

THE WANING INFLUENCE OF HOUSING PRODUCTION ON PUBLIC SCHOOL ENROLLMENT IN MASSACHUSETTS

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ABOUT MAPC

The Metropolitan Area Planning Council (MAPC) is a regional planning agency serving the people who live and work in the 101 cities and towns of Metropolitan Boston. Our mission is to promote smart growth and regional collaboration.

Our regional plan, MetroFuture, guides our work as we engage the public in responsible stewardship of our region's future. We work toward sound municipal management, sustainable land use, protection of natural resources, efficient and affordable transportation, a diverse housing stock, public safety, economic development, clean energy, healthy communities, an informed public, and equity and opportunity among people of all backgrounds.

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One of the most widespread worries about new housing development, especially in suburban communities, is that it will drive up school enrollment. Many local officials and residents assume that new housing, and especially new multifamily housing, will attract families - families with children who will inevitably increase enrollment in the local public schools - creating additional education costs outweighing any new revenue the housing generates.

These apprehensions are rooted in the demographic and development patterns of the late 20th century, when Baby Boomers were in their prime child-rearing years. Their residential choices caused housing stock, enrollment, and school expenditures to grow quickly in many suburbs. Many communities even considered limiting housing development in hopes of curbing school budget increases and the need for more tax revenue.

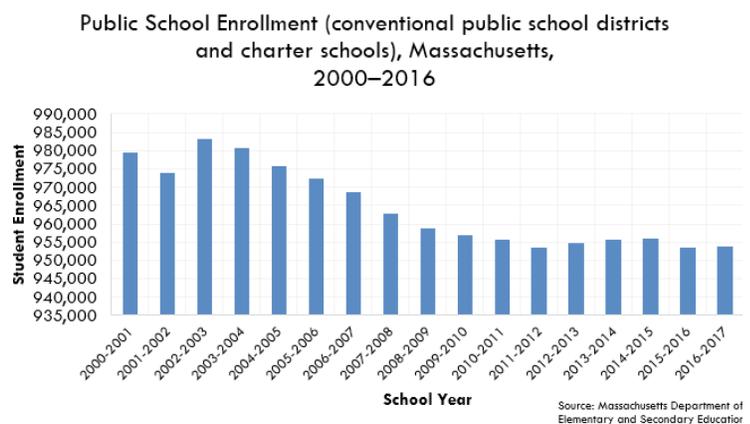
Over the past 15 years, however, multiple studies¹ have examined the enrollment and fiscal impacts of individual housing developments and found that concerns about those impacts are commonly overstated. To complement this work, MAPC examined housing permit and enrollment trends across 234 public school districts over the past 6 years, from 2010 to 2016, inclusive.²

We find that the conventional wisdom that links housing production with inevitable enrollment growth no longer holds true. At the district level, we observe no meaningful correlation between housing production rates and enrollment growth over a six-year period. While it is true that schoolchildren occupying new housing units may cause a marginal change in enrollment, they are one small factor among many. In cities and town with the most rapid housing production, enrollment barely budged; and most districts with the largest student increases saw very little housing unit change. The rate of housing unit growth is not a useful predictor of overall enrollment change, nor is rapid housing development a precondition to sudden enrollment increases. It appears that broad demographic trends, parental preferences, and housing availability now play a much larger role in enrollment growth and decline. Our findings raise important issues related to capital planning, education finance, and housing incentive programs.

STATEWIDE ENROLLMENT IS ON A STEADY DECLINE

Over the past 15 years, the patterns of housing growth and enrollment have changed substantially. The state's public school enrollment (including local and regional districts, as well as charter schools) peaked in 2002 and has been declining ever since, now standing at about 3% lower than 14 years ago. The enrollment decline in "conventional" districts (municipal and regional districts) has been somewhat faster, accelerated by a growing enrollment in charters (which now educate 4.5% of the state's pupils, compared to 3.0% in 2011), but at the statewide level, growing charter enrollment explains only about one-third of the decline in local and regional districts. None of the decline in statewide public school enrollment can be attributed to a net shift to private schools, which saw a 20% decline in enrollment over the same period. This decline in the number of school-age children is an expected result of sweeping demographic changes affecting the region. The Baby Boomers are now aging out of their prime child-bearing years, and younger generations are having fewer children, later

FIGURE 1: PUBLIC SCHOOL ENROLLMENT IN MASSACHUSETTS, 2000-2016



in life. As a result of these persistent demographic trends, MAPC projects that the number of school-age children (ages 5-19) in Metro Boston will decline by 8% from 2010 to 2040, even as the total population grows by 13%, according to MAPC's population projections. In other words, the "new normal" for statewide school enrollment is likely one of long-term enrollment contraction as a result of slow growth and demographic factors.

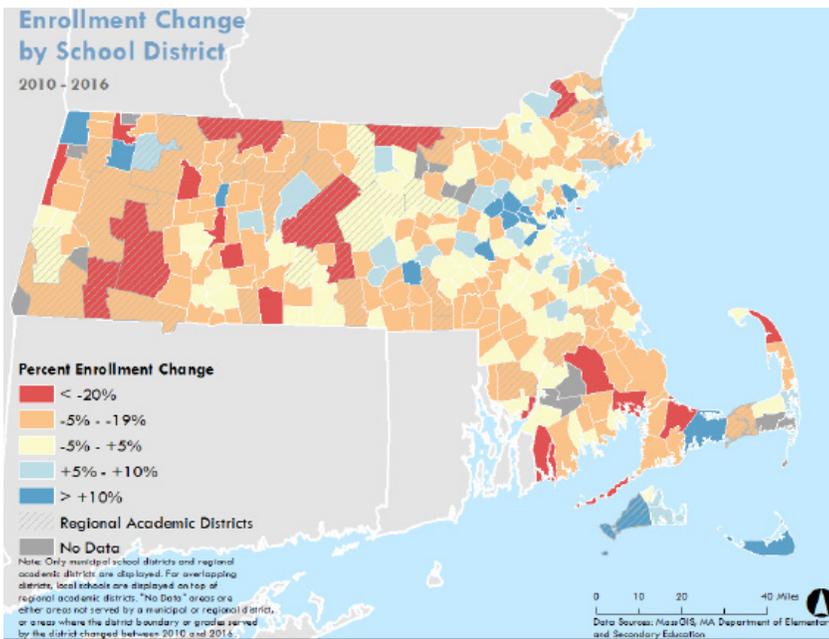
¹ *Housing the Commonwealth's School-Age Children* The Implications of Multi-Family Housing Development for Municipal and School Expenditures, 2003, Community Opportunities Group, Inc. & Connery Associates; Citizens Planning and Housing Association (https://www.chapa.org/sites/default/files/f_1239203891HousingSchoolAgeChildren.pdf); and *The Costs And Hidden Benefits Of New Housing Development In Massachusetts* Michael Goodman, Elise Korejwa, and Jason Wright; PPC Working Paper No. 02 March, 2016 (http://publicpolicycenter.org/wp/wp-content/uploads/2016/03/GoodmanKorejwaWright_TheCostsBenefitsOfNewHousingDevelopment.pdf)

² School years are referenced by the starting year of the school year span.

URBAN DISTRICTS GROWING WHILE SUBURBS ARE CONTRACTING

Figure 2 is a map of enrollment change by school district. From this map it's clear that enrollment declined across vast swaths of the state. In fact, 159 out of 234 local school districts saw enrollment declines over the 6-year period. Also, 43 out of 51 regional academic districts saw declines in enrollment between 2010 and 2016.³

FIGURE 2: MAP OF ENROLLMENT CHANGE BY SCHOOL DISTRICT



Nor were these modest declines. In the MAPC region, districts with declining enrollment saw drops averaging 8%, and more than a dozen districts saw drops of 11% or more. Meanwhile, growing districts saw fairly sizeable growth (7% on average in the MAPC region) and a dozen local districts grew by more than 10%, adding an average of 826 students per district. This creates an interesting and significant dichotomy that bears further study, and that policy makers must take into account, since most districts are losing students fairly quickly, while at the same time some districts are growing rapidly. The overall patterns of enrollment change don't fit the

narrative of suburban districts bursting at the seams while urban districts are on the decline. In fact, high rates of enrollment growth were more common in urban communities, while most suburbs saw declining enrollment.

Figure 3 shows average enrollment change as organized by MAPC's [Community Types](#), a classification system that groups municipalities on the basis of demographic and land use characteristics. Districts in the highly urbanized Inner Core saw average enrollment growth rates of 8%, while the typical Regional Urban Center district saw little change. Conversely, both suburban Community Types (Maturing Suburbs and Developing Suburbs) averaged negative enrollment change, with the lower-density Developing Suburbs experiencing the sharpest declines in schoolchildren.⁴

In other words, the region's urban school districts are educating an increasing share of the region's schoolchildren, and the number of suburban pupils is rapidly declining.

FIGURE 3: ENROLLMENT CHANGE BY COMMUNITY TYPE, MAPC REGION

Community Type	Average Enrollment Change, 2010-2016	Number of Districts	Example Districts
Inner Core	7%	16	Boston, Cambridge, Revere, Chelsea, Melrose, Arlington, Watertown, Milton
Regional Urban Centers	-1%	11	Lynn, Salem, Framingham, Quincy
Maturing Suburbs	-3%	43	Saugus, Lexington, Acton, Natick, Braintree
Developing Suburbs	-7%	23	Ipswich, Bolton, Holliston, Franklin, Norwell
All Districts	-2%	93	

In other words, the region's urban school districts are educating an increasing share of the region's schoolchildren, and the number of suburban pupils is rapidly declining.

³ We excluded all regional academic districts that changed the area or grades they serve between these two years and excluded any schools that did not exist at both time points.

⁴ A fifth Community Type, Rural Towns, is not represented in the MAPC region.

HOUSING PRODUCTION RATES

Of course, we don't expect enrollment to decline equally everywhere. Even as demographic patterns shift regionally, one would assume that rates of housing production would retain some influence on enrollment. We all know the Baby Boomers are getting older, but more housing still means more students, right? Not necessarily. MAPC tracked housing permit issuance and enrollment data for 234 public local school districts in Massachusetts.⁵ We found that most school districts lost students over the last six years, and rates of housing production had no significant correlation with the rate of enrollment change.

Figure 4 depicts housing-unit growth and enrollment change since 2010, and demonstrates a clear lack of correlation between the two. If these two outcomes were correlated, the data points on the chart would trend upward and to the right, so that districts with higher housing unit change would see higher enrollment growth, and vice versa. This association is clearly absent. The district with the most rapid housing unit growth (Hopkinton, at 18%), saw almost no change in enrollment (increase of 0.23%), and the dozen fastest-growing districts (from a housing perspective) saw enrollment growth of

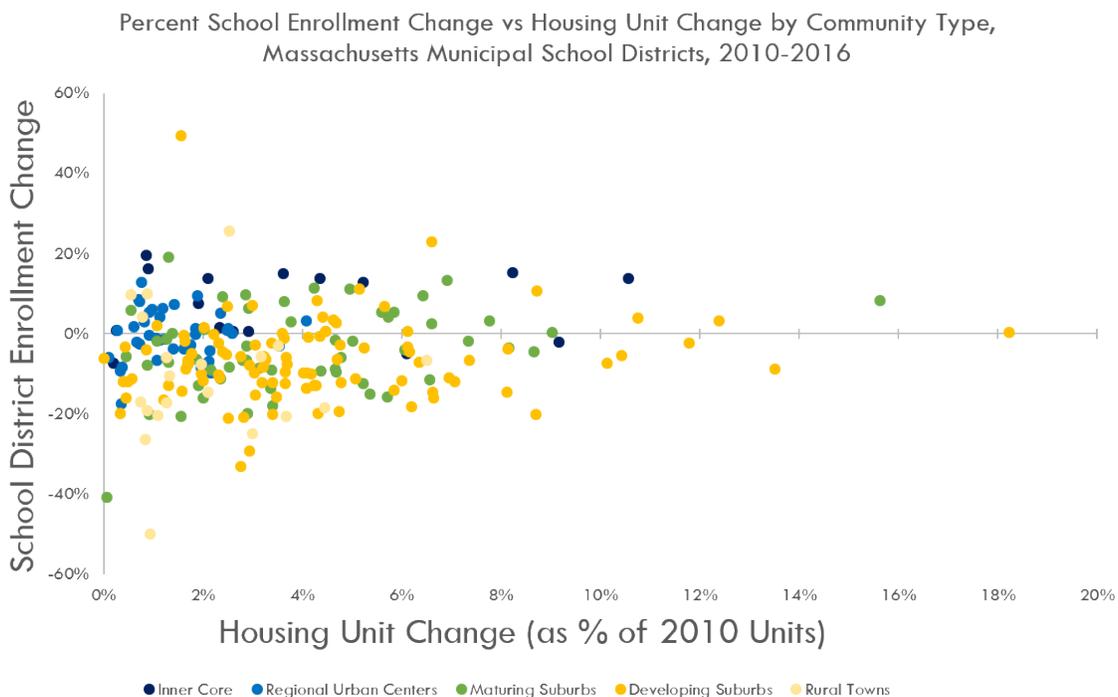
only 1%, on average. Meanwhile, those districts with very low rates of housing growth were highly scattered in their

We examined the 12 fastest-growing MAPC-region districts, which grew by an average of 14% over a six-year period, and found striking results.

In these 12 rapidly growing districts, as with the region overall, housing production rates show no significant correlation with enrollment.⁶ Only Natick, Everett, and Chelsea added more than 5% new units, a far lower jump than their enrollment rates. Meanwhile, the fastest growing district, Revere, reported less than 1% housing unit growth, and saw a 20% increase in enrollment. These findings suggest that rapid housing unit growth is neither a predictor, nor a precondition, of net enrollment change. Whether or not much housing is being built, families are moving to these districts and adding their children to the public school rosters.

If not housing units, then what can explain the rapid enrollment growth in some districts, and what does this tell us about capital planning and education finance?

FIGURE 4: HOUSING PRODUCTION RATES AND ENROLLMENT CHANGE, BY DISTRICT

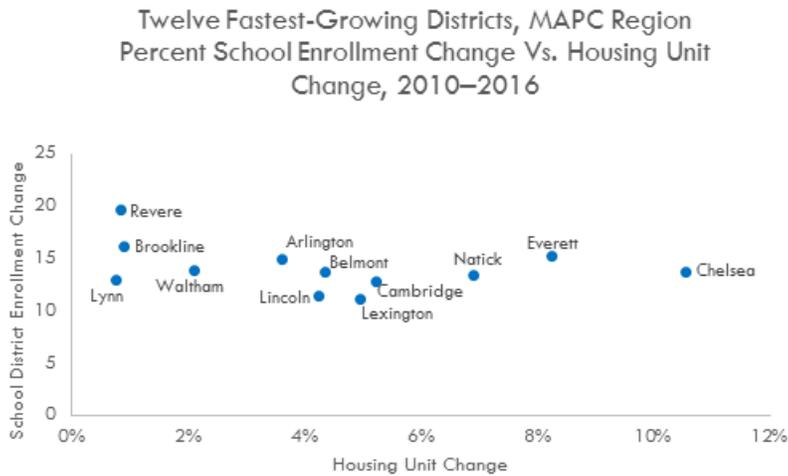


⁵We did not aggregate data for regional districts composed of multiple permit-issuing jurisdictions

⁶It should be noted that Chelsea and Arlington are inconsistent reporters to the Census Bureau building permit survey, providing permit data for fewer than half the months in the study period. However, the Census Bureau's use of imputed data for non-reported months helps to mitigate this lack of response.

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FIGURE 5: HOUSING PRODUCTION RATES AND ENROLLMENT CHANGE, BY DISTRICT, 12 FASTEST-GROWING MAPC DISTRICTS



As a first step to explaining rapid enrollment growth in these districts, we found that they fall into two distinct clusters. Seven districts (Arlington, Belmont, Brookline, Cambridge, Lexington, Lincoln, and Natick) could be characterized as highly desirable from an educational perspective, with high standardized-test scores relative to the rest of the region. They have an average 75% proficiency rating on the 2013 3rd grade English Language Arts (ELA) MCAS⁷, markedly higher than the 67% region-wide average proficiency rate. These districts are also correspondingly expensive, with a 2016 median home sale value of \$815,000, almost twice as much as the MAPC regional median sale value of \$455,000. With a few exceptions, they are also highly accessible to employment both in Boston and along Route 128, and they feature compact neighborhoods and vibrant, walkable downtowns that are increasingly attractive to some younger families. The other fast-growing districts (Revere, Everett, Chelsea, Lynn, and Waltham) are in diverse, lower-income, and generally more urbanized communities. These districts also exhibit lower test scores, averaging 41% proficient on the same 2013 ELA 3rd grade MCAS, well below the region-wide average proficiency. They are also much more affordable, with 2016 median sale prices of only \$360,000, or 20% less than the regional median.

Troublingly, these results are consistent with existing theories about how educational segregation worsens over time. National studies⁸ have found that when comparing across school districts, income segregation of families with children worsened by 15% over a 20-year period leading up to 2010, driven in large part by self-selection of wealthy families into high-income districts.⁹ We speculate that wealthier families pursuing high-ranking schools may be bidding up

housing prices in a limited number of attractive and accessible districts, with cascading results: these municipalities become less accessible to middle- and low-income families; rising prices may induce more Baby Boomers to sell their existing units and leave town, thereby freeing up even more units for young families; and higher socioeconomic status of the school-age population contributes to higher standardized test scores, making the district even more attractive and reinforcing the cycle, without a single new housing unit being built.

Meanwhile, districts with a high number of low-income, immigrant, and English-language learner students are also more likely to have lower standardized test scores, making them less attractive to wealthy families. These cities remain relatively affordable, and may provide the only viable options for low- and moderate-income families priced out of many other places, contributing to a rapidly growing number of students. The combination of rapidly growing enrollment, a high concentration of disadvantaged students, and limited fiscal capacity due to relatively low property values make it particularly challenging for these districts to provide sufficient resources and ensure positive educational outcomes for all students.

SUBURBAN ENROLLMENT DECLINES BRING THEIR OWN CHALLENGES

As described above, the vast majority of suburban communities are seeing sustained declines in enrollment. Even in communities where substantial housing construction has occurred, the corresponding growth in households and children has not generally been sufficient to offset the natural demographic decline in school-age residents associated with the aging of the children of Baby Boomers.

If Baby Boomers choose to age in place, as a result of personal preferences, lack of attractive alternatives, or financial reasons, then those suburban communities will see fewer new households and continued declines in enrollment.

⁷ Massachusetts Comprehensive Assessment System

⁸Owens, A., Reardon, S.F., & Jencks, C. (2016). *Income Segregation between Schools and School Districts* (CEPA Working Paper No.16-04). Retrieved from Stanford Center for Education Policy Analysis: <http://cepa.stanford.edu/wp16-04>

⁹Owens, A. (2016). *Inequality in Children's Contexts: The Economic Segregation of Households with and Without Children*. *American Sociological Review*, 81(3), 549–574.

While this may sound like music to the ears of local officials who are concerned about municipal finances, the lack of new housing and new households means that municipal tax rolls will become increasingly dependent on aging and retired Baby Boomers. Furthermore, sustained enrollment declines have negative repercussions as well. Many school expenditures are highly inelastic with regard to enrollment, so as enrollment goes down, per-pupil costs

are likely to rise.¹⁰ Declining enrollment may also result in less return on investment for capital improvements if recently-constructed facilities become rapidly underutilized. Excess capacity may become a drain on the system, suggesting that districts facing sustained decline need to develop flexible long-term plans for “right-sizing” their facilities and administration, or for combining their systems with those of neighboring communities.

CONCLUSIONS

This analysis provides additional evidence countering misconceptions regarding the patterns of enrollment growth across the region and their relationship to housing production. We observe that, consistent with MAPC’s demographic projections, the state has entered a period of long-term decline in school-age population. Some districts are growing quite rapidly and are facing significant funding and capacity challenges, but this growth cannot be attributed only to new housing units. We found no relationship between housing production rates and enrollment growth rates for the 234 districts we studied.

We acknowledge that there are limitations to this analysis: we were not able to analyze charter school enrollment at the district level; building permits are an incomplete picture of housing production; and the lag between production and enrollment may be longer than analyzed here. We intend to continue this analysis with further research into the characteristics of new students, the volume of housing turnover, and the type of housing being produced across districts. Nevertheless, the results described here indicate clear and substantial conclusions relevant to state and local policy:

The permits don’t produce the pupils.

These findings demonstrate that the fiscal impact of new residential development cannot be estimated without a full understanding of district demographics and school capacity. While it’s true that some students may be housed in new units, the enrollment effect of these students is dwarfed by larger demographic factors driving declines in school age children and parental location preference. As it turns out, the presence of students living in new homes may actually help to mitigate what would otherwise be rapid and disruptive declines in enrollment in many communities, while in other communities, new housing may add students to a much lesser degree than is commonly supposed. Municipalities should take heart in this additional piece of evidence that under most conditions, additional housing, even “family” housing, can be accommodated without driving enrollment through the roof.

School cost reimbursement might not break the bank.

The Commonwealth currently offers a limited school cost reimbursement program tied to certain types of housing developments.¹¹ There have been calls to expand this “hold harmless” incentive to other types of housing developments. The cost of such a program might be less than assumed. Prior research¹² has shown that the marginal cost of each new student depends in large part on whether the district has available capacity in its physical plant and staff. As shown here, most districts across the state are experiencing declining enrollment and are likely to have excess capacity. Therefore, a program that a) specifically incentivizes multifamily housing and b) focuses on the marginal cost of each new student might require relatively little subsidy to reimburse municipalities for education costs that exceed the property tax generated by new housing.

¹⁰ For example, statewide public school expenditures on benefits and fixed charges (including employee and retiree insurance), which make up 17% of all public school expenditures, increased 9% from 2012 to 2016, but as a result of declining statewide enrollment the per-pupil cost increased at the faster rate of 11%. (Source: MAPC analysis of FY12–FY16 Per-Pupil Expenditures published by MA Department of Elementary and Secondary Education at <http://www.doe.mass.edu/finance/statistics/ppx12-16.html>.)

¹¹ <http://www.mass.gov/hed/community/planning/chapter-40-s.html>

¹² The Costs And Hidden Benefits Of New Housing Development In Massachusetts Michael Goodman, Elise Korejwa, and Jason Wright; PPC Working Paper No. 02 March, 2016 http://publicpolicycenter.org/wp/wp-content/uploads/2016/03/GoodmanKorejwaWright_TheCostsBenefitsOfNewHousingDevelopment.pdf. That study found that in districts with excess capacity, the marginal cost of each new student is only 0.65 times the district-wide per pupil expenditures.

Chapter 70 Education Aid should adapt to the new normal.

In a cruel irony, those dense and diverse urban districts seeing rapid enrollment increases are also struggling with recent decreases in state aid that have resulted from a change in the way socioeconomic status is calculated. Recently, the state switched from using a free-lunch eligibility measure based on parent-reported income to using one based on tax and administrative records for public assistance programs.¹³ In districts with large numbers of foreign-born residents, both documented and not, who are ineligible for public assistance, this has resulted in substantial declines in apparent economic disadvantage, and corresponding decreases in state aid. Our findings regarding the rapid enrollment growth in these same communities underscore the need to correct this deficiency in the Chapter 70 funding and work toward a system that better accounts for the needs and fiscal capacity of each district, while also recognizing the unique challenges faced by rapidly growing districts of all types.

Is it time to talk regionalization again?

Over the years, Commonwealth support for district consolidation and regionalization has ebbed and flowed; at this time, the incentives for regionalization are relatively weak. However, other factors such as excess capacity and growing fixed costs may prompt some districts to consider this option anew. Given the considerable efficiencies that may be achieved with a well-designed consolidation, the Commonwealth should evaluate how it can provide additional incentives and assistance for districts seeking to deliver more cost effective education to a steadily declining resident school-age population.

¹³<http://www.doe.mass.edu/infoservices/data/ed.html>

TECHNICAL NOTE:

This analysis examined 234 municipalities that maintained municipal school districts between the 2010–2011 and 2016–2017 school years (referred to as 2010 and 2016, respectively) according to the Department of Elementary and Secondary Education. This analysis does not include regional districts, charter schools, vocational schools, or municipalities/districts where the boundaries or grades served changed over the study period.

Housing-unit production growth in the 234 municipalities we examined was measured using the total number of units reported by the municipality to the Census Building Permit Survey from 2010–2016, as a percentage of 2010 housing stock (2010 Census). It must be acknowledged that building permits are an imperfect measure of actual housing unit growth. The Census Building Permit Survey excludes certain forms of housing unit creation, such as adaptive reuse of existing buildings. Issuance of a building permit is no guarantee of unit production, since construction may be halted due to financial reasons at any time. The worst limitation may be the result of incomplete reporting: numerous municipalities—including some that are known to be experiencing robust housing growth—fail to report building permits to the Census Bureau. In 2016, 47 of 234 municipalities did not provide any building permit reports. Fortunately, the Census Bureau does estimate permits for non-reporters based on prior years, which helps to mitigate the effect of these data gaps. Future research in this area should seek to exclude non-reporters or supplement the available data.

The permit data include the calendar years from 2010 to 2016, inclusive, while the enrollment data is based on school years from 2010 to 2016. Therefore, there is effectively a 9-month lag between permit issuance and enrollment counts. We tested the effect of using a longer lag period (21 months), which also revealed no correlation between housing permits and enrollment.