

Assets, Sector or Ethnicity? Structural Divisions in Political Attitudes and Online Participation among University Students in Lahore

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Abstract

Analyses of political behaviour in Pakistan conventionally treat economic position as the organising social cleavage, and research on digital politics has inherited that assumption largely intact. Among university students who are already online, however, it remains an open question whether household economic standing differentiates the political experience they have there. This article places three candidate divisions in competition — household asset ownership, ethno-linguistic group, and the public or private character of the university attended — against four outcomes: perceived echo-chamber enclosure, institutional trust, conspiracy mentality, and online political action. The data come from a cross-sectional survey of 779 students at twelve universities in Lahore, conditioned by design on students who are already online. Because institutional sector is a property of only twelve institutions, two of which supply 59 per cent of respondents, inference is cluster-robust with Satterthwaite degrees of freedom, and every institutional claim is stress-tested by dropping the two dominant universities and by weighting universities equally. Measured household asset ownership shows no statistically detectable association with any outcome among students who disclosed it, and the null holds under count, principal-components, categorical and item-by-item specifications. One institutional association retains its sign and nominal significance across every composition check: public-sector students report less online political action. Differences by ethno-linguistic group, and a large association between governing-party identification and institutional trust, are reported as exploratory; none of the thirty-two primary associations survives Benjamini–Hochberg correction across that family. Within this sample, institutional and partisan differences are more visible than differences associated with measured household assets, and a design with twelve institutional clusters can pose the question of institutional environment but cannot settle it.

Keywords: Echo chambers, Institutional trust, Ethno-linguistic identity, Higher education, Cluster-robust inference, Political participation, Pakistan

1. Introduction

Explanations of mass political behaviour in Pakistan tend to begin with economic position. Access to information, exposure to political argument, capacity to participate and disposition to trust the state are all commonly treated as functions of household means. When analysis moved online, the reflex moved with it: the vocabulary of the "digital divide" framed political experience on social media as something distributed by economic capacity.

For the students studied here, access is not the operative constraint. Pakistan recorded 116 million internet users at the start of 2025, a penetration rate of 45.7 per cent, and 190 million cellular connections equivalent to 75.2 per cent of the population (Kemp, 2025), in a country whose age structure is heavily weighted toward the young (Hafeez & Fasih, 2018). This article does not claim that the digital divide has closed; national penetration figures cannot establish that, and an instrument administered online necessarily reaches students who are already connected. The study conditions on connectivity by design and asks a narrower question: among students who are already online, which social positions differentiate the political experience they have there?

Three candidate divisions are placed in competition. **Household asset ownership** is the closest available proxy for economic position. **Ethno-linguistic group** distinguishes students from smaller ethno-linguistic groups within a Punjabi-majority provincial setting. **Institutional sector** is the public/private division organising Pakistani higher education.

Two design features govern what can be concluded. The population has already crossed an economic threshold — admission to a Lahore university — so economic variation is compressed by construction, and a weak asset association here says nothing about the wider population. And institutional sector is a characteristic of only twelve universities, two of which supply 59 per cent of respondents. Clustered standard errors address dependence among students at the same institution; they do not address the fact that a respondent-weighted estimate can be driven by two large campuses. Every institutional claim below is therefore stress-tested three further ways.

The findings sort into a hierarchy the article states explicitly rather than leaving to the reader. Measured household asset ownership shows no detectable association with any of the four outcomes among disclosers, under four different specifications of the asset variable. One institutional association retains its sign and nominal significance under every composition check: public-sector students report less online political action. The remaining results — the ethno-linguistic differences and a large association between governing-party identification and institutional trust — are exploratory, and the article says why. None of the thirty-two primary associations survives Benjamini–Hochberg correction across that family, and the article treats none as confirmatory.

The contribution is threefold. First, it supplies a direct test of the economic-cleavage assumption in a setting where it is routinely presumed and rarely examined. Second, it demonstrates what small-cluster inference does to institution-level claims in a literature that habitually reports only heteroskedasticity-consistent errors. Third, it documents that pooling

ethno-linguistic minorities into a single analytic category in a Punjabi-majority setting may average over groups that differ from one another.

2. Literature Review

2.1. Enclosure, selective exposure and their measurement

The proposition that digital platforms sort users into ideologically homogeneous information environments has been influential well beyond the evidence supporting it. The early formulations — the filter bubble (Pariser, 2011) and the fragmented public sphere (Sunstein, 2017) — described a mechanism in which algorithmic curation and self-selection jointly narrow the range of political information a person encounters. Empirical work has complicated that picture considerably. Analyses of large-scale browsing data find that social networks and search engines are associated with greater mean ideological distance between individuals while also increasing exposure to material from the less preferred side of the spectrum, with the authors characterising the overall magnitude as limited (Flaxman et al., 2016), and comparative survey work finds substantial incidental exposure to news among users who do not seek it (Fletcher & Nielsen, 2018). A systematic review of the field concludes that evidence for strong echo-chamber effects is weaker and more conditional than public debate assumes (Ross Arguedas et al., 2022). A parallel review of media and polarisation is more affirmative on one path, reporting that the literature agrees exposure to like-minded media increases polarisation, while also finding that roughly two-thirds of the studies reviewed do not clearly define polarisation, so effect sizes across the field are difficult to compare (Kubin & von Sikorski, 2021). That measurement problem is the one this article encounters directly in Section 3.4.

Two features of this literature matter for the present study. The first is measurement. The strongest designs use platform trace data, which is available to researchers with platform access and effectively unavailable to everyone else. Studies conducted outside the platforms' home markets must therefore rely on respondent-reported enclosure, which measures how students experience their information environment rather than what they were exposed to. The second is that the constructs travelling under the heading of enclosure are heterogeneous. Network homogeneity (Bond & Sweitzer, 2022), deliberate avoidance of political disagreement (Zhu et al., 2017), and awareness of algorithmic curation (Gran et al., 2021) are distinct phenomena that need not co-occur, a point the present analysis returns to empirically.

Evidence from Pakistan is comparatively thin and has concentrated on levels of use and on awareness or engagement outcomes among students (Ahmad et al., 2019; Salam et al., 2024). Where Pakistani work on social media and polarisation has looked beneath the aggregate level, it has generally differentiated by gender rather than by economic, ethnic or institutional position: Khan et al. (2023) document markedly harsher, more personal treatment of women in Pakistani online political discourse than of men. The structural divisions examined in this article — assets, ethnicity and institutional sector — remain largely unexamined by comparison. Experimental work finds that fact-checks do reduce misperceptions in Pakistan, most of all among the most misinformed, with trust in news organisations moderating how well they work (Ejaz et al., 2025), and analyses of platform politics describe online competition as structured by coalitions among political actors and their networks of followers (Mir et al., 2023). What is largely missing is an account of *who*, structurally, reports the most enclosed environments.

2.2. Institutional trust

Political trust is conventionally understood as an evaluative orientation toward institutions, responsive to performance and to identity alike (Levi & Stoker, 2000), and declining or differentiated confidence in representative institutions has been treated as a diagnostic of democratic strain (Norris, 2011). A recent meta-analysis of sixty-one studies finds political trust weakly to moderately related to outcomes including turnout, vote choice, policy preferences and compliance, and unrelated to informal participation (Devine, 2024). The associations are modest, but they are consistent enough that the structural correlates of trust are worth establishing rather than assumed. In the Pakistani context, work on trust in government has emphasised governance performance and official information provision, including through social media channels (Mansoor, 2021).

Two expectations from this literature bear on the present design. If institutional trust tracks marginalisation, groups occupying a minority position should report lower confidence in national institutions. If instead it tracks alignment with incumbency, supporters of parties in office should report higher confidence — a regularity established in comparative work on winners and losers in electoral competition (Anderson & LoTempio, 2002). These expectations point in different directions for different respondents, and the analysis below distinguishes them.

2.3. Economic position as the default cleavage

The presumption that economic position organises political behaviour is durable in Pakistani social science, and it is not unreasonable. Economic standing is associated with educational access, medium of instruction, and the networks that carry political information. Rahman's (2004) account of Pakistan's stratified education system describes tiers producing largely non-communicating social worlds — an argument about segregation by institution and language rather than about ideology, and one that anticipates institutional sector as an analytic category in its own right.

Applied to online political life, the economic argument predicts broader information exposure, weaker enclosure and more online political action among students from wealthier households. It generates no clear prediction for institutional trust or for conspiracy mentality, and those two outcomes are accordingly treated here as exploratory rather than as tests of the economic account. Survey work on Pakistani university students during the COVID-19 period found intensive online information seeking alongside meaningful variation in digital health literacy (Zakar et al., 2021), which suggests that within this population variation in online behaviour is real but not obviously economic in origin.

2.4. Ethno-linguistic position

Lahore's universities recruit predominantly from Punjab, and the modal student is Punjabi or Urdu-speaking. Students from Pashtun, Saraiki, Baloch and smaller backgrounds belong to groups forming a small share of the provincial population and of this study population. Comparative work on federalism in the region argues that the design of federal and consociational institutions, rather than religious identity as such, explains much of the variation in ethnic conflict between India and Pakistan (Adeney, 2007), which makes ethno-linguistic position a politically structured category rather than a merely demographic one.

Qualitative work in this setting reports that minority position is felt. Sardar et al. (2026), interviewing fifteen Baloch and Punjabi students in Lahore, found Baloch students asserting identity while navigating marginalisation, encountering stigma attached to language, and describing campus interaction structured by stereotype, while Punjabi students experienced their identity as normative. Islam et al. (2026), surveying Baloch students at a university in Punjab, report linguistic barriers, cultural dissonance and limited institutional support. Both concern Baloch students specifically and cannot be assumed to describe other groups — a caution the present analysis takes seriously by disaggregating where cell sizes permit.

Two expectations follow: students from smaller ethno-linguistic groups should report greater enclosure, and — on the standard alienation account — lower trust in national institutions.

2.5. Institutional sector as a political environment

Pakistan's universities are recognised across public and private sectors by the national regulator (Higher Education Commission, n.d.), and the two sectors are conventionally described as differing in cost and in the social composition of their intakes, the public sector being larger and cheaper and the private sector more expensive and more selective — a stratification Rahman (2004) documents for the education system as a whole. The sectors also differ in campus political culture: public universities in Punjab carry a longer history of organised student politics shaped by patronage and periodic protest (Javid, 2019).

If institutional environment matters independently of the means of the students inside it, sector should predict outcomes after assets are controlled. The direction is not obvious in advance. A more socially heterogeneous public-sector campus might reduce enclosure by widening the pool of available contacts; equally, a more politically mobilised campus might raise political activity, or channel it offline.

2.6. The present study

Party identification enters the models as a control rather than as one of the divisions under test. Partisan affect is a well-established correlate of political attitudes elsewhere (Iyengar et al., 2012), and in this population party is the single most frequently invoked social division in political commentary; leaving it out would risk attributing to structure what belongs to partisanship. The party results reported in Section 4.6 are labelled exploratory for that reason.

3. Methodology

3.1. Design and setting

The study uses a cross-sectional quantitative survey design, administered as a self-completed online instrument. The setting is the university sector of Lahore, Pakistan's second-largest city and the capital of its most populous province. The design supports associational inference only: no temporal ordering is observed, and no causal claim is made or implied anywhere in this article.

3.2. Recruitment, field period and sample

The instrument was fielded between 23 February and 15 March 2026 through a purpose-built web application. Twelve universities were selected to span the public and private sectors and the range of institutional types in the city, from large public general universities to small private specialist institutions. Under the approved protocol, recruitment proceeded online through student networks; participation was voluntary and unincentivised, and the consent screen stated an expected completion time of ten to fifteen minutes.

Of 1,071 sessions initiated, 786 produced complete submissions passing the consent and eligibility gates. Seven respondents at one institution were removed to avoid researcher-proximity effects, giving an analytic sample of $N = 779$. Section-level completion was enforced by the instrument, with explicit 'prefer not to answer' options on sensitive items, so item-level missingness is concentrated in those options. Timing metadata were captured for every case; a speeder diagnostic flagged the 32 respondents whose summed section times fell below 300 seconds, and those cases were retained. Recruitment was non-probability, with the inferential limits that entails (Baker et al., 2013; Bethlehem, 2010).

Table 1: Sample characteristics ($N = 779$)

Characteristic	n	%	Characteristic	n	%
Gender			Ethno-linguistic group		
Male	397	51.0	Punjabi	402	51.6
Female	376	48.3	Urdu-speaking	223	28.6
Prefer not to say	6	0.8	Pashtun	44	5.6
University sector			Saraiki	43	5.5
Public	404	51.9	Other	41	5.3
Private	374	48.0	Baloch	18	2.3
Not reported	1	0.1	Kashmiri	5	0.6
Residency			Prefer not to say	3	0.4
Lives at family home	506	65.0	Party identification		
Hostel resident	273	35.0	PTI	269	34.5
Degree level			PML-N	171	22.0
Undergraduate	750	96.3	None / independent	297	38.1
Master's / MPhil	8	1.0	PPP	32	4.1
PhD	21	2.7	Other	10	1.3
Household asset item					
Disclosed	616	79.1	Declined	163	20.9

The twelve universities are very unevenly represented. Two institutions supply 258 and 201 respondents respectively — 59 per cent of the sample between them — while three institutions contribute ten or eleven each. This imbalance is the central constraint on the institutional claims, and Sections 3.7 and 4.3 set out how it is handled.

3.3. Instrument development

The instrument was developed through a staged programme rather than assembled from imported scales alone. A calibration pilot was conducted in a separate city so that the Lahore sampling frame would not be contaminated, and was used to identify ambiguous items, assess completion burden and break-off risk, and check whether key multi-item constructs cohered. A second pilot screened and reduced the misinformation battery. Pilot findings were used

strictly for instrument refinement. Questionnaire length was managed deliberately, since length is associated with break-off and with declining response quality in web surveys (Galesic & Bosnjak, 2009); several batteries were shortened for administration as a result, including the conspiracy-mentality measure described below.

3.4. Outcome measures

Echo-chamber enclosure combines perceived network homogeneity, a count of boundary-maintenance behaviours such as unfollowing or muting political disagreement (Zhu et al., 2017), and a two-item marker of algorithmic cue awareness (Gran et al., 2021), each standardised and summed. The index is retained in the form used in the study from which these data are drawn, so that results remain comparable across analyses of this dataset.

It is a **formative index, not a reflective scale**, and its components are close to mutually independent: homogeneity with boundary maintenance $r = .106$, homogeneity with algorithmic awareness $r = .196$, boundary maintenance with algorithmic awareness $r = .031$. Internal-consistency coefficients are therefore not meaningful for it and are not reported. Because a composite of near-independent components can conceal which part carries an association, Section 4.4 reports the models component by component, and the interpretation there is governed by the components rather than by the composite. The measure records perceived enclosure rather than exposure observed on a platform (Fletcher & Nielsen, 2018), which is a limitation and also the practical condition of research outside the platforms' home markets.

Institutional trust is a seven-item composite covering confidence in the Election Commission, the Supreme Court, the National Assembly, the National Accountability Bureau, television news media, the military establishment and the intelligence services ($\alpha = .849$).

Conspiracy mentality is an adapted three-item measure of generalised conspiratorial disposition ($\alpha = .754$). The original Conspiracy Mentality Questionnaire has five items (Bruder et al., 2013); three were retained to limit respondent burden in a long instrument. The reduction was made for administration and was not revalidated, and results involving this measure should be read accordingly.

Online political action is a four-item index of self-reported political acts performed online ($\alpha = .774$). All outcomes are standardised, so coefficients are in standard deviation units. Full item wording, response options and administration details are available from the corresponding author.

3.5. Predictors

Household asset ownership counts household ownership of a motorcycle, air conditioning, solar power and a car, then standardises the count. Its distribution is poor: 172 respondents score one, 36 score two, 230 score three, 178 score four, and none scores zero. Because a count imposes equal weights and linearity, Section 4.2 reports three alternative specifications. The variable is described throughout as household asset ownership, not as class: parental education, occupation, income and housing are not measured.

Ethno-linguistic position enters with Punjabi as the reference category, as Urdu-speaking, a pooled minority indicator, and an explicit indicator for the three respondents declining the question, so they do not silently join the reference group.

Institutional sector is a public-university indicator. **Residency** distinguishes students living at the family home from hostel residents. Models include an indicator for male respondents and separate PTI and PML-N indicators, with non-partisans and minor-party identifiers as the reference category.

3.6. Non-disclosure of household assets

163 respondents (20.9 per cent) declined the asset item, so models including assets run on $N = 615$ — 779 less 163 refusals and one case missing university type.

Non-disclosure is not random. A logistic model of refusal with cluster-robust inference shows respondents from smaller ethno-linguistic groups about twice as likely to decline ($OR = 2.08$, $p = .038$), public-university students more likely ($OR = 1.38$, $p = .027$), and respondents who declined reporting **lower** enclosure ($OR = 0.67$ per standard deviation, $p = .014$). Refusal is therefore correlated with a key predictor and a key outcome simultaneously. Every asset-based conclusion below is a conclusion about disclosers, and is worded that way.

3.7. Estimation and inference

Each outcome is regressed on the full predictor set by ordinary least squares. **Cluster-robust CR2 standard errors clustered on university, with Satterthwaite degrees of freedom, are the primary inference** (Pustejovsky & Tipton, 2018); conventional HC3 errors are reported in Figure 1 only as an unclustered comparison, to show what the clustering correction does. Satterthwaite degrees of freedom are coefficient-specific and range from **2.78 to 4.32** (median 3.94) across the models reported here, which is the honest price of twelve clusters.

Because institutional sector is a level-2 variable and the clusters are unbalanced, three further checks are applied to every sector coefficient: dropping the two dominant universities jointly, weighting each university equally, and leave-one-university-out under CR2.

Multiple comparisons are handled by Benjamini–Hochberg correction (Benjamini & Hochberg, 1995), and **the family is declared rather than assumed**: q -values are reported both within each outcome model (eight predictors) and across all thirty-two tests displayed in Table 2. The two definitions give different answers, and Table 3 shows both so that no inference rests on an undeclared choice. Analyses used R 4.5.2 (R Core Team, 2025) with the ‘clubSandwich’ package for clustered inference.

4. Results

4.1. The inferential picture

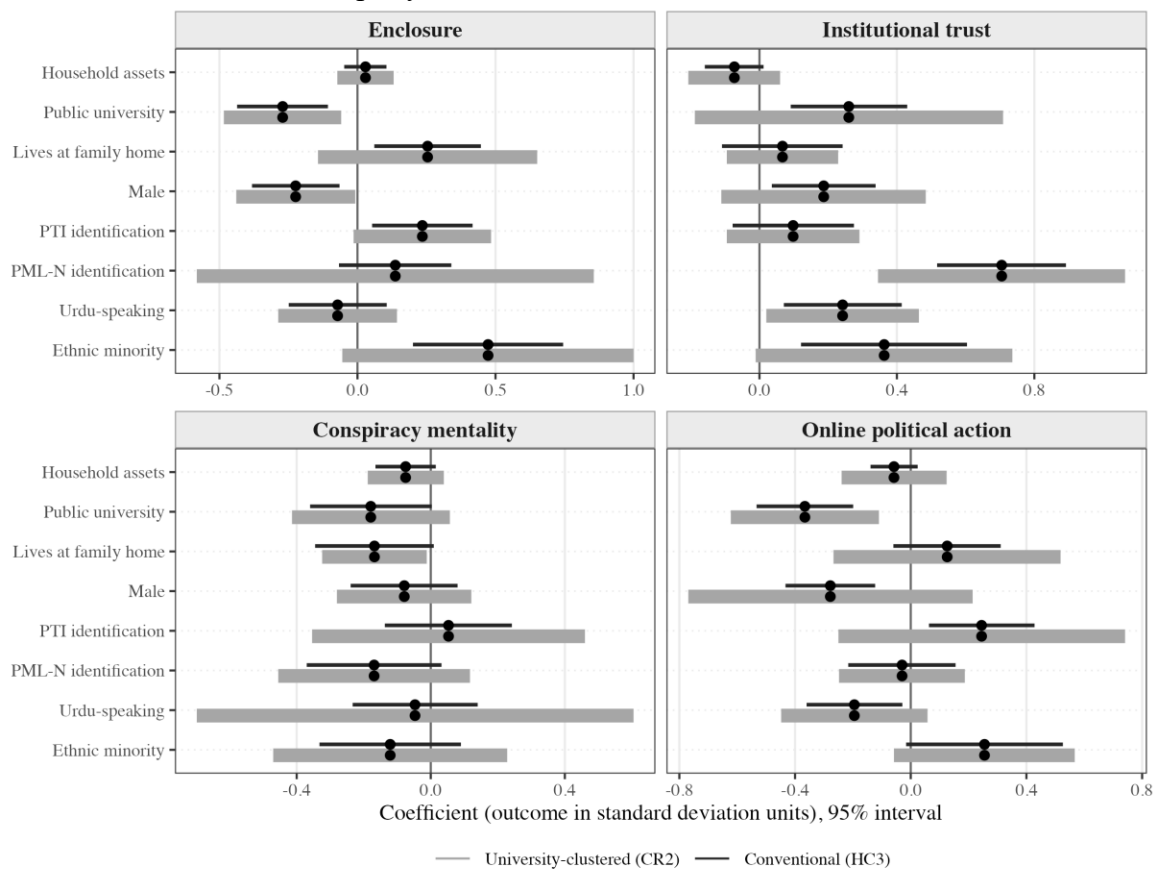
Table 2 reports the four models. Figure 1 shows the same coefficients as intervals under both inferential bases, and makes the structure of the problem visible: the household-asset intervals barely change between the unclustered and clustered treatments, because assets vary within universities, while the sector, party and ethnicity intervals widen substantially.

Table 2: Structural position, political attitudes and online participation (OLS with CR2 cluster-robust standard errors, N = 615, 12 university clusters)

Predictor	Enclosure	Institutional trust	Conspiracy mentality	Online political action
Household assets (z)	0.029 (0.036)	-0.073 (0.047)	-0.075 (0.040)	-0.058 (0.064)
Public university	-0.271 (0.079)*	0.260 (0.166)	-0.179 (0.087)	-0.366 (0.095)*
Lives at family home	0.254 (0.140)	0.067 (0.057)	-0.168 (0.055)*	0.126 (0.139)
Male	-0.224 (0.079)*	0.187 (0.109)	-0.079 (0.073)	-0.278 (0.180)
PTI identification	0.235 (0.089)	0.098 (0.069)	0.053 (0.146)	0.245 (0.177)
PML-N identification	0.137 (0.263)	0.705 (0.132)**	-0.169 (0.105)	-0.030 (0.080)
Urdu-speaking	-0.072 (0.078)	0.242 (0.081)*	-0.047 (0.236)	-0.195 (0.092)
Ethnic minority (pooled)	0.473 (0.178)	0.363 (0.126)	-0.121 (0.118)	0.255 (0.106)
R ²	.072	.137	.026	.078

Note. CR2 cluster-robust standard errors in parentheses; Satterthwaite df 2.78–4.32. * $p < .05$, ** $p < .01$ on CR2 p-values, before correction for multiple comparisons; see Table 3. An indicator for respondents declining the ethnicity question is included but not shown.

Reference category for ethno-linguistic indicators is Punjabi; for party, non-partisans and minor-party identifiers. All outcomes standardised.

**Figure 1:** Coefficients with 95% intervals under primary university-clustered (CR2) inference and under unclustered HC3, four outcomes, N = 615.

Note. The household-asset intervals are almost unchanged by clustering, while the sector, party and ethnicity intervals widen substantially. Clustering widens an interval where within-university dependence, cluster imbalance and low effective degrees of freedom reduce the independent information available for that coefficient. Only institutional sector is a level-2 predictor; party and ethno-linguistic group vary within universities.

Six coefficients reach $p < .05$ under clustered inference. Table 3 shows what happens to them under each definition of the correction family.

Table 3: Multiplicity ledger: the six smallest clustered p-values

Association	b	CR2 p	q within outcome (8 tests)	q across Table 2 (32 tests)
PML-N institutional trust	→ 0.705	.0052	.042	.167
Public university → online political action	−0.366	.0157	.126	.235
Public university → enclosure	−0.271	.0231	.133	.235
Urdu-speaking → institutional trust	0.242	.0386	.144	.235
Lives at family home → conspiracy mentality	−0.168	.0404	.323	.235
Male → enclosure	−0.224	.0447	.133	.235

Note. Benjamini–Hochberg q -values under two family definitions.

One association clears $q < .05$ within its outcome family; **none clears correction across the primary thirty-two-test family**. The article therefore treats no result as confirmatory. The exploratory analyses reported in Sections 4.4 to 4.6 are corrected within their own families where stated and are not part of this one.

4.2. Household assets: no detectable association among disclosers

Household assets are not associated with any outcome: 0.029 on enclosure, −0.073 on trust, −0.075 on conspiracy mentality, −0.058 on online political action, none approaching significance under either inferential basis.

Three alternative specifications were fitted to guard against the count's equal weighting and linearity. A **principal-components index** in the manner of Filmer and Pritchett (2001) explains 48.9 per cent of variance and correlates .907 with the count; air conditioning, car and solar load

positively while motorcycle loads slightly negatively (-0.096). Substituting it changes nothing (0.010 , -0.055 , -0.063 , -0.025 ; all non-significant). Entering the asset score **categorically** with one asset as reference produces no significant contrast on any outcome. Entering the **four assets separately** likewise produces none; the closest are motorcycle ($p = .082$) and solar ($p = .084$) on enclosure.

These are nulls in the weak sense, and the intervals say why. Under the primary clustered inference the 95% intervals are $[-0.073, 0.131]$ for enclosure, $[-0.207, 0.060]$ for trust, $[-0.188, 0.039]$ for conspiracy mentality and $[-0.239, 0.124]$ for online political action. They are wider than their unclustered counterparts, as the small effective degrees of freedom require, and three of them still accommodate negative associations of around a fifth of a standard deviation. The defensible statement is that **measured household asset ownership does not differentiate these outcomes among students who disclosed it**. Establishing equivalence would require a test against a pre-specified smallest effect of interest, which this study did not pre-register.

This is nonetheless the most specification-stable pattern in the article: it holds across four specifications of the asset variable and under both clustered and unclustered inference.

4.3. Institutional sector: one association is stable to institutional composition

Table 4 subjects each sector coefficient to the two-university dominance problem.

Table 4: Sector coefficient under three sample and weighting schemes (CR2)

Outcome	Main (N = 615, 12 clusters)	Drop two dominant universities (N = 255, 10 clusters)	Equal weights (N = 615)	university
Enclosure	-0.271 ($p .023$)	-0.294 ($p .134$)	-0.311 ($p .119$)	
Institutional trust	0.260 ($p .187$)	0.518 ($p .006$)	0.318 ($p .048$)	
Conspiracy mentality	-0.179 ($p .106$)	-0.219 ($p .043$)	-0.147 ($p .364$)	
Online political action	$*-0.366$ ($p .016$)*	$*-0.412$ ($p .012$)*	$*-0.447$ ($p .035$)*	

Note. Public-university indicator; the full specification of Table 2 is used throughout, so every column is the asset-adjusted model and the main column reproduces the Table 2 coefficients exactly. Dropping the two dominant universities removes 360 respondents from the estimating sample. Equal weighting assigns each observation a weight of $1/n(j)$, where $n(j)$ is the number of respondents at university j , so that every university contributes the same total weight; CR2 inference is then applied to the weighted regression.

The online-action coefficient is the only sector estimate that retains its direction, approximate magnitude and nominal significance across every composition check. It holds when the two dominant universities are removed and when every university is weighted equally, and under leave-one-university-out with CR2 it remains nominally significant in all twelve refits, ranging from -0.278 to -0.407 . Stability to composition is not confirmation: as Table 3 records, this coefficient does not survive correction across the primary thirty-two-test family ($q = .235$).

The enclosure coefficient behaves differently, and the distinction is worth stating precisely. Its point estimate is not what moves: it is -0.271 in the main model, -0.294 without the two dominant universities and -0.311 under equal weighting, and it stays between -0.310 and -0.223 across the twelve leave-one-university-out refits. What changes is precision. Nominal significance is lost in both composition checks ($p = .134$ and $p = .119$) and in the two refits that drop a dominant university ($p = .086$ and $p = .102$). The estimate is therefore **consistent in direction and magnitude but too imprecisely estimated in this design to support a claim** — which is not the same as an absent association. The trust coefficient moves in the opposite direction, becoming significant under both alternatives, which is further evidence that sector estimates in this design are unstable rather than merely imprecise.

Table 5 shows why. University-level means run in the expected direction on average but with substantial spread, and individual campuses depart from the sector pattern.

Table 5: University-level outcome means by sector (standardised)

Sector	Universities	Mean enclosure	Mean online action	Mean trust
Private	7	0.152	0.156	-0.178
Public	5	-0.114	-0.161	0.105

Note. Unweighted means of university-level means, so each institution counts once. Within the private sector, campus means on enclosure range from -0.312 to 0.558 ; within the public sector, from -0.331 to 0.049 .

4.4. Which component of enclosure

Because the enclosure index is formative with near-independent components, the models were refitted on each component (Table 6). The results relocate the associations rather than confirming them.

Table 6: Enclosure components, selected predictors (CR2, N = 615)

Predictor	Homogeneity	Boundary maintenance	Algorithmic awareness
Household assets (z)	0.060 (.380)	0.014 (.644)	-0.019 (.698)
Public university	-0.267 (.063)	-0.238 (.088)	-0.014 (.930)
Lives at family home	0.043 (.753)	0.148 (.154)	0.295 (.112)
Male	0.045 (.635)	-0.118 (.285)	-0.355 (.009)
PTI identification	0.064 (.636)	0.407 (.020)	-0.020 (.808)
PML-N identification	0.147 (.562)	0.198 (.352)	-0.083 (.543)
Urdu-speaking	-0.104 (.375)	-0.099 (.089)	0.066 (.460)
Ethnic minority (pooled)	0.137 (.471)	0.413 (.137)	0.354 (.017)

Note. Coefficients with CR2 p-values in parentheses. Each component standardised. Same specification as Table 2.

Three things follow. The pooled minority coefficient on **homogeneity** — the component that directly measures how similar a respondent's network is — is 0.137 with a clustered p -value of $.471$, while on **algorithmic awareness** it is 0.354 ($p = .017$). The association with the

composite therefore runs through perceptions of algorithmic steering, and the component that would evidence a network-composition account shows nothing. **The minority result should not be read as an enclosure finding in the network sense**, and no such reading is offered here. Second, PTI identification is associated with **boundary maintenance** specifically (0.407, $p = .020$) rather than with the composite, which suggests that partisan enclosure in this population is behavioural — unfollowing and muting — rather than a matter of network composition. Third, public-sector attendance is spread weakly across homogeneity and boundary maintenance and is absent from algorithmic awareness, consistent with its instability in Section 4.3.

4.5. Ethno-linguistic position: exploratory

Disaggregating the pooled minority category is possible — Pashtun (44), Saraiki (43) and Other (41) are not sub-twenty cells — and shows that the pooled indicator averages over groups behaving differently (Table 7).

Table 7: Exploratory disaggregation of ethno-linguistic position (CR2, N = 615)

Group	Enclosure	Institutional trust	Conspiracy mentality	Online political action
Urdu-speaking	−0.074 (.400)	0.240 (.042)	−0.046 (.855)	−0.198 (.097)
Pashtun	0.652 (.207)	0.574 (.042)	−0.203 (.318)	0.531 (.098)
Saraiki	0.430 (.015)	0.081 (.595)	0.023 (.891)	−0.166 (.245)
Baloch	/ 0.382 (.182)	0.436 (.248)	−0.177 (.091)	0.392 (.218)
Kashmiri	/			
Other				

Note. Coefficients with CR2 p-values in parentheses. Reference category is Punjabi. Same specification as Table 2 with the pooled minority indicator replaced. **Across these sixteen tests the smallest Benjamini–Hochberg q-value is .224; none survives correction.**

These results are **hypothesis-generating, not findings**. What can responsibly be said is that the pooled minority category may conceal heterogeneity: the largest enclosure coefficient belongs to Saraiki respondents and the largest trust coefficients to Pashtun and Urdu-speaking respondents, and these are not the same students. The prediction in Section 2.4 that students from smaller ethno-linguistic groups would report lower institutional trust receives no support in any group.

4.6. Party identification: exploratory evidence consistent with a winner's trust advantage

Party identification entered as a control rather than as one of the divisions under test, so what follows is exploratory and is not part of the article's confirmatory claims.

PML-N identification is associated with institutional trust at 0.705 ($p = .005$), while PTI identification is indistinguishable from the reference category (0.098, $p = .230$). The two differ significantly: a CR2 Wald test of equality gives $F(1, 4.18) = 13.2$, $p = .020$. This is the only coefficient in the study reaching $q < .05$ within its outcome family, though not across the full set of tests.

The pattern across the seven trust items points to a mundane explanation (Table 8). The PML-N coefficient is **positive across all seven items**. No test of equality across items was conducted,

so these should be read as consistently positive rather than as equal. The positive coefficients extend to institutions no elected government directs — the higher judiciary, the military and the intelligence services — so the pattern is not confidence in bodies the party administers.

Table 8: PML-N identification across the seven institutional trust items (CR2, N = 615)

Institution	b	SE	p
Military establishment	0.679	0.089	.001
National Accountability Bureau	0.557	0.116	.008
National Assembly	0.542	0.107	.007
Television news media	0.465	0.076	.003
Supreme Court	0.451	0.201	.086
Election Commission	0.449	0.138	.029
Intelligence services	0.416	0.086	.008

Note. Each item standardised and modelled with the Table 2 specification. Coefficients are for the PML-N indicator only.

PML-N held both the Punjab chief ministership and the federal premiership during the February–March 2026 fieldwork. The pattern is therefore **consistent with a winner's trust advantage**: supporters of parties in office report higher confidence in political institutions generally, a regularity established in comparative work (Anderson & LoTempio, 2002). That reading is a conjecture this design cannot test. Distinguishing a winner's advantage from durable partisan differences in institutional confidence requires panel data spanning a change of government.

5. Discussion

5.1. What a twelve-institution design can and cannot establish

The most transferable finding here is partly methodological. Under conventional standard errors the public/private division appeared to predict three of four outcomes. Under clustered inference two survived. Under the dominance and weighting checks, one survived. Each step removed a claim, and each step was necessary: with twelve unevenly sized institutions, clustering fixes the standard errors but not the fact that a respondent-weighted estimate can be carried by two large campuses.

The practical implication for research on Pakistani higher education is that a sector-comparison design needs institutions in the dozens, not the dozen, and that studies reporting only heteroskedasticity-consistent errors for institution-level variables are reporting precision they do not have. In this study the difference between the naive and the stress-tested answer is the difference between three findings and one.

5.2. Why measured assets may not differentiate

Three explanations are available and are not mutually exclusive. **Selection:** admission to a Lahore university filters on economic capacity, and no respondent scores zero on the asset index, so range is compressed by construction. **Measurement:** four durables capture household assets, not parental education, occupation or social capital. **Saturation:** among students already online — which is who this instrument could reach — the mechanism once linking household wealth to online political experience may no longer operate. This is consistent with the argument that platforms tend to amplify pre-existing patterns rather than create them (Mitchelstein et al., 2020): where the pre-existing pattern inside a population is not economic, the amplified pattern need not be either.

The reading is narrow and still useful: among students who have crossed the economic and digital threshold into Lahore higher education, measured household assets do not differentiate these outcomes. That is precisely the population campus media-literacy and civic education programmes are designed for, and within it these data provide no evidence that household asset ownership would distinguish students on these outcomes.

5.3. Institutional environment and online action

The surviving institutional association is that public-sector students report less online political action, by roughly a third of a standard deviation, stable across every composition check applied. A reading consistent with the pattern is that the two sectors channel political activity differently rather than that one is more political: public universities in Punjab retain a tradition of organised on-campus student politics (Javid, 2019), which would supply offline outlets that the private sector does not. Testing that requires a measure of offline participation, which is beyond this article's scope, and the association is equally compatible with differences in platform use, peer composition or institutional norms. The enclosure estimate is consistent in direction and magnitude across the composition checks but too imprecise in this design to carry a claim, and is not interpreted further.

5.4. Ethno-linguistic position, without a mechanism

The prediction of lower institutional trust among students from smaller ethno-linguistic groups receives no support: the trust point estimates run opposite to the predicted direction, though the subgroup evidence is exploratory and none of it survives correction. The prediction of greater enclosure receives qualified and exploratory support, but the component analysis shows the association is concentrated in perceptions of algorithmic steering rather than in reported network similarity, so the natural compositional explanation — that a numerically small co-ethnic group yields a more homogeneous network — is not supported by the most direct available test of it. Neither campus ethnic composition nor co-ethnic network composition was measured, and no mechanism is asserted.

What the disaggregation suggests is narrower and useful for design: pooling ethno-linguistic minorities into one category in a Punjabi-majority setting may average over groups that differ, a heterogeneity that adequately powered studies should test directly rather than assume.

5.5. Partisanship and the components of enclosure

Two exploratory patterns deserve attention in future work. The first is that the largest single coefficient in the study is partisan rather than structural, and that its shape — positive across all seven institutions, including those no elected government directs — fits a winner's trust advantage more economically than a structural cleavage. The second is that partisan enclosure, where it appears, is behavioural: PTI identification is associated with boundary maintenance specifically rather than with reported network homogeneity. Both observations point toward measuring the components of enclosure separately rather than compositing them, which is a recommendation this study's own data support.

6. Conclusion

Of three candidate divisions, measured household asset ownership shows no detectable association with perceived echo-chamber enclosure, institutional trust, conspiracy mentality or online political action among students who disclosed it — a null that holds under count, principal-components, categorical and item-by-item specifications, under clustered and unclustered inference. Institutional sector yields one association that retains its direction, magnitude and nominal significance across every institutional-composition check applied — public-sector students report less online political action — while not itself surviving correction across the primary thirty-two-test family. Ethno-linguistic position produces no result that survives correction, though the disaggregation suggests that pooling minorities into a single category conceals groups behaving differently.

The strongest single coefficient in the study is not one of the three divisions at all, but the association between identification with the governing party and confidence in institutions — an association positive across all seven institutions measured, and most economically read as the trust advantage enjoyed by supporters of a party in office rather than as a structural cleavage.

Within this sample, institutional and partisan differences are more visible than differences associated with measured household assets, though these associations remain provisional. The wider lesson concerns inference rather than Pakistan. A design with twelve institutional clusters can pose the question of institutional environment but cannot settle it, and the number of findings this study supports fell at every stage as the inference was made appropriate to the design.

7. Limitations

The design is cross-sectional and every result is associational; reverse and reciprocal relationships remain possible throughout, and no causal interpretation is warranted.

The sample is a non-probability sample of twelve universities in one city, 96 per cent undergraduate, administered online and therefore conditioned on connectivity. It is not representative of Pakistani university students, of Lahore, or of Pakistani youth. Sector is identified across twelve unbalanced clusters, which is the binding constraint on the institutional claims, and no result here should be read as settling the question of institutional environment.

Asset non-disclosure at 20.9 per cent is correlated with both ethno-linguistic minority status and the enclosure outcome, so asset results describe disclosers only, and the class null cannot be extended to those who declined.

The enclosure index is formative with near-independent components, and its composite behaviour is interpreted only through the component results. The conspiracy-mentality measure is a three-item adaptation of a five-item instrument, reduced for administration rather than revalidated. Enclosure is perceived enclosure; no platform trace data were collected. Minority groups other than Pashtun and Saraiki remain pooled by necessity, and the disaggregated results do not survive correction for multiple comparisons.

Finally, no association in the primary thirty-two-test family survives Benjamini–Hochberg correction. The article reports its results as a graded hierarchy for that reason, and readers should treat every specific coefficient as provisional pending replication in a design with more institutions and a pre-registered analysis plan.

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