



Punjab, Pakistan: A Case Study for Using a Systems Approach for Identifying Constraints to Education Service Delivery

Background Paper

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1. Introduction

Education systems across the world aim to provide a universal and quality education that can improve the socio-economic outcomes of citizens. This is a challenging goal and commitment that many developing countries are struggling to achieve. According to the 2014 UNESCO Global Education Monitoring Report, 250 million children are unable to read, write, or do basic mathematics. Nearly 130 million of those children are in school, which suggests that children in school are not learning. Policymakers across the developing world are looking for solutions to address this 'learning crisis', but the academic and practitioner community is becoming increasingly conscious of the fact that the answer to this question is far from straightforward.

The current learning crisis has occurred despite numerous policy reforms, such as provision of textbooks, hiring new teachers, and increasing teachers' salaries (to name a few) across several different contexts. Many such investments have either resulted in no impact, or very different impacts (Glewwe and Muralidharan, 2015; World Development Report, 2018). For example, Indonesia doubled teacher wages, incurring an expenditure of nearly USD 4.5 billion which produced near-zero impact (De Ree et al, 2018). Similarly, research from India and Africa shows that reduction in class sizes does not always produce the desired impact on learning outcomes if other systemic features such as quality of teachers, incentive structures, and curriculums do not change (Pritchett, 2015).

Growing evidence that similar policy instruments can produce very different or no outcomes across contexts has generated interest in taking a *systems approach* to public service delivery. Such an approach typically recognises the various contingencies and complementarities across different actors and processes within a system, shifting the emphasis to the entire system instead of narrowly defined problems and solutions (Mansoor and Williams, 2018). Within the education sector, following Pritchett (2015) the recent World Development Report (2018) emphasises such an approach, and argues that there is a need to move beyond piecemeal policies and programmes to ensure that 'entire education systems' are aligned and oriented towards learning.¹

Taking a systems approach is specifically valuable for policymakers (and the academic and research community) for two reasons. First, through conceptualising systems as a whole, such an approach helps to identify underlying causes to problems instead of proximate causes (World Development Report, 2018). This helps 'reframe' policy questions, which can be useful for policymakers when designing interventions. For example, an education system may successfully design a resource-intensive nationwide capacity-building programme to build teacher pedagogical skills. However, a whole-system approach may reveal that the lack of pedagogical skills is, in part, due to the recruitment policy, which does not have a transparent merit-based hiring system, resulting in a pool of ineffective teachers. This changes the policy question from 'is a particular training programme

¹ Moore (2015) defines an education system as: 'all those institutions, actions, and processes that affect the educational status of its citizens in the short and long run.' This definition highlights that delivering quality education involves many layered factors, such as institutions for governance, accountability, information, financing rules, and school management (Pritchett, 2015).

effective?' to 'what training programmes are relevant for the type of teachers that exist in the system?' or more broadly to 'how can the recruitment system attract more high-quality teachers?' Hence system approaches force us to break out of sub-sector 'silos' and focus on how the entire system needs to be coherent for change (and learning).

Second, a systems approach brings a greater emphasis on complementarities across actors in a system, which can help design interventions that are 'incentive compatible' across all actors.² For example, in Kenya a randomised controlled trial involving contract teachers was implemented by both a non-governmental organisation (NGO) and the government. Research highlighted that the programme implemented by the latter produced no outcomes, with anecdotal evidence suggesting that powerful teacher unions in the education system undermined the effectiveness of the programme (World Development Report, 2018). A systems approach that identifies all actors and their incentives can be instrumental in identifying such incompatibility and enable the design of more effective interventions.

Education systems across the developing world are making progress towards providing access to quality education for all. At the same time, technology-based initiatives bring new potential for improving education quality, access and equity – for example, through improved pedagogy, adaptive lessons and distance learning (Honig and Pritchett, 2019). However, the success of such programmes – during pilot stages and, ultimately, during and after scale-up – depends fundamentally on the existing functioning of the education system. How can policymakers in such situations take stock of existing evidence to understand key constraints to the effectiveness of their system to design and implement new interventions?

This case study aims to answer this question by applying a systems approach to the education system in Punjab, Pakistan. It adapts the education system framework presented by Pritchett (2015) to:

- use it as a guiding structure to aggregate and take stock of existing evidence from Punjab, Pakistan
- use the aggregated evidence to identify key constraints that policymakers should be aware of when designing and implementing new programmes.

Two points are important to note regarding the scope of this case study. First, it aims to provide a set of guiding constraints in the system that is studied; it does not provide a deep diagnosis of why the observed constraints seem to exist. At best, the case study provides a practical guide for how to use a systems approach to take stock of and aggregate existing evidence in a way to ensure that important information across all system components is digestible. Second, while the rise of low-cost private schools across developing countries makes private and non-government forms of provision an important actor to consider for achieving access, equity and quality within an education system, the scope of this study is limited to the public education system. This

² Incentives must be aligned across all stakeholders to deliver against set goals, which we refer to as 'incentive compatibility'.

allows a deeper exploration of the types of relationships and accountability links across different stakeholders within the public sector. However, it limits the ability to comment on constraints facing the private education sector, the relationship between the private sector and existing government regulation, or challenges facing different forms of public–private partnership models.

The remainder of this paper is structured as follows. Section 2 describes the background and context of the Punjab education sector in Pakistan. Section 3 describes the systems framework that is used for analysis, including a short description of how the framework is adapted to the local context, and the methodology employed to identify constraints within the case study. Section 4 provides a summary of the key identified constraints. Section 5 provides examples of initiatives that aim to address some of the constraints, including a short discussion on how the results of the studies can be contextualised within a systems approach. Finally, Section 6 provides concluding remarks.

2. Background and context

This section provides an overview of the context of the case study location. We look at the national context, and then the specific details of the provincial education system in Punjab.

2.1 The national education system

The education system in Pakistan comprises 317,323 institutions which serve nearly 50 million students, and employ 1.8 million teachers (NEMIS, 2017). Education is divided into six levels:

- preschool (children aged 3 to 5 years)
- primary (grades 1 to 5)
- middle (grades 6 to 8)
- high (grades 9 and 10)
- intermediate (grades 11 and 12)
- university programmes leading to undergraduate and graduate degrees.

In 2010, the government of Pakistan introduced the Right to Education Act through Article 25A of the constitution, binding the state for the provision of free and compulsory education to all children between the ages of 5 and 16 years. In the same year, the government passed the 18th amendment to the Constitution, devolving all responsibilities for the management of the education sector from the federal to the provincial level. The federal level was merely responsible for maintaining the standard of quality in all provinces.³ Across all provinces, school education (including pre-school to grade 10) comes under the scope of SEDs that are responsible for all administrative, financial and management responsibilities pertaining to school education.

While the education sector in Pakistan has undergone several five-year sector reform plans, learning outcomes remain low. As Figure 2.1 shows, nearly 50% of children in grade 5 have not reached grade 2 levels of learning in literacy and numeracy, highlighting a huge gap between what students have learned and what they should have learned (ASER, 2018). Apart from low learning outcomes, around 22.8 million children in Pakistan are reported as being 'out of school', the second-highest number of out-of-school children in the world (NEMIS, 2017).⁴

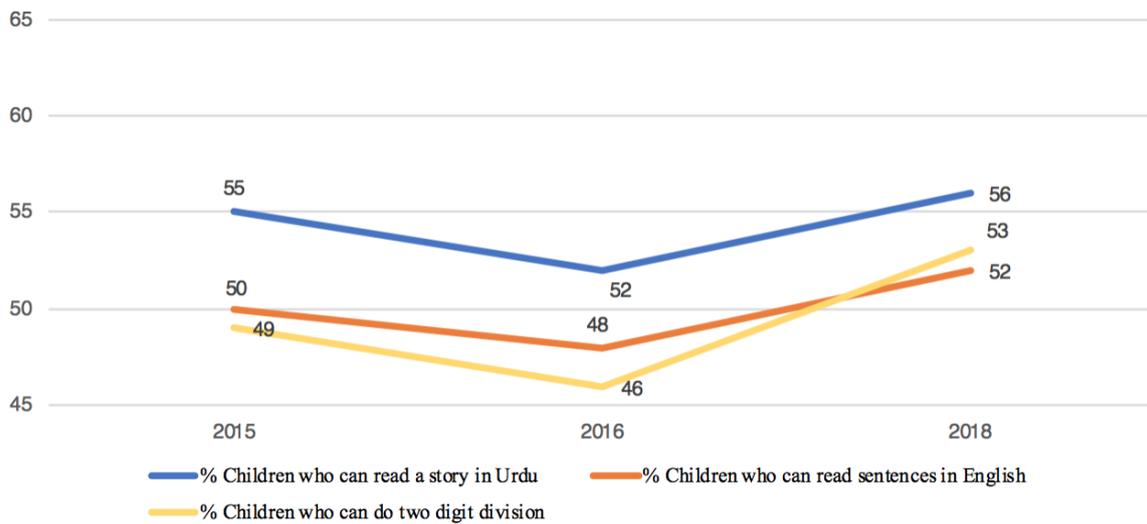
Article 25A demands greater financial investment in education to reach the educational goals outlined in the country's National Plan of Action to Accelerate Education-Related Millennium Development Goals (MDGs). While investment in education has increased over the last five years, it is still fairly low. The Pakistan Economic Survey (2016–17) shows that public spending on education currently stands at 2.2% of GDP, which is significantly lower than the national commitment of increasing expenditure to 4% of GDP (National Plan of Action, 2013). In addition, the challenges of inefficient financial planning and spending exacerbate the problem (Javed and Naveed, 2019).

³ 18th amendment and Article 25A: <http://rtepakistan.org/legislation/relevant-articles-of-the-constitution/>

⁴ Out-of-school children include children who have dropped out and those who never enrolled.

The need for a higher quality of education is more pressing than ever. According to the Pakistan's National Human Development Report (2017), the country currently faces a 'youth bulge', with 29% of the population in the 15–29 age group, forecast to further increase until 2050. Providing good-quality education will therefore be critical for whether or not Pakistan is able to unleash the potential of a very young nation.

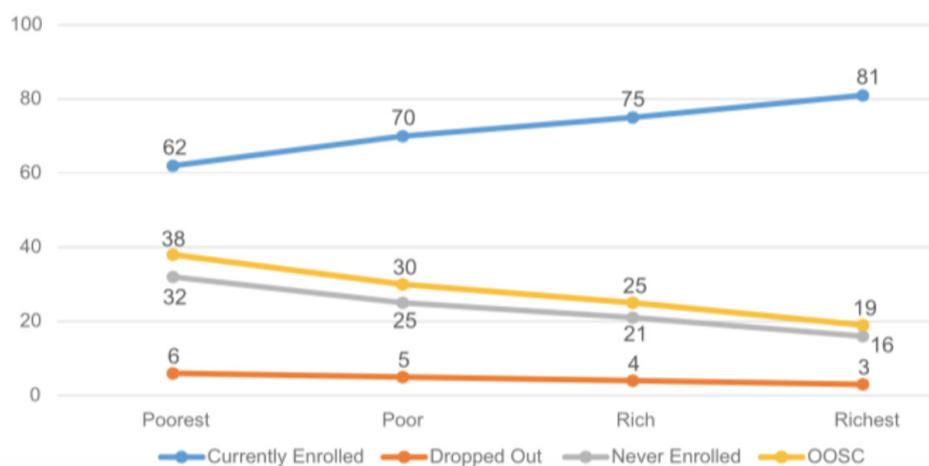
Figure 2.1: Learning outcomes for grade 5 in Literacy and Numeracy



Source: ASER Pakistan, 2018

In addition to these challenges, the education system also entails inequalities across several important dimensions, making education inaccessible to those who are most disadvantaged. In particular, wealth continues to be a determinant of inequality in education. For example, the Annual Status of Education Report (ASER) (2018) shows that, while the richest quartile has 81% of students enrolled in schools, the poorest quartile has only 62% of its children enrolled. Similarly, the proportion of out-of-school children increases as we move from the richest to the poorest quartiles (see Figure 2.2).

Figure 2.2: Enrolment status by wealth



Source: ASER Pakistan, 2018

2.2 Punjab public education system

Given that education is largely a provincial subject when it comes to budgeting, planning, and implementation, we limit this case study to Punjab, which comprises almost 53% of Pakistan's total population.⁵ The public education system in Punjab employs a workforce of approximately 400,000 teachers responsible for educating nearly 11 million children, spread across 52,000 schools in 36 districts of the province.⁶ There is also a booming private sector, with one-third of total students enrolled in private schools (NEMIS, 2017). While the growth of the private sector is promising, these schools have mostly appeared in areas where government schools already exist, and the government remains the primary vehicle for delivering universal education (Sattar et al, 2014). The School Education Department (SED) is the public body with the mandate of all policy and implementation pertaining to primary and secondary education. This includes formulating curricula and textbooks, recruitment of teachers, teacher development, financial planning and regulatory policy for private schools.

Improving education outcomes has been one of the top priorities for political parties in Punjab since 2007. In comparison to other provinces, Punjab has set an example with a series of reform-led initiatives as part of the Punjab Education Sector Reform Programme (PESRP). To support and monitor the reforms under the programme, a School Education 'Reforms Roadmap' was created by the Chief Minister in 2011, which involved a group of international experts, a local implementing organisation, and donor organisations. In 2013, the team established an ambitious set of targets under the 'Punjab Roadmaps' to improve both access and learning (see targets in Figure 2.3).⁷ As part of this reform agenda, the government set up an extensive school monitoring programme (including monthly audits), a biannual learning assessment in collaboration with the Department for International Development (DFID), a merit-based teacher recruitment strategy, and the institutionalisation of quarterly 'stock takes' measuring outcomes against set targets, and reported to the Chief Minister (Javed and Naveed, 2019).

The role of donor organisations has also been important in how the SED and its implementing bodies have mobilised to make progress against the targets. While domestic financing remains the key source of funding, the World Bank, DFID, and the Canadian International Development Agency (CIDA) have been engaged with the government to support the PESRP's ambitious reforms through several multi-year engagements. Many of these financing instruments have increasingly started relying on a results-based approach. This has naturally resulted in donor organisations supporting the establishment of information systems, and relying on international consultants (such as McKinsey and Adam Smith, for example) to offer technical assistance to local implementing organisations to improve the outcomes of their engagement (Rose and Malik, 2015).

Despite these advances towards producing gains in learning outcomes, Punjab continues to face a learning crisis. While the biannual assessments instituted as part of the Roadmap have registered some learning gains, the sampling strategy is not clear, and the items included in the

⁵ Pakistan Population Census, 2017 (Pakistan Bureau of Statistics)

⁶ Annual School Census Data 2017

⁷ www.pesrp.edu.pk/downloads/library/Parho_Punjab_Barho_Punjab_School_Education_Reforms_Roadmap.pdf

test to measure learning outcomes have varied over the years, making it difficult to draw reliable conclusions (Todd and Wasitell, forthcoming). In addition, there is concern that, while some learning gains may have taken place, learning levels are still very low, and gains are happening far too slowly. For example, the ASER (2018) report shows that, in Punjab, nearly 40% of children in grade 5 have not reached grade 2 levels of learning in literacy and numeracy (this includes English, Math and the national language Urdu).

The government also struggles to provide universal access. There are nearly 17 million out-of-school children in Punjab, which includes a higher proportion of girls and students from poorer backgrounds (NEMIS, 2017; ASER, 2018). In addition, the province continues to struggle with improving its retention rate from pre-school to grade 5, and the transition rate from grade 5 onwards to middle school.⁸

The SED works with several key implementing organisations to make progress towards its targets. All monitoring and evaluation rests with the Programme Monitoring & Implementation Unit (PMIU), which regulates effective data collection for monitoring against targets. The Quaid-e-Azam Academy for Educational Development (QAED), (formerly known as Directorate for Staff Development), holds the mandate for pre-service and in-service training of all teachers in content knowledge and pedagogical skills. The Punjab Examination Commission (PEC) is the primary provincial body responsible for conducting learning assessments through examinations at grades 5 and 8.

Figure 2.3: Punjab roadmap goals

Areas	Goals for 2018
Teaching quality	Increase basic literacy and numeracy levels in primary schools, attaining a 75% average score on the independently administered Six-Monthly Assessment
Enrolment and access	Aspire to get every primary school aged child into school, attaining a minimum 95% participation rate for 5-9 year old children across Punjab
Schools and teachers	Significantly improve infrastructure in Punjab's schools: <ul style="list-style-type: none"> ▪ 36,000 new classrooms and 46,000 new teachers ▪ 100% functioning facilities in schools
Public Private cooperation	Improve access and quality through Public Private cooperation, enrolling at least 2.6 million students in PEF schools by 2018

Source: PESRP webpage (<http://www.pesrp.edu.pk/>)

⁸ There is a lack of reliable student-specific longitudinal data to understand rates of transitions and drop-outs, but cross-sectional data suggests that transition and drop-outs are both significant concerns.

3. Systems framework for identifying constraints to service delivery

This section provides details of the conceptual framework that is employed as a foundation for characterising the public education system in Punjab, Pakistan. First we look at the proposed systems framework. Then we describe how the proposed framework is extended and adapted to our local context. Finally, we provide an overview of the methodology employed to aggregate existing evidence to identify constraints to effective education service delivery in Punjab using the proposed systems framework.

3.1 Proposed systems framework

The study uses a conceptual framework grounded in a systems approaches to identify the range of constraints to improving the effectiveness, efficiency and equity of the public education system in Punjab. In particular, the education systems framework developed by Pritchett (2015) is used, building on the 'accountability triangle' first presented in the 2004 World Development Report.

The framework is based on four foundational relationships of accountability between:

- citizen and policymaker (politics)
- policymaker and organisation (compact)
- organisation and provider (management)
- citizen and frontline worker (client power).

Within the specific context of the education system, each of these actors map onto the following:

- parents and students who are the direct beneficiaries of education referred to as citizens
- actors such as provincial or federal ministers who control policies and allocation of budgets at the centre (referred to as policymakers)
- departments/ministries of education that manage provision of education (referred to as organisations)
- head teachers and teachers (referred to as the frontline providers).

The framework posits that the accountability relationships between each of these actors operates across four design elements: delegation, financing, information, and motivation (DFIM). Delegation refers to the type of objectives that are communicated by the principle to the agent in each relationship; finance is the availability of finances to carry out the objectives; information pertains to the relevant data that the principle collects on the agent to monitor progress against defined objectives (and related targets); and motivation refers to whether agents' incentives to perform are aligned as per the defined objectives.

According to the framework, each of these design elements across the key actors must be consistent with the objective of learning for an adequate flow of accountability (Pritchett, 2015). Therefore, for the education system to function efficiently, each design element within a relationship must support the objective of learning; and all relationships must also be coherent with one another (Pritchett, 2015).

The study identifies constraints in our system by using existing evidence to diagnose where each design element might be incoherent with the goal of improving learning, possibly resulting in poor accountability. This essentially places accountability at the centre of our analysis of what constrains system effectiveness, and why governance failure happens (Honig and Pritchett, 2019).

3.2 Systems framework adapted to Punjab, Pakistan

This section adapts the systems framework to the context of Punjab, Pakistan (see Figure 3.1). As in Pritchett (2015), the adapted framework identifies key actors in the system, and specifies accountability links as a set of principle-agent relationships. In addition, it also identifies the broader political, socio-cultural, economic, and institutional environment which may act as a determinant of how these accountability links function.

In terms of the specific actors, the *state* in the context of Punjab represents the Chief Minister of Punjab, given that all sector budgeting and planning rests with the provincial political leadership. The *organisation* is represented by the Secretariat of the SED, which has the mandate for all primary, secondary and high school education in the province. As in the original framework, *frontline providers* comprise teachers and head teachers, and the *citizens/clients* are represented by students and parents.

Management is represented by several layers of hierarchy within the department which are responsible for the implementation of its reform agenda. The study explicitly specifies these layers of hierarchy in the framework, with the middle-management tier playing an instrumental role in translating goals into actionable activities, and ultimately into final outcomes. Within the context of Punjab, SED has a direct relationship with three main implementing bodies: the Administration wing; the PMIU; and the QAED, which is the provincial teacher training academy (Management 1 in Figure 3.1). These implementing organisations are delegated various reform targets directly from SED and are responsible for mobilising their field forces accordingly. For example, the Admin Special Secretary directly manages District Education Authorities (DEAs), the PMIU manages its district field forces called District Monitoring Officers (DMOs), and QAED manages district level QAED administrators. Each implementing body has a relationship with the district offices for monthly reporting against targets relevant to their sub-departments (Management 2 in Figure 3.1). Finally, the district offices manage school head teachers and teachers within their jurisdiction (Management 3 in Figure 3.1).

The Punjab Education Foundation (PEF), a semi-autonomous body, manages around 7,000 private schools through several types of public–private partnership models, and reports directly to SED. Since PEF operates under an entirely different management structure and is monitored against a different set of targets, this case study excludes an analysis and/or assessment of the different public–private partnership models employed and the constraints posed by each.

3.3 Methodology

This sub-section presents a brief overview of the methodology used to conduct the diagnoses of the constraints in the Punjab Education System. The study followed a three-step process:

1) Adapt the framework: The proposed framework is adapted to the Punjab context to reflect the local realities of the province. This is done by fleshing out the Pritchett (2015) framework to include details about certain relationships that are expected to be important in driving service delivery in Punjab (the adapted framework is presented in Section 3.2).

2) Aggregate evidence and mapping constraints: To aggregate existing evidence using the adapted systems framework, it is translated into a table as in Pritchett (2015) which is presented here in Figure 3.2. In the table, each design element (that is, delegation, financing, information and motivation) is depicted for each accountability relationship. Drawing on existing empirical evidence, policy reports, government monitoring reports, and the author's own analyses of existing data sources, the table is used to aggregate and map existing evidence relevant to each of the design elements for each accountability relationship. While gathering a lot of evidence on why accountability fails in many of these relationships is outside of the scope of this study, the adapted framework aggregates existing evidence to provide broad insights about the nature of constraints that may be resulting in poor accountability, and hence poor service delivery.

3) Identify themes of constraints: Based on the mapping exercise carried out in step 2, the study explores whether a common theme of constraints exists across the design elements and accountability relationships. These key themes are synthesised in Section 4.

Figure 3.1: Public education system in Punjab

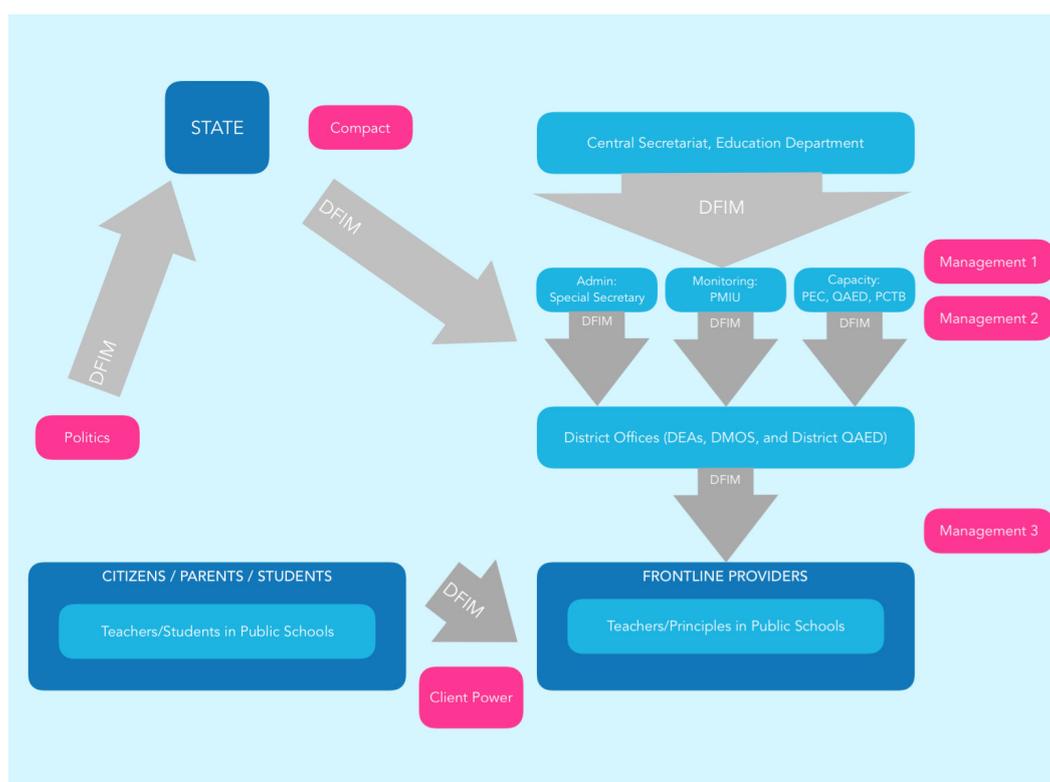


Figure 3.2: Format of table for aggregating evidence and identifying constraints

Four design elements of each relationship of accountability (Principal (P) to Agent (A))	Principal-Agent Relationships			
	<i>Politics:</i> Citizens to 'the Provincial Ministry' (many P to one A)	<i>Compact:</i> 'The Provincial Ministry' to department of education (one P to one A or one P to many A with non-state providers)	<i>Management:</i> Provincial Ministry to districts (one P to many A), Districts to Frontline Providers (one P to many A), Provincial Ministry to Schools	<i>Voice/client power:</i> Service recipients (parents/children) directly to Frontline Providers/Organizations (many P to one A)
<i>Delegation:</i> specification of what P wants from A				
<i>Finance:</i> resources that P provides to A (either in advance or contingent)				
<i>Information:</i> P collects information on performance of A				
<i>Motivation:</i> how is A's well-being contingent on performance? Change to motivation?				

Source: Pritchett (2015)

4. Constraints to effective public education service delivery in Punjab

This section presents the key constraints to education service delivery in Punjab that emerge from the mapping exercise described above (refer to Table 4.1 for a summary of the key constraints across different accountability relationships).

In particular, the following themes emerge from the mapping exercise. First, the delegation design element appears to be the most variable across accountability relationships in terms of its alignment with learning. For example, while the political leadership has communicated clear learning-related goals to the organisational leadership over the last 7–8 years (see example of Roadmap indicators in Section 2), it seems that these goals have not translated consistently down the management hierarchy or towards citizens. The types of constraints that appear to result in the misalignment with learning are summarised in the 'Delegation' row of Table 4.1 and are explained in more detail in Sections 4.2 – 4.5.

Second, financial constraints are caused by limited revenue mobilisation and the department's ambitious reform agenda as well as ineffective financial planning and budget implementation (Finance row, Table 4.1).

Third, all accountability relationships fail to function effectively due to important information constraints. This is caused by a lack of reliable national learning assessment data, a regularised means for collecting information on teacher performance in the classroom, and tracking progress on equity considerations (Information row, Table 4.1). This seems to result in more focus on 'process compliance' as opposed to real outcomes.

Finally, while strong incentives may have existed at the senior levels of the bureaucracy in the previous government – largely due to the Punjab Roadmap which had strong political support in the previous government (Javed and Naveed, 2019) – incentives remain blunt across other accountability relationships. Overall, the broader political, economic and cultural environment also plays a key role in how each of these accountability relationships are shaped.

The sub-sections below provide a detailed overview of the key constraints identified through the mapping exercise.

Table 4.1: Mapping constraints for each accountability relationship across the four design elements

Four design elements of each relationship of accountability	Principal-Agent Relationships			
	<i>Politics:</i> Citizens to 'the Provincial Ministry' (many P to one A)	<i>Compact:</i> 'The Provincial Ministry' to department of education (one P to one A or one P to many As)	<i>Management:</i> Provincial Ministry to districts (one P to many As), Districts to Frontline Providers (one P to many As), Provincial Ministry to Schools	<i>Voice/client power:</i> Service recipients (parents/children) directly to Frontline Providers/Organizations (many Ps to one A)
<i>Delegation:</i> specification of what P wants from A	Citizens' goals are not reflected in political manifestos. Politicians are not elected based on the manifestos (Mohmand, 2014).	No constraint: Clear learning goals established as part of Roadmap's indicators, however, equity-related goals missing (PERSP webpage, Barber, 2013).	Overall constraint: communicated goals are not actionable due to the skills/training gaps. Management 1/ Management 2: Skills/training constraints hampering planning and implementation. Management 3: No training on how to prioritise communicated targets (Saleem et al., 2018).	Student Councils focus on administrative tasks such as maintenance and purchases v/s learning (Dee and Asim, 2016; Annual School Census Report, 2016).
<i>Finance:</i> resources that P provides to A (either in advance or contingent)		Inefficient planning and spending (Pakistan Economic Survey 17-18, I-SAPs, 2014; Javed and Naveed, 2019).	Inefficient spending of non-salary budget (Annual School Census 2016).	
<i>Information:</i> P collects information on performance of A		No reliable learning, teacher performance, and equity data (ASER, 2018; Roadmap documents).	No reliable learning, teacher performance, and equity data (ASER, 2018; Roadmap documents).	No reliable learning, teacher performance and equity data (Andrabi et al, 2015).
<i>Motivation:</i> how is A's well-being contingent on performance?	Politicians are not elected based on learning data.	Strong or weak incentives, depending on political leadership. Performance evaluation is more political, which can lead to skewed motivation (Anecdotal Evidence, Interviews).	Weak incentives for teachers by schools, districts and the department. Teachers not motivated due to lack of incentives aligned with performance (Javed and Naveed, 2019).	Weak incentives for teachers from the community (Anecdotal Evidence, Interviews; SABER service delivery data, 2018).

4.1 Broader political, cultural, economic and institutional environment

The political context, cultural factors, and the institutional environment create overarching challenges for how different accountability relationships are shaped, which ultimately affects access, quality and equity for the Punjab public education system. In this sub-section, we provide a brief overview of such constraints.

In principle, citizens should be able to influence objectives of an education system since they are the direct beneficiaries; they should be able to hold policymakers accountable against clear objectives.⁹ However, in reality they may not be able to exert pressure on politicians, either due to a weak electoral system, or because citizens put more weight on ethnic and ideological values instead of quality of public services (World Development Report, 2004). Within the context of Pakistan, political manifestos are not driven by the interests and demands of the citizens. Moreover, these manifestos do not form the basis of how policymakers recruit party workers or collect votes. Voting is arguably on the basis of several processes – such as through the 'feudal' mode of politics, clientelism, kinship networks, and party identification (Mohmand, 2014). This structure of party-voter linkages limits citizens' ability to delegate goals and hold the politician responsible. The growing influence of the media is (partly) trying to create awareness among citizens of the importance to demand quality education and hold policymakers accountable. For example, the 'Zara Sochiye' (see: [https://www.behance.net/gallery/7913527/Zara-Sochiyey-\(Just-Think\)](https://www.behance.net/gallery/7913527/Zara-Sochiyey-(Just-Think))) campaign, led by a leading Pakistani news channel, creates awareness to demand better education service delivery from politicians. However, within the political context of the country, the effectiveness of this accountability channel (that is, citizen–policymaker) remains constrained.

Where political insecurity is concerned, although attacks on schools in Pakistan have declined since 2014, schools continue to face security threats from various armed non-state groups. Between 2013–2017, such parties attacked hundreds of schools using explosive devices, taking the lives of teachers and students (GCPEA, 2018). Although the frequency of such attacks has been higher in the northern parts of Pakistan – Khyber Pakhtunkhwa (KPK) and Federally Administered Tribal Areas (FATA) in particular – governments across all provinces continue to face security threats, which create new financial and resource challenges of access and equity.

In addition, cultural factors continue to be a key challenge in ensuring both education access and equity. For example, early marriages (under the age of 18) for girls have been reported to be as high as 24%, with the proportion higher for rural (at 40%) and poorer girls (at 50%) (UNFPA, 2012). While these are national figures for child marriages, according to the Pakistan Demographic and Health Survey (2006–2007), around 53% of women married as children are from Punjab (Nasrullah et al, 2014). In various studies conducted on Pakistan, early marriages are shown to be negatively correlated with education levels, along with several other health-related risks (UNFPA, 2012).

⁹ According to the World Development Report (2004), this is the long route to accountability.

On the supply side, the institutional environment of the public education system creates several challenges. While article 25A (released in 2010) declares free and compulsory education for all children aged 5–16 years, it comes with a greater financial burden. With the education budget still hovering at under 3% of GDP, the accessibility requirements for the most disadvantaged are not being catered to. For example, studies from Pakistan show that distance to school continues to be a major determinant of who gets enrolled, particularly for girls. More specifically, the drop in enrolment caused by a larger distance from school is three to four times greater for girls than boys (Andrabi et al, 2008). In addition, existing studies suggest that enrolment rates for children with disabilities are far lower than those without disabilities (Singal, 2015). Extending educational access to these disadvantaged populations will most likely involve greater financial investment on the part of the government. However, this is constrained by the government's inability to raise domestic sources of revenue, with its tax to GDP ratio at a dismal 8–9% (Rose and Malik, 2015).

Lack of skills and training at the various implementing departments creates additional challenges in translating the government's ambitious reform agenda to actual outputs and outcomes. For example, the current evidence points to poor quality of instruction as one potential reason for low learning levels in Pakistan (Aslam et al 2011; Saleem et al, 2018). Also, the Annual School Census from Punjab (2016) points towards a slightly different challenge. It shows that nearly 50% of school non-salary budgets remain underutilised, indicating gaps in management and implementation skills. Such gaps in skills play a key role in how goals are translated into actionable tasks and ultimately outcomes.

4.2 Incoherence in delegation

Within the Punjab education system, although delegation has been aligned with learning at the top (that is, at the compact) through the Punjab Roadmap, this may not have been the case for the different levels of the management hierarchy.

Over the last five years, the provincial ministry has communicated clear goals to the Department through the Punjab Roadmap, which has included targets for improving quality (including in terms of learning) within the education system (See Figure 2.3). An intensive monitoring framework has co-existed alongside these goals through the monthly monitoring visits – known as the Monitoring and Evaluation Assistants (MEA) system – and the Chief Minister quarterly stocktakes. However, anecdotal evidence and existing surveys indicate that the goals at the top may not always translate into actionable activities that are coherent with learning at the lower management tiers. I hypothesise that this is partly due to a lack of skills and resources at the implementing organisations (Management level 1) and the lower management tiers (such as district-level offices and frontline providers). For example, the district-level offices (DEAs) have monthly meetings with the department leadership about goals and targets, which are supposed to be communicated to head teachers who need to tackle multiple competing priorities. However, existing evidence suggests that teachers may lack awareness and skills to be able to achieve what is demanded of them.

For example, in the SABER Service Delivery Indicators Survey in Punjab (2018), nearly 800 head teachers were surveyed. When asked 'which responsibility head teachers view as the most important', only 6% of the teachers report improving student test scores as the most important task. A large majority report responsibilities such as 'being on time in school', and 'maintaining discipline in class', which, although important, may not be directly linked to learning.¹⁰ Also, these teachers may not be equipped with the important skills of being able to turn goals into 'actionable' activities. The SABER Teachers report on Pakistan points to evidence on how teachers receive little information on how to prioritise and spend their non-teaching time. This is despite existing knowledge on how non-teaching activities (such as lesson planning for example) are also necessary for improving learning outcomes (Saleem et al, 2018). In particular, a significant majority (nearly 44%) of head teachers receive no training on how to manage a school (SABER Service Delivery Indicators Survey Data).¹¹

Direct citizen oversight of public service delivery can create accountability of frontline workers and ensure that the state's goals are aligned with citizens's concerns (Mansuri and Rao, 2013). However, the effectiveness of such engagement depends on citizen knowledge of their rights and responsibilities as well as awareness of public service delivery goals (Asim and Dee, 2016). Also, effective platforms are needed for citizens to fully engage and have a voice.

The government of Punjab established school councils (SCs) in 1994 as way to engage the community to improve school governance. As per the School Council Policy (2007), the community members are mandated to meet monthly, to discuss various issues pertaining to school governance, such as monitoring of teachers, enrolment, student retention, school maintenance, and management of the school council non-salary budget. On average, these councils typically include around eight individuals, consisting of a head-teacher, parent members (comprising around 50% of the membership), and other influential members of the community.¹²

Despite improving learning being a clear goal for schools, data from existing policy reports and surveys indicate that the this goal of improving learning is not a priority for SCs., despite it being a clear goal at the centre. The Punjab Annual School Census (2016) shows that council members meet around eight times in a year, with only 18% of the schools fulfilling the requirement to meet at least monthly. At best, SCs are influential in managing school maintenance issues and budget planning; they have little influence over teacher performance and how classrooms are run. For example, data from the SABER Service Delivery Indicators Survey in Punjab shows that 43% of the teachers in the sample believe that SCs are the most influential in decisions pertaining to purchase of school equipment and supplies, whereas only 7% believe that the council SC can exert influence on disciplinary action against teachers.¹³

¹⁰ Punjab SABER data, author's own calculations. Choices to the question include: 0= None were mentioned; 1= Being on time to school; 2= Maintain discipline in the class; 3= Improve students' scores; 4= Help out in extra academic activities that the school faces; 5= Teach students to be good citizens; 6= Have a positive relationship with other teachers and students.

¹¹ Based on author's own calculations. The specific question was a 'yes/no' response, asking head teachers the following: Have you ever received formal training on **how to manage a school?** (the focus is school management, not other types of trainings).

¹² Annual School Census, 2016.

¹³ Own calculations from the survey.

4.3 Information constraints

Given the education system's aims to improve learning, access and equity across the province, it is imperative to have reliable and consistent information to monitor progress against these goals, to diagnose problems and design effective solutions. However, Punjab has been unable to institute a system for gathering reliable and consistent data on students' learning, teachers' classroom performance, and various equity considerations. This barrier to meaningful data results in tracking 'process' compliance, without careful monitoring of progress against outcomes related to learning.

Extensive efforts were made under the PESRP to collect regular information on several input indicators including the status of school facilities and teacher attendance. Student attendance was tracked through the MEA monthly visits and the Annual School Census. While student learning data is also collected through several different mechanisms, a debate on the lack of reliable, regular and consistent learning outcome measures continues. In particular, across current learning assessments methods in the system, either testing for some important grades is missing, the frequency of testing is too low, or the sample size is simply not representative.

For example, the Punjab Roadmap team monitored progress against learning through biannual assessments administered to grade 3 students from around 200 schools, but there is little clarity on the sampling strategy and the representativeness of the data across the province. The MEA administer learning and numeracy tests using tablet devices with three randomly selected students in classes that they monitor every month; however, there are concerns around the reliability of tests conducted under such conditions, the representativeness of the sample, and the learning outcomes that are tested. Other sources of learning data include: the PEC which collects examination score data for grades 5 and 8 only; the National Education Assessment System (NEAS) which conducts learning assessments at grades 4 and 8 in Urdu Reading, writing and mathematics, but only once every two years; and ASER Pakistan, which collects national learning data, but only at grades 2 and 3. Therefore, despite these measures, there is a lack of frequent standardised assessments that can provide comprehensive learning outcome data to enable monitoring progress across important stages of learning, and also for international comparisons.

Making teachers accountable through relevant performance-related information is central to improving learning outcomes. However, the only source of regular and consistent teacher performance information is teacher attendance (through MEA monthly monitoring) which is not an indicator of teacher effort in the classroom.¹⁴

In addition, more needs to be done to cater to equity considerations. Although access and enrolment data exist for each district across the province (as per targets set by the Roadmap team), such information is not disaggregated by gender or wealth, which are important areas where inequality in education provision continues to persist (ASER Pakistan, 2018).

¹⁴ The two-yearly NEAS survey collects data on whether teachers provide feedback in classroom and regularly check homework, however, that is too infrequent to improve accountability of teachers.

These information constraints tend to hamper the effectiveness of the principle to hold agents accountable across all relationships in our systems framework. For example, in the management relationship (organisation and provider), the department is unable to hold teachers accountable against reliable student learning and teacher performance data. Even though some learning data is collected by the MEAs, the existing processes to give feedback to teachers are not based on these learning outcomes (SABER Teachers, 2018). Similarly, in the citizen and provider (client power) relationship, citizens are unable to assess quality information, and cannot hold frontline workers accountable due to the lack of consistent school performance data.

4.4 Misaligned incentives

To improve learning outcomes, incentives for agents across different relationships must be aligned with the goal of improving learning. For example, politicians must be rewarded for improving learning, organisations must be evaluated and rewarded against goals related to learning, and teacher incentives must be connected to students' learning.

The current institutional environment results in an incentive structure that is incoherent with learning improvement. For example, in the management relationship (organisation and provider), existing incentives are primarily determined by seniority instead of performance against objectives. The lack of reliable teacher performance and teacher-level student learning data also makes it challenging to design and institute monetary and non-monetary incentives that can align teacher performance with student learning. In 2018, the government of Punjab distributed 500 Star Teachers' Awards (Javed and Naveed, 2019). However, the process of selection was limited to grade 5 and 8 teachers with PEC test scores; at best, this offers blunt incentives for the remaining teachers in the system.¹⁵

Similarly, there are no formal community mechanisms for rewarding teachers for their performance. At the organisational level, secretaries have generally had stronger incentives. Anecdotal evidence suggests that this was due to the prior Chief Minister's management style of quickly rewarding or punishing his senior bureaucrats through alternate transfers and postings. However, it is unclear whether similar incentives will prevail in the existing government (after the 2018 national elections resulted in a change of provincial government).

¹⁵ There is a larger debate on how to measure teacher performance and how incentives in education can sometimes create perverse incentives, leading to challenges such as 'teaching to the test' or challenges of gaming and collusion due to measurement challenges (Glewwe et al 2010, Banerjee et al 2008). However, I abstract from the discussion in this case on what types of incentives would be effective, or how they should be designed.

4.5 Inefficient financial planning

At the federal level, spending on education remains below the government's longstanding target of 4% of GDP, which creates financing challenges for the sector. The low rates of economic growth in the country compound the problem. In 2019 in particular, the economy struggled with high rates of inflation nearing 7.5% and a mounting current account deficit which led to authorities reducing the target economic growth rate from 6% to a meagre 3.5% for the coming years (Asian Development Bank, 2019). As well as low economic growth, the government's tax-to-GDP ratio hovered around 8–9%, which is far below the required international targets of 20% for governments to be able to meet their population's educational needs (UNESCO, 2014).

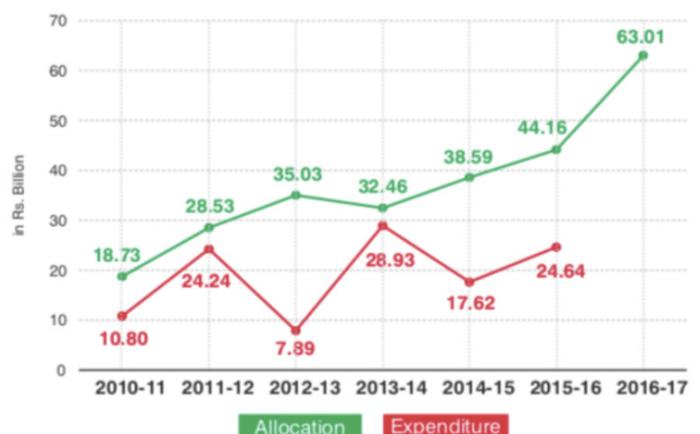
Despite the lack of financial resources, provincial governments have shown a high commitment by contributing at least 20% of their budgets to education. For example, Punjab's education budget has increased from PKR 155 billion in 2010–2011 to PKR 296 billion in 2016–2018, and the allocation to the education sector has remained between 19–22% of the total provincial budget (I-SAPs, 2014).¹⁶

Despite the budget increases, concerns have been reported around being able to translate increases in provincial resources into actual educational outcomes (Javed and Naveed, 2019). This is evident in a significant proportion of the total allocated budget that remains unspent. For example, between 2014 and 2016, the unspent proportion of the recurrent budget was greater than 14% (See Figure 4.5a). The gap in the development budget is even more drastic. In 2014–2015, for example, nearly 45% of the development budget remained unspent (I-SPAS, 2014). The reasons for this inefficiency appear to be capacity constraints (for being able to plan and spend within the fiscal year) and an understanding of accounting procedures (Rose and Malik, 2015; Javed and Naveed, 2019).

Fig 4.5a: Recurrent Education Budget, Punjab



Fig 4.5b: Development Education Budget, Punjab



Source: I-SAPS (2014) report on Public Financing in Education

¹⁶ In general, other provinces have also started allocating at least one-fifth of their budget to education (Rose and Malik, 2015).

At the school level, the government of Punjab deploys a formula-based allocation of a recurrent non-salary budget, with the goal to improve school quality and performance. However, school-based self-reported measures of budget use from the Annual School Census (2016) reveal that nearly 50% of the schools have utilisation rates of less than 50%.¹⁷

In addition to inefficient utilisation rates, analysis reveals that distribution of resources between provincial districts is inequitable, with a bias towards higher spending in more developed districts. For example, Lahore and Faisalabad, two of Punjab's most developed districts, receive 9% of the total budget, with 8 of the poorest districts receiving only 8% of budget (Rose and Malik, 2015). While the Provincial Finance Commission Award (PFCA) has a formula based on district-level need, it is unclear if this accounts for need based on underdevelopment, out-of-school children, and distances of schools from pockets where out-of-school children exist (Rose and Malik, 2015).

¹⁷ Based on own calculation from the Annual School Census 2016 dataset.

5. Addressing key constraints – examples of initiatives

In this section, we look at examples of initiatives and projects that address some of the specific constraints identified in Section 4. First we look at four initiatives, each addressing a specific type of constraint. Then we discuss how the results of these initiatives can be interpreted in light of a systems approach to public service delivery. The scope of the discussion is not to assess the success of the adopted interventions, but rather to reflect on how a systems approach could have supported their design.

5.1 Examples of initiatives

School Council Mobilization Programme

With respect to financing, one of the identified constraints is that schools are unable to spend their non-salary budgets effectively.

The government of Punjab launched a School Council Mobilization Programme (SCMP) with the aim of using low-cost technology (that is, agents who make telephone calls) to give council members important information about their roles, responsibilities, and other management-related features. A key goal was to improve the use of non-salary budgets received by schools, a large proportion of which remained underutilised (Asim, 2019). The programme was rolled out as part of wider World Bank support to the government of Punjab under the PESRP (Asim, 2019).

The government of Punjab made several efforts in the past to improve the performance of SCs. In 2007, it initiated an in-person capacity-building programme. Training was provided by community organisations and held in all schools between 2008 and 2011. The programme cost the government PKR 18,000 (USD 180) per school for a one-off group-based session. Reviews of the programme indicated that the initiative had been largely ineffective, with a significant number of SCs failing to conduct their mandatory monthly meetings or their other roles and responsibilities. In contrast, the SCMP cost the government around PKR 5,000 (USD 50) per school for a 12-month engagement. This offered a more cost-effective and sustained mode of engagement with council members. The information was delivered to SCs using call agents who were trained and managed by a call centre. For a period of 12 months, call agents called SC members every month, informing them of their roles and responsibilities (Asim and Dee, 2016).

Using a 'difference in difference in differences' (DDD) design,¹⁸ Asim (2019) estimates the causal impact of the programme and finds that schools that received the SCMP increased their budget utilisation by 40%. However, this did not translate into improved learning outcomes, and in fact reduced test scores in Math, Urdu and English by 0.10 standard deviations.

¹⁸ This is a triple difference estimator in which the impact of a policy on an outcome is determined by place, time, and another third variable. In some cases, a third difference based on the third variable can be used to eliminate biases (Berck, Peter & Villas-Boas, 2016)

The author points to several potential reasons for the negative impact on learning outcomes:

- strengthening SCs could have hampered teacher autonomy, resulting in decreased effort in the classroom
- there were potential negative effects on teacher behaviour and effort after the programme was dissolved.

Finally, the study questions whether the design of the programme was purely focused on optics without actually being aligned to the objectives of learning (Asim, 2019).

The Monitoring and Evaluation Assistants (MEA) System

Under information constraints, this study identifies how the lack of information on school performance can hamper an organisation's ability to hold frontline management accountable.

Prior to the formation of the Punjab Roadmaps team, teacher absenteeism, student attendance, and status of school facilities were frequently highlighted as issues across districts (Barber, 2013). However, there was no readily available, objectively verifiable information to monitor schools against these indicators.

With the formation of the Punjab Roadmap, in 2011 the government of Punjab instituted a comprehensive school monitoring mechanism which relied on the use of smartphones to collect real-time data on school performance. The data collection effort had two components: an Annual School Census; and a Monthly Monitoring System.

Both data collection systems are currently managed by the PMIU. The District Monitoring Officers (DMO) of the PMIU supervise a cadre of Monitoring and Evaluation Assistants (MEAs) who conduct monthly field visits of the schools assigned to them. MEAs are required to cover at least 90% of the total public schools in Punjab, where each MEA covers roughly four schools per day. To reduce the likelihood of collusion between MEAs and schools, the clusters assigned to MEAs are rotated every month.¹⁹

While there is no rigorous causal evidence on the effectiveness of the programme, the policy-oriented literature shows that the monitoring system addressed issues related to student and teacher attendance. In particular, reports show that, between 2011 and 2012, student attendance increased from a baseline of 82% in 2011 to 92% in 2012, and teacher attendance improved from a baseline of 80% in 2011 to 90% in 2012 (Barber, 2013).

If teacher and student attendance did significantly improve due to the monitoring system, the effects have not translated into improved learning outcomes. Several hypotheses exist to explain this:

¹⁹ PMIU webpage: <http://www.pesrp.edu.pk/pages/Monitoring-and-Evaluation>

- The monthly, quarterly and annual reports produced for districts based on the MEA data primarily focus on input-based indicators.²⁰ MEAs administer learning and numeracy tests on tablets to three randomly selected students in their monitored classes every month. While these monthly learning scores are included in the reports, anecdotal evidence suggests that they are perceived as inconsistent due to their non-representativeness, and hence are not seen as a valid measure to track progress or hold teachers accountable.
- Anecdotal evidence highlights that the usability of the generated information for the middle-tier bureaucracy and frontline workers has remained limited. While the monitoring data is publicly available, in practice it is only used by the PMIU and SED headquarters, with minimal use by the district offices or other implementing bodies for whom this information would be most useful.

School report cards

A lack of information on school performance (specifically learning levels) can limit the ability of citizens to hold frontline workers accountable.

Andrabi et al (2015) implemented a school report card programme. The motivation was to address the information asymmetry between schools and parents and provide school performance information to communities to promote school quality. In the case of private schools, this can also create competition between schools.

The programme randomly assigned half of the sample villages with report cards, including specific test scores for children and the school. The initiative increased test scores by 0.11 standard deviations for all types of schools, with the increase in public school test scores of around 0.10 standard deviations (Andrabi et al. 2015). The authors suggest that information may have acted as a disciplining instrument that the community used to improve accountability and quality.

Financial incentives for teachers

Weak incentives for public school teachers to improve learning is one of the constraints to improving service delivery.

The Punjab government piloted a teacher 'pay for performance' programme in 2010 to align teacher incentives with student learning and enrolment. The programme offered yearly incentives (in the form of cash bonuses) to teachers across a sample of 600 primary schools. Teacher performance was measured on the basis of three indicators: change in the school's average student exam scores; the change in the school's enrolment; and the level of students' exam participation. The associated weights for each of these indicators were 0.50, 0.25, and 0.15 respectively (Barrera-Osorio and Raju, 2017).

Barrera-Osorio and Raju (2017) evaluated the impact of the programme over a three-year period. They found that, while the programme increased student exam participation rates in the second and third years, and student enrolment in the first year, it produced no effects on student learning.

²⁰ See sample district quarterly ranking reports at: http://www.pesrp.edu.pk/datacenter#district_ranking

The authors point to two potential explanations for this:

- The design of the scheme may have created perverse incentives by making teachers focus more on tasks that were more easily achievable, such as student exam participation and enrolment.²¹
- The student learning data (PEC scores) used in the programme show low reliability, with huge variation across schools and years. Knowing that the measures have low reliability may make teachers disinclined to exert any effort.

5.2 Discussion

These examples show how different constraints have been addressed through various initiatives, but have not always produced an increase in learning outcomes. Using the authors' observations on why some initiatives may not have led to higher learning outcomes, I draw three main insights on how taking a systems approach can be useful in the design of similar policy programmes.

1) Even when government interventions undertake important steps towards eliminating key gaps, the *overall objectives of the initiative must be coherent with the goals of the system*. In particular, for education, they must go beyond process compliance and focus on learning. In the case of SCMP and the MEA monitoring programmes, for example, while the initiatives aimed to address important constraints in the system, the programmes failed to translate into improved learning outcomes because the focus was not on learning to begin with.

2) *Gathering careful understanding of incentives of actors across the system can be useful when designing programmes*. For example, in the case of the SCMP, prior knowledge of incentives of SC members, teachers and other stakeholders in schools could have helped diagnose whether the intervention could create any incentive incompatibility within the system (such as by reducing teachers' autonomy). This can help design programmes that can limit (to the extent possible) such incompatibilities.

3) Developing an understanding of *how key constraints of the system interact with a programme* can provide useful information on whether the system is ready for such a programme or not. For example, in the case of the teacher 'pay for performance' programme, an assessment of potential limitations in the existing PEC learning data could have highlighted the need to explore other sources of student learning data when designing the incentive programme.

²¹ As mentioned earlier, there is a somewhat considerable literature on how incentives in education can create perverse incentives leading to challenges such as 'teaching to the test' or gaming and collusion due to the accuracy of performance measures (Glewwe et al 2010, Banerjee et al 2008)

6. Conclusion

Advisors regularly recommend that policymakers use a set of interventions to improve public service delivery. Often the political and institutional environment is such that decisions need to be taken within a limited timeframe. In such situations, aggregating and taking stock of existing evidence to understand key constraints to service delivery can be instrumental for diagnosing the right problems, and designing and implementing programmes accordingly.

This case study demonstrates how a systems approach might be one possible way of aggregating and taking account of existing evidence in a structured way to identify key constraints to effective service delivery.

Pritchett (2015) identifies poor accountability across key principle-agent relationships as the key barrier to public service delivery, proposing a systems framework. This case study adapts that framework to aggregate existing evidence and identify key constraints to effective service delivery in the context of the Punjab education system in Pakistan.

While this paper is limited in its scope (both in terms of the depth of the review of the existing evidence and in its ability to model the entire eco-system of education), it provides a proof of concept of how such an approach might be useful for using existing evidence for better decision-making.

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