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Author(s): Tahir Andrabi, Jishnu Das, Asim Ijaz Khwaja and Tristan Zajonc

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# Religious School Enrollment in Pakistan: A Look at the Data

TAHIR ANDRABI, JISHNU DAS, ASIM IJAZ KHWAJA, AND TRISTAN ZAJONC

## Introduction

In recent years, policy makers have expressed growing concern about Pakistan's religious schools, which are commonly known as madrasas.<sup>1</sup> These concerns have been fueled considerably by reports and articles in the popular press contending that madrasa enrollment is high and increasing. The "rise" is generally attributed to either an increasing preference for religious schooling among families or a lack of other viable schooling options for the household.<sup>2</sup> Yet while these theories have widespread currency, none of the reports and articles that we have reviewed have based their analysis on publicly available data sources or established statistical methodologies. Given the importance that is placed on the subject by policy makers in Pakistan and internationally, it is troubling that these theories remain unconfirmed.

Getting the madrasa enrollment numbers right has serious policy implications beyond the debate on national security. How madrasa enrollment

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<sup>1</sup> See, e.g., George W. Bush, "President Bush Welcomes President Musharraf to Camp David," Office of the Press Secretary, White House, Washington, DC, June 24, 2003 (available at <http://www.whitehouse.gov/news/releases/2003/06/20030624-3.html>); Pervez Musharraf, "Remarks by Pakistani President Pervez Musharraf," Carnegie Endowment for International Peace, Washington, DC, February 12, 2002 (available at <http://www.carnegieendowment.org/events/index.cfm?fa=eventDetail&id=458&&proj=znpp.zsa>); Colin Powell, testimony, "House Appropriations Subcommittee on Foreign Operations, Export Financing, and Related Programs Holds Hearing on FY2005 Appropriations," FDCH Transcripts, March 10, 2004; Hillary Rodham Clinton, "Addressing the National Security Challenges of Our Times: Fighting Terror and the Spread of Weapons of Mass Destruction," speech presented at a Brookings leadership forum, Brookings Institution, Washington, DC, February 2004 (available at <http://www.brookings.edu/comm/op-ed/20040225clinton.htm>); and National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States* (New York: Norton, 2004), also available at <http://www.9-11commission.gov/report/index.htm>.

<sup>2</sup> Shahid Javed Burki, "Basic Education in Pakistan and Afghanistan: The Current Crisis and Beyond," transcript of presentation at the Brookings Forum on Universal Education, December 2001 (available at <http://www.brookings.edu/comm/transcripts/20011217.htm>); Peter W. Singer, "Pakistan's Madrassahs: Ensuring a System of Education Not Jihad," Brookings Analysis Paper no. 14 (Brookings Institution, Washington, DC, November 2001); International Crisis Group, "Pakistan: Madrassahs, Extremism and the Military," ICG Asia Report no. 36 (International Crisis Group, Islamabad/Brussels, July 2002), available at <http://www.crisisgroup.org/home/index.cfm?id=1627&l=1>.

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(its size and growth rate) compares to enrollment in public and private schools matters greatly for the design of educational reform and for the allocation of scarce budgetary resources.<sup>3</sup> If madrasa actual and relative enrollments are much smaller than has frequently been reported, then the larger educational policy concern may be about improving access to quality education in the public and mainstream private sectors.

This article uses established data sources, as well as data collected by the authors themselves for a broader study on education enrollment in Pakistan, to examine the size and importance of the religious education sector in Pakistan. Methodologically, this study analyzes madrasa enrollment in a school-choice framework that is well known to empirical economists dealing with issues of poverty and school quality in developing countries. This approach allows us to evaluate various popularly proposed theories of how madrasas fit into the overall educational decision of households.

Our findings on the enrollment numbers differ by an order of magnitude from those reported by and in the media. According to our analysis, the madrasa sector is small compared to educational options such as public and private schooling, accounting for less than 1 percent of overall enrollment in the country. Even in the districts that border Afghanistan, where madrasa enrollment is the highest in the country, it is less than 7.5 percent of all enrolled children. Furthermore, we find no evidence of a dramatic increase in madrasa enrollment in recent years. The share of madrasas in total enrollment declined before 1975, and it has increased slowly since then. Since 2001, total enrollment in madrasas has remained constant in some districts, while it has increased in others. When we look at school choice, explanations for madrasa enrollment based on household attributes such as religiosity appear inadequate. Even among the less than 1 percent of families who have one or more children enrolled in a madrasa, more than 75 percent send other of their children to private and public schools.

#### **What Do Reports and the Popular Press Say?**

We looked at three different types of articles and reports: articles in mainstream American and international newspapers; reports and articles by American and international scholars affiliated with international think tanks, institutes, and the government (including *The 9/11 Commission Report*); and studies by Pakistani scholars working in Pakistan and abroad. Reported madrasa enrollment figures in newspapers varied widely, from 500,000 to 1.7 million children. Most newspapers did not benchmark their reported estimates with the percentage of children enrolled in schools. When reported,

<sup>3</sup> For a discussion of the U.S. aid package for education reform to Pakistan, see K. Alan Kronstadt, *Education Reform in Pakistan*, CRS Report for Congress (Order Code RS22009, December 23, 2004), available at <http://www.fas.org/man/crs/RS22009.pdf>.

the proportions of enrollees in madrasas also varied dramatically—from 10 percent of all Pakistani students to 33 percent.<sup>4</sup> Importantly, the sources for all of these reports and articles were either newspaper accounts of police estimates or interviews with policy makers. We have yet to find a single article that tries to validate these numbers using established data sources.

*The 9/11 Commission Report* adopted the same methodology of using interviews and reporting numbers based on secondary sources, as the following illustrates: “Pakistan’s endemic poverty, widespread corruption, and often ineffective government create opportunities for Islamist recruitment. Poor education is a particular concern. Millions of families, especially those with little money, send their children to religious schools, or madrassahs. Many of these schools are the only opportunity available for an education, but some have been used as incubators for violent extremism. According to a Karachi’s police commander, there are 859 madrassahs teaching more than 200,000 youngsters in his city alone.”<sup>5</sup> This report provides only a footnote quoting an interview with a police commander and does not attempt to validate the numbers provided. Moreover, even the secondary sources referred to in the report did not base their estimates on published data sources.<sup>6</sup>

The views from the academic world have been more nuanced, and many have provided valuable descriptions of the madrasa and the general Islamic learning environment.<sup>7</sup> Nevertheless, when talking about madrasa numbers, the academic accounts also cite secondary sources without providing any serious verification. Jessica Stern refers to the estimated 40,000–50,000 madrasas, and Peter W. Singer claims that “there are as many as 45,000 such schools within Pakistan” without identifying any verifiable source.<sup>8</sup> In the research of Mohammad Qasim Zaman and Tariq Rahman, the number of madrasa students and establishments is sourced from newspaper articles in Pakistan.<sup>9</sup> The newspaper articles, in turn, quote a police press release, where

<sup>4</sup> See Zahid Hussain and Daniel McGrory, “British Businessmen ‘Are Funding Schools That Breed Terror,’” *The Times* (London), August 10, 2002, for the 10 percent figure. C. Kraul, in “Dollars to Help Pupils in Pakistan,” *Los Angeles Times*, April 14, 2003, cites the aforementioned International Crisis Group, “Pakistan: Madrassahs, Extremism and the Military,” for the 33 percent number. Table A1 in app. A provides a list of articles on the madrasa that appeared in major international newspapers in the time frame of December 2000 to June 2004.

<sup>5</sup> National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report*, sec. 12.2, 367.

<sup>6</sup> Ibid.

<sup>7</sup> See Mohammad Qasim Zaman, *The Ulama in Contemporary Islam: Custodians of Change* (Princeton, NJ: Princeton University Press, 2002); Tariq Rahman, “The Madrassa and the State of Pakistan: Religion, Poverty and the Potential for Violence in Pakistan,” *Himal Southasian*, online journal published and distributed by the Southasia Trust, Lalitpur, Nepal (February 2004), available at <http://www.himalmag.com/2004/february/essay.htm>; Jessica Stern, “Pakistan’s Jihad Culture,” *Foreign Affairs* 79, no. 6 (2000): 115–26.

<sup>8</sup> Stern, “Pakistan’s Jihad Culture,” 119; Singer, “Pakistan’s Madrassahs,” 2.

<sup>9</sup> Zaman, *Ulama in Contemporary Islam*, 126, table 1, cites Asif Shazad, “Over 250,000 Students in Punjab Seminaries,” *The Dawn*, January 22, 2002, available at <http://www.dawn.com/2002/01/22/nat44.htm>. Rahman, in “The Madrassa and the State of Pakistan,” cites “KARACHI: 11,000 Foreigners in Sindh Madaris,” *The Dawn*, January 16, 2003, available at <http://www.dawn.com/2003/01/16/local6.htm>.

again the raw data are not available for verification. Similarly, Ahmed Rashid, in his best-selling book on the Taliban, states that “in 1988 there were 8,000 madrassas and 25,000 unregistered ones, educating over half a million students.” He cites as source an unspecified intelligence report presented to the cabinet in 1992.<sup>10</sup> Finally, the newspaper articles and reports also attempted to explain the reasons behind the popularity of madrassas. The final column in table A1 (in app. A) describes the main reasons advanced in the newspaper articles. Of these, one of the most popular cause and effect arguments is the “failed state” advanced by Singer: “The reason for the madrassas’ new centrality stems from the weakening of the Pakistani state . . . the madrassas became immensely popular by targeting the lower class and refugee populations, whom the Pakistani state has failed to provide proper access to education.”<sup>11</sup> This kind of coverage has fostered two conclusions: (1) madrasa enrollment rates are high and increasing, and (2) the popularity of madrassas should be understood as a response by the poor to the government’s inability to provide public education and social welfare. Where is the evidence?

#### The Data on Madrasa Enrollment

We examine three important questions related to madrasa enrollment: the number and fraction of children (both school aged and enrolled) attending madrassas; the geographical variation in madrasa enrollment across Pakistan; and enrollment trends over time, with particular attention to two benchmarks—the Soviet invasion of Afghanistan (and the rise of the jihad movement against them in 1979) and the events of September 11, 2001.

#### *Defining Madrasa Enrollment*

We define madrassas as schools that teach a religious curriculum instead of one prescribed by the Pakistan Federal Ministry of Education. Any school that teaches the government-prescribed curriculum but that adds elements of religious teaching is considered to be a mainstream private or public school, not a madrasa.<sup>12</sup>

<sup>10</sup> Ahmed Rashid, *Taliban: Militant Islam, Oil and Fundamentalism in Central Asia* (New Haven, CT: Yale University Press, 2000), 89.

<sup>11</sup> Singer, “Pakistan’s Madrassahs,” 2.

<sup>12</sup> We follow the principle of “additionality” of the Pakistan Ministry of Education in this definition. Most private schools that wish to teach computer programming or any other subject that is not part of the government curriculum will be counted as a general educational institution (and not a vocational institute), as long as they teach these subjects in addition to the prescribed curriculum. One type of school that could be mistakenly counted as a madrasa is a mosque school. These are schools housed in mosques that teach the normal state curriculum using regular education department teachers. These were started in the sixth 5-year plan (1983–88) under the Junejo government as a cost-effective way to use mosques; however, the program was not picked up later and is now gradually dying out. There are 8,000 or so mosque schools in Punjab. The Academy of Educational Planning and Management in Islamabad houses a comprehensive data series on Pakistan education; this is available at <http://www.aepam.edu.pk/Education.htm>.

Counting the number of children going to madrasas presents additional issues. First, defining whether a child is actually going to school is not an easy task in a low-income setting, where dropping out, as well as having sporadic attendance due, for instance, to family labor requirements, are common. Numerous debates in the literature discuss the advantages (and limitations) of using enrollment figures from school registers versus actual attendance as alternate measures.<sup>13</sup> Our measure of enrollment tries to get close to the respondent's meaningful attendance as a measure of enrollment.

Breaking down enrollment by the type of school that the child attends is potentially a harder task if people use multiple types of education facilities simultaneously. Our definition of madrasa enrollment focuses on the principal school that the child attends. A child who is enrolled in a public school and attends a tuition center in the evening for additional private tuition counts as being enrolled in a public school. Similarly, a child going to a public or private school in the morning and going to a madrasa for Qur'anic education part time, say, in the evening, is not counted as part of the madrasa enrollment.

One cautionary note regarding our definition is that it focuses on current enrollment. Children in Pakistan can and do move in and out of madrasas. Current enrollment by type of school, using an analogy from public health, provides a "prevalence" rather than an "incidence" rate. That is, if children use both types of schools in different years, asking what type of school a child is enrolled in provides an accurate picture of current enrollment patterns but does not tell us what percentage of children were "ever enrolled" in public or private schools. This is an alternate exercise, one that requires longitudinal data.

#### *Data Sources*

We use three different types of household-based data to verify our estimates and determine how sensitive they are to changes in definition and the year of the survey. Two sources are nationally representative but date from 2001 or before; the third is data from a census of households carried out by us, the current authors, in 2003 as part of a project on educational choice. The first source is the "long" form of the 1998 Population Census, a large sample-based survey with information on enrollment. This survey is representative at the level of the district and the region (rural or urban) and provides comprehensive coverage of the entire country.<sup>14</sup> We use these data to examine enrollment

<sup>13</sup> See Paul Glewwe and Michael Kremer, "Schools, Teachers, and Education Outcomes in Developing Countries," in *Handbook of the Economics of Education*, ed. E. Hanushek and F. Welch (New York: Elsevier-North Holland, 2006), chap. 16.

<sup>14</sup> Government of Pakistan, Statistics Division, Population Census of Pakistan, 1998; Federal Bureau of Statistics, Census of Private Educational Institutes in Pakistan, 2000. The 1998 Population Census, conducted by the Population Census Organization, was complemented with the Census of Private Educational Institutes of Pakistan, which was carried out by the Federal Bureau of Statistics in 2000 to

patterns across districts. The second type of data, based on household surveys, covers different rounds of the Pakistan Integrated Household Survey (PIHS), carried out in 1991, 1998, and 2001.<sup>15</sup> While the data are not as extensive as those of the census, they do contain detailed household information on schooling and income, and the data set has been used extensively by researchers both in Pakistan and the United States. Finally, we use data on schooling choice among households (referred to as the project on Learning and Educational Achievement in Punjab Schools, or LEAPS), which was conducted in August of 2003 by an independent team of academics. LEAPS is a complete census of all households in the selected villages in three districts in the province of Punjab.<sup>16</sup> Consequently, it yields sufficient madrasa enrollment to examine correlations with household attributes in a meaningful manner (this data source provides information on four times as many children as the PIHS). (Table B1 in app. B shows how these different data sources are used in the article.)

Each source asks about madrasa enrollment in a slightly different but comparable way. The 1998 Population Census asks about the field of education (“What is [NAME’S] field of education?”) with options that include (among others) general education, engineering, medicine, or religious education. This question is also asked of all literate adults irrespective of their current enrollment status, allowing for comparisons in the stock of religious education over time. The PIHS rounds ask, “What type of school is [NAME] currently attending?” with options that include government school, private school, or *deeni-madrassa* (religious schooling). Finally, the LEAPS census directly asks, “Is the child enrolled in a madrasa or an Islamic education school?”

#### *How Many?*

According to the 1998 Population Census, 159,225 students (all ages) were enrolled in madrasas; this represents 0.31 percent of all children between the ages of 5 and 19 (table 1, row 1). Since the total gross enrollment rate (defined as total enrollment divided by the number of “eligible” children—in this case, children between the ages 5–19) is 45 percent, madrasa enrollment as a fraction of total enrollment increases to 0.7 percent. The numbers from the PIHS are very similar—with between 151,000 and 178,000 children enrolled in madrasas across the 1991, 1998, and 2001 rounds, ac-

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provide statistics on private vs. public enrollment. See Federal Bureau of Statistics reports (various years). Information on both surveys and the reports is available at <http://www.statpak.gov.pk>.

<sup>15</sup> The Pakistan Integrated Household Survey (PIHS) is the equivalent of the widely used Living Standard Measurement Surveys that is implemented in various countries. Extensive notes on the 1991 PIHS are available at <http://www.worldbank.org/lms>.

<sup>16</sup> This census was conducted in three districts of Punjab; villages were chosen randomly based on the criterion that each village must have at least one private school. Typically, this means that the villages lie somewhere between fully urban and fully rural populations and are not representative of the districts in which they lie.

TABLE 1  
COUNTRYWIDE MADRASA ENROLLMENT: DIFFERENT SOURCES

Data Source	Madrasa Enrollment	Madrasa as % of Enrolled
Census of Population, 1998:		
Male	111,085	.82
Female	48,140	.53
Total	159,225	.70
PIHS 1991	151,546	.78 (.16)
PIHS 1998	178,436	.74 (.089)
PIHS 2001	176,061	.7 (.093)

NOTE.—Survey standard errors are in parentheses where applicable. The Population Census covers all of Pakistan except the federally administered tribal area (FATA). Included are Punjab, Balochistan, North-West Frontier Provinces (NWFP), and Sindh, plus the federal capital Islamabad and the federally administered Northern Areas and Azad Jammu and Kashmir (AJK). The 1998 Population Census estimates are based on the census “long form,” which was administered on a sample basis to a large number of households. These data are representative at the district level for both rural and urban regions. The next three rows show estimates from the Pakistan Integrated Household Survey (PIHS), which is a household survey; it is representative only at the provincial level for the four main provinces—Punjab, Sindh, Balochistan, and NWFP—which account for 97% of the country’s population.

counting for less than 1 percent of all enrollment (around 0.7 percent of all enrollments in the 1991, 1998, and 2001 rounds). Despite the different definitions used and the problem of accurately estimating a low probability event in the PIHS (these surveys typically identify fewer than 100 children enrolled in madrasas), the numbers are well within the standard error bounds, and they are within 0.1 percentage points of each other—that is, there is less than 1/1,000th of a difference between the percentages of enrolled children going to madrasas for the different sources.

These numbers can be benchmarked to enrollment in regular schools. Public schools run by the government enrolled between 16 and 17 million children in 1998; private schools enrolled almost one-third as many, at 6 million in 2000.<sup>17</sup> As a percentage of children between the ages of 5 and 19, government schools accounted for 33 percent, private schools for another 12 percent. Again, since roughly one-half of all children between the ages of 5 and 19 are enrolled in school, as a percentage of enrollments, these numbers approximately double to 73 percent and 26 percent.<sup>18</sup> This com-

<sup>17</sup> Population Census of Pakistan, 1998; Federal Bureau of Statistics, *Census of Private Educational Institutes in Pakistan, 2000*.

<sup>18</sup> Boys are more likely to be enrolled in madrasas compared to girls. The census reports that there are only 43 females enrolled in madrasas for every 100 males. This imbalance is significantly greater than the 68 enrolled females for every 100 enrolled males in overall education. For both boys and girls, madrasa enrollment starts off at the same age cohort between 5 and 9 years, but girls’ enrollment drops off sharply while boys’ enrollment jumps for children between 10 and 14 years old and then tapers off for the cohort in their mid-twenties. That there are fewer females in madrasas is not surprising, but the similar number of girls as boys in the youngest age category is somewhat unexpected. Interestingly, for children between ages 5 and 9, the enrollment sex ratio is slightly higher in madrasa than in general education (76.9 vs. 75.6 percent) but drops off at a much faster rate in the madrasa as children become older. The usual disclaimers about the numbers being too small to draw finer comparisons still apply.



parison suggests that there are 38 times as many children in private schools and 104 times as many in government schools as compared to those in madrasas.<sup>19</sup>

Since the data were collected prior to 2001, geopolitical changes after September 11 could have led to increased madrasa enrollment. In addition, the household-based survey faces the usual problems of accurately estimating a low-probability event—although enrollment is less than 1 percent in these surveys, the sampling error is large.<sup>20</sup> Finally, while the 1998 Population Census does not face the problem of small samples, it is not that recent, and some may have reservations regarding the quality of government data.<sup>21</sup>

The LEAPS census of schooling choice, conducted in 2003, provides a rough check on these numbers (see app. C for details). Estimates from the LEAPS census show that, as a percentage of enrolled children, the numbers in two of the three districts are slightly higher than those of the 1998 Population Census. In the third district's data (that for Rahim Yar Khan), there is a large difference, with the census reporting that 1 percent of all school-going children attended madrasas and the LEAPS showing that the fraction is closer to 3.7 percent (table 2). There are three potential explanations for this difference. First, the LEAPS data are not representative of the district and could be off the mark for districts with wide variation in madrasa enrollment across rural and urban samples. Second, the experience of the last 5 years could have varied dramatically across districts—in some, the enrollment fractions did not change, and in others it increased substantially. Third, the data could point to systematic problems with the census estimates from certain districts or to statistical problems that arise when we try to estimate low-probability events.

<sup>19</sup> We could also compare these numbers to enrollment across countries. See Eli Berman and Ara Stepanyan, "How Many Radical Islamists? Indirect Evidence from Five Countries" (unpublished manuscript, University of California, San Diego, February 2004, available at <http://www.econ.ucsd.edu/~elib/funfert.pdf>). They compare a number of countries, including Pakistan (albeit based only on the Pakistan Integrated Household Survey). The comparison is fraught with difficulties, since they sometimes use stocks and sometimes use flows and the data are sometimes at the household level and at other times at the individual level. Nevertheless, using their numbers, as a percentage of total enrollment, madrasa enrollment in Pakistan is roughly equivalent to that in Bangladesh and Côte d'Ivoire and much less than that in India (two states only) or Indonesia. Interestingly, madrasa enrollment in Pakistan corresponds closely to census estimates of home rather than religious schooling in the United States—the former ranges from 1 to 2 percent, while the latter is closer to 8 percent; see Kurt Bauman, "Home Schooling in the United States: Trends and Characteristics," Working Paper Series no. 53 (Population Division, U.S. Census Bureau, Washington, DC, August 2001), available at <http://www.census.gov/population/www/documentation/twps0053.html>; National Center for Education Statistics, "Private School Universe Survey, 1999–2000," *National Center for Education Statistics Analysis Report* (Washington, DC: NCES, August 2001), available at <http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001330>.

<sup>20</sup> For a description of similar problems in estimating home schooling in the United States, see Bauman, "Home Schooling in the United States."

<sup>21</sup> In our own analysis, we found the quality of the data generated by the Federal Bureau of Statistics in Pakistan to be consistently high. We used the 2000 Federal Bureau of Statistics Census of Private Schools (PEIP) to guide our fieldwork and feasibility study for LEAPS and found that it tallied with the situation in the field quite well, even in remote villages.

TABLE 2  
ENROLLED CHILDREN IN THREE DISTRICTS (%)

School Type	Data Source	Attock	Faisalabad	Rahim Yar Khan
Government	LEAPS	67.73	71.96	71.38
Private	LEAPS	31.56	27.33	24.92
Madrasa	LEAPS	.71	.70	3.70
Madrasa	Census of Population, 1998	.50	.49	1.03

SOURCE.—Learning and Educational Achievement in Punjab Schools (LEAPS) Census; 1998 Population Census.

NOTE.—LEAPS reports school type for enrolled children ages 5–15. The Population Census reports field of education for children ages 5–14. The sample of LEAPS villages was randomly drawn from a list frame of rural villages with at least one private school and thus are not representative of the district as a whole.

### *Explaining the Differences*

If we take for granted that the existing data sources are dated, then reality is better represented by the more recent LEAPS census data. In this case, total enrollment in madrasas, using a population-weighted average across the three districts, would be 1.7 times that in the 1998 government census. Adding in a (generous) 5 percent enrollment growth rate for every year, this puts the total number of children enrolled in madrasas at 410,000. This estimate is still conservative if a significant proportion of those enrolled in madrasas are not linked to any household and therefore are not picked up in household-based surveys. This could happen if a substantial fraction of children in madrasas are orphans.<sup>22</sup> While there are no countrywide estimates, a study by the Institute of Policy Studies in Islamabad found that 15 percent of all children enrolled in a sample of madrasas were orphans. In the worst-case scenario (where all orphans are enrolled only in madrasas), our numbers would have to be inflated by 15 percent to arrive at actual enrollment.<sup>23</sup> Thus, to arrive at a liberal estimate, we can add in a further 15 percent for orphans to take the total up to (approximately) 475,000, which is still below the lowest estimate in the existing literature. What explains this difference?

Police surveys in Punjab and Sindh quoted in the literature estimate that there were 253,125 students enrolled in madrasas in Punjab in 2002 and 264,169 in Sindh in 2003.<sup>24</sup> Our equivalent number from 1998 for the Punjab is 96,125. For Sindh, the number is 10 times greater than that in the census, with Karachi accounting for all the difference. As we try to unearth further the details of the police numbers, there are two observations. First, there is no information available on the methodology of the police surveys. Our interviews with police personnel suggest a lack of documentation, certainly when compared to those of established statistical surveys. We have no way of

<sup>22</sup> The percentage of enrolled children going to a madrasa will only be affected if the share of orphans going to madrasas is higher than the share of orphans going to regular schools.

<sup>23</sup> Institute of Policy Studies (IPS) Task Force, *Pakistan Religious Educational Institutions: An Overview* (Islamabad: IPS, 2002).

<sup>24</sup> Shahzad, "Over 250,000 Students in Punjab Seminaries"; "KARACHI: 11,000 Foreigners in Sindh Madaris."

knowing whether these numbers are from enrollment records in the madrasas or children attending on a given day or whether they are based on a census of establishments or a sample. Second, the police surveys are establishment-based surveys that include all students who attend madrasas (full-time students and children attending part time for Qur'anic literacy classes), whereas the household-based surveys like the census and the PIHS question include only those who attend madrasas full time. Anecdotal evidence suggests that small stints in a madrasa, either for Qur'anic literacy or for a short time after primary school, are fairly common.<sup>25</sup> From virtually any policy perspective, including evening Qur'an classes in enrollment figures seems misguided. Regrettably, until now, almost all enrollment numbers cited have been based on establishment surveys that do just that.

Particularly surprising is the vast discrepancy in madrasa enrollment as a fraction of enrolled students. Prior to this article, the predominant estimate came from the aforementioned International Crisis Group (ICG) report, which estimated that a third of all enrolled Pakistani children attend madrasas. Our estimates, by comparison, are less than 1 percent. Upon investigating the discrepancy, we found that the ICG's estimate was the result of a misreading of the total enrollment numbers in Pakistan, which resulted in their estimate being inflated by a factor of 10. After a draft of this article was shared with the ICG, the organization retracted its estimate. Unfortunately, during the 2 years that it remained uncorrected, the estimate itself was widely propagated in a number of major newspapers. The immediate validation and propagation of this number without any attempt to fact-check is perhaps more troubling than the original error. For example, even if the number enrolled in madrasas were 1.5 million, the highest estimate in reports and articles, this would still imply that 6 percent of all children in the educational system are enrolled in madrasas.

#### Variation across Districts and Time

Using the published data sources, we can also look at how madrasa enrollment varies across different districts—the difference between Attock and Rahim Yar Khan in the LEAPS data suggests that enrollment variation may be substantial—and we can look at how such enrollment has changed over time. Both of these exercises yield similar conclusions, pointing to the importance of the border region with Afghanistan and the impact of the Afghan-Soviet war years on time trends in madrasa enrollment.

<sup>25</sup> Ali presents some indirect evidence that the distinction between part-time and full-time students is important. He finds the number of resident and nonresident students in madrasas to be roughly equal. His study, however, is subject to some of the same criticisms of establishment-based surveys and is limited only to Islamabad and one other *tehsil* (equivalent to a county) out of a total of more than 300 in Pakistan. See Saleem H. Ali, "Islamic Education and Conflict: Understanding the Madrassahs of Pakistan" (paper presented at the U.S. Institute of Peace, Washington, DC, June 24, 2005), available at <http://www.uvm.edu/~envprog/madrassah/resources.html>.

*Variation across Districts*

Pakistan is divided administratively into four provinces with 102 districts—Punjab, Balochistan, North-West Frontier Provinces (NWFP), and Sindh—plus the federal capital Islamabad, the Federally Administered Tribal Areas (FATA), the Federally Administered Northern Areas, and Azad Jammu and Kashmir (AJK). The four provinces, together with Islamabad, account for more than 97 percent of the population. Geographically, parts of Balochistan, the NWFP, and the FATA border Afghanistan. Sindh and Balochistan are sparsely populated provinces, with the exception of Karachi in Sindh, which is the single biggest metropolis in the country, with a population approaching 10 million. We use data from the 1998 Population Census as well as the 2000 census of private schooling to estimate the madrasa, private, and government school enrollment in each district (except for those in the province of FATA).

The geographical dispersion of madrasa enrollment depends on how we define madrasa prevalence. There are three alternatives. We could present a geographical breakdown of the total number of children enrolled in madrasas. This number is related to the total population of the district, and it may thus reflect only the size of the district relative to others. Another option is to use the equivalent of the gross enrollment ratio, defined as the total enrollment divided by the number of “eligible” children—in this case, children between the ages of 5 and 19. This statistic provides an estimate of the “penetration” of madrasas, but it does not take into account the overall enrollment decision of the family. Thus, a district with two children enrolled in madrasas and 20 children enrolled in private or public schools, out of a total of 100 children, will have exactly the same gross enrollment ratio as a district with two children enrolled in madrasas and 98 children enrolled in regular schools. To the extent that we want to distinguish between these two districts, a third statistic, the ratio of children enrolled in madrasas to total enrollment (the madrasa fraction of enrollment) can also be used. The picture changes dramatically depending on whether we use the raw numbers or the ratio of children enrolled in madrasas to total enrollment. However, since enrollment in madrasas is highly correlated with total enrollment, there is little difference in the pattern of madrasa enrollment whether we use the gross enrollment ratio or the fraction of enrolled children in madrasas.

The number of children enrolled in madrasas for every district in the country is closely linked to population size—the three most populated districts account for one-quarter of the enrollment, with the bulk of enrollment in large urban metropolises. Madrasa enrollment is also higher in the *Saraiiki* language belt districts of southern Punjab (e.g., Rahim Yar Khan) compared to the rest of the country. Note, however, that the fact that the number of children enrolled in madrasas is higher in more populated districts indicates nothing more than the size of the district. When one normalizes this number by dividing it by the total enrollment figure, we can see more clearly the very

high madrasa fraction along (and only along) the western border with Afghanistan. This is the Pashtun belt—the *Pashto*-speaking population most directly influenced by events in Afghanistan. (See figs. D1 and D2 in app. D.)

Pishin (the district bordering the Kandahar region of Afghanistan) is the only *Pashto*-speaking district in the top 15 when we use the total number of children enrolled in madrasas, but when we deflate this number by total enrollment (or the number of eligible children), all of the top-10 districts are in the *Pashto*-speaking belt. If we use 2 percent of total enrollment as a cutoff for “extreme” madrasa enrollment, all 14 districts that can be classified as such are either in Balochistan or the North-West Frontier Province. Leaving aside the Pashtun belt and Karachi, madrasa enrollment in the rest of the country is spread very thinly across all districts. That is, rather than districts with high enrollment and districts with low enrollment, a very small number of children in every district are enrolled in madrasas. Seventeen districts fall in the 1–2 percent range, with the remainder reporting showing a madrasa fraction of enrollment between 0.02 and 1 percent of total enrollment.

Thus, there are two distinct geographical patterns of madrasa enrollment in the country. Enrollment is systematically higher among districts that border Afghanistan (still with just over 4 percent of enrolled children in madrasas in all of them except Pishin). Apart from these districts, enrollment is thinly spread among all districts in the country. Perhaps this pattern also reflects variation in the types of madrasas in these different areas—clearly, differences (if any) between madrasas in the Pashtun belt and the rest of the country is a potential area for research.

#### *Variation across Time*

The PIHS data show that the growth in madrasa enrollment during the 1990s was the same as that in enrollment in all schools (approximately 16 percent). In fact, madrasa enrollment as a fraction of total enrollment decreased marginally, although the differences are well within the margin of error.

Over a longer time horizon, we also compare the stock of individuals who stated a religious “field of education” on the census long form.<sup>26</sup> The stock of individuals reporting religious education as their “field” displays a distinct U-shaped pattern (fig. 1). People born between 1944 and 1948 were more likely to have religious education than those born between 1949 and 1953. This pattern continues until the cohort born between 1959 and 1963, then stabilizes for the next two cohorts and finally starts increasing. Those born between 1974 and 1978 were more likely to report religious education

<sup>26</sup> This cohort-based analysis assumes that changes in madrasa enrollment will be picked up 10–14 years after the birth of the relevant cohort. That is, a sudden increase in 1980 would correspond to an increase in the stock of individuals reporting religious education for the cohort born between 1966 and 1970.

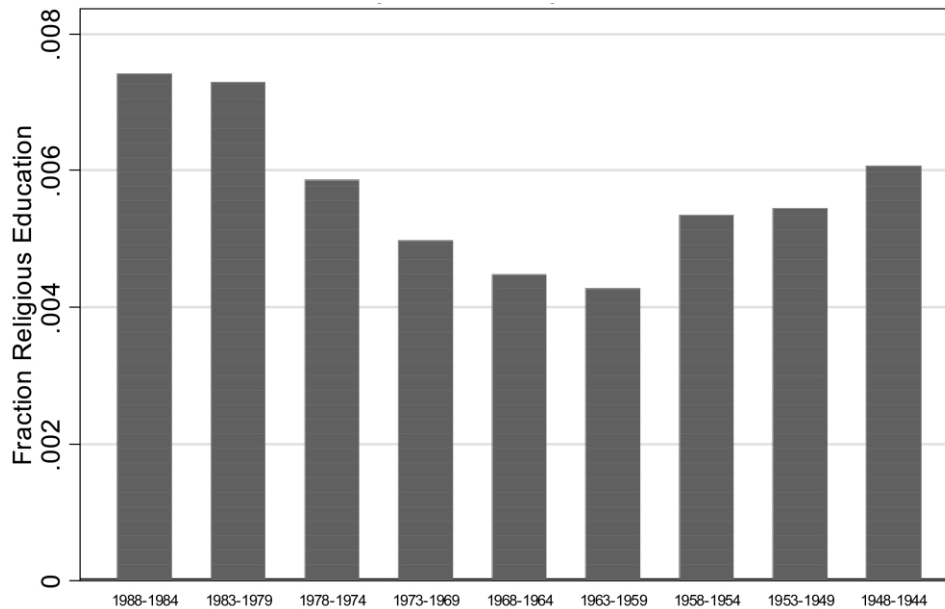


FIG. 1.—Literacy source by year of birth. Source: 1998 Population Census. Field of education is taken from the long form of the 1998 Population Census and is asked conditional on the interviewee being literate. Every bar shows the proportion of literate individuals in each birth cohort who reported that they received a “religious education.” The first birth cohort is individuals born between 1984 and 1988, who were therefore between the ages of 10 and 14 at the time of the survey. The last bar is for individuals born between 1944 and 1948, who were between 56 and 60 at the time of the survey. The numbers only reflect people alive at the time of the 1998 census.

as their field than those before. This increase continues until the last cohort we have completed educational history data for, those born between 1979 and 1983.

Interestingly, the downward trend halts for the age cohort that comes of school-going age in the years surrounding the rise of the Zia-ul-Haq military government and the ensuing religion-based resistance to the Soviet invasion of Afghanistan starting in 1979. Further, the largest jump is in the cohort born in 1979–83. This cohort would be 10 years of age in the period 1989–93—coinciding with the withdrawal of the Soviet Union and the rise of the Taliban.

#### *Variation across Households*

This section looks at the variation in madrasa enrollment at the level of the household. This study was not designed to, and cannot, present definitive statements regarding the choice of madrasas among households as a schooling choice. Therefore, we do not attempt to go beyond simple tabulations and associations. Nevertheless, the exercise adds some value to our understanding of madrasa enrollment.<sup>27</sup>

<sup>27</sup> Differences in madrasa enrollment could be driven by differences across villages rather than by

Previous studies on this important question, such as that by Eli Berman and Ara Stepanyan, have been hampered by small sample sizes (there are 100 children who attend madrasas in the PIHS data) and lack of household-level data (the census only provides district-level aggregates).<sup>28</sup> In contrast, the LEAPS census has schooling choice data on 150,000 children at the household level; even with 1 percent enrollment, this gives us 1,500 children enrolled in madrasas, a number that is sufficiently large to draw meaningful conclusions.

We first ask a simple question: If we look at households that have a child enrolled in a madrasa, what type(s) of schools do other children in the household attend? We look at households that had at least two enrolled children and classify them as (a) “all madrasa,” if all the children attend a madrasa; (b) “madrasa/public,” if at least one child goes to the madrasa and one to a public school; (c) “madrasa/private,” if one attends the madrasa and the other attends private school; and (d) “madrasa/public/private,” if the households had three or more enrolled children using all three options simultaneously. Finally, we repeated this exercise in households with at least one child going to public school and with one child going to private school.

The results are startling (fig. 2). Among households with at least one child enrolled in a madrasa (call them “madrasa households”), only 23.5 percent can be classified as “all madrasa” households. The majority of “madrasa households” (just under 50 percent) use both madrasas and public schools, and another 28 percent use either madrasas and private schools or all three simultaneously. Among households with at least one child enrolled in private school, 48.5 percent enroll all their children in private schools and another 49.6 percent use the private/public option simultaneously. If the choice of a madrasa or a private school provides information about the ideology of the household, the data suggest that the choice of a private school is more ideologically driven than the choice of a madrasa. That is, almost half of households choosing private schools for at least one of their children select private schools for all of their school-age children, while less than one-quarter of households sending a child to a madrasa send all of their children to madrasas.

The fact that most variation in madrasa enrollment is within rather than between households implies that any predictions about who will send their child to a madrasa based on household attributes will be fairly poor. The comparison done by Berman and Stepanyan looked at differences between

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differences across households, i.e., in some villages all of the children go to madrasas, while in others none of the children attend. Most of the variation in madrasa enrollment (in the set of enrolled children) is within rather than between villages. For example, the difference in enrollment ratios in a village at the ninetieth percentile of madrasa enrollment and one at the tenth percentile is only 3.4 percent. This also holds at the more disaggregated settlement level (some villages have more than one settlement), although less strongly, with more variation stemming from within than between settlements.

<sup>28</sup> Berman and Stepanyan, “How Many Radical Islamists?”

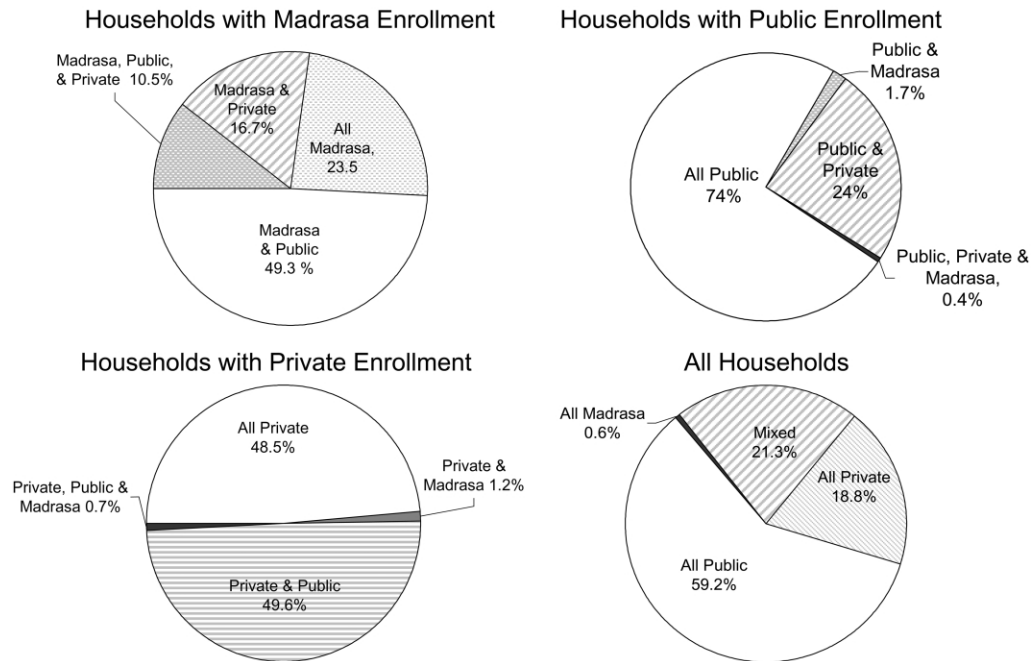


FIG. 2.—Household enrollment choices. Source: LEAPS Population Census, 2003. This pie graph shows enrollment choices among households with at least two enrolled children that have one or more children attending a madrasa (top left), a government school (top right), a private school (bottom left), and any school (bottom right). By construction, households with private, government, and madrasa enrollment (madrasa/public/private) must have at least three enrolled children. Thus, among households with at least one child in a madrasa, close to 50 percent have another child who is enrolled in a government school. The last pie graph (All Households) shows how prevalent every type of household is, e.g., only 0.6 percent of all households have all children enrolled in madrasas.



## RELIGIOUS SCHOOL ENROLLMENT IN PAKISTAN

TABLE 3  
CHARACTERISTICS OF MADRASA AND NON-MADRASA HOUSEHOLDS

Household Type	Household Head Illiterate	Monthly Expenditure under Rs7,500	No Land	Settlement Has Private School
Non-madrasa household	.4469 (.0024)	.9598 (.0009)	.6171 (.0023)	.7196 (.0021)
Madrasa household	.5159 (.0153)	.9645 (.0056)	.6047 (.0149)	.4852 (.0152)

SOURCE.—Learning and Educational Achievement in Punjab Schools (LEAPS) Census.

NOTE.—Standard errors are reported in parentheses. Households are classified as “madrasa households” if one or more children are currently enrolled in a madrasa. “Non-madrasa households” households have at least one child enrolled in a government or private school. Monthly expenditure under Rs7,500 accounts for 97% of households. There is no difference in means between household types when a more even expenditure categorization is used.

“madrasa households” and “non-madrasa” households.<sup>29</sup> A similar comparison in the LEAPS data (table 3) shows an association between lower-income households and madrasa enrollment and households with less educated heads and madrasa enrollment, but the magnitude of these associations is small. The heads of “madrasa households” are illiterate in 7 percent more cases and slightly poorer (0.5 percent more likely to earn less than Rs7,500 per month).<sup>30</sup> The largest difference between household types is their proximity to a private school—among households with a child in a madrasa, 49 percent live in settlements with a private school; this number is 72 percent for households with no children in madrasas.

*Variations Related to Public and/or Private School Availability*

Although the last finding could be seen as supporting the theory that madrasas have emerged as the only viable alternative to poor government schooling, a closer look shows that the prevalence of private schools substantially complicates matters. We look at the fraction of children enrolled and the market shares of schools offering public, private, and madrasa education under three different scenarios. One scenario is when both private and public schools are present in the settlement, the second is when either a private or a public school exists (nonexclusively), and the third is when neither is available in the settlement in which the household is located.<sup>31</sup> Three interesting findings emerge (see fig. 3): (1) In settlements with both

<sup>29</sup> Ibid.

<sup>30</sup> The significant difference between madrasa and non-madrasa households in terms of income arises only when we use Rs7,500 as the monthly income cutoff to distinguish poor and nonpoor households; alternative cutoffs of Rs2,500 or Rs5,000 show no significant differences between poor and nonpoor households. Importantly, 97 percent of all households earn below Rs7,500.

<sup>31</sup> Recall that the LEAPS sample was taken from a list of villages that had at least one private school. To look at schooling choices under these three scenarios, we divided villages into settlements and plotted enrollment shares in each type of settlement. These settlements are often far from each other and thus act more as self-contained units than the administrative definition of a village. In the LEAPS data, there are 112 villages but 253 settlements, generating considerable variation for this exercise. These findings are robust in a multivariate regression context.

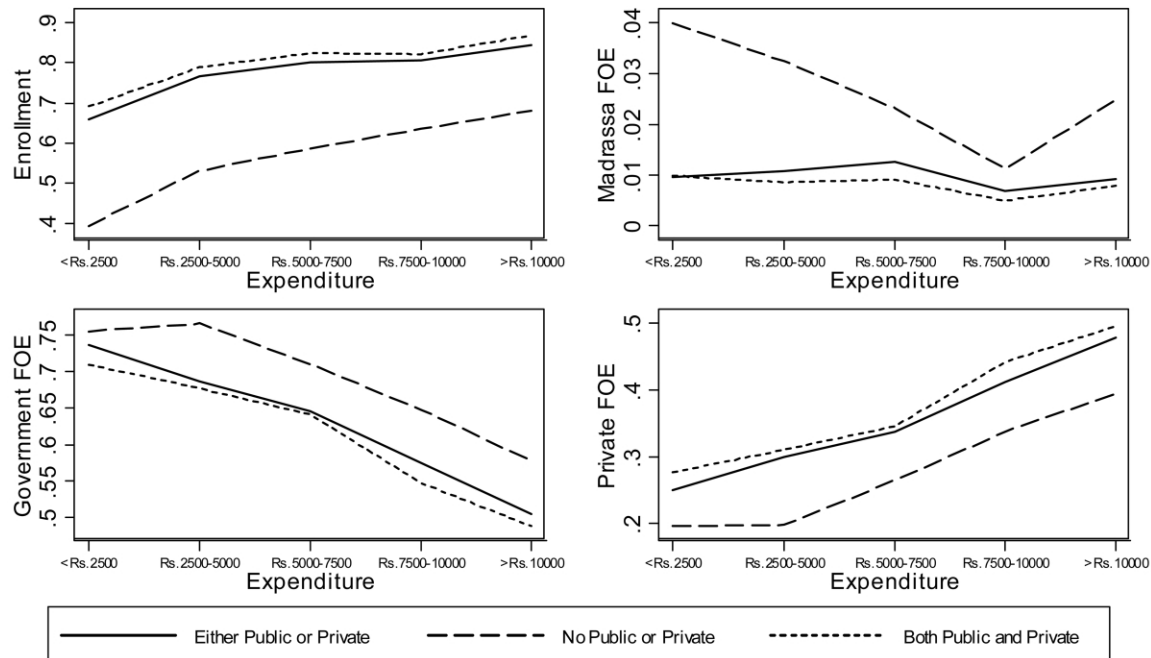


FIG. 3.—Enrollment by presence of school and expenditure. Source: LEAPS Population Census, 2003. This figure shows the fraction of children enrolled (top left) and the share of each sector in that enrollment. The top-right figure shows the share of madrasas, the bottom-left figure shows the share of government, and the bottom-right figure shows the share of the private sector. In each figure, we show the appropriate fraction for three types of settlements—those with both a private and a public school, those with either a private or public school (including settlements with both), and those with neither a private nor a public school. These settlements were constructed using a mapping exercise in every village, and for the 125 villages in our sample, we have 253 settlements. We plot the shares against the self-reported monthly expenditures of the household. More than 95 percent of all households fall below the Rs7,500–Rs10,000 cutoff.

private and public schools, the share of private schools increases with income. Nevertheless, even among the poor, more than 30 percent of all families send their children to private schools. Madrasas account for less than 1 percent of all enrollments, and this share is no higher among the poor compared to the rich. (2) In settlements with either a private or a public school, the same patterns are observed with regard to income and, again, madrasa shares are no different among the rich and the poor. (3) In settlements with no public or private schools, the enrollment patterns are very different. The largest differences arise in the choice of enrollment, rather than schooling choice conditional on enrollment. In settlements without a public or a private school, families are more likely to exit from the educational system altogether rather than enroll their child in a madrasa. The drop in enrollment is dramatic, falling from 70 percent to 40 percent among the poor and from 87 percent to 68 percent among the rich. The market share of the different types of schools also changes. Government schools and madrasas increase their share, while the private schools share drops. However, the increase in the market share of government schools is insufficient to overcome the drop in enrollment, so that total number of children in government schools still declines; the opposite is true for madrasas. These settlements are also the only ones where there is a clear relationship between income and madrasa enrollment—among the poorest, 4 percent of all enrolled children are in madrasas, and among the rich this decreases to 2.5 percent.

These numbers suggest that the schooling decision for an average Pakistani household in a rural region consists of an enrollment decision (Should I send my child to school?) followed by a private/public decision, with a madrasa as a possibility. When there are no nearby schools, households exit from the educational system altogether, although there is evidence of an increase in the market share of madrasas among the poor in these settlements. When both private and public schools are available, richer households exit to the private system, but there is no difference in madrasa shares with household income. It is possible that when richer households use the private sector, resources are freed up for use in public schools, leading to an overall increase in enrollment.<sup>32</sup>

The key issue then becomes the placement of public and private schools. Tahir Andrabi, Jishnu Das, and Asim I. Khwaja show that private schools overwhelmingly locate in villages where there are preexisting public schools.<sup>33</sup>

<sup>32</sup> For robustness, we also conducted a multivariate analysis of madrasa enrollment using household head education, household wealth, household land holding, availability of outside schooling options in the settlement, child gender, and child age. The above findings remain unchanged. The range of schooling options in the settlement matter, and it is only when no outside schools are present that madrasa enrollment shows sensitivity to income. These regression analysis results are not reported here as they do not add anything to what is provided in fig. 3.

<sup>33</sup> Tahir Andrabi, Jishnu Das, and Asim I. Khwaja, "Students Today, Teachers Tomorrow? The Rise of Affordable Private Schools" (unpublished manuscript, World Bank, Washington, DC, November 2005), available from the authors.

This may not be an insurmountable barrier as 2,500 new private schools were set up between 1994 and 1995. Just 3 years later in 1998, 6,000 new schools were set up, and in 1999 this increased to 8,000. Half of the growth in private schools occurred in rural villages. If current trends continue, and our data collected in 2004 suggests that it will, the number of villages in Punjab province (which has half of the country's population) with a private school will approach 50 percent by the end of the decade.

These schools are not particularly expensive to attend. The median annual tuition fee in rural Punjab is Rs650 (just under \$1 per month). Using household expenditure data from the PIHS, this represents 1.7 percent of average household expenditure, so that a family with four children would spend less than 7 percent of total expenditure if all four children attended private schools.<sup>34</sup> By comparison, the ratio of private school fees to household income in high-income countries is high—for instance, the average annual fees in a private school in the United States of \$2,200 corresponds to 9 percent of median per capita income.<sup>35</sup> The analog in Punjab is closer to 2.5 percent, suggesting a fourfold difference in the tuition to income ratio across the two economies.

#### Conclusion and Caveats

Analysis of published data sources and the LEAPS survey show that existing estimates in the literature of madrasa enrollment are highly exaggerated. Our most liberal estimate, which doubles the census/PIHS numbers and adds in a further 15 percent for orphans, is still below the lowest estimate in newspaper articles and policy reports. This imbalance is accentuated when we look at the fraction of children enrolled in madrasas, either as a percentage of school-aged children or enrolled children. This fraction has been overstated by a factor of 10 in the *Los Angeles Times* (April 14, 2003) and by a factor of 33 in the report by the International Crisis Group.<sup>36</sup> Moreover, there is currently no evidence of a dramatic explosion of enrollment in madrasas in the 1990s. Beliefs about the prevalence of madrasa enrollment in Pakistan are an example of conventional wisdom, in the classic Galbraithian sense—these numbers have been accepted simply because they have been found acceptable.<sup>37</sup>

As noted above, one hypothesis for the presumed dramatic rise of madrasa enrollment relates to the effects of the Afghan-Soviet war. In this regard, madrasas declined in popularity for cohorts born between 1947 and

<sup>34</sup> Tahir Andrabi, Jishnu Das, and Asim I. Khwaja, "Private Schools: Limitations and Possibilities?" (unpublished manuscript, World Bank, Washington, DC, October 2005), available from the authors.

<sup>35</sup> National Center for Education Statistics, *Private School Universe Survey, 1999–2000: National Center for Education Statistics Analysis Report* (Washington, DC: National Center for Education Statistics, 2001), available online at <http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001330>.

<sup>36</sup> Kraul, "Dollars to Help Pupils in Pakistan"; International Crisis Group, "Pakistan: Madrassahs, Extremism and the Military."

<sup>37</sup> John Kenneth Galbraith, *The Affluent State* (New York: Houghton Mifflin, 1958).

1974 and increased thereafter. The biggest jump is for the cohort born between 1979 and 1983; this corresponds to those children who would have started attending school around the rise of the religion-based resistance to the Soviet invasion of Afghanistan. The notion that the madrasa movement coincided with resistance to the Soviet invasion of Afghanistan is supported by the data from the 1998 Population Census. The increase in the stock of religiously educated individuals starts with the cohort that came of age in 1979 (the year of the Soviet invasion of Afghanistan), and the largest increase is for the cohort coterminus with the rise of the Taliban. Combined with the fact that the largest enrollment percentage in Pakistan is in the Pashtun belt bordering Afghanistan, this suggests that events in neighboring Afghanistan influence madrasa enrollment.

Moreover, there is a wide geographical dispersion in the prevalence of madrasa education in Pakistan, with madrasas being most popular in the Pashtun belt and with the top-10 districts in terms of the fraction of enrolled children in madrasas all bordering Afghanistan (where they still account for less than 2 percent of all school-aged children). Time trends also support a strong Afghan-Soviet war influence. Nevertheless, it appears that this “Afghan” influence is related more to geographical proximity than to preferences for religious schooling among Afghan immigrants or something intrinsic about Pashtun sensibility. The differentiation of the Pashtun and non-Pashtun districts does not extend to Pashtun and non-Pashtun households in the LEAPS data. We find no evidence that Pashtun households are more likely to send their children to madrasas compared to the rest of the sample, suggesting that geopolitical factors and geographical proximity to Afghanistan matter more than cultural preferences.<sup>38</sup>

At the level of the household, most variation in madrasa enrollment is within rather than between families. Among households with at least one child enrolled in a madrasa, 75 percent send their other children to a public school or a private school or both. Historians of religious education choices will find this reassuring—during the eighteenth and nineteenth centuries, most European countries followed a similar pattern, with one child sent to the church and the others sent for a secular education (or provided with no schooling at all).

Furthermore, there is no evidence for religiosity- or household-preference-based models of madrasa enrollment. The radical religiosity argument suggests that children are more likely to be sent to madrasas when the family favors a radical brand of Islam. If true, what are we to make of the fact that more than 75 percent of all households with a child in a madrasa also send

<sup>38</sup> The data from the LEAPS census asked about ethnic and caste identity, and households that classified themselves as “Pathan” or “Afghani” were used to represent Pashtun households. In line with the usual residential patterns of individuals with Pashtun backgrounds, most of these households are in the district Attock, located in the north of Punjab.

a child to a public or private school? In a multivariate context, we checked whether households identified as “radically Islamic” were more likely to send their child to a madrasa.<sup>39</sup> Again, we found no difference between these households and others—the probability of choosing a madrasa increased by 0.40 percent, but the increase was statistically insignificant and small.

Are poorer families more likely to send at least one child to a madrasa? Many interviews reported in the press suggest that madrasas provide free food, clothing, and stipends to the poor, implying a significantly higher madrasa enrollment among poorer segments of the population. At an aggregate level, there is little difference between poor and rich households in the choice of religious schooling. However, this masks an important difference between two different types of settlements. In settlements where other schooling options exist, less than 1 percent of all enrolled children go to madrasas and this fraction is the same for all income groups, while in settlements where there are no other schooling options, the fraction of children going to madrasas increases and is higher among the poor compared to the rich (although it stays below 4 percent for all income groups).<sup>40</sup> Nevertheless, the biggest difference between these two types of settlements is not the increase in the use of madrasas but the dramatic decline in overall enrollment. Thus, although the share of madrasas increases, this is offset by a sharp reduction in the size of the overall enrollment pie.

It is likely that the number of settlements without public or private schooling options will be reduced considerably during the next decade, primarily due to an ongoing dramatic explosion in the growth of private schools. In 1983 there were approximately 3,300 private primary and secondary schools in the four biggest provinces.<sup>41</sup> In 2000 the same four provinces had 32,000 private schools, an almost 10-fold increase in less than 2 decades.<sup>42</sup> The growth in low-cost rural private schools is particularly dramatic, a point that has been

<sup>39</sup> In a largely Islamic country, it is difficult to find good measures of religiosity. No data on religiosity were collected as part of the census, and a more recent and detailed household survey that includes information on time use elicits little variation—everyone reports high mosque attendance and regular prayers. An alternative, suggested by David Evans at Harvard University, which we pursue here, is to use recent developments in the use of “names.” Research by Fryer and Leavitt demonstrates the increasing use of names to define race identity in the United States. We postulate that households that named (at least) one child “Osama” (also spelled Usamah, Usamma, or Usama) are more likely to favor a radical brand of Islam. The use of the name Osama was minimal until 1998 and then peaks in 1998 and 2001, following disruptive events. Of course, the naming of the child may reflect name recognition rather than ideology, and this must be kept in mind. To the extent that naming a child “Osama” is a good indicator of radical religiosity, we find no evidence of this effect in the data. See Ronald G. Fryer Jr. and Steven Levitt, “The Causes and Consequences of Distinctively Black Names,” *Quarterly Journal of Economics* 119, no. 3 (2004): 767–805.

<sup>40</sup> Once again, this finding still holds in a multivariate analysis (not reported) of madrasa enrollment using household head education, wealth, land holding, availability of outside schooling options in the settlement, child gender, and child age.

<sup>41</sup> Emmanuel Jimenez and Jee-Pang Tan, “Decentralized and Private Education: the Case of Pakistan,” *Comparative Education* 23, no. 2 (1987): 173–90.

<sup>42</sup> Das et al., “Private Schools.”

left out of the current debate on education in Pakistan. For the average child (even a relatively poor one), the most popular alternative to government schooling is a private school, not a madrasa.

This article does not address a number of important questions. Both case studies and personal visits suggest that madrasas vary in their character and in the education that they impart; they range from being neighborhood evening religious education schools to facilities that incorporate a more extreme radical militant view. None of the data sources distinguish the different types of madrasas. All types of madrasas are included in our enrollment estimates. Furthermore, we are unable to provide an in-depth view of madrasa goers. Stern and various press reports provide a case-based approach with detailed studies of select madrasas.<sup>43</sup> These case studies describe the mindset of madrasa students, teachers, and religious leaders and provide psychological portraits of such individuals.

The results presented here will speak differently to people with different concerns. One concern is to obtain a better understanding of how madrasas are incorporated into the educational decisions of households. This article discusses madrasa enrollment in a framework that is well known to empirical economists, one that deals with issues of poverty and school quality in developing countries. Phrased in terms of household choice (should I send my child to public school, private school, or a madrasa?), the inclusion of madrasas as a schooling alternative has a negligible effect on household decisions. Consequently, for those interested in individual decision making, our results suggest that madrasas do not form an important part of the decision making of the average (or even the ninety-eighth percentile) of Pakistani households.

A second concern relates to global security issues and, under this view, absolute numbers matter. While we do not have data on whether madrasas promote extremist views and do recognize that this is likely to differ across different types of madrasas, we can conclude that current estimates of madrasa enrollment—both absolutely and in percentage terms—are significantly overstated. Moreover, existing theories fail to adequately explain madrasa enrollment and largely ignore intrahousehold considerations that appear to be important.

If, despite the small numbers, a proactive policy toward madrasas is necessary, more sophisticated theories, as well as additional up-to-date and publicly available and verifiable data, are needed. Achieving this, however, is not an easy task. Given the spatial and temporal patterns of overall madrasa enrollment we found, as well as the very small percentage of children enrolled in madrasas, the only reliable way to capture such enrollment and the correlates of madrasa use is with very large scale surveys, perhaps even censuses,

<sup>43</sup> Stern, "Pakistan's Jihad Culture"; Pamela Constable, "Growing Islamic Activism Challenges Pakistan; Religious Groups Offer Social Services That Help Spread Beliefs," *Washington Post*, September 20, 2001.

in a representative sample of villages throughout the country. This is a costly affair. Whether the money would be better spent for increasing school quality in Pakistan requires careful thought.



## Appendix A

TABLE A1  
ARTICLES ON MADRASAS IN PAKISTAN IN MAJOR NEWSPAPERS, DECEMBER 2000–JUNE 2004

Source	Date	Type of Study	Numbers	Reasons for Madrasa Enrollment
<i>Los Angeles Times</i>	December 28, 2000	Case study	8,000 madrasas	Afghan war against the Soviet Union
<i>Financial Times</i>	March 6, 2001	Interview with President Musharraf	10,000 madrasas, 1 million students	Welfare service to the poor
<i>Los Angeles Times</i>	August 12, 2001	General article	None	Welfare service to the poor
<i>Los Angeles Times</i>	September 19, 2001	Case study	18,000 in Peshawar	Religious indoctrination
<i>Washington Post</i>	September 20, 2001	Case study	None	Religious indoctrination
<i>Boston Globe</i>	October 4, 2001	Case study	11,000 madrasas, 1 million students	Afghan war against the Soviet Union; fills gap in public education
<i>Financial Times</i>	October 17, 2001	Discussion of meeting between Colin Powell and President Musharraf	10,000 madrasas	Religious indoctrination
<i>Philadelphia Inquirer</i>	November 9, 2001	General article	7,000–8,000 madrasas, 700,000 students	None
<i>Financial Times</i>	November 17, 2001	General article and interviews	4,000 Deobandi madrasas	Religious indoctrination
<i>Philadelphia Inquirer</i>	November 25, 2001	General article and interviews	8,000 registered madrasas, 25,000 unregistered madrasas	Afghan war against the Soviet Union; Pashtun tribal belt issues; religious indoctrination
<i>Boston Globe</i>	November 29, 2001	General article		Fills gap in public education; religious indoctrination
<i>Los Angeles Times</i>	December 10, 2001	General article and interviews	10,000 madrasas that dominate education throughout rural Pakistan	Religious indoctrination
<i>Philadelphia Inquirer</i>	December 16, 2001	Interviews in Pishin district	None	Religious indoctrination
<i>Chicago Tribune</i>	December 23, 2001	General article and interviews	None	Fills gap in public education
<i>Chicago Tribune</i>	December 23, 2001		None	Welfare service to the poor; fills gap in public education
<i>Boston Globe</i>	December 25, 2001	General article and interviews	“Tens of thousands” of madrasas, 1 million children	Welfare service to the poor
<i>Los Angeles Times</i>	January 3, 2002	General article and interviews	5,000 madrasas	Religious indoctrination; Afghan war against the Soviet Union
<i>Los Angeles Times</i>	January 4, 2002	General article and interviews	None	None
<i>Philadelphia Inquirer</i>	January 5, 2002	News item on government	6,000 madrasas	None
<i>Chicago Tribune</i>	January 13, 2002	News item on government	None	None
<i>Boston Globe</i>	January 14, 2002	News item and interview	None	Religious indoctrination
<i>Chicago Tribune</i>	January 18, 2002	Case study	None	Religious indoctrination
<i>Los Angeles Times</i>	January 19, 2002	News item	None	Afghan war against the Soviet Union; religious indoctrination

TABLE A1 (Continued)

Source	Date	Type of Study	Numbers	Reasons for Madrasa Enrollment
<i>Philadelphia Inquirer</i>	January 23, 2002	News item	"Thousands" of madrasas	Afghan war against the Soviet Union; religious indoctrination
<i>Chicago Tribune</i>	January 24, 2002	Case study	None	Religious indoctrination
<i>Washington Post</i>	March 14, 2002	General article	500,000 plus children	Fills gap in public education; religious indoctrination; welfare service to the poor
<i>Boston Globe</i>	March 18, 2002	General article	Thousands of madrasas	None
<i>Los Angeles Times</i>	March 23, 2002	Case study	3,700 (NWFP only)	Fills gap in public education; religious indoctrination
<i>Washington Post</i>	April 28, 2002	General article and case study	7,000 madrasas	Afghan war against Soviet Union
<i>Los Angeles Times</i>	June 29, 2002	General article	1.5 million students	Afghan war against the Soviet Union; fills gap in public education; welfare service to the poor
<i>Chicago Tribune</i>	June 30, 2002	General article	8,000–10,000 madrasas	Afghan war against the Soviet Union; fills gap in public education; welfare service to the poor
<i>Washington Post</i>	July 14, 2002	General article and interviews	10,000 madrasas, 1.5 million students	Afghan war against the Soviet Union; Kashmir dispute; fills gap in public education; welfare service to the poor
<i>The Times</i> (London)	August 10, 2002	Report	1.5 million students from poor rural families	Religious indoctrination
<i>Los Angeles Times</i>	October 12, 2002	Report	8,000–10,000 madrasas with 1.5 million students	None
<i>Los Angeles Times</i>	February 2, 2003	Interview with Foreign Minister Mian Khursheed Mehmood Kasuri		Welfare service to the poor; fills gap in public education
<i>Financial Times</i>	February 8, 2003	General article and interviews	40,000–50,000 madrasas	None
<i>Los Angeles Times</i>	April 14, 2003	Report	10,000 madrasas; educate 10% of all Pakistani students	Fills gap in public education; welfare service to the poor
<i>Financial Times</i>	August 19, 2003	Expert comment	None	Afghan war against the Soviet Union; Pashtun tribal belt issues
<i>Washington Post</i>	September 2, 2003	Report	None	Pashtun tribal belt issues
<i>Los Angeles Times</i>	March 5, 2004	Report on politics regarding Musharraf	None	None
<i>Washington Post</i>	June 13, 2004	General article and interviews	10,000 madrasas	Religious indoctrination; Welfare service to the poor
<i>Philadelphia Inquirer</i>	June 15, 2004	General article and interviews	8,000 madrasas	Afghan war against the Soviet Union

## Appendix B

### Data Sources and Notes

The first data source is the 1998 Population Census, where the question asked of the respondent on the long form is the type of schooling attended. One of the coded response options is “*deeni taleem*,” exactly translated as “religious education.” The long form is administered only to a sample of households in the census, so the response is an estimate of the population number. However, the numbers are representative at the district rural/urban level. These census numbers are used for delimiting electoral constituencies and also as a sampling frame for most government and international surveys. We have used the census document for designing village-level sampling and have found it to be generally consistent with our own fieldwork. We also exploit other district-level data in the census document, such as the extent of public utilities like electrification and piped water as well as the quality of the housing stock (as a proxy for wealth) to correlate with religious enrollment.

The second data source is the Pakistan Integrated Household Survey series, where we use data from 1991, 1998, and 2000. This data set is widely used internationally to examine poverty and related matters. (The data on religious schooling have been used by Berman and Stepanyan in their 2004 study as well.) In the surveys for all three years, the question asks about “type of school” and “Islamic/religious” is a coded response option.

The third source is a specially conducted household educational census conducted by our research team in 125 villages in three districts of Punjab in 2003. This is an extremely rich data source that allows us to extensively look at school choice in rural Punjab at the household level as well as within the household. Here again, we classify a school as a madrasa if it provides religious education and does not teach the state prescribed curriculum, and we classify a child as “enrolled in a madrasa” if he or she is attending a madrasa full time. The sampling for these data was based on an ongoing study of educational choices in Pakistan. We picked villages randomly from the three districts conditional on their having a private school. Typically, this meant that the villages in our sample are (a) bigger and (b) richer than the average village in the district.

The fourth data source is the census of private educational institutions conducted by the Federal Bureau of Statistics in March 2000. This is a complete enumeration of all the mainstream private schools in the country. It does not include any madrasas. We use this data set to provide information on mainstream private schools. Summary information on each of these data sets is provided in table B1.

TABLE B1  
DATA SOURCE DOCUMENTATION

Data Set	Year	Advantages	Disadvantages	Used for
Pakistan Integrated Household Survey (PIHS)	1991, 1998, 2001	Representative for four provinces that account for 97% of the population.	Very low numbers for children enrolled in madrasas. The low numbers make it hard to study associations at the level of the household.	Representative numbers for madrasa enrollment in the four provinces over time.
Federal Bureau of Statistics Census of Private Schools (PEIP)	2000	Data set on private schools, collected at the school level by the Federal Bureau of Statistics. Provides wealth of information on private schools, their location, and their enrollment.	No household level information and no information on madrasas. Age of enrolled children not available.	Size of private school enrollment. Often combined with 1998 Population Census in our analysis.
Population Census, long form	1998	Countrywide coverage at the level of the district and region (rural/urban) excluding FATA.	Information is aggregated at the level of the district.	Numbers on countrywide enrollment and geographical dispersion of madrasa enrollment in the country. Associations at the level of the district.
Learning and Educational Achievement in Punjab Schools (LEAPS) Census	2003	Very recent data collected by the authors. Large number of children surveyed allows for flexibility in studying association between household attributes and schooling choice.	Very limited coverage—only three districts in Punjab. Limited household level information. Villages not representative of districts or country.	Presenting some recent numbers on madrasa enrollment. Associations at the level of the household.

**Appendix C****Madrasa Estimates from LEAPS Data under Different Assumptions**

Table C1 shows what happens under alternate assumptions regarding the definition of madrasa. The table presents three different estimates, the lowest of which we call the “conservative” estimate and the highest of which we call the “liberal” estimate. Typically, allowing for more liberal estimates doubles the percentage of children enrolled in madrasas. For this article, we use the moderate estimate as the relevant number.

However, this doubling highlights an important problem. Since madrasa enrollment is very small as a percentage of the total, estimating the number precisely requires very large samples and a precise definition of what we mean. Despite interviews covering over 150,000 children, we captured only 1,500 children enrolled in madrasas. Small changes in the definition cause small absolute changes in the percentages but could dramatically change the overall number. Likewise, for extremely low probability answers, errors in data entry even at a 1 percent rate can substantially affect the result.

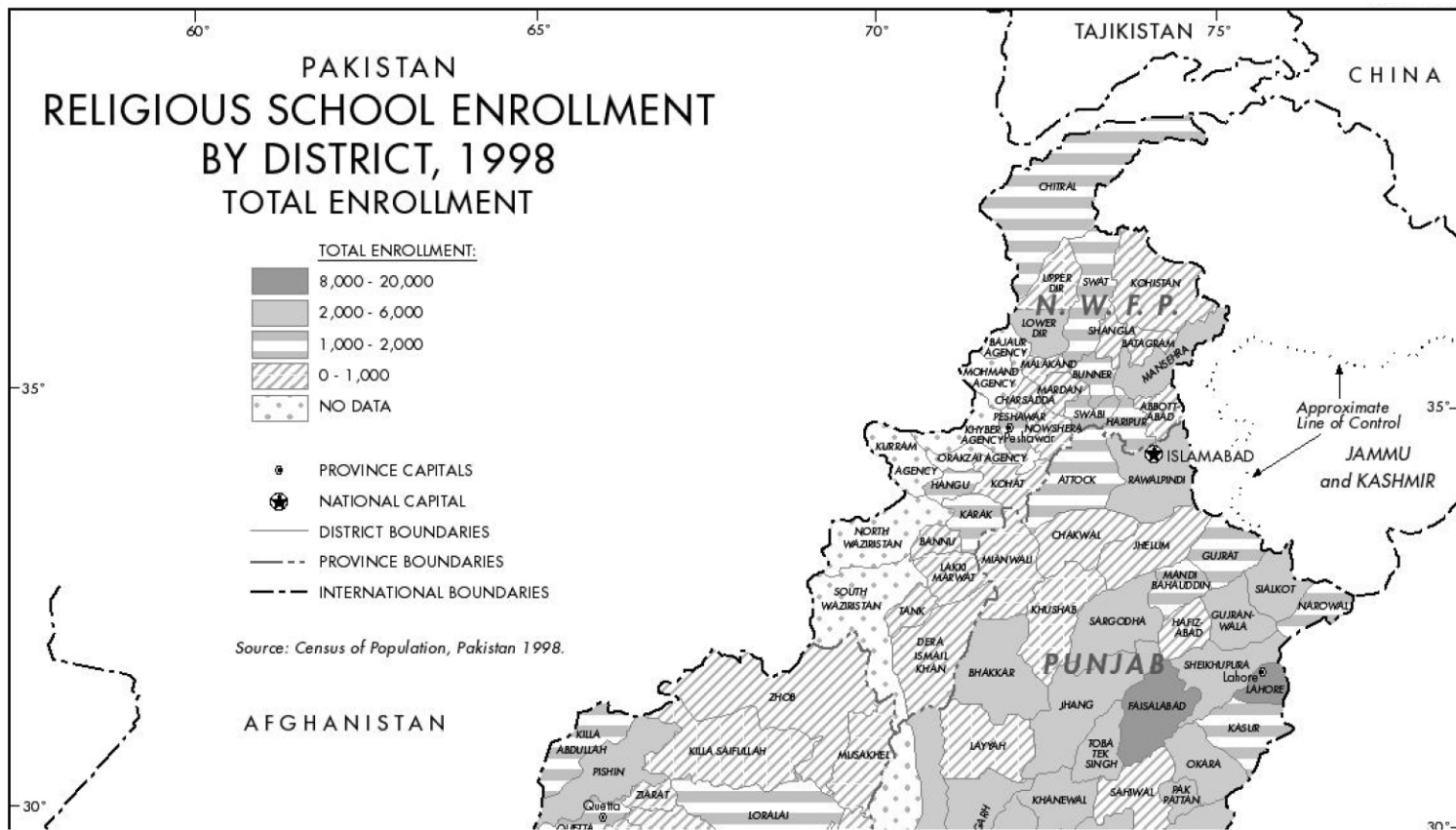
TABLE C1  
LEAPS MADRASA ENROLLMENT ESTIMATES

Estimate Definition	Madrasa as Fraction of Enrolled
Attock:	
Conservative	.0033
Moderate	.0070
Liberal	.0108
Faisalabad:	
Conservative	.0033
Moderate	.0069
Liberal	.0116
Rahim Yar Khan:	
Conservative	.0213
Moderate	.0367
Liberal	.0583
Total:	
Conservative	.0081
Moderate	.0148
Liberal	.0236

SOURCE.—LEAPS, 2003.

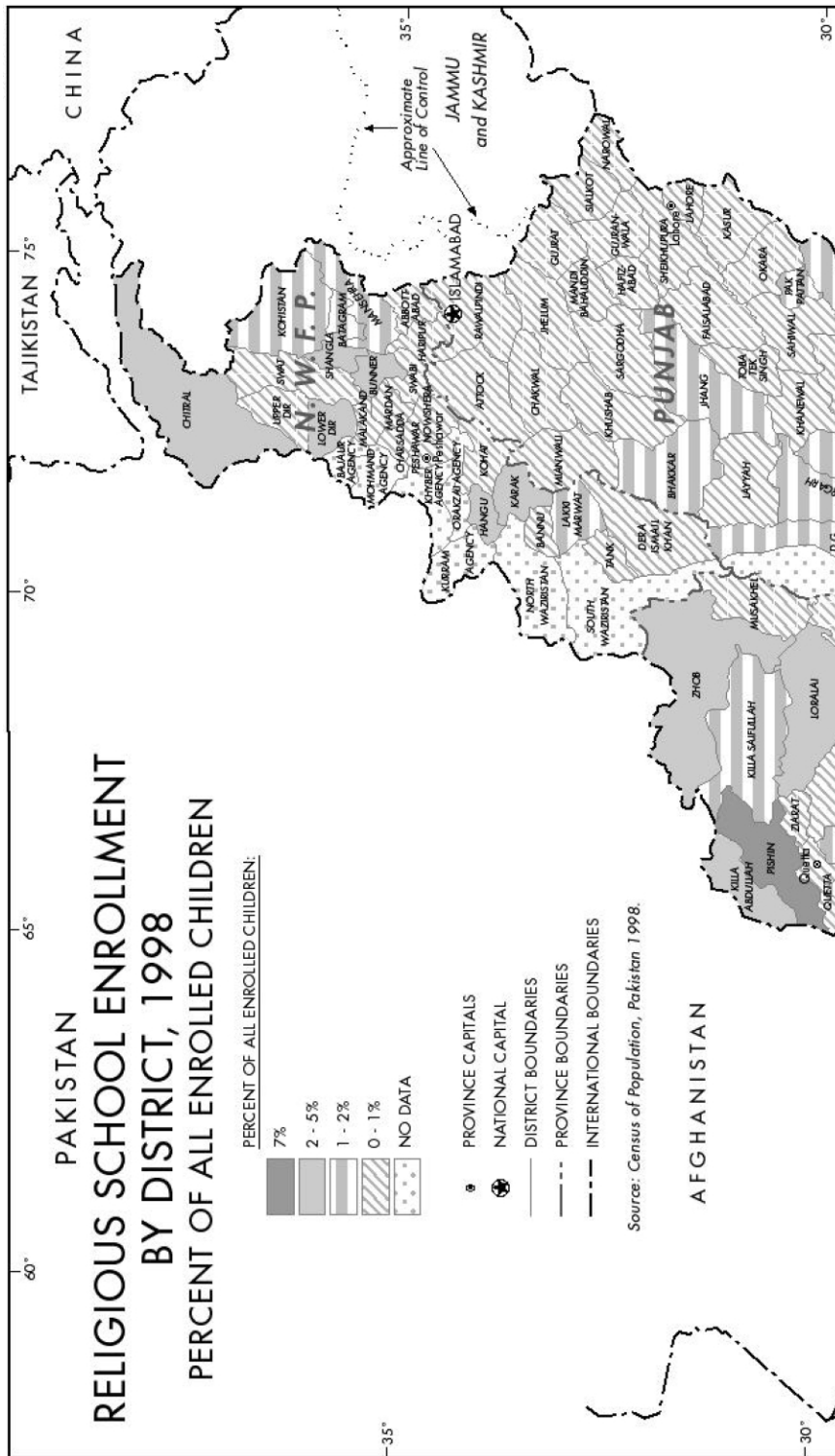
NOTE.—Madrasa enrollment can be determined from several variables in the LEAPS data set. Given data-entry and field errors, different estimates of madrasa enrollment can be obtained. Throughout this article, we use the moderate estimate. The conservative and liberal estimates should be viewed only as extreme lower and upper bounds.

Appendix D  
Maps



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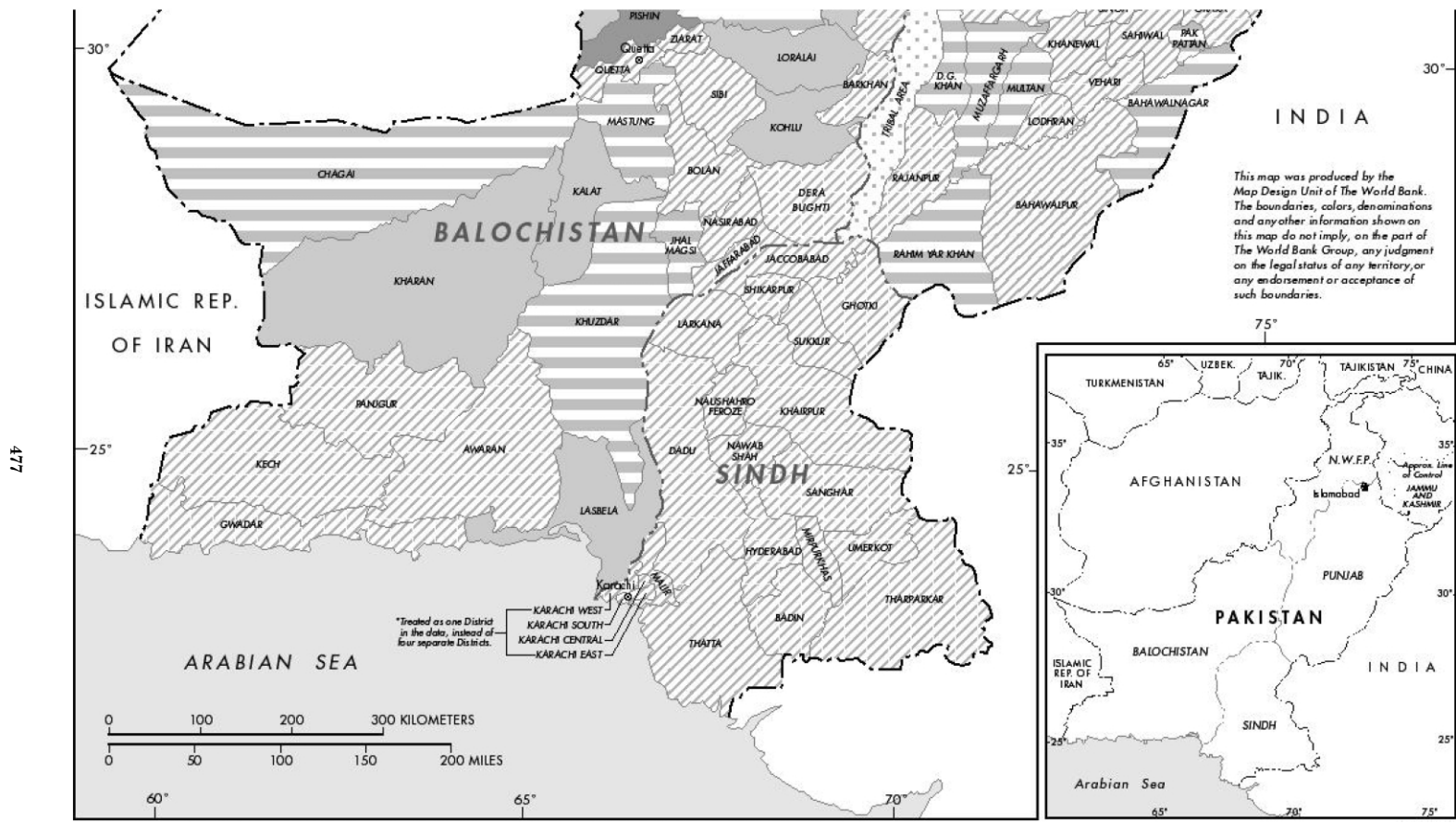


FIG. D2.—Percentage of children enrolled in religious schools, Pakistan, 1998. Source: 1998 Population Census. The percent of all enrolled children in religious schools is defined as the total number of children enrolled in religious schools divided by the total number of children enrolled in any school.