School District Performance in the State of Massachusetts

Current Performance:
Analysis of the 2008 MCAS Test Scores

Overview

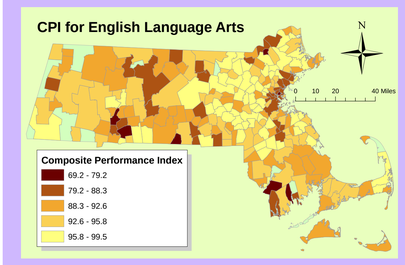
The Massachusetts Comprehensive Assessment System (MCAS) is the current system used by the state of Massachusetts to assess how school districts are meeting curriculum standards. The MCAS tests all students, including those with disabilities and limited English proficiency. These test scores are then analyzed for every school district in the state. The MCAS tests focus on three subject areas, English Language Arts (ELA), Mathematics, and Science. Students are tested at grades 3 through 8 and then again in grade ten. Tenth grade students are required to pass the English Language Arts and Mathematics tests to graduate.

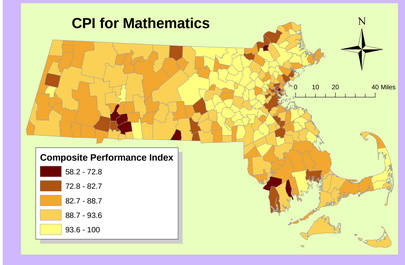
Methodology

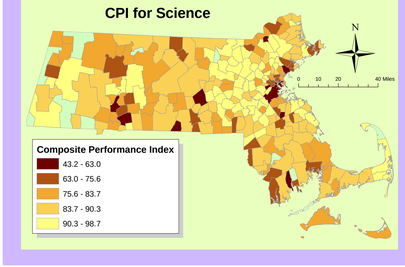
The Composite Performance Index (CPI) is a measure of how students are progressing in a subject area by district. This 100 point index is calculated by combining MCAS scores of students in a district.

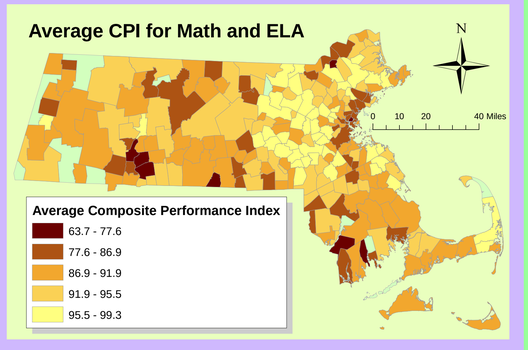
The following maps show tenth grade test scores for school districts across the state of Massachusetts. Tenth grade test scores were used because high school is an important time in determining how overall education will affect the rest of these students' lives. Tenth grade students have a greater incentive to do well on the MCAS tests as it is a requirement for graduation.

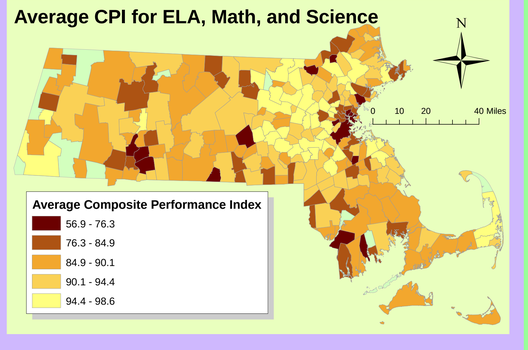
The top map shows the Average CPI for Math and English Language Arts by district. The bottom map shows the Average CPI for all three subjects included in the MCAS tests by district.











Risk Assessment:
Factors that May Affect School District Performance

Overview

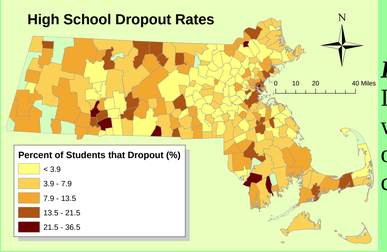
There are many factors that have the potential to affect school district performance and the quality education that a school district can provide. Many of these factors have to do with resource allocation, environment outside of school, and the quality of teachers. The Massachusetts Department of Education has made statistics on factors that could potentially contribute to education inequality available by school district

Methodology

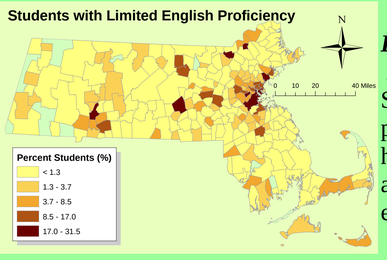
The following maps were created by joining Excel tables found online from the Massachusetts Department of Education with a School Districts Layer from the 2000 Census in ArcMap. Classes were then created to show spatial differences between districts for each category examined.

Further Research

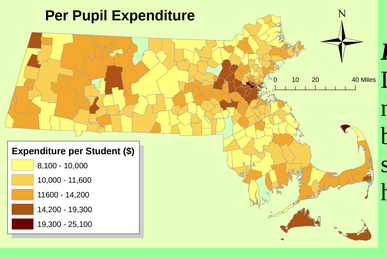
This data shows the spatial distribution of factors that may affect quality of education. Further research could compile this data into one map of at risk school districts. This would be done by determining the significance of each risk factors through research and then creating a weighted sum of these factors to create a final map of risk factors by school district.



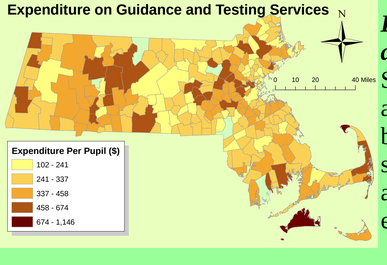
High School Dropout Rates: Indicates that students, for whatever reason, are unable or not encouraged to complete high school



Limited English Proficiency: Students with limited English proficiency may require extra help and more personal attention to get a quality education.

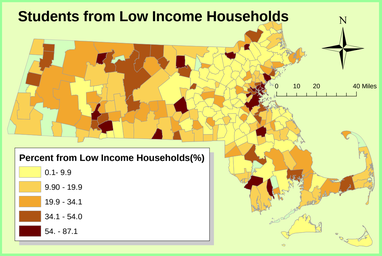


Per Pupil Expenditure: Districts that can spend more money on their students may be able to provide their students with more and higher quality services.

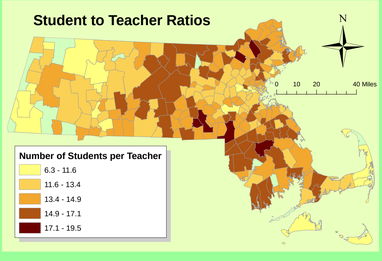


Expenditure on Guidance and Testing Services: Students who have greater access to these services may be able to get more help in school and more help achieving a higher level of education

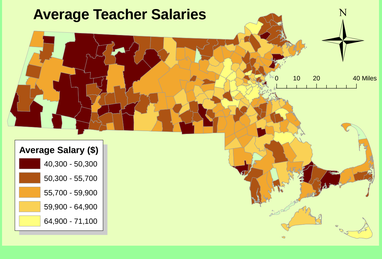
Low Income: Low income families cannot provide as much financial support, and parents in this category work more than one job or are single parents, and have less time to spend with their children.



Student Teacher Ratios: The more students per teacher, the less personal attention each student will receive.



Teacher Salaries: Districts that can offer teachers higher salaries will be able to hire high quality teachers.



Cartographer: Elsa Head
Course: Intro GIS ENV 193

Date: May 6, 2008
Data Sources: MassGIS,- Census 2000 Data, Massachusetts Department of Elementary and Secondary Education 2008.
Projection: NAD 1983 State Plane Massachusetts Mainland FIPS 2001