How Socio-Economic Conditions Affect Voting Turnouts in Pakistan? A District-Level Analysis

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Abstract

In democracies, we expect the people to voice their opinion through voting. Voting is important because this is a process through which the incumbents can be held accountable and the prospective candidates are encouraged to deliver to the people. Therefore, many studies highlight the determinants of political participation or voting turnout. However, political participation and its determinants is an understudied area in Pakistan's case. Using the calculus-of-voting model as our theoretical reference point, we study the relationship between voting turnouts and literacy rates (male and female), households' satisfaction with the service delivery, and households' economic perception as compared to the previous year, for 2008 and 2013 general elections, at district level in Pakistan. Our OLS results indicate that citizens in districts with high literacy, in particular high female literacy, are more likely to cast a vote. Similarly, citizens in districts whose households have strong perception of betterment in their economic conditions are more likely to turn out to vote. However, we find a positive but insignificant relationship between households' satisfaction with the provision of services/facilities, and voting turnouts at district level in Pakistan.

Key words: Voting turnout, literacy, economy, service delivery, district level, Pakistan
JEL Classification: D72, D81

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1. Introduction

The defining feature of a democracy is the participation of its citizens in the electoral process. The will of the people, exercised through the process of voting, not only imparts legitimacy to the state but also determines the extent to which an elected government is representative of the people. The more the number of citizens who vote, the more the democracy is expected to be representative. Therefore, a vast body of literature probes into various determinants of voting turnout and its impact on the socio-economic and political setting in a country.

Pakistan is a country which has experienced several episodes of democracy along with periods of dictatorial rules. Since her inception in 1947, about 36 out of 71 years have been spent under four dictatorial regimes[1]. While on the other side, the voting turnouts in Pakistan have been historically low[2]: the average voting turnout is 47.7% for the ten general elections held during the period 1970-2018 as compared to 59.5% in India over a course of fourteen general elections since 1952. The country has reverted back to democracy in 2008 after a period of 10 years of dictatorial rule, and have experienced her first successful democratic transition of political power in the year 2013 followed by the second transition in the 2018 general elections. Into her tenth consecutive year, Pakistan is still a fragile democracy. Therefore, it is imperative to probe into determinants affecting the voting turnout in Pakistan.

In this paper, we attempt to provide an overview of how certain socio-economic and demographic characteristics affect the voting turnout in Pakistan. Using the data for 2008 and 2013 general elections, we assess the impact of male and female literacy rates, poverty, households' satisfaction with the provision of services/facilities and households' perception about their economic situation compared to the last year, on the voting turnouts at district-level in Pakistan. We derive our theoretical framework from the rational choice calculus of economic voting based on the theory of expected utility (Downs, 1957; Ricker & Odershook, 1969).

Determinants of voting turnout is an understudied area in the developing world, particularly in Pakistan from an empirical standpoint. To the best of our knowledge, only two studies examine

[1] The time period of four dictatorial regimes in Pakistan is: 1958-69, 1969-71, 1977-1988, and 1999-08.
[2] The voting turnout was recorded to be 64%, 62%, 42%, 46%, 39%, 35%, 40%, 44%, 53% and 52% for the general elections held in 1970, 1977, 1988, 1990, 1993, 1997, 2002, 2008, 2013, and 2018, respectively. Source: http://gallup.com.pk/wp-content/uploads/2017/08/Gallup-Pakistan-Electoral-Repository-Issue-2-1.pdf

voting turnouts in Pakistan. One, captures the link between decentralization and voting turnout for 2005 local body elections (Akramov et al., 2008). And the second, observes the relationship between voter awareness campaigns on female voting turnout (Gine & Mansuri, 2011). However, there is no comprehensive study which analyzes the relationship between literacy rates, households' satisfaction and households' perception on voting turnouts in Pakistan. Our applied work aims to understand the district level socio-economic determinants of voting turnout through empirical estimations in Pakistan.

Our findings indicate a positive and significant impact of literacy and economic perception on voting turnouts. Moreover, in gender-wise split of literacy rates, we find that citizens of the districts with high female literacy are more likely to turn out to vote. Finally, citizens in districts with higher percentage of households perceiving their economic conditions to be better as compared to the last year, were more likely to vote. While satisfaction with the service delivery has a positive but insignificant impact on electoral participation in 2013.

The paper is arranged as follows. Section 2 lays the theoretical foundations for this paper. In Section 3, we discuss the relevant literature. In Section 4, we give the empirical methodology along with a description of variables and data sources. We present our results in Section 5. Section 6 concludes the paper.

2. Theoretical Foundation

Various models in the literature explain voting turnouts. One strand of literature identifies an individual's own cognitive decisions (rational choice) to be the motivation being their electoral participation[3]; while others[4] argue that demographics, economy, party identification, voting laws, society, culture, etc. play a pivotal role in shaping an individual's voting behavior.

In this paper, we primarily employ the calculus-of-voting model to analyze voting turnouts in at district level in Pakistan, while controlling for various demographic, and social factors.

The calculus-of-voting-model suggests two instrumental measures that causes the citizens to turn out to vote: (a) higher chances of affecting the election outcome and (b) when the expected benefits associated with voting exceeds the cost (Downs, 1957). This framework has been

[3] For an overview of this this stand of literature see Aldrich (1993), Dhillon and Peralta (2002) and Geys (2006).
[4] For an overview of the literature on this line of argument see Jackman and Miller (1995) and Blais (2006).

revised by Riker and Ordeshook (1968) who argue that citizens may also vote for reasons independent of affecting the election outcome: they may derive 'psychic gratifications' or personal utility from the act of voting. So, factors such as sense of civic duty, desire to affirm partisanship, voter's wish to support the democratic system were added in this utilitarian voting calculus by Ricker and Ordeshook (*ibid*). Thus, the following utility equation is formulated:

$$R = P.B + D - C \qquad \textbf{(1)}$$

where *R* is the net (expected) utility from voting, *P* is the probability of affecting the election outcome in favor of a voter's preferred candidate or political party, *B* is the difference in expected utilities from the policies of candidates/parties contesting in the elections, *C* entails the costs associated with voting such as information cost, time and economic cost associated with registering vote or travelling to the polling station, etc., and finally *D* represents the social and personal benefits – 'psychic gratifications' or consumption benefit – from voting, for example, citizens may consider voting a civic responsibility and turn out to vote. If the benefits associated with voting ($P.B + D$) exceeds the costs (C), the citizens would turn out to vote, and abstain otherwise.

For this paper, we assume that voting turnout in district (d) is the sum of each individual registered voter who turned out to vote (i). Thus, the equation (1) becomes:

$$R_d = \sum_{i=1}^{n} P_i.B_i + D_i - C_i \qquad \textbf{(2)}$$

In a large pool of prospective voters, which is usually the case, an individual's probability of affecting the election outcome become minuscule. In such cases, the cost of voting would exceed the benefit, resulting in low voting turnouts this is called as the 'paradox of (not) voting'.

It has been argued that the consumption benefit (D) is what makes people turnout to vote because it provides utility to the voter which is independent of *P* and *B*.

Ferejohn and Fiorina (1974) argue that under uncertainty, if an individual's regret, that her preferred party/candidate would lose by only one vote, is greater than the regret she would experience in a case where her vote has not played a decisive role in the election, she would cast a vote.

Others see the process of voting as a group based activity, i.e., the personal and social gratifications of an individual from the act of voting – the *D* term in equation (2) – is determined partly by social groups. In this regard, Feddersen (2004) proposes two explanations. First, a group leader mobilizes voters of similar ideology making the non-voting paradox go away. Second, "rule utilitarians" seek to maximize social welfare by turning out to vote if other "rule utilitarians" also turn out to make a candidate lose the election, who according to them, would not maximize social welfare.

Another model is given by Feddersen and Sandroni (2002), in which as soon as voting cost exceeds a defined cut-point, a certain voter associated with that cut-point will not turn out to vote.

Now, what role does incumbents' performance play in citizens' voting decisions. When it comes to policy issues as determinant of voting preferences, Key (1966) assert that citizens are primarily concerned with real policy outcomes (purely retrospective). Downs (1957), on other hand, suggests that citizens use the past only to evaluate what a party will do in the future: in a two party system, a voter would compare the expected utility of voting for different parties and would choose the one that maximizes his utility. He further affirms, retrospective voting is merely a cost-cutting variant of prospective voting. Fiorina (1981) contributed to this framework by proposing that given the same circumstances, a voter would base her decision on the utility they acquire from the party in government to what utility she believe the party in opposition would have provided. According to Fiorina, retrospective voting is based on expectations about future welfare guided by evaluations of past policy end-states. In a multiparty system, the same utilitarian calculus works but there is a catch: voters may act strategically by casting a vote not to their favored party, only to keep a party they dislike (do not prefer) out of the office (Cox, 1997). Similarly, Mullainathan and Washington (2006) compliment the retrospective voting framework. They write in their conclusion, "Suppose an individual's perception of candidate quality is colored by past voting behavior…. A citizen who voted for a candidate now perceives the candidate to be of higher quality".

Now, having explained the relevant theory, before discussing the empirical literature in the next section, let us examine how our variables fix into this framework. The three variables satisfaction, perception and poverty captures a citizen's retrospective evaluation of the

performance of incumbents in prevalent political setting and are most nearly related to the *B* in equation (2). Literacy (male and female) is a measure of the overall cognitive ability of an individual. A literate citizen is comparatively more informed and is more likely to turn out to vote because education imparts political knowledge (Carpini & Keeter, 1996), eases out impediments to voting (Wolfinger & Rosenstone, 1980; Powell, 1986; Verba et al., 1995) and perpetuates a sense of 'civic engagement' (Campbell et al., 1960; Rosenstone & Hansen 1993). In equation (2), *D* is directly affected by literacy.

3. Review of the Literature

In this section, we discuss the relevant literature on the determinants of electoral participation.

The relationship between education and voting turnout has been widely explored. Although, in theory, education should increase the voting turnouts. The evidence, however, it is mixed. There are two brands of literature which explain the relationship between education and political participation. The first presents evidence that educational attainment increases political participation (Converse, 1972; Wolfinger & Rosenstone 1980; Filer et al., 1993; Blais, 2000; Sondheimer & Green, 2010). Brody (1978), however, recognized that voters' participation has, in fact, decreased as a result of a growth in education levels. Based on 'Brody's Puzzle', the second brand of literature argues that other factors may be exerting a downward pressure on voting turnouts, suppressing the impact of education; the relationship between education and electoral turnout is spurious. For example, an individual's family background, party identification, gender, time and age, locality (urban/rural), political culture and knowledge, voting laws, etc. influences both her educational attainment decision and her voting choices (Miller 1992; Miller and Shanks 1996; Oliver 1996; Putnam, 2000; Merrifield 2003; Tenn, 2007).

An answer to this puzzle is provided in a comprehensive study by Burden (2009), who argues that impact of education on voters' participation is not constant as assumed in the existing studies. He isolates two effects of education on voters' participation: supply-side and demand-side. On the supply-side, there has been dynamic changes in the curriculum and in the teaching of facts and skills in the formal educational institutes over the decades. On the demand-side, ease in voter registration barriers, affirmative action, and emergence of new policy issues such

environmental crisis, etc. has changed politics. Therefore, Burden (*ibid*) writes, "the civic value of education almost certainly varied due to changes both in education itself (supply) and in the requirements placed on people by politics (demand)." Finally, his empirical results confirm that the effect of formal education on voting turnout is dynamic. His results confirm the earlier findings on this subject (Miller & Shanks, 1996; Carpini & Keeter, 1996).

Moreover, evidence is also mixed on the relationship between economy and voting turnouts. According to Rosenstone (1982) Unemployment, poverty and financial hardship withdraws people from political activity. Conversely, Aguilar and Pacek (2000) presents evidence that a decline in macroeconomic activity leads to higher voter participation to increase electoral accountability. Furthermore, Filer et al., (1993) empirical estimations show that increase in family income also increases voting turnouts. Similarly, the possibility of a party getting majority votes increases if it presents broader proposals to fight crisis (economy & unemployment) than those who do not (Tolosa and Garcia, 2014). Economic adversity may either mobilize voters or compel them to back out from the political process entirely (Radcliff, 1992; Weschle, 2013). However, policy issues that, in large, shape the voting preferences vary between parties and countries, both in priority and impact (Lachat and Wagner, 2018).

Finally, in Pakistan's case, the electoral participation is an understudied area. Akramov et al. (2008) find a positive association between voting turnout and direct local government elections, i.e., decentralization. They also report that voting turnouts are also positively associated with personal and social gratifications derived from the act of voting, and less educated citizens such as farmers, etc. are more likely to vote. When it comes to female electoral participation, Gine and Mansuri (2011) employ RCTs to study the impact of awareness campaigns on voting turnouts. They report that women in treated and untreated clusters are 12% more likely to vote; in addition, women in these clusters are more likely to be independent in their candidate choices.

It is clear from the discussion above that education and economic conditions serve both a positive and a negative stimulus for political participation. Thus, in this paper, we attempt to answer that how these variables impact voting turnouts in Pakistan at the district level.

4. Methodology

In this section, we describe the data sources and variables used in the study. Furthermore, we also provide the econometric specification to (a) assess the impact of district level literacy rates on voting turnouts and (b) to see how the perception of households about economic situation and the household satisfaction levels with various services affect the voting turnouts.

4.1. Data

For the purpose of evaluating the impact of education on the voter turnout in Pakistan, data in the study has been extracted from Pakistan Social and Living Standards Measurement (PSLM)[5] surveys and from a joint report by Pakistan Poverty Alleviation Fund (PPAF) and Sustainable Development Policy Institute (SDPI)[6] report.

Encompassing the sample size of 8000 households at district level and approximately 18000 at provincial level, PSLM keeps an account of social and economic indicators to depict a picture of prevailing situation in the country. These surveys are recorded in alternate years for provincial and district levels. The data from PSLM also assists the planning commission to conduct poverty analysis. Launched in July 2004, the aim of PSLM was to generate data which could aid government in the formulation of strategies to counter poverty.

To find the impact of education on voting turnout in Pakistan, general elections of the year 2008 and 2013 have been our main focus. The data of the relevant variables for a year before the election year was collected for all the districts of Pakistan. The dependent variable of the study is the district level voting *turnout*, while explanatory (and control) variables list includes *male* and *female literacy*, economic *perception* and household *satisfaction*, *poverty* headcount ratio, *urban* and *rural* dummies, and provincial dummies.

4.2. Variables

Below we present the detailed construction of perception and satisfaction indices and definitions of the other variables.

[5] Data can be accessed from http://www.pbs.gov.pk/content/pakistan-social-and-living-standards-measurement
[6] Data can be found at http://www.ppaf.org.pk/doc/regional/6-PPAF_SDPI_Report_%20Geography_of_Poverty_in_Pakistan.pdf.

4.2.1. Voting Turnout

The variable '*turnout*' is constructed using the election data for 2008 and 2013. This data is taken from Gallup Pakistan, made available by the ECP[7].

Voting turnout is defined as the ratio of votes casted to the total registered votes. The variable is constructed as below:

$$Voting\ Turnout_i = \frac{Votes\ Casted\ in\ District_i}{Total\ Registered\ Votes\ in\ the\ District_i}$$

4.2.2. Literacy Rate

The data has been taken from the PSLM surveys. It is defined as the percentage of people aged 15 years and older who can read and write to the total population aged 15 years and older. The variable has been constructed at the district level and used as a primary variable of concern on right side of the equation. The coefficient on this variable will tell the impact of district's literacy rate on district's voting turnouts.

$$Literacy\ Rate_i = \frac{Population\ who\ can\ read\ or\ write_{(15+)}}{Total\ Population\ in\ the\ District_{(15+)}}$$

Further we use gender split of literacy rate at district level to see the gender-wise impact of education on voting turnouts. District level male and female literacy rates have also been constructed as the overall literacy rate defined above.

4.2.3. Urban

It is a dummy variable which takes the value 1 if the district is predominantly an urban district, while it takes the value of zero if it is a rural district. A district is called urban (rural) if more than 50% of the district's population lives in the urban (rural) areas.

4.2.4. Poverty (Headcount Ratio):

The data of Head Count Ratio (HCR) has been taken from the joint report published by Pakistan Poverty Alleviation Fund (PPAF) and Sustainable Development Policy Institute (SDPI). The data is extracted for the year of 2008-09 (for 2008 regression) and 2012-13 (for 2013 regression). HCR

[7] Election Commission of Pakistan, https://www.ecp.gov.pk/.

is a measure of poverty which is defined as the proportion of the population living below the poverty line (PL). The poverty measure has been constructed at the district level. The formula for HCR is given below:

$$Poverty_i = \frac{People\ below\ PL\ in\ District_i}{Total\ Population\ in\ the\ District_i}$$

The measure ranges between 0 and 1 where 0 represents no poverty in the district while 1 represents extreme poverty in the district.

4.2.5. Perception

The data about the economic perception of people at district level is taken from the PSLM survey for 2008 and 2013 regressions. Households were asked to compare their economic situation with last year and select from the choice set of "much worse", "worse", "same", "better", and "much better".

We constructed an index from this data for overall households' economic perception in the district using the following formula:

$$Perception = \sum_{n=-2}^{+2} (n * CS_p) \Big/ 5$$

Where 'CS_p' is the choice set mentioned above and defined as:

$$CS_p \in \{"much\ worse", "worse", "same", "better", and\ "much\ better"\}$$

And 'n' is the rating against each choice such that $n \in \{-2, -1, 0, +1, +2\}$.

We also used the four quintiles (25%) of this index to see the impact of perception's cutoffs on turnouts.

4.2.6. Satisfaction

The data about the satisfaction of the people about services and facilities provided, taken from the PSLM survey for 2008 and 2013, was used to construct this index. Households were asked to give opinion about their satisfaction of the facilities/services provided. The facilities/services include "Basic Health", "Family Planning", "School", "Veterinary", "Agriculture", and "Police".

It takes the value of 1 if the household is satisfied with a particular service and 0 otherwise. The data gives the percentage of households satisfied with the provided services in each district. We construct a variable by taking average of the satisfied households to capture the overall district differences on services and facilities.

The formula is given as:

$$Satisfaction = \frac{\sum(CS_s)}{6}$$

The index gives an overall satisfaction of the households with different services provided at the district level. We also used the four quintiles (25%) of this index to see the impact of satisfaction's cutoffs on turnouts.

4.3. Econometric Specification

Firstly, we use Ordinary Least Squares (OLS) regression to identify the impact of literacy rate on voting turnouts. Then, we run the same model for gender-wise split of literacy on voting turnout. Lastly, we implement the OLS model on quintiles of perception and satisfaction indices. All the three regressions are run separately for both the years 2008 and 2013.

The econometric specification used to identify the impact of literacy on voting turnout is given below:

$$Turnout_d = \beta_0 + \beta_1 LiteracyRate_d + \beta_2 Perception_d + \beta_3 Poverty_d + \beta_4 Urban_d + \beta_5 Balochistan + \beta_6 KPK + \beta_7 Sindh + \mu_d \quad \textbf{(3)}$$

Equation for the gender-split of the literacy impact is as follows:

$$Turnout_d = \beta_0 + \beta_1 MaleLiteracy_d + \beta_2 FemaleLiteracy_d + \beta_3 Perception_d + \beta_4 Poverty_d + \beta_5 Urban_d + \beta_6 Balochistan + \beta_7 KPK + \beta_8 Sindh + \mu_d \quad \textbf{(4)}$$

And finally the equation which is employed to identify the impact of different quintiles of economic *perception* and *satisfaction* for the services and facilities provided on voting turnout, is given below:

$$Turnout_d = \beta_0 + \beta_1 Perception_{25^{th}} + \beta_2 Perception_{50^{th}} + \beta_3 Perception_{75^{th}} + \beta_4 Perception_{100^{th}} + \beta_5 Satisfaction_{25^{th}} + \beta_5 Satisfaction_{50^{th}} + \beta_5 Satisfaction_{75^{th}} + \beta_5 Satisfaction_{100^{th}} + \beta_6 Balochistan + \beta_7 KPK + \beta_8 Sindh + \mu_d \quad \textbf{(5)}$$

where in the above equations (3), (4) and (5), *d* represents the district and μ is the error term.

5. Results

Below we present the results of equation (3), equation (4), and equation (5). Table 1 gives the estimates for our 2013 regression. The estimates for 2008 regression are given in the Table A3 in Appendix A.

For 2008 general elections as Table A3 shows, except for urban and provincial dummies, we do not find any significant impact of literacy, poverty, perception and satisfaction on voting turnouts. Since 2008 general elections marked the transition of the country from a dictatorial regime to a democratic setup, we believe that the people of Pakistan, in general, voted out of their anticipations about 'return to democracy' rather than considering their prior economic or social conditions. In addition to this, the head of one of the biggest political parties in Pakistan (Pakistan People's Party or PPP), Benazir Bhutto, was assassinated right before the elections. This resulted in an eruption of public sentiments to support PPP and as a consequence, PPP won a majority of seats in the national legislature.

From the results of first model in Table 1, we see that literacy rate at district level play an important role in determination of district voting turnout. Literacy rate has significant impact on voting turnout of the district; if literacy rate in a district increases by 1%, we expect the voting turnouts to go up, on average, by 0.28% for that district. It means that citizens are more likely to vote in districts with high literacy rates. If percentage of households perceiving their economic conditions have improved as compared with last year than we expect an increase of 0.34% in turnout in that district. If the district is urban than voting turnout decreases by about 7%. When we talk about the provinces, Balochistan and KPK have lower turnouts than Punjab while there is no significant difference between the voting turnout of Sindh and that of Punjab.

Table 1: OLS Regression Results (2013)

Variables	(1) *Turnout*	(2) *Turnout*	(3) *Turnout*
LiteracyRate	0.00284**		
	(0.00129)		
MaleLiteracy		0.000214	
		(0.00133)	
FemaleLiteracy		0.00244**	
		(0.00121)	
Perception	0.00347*	0.00337*	
	(0.00177)	(0.00176)	
Urban	-0.0704**	-0.0777***	
	(0.0270)	(0.0281)	
Poverty	0.000909	0.00100	
	(0.000819)	(0.000823)	
$Satisfacttion_{50}^{th}$			0.00495
			(0.0246)
$Satisfaction_{75}^{th}$			0.0178
			(0.0244)
$Satisfaction_{100}^{th}$			0.00516
			(0.0259)
$Perception_{50}^{th}$			0.0163
			(0.0243)
$Perception_{75}^{th}$			0.0400*
			(0.0240)
$Perception_{100}^{th}$			0.0523**
			(0.0242)
Balochistan	-0.170***	-0.152***	-0.217***
	(0.0289)	(0.0328)	(0.0295)
KPK	-0.175***	-0.161***	-0.190***
	(0.0199)	(0.0258)	(0.0235)
Sindh	-0.0270	-0.0138	-0.0456**
	(0.0216)	(0.0241)	(0.0229)
Constant	0.445***	0.478***	0.563***
	(0.0844)	(0.0888)	(0.0271)
Observations	90	90	93
R-squared	0.649	0.653	0.585

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: In the third equation, 25th percentiles of perception and satisfaction have been taken as base group, and thus, all the interpretations will be made in reference to this base group.
he base category for Balochistan, KPK, and Sindh dummies is Punjab's dummy.

In the second model in Table 1, where we split the male and female literacy rates to see the effect of gender-wise split of education on overall district turnouts, we find that male education has insignificant impact but, interestingly, literacy rate of women shows positive and significant impact on voting turnouts at district level. In other words, it can be said that citizens are more

likely to turn out to vote in districts with high female literacy. As model (1), we see similar trends for urban districts, and districts in Balochistan and KPK, and in Sindh.

In third model in Table 1, we assess the impact on different quartiles of economic perception and satisfaction levels of households in the district while controlling for the provincial differences. Overall satisfaction with the services used by households, seem to be ineffective in affecting the voting turnouts while the perception of households about their economic conditions, as compared with the previous year, play an important part as being in upper two quartiles, 3rd and 4th, increases the voting turnouts.

We now explore the reasons that why economic perception but not satisfaction with the service delivery is positively affecting the voting turnouts. We believe, one the reasons might be that citizens of a district consider their personal economic condition (perception) to have improved as compared to the last year, but they might not think that there is any improvement in the service delivery (satisfaction). This can be observed from the correlation between perception and satisfaction variables – stands at about 0.10 – which is statistically insignificant.

As a final word, our results show that female literacy, household's economic perception as compared to the previous year, urban/rural demographics, and provincial demographics are the key determinants of voting turnout at district level in Pakistan.

6. Conclusion

The process of elections and voting is the central feature any democracy. In a democracy, the citizens of a country vote to elect their own governments: the government of the people. High electoral participation is not only a measure of representation of the people in the election process, but it also keeps a high check on the behavior of the incumbents, i.e., it holds them accountable.

However, Pakistan is a country which has transitioned back into a democracy in 2008, after experiencing about a decade of dictatorial rule. Her first successful democratic transition took place in 2013, thus, Pakistan is still a nascent democracy. The determinants of voting turnout is also a relatively understudies subject in Pakistan's case. Given this, it is imperative to analyze the impact of socio-economic conditions on voting turnout at in Pakistan.

In particular, we ask that how literacy rates (male and female), households' economic perception as compared to the previous year, and households' satisfaction with the provision of services (such as basic health, family planning, schooling, veterinary, agriculture and police) affect voting turnouts at district level in Pakistan.

The theory to observe the above mentioned relationship is based on the calculus-of-voting model: an individual turns out to vote when the expected benefit from voting exceeds the cost. The model further goes on to suggest that individuals may also derive a certain psychological or consumption benefits from the act of voting.

Using the data from PSLM surveys and the Election Commission of Pakistan (ECP) for 2008 and 2013 general elections, we employ OLS regression to obtain our estimates. Our results indicate that a positive and significant relationship exists between literacy, households' economic perception and voting turnouts at district level in Pakistan for the 2013 elections. The citizens in the districts which have high literacy rates, in particular high female literacy rates, are more likely to turn out to vote. Similarly, the districts in which the households' have a higher economic perception as compared to the last year, show more voting turnouts. In addition, rural districts have more voting turnout as compared to urban districts. When it comes to provinces, Balochistan and Sindh have lower turnouts as compared to Punjab, however, the results for Sindh are statistically insignificant.

Finally, the regression results for 2008 elections show a positive association between voting turnout and our independent variables, however, these results are statistically insignificant. We argue, since 2008 marked the transition of Pakistan's political setup from a dictatorial to a democratic regime, people voted on the 'promise of democracy'. In addition, one of the foremost political heads belonging to Pakistan People's Party (PPP), Benaznir Bhutto, was assassinated. This mobilized the voters to vote for her party, which eventually won a majority of seats in the national legislature.

To sum up, our results show that two main determinants of voting turnout at district level in Pakistan are female literacy and betterment in the economic condition of households.

References

Aguilar, E. E., & Pacek, A. C. (2000). Macroeconomic conditions, voter turnout, and the working-class/economically disadvantaged party vote in developing countries. *Comparative Political Studies*, *33*(8), 995-1017.

Akramov, K. T., Qureshi, S., Birner, R., & Khan, B. H. (2008). *Decentralization, local government elections and voter turnout in Pakistan*. Intl Food Policy Res Inst.

Aldrich, J. H. (1993). Rational choice and turnout. *American journal of political science*, 246-278.

Blais, A. (2006). What affects voter turnout? Annu. Rev. Polit. Sci., 9, 111-125.Brody, R. A. (1978). The puzzle of political participation in America. *The new American political system*, 287-324.

Burden, B. C. (2009). The dynamic effects of education on voter turnout. *Electoral Studies*, *28*(4), 540-549.

Campbell, A., Converse, P. E., Miller, W. E., & Donald, E. (1966). Stokes. 1960. *The American voter*, *8*.

Carpini, M. X. D., & Keeter, S. (1996). *What Americans know about politics and why it matters*. Yale University Press.

Converse, P. E. (1972). Change in the American electorate. *The human meaning of social change*, 263-337.

Cox, G. W. (1997). *Making votes count: strategic coordination in the world's electoral systems*. Cambridge University Press.

Dhillon, A., & Peralta, S. (2002). Economic theories of voter turnout. *The Economic Journal*, *112*(480), F332-F352.

Downs, A. (1957). An economic theory of political action in a democracy. *Journal of political economy*, *65*(2), 135-150.

Feddersen, T. J. (2004). Rational choice theory and the paradox of not voting. *Journal of Economic perspectives*, *18*(1), 99-112.

Feddersen, T., & Sandroni, A. (2006). A theory of participation in elections. *American Economic Review*, *96*(4), 1271-1282.

Ferejohn, J. A., & Fiorina, M. P. (1974). The paradox of not voting: A decision theoretic analysis. *American political science review*, *68*(2), 525-536.

Filer, J. E., Kenny, L. W., & Morton, R. B. (1993). Redistribution, income, and voting. *American Journal of Political Science*, 63-87.

Fiorina, M. P. (1981). Some problems in studying the effects of resource allocation in congressional elections. *American Journal of Political Science*, 543-567.

Geys, B. (2006). Explaining voter turnout: A review of aggregate-level research. *Electoral studies*, *25*(4), 637-663.

Gine, X., & Mansuri, G. (2011). *Together we will: experimental evidence on female voting behavior in Pakistan*. The World Bank.

Hinich, M. J., & Ordeshook, P. C. (1969). Abstentions and equilibrium in the electoral process. *Public Choice*, *7*(1), 81-106.

Jackman, R. W., & Miller, R. A. (1995). Voter turnout in the industrial democracies during the 1980s. *Comparative Political Studies*, *27*(4), 467-492.

Key, V. O. (1966). *The responsible electorate* (p. 150). Belknap Press of Harvard University Press.

Lachat, R., & Wagner, A. (2018). How party characteristics drive voters' evaluation criteria. Electoral Studies, 55, 11-20.

Merrifield, J. (2003). The institutional and political factors that influence voter turnout. *Public Choice*, *77*(3), 657-667.

Miller, W. E. (1992). The puzzle transformed: Explaining declining turnout. *Political Behavior*, *14*(1), 1-43.

Miller, W. E., Shanks, J. M., & Shapiro, R. Y. (1996). *The new American voter* (pp. 140-46). Cambridge, MA: Harvard University Press.

Mullainathan, S., & Washington, E. (2006). *Sticking with your vote: cognitive dissonance and voting* (No. w11910). National Bureau of Economic Research.

Oliver, J. E. (1996). The effects of eligibility restrictions and party activity on absentee voting and overall turnout. *American Journal of Political Science*, 498-513.

Powell, G. B. (1986). American voter turnout in comparative perspective. *American Political Science Review*, *80*(1), 17-43.

Putnam, R. D. (2000). Bowling alone: America's declining social capital. In *Culture and politics* (pp. 223-234). Palgrave Macmillan, New York.

Radcliff, B. (1992). The welfare state, turnout, and the economy: A comparative

analysis. *American Political Science Review*, *86*(2), 444-454.

Riker, W. H., & Ordeshook, P. C. (1968). A Theory of the Calculus of Voting. *American political science review*, *62*(1), 25-42.

Rosenstone, S. J., & Hansen, J. (1993). *Mobilization, participation, and democracy in America*. Macmillan Publishing Company,

Sondheimer, R. M., & Green, D. P. (2010). Using experiments to estimate the effects of education on voter turnout. *American Journal of Political Science*, *54*(1), 174-189.

Tenn, S. (2007). The effect of education on voter turnout. *Political Analysis*, *15*(4), 446-464.

Palop García, P., & Khalil Tolosa, N. (2013). Proposals in electoral party manifestos in time of crisis: Commitment issues?

Verba, S., Schlozman, K. L., & Brady, H. E. (1995). *Voice and equality: Civic voluntarism in American politics*. Harvard University Press.

Weschle, S. (2014). Two types of economic voting: How economic conditions jointly affect vote choice and turnout. *Electoral Studies*, *34*, 39-53.

Wolfinger, R. E., & Rosenstone, S. J. (1980). *Who votes?* (Vol. 22). Yale University Press.

Appendix A

A1. Descriptive Statistics

Table A1: Descriptive Statistics (2008)

Variable	Observations	Mean	Std. Dev.	Min	Max
Turnout	94	0.43	0.11	0.18	0.66
Literacy rate	90	48.00	13.28	20.00	83.00
Literacy rate (male)	90	64.37	11.62	33.00	90.00
Literacy rate (female)	90	30.77	17.42	1.00	75.00
Poverty (HCR)	92	31.31	15.67	4.42	72.29
Perception	85	-2.20	6.70	-25.84	9.61
Perception $(25^{th}$ *percentile)*	94	0.23	0.43	0	1
Perception $(50^{th}$ *percentile)*	94	0.22	0.42	0	1
Perception $(75^{th}$ *percentile)*	94	0.21	0.41	0	1
Perception $(100^{th}$ *percentile)*	94	0.33	0.47	0	1
Satisfaction	85	24.29	6.97	9.53	40.43
Satisfaction $(25^{th}$ *percentile)*	94	0.23	0.43	0	1
Satisfaction $(50^{th}$ *percentile)*	94	0.21	0.41	0	1
Satisfaction $(75^{th}$ *percentile)*	94	0.23	0.43	0	1
Satisfaction $(100^{th}$ *percentile)*	94	0.32	0.47	0	1
Urban	94	0.13	0.34	0	1
Balochistan	94	0.12	0.33	0	1
KPK	94	0.24	0.43	0	1
Punjab	94	0.38	0.48	0	1
Sindh	94	0.24	0.43	0	1

Table A2: Descriptive Statistics (2013)

Variable	Observations	Mean	Std. Dev.	Min	Max
Turnout	93	0.51	0.12	0.16	0.69
Literacy rate	93	50.26	12.67	18.00	84.00
Literacy rate (male)	93	65.91	10.42	30.00	91.00
Literacy rate (female)	93	34.54	17.09	3.00	78.00
Poverty (HCR)	90	28.58	18.55	1.30	77.03
Perception	93	-4.82	4.34	-20.11	6.94
Perception $(25^{th}$ *percentile)*	93	0.25	0.43	0	1
Perception $(50^{th}$ *percentile)*	93	0.25	0.43	0	1
Perception $(75^{th}$ *percentile)*	93	0.26	0.44	0	1
Perception $(100^{th}$ *percentile)*	93	0.25	0.43	0	1
Satisfaction	93	77.66	17.59	34.83	114.62
Satisfaction $(25^{th}$ *percentile)*	93	0.25	0.43	0	1
Satisfaction $(50^{th}$ *percentile)*	93	0.25	0.43	0	1
Satisfaction $(75^{th}$ *percentile)*	93	0.25	0.43	0	1
Satisfaction $(100^{th}$ *percentile)*	93	0.26	0.44	0	1
Urban	93	0.13	0.34	0	1
Balochistan	93	0.12	0.32	0	1
KPK	93	0.25	0.43	0	1
Punjab	93	0.39	0.49	0	1
Sindh	93	0.25	0.43	0	1

A2. OLS Regression Results for 2008 General Elections

Table A3: OLS Regression Results (2008)

Variables	(1) Turnout	(2) Turnout	(3) Turnout
LiteracyRate	0.000198		
	(0.00138)		
MaleLiteracy		0.000326	
		(0.00145)	
FemaleLiteracy		-0.000150	
		(0.00136)	
Perception	-0.00154	-0.00154	
	(0.00143)	(0.00144)	
Urban	-0.0804**	-0.0779**	
	(0.0306)	(0.0323)	
Poverty	-0.00160	-0.00165	
	(0.00125)	(0.00125)	
$Satisfacttion_{50}^{th}$			-0.0499*
			(0.0273)
$Satisfaction_{75}^{th}$			-0.0305
			(0.0266)
$Satisfaction_{100}^{th}$			-0.00767
			(0.0253)
$Perception_{50}^{th}$			0.00334
			(0.0247)
$Perception_{75}^{th}$			-0.0373
			(0.0254)
$Perception_{100}^{th}$			-0.0288
			(0.0228)
Balochistan	-0.148***	-0.150***	-0.202***
	(0.0327)	(0.0351)	(0.0301)
KPK	-0.153***	-0.157***	-0.182***
	(0.0265)	(0.0320)	(0.0222)
Sindh	-0.0675**	-0.0697**	-0.0861***
	(0.0260)	(0.0290)	(0.0218)
Constant	0.555***	0.551***	0.561***
	(0.0967)	(0.101)	(0.0280)
Observations	81	81	94
R-squared	0.548	0.548	0.540

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: In the third equation, 25th percentiles of perception and satisfaction have been taken as base group, and thus, all the interpretations will be made in reference to this base group.
The base category for Balochistan, KPK, and Sindh dummies is Punjab's dummy.