

Appendix B

Arkansas State Education Data

The Arkansas Department of Education is the primary source of education data for the state. The department oversees the provision of education services in over 1,100 schools organized into 310 districts.⁷ Information is collected on financial activity in each school district, on the characteristics of more than 33,000 teachers, and on the performance and demographics of over 400,000 students per year. Data collection and management have undergone restructuring in the recent past with improvements made to data accessibility, collection, and reporting.

Overview of Existing State Data

Three major databases are relevant for policy research studies focusing on instructional resources and student performance. Financial, staff, and student data are collected through the Arkansas Statewide Information System (SIS); staff certification information is compiled in the Arkansas Professional Licensure System (APLS); and student performance data are managed by the Arkansas Comprehensive Testing, Assessment, and Accountability Program (ACTAAP) (see Table AR1).

The Arkansas Statewide Information System (SIS) was implemented by the Arkansas Department of Education to manage data collection and reporting activities for school districts in the state. The Arkansas Statewide Information System is the data collection vehicle for financial, staff, and student information, and it also provides a computerized interface for schools and districts to access their data. This system resulted from legislation requiring a reduction in the amount of paper used for data reporting and the need for accurate and timely information for

⁷ Recent consolidation reduced the number of districts to 308 in 2003–2004 and to 254 in 2004–2005.

policymakers and school systems. Currently, the Arkansas Statewide Information System is managed by the Arkansas Public School Computer Network (APSCN) at the Arkansas Department of Education. Of interest to this study are the following Arkansas Statewide Information System data elements related to district finances and staff and student information:

1. Financial data are collected and reported by districts through the Arkansas Statewide Information System. Districts enter data into the system using variable categories aligned with the U.S. Census reporting system (F-33 form), including revenues by source and expenditures by function and object as listed in the Financial Analysis and Accountability Report (FAAR) template, which is located on the Arkansas Public School Computer Network (APSCN) Web site (<http://www.k12.ar.us/apscndocs/finrptcard.pdf>). Financial Analysis and Accountability Reports are generated for each district separately and can be downloaded as portable document format (.pdf) files at http://www.as-is.org/search/list_reports.html. The Public School Finance and Administration Unit at the Arkansas Department of Education provides technical assistance to school districts regarding financial reporting procedures and standards and maintains the *Arkansas School and Educational Service Cooperative Financial Accounting Manual*.

2. The Arkansas Statewide Information System is also the statewide student and staff information system for K–12 public education in Arkansas. School districts are asked to collect and submit detailed student and staff information for inclusion in the Arkansas Statewide Information System database. Data are collected on all public school students and on all certified and classified staff. Districts are required to submit student data on six of seven reporting periods starting on September 15 (Cycle 1) and ending on June 7 (Cycle 7). Staff data are reported on the second reporting period and financial data are reported on the first reporting period. School-level staff and student information can be accessed through a file transfer protocol site,

<ftp://165.29.215.34/>. All data are in Microsoft Access format. Arkansas Statewide Information System database variables are listed and defined in two handbooks, *Statewide Information System* and *Reporting and Statistical Database Schema*, which are updated annually by the Arkansas Department of Education and available by request.

The Professional Certification/Licensure Unit at the Arkansas Department of Education maintains the Arkansas Professional Licensure System (APLS), a database that contains certification information about each individual teacher and administrator in the state. Information in this database is collected from applications for licensure, teacher test results, and certifications granted to applicants. Documentation of the Arkansas Professional Licensure System data is limited and is available by request from the Professional Certification/Licensure Unit. Data on teacher and administrator licensure can be requested from the Professional Certification/Licensure Unit. A limited amount of these data are transferred to the Arkansas Statewide Information System and may be accessed in aggregated reports through a file transfer protocol site (<ftp://165.29.215.34/Certification/>) maintained by the Information and Technology Unit at the Arkansas Department of Education.

The Arkansas Department of Education Accountability Unit under the Arkansas Comprehensive Testing, Assessment, and Accountability Program oversees the state's student achievement testing (<http://arkedu.state.ar.us/actaap/index.htm>). The state administers multiple student achievement tests, including the Stanford Achievement Test⁸ norm-referenced exam, a criterion-referenced state benchmark exam, and end-of-course exams. Data are collected and compiled on all of these tests for all students that take the exam(s). School, district, and state performance data are publicly accessible through electronic report cards on the Arkansas School

⁸ The state norm-referenced test changed to the Iowa Test of Basic Skills in 2004.

Information Site (AS-IS), <http://www.as-is.org/>. The National Office of Rural Measurement and Evaluation Systems at the University of Arkansas, Fayetteville supports the management of student achievement test data through contract with the Arkansas Department of Education. This university department also provides reports and summaries of student performance data on their Web site (<http://normes.uark.edu/>).

Table AR1

Summary of Existing State Databases, Arkansas

Data Category	State Database	Managing Agency/Department
Instructional expenditures	Arkansas Statewide Information System (SIS)	Public School Finance and Administration Unit, Arkansas Department of Education
Staff characteristics	Arkansas Statewide Information System (SIS)	Arkansas Public School Computer Network (APSCN), Arkansas Department of Education
Student characteristics	Arkansas Statewide Information System (SIS)	Arkansas Public School Computer Network (APSCN), Arkansas Department of Education
Student performance	Student achievement data	Accountability Unit, Arkansas Department of Education
Teacher licensure	Arkansas Professional Licensure System (APLS)	Professional Certification/Licensure Unit, Arkansas Department of Education

Instructional Spending

Dollars spent for instructional purposes by school districts in Arkansas can be measured through two data sources. First, researchers can obtain financial data for each school district on spending in specific instructional areas. Second, researchers can request salary information on individual instructional staff members. These data sources are summarized in Table AR2 and described below.

Table AR2

Measures of Instructional Expenditures From District Financial Data, Arkansas

Fiscal Measure	Variables Available	Description	Unit of Analysis
Instruction-related expenditure functions	Instruction	Activities dealing directly with the interaction between teachers and students. Includes a breakdown of spending by program activity.	District
	Support services—students	Activities designed to assess and improve the well-being of students and to supplement the teaching process. Includes a breakdown of spending by service.	District
	Support services—instructional staff	Activities associated with assisting the instructional staff with the learning process.	District
	Support services—general administration	Activities concerned with establishing and administering district policy. Includes a breakdown of spending by administrative entity.	District
	Support services—school administration	Activities concerned with the administrative functions of a school. Includes spending for the office of the principal and other services.	District
Expenditure objects	Personal services—salaries	Compensation paid to permanent and temporary district employees, including substitutes.	District
	Personal services—employee benefits	Costs paid on behalf of employees that are not part of an employee's gross salary.	District
	Purchased professional and technical services	Services performed by persons with specific expertise in a specialized field.	District
	Purchased property services	Services purchased to operate, repair, maintain, and rent property owned or used by the district.	District
	Other purchased services	Contracted services not classified in other object categories.	District
	Supplies and materials	Expenditures for supplies and materials.	District
	Property	Expenditures for the acquisition of land, buildings, improvements, initial equipment, and replacement equipment.	District
	Other objects	Amounts paid for good and services not otherwise classified.	District

Staff salary data ^a	Salary	The contract amount paid to the employee.	Individual certified/ classified staff
	Source of salary	Fund code from which salary is paid <ul style="list-style-type: none"> • Teacher salary • Operating • Building • Federal • Activity • Food Service 	Individual certified/ classified staff
	Benefits	The cost of employee benefits.	Individual certified/ classified staff

^aBeginning in 2002–2003, salary information was linked to function and object financial categories and partial salary amounts were reported for specific program areas under which a teacher worked.

Instructional Expenditures. The financial reporting system in Arkansas uses two function categories pertaining to instructional expenditures: instruction and support services. The instruction function encompasses spending on activities dealing directly with teaching students and teacher–pupil interaction. This function is divided into six subfunctions composed of specific program areas: regular programs, special education programs, workforce education programs, adult/continuing education programs, compensatory education programs, and other instructional programs (such as music, English as a second language, and gifted and talented programs).

The support services function includes expenditures for services that provide administrative, technical, and logistical support to facilitate and enhance instruction and community services. The support services function is divided into four important subfunctions: (a) student, (b) instructional staff, (c) general administration, and (d) school administration. Neither the support services function nor the four subfunctions are divided into program categories as is done with the instruction function. The four subfunctions are defined as follows:

1. Student support services are defined as activities designed to assess and improve the welfare of students and supplement the teaching process. The student support services

subfunction is further divided into activity categories: student attendance, social work services, guidance services, counseling, health services, psychological services, speech pathology and audiology services, and physical and occupational therapy.

2. Instructional staff support services include activities associated with assisting the instructional staff with the learning process. This subfunction is further divided into curriculum supervision, educational media services, and other support services.

3. General administration support services, although not directly related to instruction, provide important data for comparative purposes for policy analysis. This subfunction is divided into expenditures for different administrative entities, including district board of education, office of the superintendent, and other administrative offices.

4. The school administration support services subfunction includes spending on activities concerned with the administrative functions of the school, including the office of the principal.

Object-level expenditures further describe the service or commodity obtained as a result of a specific expenditure. Eight object-level categories containing multiple subobject categories are used for financial reporting (see Table AR2). For example, the object-level category “personal services—salaries” is used for compensation paid to permanent and temporary employees of the district and also includes dollars spent for overtime, sabbatical, workshops, substitutes, and other expenses. “Personal services—employee benefits” includes costs paid on behalf of employees that are not included in the salary object. Expenditures on the district’s share of group insurance costs, teacher retirement contributions, tuition reimbursement, and other standard benefit categories (Medicare, Social Security, workers’ compensation, etc.) are included in this category. The remaining object-level expenditure categories are listed in Table AR2.

Individual Staff Salary Data. Aggregated expenditures on employee salaries and benefits are available using object-level categories in the financial data as described above. In addition, individual-level salary and benefits information for certified and classified staff are collected through the Arkansas Statewide Information System. Each staff record contains a total salary amount, an amount spent on benefits, and the source of revenue that funded the salary. As of 2002–2003, these data were also linked to function and object financial categories. Also beginning 2002–2003 data were organized so that partial salary information could be obtained based on the specific program area(s) in which the teacher provided services.

Data Usability. Researchers considered data on instructional spending from both the financial database and the Statewide Information System for their potential usefulness for policy research purposes (see Table AR3). Overall, the district-level data on instructional expenditures and the individual-level staff salary data are useful for conducting resource allocation research. The two sources of expenditure data provide both a district-level perspective of overall spending in instructional areas and individual-level information about salaries and benefits that could be aggregated for specific types of staff (e.g., teachers) and to the school or district. District expenditure data are easily accessed through the Arkansas Department of Education Web site, which provides reports in portable document format (.pdf) about each school district's spending for instructional function and objects. Documentation is contained in the Arkansas Financial Accounting Manual, available by request from the Arkansas Department of Education, and in the Arkansas Statewide Information System handbooks that are updated annually. District financial expenditure data have been collected using consistent variable categories over the study period, and function and object categories match those reported to the U.S. Census. This consistency supports the completeness of these data as well as accuracy because districts are familiar with

state reporting formats. Staff salary information is collected for all staff, whether certified or classified. The Arkansas Statewide Information System was implemented with the goal of further standardizing and increasing the accuracy of the collection of staff data. The structure of the Arkansas Statewide Information System also allows easy alignment of staff salary information with staff characteristics, job assignment, and location. The alignment of these data allows users to average salary expenditures across staff roles, programs, schools, and districts.

Data that measure instructional expenditures in Arkansas are not without challenges. Access to individual-level data from the Statewide Information System is limited to requests from the Arkansas Department of Education, whose staff have limited time and few standard procedures for providing data to outside users. Individual staff data are organized using staff Social Security numbers as a unique identifier, making confidentiality of these data an obstacle to data requests. Also hampering the availability of these data are the multiple departments within the Arkansas Department of Education that oversee data collection and compilation. Arkansas Statewide Information System data are primarily managed by the Information and Technology Unit; however, portions are maintained by the Arkansas Public School Computer Network, which previously was a different entity from the Arkansas Department of Education and is now under the purview of that department. Oversight for financial data collected by the Arkansas Statewide Information System is conducted by the Public School Finance and Administration Unit at the Arkansas Department of Education. Potential data users must understand the complexity of these relationships if data are to be accessed effectively. For example, data on individual staff benefits are collected from districts but are not reported in Arkansas Statewide Information System documentation. Therefore, in the case of this study, discussions with staff at the Arkansas Public School Computer Network were necessary to

understand these data. One important change in the collection of staff salary data had implications for the accuracy and consistency of these data. Beginning in 2002–2003, the state began collecting additional staff information on the portion of a staff’s salary paid for work in specific program areas (partial salary variable). The state also redefined the total salary variable to measure the actual rather than contracted salary amount. Individual salary information was also linked to function and object expenditure codes from the financial data system. Although these changes created greater flexibility of use for these data and more refined and valid measures of individual salaries, these data were also problematic, as districts seem to be adjusting to new collection formats.

Table AR3

Strengths and Challenges of Instructional Expenditure Data That Affect Their Use for Policy Research, Arkansas

Criterion	Strengths	Challenges
Availability and accessibility	<ul style="list-style-type: none"> Data are available from two sources: district-level financial data and individual-level spending on staff salaries and benefits. Financial data reports are posted on the Arkansas Department of Education Web site and can be requested from that agency. Data documentation is available by request; some is posted to the Arkansas Department of Education Web site. 	<ul style="list-style-type: none"> Individual staff salary data are only available by request and must be stripped of identification number (SSN). Oversight for different databases is divided among different units within the Arkansas Department of Education. Not all available fiscal data are reported in Arkansas Statewide Information System documentation.
Completeness	<ul style="list-style-type: none"> District financial data are available for all districts and all years of the study period. Staff salary data are collected for all certified and classified staff. 	
Accuracy	<ul style="list-style-type: none"> The consistency of the financial data structure supports greater accuracy of data collection from school districts. The development of the Arkansas Statewide Information System has increased attention on accuracy and standard procedures. 	<ul style="list-style-type: none"> Changes in reporting for individual staff salaries have not been fully integrated by district reporting.
Consistency	<ul style="list-style-type: none"> Financial function and object categories are aligned to federal reporting categories and have not changed during the study period. 	<ul style="list-style-type: none"> Individual-level staff salary data changed in 2002–2003 so that partial salaries based on program codes could be determined. These data also were linked to financial function and object expenditure categories, making the total salary an actual rather than contracted amount.
Alignment	<ul style="list-style-type: none"> Individual staff salary data can be aligned with other staff characteristics. Staff salary data can be averaged across staff roles, schools, and districts. 	<ul style="list-style-type: none"> Financial data and individual staff salary data have been recently aligned with function and object codes, and the accuracy of this alignment is not certain.

Staff Characteristics

Information about staff characteristics is collected at the individual level in the Arkansas Statewide Information System. These data are collected at the October 15 reporting period each

school year. Demographic characteristics, qualifications, job assignment, and salaries (see previous discussion) are collected for all certified and classified staff positions. Additionally, the Professional Certification/Licensure Unit at the Arkansas Department of Education collects individual-level certification information on teachers and administrators (see Table AR4).

Table AR4

Staff Characteristics Available in State Databases, Arkansas

Staff Characteristic	Variables Available	Unit of Analysis	Source
Job code	Each job assignment performed by a staff person (multiple assignments per individual possible)	Individual	Arkansas Statewide Information System
Location	School and district to which the staff person is assigned	Individual	Arkansas Statewide Information System
Experience (classified staff)	Total years of experience in and out of state	Individual	Arkansas Statewide Information System
	Years experience in current district	Individual	Arkansas Statewide Information System
	Date hired by district	Individual	Arkansas Statewide Information System
Education (teachers)	Lowest degree earned	Individual	Arkansas Professional Licensure System
	Lowest degree institution	Individual	Arkansas Professional Licensure System
	Highest degree earned	Individual	Arkansas Professional Licensure System
	Highest degree institution	Individual	Arkansas Professional Licensure System
	Professional development hours	Individual	Arkansas Statewide Information System
Demographics	Gender	Individual	Arkansas Statewide Information System
	Race/ethnicity	Individual	Arkansas Statewide Information System
	Birth date	Individual	Arkansas Statewide Information System

Certification (teachers)	Subject area of license	Individual	Arkansas Professional Licensure System
	Grade level (lowest and highest grade) of license	Individual	Arkansas Professional Licensure System
	Application type	Individual	Arkansas Professional Licensure System
	Licensure effective date	Individual	Arkansas Professional Licensure System
	Licensure expiration date	Individual	Arkansas Professional Licensure System
	Non-traditional licensure	Individual	Arkansas Professional Licensure System
	National board certification	Individual	Arkansas Professional Licensure System
Grade	Lowest grade level taught for each job assigned	Individual	Arkansas Statewide Information System
	Highest grade level taught for each job assigned	Individual	Arkansas Statewide Information System

Counts and Ratios. Staff counts and ratios can be calculated from individual data in the Arkansas Statewide Information System database (see Table AR5). Head counts can be created for staff and grouped by job codes, schools, districts, qualifications, or demographic characteristics. Full-time equivalency (FTE) counts are not available in Arkansas staff data; although a variable exists for this information in the staff database, these data are not complete. Researchers can calculate a pupil:teacher ratio using student enrollment information and an aggregate of the classroom teachers listed in the Arkansas Statewide Information System. State databases do not contain actual class size information. Staff ratios such as teacher:administrator or pupil:administrator can also be calculated using aggregated head counts from the Arkansas Statewide Information System data.

Table AR5

Student and Staff Counts and Ratios, Arkansas

Count/Ratio Measure	Data Available	Unit of Analysis	Source
Head counts of staff in specific roles (teacher, principal, etc.) and with specific characteristics (see Table AR4)	Can be calculated from existing data	Job code School District Demographic subgroups	Arkansas Statewide Information System
Class size	N/A	N/A	N/A
Other ratios: • pupil:teacher • pupil:administrator • teacher:administrator	Can be calculated from existing data	School District	Arkansas Statewide Information System

Data Usability. As summarized in Table AR6, data on staff characteristics are useful in many ways for policy research purposes but also contain some limitations for these purposes. These data are collected on an individual level, creating flexibility for researchers to create aggregated data on a number of categories, such as school, district, and demographic characteristics, and to create student and staff ratios for schools and districts. Information on those staff with the job code of classroom teacher, for example, can be isolated for research purposes. The most important data usability challenge concerns accessibility of staff data for use by outside researchers. As presented in the discussion of staff salary data, state, district, and school summaries of staff information are available on the Arkansas Department of Education Web site, but individual-level data must be requested directly from the Arkansas Department of Education. Arkansas Department of Education data managers have limited time to respond to these requests, and few established procedures for providing raw data for outside users exist. Also, since the unique identifier for staff in the Arkansas Statewide Information System database is the individual's Social Security number, data must be merged with other data if necessary and then stripped of identifiers before they can be sent to outside users. Another concern regarding

data usability is that teacher certification data are compiled from a different source and using different procedures than the Arkansas Statewide Information System. Data on the same individuals originate from two streams of data collection using different procedures, creating greater possibility of misaligned data on teachers. Additionally, licensure data are collected using a cumulative process in which updates are made to teacher information without annual archives. Researchers must rely on the certification issue date and expiration date of each staff in order to create a subset of active, certified staff for a given study period. Data managers at the Arkansas Department of Education explained that some teacher certification variables are unreliable. Years of experience data suffer from unreliable data collection practices, and data on national board certification are highly suspect for errors. Finally, although head counts of staff can be calculated, full-time equivalency (FTE) counts of specific staff categories cannot be calculated with existing data. A variable for full-time equivalency (FTE) count for certified staff does exist; however, the data are incomplete and cannot be used to estimate staff counts.

Table AR6

Strengths and Challenges of Staff Data That Affect Their Use for Policy Research, Arkansas

Criterion	Strengths	Challenges
Availability and accessibility	<ul style="list-style-type: none"> Individual-level staff characteristics are collected with ability to aggregate data up to school or district levels. Data documentation for the Arkansas Statewide Information System is updated annually. 	<ul style="list-style-type: none"> Individual-level staff data are not publicly available and must be obtained by special request from the Arkansas Department of Education staff, who must strip or scramble the unique identifier (Social Security number).
Completeness	<ul style="list-style-type: none"> Staff data are collected for certified and classified staff for all schools and all years of the study period. 	<ul style="list-style-type: none"> Full-time equivalency (FTE) counts of staff categories cannot be determined due to incomplete data.
Accuracy		<ul style="list-style-type: none"> Accuracy of certain variables of interest is suspect (e.g., years of experience and national board certification).
Consistency	<ul style="list-style-type: none"> Data collection documentation provides clear instructions with helpful examples for the user. 	
Alignment	<ul style="list-style-type: none"> Staff characteristics can be linked to salary data and licensure data. 	<ul style="list-style-type: none"> Teacher data are a combination of two data collection efforts: staff characteristics and teacher certification. The cumulative process used to keep the licensure database updated creates the potential for misaligned data.

Student Performance

The state of Arkansas uses multiple tests for measuring student performance: norm-referenced tests, criterion-referenced tests, and end-of-course exams (see Table AR7). Student performance is gauged at the school and district level and is the basis for the school report cards.

Norm-Referenced Tests. Arkansas has traditionally relied on norm-referenced student achievement tests to track performance of students. The Stanford Achievement Test (SAT), 9th edition, has been in place since 1996 for grades 5, 7, and 10. The state reports percentiles for the complete battery and disaggregated data for math, reading, language arts, and other subject areas.

Criterion-Referenced Tests. Based on 1999 state legislation, the criterion-referenced state benchmark tests were introduced gradually for grades 4, 6, and 8 in reading, writing, and math. Since 2001–2002 all three grade levels have been tested. Data are reported in scale and raw scores.

End-of-Course Exams. End-of-course exams in algebra, geometry, and literacy are administered after course completion. There is no high school exit exam currently in place in Arkansas.

State Accountability Ranking. Arkansas currently does not rank all of its schools and districts for accountability purposes. The state does, however, identify those schools that are in academic distress based on district performance on standardized tests, dropout and attendance rates, teacher quality, professional development hours, and school safety. Three levels of academic distress are used (Phases 1, 2, and 3). Also, performance categories are used to rank students based on their student achievement scores (advanced, proficient, basic, below basic), and these ranks are aggregated to the school and district level.

Table AR7

Student Performance Tests, Arkansas

Test	Type	Scoring	Grades	Subject Areas	Notes
State Benchmark tests	Criterion-referenced	Scale score, raw score	4, 6, 8	Math, reading, writing	Fourth grade was added in 1999, eighth grade in 2000, and sixth grade in 2001
Stanford Achievement Test, 9th edition	Norm-referenced	Percentile rank	5, 7, 10	Complete battery: reading, math, language, social science, listening, using useful information, etc.	Switched from fall to spring testing in 2002–2003
End-of-course exam	End-of-course		At course completion	Algebra, geometry, literacy	No exit exam is used in Arkansas.

Data Usability Issues. Norm-referenced student testing in Arkansas has stayed relatively consistent over time and has included multiple grades (5, 7, and 10) for all the years considered in this study (1999–2003). The criterion-referenced benchmark tests, however, have been introduced step by step between 1999 and 2001. These data allow researchers to track the performance of an individual student from year to year. However, a growth score can only be calculated for every other year. The content of the criterion-referenced tests has also been modified over time. This means that longitudinal analysis of performance of student cohort groups can only be performed in a limited way. These data are fairly accessible for researchers in aggregate reports. State-, district-, and school-level summaries of student performance are published on the Arkansas School Information Site. Individual-level student data, however, are not publicly available and must be obtained through special request from the Arkansas Department of Education.

Table AR8

Strengths and Challenges of Student Performance Data That Affect Their Use for Policy Research, Arkansas

Criterion	Strengths	Challenges
Availability and accessibility	<ul style="list-style-type: none"> School- and district-level performance data (percentage of students at four proficiency levels) are posted on the Arkansas Department of Education Web site. 	<ul style="list-style-type: none"> Student level data and disaggregated score formats (raw score, scale score) must be obtained by special request from the Arkansas Department of Education. School and district performance data cannot be downloaded in a single file from the Arkansas Department of Education Web site.
Completeness	<ul style="list-style-type: none"> Student performance data can be requested from the Arkansas Department of Education on all test takers and also on subgroups (high-poverty, high-minority, special education, limited English proficient). 	<ul style="list-style-type: none"> Test scores are available for a limited number of years (grades 4, 6, and 8 for the state benchmark test; grades 5, 7, and 10 for the Stanford Achievement Test).
Accuracy		<ul style="list-style-type: none"> Data available on the Arkansas Department of Education Web site are limited to percentage of students at four proficiency levels, limiting the full range of variability in test results for research purposes.
Consistency	<ul style="list-style-type: none"> Stanford Achievement Test results provide a consistent span of test years and grades tested. 	<ul style="list-style-type: none"> State benchmark tests were added between 1999 and 2001 (grade 4 in 1999, grade 8 in 2000, grade 6 in 2001); test content also was modified during these years.
Alignment	<ul style="list-style-type: none"> Demographic and programmatic information about test takers can be matched with test results. 	<ul style="list-style-type: none"> Recent addition of grades 6 and 8 state benchmark exams limit longitudinal comparisons.

Student, School, and District Characteristics

Student Characteristics. Arkansas school districts compile information on individual students and report these data to the Arkansas Statewide Information System. Most student data are reported on six of the seven state reporting periods, starting October 15. The student characteristics that are contained in the Arkansas Statewide Information System and of interest for this study are listed in Table AR9.

Table AR9

Data Available in State Education Databases on Student Characteristics, Arkansas

Student Characteristic	Variables Available	Source	Unit of Analysis
Socioeconomic status	Free and reduced-price lunch program participation	Arkansas Statewide Information System	Individual
Race/ethnicity	Ethnicity	Arkansas Statewide Information System	Individual
Grade	Grade	Arkansas Statewide Information System	Individual
Gender	Gender	Arkansas Statewide Information System	Individual
Program participation	<ul style="list-style-type: none"> • Special education • Limited English proficient (LEP) • Migrant • Mobile • Title I 	Arkansas Statewide Information System	Individual

School and District Characteristics. Student characteristics can be aggregated to the school and district levels, creating important demographic characteristics. The characteristics of interest to policy researchers are listed in Table AR10 with the sources of data for each characteristic. Overall, most important characteristics can be viewed and exported from data in the Statewide Information System. Characteristics that are measured only at the district level include district wealth, which is measured as the sum of residential and nonresidential property assessment in the district, and the district tax rate, which is the amount of revenues available from local taxes (including residential and nonresidential).

Table AR10

Data Sources for School and District Characteristics, Arkansas

Characteristic	Data Sources	
	School	District
School type	Arkansas Statewide Information System	N/A
School/district size	Arkansas Statewide Information System	
School level	Arkansas Statewide Information System	N/A
Locale	U.S. Census Bureau 2000 Census	
Attendance rate	Arkansas Statewide Information System	
Dropout rate	Arkansas Statewide Information System	
Per pupil expenditures	N/A	Calculation of expenditure and enrollment data
Average class size	N/A (pupil:teacher ratio can be calculated)	
Number of teachers	Arkansas Statewide Information System	
District wealth	N/A	Arkansas Statewide Information System

Community Characteristics. Education databases do not contain information about characteristics of the community within which a school and/or district is located. Census information provides a number of relevant indicators for community well-being, including family income, parent education levels, and receipt of public assistance.

Summary of Findings

Arkansas state education data allow investigation of instructional resources and student performance. Instructional spending measures include both district-level fiscal expenditures that can be broken down to subfunction and object-level spending and to individual-level spending on staff salaries and benefits. Staff data also include demographic characteristics and qualifications such as years of experience and highest degree. Staff data also are coded with identifiers that allow researchers to create subgroups of teachers, administrators, and other distinct staff categories. The Arkansas Professional Licensure System collects additional data on certified staff, including certification information. These monetary and staff measures can be

aligned with student performance data. Student performance data include scores from criterion-referenced and norm-referenced exams. Including student, school, and district characteristics that are collected and housed by state education databases can enhance research using these data.

Alignment. One feature of state education data in Arkansas is the way in which these data are divided so that management of different types of data is conducted by various departments within the Arkansas Department of Education. Researchers would need to depend heavily on their ability to find mutual identifiers that can bridge the data between two or more databases. Alternatively, researchers could work closely with staff at the Arkansas Department of Education who are knowledgeable of the data and could merge the data on the variables of interest. Also related to the division of education data among different departments in the Arkansas Department of Education is the way in which teacher certification data are collected and managed. The Professional Licensure Unit collects and maintains certification data that can be aligned with staff data from the Arkansas Statewide Information System using a matching unique identifier (Social Security number). However, the licensure database is updated continuously, without year-to-year archives, so it is much more difficult to align existing staff with their certification status. Researchers must rely on accurate issue dates and expiration dates of certifications in order to construct the certification information for a given staff person in a given year.

Of greatest concern for researchers regarding the alignment of these data is that financial, staff, and student performance data have been improved and therefore changed in the 5-year study period. Financial categories are now attached to individual staff salaries. Beginning in 2002–2003 staff data were restructured so that individual staff roles were identified and recorded, and partial salary information was collected based on the percentage of effort that staff

dedicated to different positions. Regarding student performance data, the criterion-referenced exam was phased in over a number of years, limiting researchers' ability to measure longitudinal performance on this exam.

Accessibility. Data access has increased during the study period, and the Arkansas Department of Education has developed interactive Web reporting of school data, a file transfer protocol (FTP) site that can be used to download school-level staff and student data, and online financial reports for all school districts. Arkansas Department of Education staff can respond to requests for data by outside users. However, the agency lacks staff dedicated to the role of supporting outside data users. Although data managers and staff are responsive to outside data requests, these requests must be filled in addition to the regular workload of agency staff and often take time and periodic reminders by the requesting party.

Usability. Instructional spending data collected and organized in Arkansas education databases are useful for policy research. Financial expenditures are organized into categories that match those used by federal fiscal data reports (Common Core of Data). These data also are divided into more refined categories than available at the federal level. For the category of instruction, for example, spending can be determined for a range of program areas (regular education, special education, etc.). Individual staff salary data are linked to fiscal function categories and also provide a measure for employee benefits. Other individual staff data are collected in state education databases. These data can be used to identify individuals with different staff positions, and a range of demographic and other characteristics can be attributed to these individuals. Information about individuals with multiple positions is also collected; these data can be linked to partial salary amounts as well.

Challenges also exist for researchers using data on resources and student performance. Improvements in the data collection of staff salaries and characteristics in 2002 created the likelihood that districts did not report their information consistently. Data managers identified a few variables related to this change for which districts are not yet reporting accurate data (staff full-time equivalency, years of experience). Although staff years of experience data contain errors, these data can be used for research purposes; data users may choose to compare multiple years of these data to identify and correct obvious errors. The full-time equivalency of staff position variable is not usable for research purposes because most of this information is incomplete. The completeness and validity of these data may improve over time as districts become more familiar with changes in the reporting system. Also, state education databases currently do not collect information on class size. An estimate of the pupil:teacher ratio can be calculated using teacher head counts and student enrollment. However, this calculation cannot account for variations in classroom structure, teachers teaching multiple classes, teachers that do not work in the classroom, and other sources of miscalculating an accurate pupil:teacher ratio.