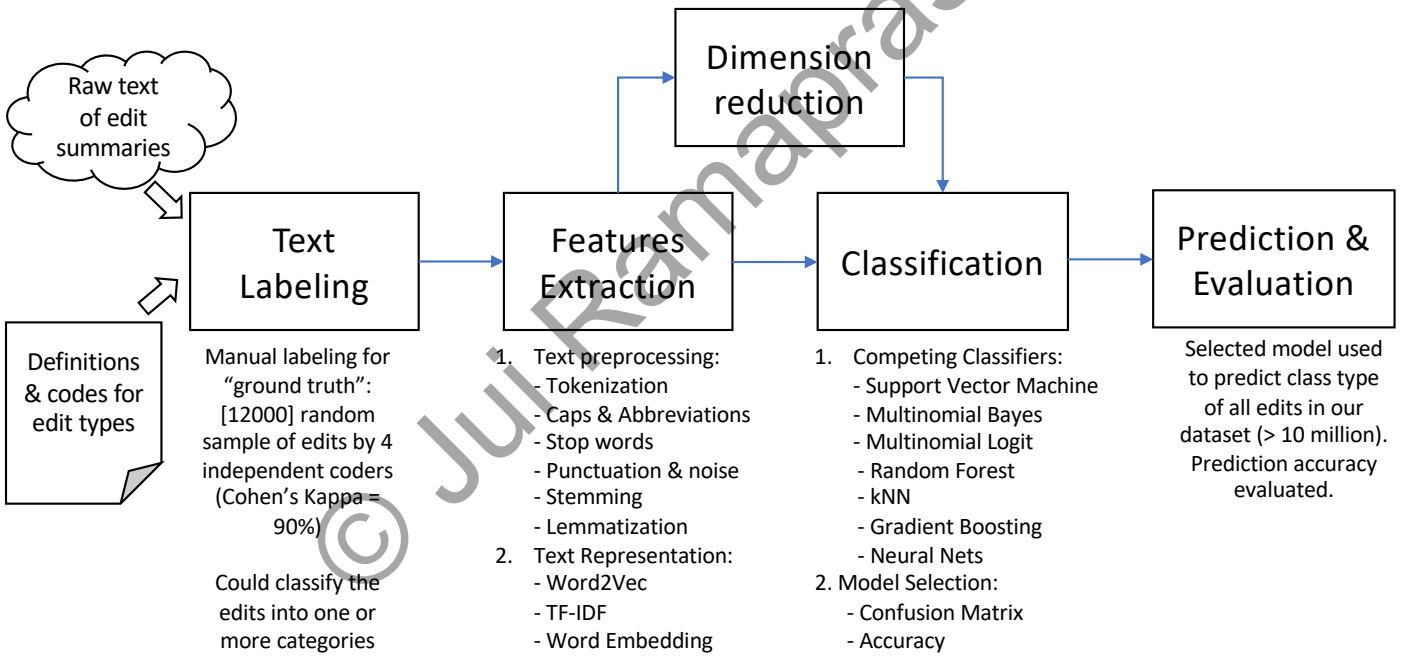
- Prior Literature (Kriplean et al. 2008, Arazy and Nov 2010, Antin et al 2016, Antin et al 2012)
  - Focus on a Wikipedia pages (e.g. only the Wikipedia articles)
  - Look at editors/contributors at large
- Our paper:
  - Voters observe *all* contribution activities
  - Comprehensive set of Wikipedia pages (not only articles, e.g. "talk" pages)
  - Interested in behavior of admins

→ We had to re-think the process of categorizing edits.

Table 2. Edit Task Labels & Activity Categories

Edit task		Description
1.0	No. of edits	Sum of core article, managerial, and admin-only task edits
Core Article Activities		
2.1	Page Creation	Create new pages, articles, and/or accounts.
2.2	Major Addition	New information is added, meaning of page changes and byte difference increases by more than 100bytes.
2.3	Major Deletion	Existing information is deleted, meaning of page changes and byte difference decreases by more than 100bytes.
2.4	Reference	A reference to an external source is added, deleted, or changed.
2.5	Minor Addition	Grammatical, spelling, and / or minor formatting changes and byte difference increases by less than 100bytes.
2.6	Minor Deletion	Grammatical, spelling, and / or minor formatting and byte difference decreases by less than 100bytes.
2.7	Move Page	Move an existing page and redirect old page to new page.
2.8	Hyperlinks & Wiki Markup	A link to a Wikipedia page is added, deleted, or changed.
2.9	Text Style & Copy	Sentences are restructured for clarity, article's meaning unchanged.
3.0	Page Structure & Organization	Text bodies, headings, categories, sections are added or deleted
Managerial Activities		
4.1	Request permission & Consensus	Request for admin permissions, actions, tools, and consensus.
4.2	Warn Vandal	Level 1 (good faith) to level 4 (final bad faith) warning to real or potential vandals.
4.3	Revert Vandal	Revert up to 3 edits in a page at a time (following 3-revert-rule).
Admin-only Activities		
5.1	Admin Deletion	Delete page and page histories, images, and media files.
5.2	Admin Move Page	Move an existing page without redirecting, move images and media files, automatically move subpages in bulk.
5.3	Protect & Block Page	Protect and unprotect pages, block vandals, edit protected pages and page interfaces.

Variable Creation:
Classifying Edit Types in Wikipedia



Model Selection

Classifier	Training Accuracy	Validation Accuracy	Weighted F1-Score
Random Forest	93.36%	89.84%	89%
Multinomial Logistic Regression	89.33%	89.13%	88%
Neural Nets	92.90%	88.83%	89%
Gradient Boosting Machine	93.56%	88.68%	88%
Support Vector Machines	86.11%	86.83%	86%
k Nearest Neighbor	84.90%	84.70%	86%
Multinomial Naïve Bayes	85.80%	85.79%	85%

Model Selection

- The competing models based on acceptable accuracy were Random Forest, Multinomial Logit, Neural Nets & Gradient Boosting
- Hence, we built an ensemble model with the top three classifiers.

Final Dataset

- So, now we use our classifier to label the ~11 million edits in our dataset (our dependent variables).
- Monthly-level longitudinal panel of contribution behavior across
  - 17 edit types for 2368 candidates in 3664 RfA events between 2004-2013
  - 11,402 users (candidates and voters)
  - 179,777 votes
- RQ: What is the impact of leadership selection on contribution behavior?

Descriptive Statistics (one month window)

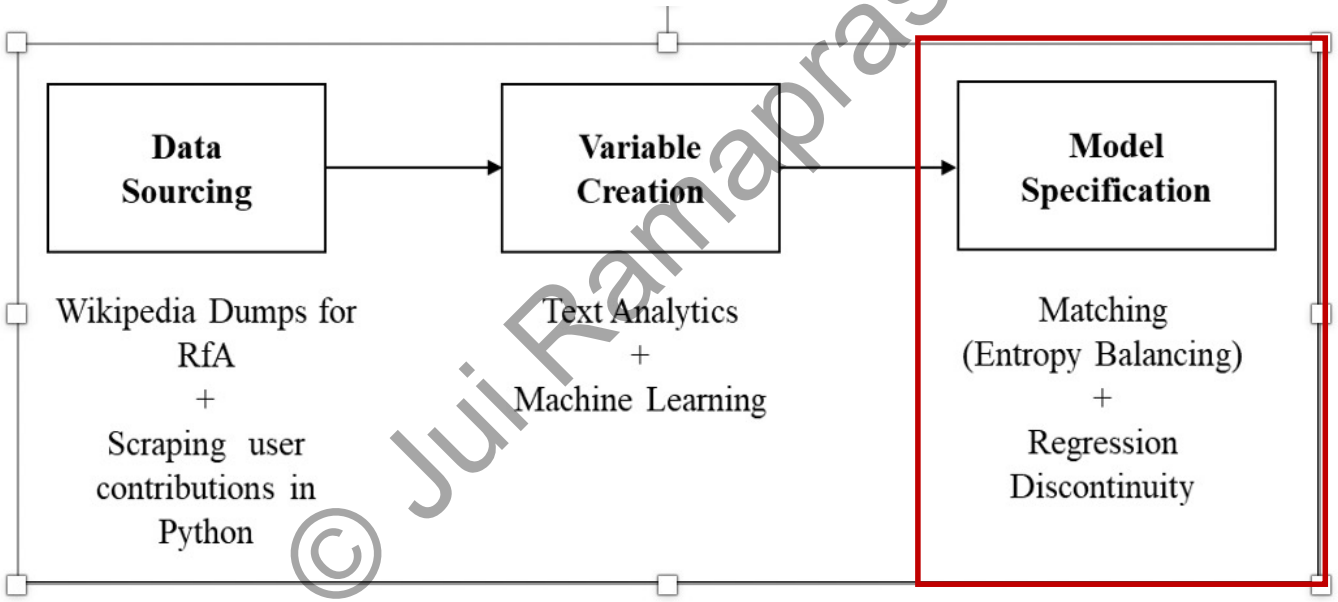
Table 3. Descriptive Statistics*

	Variable	N	Mean	SD	Min	Max
Panel A: Contribution Behaviors						
1.0	No. of Edits	2368	311.31	751.30	0.00	10635.00
Core Article Activities						
2.1	Page Creation	2368	4.79	17.57	0.00	468.00
2.2	Major Addition	2368	111.51	282.40	0.00	3520.00
2.3	Major Deletion	2368	22.21	61.90	0.00	850.00
2.4	Reference	2368	4.53	16.49	0.00	421.00
2.5	Minor Addition	2368	111.89	301.10	0.00	6266.00
2.6	Minor Deletion	2368	65.19	224.41	0.00	6921.00
2.7	Move Page	2368	6.47	22.14	0.00	486.00
2.8	Hyperlinks & Wiki Markup	2368	12.64	39.80	0.00	841.00
2.9	Text Style & Copy Edit	2368	101.24	226.51	0.00	2397.00
2.10	Page Structure & Organization	2368	18.65	60.89	0.00	1408.00
Managerial Activities						
3.1	Request Permission & Consensus	2368	15.74	49.18	0.00	921.00
3.2	Warn Vandal	2368	5.73	25.25	0.00	594.00
3.3	Revert Vandal	2368	38.27	122.59	0.00	1591.00
Admin Activities						
4.1	Admin Deletion	2368	4.70	19.24	0.00	261.00
4.2	Admin Move Page	2368	0.30	5.09	0.00	163.00
4.3	Protect & Block Page	2368	5.79	31.14	0.00	681.00

Descriptive Statistics

Panel B: RfA Variables						
1	Editor's RfA Result	2368	0.57	0.50	0.00	1.00
2	Editor's Tenure	2368	548.04	503.10	1.00	3318.00
3	Editor's RfA Attempts	2368	1.16	0.47	1.00	7.00
4	RfA Turnout	2368	49.93	41.79	1.00	255.00
5	Non-Support Votes	2368	15.19	25.61	0.00	238.00
6	Support Vote Margin	2368	0.04	0.30	-0.68	0.28

Research Process



Identification Issues

- "Being elected" is not randomly assigned.
- Concern: Are there systematic differences between the treatment group (successful candidates) and control group (unsuccessful candidates) that are related to both the likelihood of getting elected and contribution behavior
  - For example, candidates may engage in strategic manipulation, by inflating their contribution before the RfA process begins.
  - This may impact both the likelihood of getting elected as well as contribution behavior post-election.

Two strategies:

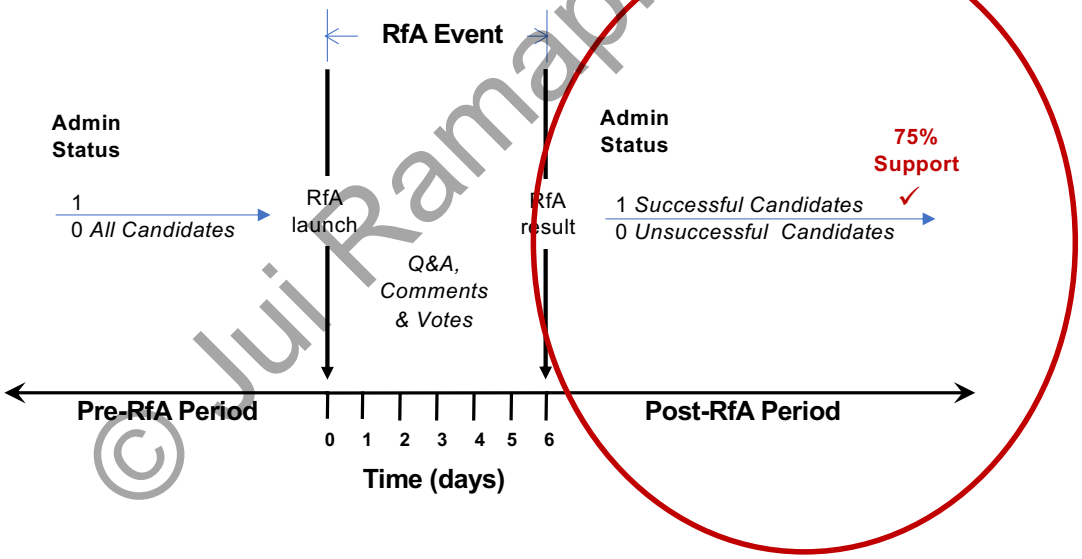
(1) Regression Discontinuity Design: specifically examines candidates at the margin (immediately around the cutoff) to accommodate identification concerns

(2) Matching: match treatment group users and control group users based on pre-election contribution behavior to accommodate identification concerns

Two strategies:

(1) Regression Discontinuity Design: specifically examines candidates at the margin (immediately around the cutoff) to accommodate identification concerns

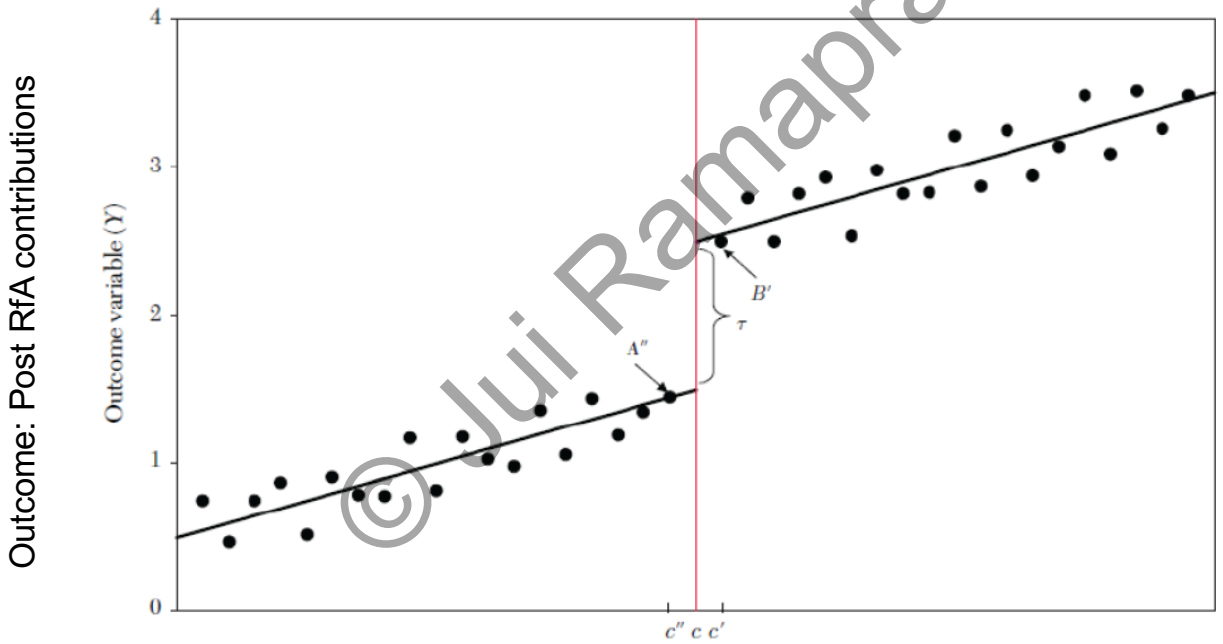
Identification Strategy



Regression Discontinuity Design:

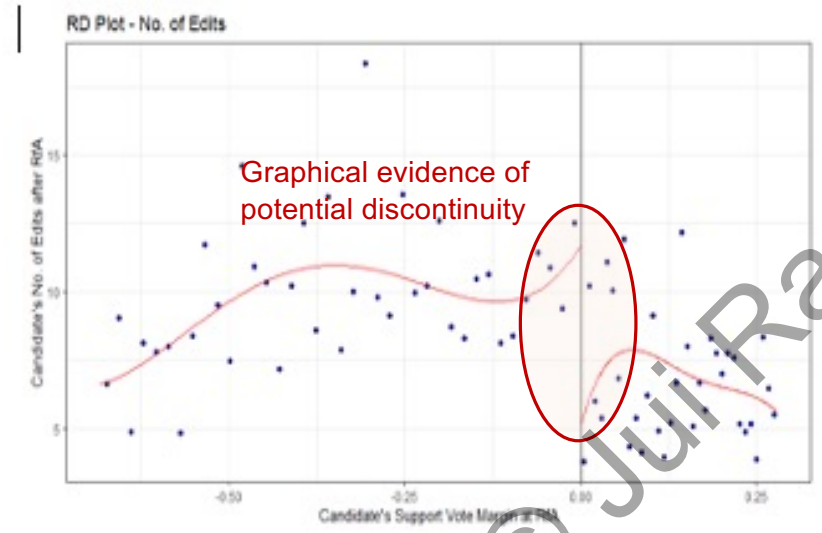
- Exploit randomization around the RfA cut-off (75% support votes) to evaluate the causal effect of becoming an admin on contribution behavior (Imbens & Lemieux 2007, Lee 2008)
- Assign units to treatment group if above the cutoff, below if not
- Non-parametric estimation, bins, and optimal bandwidths based on data-driven techniques (Calonico, Cattaneo, & Titiunik 2015; 2017)

Regression Discontinuity Design (Example)



Margin of support votes: total support votes for a candidate – threshold of support votes required to be elected as an admin.

RD Plot : (Total No. of Edits)



Contribution Behavior	Effect of becoming an admin	Percent difference	95% Lower CI	95% Upper CI
No. of Edits	-214.43*** (82.21)	-194.71%	-265.89%	-123.54%

Conclusion: Our RD Design suggests that one month after RfA events, candidates who barely won their RfA promotion bids contribute significantly less total number of edits than those who barely lost their RfA bids.

Regression Discontinuity Results

Table 3. Regression Discontinuity Results
Effect of Becoming an Admin on Subsequent Contribution Behavior

	Contribution Behavior	Effect of becoming an admin (std error)	Percent difference	95% Lower CI	95% Upper CI
1.0	No. of Edits	-214.43** (82.21)	-194.71%	-265.89%	-123.54%
Core Article Activities					
2.1	Page Creation	-1.59* (0.69)	-187.86%	-263.36%	-112.36%
2.2	Major Addition	-65.77** (23.71)	-235.79%	-331.71%	-139.87%
2.3	Major Deletion	-14.11* (5.99)	-253.07%	-380.61%	-125.52%
2.4	Reference	-1.74* (0.82)	-210.89%	-312.87%	-108.92%
2.5	Minor Addition	-111.89* (47.87)	-308.22%	-482.83%	-133.62%
2.6	Minor Deletion	-37.68** (14.36)	-219.30%	-308.44%	-130.16%
2.7	Move Page	-2.61 (2.39)	-238.05%	-486.05%	9.94%
2.8	Hyperlinks & Wiki Markup	-10.91* (5.02)	-363.05%	-600.43%	-125.66%
2.9	Text Style & Copy	-63.40* (30.68)	-303.16%	-495.86%	-110.45%
2.0	Page Structure & Organization	-8.16* (3.70)	-209.60%	-306.93%	-112.26%
Managerial Activities					
4.1	Permission & Consensus	-5.29* (2.13)	-197.86%	-275.02%	-120.69%
4.2	Warn Vandal	-1.59 (1.05)	-188.48%	-303.45%	-73.46%
4.3	Revert Vandal	-15.88* (6.60)	-235.45%	-345.85%	-125.04%
Admin-only Activities					
5.1	Admin Deletion	-3.74 (2.02)	-554.62%	-1034.91%	-74.21%
5.2	Admin Move Page	-0.22 (0.14)	-572.34%	-1136.17%	-8.51%
5.3	Protect & Block Page	5.51† (2.98)	1133.11%	-171.59%	2437.81%

Density of the Running Variable

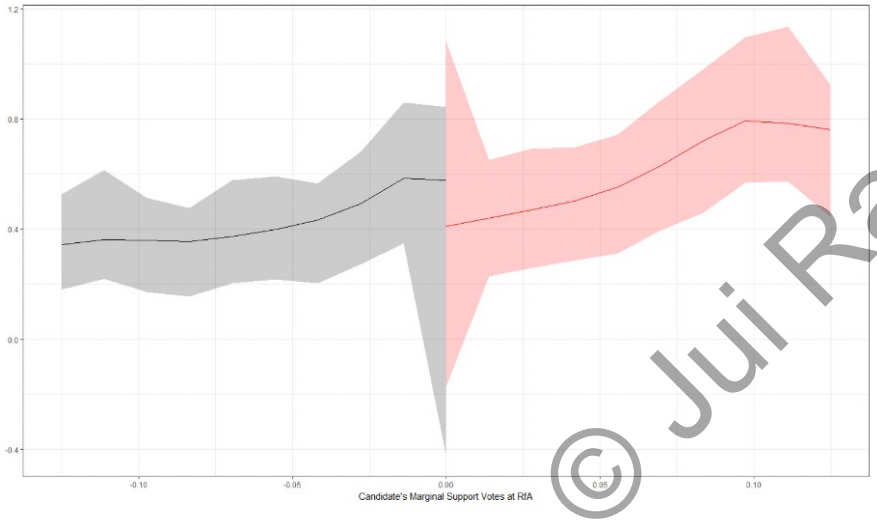
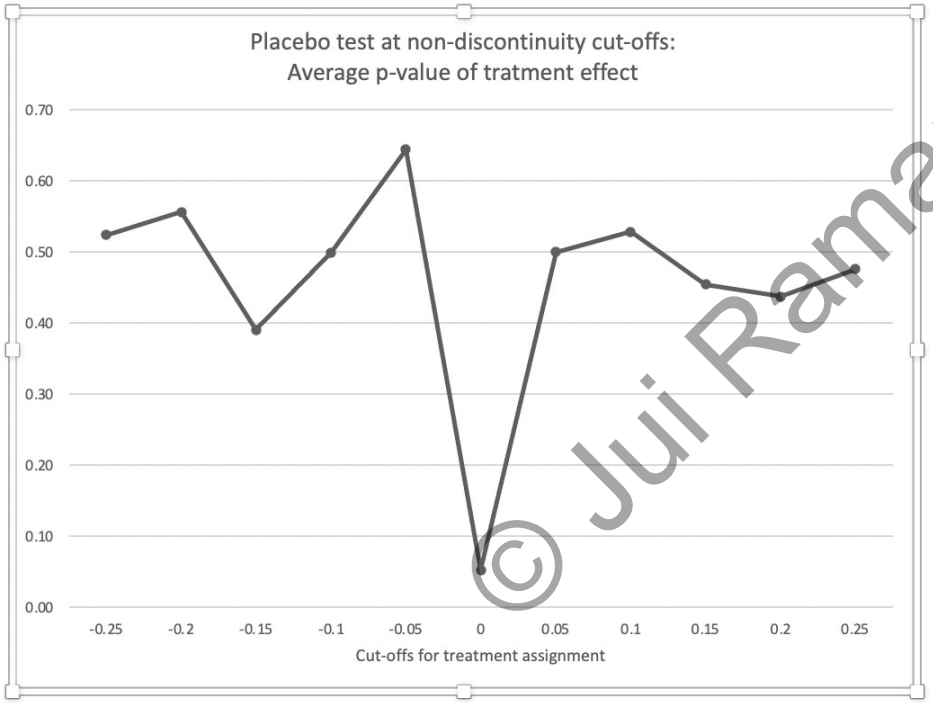


Figure 5. Manipulation test of the density of *Support Vote Margin*

- Essentially, users should not be able to self-select into the treatment group
- If we see that the density of the support vote margin (the running variable) is continuous (i.e. there is not jump) around the cutoff, then we have evidence that there is not "sorting around the threshold."
- Here: overlapping 95% confidence bads at the cut-off → no systematic manipulation of the support vote margin by candidates.

Falsification (Cutoff not at 75%)



- Should not expect to observe a treatment effect at any other cut-off
- Re-ran analysis at other cutoffs
- We only see significant results at the 75% cutoff

Test for Baseline Covariates

Table 6. Discontinuities in Baseline Covariates

Effect of Becoming an Admin on Baseline Contribution Behavior

	Contribution Behavior	Effect of becoming an admin	Percent difference	95% Lower CI	95% Upper CI
1.0	No. of Edits	-232.81** (87.55)	-202.83%	-278.62%	-127.04%
Core Article Activities					
2.1	Page Creation	-4.48 (2.91)	-205.85%	-341.64%	-70.06%
2.2	Major Addition	-27.67 (33.84)	-132.64%	-210.89%	-54.39%
2.3	Major Deletion	-5.10 (5.60)	-132.43%	-202.33%	-62.53%
2.4	Reference	-2.03 (1.29)	-176.12%	-270.60%	-81.69%
2.5	Minor Addition	-133.54* (66.59)	-262.28%	-420.89%	-103.67%
2.6	Minor Deletion	-22.22 (20.74)	-145.54%	-228.83%	-62.24%
2.7	Move Page	-6.43** (2.36)	-240.07%	-357.34%	-122.76%
2.8	Hyperlinks & Wiki Markup	-12.62** (4.94)	-288.76%	-420.23%	-157.29%
2.9	Text Style & Copy	-20.44 (25.60)	-142.21%	-268.46%	-15.95%
2.10	Page Structure & Organization	-29.87 (18.05)	-197.23%	-345.06%	-49.41%
Managerial Activities					
3.1	Permission & Consensus	-8.62 (5.80)	-133.38%	-207.22%	-59.55%
3.2	Warn Vandal	-1.21 (2.29)	-136.33%	-226.86%	-45.82%
3.3	Revert Vandal	-24.48 (14.33)	-169.14%	-277.59%	-60.68%
Admin Activities					
4.1	Admin Deletion	-2.18 (1.48)	-250.34%	-415.19%	-85.49%
4.2	Admin Move Page	-1.47 (1.11)	-1832.43%	-4251.35%	585.14%
4.3	Protect & Block Page	2.67 (1.75)	418.06%	-247.57%	1083.50%

- Becoming an admin should not influence contributions prior to the RfA event
- User baseline measures of contribution behavior (pre-RfA contributions) and compare the "treated" group with the "control" group
- We observe no difference in pre-contribution behaviors for the majority of edit types.

Results: Significant & Causal

Type of Edit	Sig?	Direction
Core Article - Content: Page Creation, Major Addition, Major Deletion, Reference	Yes	Neg.
Core Article – Editorial Minor Deletion, Text Style & Copy, Page Structure & Organization	Yes	Neg.
Peripheral: Request Permission & Consensus, Revert Vandal	Yes	Neg.
Admin: Admin Deletion Protect & Block Page	Yes	Neg.

- Effects were generally negative
- Causal relationship determined by ensuring local random assignment, i.e. check for treatment effect on baseline measures of covariates – pre-contribution (if significant → not causal)

Other Robustness Checks

- RDD with covariates
- Fuzzy RDD design (takes into account non-compliers and cross-overs)
- Parametric RD design

Research Objectives

- Understand the impact of leadership selection on candidate contributions.
  - Is there a difference in contribution behavior between successful and unsuccessful candidates (at the margin) following an election? (RDD)
  - What is the effect of successfully becoming an admin on contribution behavior? (matching)
  - What is the effect of failing to become an admin on contribution behavior? (matching)

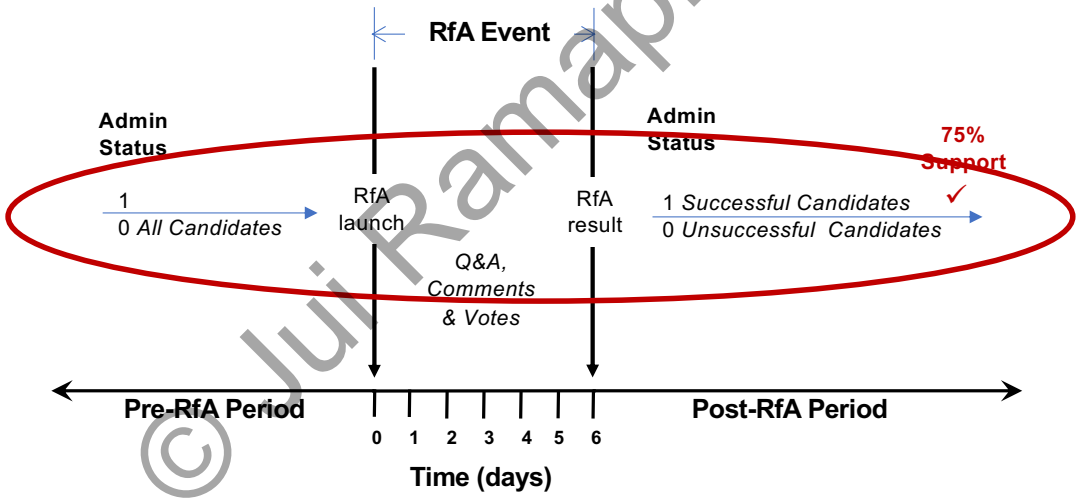
Successful vs. Unsuccessful Candidates

- Is this (negative) discontinuity effect due to:
  - a *disproportionately negative* impact on successful candidates, i.e. successful candidates are contributing less
  - a *disproportionately positive* impact on unsuccessful candidates, i.e. unsuccessful candidates are contribution more

Two strategies:

(2) Matching: match treatment group users and control group users based on pre-election contribution behavior to accommodate identification concerns

Identification Strategy

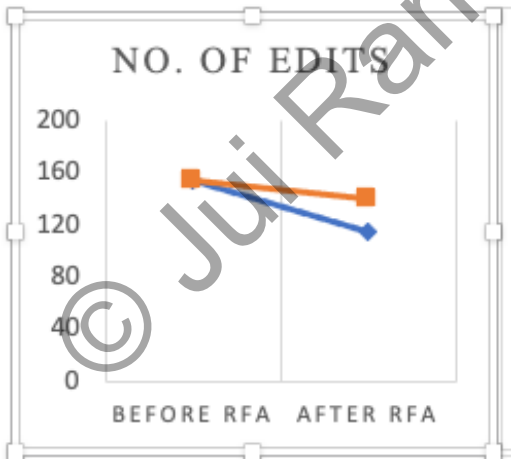


Covariance Adjusted Mean Difference (Matching)

- Need to compare means for pre- and post-RFA for both groups, but time-varying co-variates could introduce bias within groups across periods.
- Use entropy balanced matching (Heinmueller 2012) first to control for imbalances in pre- and post-RfA contributions (one month before and one month after)
- Pass the resulting weights to a weighted t-test estimator

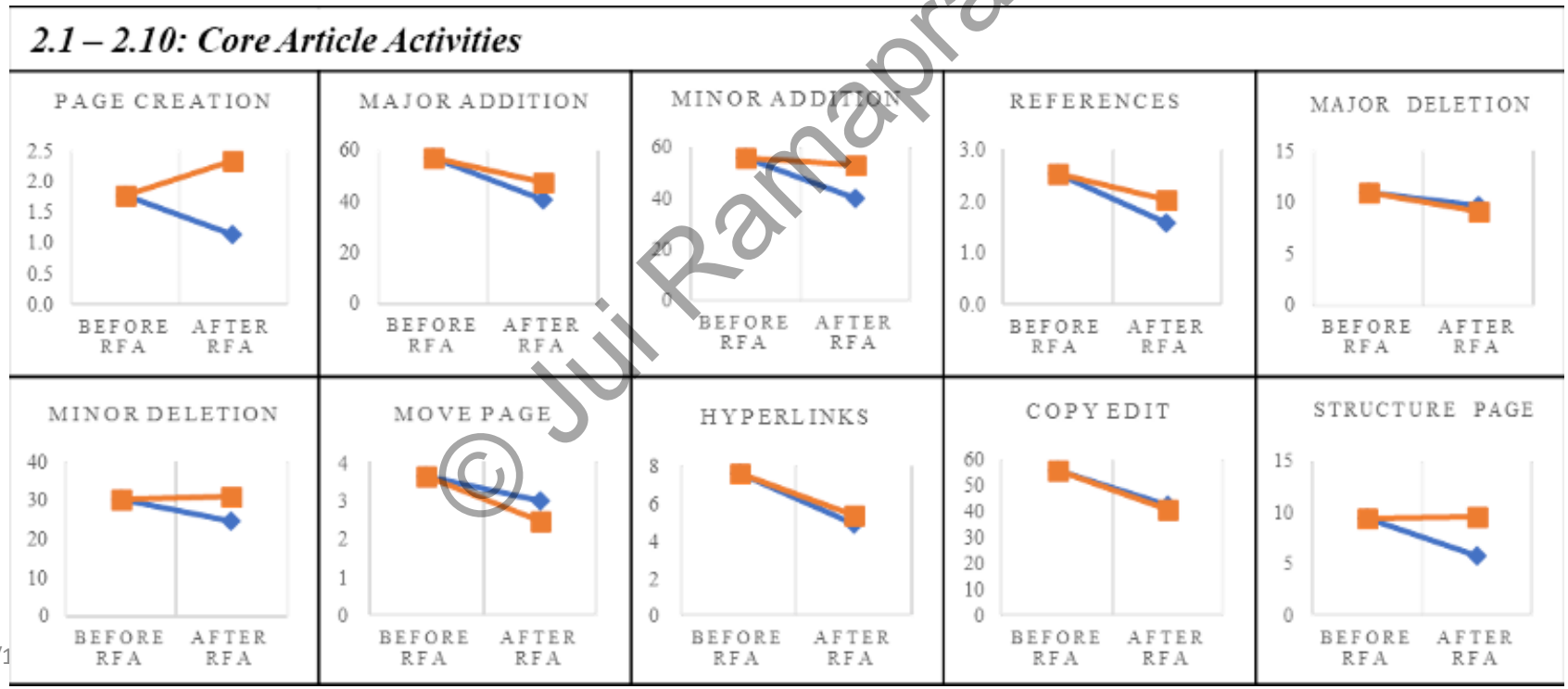
For example: Total Number of Edits

	Contribution Behavior	Panel A: Successful Candidates Pre-RfA	Post-RfA	Mean diff.	T-stat	P-value	Panel B: Unsuccessful Candidates Matched Pre-RfA	Post-RfA	Mean diff.	T-stat	P-value
1.0	No. of Edits	153.80	115.33	-38.46	-2.98	0.00	153.80	140.23	-13.57	-0.71	0.48

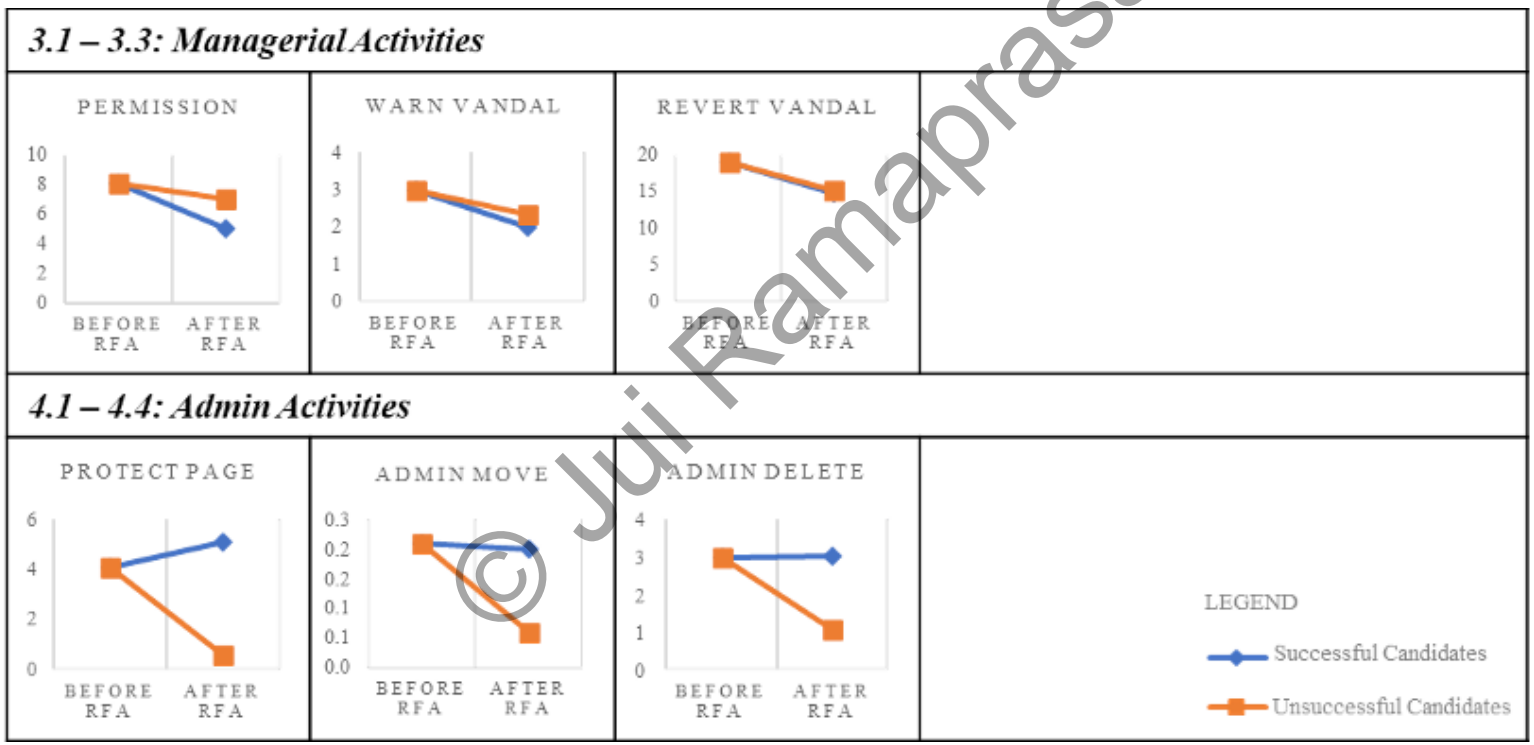


Conclusion: Our matching analysis suggests that successful candidates reduce the total number of edits, while unsuccessful candidates do not have a significant change in the number of edits one month after the election as compared to one month before.

Matching: Core Article Activities



Matching: Managerial & Admin Activities



Summary of Matching Results

		Successful	*Unsuccessful*
Core Article			
2.1	Page Creation	-	+
2.2	Major Addition	-	N.S
2.3	Major Deletion	N.S.	N.S
2.4	Reference	-	N.S
2.5	Minor Addition	-	N.S
2.6	Minor Deletion	-	N.S
2.7	Move Page	N.S.	-
2.8	Hyperlinks & Wiki Markup	-	-
2.9	Text Style & Copy Edit	-	-
2.10	Page Structure & Organization	-	N.S
Managerial Tasks			
3.1	Request permission & consensus	-	N.S.
3.2	Warn Vandal	-	N.S.
3.3	Revert Vandal	-	N.S.
Admin-only Tasks			
4.1	Admin Deletion	N.S.	-
4.2	Admin Move Page	N.S.	N.S
4.3	Protect & Block Page	N.S	-

Generally: successful candidates reduce contributions; unsuccessful candidates don't change.

		Successful	*Unsuccessful*
Core Article			
2.1	Page Creation	-	+
2.2	Major Addition	-	N.S
2.3	Major Deletion	N.S.	N.S
2.4	Reference	-	N.S
2.5	Minor Addition	-	N.S
2.6	Minor Deletion	-	N.S
2.7	Move Page	N.S.	-
2.8	Hyperlinks & Wiki Markup	-	-
2.9	Text Style & Copy Edit	-	-
2.10	Page Structure & Organization	-	N.S
Managerial Tasks			
3.1	Request permission & consensus	-	N.S.
3.2	Warn Vandal	-	N.S.
3.3	Revert Vandal	-	N.S.
Admin-only Tasks			
4.1	Admin Deletion	N.S.	-
4.2	Admin Move Page	N.S.	N.S
4.3	Protect & Block Page	N.S	-

Tend to not change or reduce their core article contributions

Tend to continue to do the managerial – type tasks.

Reduce their contribution to more admin tasks.

		Successful	*Unsuccessful*
Core Article			
2.1	Page Creation	-	+
2.2	Major Addition	-	N.S
2.3	Major Deletion	N.S.	N.S
2.4	Reference	-	N.S
2.5	Minor Addition	-	N.S
2.6	Minor Deletion	-	N.S
2.7	Move Page	N.S.	-
2.8	Hyperlinks & Wiki Markup	-	-
2.9	Text Style & Copy Edit	-	-
2.10	Page Structure & Organization	-	N.S
Managerial Tasks			
3.1	Request permission & consensus	-	N.S.
3.2	Warn Vandal	-	N.S.
3.3	Revert Vandal	-	N.S.
Admin-only Tasks			
4.1	Admin Deletion	N.S.	-
4.2	Admin Move Page	N.S.	N.S
4.3	Protect & Block Page	N.S	-

Reduce their core article contributions

Reduce their contributions to the managerial tasks.

Don't change their contributions to more admin tasks.

Bottom line (1)

- Yes!
  - There is a difference in contribution behavior between successful and unsuccessful candidates in the month after the election for those at the margin – barely successful vs. barely unsuccessful.
  - In fact, we see that successful candidates contribute less across most of the 17 different edit types (more to come) than unsuccessful candidates in the one month following the election.

Bottom line (2)

- How does selection impact contributions of the successful candidates? And unsuccessful?
  - For the majority of edit types, successful candidates contribute less than they were pre-RfA and unsuccessful candidates did not change their contributions.
  - Successful candidates: decrease their core article activities and managerial activities but don't change their admin contributions.
  - Unsuccessful candidates: decrease their admin contributions don't change their managerial contributions, and either don't change or reduce their core article contributions.

What is the impact of online leadership selection ?

	Successful Candidates	Unsuccessful Candidates
Positive Impact	+ boosted morale, new and flexible ways to contribute (reward)	+ high incentives to achieve social distinction in future (incentive)
Negative Impact	- no incentive to pursue further social status (incentive)	- dampened morale, reduced passion and loyalty to the OC (reward)

*though we don't see a positive impact, we do see that unsuccessful candidates continue some of their core activities, which could be consistent with the notion that they see being elected as an admin in their future (incentive)
*a negative impact on core activities suggests that successful candidates no longer have the incentive to engage in these and have moved their work over to the admin activities.

Conclusion & Implications

- One of the first studies to examine the impact of leadership election on subsequent activities
- Subsequent contributions are contingent on the outcome
  - Successful and unsuccessful candidates appear to decrease their contributions
  - But, they decrease in different ways
  - What does this mean for the sustainability of the online community?

Thank you!

jramapra@umd.edu

@JuiRamaprasad