

## PUBLIC SERVICE DELIVERY FOR RURAL DEVELOPMENT

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### Introduction

Despite the recognized, critical role of public services in raising rural welfare, Pakistan has recently struggled with the challenge of providing quality services to its rural population. Efforts to design and implement policies that ensure both access and quality have been hampered by events such as major flooding in 2010, 2011, and 2014, as well as the civil conflict and violence that continually affect the country (UNICEF 2012).<sup>1</sup> In the midst of these exceptional circumstances, Pakistan also experienced a major political transformation in 2010 with the introduction of the 18th Amendment to the constitution, which devolved federal political authority and responsibility for essential services to the provinces (DRI 2010) and made Pakistan the first federation in the world without a national or federal health ministry (Nishtar et al. 2013). Measures to ensure accountability have not kept pace with changes in responsibilities, generating concern about how service delivery can be improved (Arif et al. 2010; Bhutta et al. 2013).<sup>2</sup> This apprehension is well deserved given the state of public services in the country, starting with the health sector but also encompassing education, water, sanitation, and electricity services.

Pakistan's track record of achievements in the provision of public services—especially in rural areas—is recognized as falling below what is necessary to support economic growth and social development, and the country's indicators generally lag behind those of its South Asian neighbors (Table A8.2). Pakistan has the world's third-highest burden of maternal, fetal, and child mortality, owing largely to viral infections, dengue, tuberculosis, malaria, and

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1 The army campaign against terrorists in North Waziristan since June 2014 has added to the internal instability and the large numbers of internally displaced persons.

2 The 18th Amendment to the constitution and its implications for Pakistan's rural development are discussed further in Chapter 9.

hepatitis B and C (Bhutta et al. 2013; GoP 2014a). In rural areas in particular, one in nine Pakistani children does not survive to his or her fifth birthdays (NIPS 2013).<sup>3</sup> Rural Pakistan similarly lags on education indicators: the net enrollment rate at the primary level (ages five to nine)<sup>4</sup> is 54 percent (far from the Vision 2025 goal of universal primary education with 100 percent net primary enrollment); only 42 percent of children in rural areas complete primary school; and only 51 percent of rural children ages 10 and older are literate (PSLM 2014). The indicators are also worrisome from a gender perspective: the gender parity index in rural Pakistan is 0.84 for the primary level (calculated as the ratio of female to male net enrollment at the primary level), 0.70 for the middle level, 0.82 for the matric or secondary level, and 0.58 for literacy (for 10 years and older), suggesting lingering problems with educating girls (GoP 2014c).<sup>5</sup>

Add to this the problems associated with the provision of water, sanitation, and electricity services: only 50 percent of rural households have access to a piped drainage system, only 45 percent have access to a flush toilet, and only 9 percent have access to a piped water source. Inadequate access to sanitation services alone is estimated to cause Pakistan economic losses totaling US\$5.7 billion (PKR 343.7 billion) per year—equivalent to 3.9 percent of gross domestic product (GDP)—and exacerbates many of the already dire health problems mentioned earlier (WSP 2012). Rural households' access to water, sanitation, electricity, and other essentials is further constrained by the power sector crisis. For example, during the summer months of 2012, while urban households experienced up to 8–10 hours per day of power outages because of load shedding, rural areas were subjected to 16–18 hours of outages (USAID 2013). Power sector inefficiencies are estimated to have lowered economic growth by at least 2 percent annually over the past five years (USAID 2013).

Multiple factors likely account for subpar provision of rural public services. On the demand side, illiteracy, gender inequality, social exclusion, and poverty reduce the extent to which people try to access public services. On the supply side, inadequate and unequal public funding limits access for many groups. Further, weak governance and poor accountability have wasted resources and

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3 Under-five mortality in rural areas is 106 deaths per 1,000 live births.

4 We use the age ranges preferred by the government for primary, middle, and secondary schooling.

5 For the middle level, this is calculated as the ratio of female to male rural net enrollment for grades 6 to 8, ages 10 to 12. For the secondary level, this is calculated as the ratio of female to male rural net enrollment for grades 9 to 10, ages 13 to 14.

prevented the development of coherent and consistent policy frameworks over time.

In the area of health, socioeconomic status poses high barriers to women's ability to access even the most basic maternal care. Moreover, an unregulated, low-quality private sector has filled in for a public sector that is unable to provide adequate delivery care to pregnant women (GoP 2009a). This is a direct consequence of the lack of coherence and stability of the governance environment surrounding health services. Most of the key policy strategies for maternal and child health in the past 20 years have lacked a long-term vision and proper targeting (Bhutta et al. 2013).

In the area of education, Pakistan faces stubborn barriers to school enrollment—especially for poor, rural girls. On the supply side, rural areas have a lack of available schools in each village, especially government middle and high schools, as well as long distances to schools and poor infrastructure within schools. On the demand side, economic and social barriers play a large role, especially in preventing girls from attending school. Limited returns to education are an additional demand-side barrier.

Inadequate access to rural services implies many challenges for Pakistan's policy makers, many of whom are likely cognizant of the demonstrated importance of public services to the rural poor. Several potential pathways exist through which access to high-quality public services might be improved: by directly increasing agricultural labor supply, productivity, and rural incomes; by encouraging investments in physical and human capital; and by more broadly empowering citizens and helping them meet basic needs (World Bank 2007; Mogues 2011). Because of the potential benefits, access to public services belongs at the heart of rural development and poverty reduction strategies. This chapter explores how consistent, coherent policies for five public services in rural Pakistan—healthcare, education, electricity, water, and sanitation—can boost access to services and thereby raise the welfare of people in rural areas.

Public health and education policies have obvious, direct impacts on rural welfare; the unhealthy cannot work productively, and the uneducated are likely to make suboptimal choices on decisions such as crop choice, inputs, insurance, markets in which to sell products, and rural nonfarm work opportunities. Furthermore, education and health have multiple feedback loops: good health improves educational outcomes, and vice versa. Poor health in childhood is associated with poor schooling outcomes (Alderman et al. 2001; Glewwe, Jacoby, and King 2001; Miguel and Kremer 2004; Paxson and Schady 2007), which reduce labor productivity in adulthood. In turn,

education provides knowledge and generates income that can improve health and therefore productivity.

Electricity, water, and sanitation policies also directly affect rural welfare. Electrification has been shown to substantially increase labor productivity, leading to significant development gains (Dinkelman 2011; Reinikka and Svensson 2002; Lipscomb, Mobarak, and Barham 2013; Fisher-Vanden, Mansur, and Wang 2012). Giving people access to improved water and sanitation sources greatly improves their health and nutritional status, thereby directly affecting labor productivity (Ewbank and Preston 1990; Cutler and Miller 2005; Zwane and Kremer 2007; Günther and Fink 2010). In addition to having poorer health, those without access to improved water and sanitation are often burdened by high healthcare costs, time spent caring for sick family members, and long treks to fetch water, all of which further lower labor supply and productivity.

In addition to the direct effects of public services on labor supply and productivity, places with high-quality rural services also tend to attract mobile factors of production—both capital and labor. People like to live in places with good public services, and owners of small and medium enterprises prefer to locate in such places. Policies that encourage access to high-quality public services can accordingly attract the kinds of citizens and economic activity that will fuel agricultural productivity and help Pakistan's rural sector contribute to the broader growth and development of the whole country (Stansel 2005; Hatfield and Kosec 2013; Kosec and Mogues 2016).

Clearly, public services in rural areas have been on Pakistan's development agenda for decades: the country's policies on education, health, water, sanitation, and electricity are well intentioned and cognizant of the gaps in these sectors, though policy implementation has consistently fallen short. Multiple causes are commonly identified. First, national and provincial plans have changed frequently over time, reducing policy coherence. Second, central government efforts to empower local community-based organizations to improve access have been underutilized. Where people at the local level have an organic civic interest in improving service delivery, provision of resources by a strong and effective central government can help make them successful (Mansuri and Rao 2013). As examples, Pakistan's National Rural Support Program and the Aga Khan Rural Support Program both combine community development funds with social mobilization, training, capacity building, and other support mechanisms. Third, public resources—both development budgets at the federal and provincial levels and donor funds meant to augment these budgets—have often fallen short. Yet the persistent existence of unused funds

in most years suggests that the issue may be one of coordination and implementation as much as one of allocation.

This chapter takes a two-pronged approach to establishing a better understanding of how policies governing these five services in rural Pakistan can improve rural welfare. First, we explore the connection between access to rural public services and agricultural labor supply and input use, as well as nonfarm work and income, using unique data from Rounds 1 and 2 of the Pakistan Rural Household Panel Survey (RHPS) conducted in 2012–2013 (IFPRI/IDS 2012, 2013; see Chapter 1 for details). Second, for each of the five services, we examine how existing policies pose barriers to access, and how these barriers exacerbate disparities. Following this analysis, we examine how a coherent and stable governance environment surrounding service delivery might raise government accountability and citizen welfare. Analyzing these questions, we draw lessons on what reforms might improve services and thereby raise the welfare, labor supply, and productivity of the rural poor.

It is worth noting here the unique value that the Pakistan RHPS adds to this analysis. While there are many other household surveys on Pakistan's rural economy, the Pakistan RHPS provides a panel dataset that expands the opportunities to analyze rural welfare across multiple dimensions. Specifically, the Pakistan RHPS contains a wealth of individual-level information on educational attainment and health shocks, combined with household-level information on access to public services and household characteristics. Further, the Pakistan RHPS contains detailed information on agricultural labor supply by the whole household, the intensity of machinery use for agricultural purposes, nonfarm labor participation, nonfarm earnings, access to public and private services, and gender-related aspects of these elements. Rarely are such expansive panel datasets available to researchers and practitioners. Of course, as discussed in Chapter 1, the Pakistan RHPS is not a nationally representative household survey, so caution is advised in interpreting the analysis presented here as a reflection on all rural public services in Pakistan.

## **The Importance of Access to Public Services for Rural Development**

This section addresses the importance of public services for rural development by testing the hypothesis that there is a strong association between access to services and agricultural and nonfarm activities. It does so by using the Pakistan 2012–2013 RHPS to examine the impact of services on agricultural labor supply, machinery use in agricultural activities, and participation in

nonfarm labor by all male and female household members ages 18–65 (IFPRI/IDS 2012, 2013). We present estimates of these associations where the outcome variables of interest are either (1) agricultural labor (measured in total number of days worked) supplied by the household during the last year, (2) the intensity of machinery use in agricultural activities (measured by the total number of machines used) by the household in the past year, (3) engagement in nonfarm labor (separate indicators are used for men's and women's engagement), or (4) earnings generated from nonfarm labor in the 12 months immediately preceding the survey (again, measured separately for men and women).

This section considers several predictors of agricultural labor supply and inputs: (1) the distance from the household's village to the closest Basic Health Unit (BHU) (an ordinal categorical variable that ranges from 0 to 4);<sup>6</sup> (2) an indicator for whether or not the household incurred medical expenses due to illness or injury in the past year; (3) indicators for different levels of education: primary education (grades 1 to 5), middle education (grades 6 to 8), secondary school (grades 9 and 10), and higher secondary and up (grades 11 onward); (4) the number of hours per day that the household has electricity; (5) the distance (in kilometers [km]) from the household to its water source; (6) an indicator for whether the household has access to a flush latrine; and (7) an indicator for whether the household has access to a piped drainage system. All seven are linked with access to the five services considered in this chapter.

All of the regressions presented in this section are estimated using ordinary least squares (OLS) and include controls for household size, crowding (individuals per room in the household), a household wealth score computed by principal components analysis, and both district and year fixed effects.<sup>7</sup> The estimations include both pooled regressions as well as panel data regressions (which include household fixed effects). The first set of regressions allow us to analyze the impacts of time-invariant variables: the individual's education level and the household's distance to the closest BHU. The second set

6 This variable is equal to 0 if the BHU is in the locality, 1 if the distance to the BHU is up to 5 kilometers (km), 2 if the distance is 6–10 km, 3 if the distance is 11–15 km, and 4 if the distance is more than 15 km.

7 The wealth score was constructed using a series of household characteristics (flooring, walls, and ceiling materials, ownership of goods, toilet facilities, type of cooking fuel, and so forth) and conducting a principal component analysis. We take the first principal component from this analysis as our wealth index. We use district fixed effects to flexibly allow the average levels of our outcome variables to vary not only across provinces (an important geographic level given the devolution of substantial service provision authorities to the provinces under the 18th Amendment) but also across districts (which differ in their soil quality, land and labor endowments, and local governance structures).

of regressions exploit the fact that we have data from two different periods; while it does not permit us to analyze the impacts of time-invariant variables, it has the substantial benefit of allowing us to control for all time-invariant household characteristics that may drive access to public services as well as agricultural labor supply, productivity, and inputs. The analysis first examines whether changes in access to public services predict changes in agricultural labor supply and machinery use. All standard errors are clustered at the household level.

Estimation results indicate that education does not affect agricultural labor supply (Table 8.1, column 1). The only exception is that for individuals with a higher secondary education or more (relative to those who have never enrolled), the household allocates 27 fewer days per year to agricultural labor. This decrease is approximately 17 percent of the average number of days worked, and it exists likely because having a higher education allows household members to divert effort away from agriculture to other areas of the rural economy, which are generally more profitable. This is consistent with the findings of Fafchamps and Quisumbing (1999) and Kurosaki (2001) in Pakistan, as well as other research across varied contexts.

In contrast, decreasing the distance to a BHU (and hence increasing the accessibility of health services) substantially increases agricultural labor supply. Specifically, having such a facility 5 km farther away from the household is associated with 18 fewer days per year dedicated to agricultural labor by that household. Reduced distances to these facilities free up time for other activities (such as productive work) and encourage the use of both preventive and curative care. As the use of health services increases, health outcomes improve, leading to a more productive workforce. While we find no evidence that the distance to a BHU is associated with use of machinery (column 2), education is associated with increased machinery use. Specifically, relative to those who have never enrolled in school, individuals who attended middle school, high school, and higher secondary school and up are all predicted to live in households that use a significantly larger number of agricultural machines (approximately 0.4, 0.6, and 0.4, respectively). Because we control for household wealth in these regressions, education does not appear to merely proxy for economic status. This result illustrates how access to education may allow rural dwellers to take advantage of more efficient means of production. The pooled estimates also show that household medical expenses significantly reduce the household's agricultural labor supply.

Next, we turn to the panel data analysis using household fixed effects to better identify the effects of the time-variant predictors of agricultural labor

**TABLE 8.1** Determinants of agricultural labor supply and machinery use

Explanatory variables	Pooled estimations		Panel estimations	
	Agricultural labor supply (1)	Machinery use (2)	Agricultural labor supply (3)	Machinery use (4)
Primary education (grades 1–5)	2.337 (6.038)	0.063 (0.112)		
Middle education (grades 6–8)	16.930 (11.510)	0.380 (0.176)**		
Secondary school (grades 9–10)	16.007 (12.377)	0.595 (0.169)***		
Higher secondary school and up (grades 11 onward)	-27.075 (15.454)*	0.399 (0.217)*		
Distance to Basic Health Unit	-18.463 (5.894)***	-0.022 (0.092)		
Medical expenses due to illness or injury	-89.113 (17.429)***	-0.259 (0.243)	-57.995 (26.318)**	0.436 (0.361)
Hours per day of electricity	-4.970 (1.197)***	-0.083 (0.022)***	1.701 (2.091)	0.070 (0.034)**
Distance to water source (km)	-6.219 (12.606)	-0.114 (0.245)	-47.498 (25.281)*	-0.300 (0.342)
Flush latrine	9.840 (12.725)	-0.121 (0.211)	37.600 (23.993)	-0.230 (0.357)
Piped drainage system	23.352 (14.638)	0.066 (0.218)	63.368 (25.157)**	0.020 (0.330)
Household size	16.384 (2.701)***	0.185 (0.042)***	21.312 (12.022)*	0.486 (0.164)***
Crowding	-9.860 (3.023)***	-0.174 (0.051)***	6.606 (5.182)	-0.001 (0.053)
Household wealth score	14.490 (4.042)***	0.531 (0.065)***	-8.486 (10.796)	0.327 (0.121)***
Observations	9,916	9,916	5,033	5,033
Adjusted R <sup>2</sup>	0.29	0.32	0.38	0.26

**Source:** Authors, based on 2012–2013 Pakistan RHPS (IFPRI/IDS 2012, 2013).

**Note:** All estimations include year and district fixed effects, Columns 3 and 4 in addition include household fixed effects. Robust standard errors clustered at the household level appear below coefficients, in parentheses. \* = significant at 10%; \*\* = significant at 5%; \*\*\* = significant at 1%. km = kilometers.

supply and inputs from Table 8.1. Agricultural labor supply and machinery use are the dependent variables, respectively, in columns 3 and 4. A negative health shock and increased distance to the water source both significantly decrease the number of days worked by the household in agricultural activities during the year. Also, access to drainage significantly increases the household's time commitment to agricultural labor. In short, the analysis finds that better sanitation and health raise agricultural labor supply. The



magnitude of these effects is fairly substantial. The presence of a negative health shock decreases a household's average number of days worked in agriculture by 36 percent, while a 1 km increase in distance to the water source reduces agricultural labor supply by 29 percent. Finally, a household's access to a piped drainage system increases agricultural labor supply by 39 percent. Better access to electricity does not appear to significantly affect agricultural labor supply in the panel specification. Yet as column 4 of Table 8.1 shows, the higher the number of hours per day a household has access to electricity, the more machines that household will use for agricultural activities. For every additional hour of electricity, it will use 0.07 more machines (a modest 2 percent increase in usage). According to the results from column 4, no other public service increases use of machinery in the agricultural sector.

Next, we examine the relationship of our access variables with engagement in nonfarm activities as well as nonfarm income earned within the 12 months preceding the survey. Of most interest is the relationship between education and nonfarm outcomes. For men, the top nonfarm activity is construction labor, followed by factory work, and then work in government and private enterprises. For women, fewer of whom are engaged in nonfarm activities, their major nonfarm activities are teaching, working in government, and working as household or construction labor.

Columns 1 and 2 in Table 8.2 show the impacts of education, healthcare, water, sanitation, and electricity on nonfarm labor participation for men and for women, while columns 3 and 4 look at the impact of these five services on levels of earnings in nonfarm labor for men and women. As anticipated, the analysis finds that individuals with higher levels of education find work in other areas of the rural economy, beyond agriculture. Furthermore, the higher the level of education, the larger the premium for working in nonfarm labor. This relationship is particularly strong in the case of men. For example, men who attended secondary school have a 5 percent higher probability of engaging in nonfarm labor, and on average earn PKR 10,285 more annually, relative to men with no schooling. For women, the corresponding percentage is 2 percent, and the increase in earnings is PKR 2,187 (though this latter number is not significant). Men who attended higher secondary school or beyond have a 6 percent higher probability of engaging in nonfarm labor, and on average earn PKR 36,640 more, relative to men with no schooling. For women, the corresponding percentage is 13 percent, and the increase in earnings is PKR 8,921. It appears that a health shock is associated with higher participation in the nonfarm sector, perhaps because households need additional income to deal with the unexpected expenses related to the shock. Hours of

**TABLE 8.2** Determinants of nonfarm labor participation and earnings—pooled estimations

Explanatory variables	Nonfarm labor participation		Nonfarm earnings	
	Men (1)	Women (2)	Men (3)	Women (4)
Primary education (grades 1–5)	0.014 (0.018)	0.003 (0.005)	2,862.22 (1,547.56)*	-173.84 (196.64)
Middle education (grades 6–8)	0.026 (0.022)	0.025 (0.012)**	2,684.07 (2,225.19)	1,202.26 (724.16)*
Secondary school (grades 9–10)	0.048 (0.022)**	0.024 (0.012)*	10,284.57 (2,868.10)***	2,187.47 (1,619.97)
Higher secondary school and up (grade 11 onward)	0.059 (0.029)**	0.134 (0.023)***	36,640.15 (5,295.32)***	8,920.81 (2,235.00)***
Distance to Basic Health Unit	0.006 (0.008)	0.002 (0.002)	615.82 (893.29)	-66.48 (176.02)
Medical expenses due to illness or injury	0.047 (0.017)***	0.008 (0.004)*	2,360.42 (1,799.31)	-147.17 (256.95)
Hours per day of electricity	0.008 (0.002)***	0.000 (0.000)	556.82 (178.36)***	-71.41 (44.30)
Distance to water source (km)	0.068 (0.016)***	0.008 (0.006)	6,201.92 (1,792.80)***	308.92 (198.38)
Flush latrine	-0.016 (0.017)	-0.000 (0.004)	-1,822.57 (1,920.94)	-208.28 (342.56)
Piped drainage system	0.033 (0.017)*	0.003 (0.004)	2,288.50 (1,816.44)	-180.64 (370.42)
Household size	-0.006 (0.003)**	-0.001 (0.001)**	-525.33 (391.79)	-42.36 (69.68)
Crowding	0.001 (0.004)	0.001 (0.001)*	1.18 (459.10)	85.46 (50.73)*
Household Wealth score	-0.023 (0.005)***	-0.003 (0.001)**	1,838.54 (640.48)***	248.26 (193.61)
Observations	6,513	6,324	6,513	6,324
Adjusted R <sup>2</sup>	0.07	0.05	0.12	0.03

**Source:** Authors, based on 2012–2013 Pakistan RHPS (IFPRI/IDS 2012; 2013).

**Note:** All estimations include year and district fixed effects. Robust standard errors clustered at the household level appear below coefficients, in parentheses. \* = significant at 10%; \*\* = significant at 5%; \*\*\* = significant at 1%. km = kilometers.

electricity also appear to be associated with higher participation in nonfarm labor as well as earnings.

These results depict an environment where girls' education yields dividends in the rural economy. Earlier evidence from Fafchamps and Quisumbing (1999, 369), in contrast, found that "female education and nutrition do not affect productivity and labor allocation in any systematic fashion, a finding that is consistent with the marginal role women play

in market-oriented activities in Pakistan.” This appears to no longer be the case in rural Pakistan, at least for the population represented by the Pakistan RHPS sample; women are participating in the nonfarm sector and contributing to the rural economy, and those with higher education can contribute more. Taken as a whole, the results presented above illustrate the importance of access to public services for improvement in agricultural labor supply, productivity, and rural development. Hence, understanding the policies governing these services as well as the barriers to access is of utmost importance. The following sections turn to our second set of questions: how do existing policies pose barriers to access, and what disparities in access are they creating? And how can a coherent and stable governance environment surrounding service delivery raise government accountability and citizen welfare? We analyze these questions with an exploration of each sector before drawing broader conclusions about rural public services.

## **Linking Policy to Outcomes**

The key roles that health, education, water, sanitation, and electricity services play in agricultural production and rural incomes raise important questions about what policies can best improve access and quality. Pakistan’s current public policies governing rural service delivery have evolved substantially over the past several decades. Understanding how policy effectiveness might be improved requires a firm grasp of the existing policy environment, including its basic institutional architecture.

Improving service provision policies requires knowledge of which policies are succeeding and failing, how the institutional architecture enables or impedes policy implementation, which populations are being served and not being served, and which potential new directions for policy are most promising. While we expect that policy environments and institutional architectures surrounding rural service delivery determine service access and quality, the nuances of these relationships are an empirical question. The sections that follow examine these relationships for each of these services in turn.

### **Health**

In Pakistan public healthcare provision is divided into primary, secondary, and tertiary healthcare. Primary healthcare is delivered through BHUs, Rural Health Centers, Maternal and Child Health Centers (MCHCs), and Dispensaries. This level of care mainly provides preventive and promotive health services, though curative services for common illnesses are sometimes

provided.<sup>8</sup> Lady Health Workers (LHWs) are the main public health workers supplying promotive and preventive services in rural areas (Bhutta et al. 2013).<sup>9</sup> They provide family planning advice and some basic curative care, and they are trained to identify and refer certain serious conditions but do not assist deliveries (Oxford Policy Management 2009).

The secondary healthcare level includes first- and second-level referral facilities—such as Tehsil Headquarters Hospitals and District Headquarters Hospitals—providing three specialized types of care: acute, ambulatory, and inpatient care. Finally, tertiary healthcare is provided through major hospitals that have personnel and facilities for advanced medical investigation and treatment (GoP 2009a).

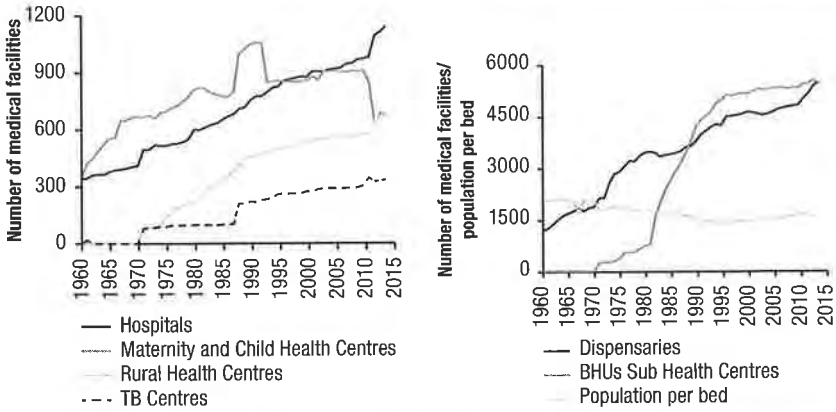
Figure 8.1 shows that the number of public facilities for all levels of health-care—primary, secondary, and tertiary, supplied through BHUs, Rural Health Centers, MCHCs, Dispensaries, hospitals located at the tehsil and district levels,<sup>10</sup> and major hospitals primarily located in urban centers—increased dramatically between 1960 and 1990, but has since stagnated (GoP 2015; GoP 2009a). In the case of MCHCs, the numbers have even decreased in recent years. In addition, inadequate public funding for both recurrent and development-related costs has resulted in health facilities that have a lack of basic equipment and medicines, insufficient expertise in the management (Arif et al. 2010), poorly compensated health professionals who engage in dual (government and private) practices as a norm, and weak quality control and standardization of care (UNICEF 2012; Callen et al. 2013). Consequently, the population has turned to an unregulated private sector as the basic provider of health services. Fully 66 percent of total healthcare expenditures in Pakistan are funded through the private sector, and of these expenditures, 97.5 percent are in the form of out-of-pocket healthcare expenditures by households (GoP 2009a). In the private sector, healthcare facilities are neither standardized nor classified, resulting in a broad array of facilities that range from private hospitals and clinics to traditional health providers (such as homeopaths) to ambulatory healthcare services and nongovernmental organization-run healthcare facilities (GoP 2009a).

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8 Preventive and promotive health services include maternal and child health services, immunization, diarrheal disease control, malaria control, child spacing, mental health, school health services, prevention and control of locally endemic diseases, and provision of essential drugs.

9 The LHW Program (also known as the National Program for Family Planning and Primary Health Care) was launched in 1994 to provide primary care, especially in rural populations.

10 A *tehsil* is a subdistrict administrative unit that consists of a collection of union councils and villages.

**FIGURE 8.1** Number of national medical and healthcare facilities, 1960–2014

Source: Authors, based on GoP (2015).

Note: 2014 data are provisional data with respect to Punjab province. The decrease in Maternity and Child Health Centres in 2014 is due to the exclusion/separation of family welfare centers from maternity centers in Khyber Pakhtunkhwa Province.

As a result, the healthcare situation in Pakistan is possibly best described as precarious. While the 18th Amendment sought to shift greater responsibility for healthcare provision from the federal to the provincial level, measures to ensure capacity and accountability have not kept pace with changes in responsibilities (Arif et al. 2010; Bhutta et al. 2013). The Federal Ministry of Health was dissolved, and the provincial governments assumed its responsibilities. But while the responsibilities at the provincial government level have increased substantially, the accountability for coverage of specific geographic areas and policies has not. The division of managerial oversight and coordination over several government agencies, as well as the continuation of vertical health programs such as the LHWs and the Expanded Program on Immunization (EPI), pose serious coordination challenges in the sector (Arif et al. 2010; Bhutta et al. 2013).

In addition to the coordination challenges faced after devolution by all provinces, another challenge is the substantial variation in the capacity to provide effective healthcare services in these provinces. As highlighted by Arif et al. (2010), difficult geographical access to BHUs is a much more salient issue in Balochistan than in either KPK or Sindh. In contrast, in Punjab geographical distance is barely mentioned, by 11 percent of people, as a barrier for accessing BHUs. Similarly, when asked about the quality of services received from BHUs, respondents in Punjab and KPK reported that they got good

**TABLE 8.3** Indicators of use of maternal care by province and household characteristics (%), 2012

Household characteristic	Received prenatal care	Received tetanus toxoid injection during pregnancy	Took iron tablets/supplements during pregnancy	Received vitamin A capsule after delivery
<b>Province</b>				
Punjab	0.10	0.37	0.21	0.09
Sindh	0.17	0.34	0.21	0.17
Khyber Pakhtunkhwa	0.05	0.31	0.18	0.22
<b>Mother's education</b>				
Never enrolled	0.09	0.33	0.18	0.08
Primary school or less	0.29	0.49	0.32	0.25
Middle school or higher education	0.25	0.67	0.50	0.34
<b>Monthly household expenditures per adult equivalent</b>				
Bottom quintile	0.11	0.28	0.14	0.09
Top quintile	0.13	0.38	0.32	0.14
<b>Total</b>	<b>0.12</b>	<b>0.35</b>	<b>0.21</b>	<b>0.12</b>

**Source:** Authors, based on 2012 Pakistan RHPS (IFPRI/IDS 2012).

**Note:** The table summarizes maternal-care indicators for the most recent pregnancy of married women 14–49 years. All summary statistics use household weights. The sample size is 1,434 women.

care, in contrast to Sindh and Balochistan, where people complained repeatedly about the lack of medical staff and medicines as well as the long waiting times (Arif et al. 2010).

To truly understand the complexity of the country's health problem, we must start with maternal care indicators, because early negative shocks experienced by children (even while in utero) are key determinants of future health (Barker 1995, 2007; Barker, Osmond, and Law 1989; De Boo and Harding 2006). Pakistan RHPS data show extremely low use of pre- and postmaternal services among rural women, strongly suggesting that health issues begin even before a child is born (Table 8.3). Only 12 percent of rural women received prenatal care for their most recent pregnancy. As might be expected, educational attainment is strongly correlated with receiving prenatal care: 25 percent of women who reached middle school or higher education sought prenatal care, while only 9 percent of women with no education did. These differences are not explained by expenditure levels (measured as mean household monthly expenditures per adult equivalent); there is little difference in

**TABLE 8.4** Location of delivery by province and household characteristics (%), 2012

Household characteristic	Government hospital, Basic Health Unit, or Rural Health Center	Private hospital or clinic	At home
<b>Province</b>			
Punjab	11.9	18.8	69.2
Sindh	12.3	27.8	59.9
Khyber Pakhtunkhwa	13.7	17.9	68.3
<b>Mother's education</b>			
Never enrolled	9.0	22.4	68.6
Primary school or less	16.8	35.7	47.5
Middle school or higher education	20.4	45.7	33.9
<b>Monthly household expenditures per adult equivalent</b>			
Bottom quintile	9.0	19.9	71.2
Top quintile	10.2	29.5	60.3
<b>Total</b>	<b>12.2</b>	<b>21.2</b>	<b>66.6</b>

**Source:** Authors, based on 2012 RHPS (IFPRI/IDS 2012).

**Note:** The table concerns delivery of the most recent pregnancy of married women 14–49 years. All summary statistics use household weights. The sample size is 1,434 women. Because of rounding, percentages might not always add up to exactly 100.

utilization rates between women in the top and bottom quintiles of household expenditure. In contrast, there is provincial variation in prenatal care use, with KPK having the lowest usage level.

According to the 2012 RHPS, 35 percent of women received a tetanus toxoid injection during pregnancy, while only 21 percent took iron tablets at this time, and only 12 percent received a vitamin A capsule after giving birth (Table 8.3). The rural incidence of receiving a tetanus toxoid injection, taking iron supplements during the last pregnancy, and receiving a vitamin A capsule after delivery all vary significantly by educational attainment and expenditure level but not by province.

Similar variations exist in the locations where women deliver children: 69 percent of uneducated women delivered their most recent child at home compared to 34 percent of women with middle school or higher education (Table 8.4). However, the data do not suggest that educated women are replacing home births with births at public facilities: 46 percent delivered at a private healthcare facility, while only 20 percent did so at a public one.

Prior studies explain why government healthcare facilities are underutilized by women. Reasons include a lack of female staff, staff absenteeism,<sup>11</sup> undersupply of medication and equipment, and long distances to such facilities (Arif et al. 2010; Callen et al. 2013). For Pakistan overall, Nishtar et al. (2013) report that the doctor-to-nurse ratio is 2.7:1 instead of the desired 1:4, and the rural ratios are likely far higher. Further, cultural and religious considerations in the rural areas likely deter women from consulting male doctors and encourage reliance on more-traditional in-home health services (Khan 1999), particularly for child deliveries. Low rates of delivery at health facilities and a shortage of professional birth attendants remain of significant concern, because the result is inferior postnatal and newborn care and many newborn deaths at home (UNICEF 2012; GoP 2009a; Siddiqi et al. 2004). Table 8.5 shows that relatives, neighbors, and friends aid in almost half of all deliveries in rural Pakistan, with trained birth attendants accounting for 33 percent of deliveries, and doctors, nurses, or midwives accounting for only 18 percent. Differences across provinces are particularly salient, with almost 64 percent of deliveries in Sindh being aided by relatives, neighbors, and friends compared to only 41 percent in Punjab. Similarly, over 41 percent of deliveries were assisted by a trained birth attendant in Punjab compared to only 18 percent in Sindh.

According to RHPS data, 13 percent of the children to whom women had ever given birth had died. This is an alarming rate of infant mortality. Again, the differences across education groups are salient, with deaths occurring in 1 out of 8 children born to women with no education, but only 1 out of 24 children born to women with middle school or higher education. The major causes of death among children under the age of five are birth asphyxia, sepsis, pneumonia, diarrhea, and premature birth. Respiratory infection and undernutrition also cause many deaths.

Barriers to access to preventive healthcare also exist, parallel to those to maternal care, compounding the risk factors for children in rural Pakistan. As a consequence, just over 56 percent of children between 12 and 23 months of age are fully immunized. Figure 8.2 shows significant differences by socioeconomic status, and a slightly higher vaccination rate for boys than for girls. Yet there are no differences by birth order (which is not shown in the figure).

11 “Doctors assigned to rural facilities are sent on ‘detailment’ to urban centres where they can do private practice, while continuing to draw a salary from the allocation of funds for the under-served area. There is no, or inadequate, incentive for skilled personnel to work in rural areas and without some form of compensatory allowance, and the result is rural facilities without doctors” (UNICEF 2012, 63–64).



**TABLE 8.5** Person assisting with delivery by province and household characteristics (%), 2012

Household characteristic	Doctor/ nurse/ midwife	Trained birth attendant	Lady Health Worker	Traditional birth attendant	Relatives/ neighbors/ friends
<b>Province</b>					
Punjab	16.3	41.5	1.0	0.3	40.9
Sindh	17.5	18.1	0.3	0.4	63.6
Khyber Pakhtunkhwa	27.6	19.2	2.9	0.0	50.4
<b>Mother's education</b>					
Never enrolled	16.7	32.4	1.0	0.4	49.5
Primary school or less	21.1	32.2	0.6	0.0	46.1
Middle school or higher education	33.4	23.5	1.2	0.0	42.0
<b>Monthly household expenditures per adult equivalent</b>					
Bottom quintile	12.5	34.9	0.3	0.5	51.8
Top quintile	25.9	26.9	1.5	0.2	45.5
<b>Total</b>	<b>17.6</b>	<b>32.5</b>	<b>0.9</b>	<b>0.3</b>	<b>48.7</b>

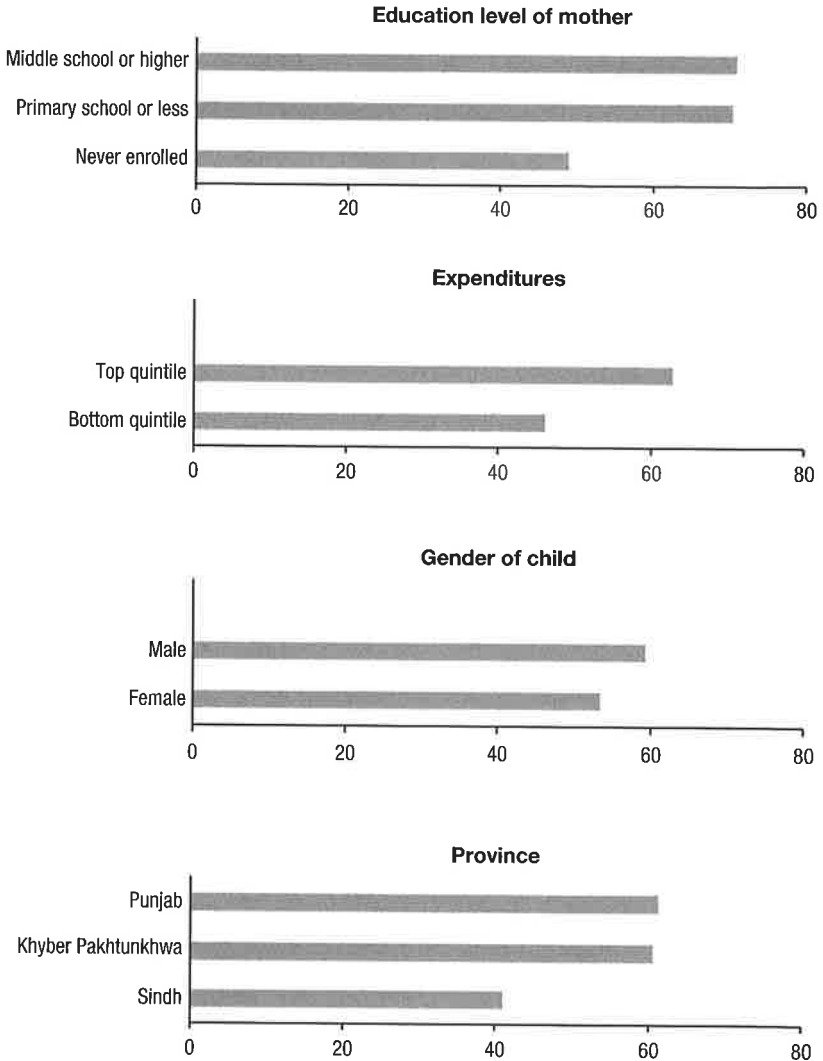
Source: Authors, based on 2012 RHPS (IFPRI/IDS 2012).

Note: The table concerns delivery of the most recent pregnancy of married women 14–49 years. All summary statistics use household weights. The sample size is 1,434 women. Because of rounding, percentages might not always add up to exactly 100.

These low immunization results could in part be linked to the lack of integration of the EPI, which continues to be a vertical program,<sup>12</sup> resulting in coordination challenges. However, overriding the limited effectiveness of programs like the EPI are critical security concerns around vaccinations. The Pakistani Taliban have unleashed a sustained armed campaign, which is concentrated in the Federally Administered Tribal Areas and KPK, against healthcare workers and the security personnel who escort them. The goal of this campaign is to block the polio immunization program (Roul 2014). This, along with a misinformation and propaganda campaign by the Taliban and other groups against immunizations, has resulted in high rates of vaccination refusals and is a major factor in the failure of the polio immunization program in Pakistan (Warraich 2009). As a result, Pakistan is one of three remaining countries in the world with residual poliomyelitis, or polio (Bhutta et al. 2013).

12 A vertical program is a stand-alone program that is usually disease or service specific. In general it is directed, supervised, and executed, either wholly or to a great extent, by a specialized service using dedicated health workers (Atun, Bennett, and Duran 2008).

**FIGURE 8.2** Immunization rates by household characteristics and province, rural Pakistan, 2012/2013



**Source:** Authors, based on 2012/2013 RHPS (IFPRI/IDS 2012; 2013)

**Note:** Data from 2012 and 2013 are pooled for the analysis. Children 12–23 months of age are considered fully immunized if they have received the tuberculosis vaccine, three doses of the diphtheria, pertusis, and tetanus vaccine, three doses of human papillomavirus vaccine, and one dose of the measles vaccine. All summary statistics use household weights. The sample size is 613 children.

There have been several important health strategies and policy initiatives for maternal and child health in the past 20 years. Yet except for the 2001 National Health Policy, there has been little targeting of poor and vulnerable groups, particularly in rural areas. Most government strategies have lacked a long-term vision and have not been translated into action (Siddiqi et al. 2004). Two programs mentioned earlier deserve note here. The first is the Maternal, Newborn, and Child Health Program (MNCH), launched in 2005. This program aims to coordinate, improve, and promote primary healthcare service delivery at the district and provincial levels. The program's main outputs (that is, emergency obstetric services and community midwives) have shown marked advances. Nevertheless, this program is a stand-alone, vertical program, and as such has had issues integrating with existing health programs (Bhurta et al. 2013). Second is the LHW program. Although the LHWs form a relatively isolated vertical health program, their success during the 1990s is worth noting because of the firm political commitment offered to them, the continuation of that commitment across consecutive governments, and allocations of resources that have allowed the program to operate (Siddiqi et al. 2004). Programs like the MNCH and LHWs have demonstrated the underlying capacities in Pakistan's health sector and should be a source of cautious optimism.

## Education

Parents in both rural and urban Pakistan have a strong stated preference—and a robust, observable demand—for educating their children, but they face constraints, economic and otherwise (Andrabi et al. 2010). Income, shocks to income, and wealth all affect enrollment, especially for girls (Lloyd et al. 2007). Mothers' education is an important determinant of enrollment—again, especially for girls (Lloyd et al. 2005). The number of children in the household matters as well; a larger number of younger children reduces girls' enrollment (Lloyd et al. 2009; Sawada et al. 2009). There is also evidence that migration of a family member positively affects enrollment of rural children, particularly girls (Mansuri 2006). A rationing of resources leads parents to pick winners; they invest in the child they believe is most likely to succeed, at the expense of other children (Andrabi, Das, and Khwaja 2010).

Social barriers also play a significant role in rural Pakistan, for female mobility in particular. Jacoby and Mansuri (2011) find that girls' (but not boys') primary school enrollment is significantly lower if they have to cross hamlet boundaries to attend school. In addition, caste barriers play a role: the authors find that low-caste children, both boys and girls, are deterred

from enrolling when the most convenient school is in a hamlet dominated by high-caste households.

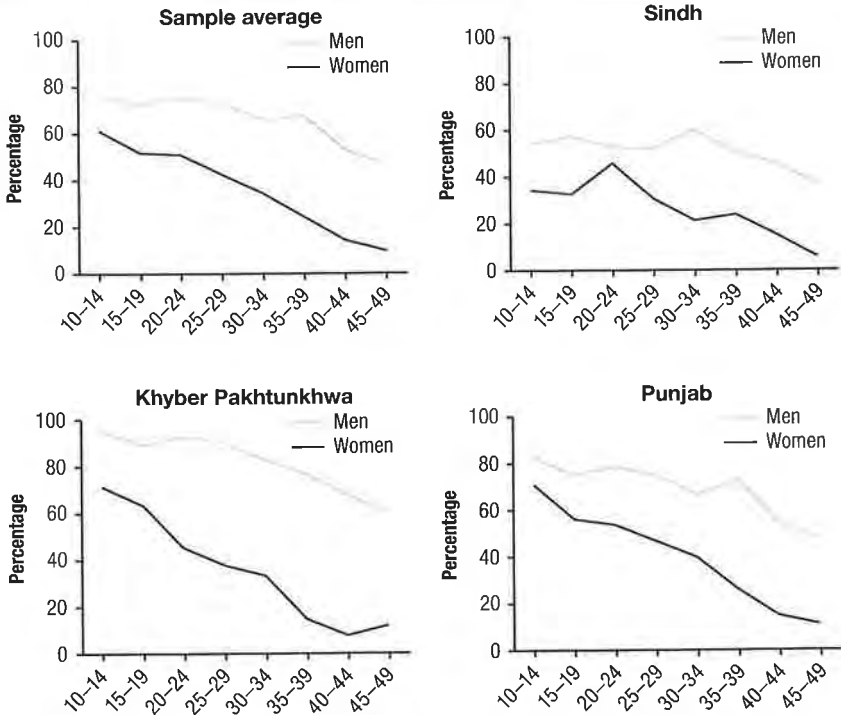
While the government is the primary provider of education at the primary, secondary, and tertiary levels in Pakistan, the country also has an active and growing private education sector. According to the Pakistan Social and Living Standards Measurement Survey, 76 percent of primary-level enrollment in rural areas is in government schools (for urban areas, the number is 44 percent) (GoP 2014c). In the Pakistan RHPS data, 25.5 percent of five- to nine-year-olds report attending a private school as their last school. The National Education Census of 2006 shows that virtually every village has a public school and 23 percent of villages have private schools as well (Andrabi, Das, and Khwaja 2012).

While there is a small set of elite private schools and religious madrasas, the vast majority of the private sector is made up of low-cost, low-fee, mom-and-pop-style establishments that follow the government curriculum (Andrabi, Das, and Khwaja 2010). Private schools tend to arise in villages where a supply of educated, low-cost female teachers exists—villages where there is already a government girls' secondary school (Andrabi, Das, and Khwaja 2013).

A gender gap exists in school supply: until the 1990s, the Pakistani government followed a rough rule of thumb of building one girls' school for every two boys' schools (Lloyd, Mete, and Sathar 2005). And in addition to poor access, the education sector also suffers from poor quality. Educational infrastructure is particularly deficient: in 2007/2008, only 64 percent of public sector schools had drinking water, 61 percent had toilets, 60 percent had boundary walls, and 39 percent had electricity (GoP 2009b). This problem is exacerbated in rural areas: according to the *Annual Status of Education in Pakistan Report*, 47 percent of surveyed government primary schools in rural districts had functional toilets, compared to 69 percent of surveyed government primary schools in urban areas (ASER 2014). Learning outcomes, poor across the board, are also disproportionately worse in rural areas: 30 percent of class (grade) 4 students in rural areas surveyed in the *Annual Status of Education in Pakistan Report* can read a story in Urdu, Sindhi, or Pashto, compared to 40 percent of class 4 students in surveyed urban areas (ASER 2014).

Most studies clearly show that overall educational access and gender parity are better in urban areas (ASER 2014; GoP 2014b). Thus, we use RHPS data to shed light specifically on disparities within *rural* Pakistan, focusing on gender and socioeconomic status.

**FIGURE 8.3** Percentage of population who have ever attended school by age group and gender, 2012



Source: Authors, based on 2012 RHPS (IFPRI/IDS 2012).

Note: All summary statistics use household weights.

Figure 8.3 presents the percentage of respondents for various age groups who reported having ever attended school, by gender. The proportion of the population entering the system decreases as a function of age—enrollment is higher among younger cohorts—and a persistent but narrowing gender gap exists between boys and girls. Sindh lags behind Punjab and the surveyed areas of KPK in overall enrollment and behind Punjab in gender disparity.

Table 8.6 presents descriptive statistics for a complete set of educational outcomes for various age groups by gender.<sup>13</sup> Panel A focuses on enrollment

13 The analysis uses the following age categories for children: 5- to 9-year-olds, 10- to 14-year-olds, and 15- to 18-year-olds. These correspond roughly with the ages at which Pakistani children would enroll in primary school (classes 1 through 5), middle school (classes 6 to 8), secondary school (classes 9 to 10) and higher secondary school (classes 11 to 12) and beyond, respectively. Progression past secondary school is determined by a board examination called the *matric* (matriculation) exam.

**TABLE 8.6** Enrollment, schooling costs, and dropout rates by province and gender, 2012 and 2013

	Age	Sample average	Province			Gender	
			Punjab	Sindh	KPK	Male	Female
<b>Panel A: Enrollment</b>							
Enrolled in 2012 (%)	5–9	53.6	62.9	28.8	72.2	59.2	47.7
	10–14	58.4	63.9	39.2	75.8	68.4	47.3
	15–18	30.2	29.9	24.9	46.7	41.6	19.4
<b>Panel B: Schooling cost</b>							
Transportation time (in minutes)	5–18	18.7	18.5	17.5	21.7	20.8	15.6
Transportation cost (PKR)	5–18	769	661	1088	949	850	645
Annual school fees (PKR)	5–18	1951	1821	1903	2816	2167	1624
<b>Panel C: Dropouts</b>							
Dropouts between 2012 and 2013 (%)	5–9	3.3	2.3	5.8	2.0	3.4	3.2
	10–14	8.4	7.7	10	8.3	9	7.6
	15–18	8.9	9.9	5.7	10.7	13.8	4.1

**Source:** Authors, based on 2012/2013 Pakistan RHPS (IFPRI/IDS 2012, 2013).

**Note:** Panels A and B summarize data using Round 1 of the Pakistan RHPS, carried out during March–April 2012. Panel C looks at dropout rates, based on changes in enrollment for children between Round 1 and Round 2, conducted in 2013. Dropouts are defined as 1 if a child enrolled in Round 1 is no longer enrolled in Round 2, conditional on being part of the household at the time of Round 2; it is 0 otherwise. Thus, a sample average value of 3.3 for children ages 5–9 means that 3.3 percent of students enrolled in Round 1 of the survey (in 2012) in Punjab, Sindh, and KPK are no longer enrolled in Round 2 (in 2013). All summary statistics use household weights, which are the inverse of the probability of being included in the sample. KPK = Khyber Pakhtunkhwa; PKR = Pakistani rupees.

rates for 2012. Enrollment rates roughly halve after age 14, and girls have lower enrollment at each age compared to boys. Sindh lags significantly behind Punjab and KPK, especially for the younger cohorts.

For those children between the ages of 5 and 18 who are currently enrolled in school, Panel B displays summary statistics on transportation time and cost, and school fees. Transportation costs, both in terms of time and money, are higher for boys compared to girls, as are school fees. This signifies a greater distance traveled for boys than for girls, in line with the aforementioned gender mobility norms in rural Pakistan that prevent girls from traveling long distances to reach school, a higher willingness to pay for boys' education, and greater enrollment of boys relative to girls in private schools. Monetary transportation costs are highest in Sindh, while transportation time costs and school fees are highest in the KPK districts surveyed.

Panel C examines dropout rates by age group, based on changes in enrollment for children between RHPS Round 1 and Round 2.<sup>14</sup> Boys 15 to

<sup>14</sup> A dropout is defined as 1 if a child enrolled in Round 1 is no longer enrolled in Round 2, conditional on being part of the household at the time of Round 2; it is 0 otherwise.

18 years old have a higher dropout rate (14 percent) compared to girls in that same age group (4 percent). This likely signifies the selective number of girls who make it to high school and is suggestive evidence of families picking winners (that is, investing in the most promising children) when making secondary school education decisions for girls (a phenomenon mentioned by Andrabi, Das, and Khwaja 2010). It could also, however, partly reflect girls being married off between survey rounds. Sindh has the highest dropout rates for the younger age cohorts.

Table 8.7 presents figures on current enrollment for different age groups by gender, tabulated against two indicators of socioeconomic status: household expenditure and the education level of the household head.<sup>15</sup> Panel 1 cross-tabulates current enrollment with the top and bottom quintiles of household expenditure. Unsurprisingly, households with the highest expenditures have higher enrollment rates for each gender-age group compared to low-expenditure households. The group for which expenditure quintile matters the least for enrollment is girls ages 15 to 18—a cohort in which enrollment rates are always low. Barriers to education for girls in high school remain stubborn in the face of income increases. Both supply (lack of access to a nearby government girls' high school and poor infrastructure within available schools such as a lack of adequate toilet facilities) and demand factors (low perceived returns to girls' education, the pressure for marriage, constraints to female mobility, and other social norms) are likely responsible. Panel 2, which examines current enrollment in terms of education of the household head, shows that as the education level of the head of household increases, enrollment in each age-gender category increases. The education of the head of household appears to make an especially large difference for enrollment of 15- to 18-year-old girls.

While Pakistan has no scarcity of education sector policies designed to address both the access and quality issues cited above, policy and regime instability have been a major issue for the sector. Pakistan has had a total of seven national education policies since 1947 (Bengali 1999). In the past 20 years, education policy was highlighted, first under the Social Action Plan (1993–1998), then under the National Education Policy for 1998–2010, and currently under a new National Education Policy (2009). These policy documents generally correspond with political regimes, and although well intentioned, they consistently fail to achieve their goals. The problem is twofold:

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15 We restrict the sample to only male household heads because female-headed households constitute only 1.5 percent (32 of 2,090) of the households in the sample.

**TABLE 8.7** Cross-tabulations for current enrollment by age group and gender, with household expenditure, education of (male) household head, and province (%), 2012

Panel 1: Current enrollment prevalence by monthly household expenditures per adult equivalent			
	Age	Bottom quintile	Top quintile
Girls	5–9	37.5	70.2
	10–14	42.8	60.5
	15–18	14.7	18.9
Boys	5–9	47.7	77.2
	10–14	55.8	81.8
	15–18	29.3	71.1

Panel 2: Current enrollment prevalence by household head (male) education					
	Age	Never enrolled	Primary or less	Middle school (class 6–8)	Secondary (class 9–10) or higher
Girls	5–9	37.8	47.3	49.3	70.8
	10–14	35.9	46.7	61.5	72.3
	15–18	9.3	13.3	29.3	50.6
Boys	5–9	49.5	59.4	76.2	78.3
	10–14	56.3	62.3	86.2	92.6
	15–18	30.2	42.0	43.1	69.8

Panel 3: Current enrollment prevalence by province				
	Age	Punjab	Sindh	KPK
Girls	5–9	56.4	26.9	60.2
	10–14	53.4	26.1	64.3
	15–18	20.8	11.6	27.5
Boys	5–9	68.6	30.7	81.6
	10–14	73.2	50.5	86.4
	15–18	39.3	36.6	64.6

**Source:** Authors, based on 2012 Pakistan RHPS (IFPRI/IDS 2012).

**Note:** All summary statistics use household sampling weights, which are the inverse of the probability of being included in the sample. KPK = Khyber Pakhtunkhwa.

not only is accountability poor within the tenure of a regime, but once the regime changes, the wheel is often reinvented so as to disown a political rival's programs and put new interventions in place. As a result, government and education analysts cannot easily identify which educational interventions work and which do not.

The current governing document for the education sector is the National Education Policy of 2009. This is bolstered by the Right to Education Act of 2010, which guarantees the state's obligation to provide free and compulsory education to all children ages 5 to 16 (Pakistan National Report 2011). In the 2009 National Education Policy, the government frames the national educational challenge in terms of two gaps that explain poor educational performance. First is a commitment (or funding) gap, with only 2.7 percent of GDP



committed to education in 2009. And despite the Vision 2025 goal of at least 4 percent of GDP committed to education, education spending as a percentage of GDP has declined slightly in recent years. Second is an implementation gap. This gap refers to two particular issues: the (surprising) fact that about 20 percent to 30 percent of funds allocated to education remain unused, and the fact that the system is beset by corruption. The National Education Policy specifically notes that “political influence and favoritism are believed to interfere in the allocation of resources to the districts and schools, in recruitment, training and posting of teachers and school administrators that are not based on merit, in awarding of textbook contracts, and in the conduct of examinations and assessments” (GoP 2009b, 15).

Even so, the provincial governments have undertaken a number of innovative program interventions during the past two decades that deal with both (demand-side) constraints on enrollment as well as supply of schooling. Some of these have been evaluated. Notable examples are the Punjab and Sindh Education Foundations (PEF and SEF, respectively), which are quasi-governmental bodies created by their respective provincial governments. Some of the programs under the SEF are the Adopt-a-School Program, which hands over “sick” public schools to private management; the Support to Private Education Institutes Program, which “provides institutional, technical, and human resource development assistance to low-cost private schools”; and the Promoting Low-Cost Private Schooling in Rural Sindh (PPRS) program, evaluated by Berrera-Osorio et al. (2011).

Under the PPRS, private entrepreneurs are granted a per-student cash subsidy to operate coeducational primary schools that have tuition-free enrollment and are open to all children in the village between the ages of five and nine. Berrera-Osorio et al. (2011) find that the program significantly increases child enrollment (by 51 percent in treated villages) and reduces existing gender disparities (girls’ enrollment increases by 4 to 5 percent more than boys’).

In Punjab, the PEF operates a New Schools Programme, which invites nongovernmental organizations and private providers to set up new schools where government provision is absent or inadequate across all 36 districts (Barber 2013). In addition, its Foundation Assisted Schools program, initiated in 2005, gives a monthly per-student cash subsidy to low-cost private schools that offer free schooling to all enrolled children who achieve a minimum pass rate on a standardized academic test administered by PEF semi-annually. By 2009 the program covered 474,000 students in 1,082 low-cost private schools at the primary, middle, and secondary school levels in 18 of Punjab’s 36 districts. Berrera and Raju (2014) evaluate this program in a

regression-discontinuity framework (the discontinuity is around the minimum pass rate needed for program participation), and find large positive impacts on school enrollment.

In addition, programs that improve school quality have also been linked to increased enrollment. In Punjab the Programme Monitoring and Implementation Unit focuses on teacher and student attendance as well as school infrastructure like electricity, drinking water, toilets, and boundary walls, and recent successes in increasing enrollment have been attributed to this program, though there has been no systematic evaluation of the program (Barber 2013). The evaluation of a pilot teacher performance–pay program in Punjab showed mixed results: it found a positive impact on school enrollment, mainly in urban schools, and a positive impact on student exam participation rates—but not scores—in rural schools (Berrera-Osorio and Raju 2015).

Other interventions are focused on eliminating gender gaps in enrollment. As an example, a girls' stipend program in Punjab provides cash stipends to girls in classes 6 to 10 (middle and high school) of government schools as part of the Punjab Education Sector Reform Programme. Beneficiary girls receive PKR 2,400 a year, conditional on 80 percent attendance (World Bank 2014a). During the 2013/2014 year, the program distributed stipends worth PKR 1.5 billion to 411,000 girls in 16 out of 36 districts of Punjab. Sindh has a similar program.

Bilateral and multilateral donors—the World Bank, the UK Department for International Development, and the US Agency for International Development, among others—have played a role in the programs described above as well as others, by providing monetary and technical assistance. However, coordination within government, between government and donors, and among donors tends to be poor (Pakistan National Report 2011).

Beyond these government and donor initiatives are the broader questions posed by the 18th Amendment to the constitution for Pakistan's education sector. Prior to the 18th Amendment, education was a subject that straddled three levels of government, with the federal government responsible for formulating education policy and curriculum, provincial governments responsible for implementation through their respective education ministries, and individual districts responsible for the provision of educational services, a responsibility further expanded by the 2001 devolution plan (Pakistan National Report 2011). Following the 18th Amendment, all responsibilities for education apart from university education were ceded to the provinces. However, in many cases, the provinces still follow pre-2010 federal decisions on curricula and policies while struggling to accommodate implementation

plans that followed from the 18th Amendment in the absence of full clarity on the division of responsibility between provincial and district governments (GoP 2009b).

### **Water, Sanitation, and Electricity**

Access to water, sanitation, and electricity services is far from universal in rural Pakistan (Table 8.8). In 2012 less than 10 percent of Pakistan RHPS sample households had access to piped water sources, and only 45 percent had access to flush toilets, with another 20 percent relying on dry-pit latrines and a full 35 percent relying on open defecation. Half of households lacked a piped drainage system. And while 88 percent had access to electricity, the average availability of that electricity was just 10 hours per day. Sindh lags behind Punjab, and even further behind KPK, on most of these service delivery outcomes, revealing important interregional variations in access rates.

Those with the lowest levels of access are the uneducated and poor, as Table 8.9 shows. In the case of electricity, only 85 percent of households whose heads never enrolled in school have electricity at home, while this figure is 96 percent for households whose heads have middle school education (classes 6–8) or higher. Furthermore, among households with access to electricity, those with uneducated heads have it for only 9.6 hours per day on average, while those whose heads have middle school or higher education have it for 11.2 hours per day. Household expenditure also predicts electricity access, though such expenditure is not associated with more hours of electricity per day. This suggests that even those able to pay for more reliable and consistent access to electricity are unable to obtain it.

In the case of piped water, more-educated households again have greater access. While only 7 percent of households with uneducated or primary-educated (classes 1–5) heads use piped water, 13 percent of those with middle school or higher education do. Not surprisingly—because piped water is often available inside the home—households with more-educated heads also live closer to their main water source. While similar disparities in access to piped water are not present across expenditure quintiles, those in the bottom quintile are more than three times as far away from their water source, on average, than are those in the top quintile (0.23 km versus 0.07 km).

Access to improved sanitation is definitively higher among households with more-educated heads and higher expenditures. Among households with uneducated heads, only 40 percent have a piped drainage system, 55 percent use a latrine (whether flush or a dry pit, as opposed to open defecation), and 38 percent have a flush latrine. Conversely, among heads of households with

**TABLE 8.8** Households' access to electricity, water, and sanitation services by province, 2012

Service	Sample average	Province		
		Punjab	Sindh	KPK
Household has electricity (%)	88	93	71	98
Hours per day that household with electricity has it available	10.1	9.4	12.8	9.9
Household's main source of water is piped water (%)	9	6	8	28
Distance to household's main water source (km)	0.13	0.13	0.18	0.06
Household has a piped drainage system (%)	50	60	11	87
Household has a latrine (flush or dry pit) (%)	65	66	55	91
Household has a flush latrine (%)	45	51	23	66

**Source:** Authors, based on 2012 Pakistan RHPS (IFPRI/IDS 2012).

**Note:** km = kilometers; KPK = Khyber Pakhtunkhwa.

**TABLE 8.9** Households' access to electricity, water, and sanitation services by level of education and expenditure, 2012

Service	Education level of household head			Monthly household expenditures per adult equivalent	
	Never enrolled	Primary (class 1–5)	Middle school or higher (class 6+)	Bottom	Top
				quintile	quintile
Household has electricity (%)	85	84	96	84	91
Hours per day that household with electricity has it	9.6	9.7	11.2	10.8	9.7
Household's main source of water is piped (%)	7	7	13	7	6
Distance to household's main water source (km)	0.15	0.15	0.09	0.23	0.07
Household has a piped drainage system (%)	40	48	69	39	55
Household has a latrine (flush or dry pit) (%)	55	63	83	61	71
Household has a flush latrine (%)	38	43	59	38	55

**Source:** Authors, based on 2012 Pakistan RHPS (IFPRI/IDS 2012).

**Note:** km = kilometers.

middle school or higher educations, 69 percent have a piped drainage system, 83 percent have a latrine, and 59 percent have a flush latrine. Similar differences are found when comparing across expenditure quintiles.

But beyond these figures is the broader question of what determines differences in rural access to water, sanitation, and electricity services. To explore this question, we test a hypothesis built around the straightforward notion that access to these services depends on citizens (who consume services),

technical experts (who furnish the infrastructure or skills required to create the goods being provided), and governments (who deliver services). These factors are key components of a well-functioning rural governance system, which is one where citizens are involved, technical expertise is abundant, and government policy makers are accountable to citizens and work on their behalf. To test these relationships, we estimate how access to electricity, water, and sanitation services are associated with several outcome variables, using OLS. First, we consider citizen involvement, which is measured by whether there are organized village meetings to discuss issues and events, and whether there have been group efforts in the village in the past five years to improve electricity service and water supply facilities. Second, we consider technical expertise, captured by the presence (or absence) of engineering services in the tehsil. Third, we consider government accountability, captured by the share of surveyed village residents who report that they are satisfied with federal government services, provincial government services, and public drinking water facilities.

Findings from estimations using cross-sectional 2012 data from the Pakistan RHPS reveal a number of factors associated with access to these services (Table 8.10).<sup>16</sup> While having organized village meetings does not predict access in the case of access to piped water, households in such villages are about 0.09 km closer to their main water source. One possible explanation for this correlation is that meetings may help communities identify service delivery problems and potential solutions to them—whether that means taking action or pressuring higher levels of government for service improvements. They may also involve citizens more broadly in priority setting. Efforts by community members within the past five years to improve water supply facilities are associated with an approximate 9.6 percentage point increase in access to piped water, suggesting that the degree of involvement of local communities in water governance can affect access outcomes. Of course, these findings should be interpreted in light of evidence from other countries that such efforts are most effective when community members receive community training (Newman et al. 2002), the community has sufficient funds for

16 Household controls include agroecological zone, ethnicity, and household size fixed effects and controls for latitude, longitude, latitude multiplied by longitude, elevation, and several characteristics of the household head: his or her gender, marital status, age group (five groups), education level (never enrolled, primary education, and middle school education or higher), logged per capita monthly expenditure per adult equivalent, and logged total household wealth. Village controls include indicators for the village having experienced a flood or typhoon, a drought, and a crop insect or crop disease outbreak in the past five years. We estimate heteroskedasticity robust standard errors.

**TABLE 8.10** Correlates of households' access to electricity, water, and sanitation services, 2012

	Electricity	Hours per day of electricity	Piped water	Distance to water source (km)	Piped drainage system	Latrine, flush or dry pit	Flush latrine
Organized village meetings to discuss issues and events	0.029* (0.016)	0.589*** (0.176)	-0.003 (0.011)	-0.088*** (0.026)	0.088*** (0.019)	0.129*** (0.022)	0.036 (0.023)
Group effort to improve electricity service, past 5 years	-0.052 (0.032)	0.520 (0.402)					
Group effort to improve water supply facilities, past 5 years			0.096*** (0.030)	-0.019 (0.038)	0.026 (0.038)	-0.019 (0.041)	-0.055 (0.046)
Engineering services available in tehsil	0.127*** (0.017)	2.630*** (0.258)	0.128*** (0.019)	0.057** (0.024)	-0.000 (0.024)	0.080*** (0.027)	0.044 (0.028)
Share satisfied with federal government services	0.099*** (0.034)	1.068* (0.575)					
Share satisfied with provincial government services			0.104*** (0.026)	-0.164*** (0.056)	-0.200*** (0.057)	-0.008 (0.059)	0.143** (0.059)
Share satisfied with public drinking water facilities			0.046* (0.023)	0.125*** (0.041)	0.045 (0.031)	-0.039 (0.033)	0.012 (0.035)
Observations	2,071	1,787	2,067	1,953	2,067	2,067	2,067

**Source:** Authors, based on 2012 Pakistan RHPS (IFPRI/IDS 2012).

**Note:** Robust standard errors appear below coefficients, in parentheses. \* = significant at 10%; \*\* = significant at 5%; \*\*\* = significant at 1%. km = kilometers.

upkeep and maintenance (Leino 2007), and when the project is of a sufficiently small size to avoid collective-action problems in upkeep (Kleemier 2000). Having engineering services in the tehsil—as for electricity—is associated with greater piped-water access. We also find that reported satisfaction with the provincial government is associated with a 10.4 percentage point increase in access to piped water, and with being about 0.16 km closer to the water source—important findings given the provincial governments' strong roles in this sector.

Many of the same factors predict access to sanitation services. In villages with organized meetings, households are 8.8 percentage points more likely to have a piped drainage system and 12.9 percentage points more likely to have access to a latrine. As in the cases of electricity and piped water, having engineering services available is associated with greater access to latrines.

Satisfaction with the provincial government is also associated with greater access to flush latrines.

The governance environment also predicts access to electricity. Households in villages with organized village meetings are 2.9 percentage points more likely to have electricity, and those with electricity have it for an additional 35 minutes per day. In contrast, we find no evidence that group efforts by community members in the past five years to improve electricity service are associated with greater access. Such efforts may be ineffective, or may be made only where electricity access is relatively bad and difficult to improve significantly. Households with engineering services in their tehsil are 12.7 percentage points more likely to have electricity, and those with it have it for an additional 2.6 hours per day—suggesting that technical expertise is an important predictor of access. Policies that remove operational barriers for firms and individuals with such expertise are likely to expand access. Reported satisfaction with the federal government is associated with 9.9 percentage points greater access to electricity, and 1.1 additional hours of electricity per day—an association which makes intuitive sense given the extent of federal government involvement in electricity provision. Where the federal government is seen as accountable, this translates into greater electricity access.

In addition to predicting access to electricity, water, and sanitation services in 2012, these measures of citizen involvement, technical expertise, and government accountability also predict whether vulnerable households *without* access to services in 2012 obtained it a year later (Table 8.11). This provides additional evidence that the governance environment matters for service delivery—including for the poorest of the poor, who are unconnected.

These findings are particularly useful to consider in the context of Pakistan's commitments to improving rural access to water, sanitation, and electricity as set forth in Vision 2025, the development strategy currently guiding public policy and investments. Although large disparities in access exist across both geographic and economic dimensions, Vision 2025 commits to universal access to clean water and 90 percent access to improved sanitation and electricity by 2025. The targets are consistent with priorities set forth by prior policies such as the 2009 National Drinking Water Policy and the 2006 National Sanitation Policy, which together resolve to provide universal access to clean water and improved sanitation by 2025 (GoP 2006, 2009c).

Yet questions remain as to the extent to which these policies and their associated investments stake out sufficient space and complementary roles for public officials, civil society, and the private sector in the governance and provision of water, sanitation, and electricity services. Successful examples exist of

**TABLE 8.11** Correlates of households gaining access to electricity, water, and sanitation services, 2012–2013

	Electricity	Piped water	Piped drainage system	Latrine (flush or dry pit)	Flush latrine
Organized village meetings to discuss issues and events	-0.093 (0.080)	0.018 (0.016)	0.116*** (0.033)	0.079* (0.044)	0.101*** (0.029)
Group effort to improve electricity service, past 5 years	0.156 (0.113)				
Group effort to improve water supply facilities, past 5 years		0.201*** (0.043)	0.008 (0.060)	0.194** (0.085)	-0.050 (0.055)
Engineering services available in tehsil	-0.088 (0.133)	0.012 (0.019)	-0.050 (0.044)	-0.003 (0.054)	0.102** (0.040)
Share satisfied with federal government services	0.908*** (0.305)				
Share satisfied with provincial government services		0.070* (0.037)	-0.095 (0.091)	-0.086 (0.116)	-0.094 (0.089)
Share satisfied with public drinking water facilities		0.056** (0.025)	0.073 (0.046)	-0.233*** (0.063)	-0.075* (0.043)
Observations	267	1,760	1,011	745	1,095

**Source:** Authors, based on 2012–2013 Pakistan RHPS (IFPRI/IDS 2012, 2013).

**Note:** Robust standard errors appear below coefficients, in parentheses. \* = significant at 10%; \*\* = significant at 5%; \*\*\* = significant at 1%.

communities, both rural and urban, that organize the provision of water, sanitation, and electricity with moderate or little assistance from the government. Prime examples are communities organized by the National Rural Support Program and the Aga Khan Rural Support Program (Seattle 2010; Campos, Khan, and Tessendorf 2004). However, the integration of these approaches into national policy remains limited. Similarly, while policies such as the National Sanitation Policy commit government to building the capacities of elected district and local government representatives to ensure their active participation in the governance of public service provision, the extent to which such individuals are involved varies widely across Pakistan. As a result, provincial governments still play a central role in service provision and often exercise administrative control over utilities (Mezzera, Aftab, and Yusuf 2010). And in the power sector, where private investment has been the subject of a long and tortuous history in Pakistan, there is scope for innovating around private (ADB 2013) and community-led provision for rural communities.<sup>17</sup>

17 For example, the Karachi Electricity Supply Company—after years of operating at a loss—earned net profits of PKR 2.6 billion and PKR 6.7 billion in fiscal years 2012 and 2013, respectively (ADB 2013), suggesting potential gains from power market privatization.



Overall, this analysis provides several important insights into the effective delivery of water, sanitation, and electricity services in the coming years, especially where these services are likely to continue to be provided through the public sector. First, there is scope to expand existing efforts to involve local governments and community organizations in service provision, accompanied by efforts to more broadly involve citizens in decision making and priority setting. Second, to avoid technical bottlenecks to rural service delivery, there is a clear indication that the presence of technical expertise at the local level is critical. Third, while the government's goals may be easily achieved for some rural subpopulations, there are barriers to getting poorly educated and low-expenditure households connected; tailored solutions designed to target these more vulnerable groups may be of considerable importance to future policy.

## Conclusions

The institutional architecture and policy environment governing rural health, education, water, sanitation, and electricity service delivery in Pakistan is both complex and in the process of changing. The architecture stretches across three levels of government—federal, provincial, and local—in the public sector, and engages the private sector and civil society to varying degrees. This chapter makes three observations.

First, access to public services is essential in order to boost agricultural labor supply and machinery use, as well as rural nonfarm labor and incomes. Second, an urgent need exists to improve rural access to public services such as healthcare, education, electricity, water, and sanitation, and many disparities in access remain—both across provinces and by individual and household characteristics like gender and socioeconomic status. Finally, while governance and implementation issues have plagued these services, there is significant scope for change, and ultimately for service improvements.

The results presented in this chapter illustrate the importance of access to public services for achieving improvements in agricultural productivity and rural development. Higher levels of education allow household members to work in areas of the rural economy other than agriculture, which tend to be more profitable. Similarly, higher levels of education are associated with increased use of agricultural machinery by households, suggesting that skills and knowledge can translate into mechanized, more efficient food production. In addition, better sanitation and health are associated with more productive adults who can work longer hours in physically demanding agricultural

activities. Negative health shocks as well as increased distance to one's water source are associated with fewer days worked by the household in agricultural activities during the year. In the same way, improved drainage systems are associated with greater time spent on agricultural activities. Finally, better access to electricity increases the number of machines a household uses for agricultural activities. Overall, increased access to rural services results in more productive households with higher levels of mechanization.

This suggests that improved access to rural services can have positive implications for rural welfare and is a worthwhile investment. In particular, considerable attention should be paid to ensuring access for vulnerable populations—such as women and girls, and those households with low educational attainment and incomes—and areas, such as rural Sindh. Without deliberate interventions, these groups and regions will fall further behind in access to these critical services, thus increasing their vulnerability. Critically, Pakistan needs to invest in rigorous evaluations of both previously implemented and future interventions to identify policy and investment options for the future. As noted earlier in this chapter, such evaluations have already begun in the education sector (with evaluations of the PEF and SEF); these efforts should be expanded, and similar evaluations should be put in place in the health sector.

Yet low levels of access to all five services derive, in no small measure, from policy and program instability across changing political regimes. This leads to gaps in implementation and accountability. Responsibilities across the three levels of government are inadequately defined, particularly in the wake of devolution under the 18th Amendment. Further changes and challenges must be surmounted once the local government ordinance is implemented in full. Budgetary commitments are currently insufficiently aligned with long-term development strategies and policies at the provincial and national levels (notably Vision 2025). Donor coordination remains a challenge. And civil society involvement in the governance and provision of rural public services remains important but insufficient. These issues result in both limited access to rural public services and poor quality of those services.

We would be remiss not to note that many in Pakistan—policy makers, analysts, development practitioners, donors, nongovernmental organizations, business leaders, and rural communities themselves—are cognizant of these issues. The government has made significant efforts in these sectors over the years, and it has accordingly seen many recent improvements in access. As discussed in greater detail in Chapter 9, the 18th Amendment provides distinctive opportunities for action and accountability that could lead to substantial

improvements in rural service provision. But to succeed, this process will require comprehensive planning, organizational reform, community engagement, and supervision at both the federal and provincial levels.

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## Annex A: Comparisons with South Asia

One way to measure the degree to which governments invest in human capital and labor productivity is to compare the sizes of their expenditures on key services with the sizes of their economies. Table A8.1 presents these expenditures as a share of GDP across the three largest South Asian countries in terms of population: Pakistan, Bangladesh, and India. Overall, health expenditure in Pakistan is equal to 3.1 percent of the country's GDP—less than that of either Bangladesh (3.6 percent) or India (4 percent). Pakistan spends a meager 2.6 percent of its GDP on public education. The number is lower than that of India (3.2 percent) and higher than that in Bangladesh (2.2 percent). Pakistan spends slightly less on water and sanitation as a share of GDP than does Bangladesh (0.22 percent versus 0.26 percent), and less than half of what India spends.



**TABLE A8.1** Government expenditure in various categories as a share of gross domestic product in the three largest South Asian countries (%)

Expenditure item	Pakistan	Bangladesh	India
Health (2012)	3.1	3.6	4.0
Public education (2009)	2.6	2.2	3.2
Water and sanitation (2008)	0.22	0.26	0.57
Government operation (2011)	17.6	11.3	14.0
Military (2012)	3.1	1.3	2.4

Source: World Bank Data Catalog (World Bank 2014b); WaterAid (2008).

**Note:** All data on expenditures except water and sanitation are from World Bank Data Catalog. Water and sanitation expenditures are from WaterAid. For each expenditure item, the data are from the most recent year for which data were available for all three countries. Health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health, but it does not include provision of water and sanitation. Expenditure on education is the total public expenditure (current and capital) on education. It includes government spending on educational institutions (both public and private), education administration, and transfers/subsidies for private entities (students/households and other private entities). Government operation is defined as cash payments for operating activities of the government in providing goods and services. It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits, and other expenses such as rent and dividends. Data on military expenditures use the NATO definition and are from Stockholm International Peace Research Institute. Water and sanitation expenditures include donor funds; because of differences across countries in the levels of government responsible for service delivery, figures for India include both federal and state figures, while for Pakistan, they include only federal figures.

Table A8.2 highlights key indicators of access to public services across these three South Asian countries. The health situation in Pakistan is alarming; in 2012, infant mortality in Pakistan was more than double that of Bangladesh (69 versus 33 deaths per 1,000 births) and far greater than that of India (44 deaths per 1,000 births).

Five indicators on access to education give a sense of where Pakistan stands in comparison to India and Bangladesh. These indicators are gross primary school enrollment, primary school completion rates for girls and for boys, and progression to secondary school for girls and for boys.<sup>18</sup> Pakistan lags behind India on all of these indicators, and behind Bangladesh on all but one (the male primary completion rate, which for Pakistan is 73 percent and for Bangladesh is 70 percent). The gaps are greater for female primary school completion rates (60 percent for Pakistan compared to 80 percent for Bangladesh and 97 percent for India), and for female progression to secondary school

18 Note that these ratios measure enrollment and completion, regardless of age group, as a percentage of the official age group for primary school, and may be greater than 100 percent because of children who enter school early or late and who repeat classes. Note also that progression to “secondary school,” according to the World Bank definition, really measures progression to class 6 (and therefore middle school) in Pakistan’s case.

**TABLE A8.2** Indicators of access to health, education, electricity, water, and sanitation services in the three largest South Asian countries

	Pakistan	Bangladesh	India
Infant mortality rate, per 1,000 live births (2012)	69	33	44
Primary school enrollment (%) (2011)	92	114	113
Female primary completion rate (%) (2011)	60	80	97
Male primary completion rate (%) (2011)	73	70	96
Female progression to secondary school (%) (2010)	73	95	89
Male progression to secondary school (%) (2010)	72	84	88
With electricity (%) (2011)	69	60	75
With improved drinking water source (%) (2012)	92	85	93
With improved sanitation facilities (%) (2012)	48	57	36

**Source:** World Bank Data Catalog (World Bank 2014b).

**Note:** Bangladesh, India, and Pakistan are the three largest countries in South Asia. In 2012, these three countries constituted over 95 percent of the population of South Asia (World Bank). The data are from the most recent year having data for all of the three countries. If that is not possible, data from earlier years are substituted where necessary. Enrollment and completion rates are expressed as a percentage of the population of official primary education age and therefore can exceed 100 percent due to the inclusion of overage and underage students (because of early or late school entrance and class repetition). Rates of progression to secondary school are defined as the number of new entrants to the first class of secondary education as a percentage of the number of pupils enrolled in the final class of primary education in the previous year. Improved sanitation facilities include flush/pour toilets (to piped sewer system, septic tank, or pit latrine), ventilated improved pit (VIP) latrines, pit latrines with a slab, and composting toilets. Improved drinking water sources include piped water, public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection.

(73 percent for Pakistan compared to 95 percent for Bangladesh)—though the gaps for males are also large.

Pakistan ranks second of the three countries on access to electricity, improved drinking water, and improved sanitation. India has the highest rates of access to electricity and improved drinking water, while Bangladesh has the highest rate of access to improved sanitation. While India is the clear leader in access to electricity (75 percent versus 69 percent in Pakistan), Pakistan trails India only slightly on access to an improved water source (93 percent in India versus 92 percent in Pakistan). However, Pakistan trails Bangladesh significantly in access to improved sanitation (48 percent versus 57 percent in Bangladesh).