Does performance of local representatives matter? Case study of Mumbai

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Summary

- Wanted to analyze the effect of performance of municipal councillors on social development indicators of their constituencies.
- Performance of Mumbai councillors measured in 2011 and 2013. Elections held in 2007 and 2012. Social indicators available from 2009 onwards.
  - All this gave me hopes of a clean design.
- However, data limitation did not allow me to proceed.
- Leftovers,
  - Small party level pro-incumbency effect.
  - Not controlling for endogeneity, good performance does not effect election results next cycle.

Background

- (National->State->Local) Municipal elections are the lowest level state organised elections in urban areas.
- Ideally, these are the guys responsible for roads, sewage, local government schools, health centers etc.
  - Not the national or state level representatives.
- Together they control significant money
  - Mumbai's budget for 2012 was $4.3 Billion
- Mumbai's estimated population 12.6 million.
  - Divided over 224 electoral constituencies
  - 24 administrative wards

- Can a high performing municipal councillor measurably improve the development indicators of her constituency? If yes,
  - What are the high impact functions (of the councillor)?
  - In which type of constituencies?
  - In which areas? Crime? Education? Health? Infrastructure?
- Does it atleast affect her parties chance of winning again?
  - Presumably the thing they care about.

Literature review

- Galasso and Nannicini(2009) present empirical evidence that parties in Italy put up higher quality candidates in contestable districts.
  - By that measure it will be interesting to see if constituencies which have closely fought elections have better performing candidates.
- For India, no consensus on incumbency effect
  - At the national level in India, Leigh(2004) suggests that there is an incumbency disadvantage.
  - At the state level, Uppal (2009) says that there is an incumbency advantage.

Data available

- An urban accountability non-profit (Praja.org) collected and digitised data on development indicators
    - Number of different types of crimes reported on a monthly basis at every police station from 2009 to 2013.
    - Enrollment and drop-out rates of municipal schools, 2008 onwards.
    - Diseases reported/treated at month-year level in all municipal health centers, 2008 onwards.
- They also collected performance data of councillors (2008 onwards)
    - Attendance, questions asked in the assembly, discretionary fund spending, criminal records.
- Roadblock,
    - Multiple electoral constituencies (from 3 to 12) within single administrative constituencies.
    - Not possible to pin-point the socio-economic indicators to a specific representative.
    - 24 wards, 224 constituencies.

Data I used

- Praja.org, used all the performance indicators of the councillors to create a performance index for the year 2011 and 2013.
  - Categories such as attendance, number of questions, quality of questions, criminal record, perceived performance.
- I also found election results data for the year 2007 and 2012.
  - Total votes polled.
  - votes, sex, party of all the candidates
- This allowed me to test the effect of performance in 2011 on 2012 election results controlling for 2007 election margin.
  - Performance, only available for winners.
  - RDD or any other causal test not possible.
- Also did a simple incumbency effect analysis, only for the years 2007 and 2012 and only for the city of Mumbai.

- Election results for 224 municipal constituencies for Mumbai for the year 2007 and 2012.

$$y_i = f(X_i) + win_i + win_i * f(X_i)$$

- y is margin of victory for a party-constituency pair for the year 2012.
  - For the winner of the constituency, margin of victory is positive and is equal to vote share of winner minus the vote share of first runner up.
  - For rest of the candidates, margin of victory is negative and equal to their vote share minus the vote share of the eventual winner.
- X is margin of victory for the same party-constituency pair for the year 2007.
- win is coefficient of interest (1 if the party won in 2007).
- All the controls I potentially had were at the ward level.
  - Ward level fixed effects make them redundant.
- Don't have data to check for robustness of RDD assumption.
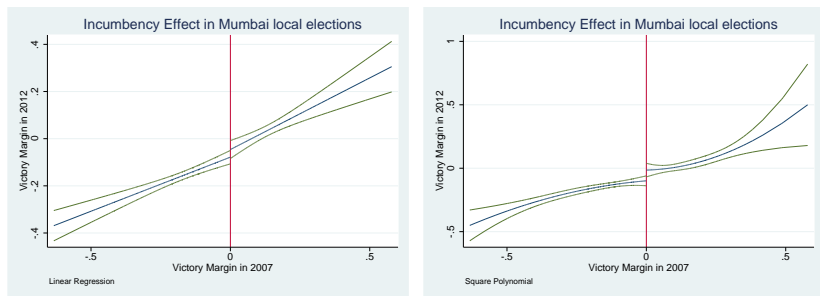
Incumbency effect, results

Figure: Incumbency effect RDD, linear v/s quadratic
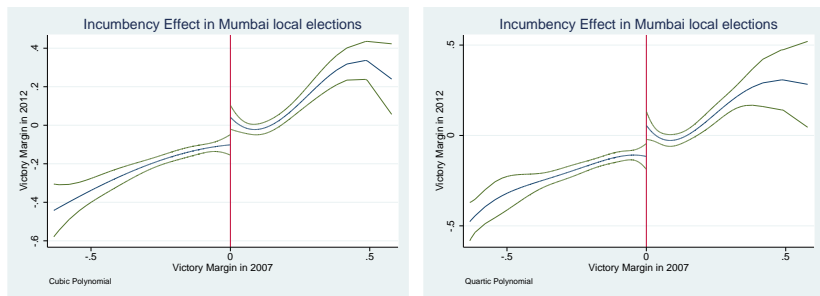
Incumbency Effect (contd.)

Figure: Incumbency effect RDD, cubic v/s quartic

Incumbency Effect (contd..)

Table 1: Victory margin(2012) vs Victory margin(2007) (Main table)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Dependent Variable: Victory margin in 2012				
Victory Margin(2007)	0.459***	0.485***	0.185	0.251	0.127	0.121	-0.370	-0.437
	(0.0685)	(0.0787)	(0.194)	(0.152)	(0.445)	(0.384)	(0.922)	(1.013)
Victory Margin(2007)^2			-0.584	-0.502	-0.856	-1.108	-4.912	-5.664
			(0.385)	(0.318)	(1.848)	(1.740)	(6.667)	(7.426)
Victory Margin(2007)^3					-0.330	-0.732	-11.59	-13.39
					(2.070)	(2.078)	(17.41)	(19.31)
Victory Margin(2007)^4							-9.752	-10.96
							(14.41)	(15.89)
win	0.0322	0.0305	0.0845**	0.0836**	0.144***	0.145**	0.172***	0.174*
	(0.0242)	(0.0325)	(0.0338)	(0.0375)	(0.0417)	(0.0524)	(0.0540)	(0.0860)
win*Victory Margin(2007)	0.149	0.101	-0.123	-0.277	-1.694**	-1.736**	-1.792	-1.744
	(0.138)	(0.115)	(0.418)	(0.403)	(0.743)	(0.703)	(1.505)	(1.336)
win*Victory Margin(2007)^2			2.014*	2.104	11.46***	11.67**	21.27*	21.72
			(1.077)	(1.257)	(3.419)	(4.289)	(12.32)	(17.92)
win*Victory Margin(2007)^3					-12.30***	-11.61***	-19.52	-16.64
					(4.185)	(3.795)	(36.19)	(33.31)
win*Victory Margin(2007)^4							27.83	28.29
							(33.46)	(43.94)
Constant	-0.0783***	-0.0738***	-0.0991***	-0.0915***	-0.102***	-0.0975***	-0.116***	-0.114***
	(0.0145)	(0.0146)	(0.0199)	(0.0150)	(0.0272)	(0.0218)	(0.0366)	(0.0383)
Observations	675	675	675	675	675	675	675	675
R-squared	0.265	0.273	0.271	0.280	0.279	0.287	0.280	0.288
Ward fixed effects		✔		✔		✔		✔

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
VM(2007) is ind. variable for victory margin in year 2007
Win is dummy for constituencies where victory margin is greater than 0. Total number of wards:24

Effect of performance

- ▶ Performance index
  - ▶ Attendance, number of questions, quality of questions, criminal charges, and survey of voters

  $$y_i = f(X_i) + Performance\_index_i$$

  - ▶ y and X are the same as before.
  - ▶ Observations only for winners of 2007 as performance available only for those.
  - ▶ No other controls available
  - ▶ Ward level fixed effects
- ▶ Does the result change in competitive districts?

$$y_i = f(X_i) + Performance\_index_i + competitive_i + Performance\_index_i * competitive_i$$

- ▶ Where competitive is a dummy for constituencies where victory margin was less than 0.1

Effect of performance, results

	Dependent Variable: Victory margin in 2012			
	(1)	(2)	(3)	(4)
VM(2007)	-1.596***	-1.481**	-2.210***	-2.237**
	(0.603)	(0.715)	(0.816)	(0.951)
VM(2007)^2	10.76***	10.32***	12.25***	12.18***
	(2.917)	(3.405)	(3.267)	(3.793)
VM(2007)^3	-12.81***	-12.64***	-13.89***	-14.01***
	(3.692)	(4.359)	(3.928)	(4.574)
total_score	-0.000531	-0.000473	-0.00159	-0.000710
	(0.000834)	(0.00121)	(0.00123)	(0.00142)
competitive			-0.164	-0.0825
			(0.102)	(0.110)
total_score*competitive			0.00186	0.000283
			(0.00165)	(0.00145)
Constant	0.0741	0.0665	0.209**	0.170
	(0.0567)	(0.0731)	(0.0997)	(0.119)
Observations	224	224	224	224
R-squared	0.161	0.145	0.170	0.153
Ward fixed effects		✔		✔

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

VM(2007) is ind. variable for victory margin in year 2007

Competitive is dummy for constituencies which were closely fought in 2007. Total number of wards:24

Effect of performance, results..

Table 4: Margin of victory vs performance (Supplementary table 1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable: Victory margin in 2012							
victory_margin	-1.609***	-1.477*	-2.173***	-2.170**	-1.592***	-1.487*	-2.179***	-2.178**
	(0.605)	(0.728)	(0.810)	(0.990)	(0.606)	(0.729)	(0.811)	(0.966)
victory_margin_sq	10.83***	10.26***	12.07***	11.84***	10.63***	10.25***	12.03***	11.95***
	(2.902)	(3.457)	(3.221)	(3.940)	(2.906)	(3.420)	(3.232)	(3.708)
victory_margin_cu	-12.85***	-12.51***	-13.54***	-13.47***	-12.53***	-12.43***	-13.63***	-13.88***
	(3.648)	(4.406)	(3.827)	(4.673)	(3.644)	(4.313)	(3.871)	(4.447)
attendance_score	-0.00462	-0.00404	-0.0121***	-0.0105*				
	(0.00338)	(0.00331)	(0.00445)	(0.00532)				
competitive			-0.198**	-0.174*			-0.595**	-0.632**
			(0.0792)	(0.100)			(0.253)	(0.261)
competitive*attendance_score			0.0141**	0.0108				
			(0.00660)	(0.00747)				
perceived_performance_score					0.00867	0.00909	-0.00484	-0.00568
					(0.00621)	(0.00729)	(0.00864)	(0.0106)
competitive*perceived_performance_score							0.0270**	0.0283**
							(0.0119)	(0.0116)
Constant	0.0903*	0.0799	0.238***	0.231**	-0.131	-0.144	0.216	0.242
	(0.0471)	(0.0516)	(0.0833)	(0.103)	(0.126)	(0.138)	(0.198)	(0.271)
Observations	224	224	224	224	224	224	224	224
R-squared	0.166	0.149	0.185	0.165	0.168	0.151	0.190	0.178
Ward fixed effects		✔		✔		✔		✔

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Competitive is dummy for constituencies which were closely fought in 2007. Total number of wards:24

Conclusion

- This seems like a road to nowhere.
- But maybe, work with Praja to collect data on parameters which can directly be attributed to the councillor?
  - Road improvements, garbage collection, sewage management etc.
- Figure out an indirect way to use the currently available data.
  - Map boundaries and correlate it with population distribution

Appendix 1 - Performance score

MUNICIPAL COUNCILLOR	PARTY	GRADE	TOTAL SCORE %	RANK	ATTENDANCE		NO. OF QUESTIONS		QUALITY OF QUESTIONS		LEAST CRIMINAL RECORD		PERCEIVED PERFORMANCE	
					Grade	Actual out of 15	Grade	Actual out of 15	Grade	Actual out of 28	Grade	Actual out of 5	Grade	Actual out of 30
Shantaram S. Bhosale — SS — Age: 60 yrs, Edu.: Eleventh, Ward: P/South, Area: Dindoshi - Pandurangwadi, Constituency No.: 46 — Member: Works Committee (Suburbs), Ward Committee P/South	SS	C	69.35	#48	A	14.73	E	7.05	D	16.69	A	5.00	C	18.88
Sunil V. Prabhu — SS — Age: 42 yrs, Edu.: S.Y.B.A., I.T.I., Ward: P/South, Area: Aarey Colony (East), Constituency No.: 47 — Member: Ward Committee P/South, Standing Committee, Tree Committee	SS	B	72.63	#28	B	10.78	A	14.93	C	18.47	F	0.00	B	21.45
Sumangal S. Kolatharkar — SS — Age: 50 yrs, Edu.: Upto SSC, Ward: P/South, Area: Nirlon – Krushi Vidyapeeth - Jaiprakash Nagar, Constituency No.: 48 — Member: Women and Child Welfare Committee, Ward Committee P/South	SS	C	61.39	#106	A	12.88	E	7.05	F	9.65	A	5.00	C	20.81
Sameer K. Desai — INC — Age: 43 yrs, Edu.: Not given, Ward: P/South, Area: Unnat Nagar - Motilal Nagar No. 2 & 3, Constituency No.: 49 — Member: Ward Committee P/South, Standing Committee, Tree Committee	INC	B	73.41	#23	A	13.67	B	11.43	E	13.44	A	5.00	A	24.87

Figure: Snapshot of performance index