

Enrollment Trends in Massachusetts An Update

No. 91
October
2012

A Pioneer Institute White Paper

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PIONEER INSTITUTE
PUBLIC POLICY RESEARCH


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Executive Summary

Since 2003, enrollment in public schools in Massachusetts has fallen by 35,000 students, or 4%. The decline has occurred even while enrollment in the rest of the country has increased. The early years of this enrollment decline were documented in a Pioneer Institute report in 2008.

Massachusetts is losing students for two related reasons: the population is not growing very quickly due to people moving out of the state, and the population is old and getting older with a relatively small number of children born each year.

While the enrollment decline has continued, some of the trends have changed in recent years. In 2008, the drop in enrollment was concentrated in western Massachusetts and the Cape, but since 2008 the decline has spread to other areas. From 2003 to 2008 large urban districts shrank more than twice as fast as other districts, but in the past four years their enrollment is relatively flat while other areas have shrinking enrollment. Charter school enrollment has continued to rise over the past four years, although the growth has fallen as the pace of new school openings slowed.

The decline started in 2004, and projections from the Department of Elementary and Secondary Education suggest that it is likely to continue. By 2020, the state could lose another 30,000 students – doubling the loss to date.

Introduction

In September of 2008, the Pioneer Institute released a report – *Enrollment Trends in Massachusetts*. The report documented a widespread and significant drop in enrollment that had begun in 2004. It also discussed the causes for the decline, how enrollment trends varied in different regions of the state, and how enrollment at charter schools had changed. This paper updates that report to explore what has happened to enrollment trends in the four years since.

Overall Trends in Enrollment

As documented in the original report, during the 1990s enrollment in public elementary and secondary schools across the country grew by 15 percent (see Figure 1) as the children of the Baby-boomers moved through school (this generation is sometimes referred to as “Generation Y” or the “Millenials”). In Massachusetts enrollment grew slightly faster than it did in the rest of the country – from 819,000 in 1990 to 952,000 in 2000, an increase of more than 16 percent.¹

Since 2000, enrollment growth in the country slowed but continued at about 0.4% per year, but in Massachusetts enrollment started to drop as the wave of students moved through. Public school enrollment peaked in 2003, and since then it fell by roughly 35,000 students or 0.4% per year (Figure 2).

The enrollment decline is not limited to public schools; it is even more pronounced at private schools. Private enrollment fell from 134,000 to 118,000 between 2003 and 2010, a decline of almost 2% per year.

There is reason to believe that the enrollment decline will continue; Department of Elementary and Secondary Education (DESE)

Figure 1: Long Run Trends in Public K-12 Enrollment in US and Massachusetts

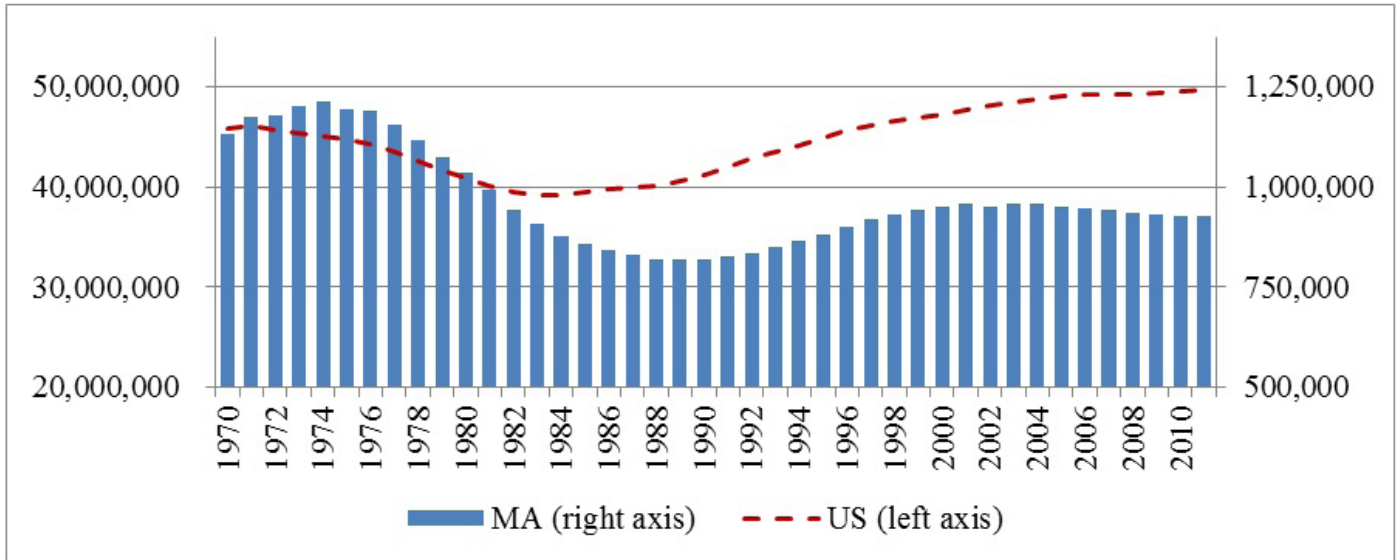
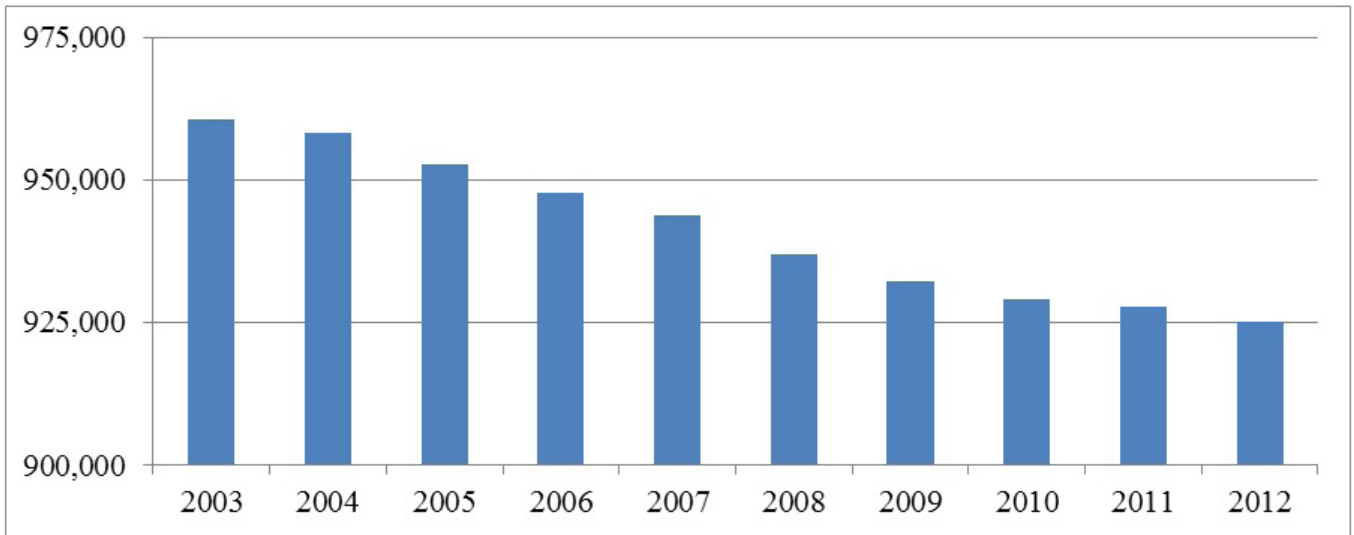


Figure 2: Public K-12 Enrollment in Massachusetts Since 2003



projections indicate that total enrollment will decline by another 35,000 students before 2020. The projected decline in enrollment is slightly less severe than DESE forecast a few years ago, but it is still noteworthy.

Why is Massachusetts Different than the U.S.?

There are several interrelated reasons why enrollment growth is lower in Massachusetts than in the rest of the country. The most important is that the population in Massachusetts is growing relatively slowly.

The relatively slow growth of Massachusetts was already apparent when *Enrollment*

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Trends in Massachusetts was published, and it has continued in the years since. As Table 1 shows, in the early 2000s the US population grew about three times as fast as the population in Massachusetts.² Since then, the gap has gotten smaller but Massachusetts again lagged as the 39th fastest growing state.

While the population is not growing as quickly as in other states, Massachusetts has fewer young residents than other states (see Figure 3).³ This was already true ten years ago, but it became more pronounced during the past decade. In the early 2000s, the portion of the population younger than 18 in

Table 1: Annual Population Growth Since 2000, Massachusetts and US

	2000 to 2008	2008 to 2011	2000 to 2011
US	1.0%	0.8%	0.9%
Massachusetts	0.3%	0.5%	0.3%
Difference	0.7%	0.4%	0.6%
Massachusetts' rank	42	39	42

In total from 2000 to 2011, the population of the United States grew a total of 7% more than the population in Massachusetts (which grew slower than all but eight other states). If the population of Massachusetts had grown at the same rate as in other states, the overall population would be 440,000 higher and the schools would have roughly 60,000 more students.

The data above bring up another question – why is the population of Massachusetts growing so slowly? Two factors contribute to the slow growth: migration out of the state and the low number of children born each year. While a large number of people move to Massachusetts from foreign countries, even more people leave Massachusetts to move to other states. Massachusetts ranked 8th in the country for international migration as a share of the population from 2000 to 2011, but at the same time it had the 6th highest percentage of its population move away. The net result is a decline in population. In addition to the out-migration, Massachusetts also has a relatively low number of births each year.

Massachusetts was two percentage points less than in the rest of the country. By 2011 23.7% of the country's population was younger than 18 and the comparable figure was 21.3% in Massachusetts – the gap had grown by four tenths of a point. This increase may not seem large, but it reduced the number of school-aged children by almost 20,000.

Details of the Decline

While overall public school enrollment has declined by more than four percent from 2003 to 2012, the changes vary dramatically across the state. The districts with the largest declines in enrollment and fastest growth are listed in Table 2 and Table 3.⁴

Even if smaller districts are ignored, many districts lost more than 25% of their students in just a decade. The biggest losses were in western Massachusetts and the Cape, although the pattern has changed in recent years as will be discussed below. At the same time, many districts and vocational schools have been growing quickly.

Figure 3: Percentage of Population Under 18 Years Old, Massachusetts and US, 2000 to 2011

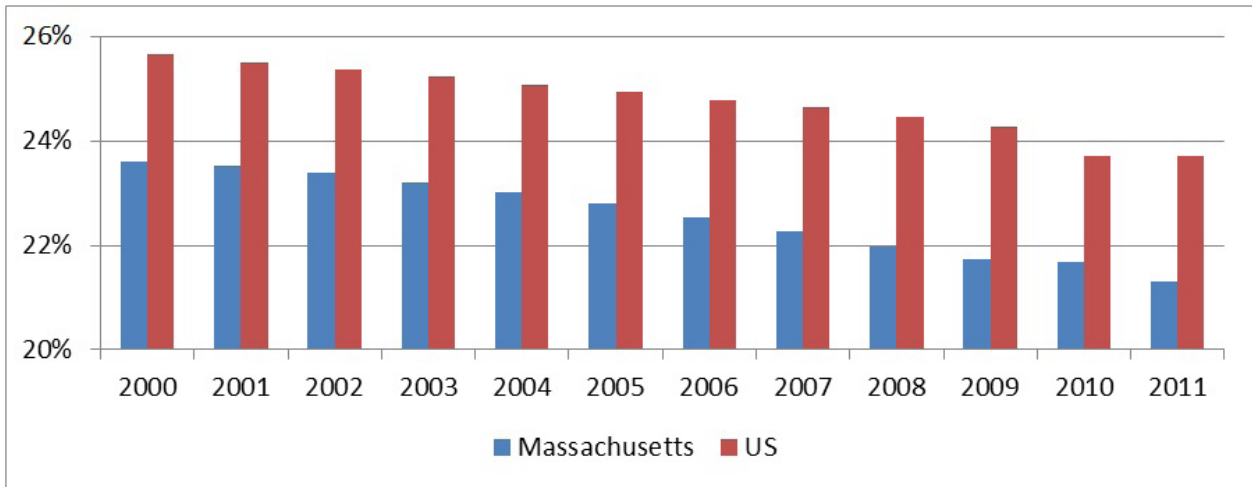


Table 2: Districts with Largest Declines in Enrollment, 2003 to 2012

District	County	Enrollment		Decline	% Change
		2003	2012		
Provincetown	Barnstable	267	77	-190	-71%
Sunderland	Franklin	257	152	-105	-41%
Granville	Hampden	233	146	-87	-37%
Barnstable	Barnstable	6161	4042	-2119	-34%
Mohawk Trail	Franklin	1510	993	-517	-34%
Athol-Royalston	Worcester	2184	1476	-708	-32%
North Brookfield	Worcester	810	552	-258	-32%
North Adams	Berkshire	2068	1433	-635	-31%
Gill-Montague	Franklin	1383	980	-403	-29%
Dennis-Yarmouth	Barnstable	4248	3025	-1223	-29%
Savoy	Berkshire	42	30	-12	-29%
Williamsburg	Hampshire	199	143	-56	-28%

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Table 3: Districts with Largest Increase in Enrollment, 2003 to 2012

District	County	Enrollment		Increase	% Change
		2003	2012		
Rowe	Franklin	39	61	22	56%
Bristol-Plymouth Voc Tech	Bristol	861	1,231	370	43%
Blackstone Valley Reg	Worcester	815	1,147	332	41%
Nashoba Valley Tech	Middlesex	527	686	159	30%
Grafton	Worcester	2,215	2,823	608	27%
Montachusett Voc Tech Reg	Worcester	1,138	1,435	297	26%
Northboro-Southboro	Worcester	1,147	1,446	299	26%
West Bridgewater	Plymouth	998	1,239	241	24%
Winchester	Middlesex	3,445	4,258	813	24%
Truro	Barnstable	110	134	24	22%
Wellesley	Norfolk	4,020	4,881	861	21%
Essex Agr Tech	Essex	397	482	85	21%
Brookfield	Worcester	249	296	47	19%

The following pages examine whether changes in enrollment are related to districts' characteristics – including size, whether it is urban, and location. They also compare the changes through 2008 with the changes since then.

Does Enrollment Growth Vary by District Size or in Urban Areas?

Roughly 1/3 of all districts have been growing, more than 1/3 have had enrollment declines greater than 10%, and the rest fall somewhere between with more moderate enrollment declines (Table 4).

When the original *Enrollment Trends in Massachusetts* came out in 2008, the enrollment decline was especially severe in large urban districts,⁵ which shrank four

times as fast as the state as a whole (see Table 5). These twelve districts serve more than 20% of the state's students, and through 2008 they shrank by almost 10% while the rest of the state had relatively flat enrollment. Seven out of the twelve districts saw enrollment fall more than 10% during those years.

The decline is no longer concentrated in urban areas - the pattern has actually reversed; since 2008 enrollment in large urban districts has been flat, while in other parts of the state the decline has accelerated. From 2008 to 2012, half of the urban districts had increases in enrollment and the largest drop was only 4.2%. Despite the recent recovery in urban enrollment, many of these districts have still seen a dramatic decline over the last decade.

Table 4: Distribution of Changes in Enrollment, 2003 to 2012

	Districts	2003 Enrollment	Average Size	Average Change
Positive Growth	120	301,000	2,500	9%
Slow Decline: -10% to 0%	88	291,000	3,300	-6%
Rapid Decline: > 10%	116	347,000	3,000	-17%

Table 5: Enrollment Changes in Large Urban Districts

District	2003 - 2008	2008 - 2012	2003 - 2012
Boston	-10.9%	-2.8%	-13.4%
Brockton	-8.1%	5.7%	-2.8%
Cambridge	-16.5%	-1.0%	-17.3%
Fall River	-16.4%	-3.1%	-19.0%
Lawrence	-2.4%	5.0%	2.5%
Lowell	-13.4%	0.1%	-13.3%
Lynn	-8.5%	1.4%	-7.2%
New Bedford	-11.6%	-4.2%	-15.3%
Quincy	0.4%	4.1%	4.6%
Somerville	-16.0%	-0.9%	-16.7%
Springfield	-5.7%	-1.1%	-6.7%
Worcester	-10.7%	2.9%	-8.2%
Total for Large Urban Districts	-9.8%	0.0%	-9.8%
Total for Other Districts	-0.3%	-1.6%	-1.9%
STATE TOTAL	-2.5%	-1.2%	-3.7%

Enrollment Growth by Region

When *Enrollment Trends in Massachusetts* was published, dramatic enrollment declines occurred in western Massachusetts and on the Cape (in addition to the declines in the large urban districts). Since then, the overall enrollment decline has continued but the geographic impact has changed somewhat. While Berkshire and Barnstable counties continued to lose students at a rapid rate, enrollment in Franklin County changed from the second fastest decline through 2008 to essentially flat from 2008 to 2012. Some of the districts with the largest declines in enrollment over the past four years are in central Massachusetts, while others are scattered across the rest of the state.

The total change in enrollment in each district is illustrated in Figure 4. Districts shaded dark red lost students the fastest, while enrollment grew in those shaded green. The Cape and Western Massachusetts generally saw large enrollment declines,

Table 6: Enrollment Growth by County

County	2003 - 2008	2008 - 2012	2003 - 2012
Barnstable	-12.0%	-8.5%	-19.5%
Berkshire	-8.7%	-7.0%	-15.1%
Bristol	-5.0%	-3.8%	-8.6%
Dukes	-8.8%	-3.3%	-11.8%
Essex	-3.2%	-0.5%	-3.6%
Franklin	-9.0%	0.1%	-8.9%
Hampden	-2.7%	-3.0%	-5.6%
Hampshire	-2.5%	-5.2%	-7.6%
Middlesex	0.1%	0.2%	0.3%
Nantucket	13.9%	2.0%	16.2%
Norfolk	1.7%	1.3%	3.0%
Plymouth	-1.6%	-1.5%	-3.0%
Suffolk	-7.0%	1.7%	-5.4%
Worcester	-1.3%	-2.3%	-3.5%
TOTAL	-2.5%	-1.2%	-3.7%

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but there were pockets of rapid growth in Rowe and Conway. In Central Massachusetts the picture is particularly jumbled, with some districts losing students rapidly while neighboring districts grow rapidly. The area around Boston had fewer districts shrinking rapidly and more with growing or relatively flat enrollment.

What Caused Changes in Enrollment Trends?

The rapid decline in enrollment in the cities through 2008 was caused in part by slow population growth in urban areas. Similarly, the rebound since then in urban districts can also be explained partially by changes in population. Until 2008, the population of the large urban districts grew less than half as quickly as the rest of the state, but since then the urban areas have been growing three times as quickly as the rest of the state.

While the population trends in urban areas seems to mirror the changes in enrollment, a broader look at geographic changes in population shows that population changes do not match with the changes in enrollment.

Just as the relationship between enrollment and urban status has changed, the pattern has also changed when enrollment is compared to community income. Until 2008, enrollment was dropping faster in lower-income areas, but the connection has become much weaker. The correlation between income and enrollment growth in large communities through 2008 was 0.55; it fell to 0.23 for enrollment growth from 2008 to 2012.

Because the changes in enrollment trends cannot be explained by changes in population, it is likely they are driven by changes in the share of the population that is less than 18 years old. However, it is not clear why regional demographics are changing.

Figure 4: Enrollment Change from 2003 to 2012

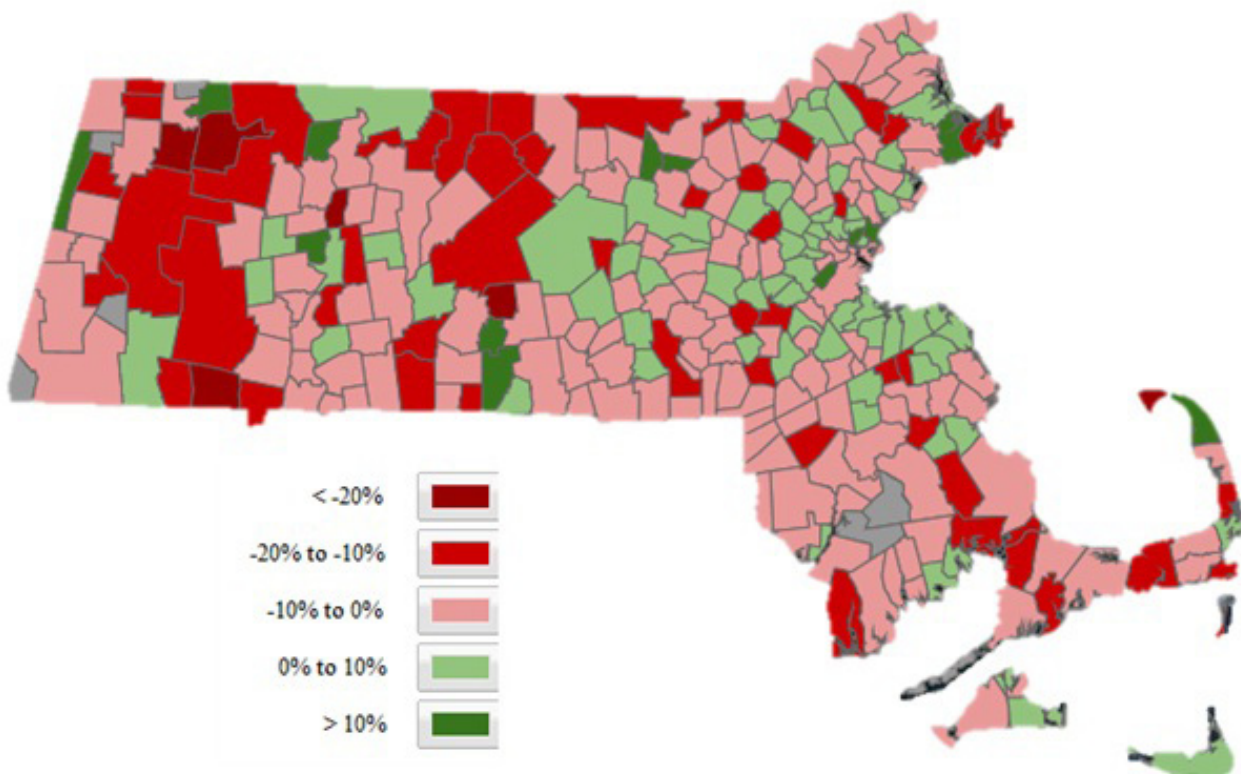
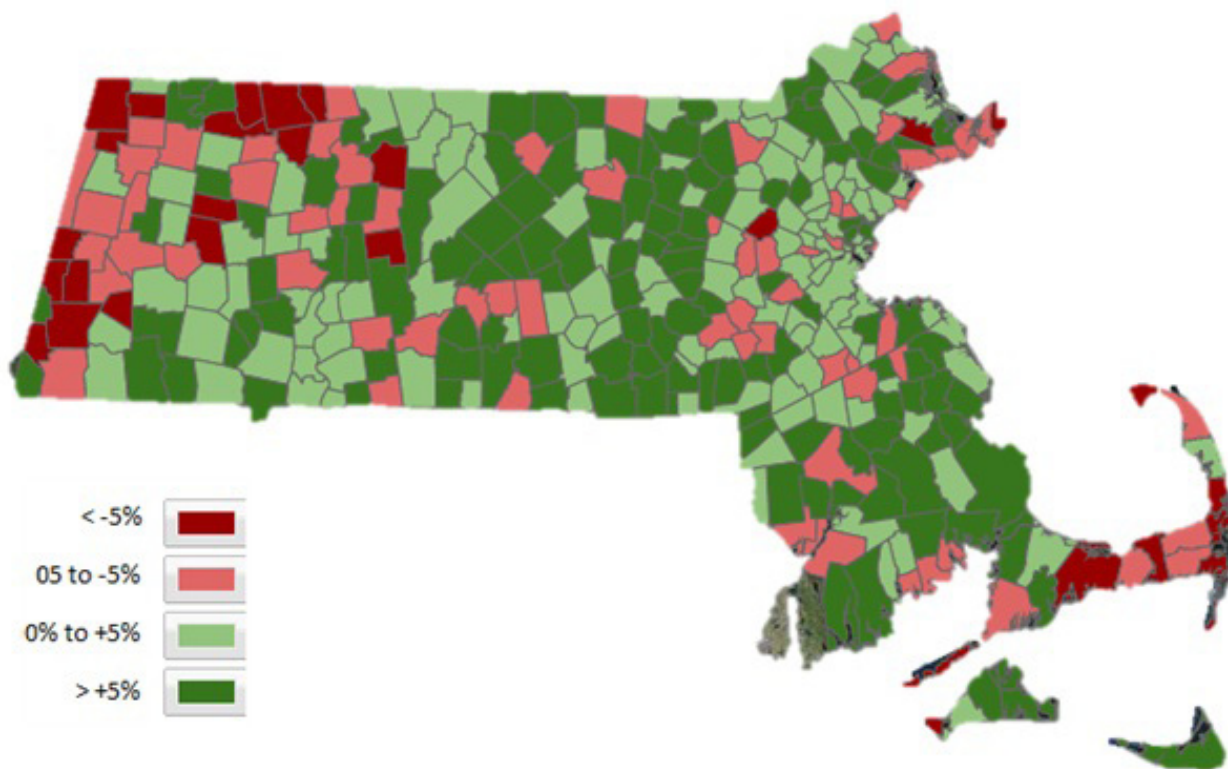


Figure 5: Population Change by Municipality from 2000 to 2010



Enrollment at Charter Schools

The original *Enrollment Trends in Massachusetts* report also examined enrollment trends in charter schools. At that time, charter school enrollment was growing quickly – 50% growth from 2003 to 2008 – despite the drop in overall enrollment. As the report noted, unless new charters continued to open, growth would slow as existing schools reached capacity. Since then the pace of new school openings decreased and the enrollment growth at charters has fallen considerably (Table 7).

From 2003 to 2008, approximately half of the increase in charter enrollment was driven by new charter schools opening and half by growth of existing schools. Since 2008, existing charters filled up, leaving less room for new students. As a result, the majority of the growth since then has come from the schools opening.

The growth in charter school enrollment means that enrollment in *non-charter* schools is shrinking even faster than the statewide averages suggest. From 2003 to 2012 while overall statewide enrollment fell by 35,000 students, enrollment at charters rose by

Table 7: Charter School Enrollment

	2003	2008	2012	Growth 2003-08	Growth 2008-12	Total Growth
Number of schools	47	62	73	15	11	26
Enrollment	15,892	25,087	30,535	9.6%	5.0%	7.5%
Average Enrollment	338	405	418	67	14	80

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15,000 – meaning that enrollment at non-charter schools fell by 50,000.

These statistics appear to suggest that charter schools were responsible for 30% of the drop in enrollment in traditional schools (15,000 out of 50,000). However, the actual impact of charters on enrollment in non-charter schools is somewhat smaller because some students who attend charter schools may have attended private schools if the charter schools were not open.

At the local level the difficulty measuring the impact of charters on enrollment is larger, because charter students may come not only from private schools but also from other districts. In other words, if a charter school had never opened in a city, there is no way to know how many of the students would have attended schools in the local district and how many would have gone to a private school or to a school outside the city.

The net result of this uncertainty is that the growth in charter school enrollment probably overstates the impact on non-charter schools at both the local and state level – more so at the local level. However, the state aid formula includes more detailed information on the “sending districts” for students at charter schools (because the state reimburses districts when students leave to attend a charter school). These student counts exclude students who had attended private or out of state schools before attending the charters and therefore allow a more accurate estimate of how growth in charter enrollment affects non-charter schools.

Each year almost 90% of the students at charters come from public school districts, although as stated above some of these students might have gone to a private school

(or been home schooled) if the charter were not open. The number of students sent from traditional public schools to charter schools increased from 14,200 in 2003 to 26,800 in 2012, an increase of 12,600. This suggests that growth in charter schools could account for as much as 25% of the drop in enrollment at non-charter public schools (12,600 out of 50,000).

These figures are averages; the impact of charter schools in an individual district could potentially be much larger. Charter schools are often located in cities, and in 2008 it appeared that charters could have been responsible for up to 20% of the overall decline in enrollment in large urban districts. Since 2008, despite continued growth at charter schools, enrollment in the urban areas has been flat. Through 2008 the impact of charter schools in Springfield, Lynn, and Lawrence looked particularly large. Since 2008, charter growth in these cities has leveled off. In Lynn and Lawrence charter enrollment from 2008 to 2012 grew by only 74 students (compared to a combined non-charter enrollment of 26,000), although charter enrollment in Springfield grew by an additional 200 students.

The DESE data on the “sending” districts also imply that charter schools are not the main cause of the decline in private school enrollment – i.e. since most charter school students come from other public schools, only a small number came from private schools. As stated above, private school enrollment fell by about 16,000 students between 2003 and 2010. During that time charter enrollment increased by more than 10,000. However, if almost 90% of the new charter students came from other public schools then the impact of charters on private schools is probably fairly small.⁶

Implications of Changing Enrollment Patterns

As stated in the original paper, changes in enrollment have implications for school finance and state aid, as well as for managing local districts. As enrollment declines, districts must adapt to underutilized facilities and rising per-pupil costs. Parents may resist school closings or consolidation, which will increase costs even further.

At the same time, the state aid formula is not well designed to deal with shrinking enrollment. The aid formula was created primarily to ensure that districts had adequate resources; in the 1990s the vast majority of aid was distributed to bring every district up to “foundation” – the legally mandated minimum adequate spending level.

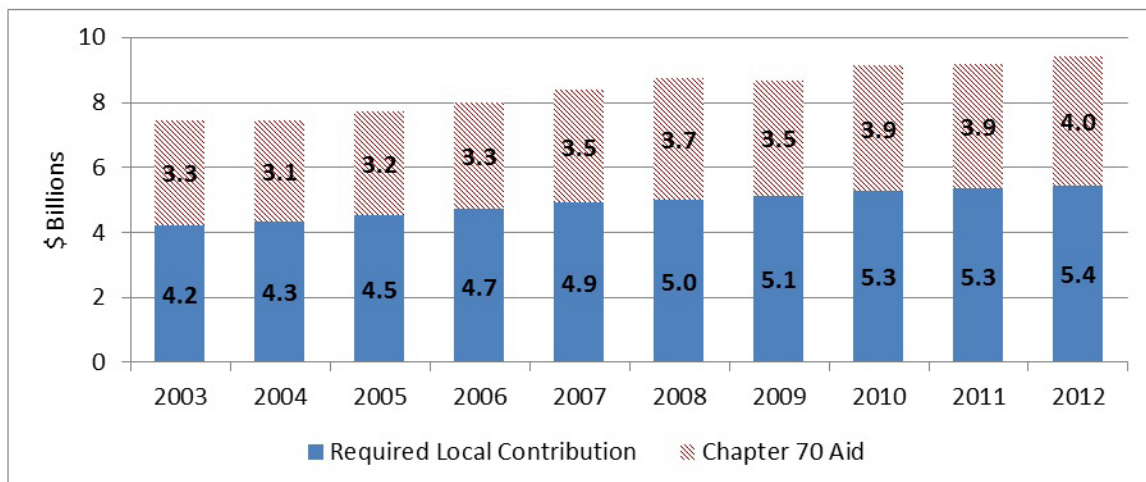
When enrollment and costs are rising, the formula automatically increases required local spending and, if necessary, state aid. However, the formula deals poorly with declines in enrollment – if strictly applied the law could cut state aid to many districts, while at the same time it will require many

cities and towns to continue to increase local spending despite having fewer students. This combination of cuts to state aid and higher required spending from local communities will obviously not be popular. In the past decade there have been several changes to the state aid formula, but they all maintained the focus on achieving foundation and only differed over how to distribute additional aid. None of the changes addressed the question of how to handle declining enrollment.

From 2003 to 2008, the state distributed additional aid in an ad hoc manner mostly outside the official aid formula. For the past four years, the weak economy has put pressure on state resources, and education aid has been cut several times. Even as the economy recovers and brings additional state revenue, disagreement about a fair distribution of aid to communities with declining enrollment will continue.

Enrollment declines also exacerbate the conflict over charter school funding. Local district leaders often argue that the charter funding formula is not fair because it reduces funding to the local district as students leave

Figure 6: Required Spending and State Aid, 2003 - 2012



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for charter schools, while their costs are mostly fixed. In other words, a district that loses 100 students to a charter school may not be able to reduce spending by a significant amount yet the district would be required to pay tuition to the charter school. The potential for such a cost squeeze is much greater when enrollment is shrinking; with enrollment growth a new or expanded charter school might only slow enrollment growth rather than contribute to a decline in enrollment.

Declining enrollment can increase the appeal of forming regional districts to share fixed costs and achieve economies of scale. Since 2008, three regional districts have opened or expanded participation – Ayer Shirley, Somerset Berkley, and Freetown-Lakeville – and Chatham and Harwich have approved the formation of a regional district. This regionalization has not been driven solely by enrollment changes. The combination of Ayer and Shirley was losing students rapidly -- more than 20% since 2003. Similarly, Chatham and Harwich had lost 13% of their students when they voted to regionalize in 2010. In contrast, Somerset and Berkeley (which formed a regional high school) had only lost 5% of their students since 2003, and Freetown and Lakeville had roughly flat enrollment.

Conclusion

Enrollment has been falling in Massachusetts for almost a decade, in some cases dramatically; 21 districts have seen enrollment drops of 25% or more. The enrollment decline has also hit private schools. While enrollment has continued to decline since 2008, the patterns have changed – the declines are no longer as concentrated in western Massachusetts and the Cape. Also, in contrast to the 2003 to 2008 period, large urban districts are

no longer shrinking rapidly and some are growing, while enrollment in non-urban districts falls. The enrollment declines are caused in part by slow population growth and in part by demographics – Massachusetts has fewer children under 18 than other states. The slow population growth and demographic disparities have continued in the past four years.

Despite the continued loss of students around the state, charter schools have maintained their growth. The main constraint on enrollment at charters is the cap on the number of new schools. Because charter enrollment has grown, the actual loss at non-charter public schools is even more pronounced than the statewide totals suggest. However, growth at charter schools does not appear to be responsible for a large share of the decline in enrollment in most districts or for the decline at private schools.

Continued declines in enrollment will present problems for many districts around the state. There is no simple policy prescription, but clear data about enrollment trends may facilitate adjustment. The decline in public school enrollment has probably increased the political pressure to limit the growth of charter schools and interdistrict choice. The ongoing enrollment growth at charter schools suggests that some cities could stem the outflow of students by increasing the number of charter schools or instituting charter-like reforms in local schools.

About the Author:

Ken Ardon received a Ph.D. in economics from the University of California at Santa Barbara in 1999, where he co-authored a book on school spending and student achievement. He taught economics at Pomona College before moving to Massachusetts, and, from 2000 to 2004, Dr. Ardon worked for the Commonwealth of Massachusetts in the Executive Office of Administration and Finance. Since 2004, he has been an assistant professor of economics at Salem State University. Dr. Ardon is a member of Pioneer Institute’s Center for School Reform Advisory Board.

About Pioneer:

Pioneer Institute is an independent, non-partisan, privately funded research organization that seeks to change the intellectual climate in the Commonwealth by supporting scholarship that challenges the “conventional wisdom” on Massachusetts public policy issues.

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Endnotes

1. All enrollment data for Massachusetts is from the Massachusetts Department of Elementary and Secondary Education website (www.doe.mass.edu), while data for the U.S. was taken from the National Center for Education Statistics (nces.ed.gov). There are several measures of enrollment in Massachusetts which differ slightly – every effort has been taken to use consistent measures in this report.
2. All population data from US Census website, retrieved August 2012.
3. The lack of young people is caused primarily by the low birth rate and could also be contributed to by migration patterns (e.g. if families with children move out of the state or adults without children move in).
4. Tables exclude districts that lost students to a regional or regional districts that gained new members.
5. The larger urban areas are defined as the largest 15 cities in the state, excluding Newton, Framingham, and Waltham. This leaves 12 cities: Boston, Brockton, Cambridge, Fall River, Lawrence, Lowell, Lynn, New Bedford, Quincy, Somerville, Springfield, and Worcester.
6. As explained previously this could underestimate the actual impact on private schools because some of the charter students listed as coming from public schools might have switched to a private school had the charter not been available.

