

What U.S. Census 2000 Data Tell Us About The Number of Children Per Housing Unit

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A *student yield* is the average number of children enrolled in a particular district's schools per housing unit.¹ Yield measurements are extremely useful in school demography: among other things, school administrators need to understand their district's yields in order to assure that facilities are adequate to handle future enrollments.

All the analyses reported here measure what we call *child yields*. A child yield is the number of children in a particular age group (say 5 to 17 to reflect possible K-12 enrollments) divided by the number of housing units in that area. When we use Census data to compute yields, we label them child yields to underscore the fact that they are for the child population, regardless of whether the children are enrolled in school. Note that some children may be enrolled in private rather than public school, some children may be enrolled in a public school outside their district (an inter-district transfer student), and some may not be attending school at all. For all these reasons, child yields are higher than student yields.²

In order to explore factors that affect yields, we analyzed special tabulations of Census 2000 PUMS data.³ We studied how and why yields vary over time, how yields vary by the type and age of housing, how yields vary across states, and how yields may vary by the population's ethnic mix.

Variation Over Time

U.S. child yields have declined over time: they dropped 40 percent between 1940 and 2000, except during the post-World War II Baby Boom. The decline reflects increases in the share of people living alone and the varying share of the population that is young (see Figures 1 and 2).

¹ Student yields are also sometimes called student generation factors, student generation rates, or student housing unit multipliers.

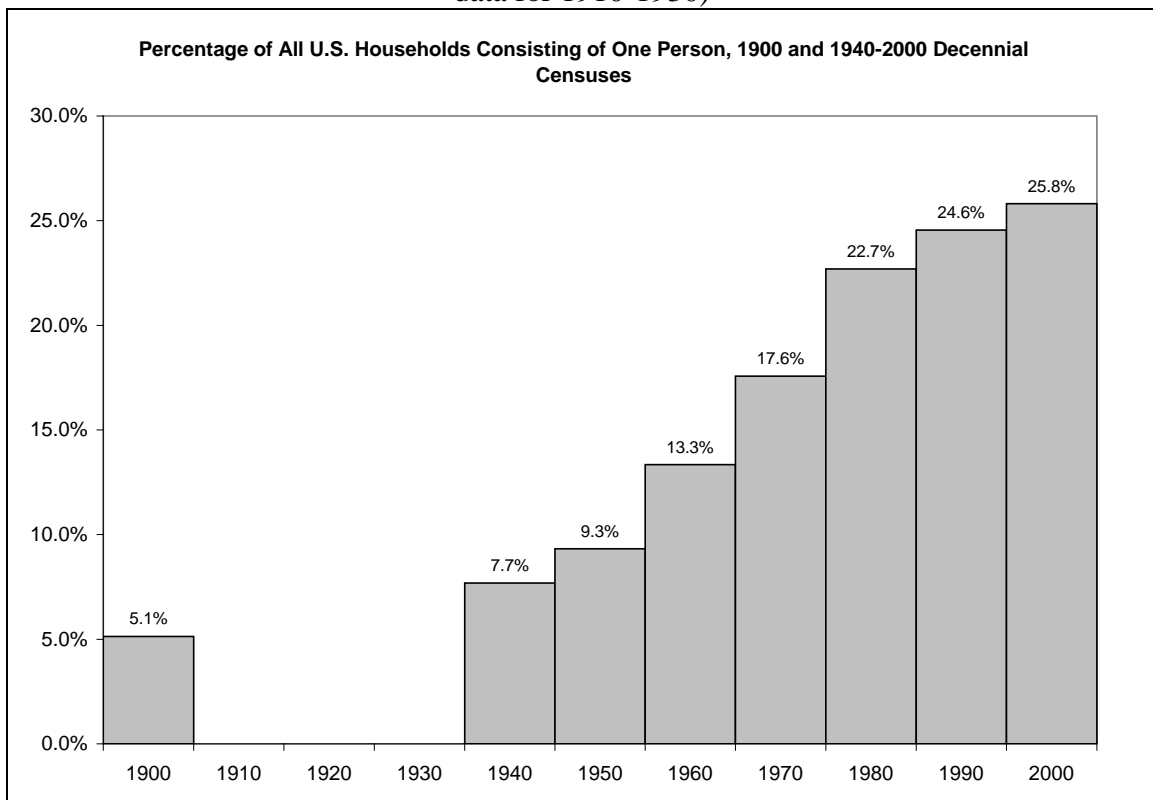
² Approximately 11 percent of students are enrolled in private schools nationwide, so one could reduce the child yields by 11 percent to get a better indication of actual public school student yields. However, the purpose of this report is to clarify the factors that influence yields, and to that end, adjusting for private schooling is unnecessary.

³ See Burchell, Listoken, and Dolphin, *The New Practitioner's Guide to Fiscal Analysis*, 1986, for a comprehensive discussion of "household multipliers."

The share of people living alone has risen over the decades. In 1940, about eight percent of households consisted of one person. By 2000, the rate more than tripled, to 26 percent.

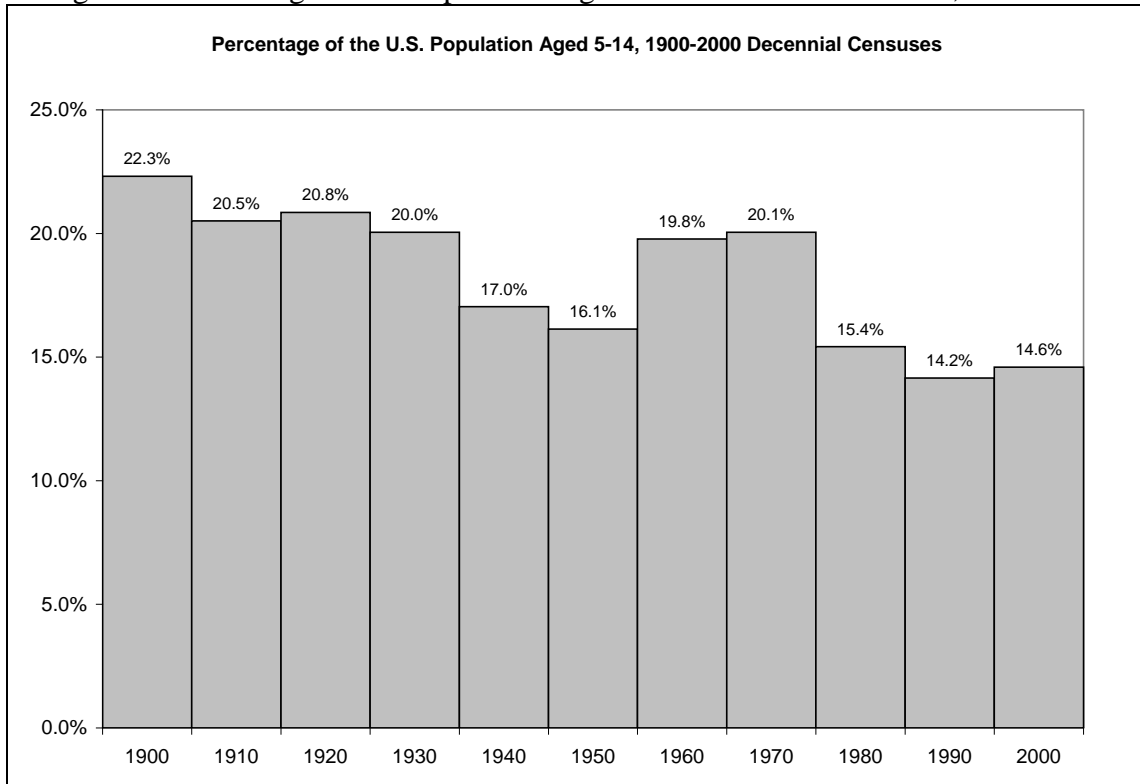
The second important influence on child yields is the percentage of children in the population. Even small changes in the percentage of children can elevate or reduce child yields. The post-World War II baby boom included peaks in the child population share, reflected in the 1960 and 1970 U.S. Census counts (Figure 2). In 1960 and 1970, 20 percent of the population was between five and 14 years of age, up from 16 percent in 1950. By 1980, the percentage had dropped and it remained fairly stable through 2000.

Figure 1 The Number of One-Person Households in the United States, 1900-2000 (no data for 1910-1930)



Data Source: Hobbs, Frank and Nicole Stoops, U.S. Census Bureau, Census 2000 Special Reports, Series CENSR-4, Demographic Trends in the 20th Century, U.S. Government Printing Office, Washington, DC, 2002.

Figure 2: Percentage of the Population Aged 5-17 in the United States, 1900-2000



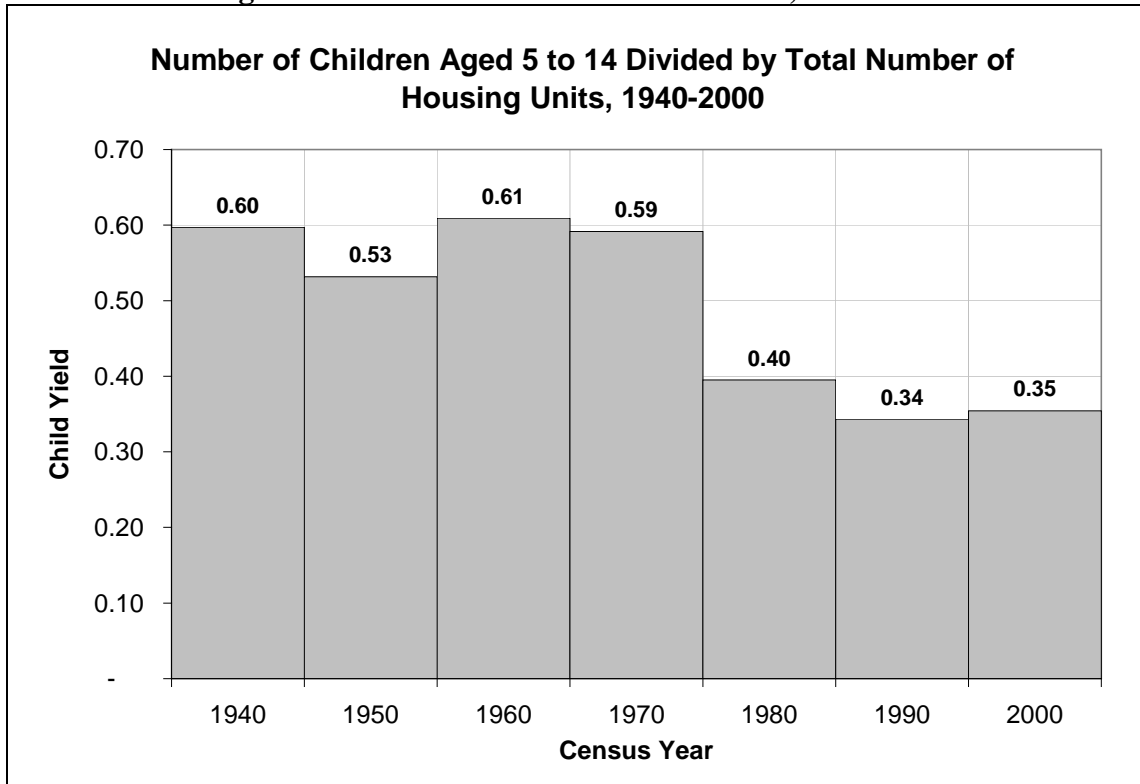
Data Source: Hobbs, Frank and Nicole Stoops, U.S. Census Bureau, Census 2000 Special Reports, Series CENSR-4, Demographic Trends in the 20th Century, U.S. Government Printing Office, Washington, DC, 2002.

These two population changes, in combination, lie behind the varying overall child yields reported in Figure 3, which shows the child yield (children aged 5 to 14) for the nation from 1940 through 2000.⁴ Child yields dipped in 1950, and then declined significantly after 1970: this decrease is associated with the drop in the number of children per housing unit that is discussed above. The yield was fairly stable between 1980 and 2000.

Individual school districts' yields have varied historically partly as a result of these national population trends.

⁴ Note that we report child yields for all housing units, not just occupied ones. This is mostly because when we use yields to estimate enrollments for new housing, we do not take occupancy into account. When we measure yields in a particular neighborhood (that is not brand new), we don't account for occupancy. Similarly when we apply the student yield to new houses, we do so for all the units, not some estimated occupancy of units. The only time we care about occupancy at the local level with regard to student yields is when the development is under construction. THEN it's important to know which houses have been occupied.

Figure 3: Child Yields in the United States, 1940-2000



Data Source: U.S. Decennial Censuses, 1940-2000. Housing data: <http://www.census.gov/hhes/www/housing.html>

Variation by Housing Characteristics

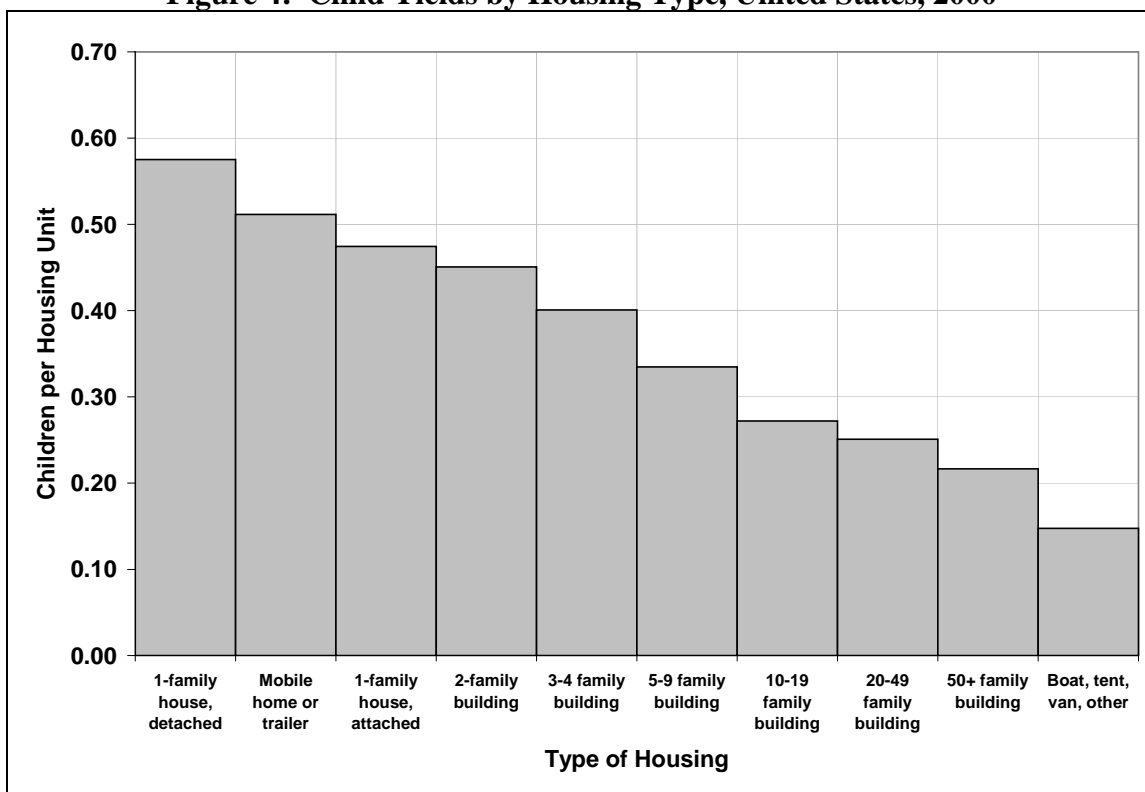
Housing Type

Yields vary greatly by housing type: in our experience, this the most important determinant of yields. Census data confirm this point.

Analysis of PUMS household records shows how child yields vary by housing type (Figure 4).⁵ The denser the housing, the lower the yields. Single-family housing units have the highest child yield (.58), with yields gradually declining for progressively greater numbers of units in the structure. In housing with 50 units or more (“50+ family buildings”), the yield is only .21.

⁵ The Census Bureau distinguishes among 10 housing types.

Figure 4: Child Yields by Housing Type, United States, 2000



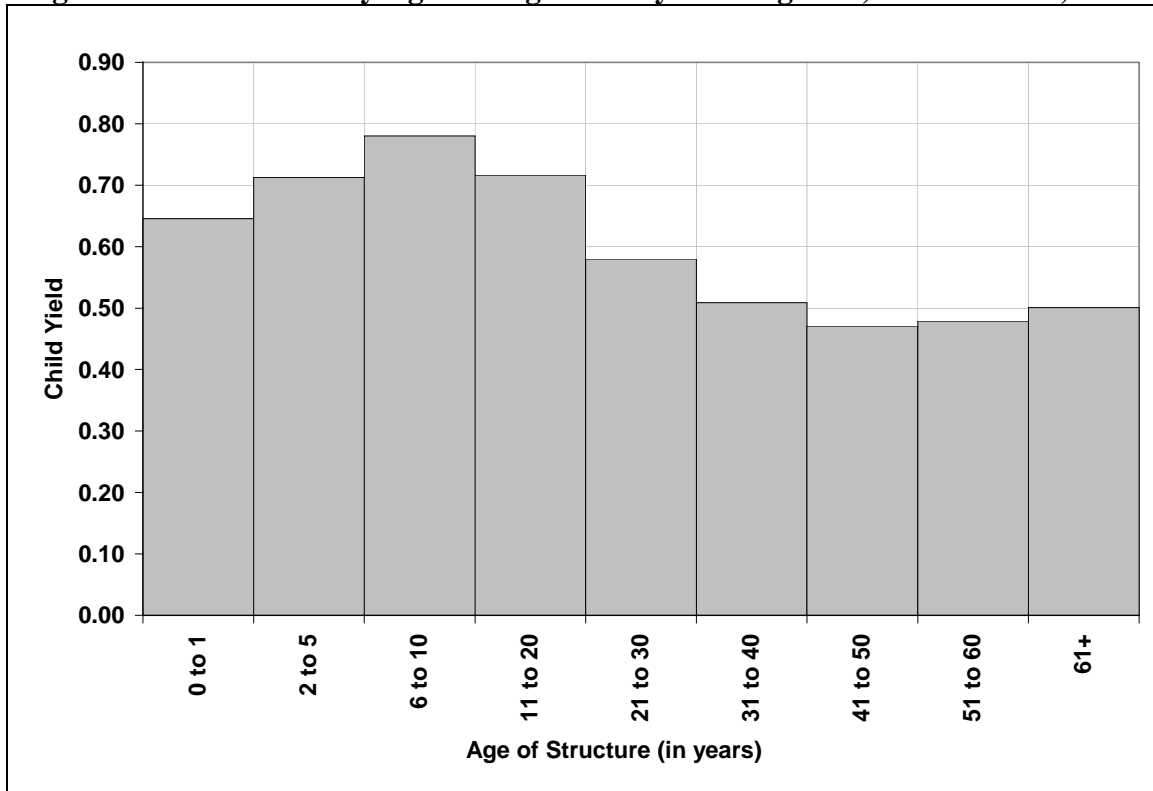
Source: 2000 U.S. Census data, Public Use Microdata Set (PUMS)

Age of Housing

A further noteworthy pattern is that SFU yields vary systematically by the age of housing: newer houses tend to have the highest yields. Figure 5 shows the number of children per unit in single-family homes, by age of structure, for the entire United States in 2000. In 2000, nearly 36 million children lived in approximately 62,460,000 single-family detached housing units, for an overall yield of .57 per unit. However, yields varied by age of structure. Peak yields were found in units that were between six and ten years old. The lowest yields were in units that were at least 40 years old. Our school district experience suggests an even stronger age-of-housing effect than shown in these Census (PUMS) data.

The cross-sectional analysis shown in Figure 5 suggests what happens to yields in houses or single-family housing neighborhoods as they age. Because data needed to conduct a longitudinal study of neighborhood yields over time are usually not available, cross-sectional studies are used instead to infer age-of-housing effects on yields.

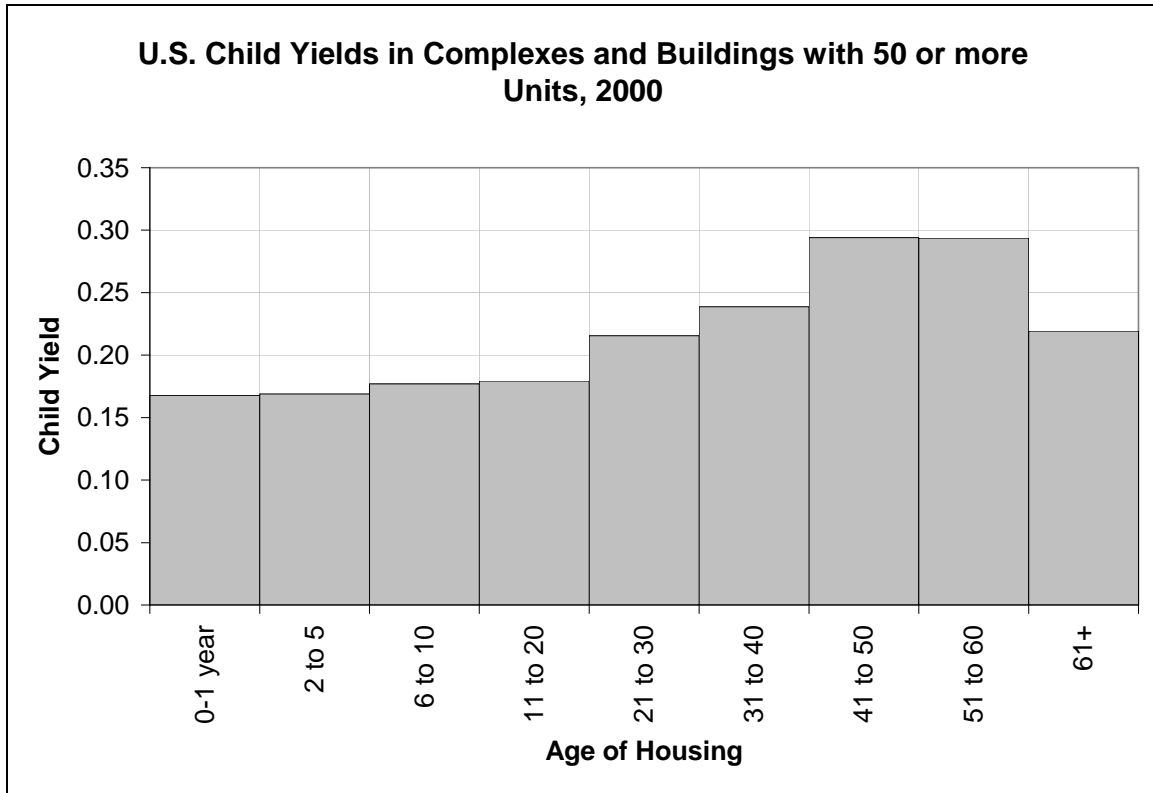
Figure 5: Child Yields by Age of Single-Family Housing Unit, United States, 2000



Data Source: Census 2000 PUMS data.

Some kinds of housing actually *gain* children as the units age. U.S. Census data show child yields increasing with age in buildings with 50 or more units (Figure 6). These data are consistent with our own studies of condominiums and apartments. Older apartments may have more children per unit because rents are generally lower in older complexes, making them more affordable for households with children. Apartments that are 50 years old have nearly twice the yields of newer units. Also, some of the older condominiums may convert from owner-occupied to rentals that are affordable to lower-income families with children.

Figure 6: U.S. Child Yields by Age of Housing in Buildings with 50 or more Units, 2000

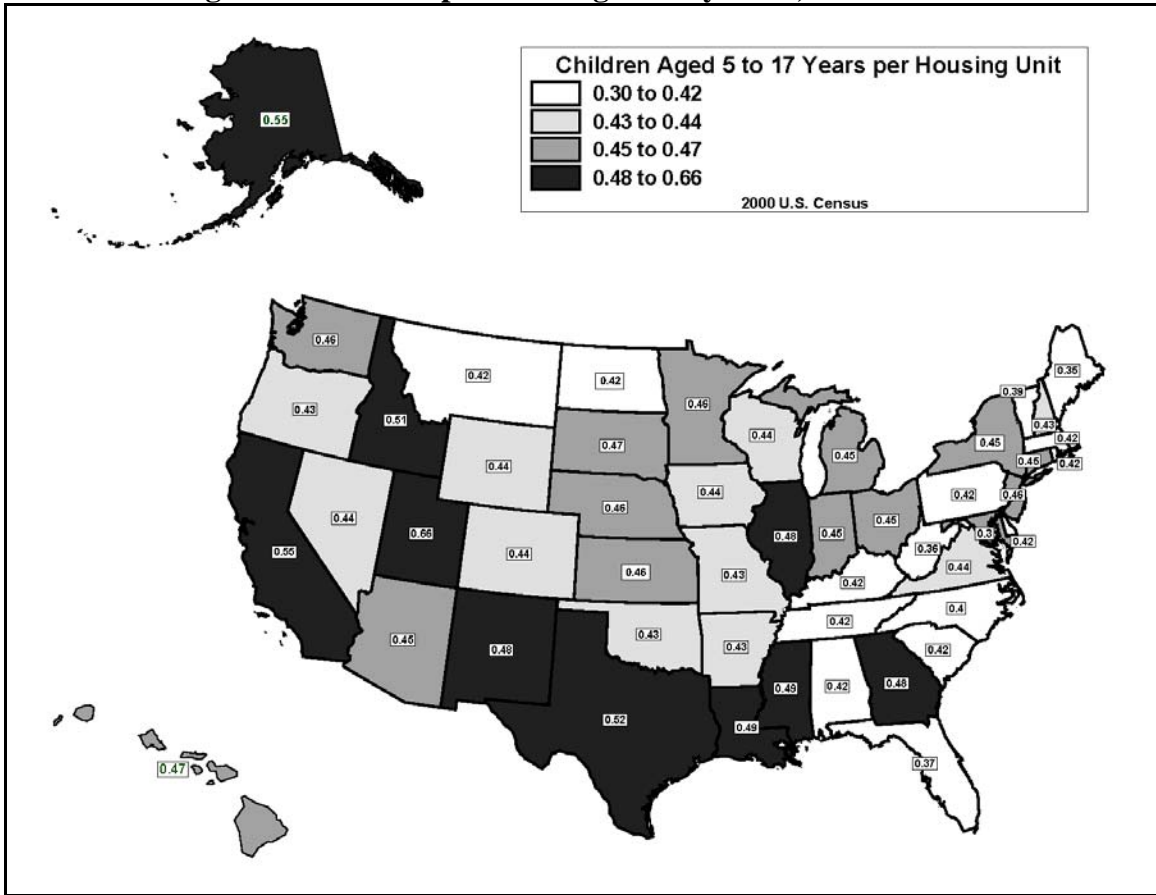


Data Source: Census 2000 PUMS data.

Variation Across Communities

Census data can be used to compare yields across geographies. Figure 7 shows child yields for each state in 2000. We see substantial variation: the highest yield was in Utah (.66), and the lowest (.30) was in the District of Columbia. Note that the highest yields do not approach levels that many might expect (page xx, “Why Student Yields Usually are Lower than People Think”).

Figure 7: Children per Housing Unit by State, Census 2000

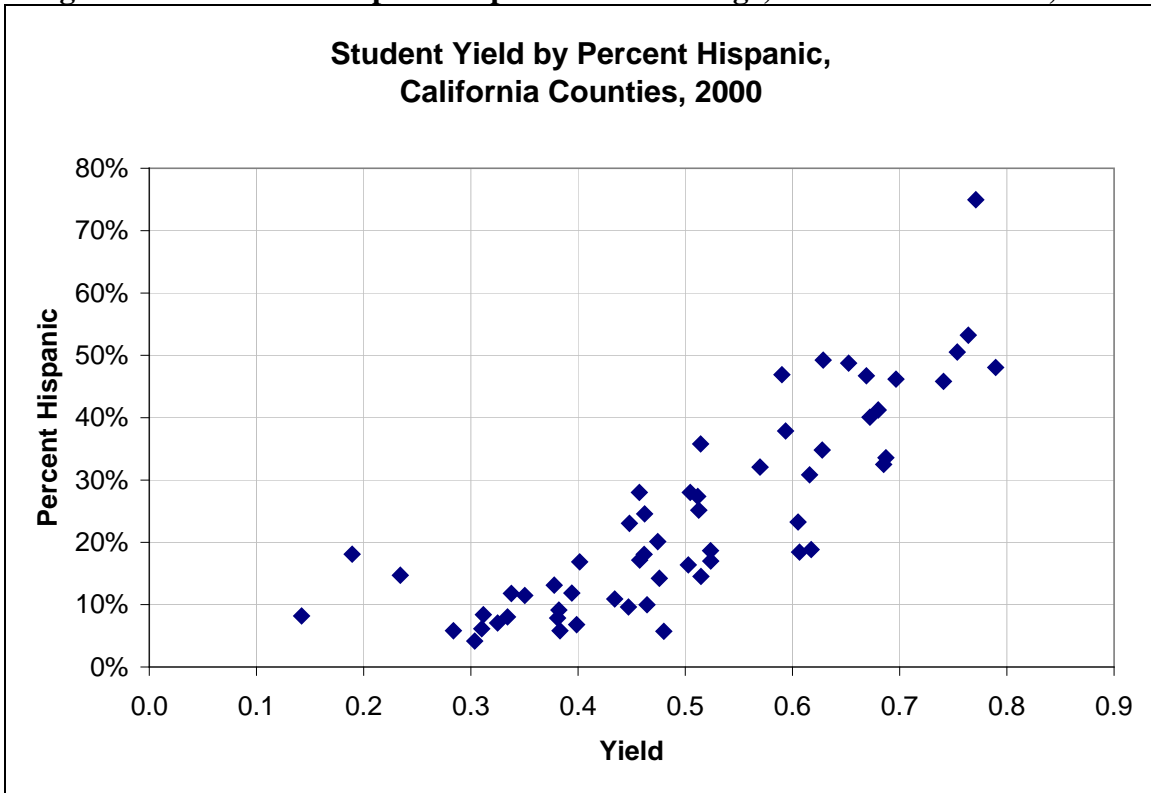


Data Source: U.S. Census 2000

Yields Vary by the Community's Ethnic Mix

A further important determinant of yield is ethnic composition. Certain groups, as well as recent immigrants, tend to have larger families. Homes occupied by these families have higher child yields. In Figure 8 we show the relationship between child yields and the Hispanic share of the population for each of California's 58 counties. Each dot represents a county. Clearly, counties with higher percentages of Hispanics tend to have larger numbers of children per housing unit.

Figure 8: Yields and Hispanic Population Percentage, California Counties, 2000



Source: U.S. Census, 2000.