

## Education Deserts

*The Continued Significance of “Place” in  
the Twenty-First Century*

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**Education Deserts:  
The Continued Significance of “Place” in the Twenty-First Century**

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# INTRODUCTION

When deciding where to go to college, students ask several important questions: How much will it cost? What academic programs are available? Will it prepare me for my future? What colleges and universities are nearby? While most research and policy conversations understandably focus on helping students answer the first few, this last question about geography and place is too often overlooked. Perhaps it is overlooked because we assume geography is irrelevant in the Internet age. Maybe we assume every community in the United States has a college or university nearby, or that students are highly mobile. Whatever the reason for overlooking the context of place, this paper explains why place still matters.

In fact, place matters even more for today's college students, many of whom work full-time, care for dependents, and have close social ties to their communities. If higher education is to better serve students and expand educational opportunities, then stakeholders must prioritize the importance of place and understand how it shapes college options. Nonetheless, federal policy conversations and researchers often discuss college choice as though place and geography do not matter (Turley 2009). For example, federal policy efforts like the College Scorecard, Financial Aid Shopping Sheet, and College Navigator all seek to get "better information" into the hands of students with the hopes they will make "better choices" about where to enroll. But for prospective students who live in communities with few educational options, their educational destinations are bound by whatever institution is nearby.

**The purpose of this brief is to explore the importance of place even further, and to raise important questions about how geography shapes educational equity and opportunity.**

Not all students have the luxury of shopping around, and in many cases (as this issue brief highlights) there are no alternatives from which to choose. From this vantage point, college choice may be less a function of students' "college knowledge" and more a function of proximity and place. For place-bound students, many

of whom are “post-traditional” students;<sup>1</sup> postsecondary choices are made according to proximity to home and work, making it all the more important to know how geographic opportunity structures vary across the nation. The purpose of this brief is to explore the importance of place even further, and to raise important questions about how geography shapes educational equity and opportunity. The brief finds several “education deserts” located across the country—communities with the most constrained set of postsecondary options.

## THE CONTINUED SIGNIFICANCE OF PLACE

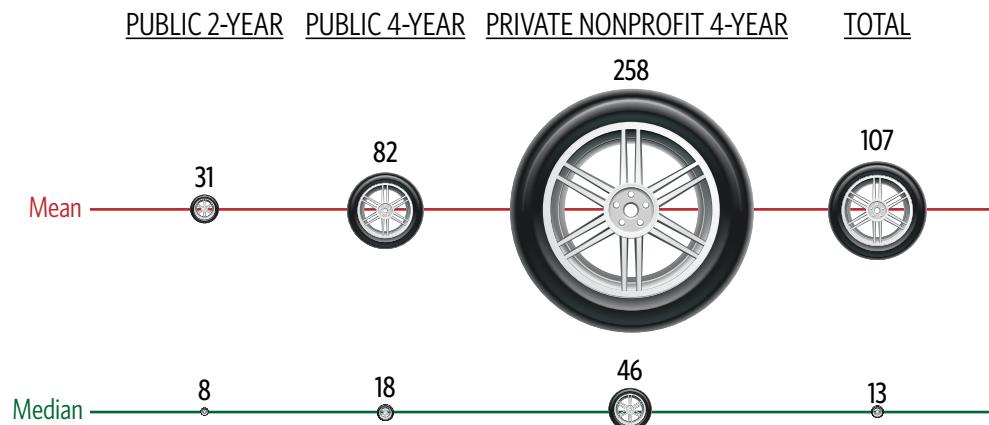
Some observers will be quick to dismiss the importance of place by arguing that distance education and the Internet are a viable alternative for place-bound students. While online learning may hold promise in certain educational environments and for some learners, it is no panacea for the structural inequalities built into our current postsecondary system. People living in homes without computers or with limited access to high-speed Internet may not see distance learning as a viable option (Strover 2014; Pick, Sarkar, and Johnson 2015). And when learners participate in distance education, researchers have found negative effects on students of color and those who commute or work while enrolled (Xu and Jaggars 2013; Xu and Jaggars 2014; Joyce, Crockett, Jaeger, Altindag, and O’Connell 2014). Only about one in 10 undergraduates enroll exclusively online, and research has yet to show that distance learning provides quality equal to or greater than place-based learning (Jaggars, Edgecombe, and Stacey 2013; U.S. Department of Education 2013). Therefore, increasing broadband access and building institutional capacity to deliver online content may hold promise for the future, but only if it does not reinforce existing inequalities.

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Place still matters; in fact, the majority—57.4 percent—of incoming freshmen attending public four-year colleges enroll within 50 miles from their permanent home (Eagan, Stolzenberg, Ramirez, Aragon, Suchard, and Hurtado 2014). Figure 1 displays the mean and median distance between their permanent home and their college or university; the most mobile students are those attending private nonprofit colleges and universities.

<sup>1</sup> For an in-depth discussion of post-traditional learners, see Soares 2013.

**Figure 1: Distance from Student's Home to College (in Miles), by Institution**



For several decades, researchers have found that distance and geography shape students' decisions about where to apply and enroll in college: the further a student lives from a college or university, the less likely he or she is to enroll (Hurwitz, Smith, and Howell 2015; McConnell 1965; McHugh and Morgan 1984; Long and Kennedy 2015). There are three general reasons why this occurs.

**Distance elasticity.** Similar to the way students respond to increases in price, the likelihood of enrolling in college diminishes as distance rises. In fact, researchers have found that some students are more responsive to distance than to price (Alm and Winters 2009; Cooke and Boyle 2011; Rouse 1995). Students who are more affluent are less affected by distance, while students from working-class families and students of color are most affected by distance (Kohn, Manski, and Mundel 1976; Ovink and Kalogrides 2015).

**Spillover effects.** Simply having a college or university nearby is associated with high levels of postsecondary enrollment (Kim and Rury 2011; Koos 1944; Turley 2009; Schofer 1975). This could be because people move to places where higher education options are available, but it is more plausible that the location of an institution encourages local residents to attend. Having a college or university nearby reduces transportation costs for prospective students, increases the "collective consciousness" of local options, and may even result in partnerships with local schools and other organizations to create college pathways that would otherwise be unavailable to local residents (Briscoe and De Oliver 2006; Griffith and Rothstein 2009; Do 2004; Franklin 2013).

**Community ties.** The college choice-making process is a social experience driven by community ties. Because of family responsibilities, cultural norms, or factors related to working while enrolled in school, many students stay close to home for college (Somers et al. 2006; Perna 2010). Furthermore, Latino, black, and Native American students are more likely to stay closer to home for these reasons (Hurtado, Inkelaas, Briggs, and Rhee 1997; McDonough, Antonio, and Trent, 1997; Pérez and McDonough 2008). In addition,

rural students tend to stay closer to home or limit their choices due to community ties (Ali and Saunders 2009; Byun, Meece, and Irvin 2012).

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As Ruth Lopez-Turley, professor of sociology at Rice University (TX) states, we “should stop treating the college-choice process as though it were independent of location and start situating this process within the geographic context in which it occurs” (Turley 2009, 126). These three themes help explain why students stay close to home, but let us now shift our attention to the *geographic context in which choices occur*. Next is a discussion on the phenomenon of “education deserts”—communities where students have few postsecondary options from which they can choose.

## DEFINING EDUCATION DESERTS

Akin to “food deserts”<sup>2</sup>—communities where access to nutritious and affordable food is scarce—there exist “education deserts” where college opportunities are quite literally few and far between. As scholars have observed, food deserts do not occur at random but are systematically drawn along lines of race and class where low-income neighborhoods and communities of color tend to have the poorest access to affordable and nutritious food, resulting in poor health conditions. The same pattern is true for housing, health care, and transportation, where structural inequalities cut along geographic dimensions and can negatively impact people’s life chances (Basta and Moroni 2013; Kennedy 2004; Lamichhane et al. 2013; Tate 2008; Walker, Keane, and Burke 2010).

Education is no different: geography can be destiny when opportunities are richly available for some and rare or even nonexistent for others (Briggs and Wilson 2005; Kennedy 2004; Smedley, Stith, and Nelson 2003). To locate communities where postsecondary opportunities are most constrained, this paper defines “education deserts” as places with either of the following two conditions:

1. **Zero** colleges or universities are located nearby, or
2. **One** community college is the **only** public broad-access institution nearby.

The first definition is the most straightforward and easiest to measure—these represent the most isolated

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<sup>2</sup> P.L. 110-246, 2008

places where no local options are available to would-be college goers. The second definition prioritizes “public broad-access” institutions because they are primarily designed to serve their local communities’ needs. Of course, many private colleges and universities also serve their local communities’ needs but they tend to be smaller in size with specific educational goals and missions, and therefore not designed to serve the broadest number of students. Accordingly, the definition used in this brief serves as a *proof of concept*—a frame of reference to help researchers and policymakers discuss the important role geography plays in shaping postsecondary choices, particularly within the public sector.

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The analysis defines a “broad-access” institution as any public college or university admitting more than 75 percent of its applicants, which is consistent with what other researchers have used when studying these institutions (Angrist, Autor, Hudson, and Pallais 2014; Doyle 2010; Fryar 2014). Selective institutions often draw from a geographically wider pool of applicants and thus may not have the expressed mission of serving their local community. Given the above definition, we focus on whether a community’s *only* broad-access public institution is a two-year institution (community college). Having only one community college and no other public broad-access college or university nearby means the student only really has one public option from which to choose. If there are two community colleges, or if there is a community college and a broad-access public university, then this community would not qualify as an education desert under this definition since the student has at least one public alternative. Under this definition, a community could still be classified as an education desert even if private institutions operate nearby. But as shown later in this paper, the private sector (nonprofit and for-profit) accounts for less than 15 percent of total enrollments in education deserts, suggesting these institutions may not have the ability or capacity to serve many more students. For an analysis of both sectors, see Hillman (2015).

**Defining a “local” geography.** While there are several ways we could measure distance and proximity (e.g., miles from home to campus) we are focusing on the built environment of the community in which prospective students live. Accordingly, we use two common environmental measures: *core-based statistical areas* (CBSAs) and *commuting zones* (CZs). Both measures use counties as the primary unit of analysis, but cluster these counties in different ways.

The CBSA is the more commonly used and familiar definition, where counties are classified into micropolitan or metropolitan statistical areas (Rephann 2007; Hillman and Orians 2013; Kienzl, Alfonso, and Melguizo 2007). Both statistical areas include core population areas and surrounding counties that have

“a high degree of social and economic integration” with the core county (Office of Management and Budget 2013). Micropolitan areas include core counties that have a population of 10,000 to 50,000, while metropolitan areas have more than 50,000 residents in the core. While these statistical areas provide a helpful classification of “local” areas for prospective students, they exclude all rural areas.

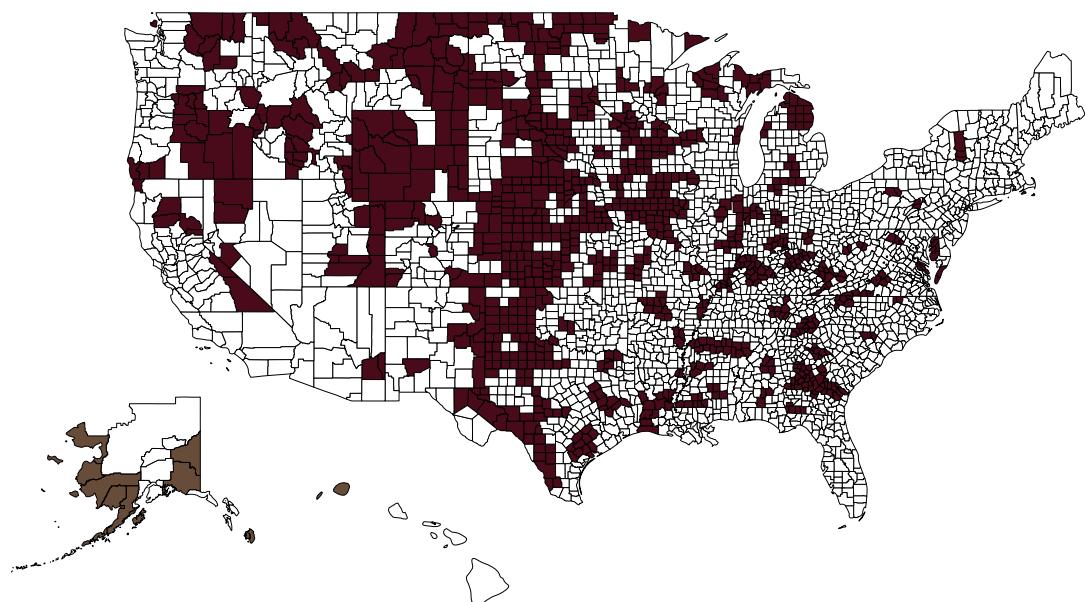
To capture such rural areas in this analysis, we include “commuting zones,” which cluster counties according to journey-to-work data from the U.S. Census Bureau. Many commuting zones overlap with CBSAs, but the two measures are distinct from one another. Commuting zones are increasingly popular measures of local areas, as seen in recent studies of upward mobility and labor market inequality (Tolbert and Sizer 1996; Turley 2009; Chetty, Hendren, Kline, and Saez 2014; Autor and Dorn 2013).

Regardless of how we measure local areas, we aggregate out data using county-level population, educational attainment, and economic data for the year 2013 made available by the Bureau of Economic Analysis, Bureau of Labor Statistics, and Census Bureau. We merge this data with U.S. Department of Education’s Integrated Postsecondary Education Data System (IPEDS) files for the 2013–14 academic year, which allows us to count the number and characteristics of higher education institutions per county.

## WHERE ARE THE EDUCATION DESERTS?

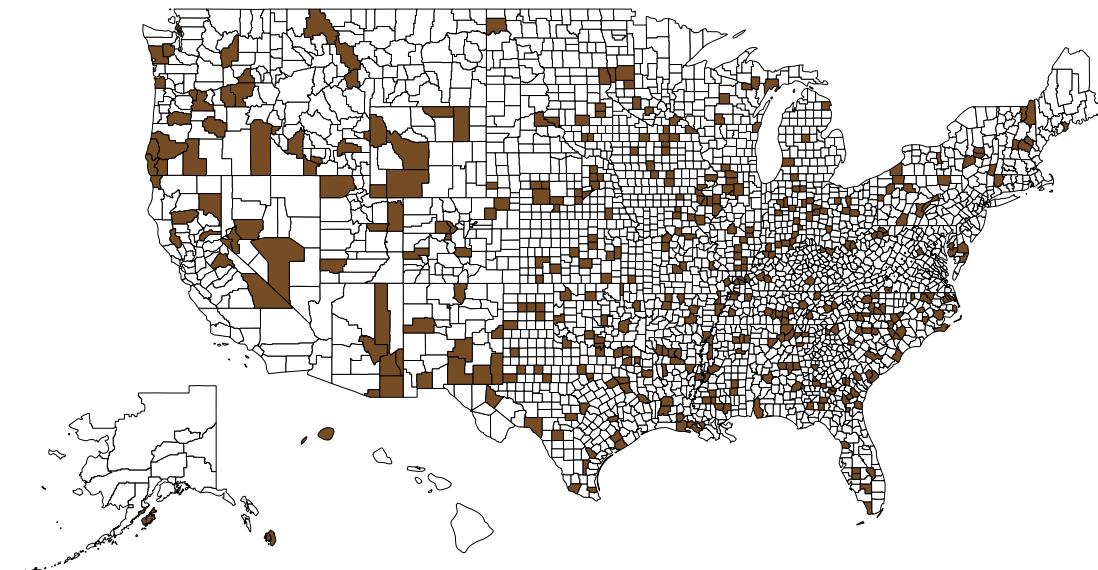
Figures 2, 3, and 4 display the location of education deserts according to commuting zones, micropolitan areas, and metropolitan areas. In Figure 2, education deserts encompass 295 commuting zones spanning across every census region. The most are located in the Midwest and Great Plains states, while the fewest are in Mid-Atlantic and New England states. The average population size of a commuting zone desert is approximately 72,100, yet there are 15 commuting zone deserts with populations over 250,000. For example, the Lexington-Lafayette (Kentucky) region is designated as the largest education desert with a commuting zone population over 550,000.

**Figure 2: Commuting Zones (Rural and Non-rural Counties) Designated as Education Deserts**

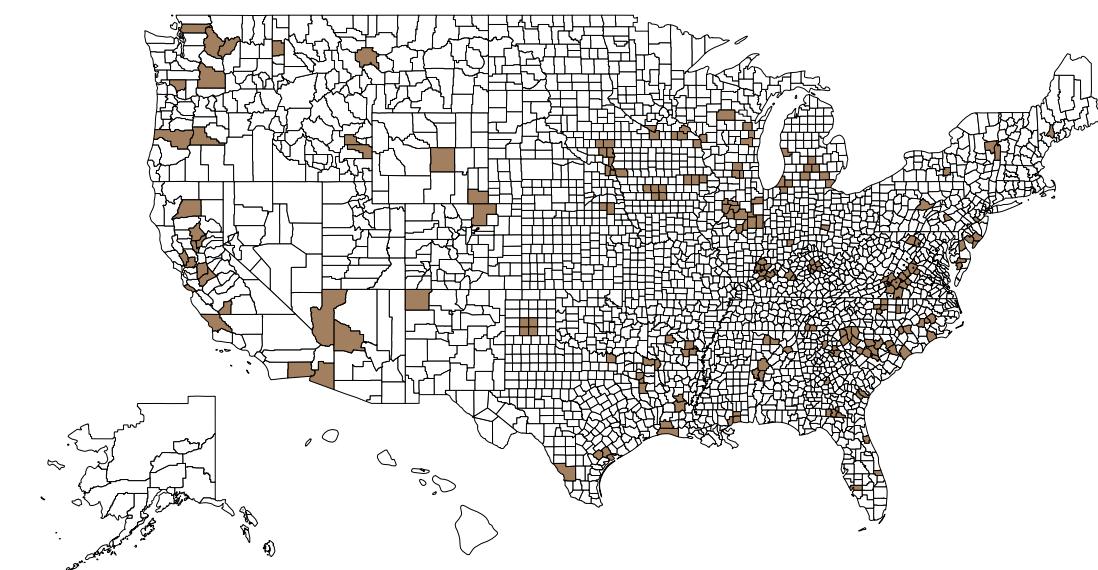


Figures 3 and 4 map education deserts by CBSAs, where rural areas are now omitted and local areas become slightly more inclusive. Here, 365 micropolitan areas (Figure 3) and 110 metropolitan areas (Figure 4) are designated as education deserts. Using this geographic definition, deserts are again located in every census region with similar concentration patterns as the commuting zone definition. However, the average population size of a CBSA desert is slightly larger than commuting zone deserts—approximately 88,200. In addition, there are now 28 areas with populations over 250,000 designated as education deserts. The largest metropolitan desert is Columbia, South Carolina, which has a total population of approximately 795,000.

**Figure 3: Micropolitan Statistical Areas (Suburban Counties) Designated as Education Deserts**



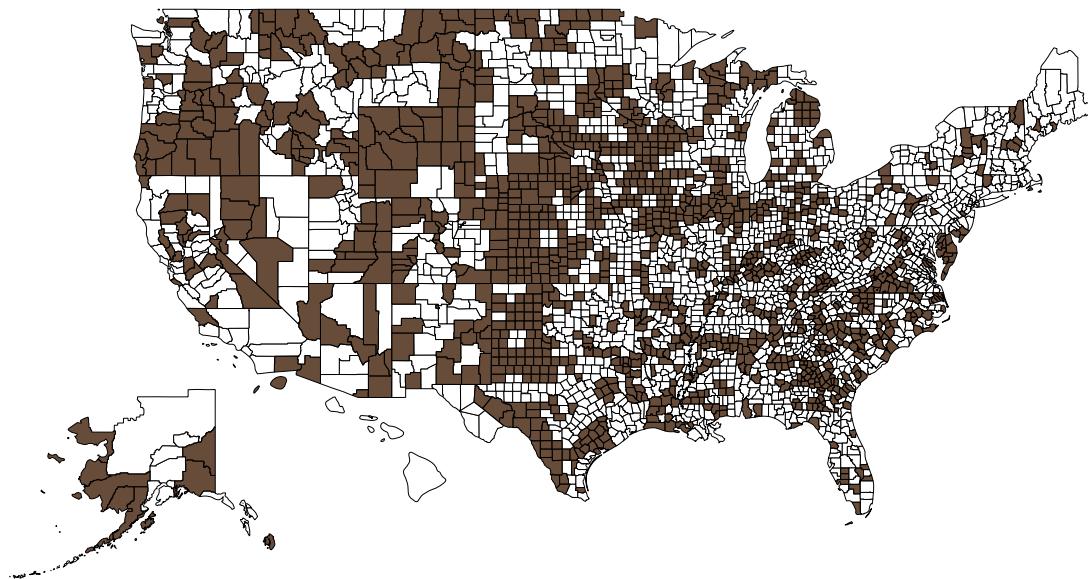
**Figure 4: Metropolitan Statistical Areas (Urban Counties) Designated as Education Deserts**



To illustrate these concepts, we identify the largest commuting zone and metropolitan education desert: Lexington-Lafayette (Kentucky) and Columbia (South Carolina), respectively. At first glance it may be surprising that these two communities fit the definition since both have large flagship public universities—the University of Kentucky and the University of South Carolina. However, these two universities admit 72 percent and 64 percent of applicants, respectively, making them moderately selective rather than broadly accessible institutions. Undoubtedly, these two institutions serve their local communities; however, prospective students living here have but one public alternative (a single community college) if they are not admitted to their flagships.

There are a handful of private colleges and universities located nearby that admit students from the local area—e.g., Lexington Theological Seminary (KY), Transylvania University (KY), Benedict College (SC), and Columbia College (SC)—but these institutions tend to be small private colleges that may not have the mission, ability, or capacity to serve larger numbers of students. In Lexington-Lafayette, the region's only community college serves 17,800 students while the area's 12 private nonprofit or for-profit colleges enroll far fewer students (a combined 10,900). A similar story emerges in Columbia, where the 20 private colleges nearby collectively enroll a total of just 13,600 students, far fewer than the 17,800 served by the region's sole community college. These two cases help illustrate how a postsecondary landscape that may comprise a number of (even very large) institutions can represent an education desert, though they should be understood as somewhat exceptional examples. Most education deserts are not in metropolitan areas; instead, they tend to be in rural and moderately sized communities. To show where other education deserts are located, Figure 5 combines all three geographic areas—micropolitan, metropolitan, and commuting zones—and displays them by region.

**Figure 5: All Education Deserts (Metropolitan, Micropolitan, or Commuting Zones) by Geographic Region**



This brief identifies some of the places where a community's capacity to deliver postsecondary education is likely to be the most constrained. This does not rule out the possibility that private colleges still serve students in education deserts; indeed they do. Nor does it speak to the quality of educational options that are available. There are likely to be pockets within deserts where some students are served very well by

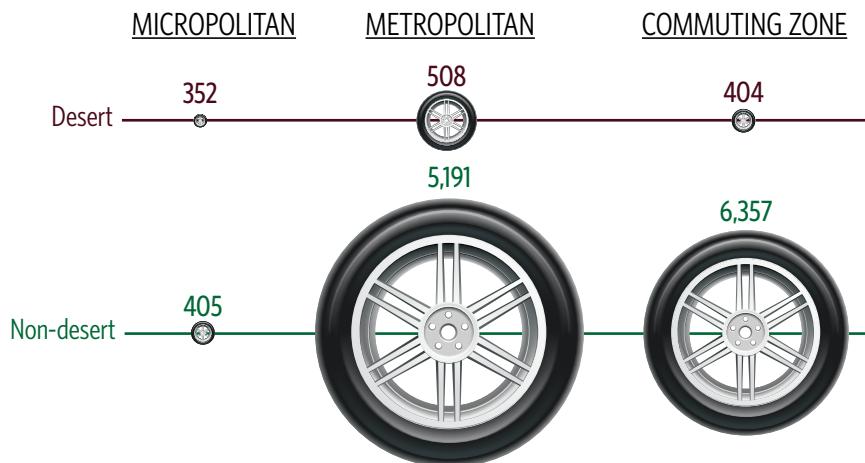
their local institutions and others are not. Further research should drill down even further to examine this phenomenon. However, the purpose of this analysis is to draw attention to the fact that the opportunity to attend college varies by geography, especially when communities do not have the capacity to meet the educational needs of local residents.

There are likely to be pockets within deserts where some students are served very well by their local institutions and others are not.

## WHAT COLLEGES AND UNIVERSITIES OPERATE IN EDUCATION DESERTS?

While all types of postsecondary institutions—public, nonprofit, and for-profit—operate in education deserts, these areas are primarily served by public institutions. This is especially true in micropolitan deserts, but even metropolitan areas and commuting zones are characterized by having large shares of students enrolled in the public sector. The average total number of institutions ranges from 1.0 in micropolitan deserts to 1.4 in commuting zone deserts, and 4.6 in metropolitan deserts. The relatively few nonprofit colleges and universities operating<sup>3</sup> in education deserts tend to be selective (or at least not broad-access), while the for-profits tend to be broad-access but enroll small numbers of students. Together, community colleges are few in number but enroll the lion's share of students in education deserts. Figure 6 displays the average number of colleges and universities per geographic region, where education deserts have between 1.0 and 4.6 institutions nearby.

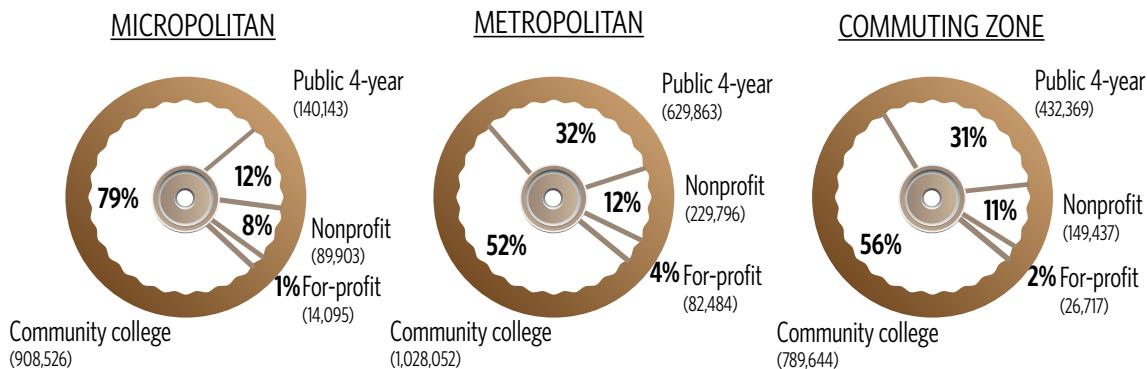
**Figure 6: Number of Colleges and Universities (All Sectors) Located in Education Deserts, by Geographic Area**



<sup>3</sup> In this analysis, the for-profit sector includes only brick-and-mortar institutions. Colleges and universities enrolling more than half of their students via distance education are excluded from this analysis.

Because of the definition we use for this brief, it is no surprise that community colleges enroll the majority of students in education deserts, as shown in Figure 7. This figure also shows that private colleges and universities enroll a relatively small but nontrivial share of students in education deserts.

**Figure 7: Where Students Attend College in Education Deserts, Total Headcount Enrollment**



An example will illustrate these national trends. The metropolitan area of Laredo, Texas has a population of approximately 260,000, and 94 percent of adults are Hispanic. There are four institutions nearby: one community college, one selective public four-year university, and two for-profit institutions. These four institutions collectively enroll 20,700 students with the majority (60 percent) attending Laredo Community College and the next largest number (35 percent) attending Texas A&M International University. The remaining two for-profit colleges enroll a small share of the total number of students in this metropolitan area (5 percent). For place-bound prospective students living in Laredo, their college choices are constrained to only a few options. The only alternatives to Laredo Community College are a highly selective four-year university that may be difficult to get into or two for-profit colleges that offer a very narrow set of courses and are more expensive than the community college.

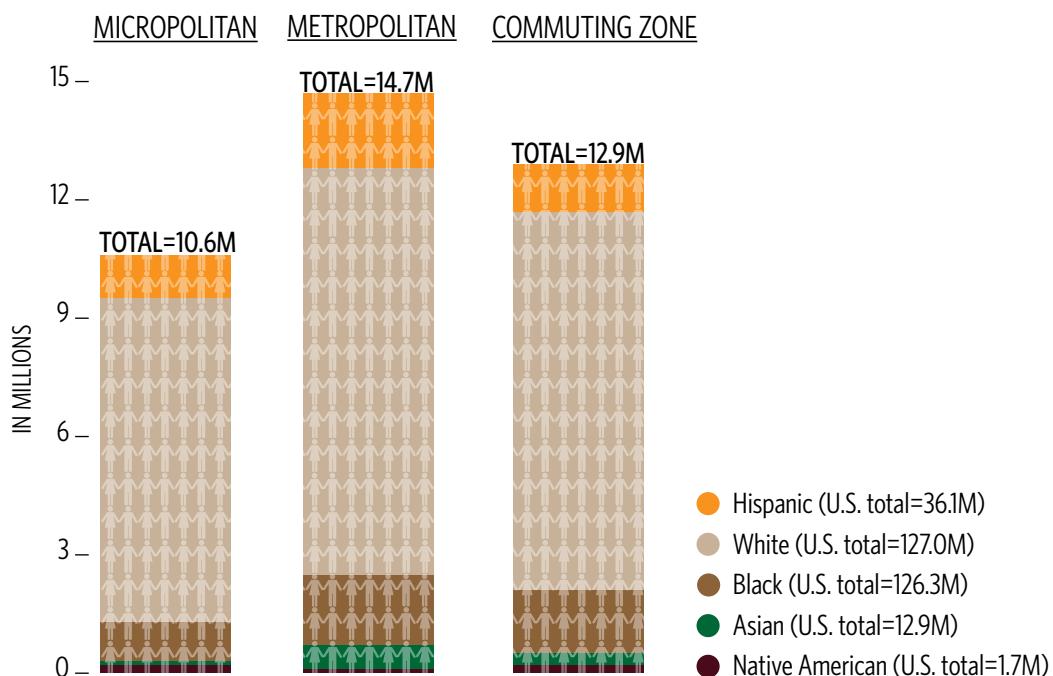
**The role of the community colleges cannot be understated: they enroll over half of all students who live in education deserts.**

On average, education deserts are a lot like this example. The private nonprofit colleges operating in these areas tend to be selective (only one in four are broad-access), while local for-profit colleges tend to be smaller and more expensive institutions. As a result, public community colleges play a significant role in delivering opportunities to residents of education deserts. The role of the community colleges cannot be understated: they enroll over half of all students who live in education deserts.

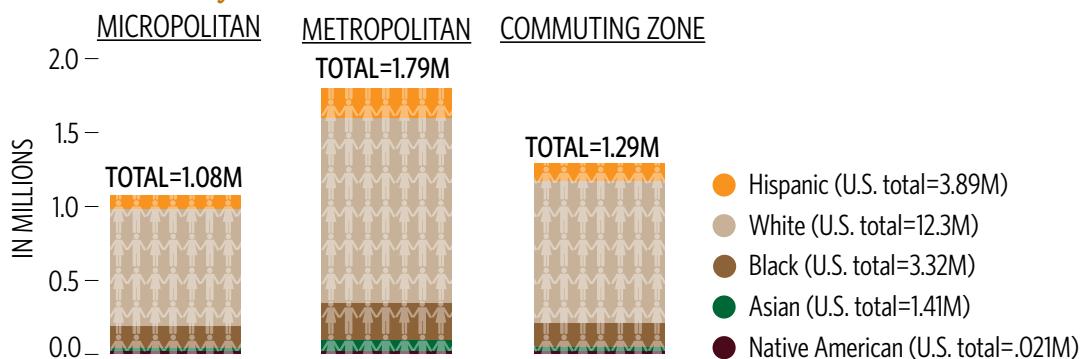
## WHO LIVES IN EDUCATION DESERTS?

Approximately 12.9 million adults live in commuting zone deserts, while CBSA deserts (combined micropolitan and metropolitan) are home to 25.3 million adults. Together, these account for 6 percent to 12 percent of the total adult population, respectively (see Figure 8). A disproportionately large number of Native Americans (20 percent of the total population) live in education deserts, and one in 10 black and Hispanic adults live in deserts. Fewer Asian adults live in education deserts, while the largest numbers of education desert residents are white. Similar patterns emerge when shifting from population to college enrollment levels (see Figure 9).

**Figure 8: Number of Adults (in Millions) Living in Education Deserts, by Race/Ethnicity**



**Figure 9: Number of Students (in Millions) Living in Education Deserts, by Race/Ethnicity**

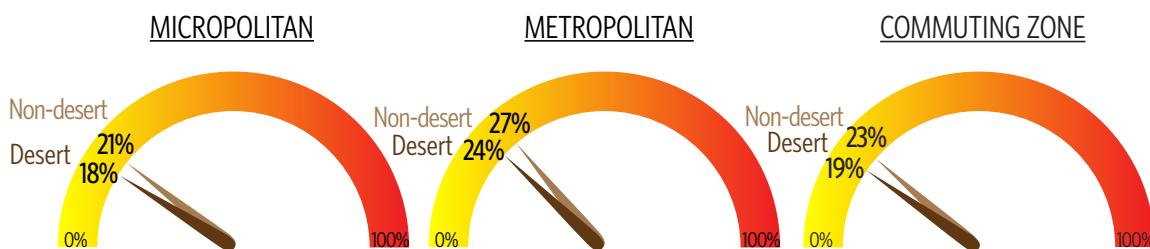


Between 1.29 and 2.86 million students attend college in education deserts. These enrollment figures vary by geographic type, where metropolitan education deserts have the largest number of students, followed by commuting zones and micropolitan statistical areas. Similar to what we found with the total adult population, we estimate about 13 percent of the total student population attends college in an education desert; however, this drops to about 6 percent if we use the more conservative commuting zone definition.

**Between 1.29 and 2.86 million students attend college in education deserts.**

Because education deserts do not have many accessible four-year colleges or universities nearby, their residents tend to have lower educational attainment levels than the national average. Figure 10 compares the educational attainment levels of deserts with non-deserts, where we consistently see that education deserts have lower shares of adults with bachelor's degrees.

**Figure 10: Educational Attainment Levels, Percent of Adults with Bachelor's or Higher**

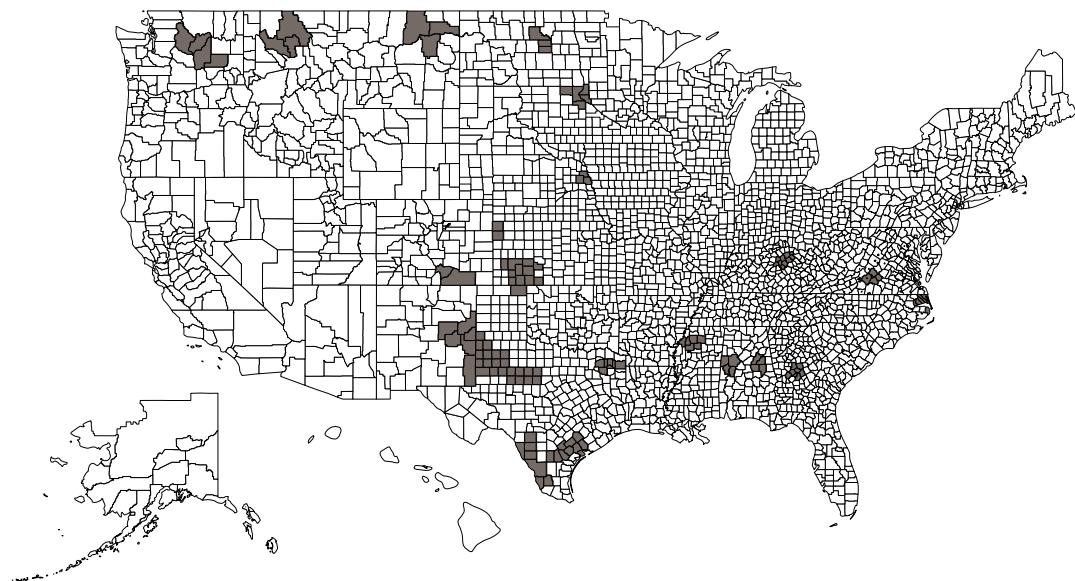


## HOW MANY MINORITY-SERVING INSTITUTIONS ARE LOCATED IN EDUCATION DESERTS?

In Figure 11, we focus on minority-serving institutions (MSIs) located in education deserts because they likely play a unique role in expanding access for students of color in these communities. This map combines both commuting zones and CBSAs to display areas where MSIs operate in education deserts.<sup>4</sup> Across these 135 counties, there are 37 MSIs enrolling approximately 327,000 students. Most of these colleges and universities are Hispanic-serving institutions, meaning they were not designated by federal statute but became MSIs through a changing enrollment profile given shifting demographics in the region.

<sup>4</sup> For the purpose of this analysis, MSIs represent three groups of institutions: Hispanic-serving institutions (HSIs), Historically Black Colleges and Universities (HBCUs), and tribal colleges and universities (TCUs). The HSI list comes from *Excelencia* in Education's summary file (Galdeano and Santiago 2014). HSIs are unique among MSIs because they earn the distinction due to their enrollment profile (25 percent of undergraduates must be Hispanic); unlike tribal colleges or HBCUs, they were not created by federal statute or designation. It should nevertheless be noted that many MSIs have a history of serving their local or regional community as part of their educational mission.

**Figure 11: Education Deserts (Metropolitan, Micropolitan, or Commuting Zones) with Minority-Serving Institutions**



## DISCUSSION AND QUESTIONS

Place matters in college choice-making, and this paper shows the many communities that have no or very few colleges available for prospective students. Our analysis shows how many communities are unequal in terms of the number and accessibility of institutions nearby, an inequality that fundamentally shapes higher education destinations. Due to these structural inequalities, we agree with Turley's assertion, noted earlier, that researchers and policymakers should "stop treating the college choice process as though it were independent of location and start situating this process within the geographic context in which it occurs" (Turley 2009). Researchers and policymakers continue to seek solutions for improving the process of college opportunity when they should also emphasize the *geography* of college opportunity.

When focusing on the process of opportunity, many strive to perfect the marketplace for human capital by getting information and money into the hands of students. Doing so is believed to help students act as rational consumers by making "better" decisions about where to attend (Hoxby and Avery 2012; Scott-Clayton 2012; Dynarski and Scott-Clayton 2013). Taking this rationale to food deserts, we would surmise that individuals simply need more information and money to make better choices about where to eat, ignoring the fact that the consumer lives in an environment where healthy options are few to begin with. If a prospective student lives in an education desert where there are few options nearby, then his or her educational destinations are less a function of "college knowledge," or even financial need, and more a function of proximity and place. If we truly want to improve postsecondary attainment levels, then we should not simply try to nudge students to make "better choices" about where to attend. We need to also consider the supply and capacity of colleges and universities—where they are located, whether they are serving their local communities, and the roles geography and place have in shaping students' choices. Similar to the designation of "food deserts" in the Farm Bill, it is possible to expand Title III of the Higher Education Act to help institutions in remote areas build their capacity and to help those in large metro

areas better serve all residents of their communities. To the extent that colleges and universities are located in education deserts with fewer resources to create new programs or to support student success, federal policymakers may find ways to build the capacity of these institutions to better serve students whose choices are most constrained.

**Expanding opportunities in education deserts.** A number of colleges and universities operate in education deserts but are not broad-access institutions. Nevertheless, they play an important role in responding to local needs and likely have deeply embedded roots in their local communities. When these institutions are located in or near education deserts, it may open up unique opportunities to collaborate and find innovative ways to build cross-sector capacity to serve students. For example, institutions in education deserts may be able to serve as a transfer destination for the local community college, or they could strengthen academic partnerships with the college to help expand opportunities beyond the associate degree. States could conduct an inventory of their own education deserts and then design incentives to help their public selective institutions partner with community colleges to improve the transfer and articulation pipeline. Similarly, institutions could collaborate with one another to ensure that students have a full array of opportunities that extend beyond the community college experience, such as access to research opportunities, upper-level coursework, or academic programs that are not currently delivered in the community college setting.

**Further research on geography of opportunity.** In this analysis, we use CBSAs and commuting zones to define local areas, yet we could use census tracts to drill down even further within these deserts. This would be particularly useful in large communities that are currently not classified as deserts; it is possible that a more granular assessment would reveal far more deserts than those reported here. For example, case studies of local communities reveal deserts within metropolitan areas, where neighborhood segregation and transportation costs are large barriers to equal access—even in communities not designated as education deserts (De Oliver 1998; Briscoe and De Oliver 2006). Accordingly, we see our analysis as providing conservative estimates on the magnitude of inequalities related to the geography of college opportunity.

Policy and research discussions about college choice should prioritize the role geography plays in shaping and constraining educational opportunity.

The geography of college opportunity is largely unexplored in the field of higher education, yet it is increasingly important to today's college students. In fact, geography will be even more important for future post-traditional college students who are balancing work, family, and school responsibilities. Finding an accessible and affordable institution in close proximity to home or work will become even more important for tomorrow's college students. This brief finds several education deserts across the country where post-traditional students will likely have the fewest opportunities for upward mobility. With this new information, federal and state policymakers can better respond to some of the most fundamental

challenges regarding college choice and opportunity. Place matters, and geography can be destiny when opportunities richly available for some communities are rare or even nonexistent in others. Therefore, policy and research discussions about college choice should prioritize the role geography plays in shaping and constraining educational opportunity.

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