

# Sex in the (Non) City:

## Teen Childbearing in Rural America

By Alison Stewart Ng and Kelleen Kaye



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*The findings, opinions, and any errors presented in this report are solely the responsibility of the authors and do not necessarily represent the views of individuals who commented on this report.*

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This document is also available as digital download along with a Summary version, Technical Appendix, and related infographics. Please visit <http://TheNationalCampaign.org/resource/sex-non-city> to access these materials.

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# 1. Introduction

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## IN BRIEF

- Although the bulk of teen births occur in metropolitan areas (where the majority of teens live), teens in rural areas are at higher risk of childbearing.<sup>a</sup>
- In 2010 (the most recent data available by county when we began this project), the teen birth rate in rural counties was nearly one-third higher compared to the rest of the country, surpassing the rate in suburban counties and in major metropolitan centers.
- This is directly related to a more sex/less contraception formula—teens in rural areas are more likely than those in non-rural areas to have had sex and they are less likely to have used contraception.
- Furthermore, the birth rate has been falling more slowly in rural counties than in non-rural counties—a decline of 31% between 1990 and 2010, compared to a decline of 50% in the largest metropolitan centers.

To better understand what factors account for the disparity in teen childbearing between rural and metropolitan areas, this report presents additional analysis that tackles three questions:

- First, what factors are significant predictors of teen childbearing in *all* counties—rural and metropolitan—across the United States?
- Second, which of these risk factors are more prevalent in rural counties compared to metropolitan counties?
- Third, putting one and two together, how much does each risk factor contribute to the difference between rural and metropolitan teen birth rates?

To answer these questions, we first analyzed data on teen birth rates and numerous risk factors for all counties across the United States using a multivariate model that enables us to look at all factors simultaneously. To the extent possible, our analyses also controlled for (or netted out) the effect of differences in access to abortion, which helps us ensure that our results primarily reflect differences in the chances that a teen will get pregnant in the first place, and not simply differences in whether a pregnant teen will obtain an abortion. In short, our results indicate that:

- Reduced access to health services was linked to significantly higher teen birth rates across counties, where our measures reflect the availability of doctors as well as publicly funded clinics offering contraception.
- A greater percentage of the population without health insurance was also linked to higher teen birth rates across counties, as were increased poverty and a greater percentage of female-headed households.
- Other significant risk factors included transportation barriers, fewer recreational facilities, lower college enrollment, higher rates of binge drinking, and whether the county is losing rather than attracting residents.

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<sup>a</sup> Throughout this report, we define rural counties to include those that are classified as “noncore” or “micropolitan” based on the Urban-Rural Classification Scheme published by the National Center for Health Statistics, while we use the term metropolitan to refer to all other counties.

However, while these risk factors were linked to higher teen birth rates at the county level, not all were unique to rural counties specifically. For example:

- Although poverty rates were much higher in rural counties compared to metropolitan, risky behavior (like binge drinking) was only slightly higher.
- Transportation barriers existed in rural and metropolitan counties alike.
- Another risk factor associated with higher teen birth rates—the percentage of female-headed households—was actually lower in rural counties compared to metropolitan.

Taking into account which factors are significantly linked to higher teen birth rates *and* which are more serious in rural areas, what factors explain the gap between rural and metropolitan teen birth rates?

- In the end, the most prominent factors explaining higher rates of teen childbearing in rural areas were college enrollment, poverty, access to health services, and whether the county was losing rather than attracting residents.
- Other factors such as transportation barriers, while significant predictors of teen birth rates across counties overall, played only a minor role in explaining the disparity between rural and metropolitan counties.
- Differences in the racial/ethnic composition of the population also accounted for very little of the disparity, as did marriage among teens.

Although the challenges faced by many rural communities are not easily addressed, teen childbearing among rural youth is neither culturally entrenched nor intractable. Our results, in combination with insights offered in the literature, suggest that there is a way forward. Ensuring that teens have access to both contraceptive services and evidence-based programs focused on preventing teen pregnancy is an important start, and members of rural communities—particularly parents—may be more supportive of addressing topics related to teen pregnancy than some might think. The implications of our results for teen pregnancy prevention efforts are discussed more extensively in the final section of this report.

## BACKGROUND

Teen pregnancy and birth rates have been declining since the early 1990s and are currently at historic lows.<sup>1</sup> There has been significant progress in all 50 states and among all racial/ethnic groups. This national success story has been well documented and widely reported. Even so, many have wondered how specific segments of the population compare to others on rates of early pregnancy and childbearing. In particular, The National Campaign has received many questions about rural teens, and whether their rates were higher or lower compared to rates among more metropolitan (i.e. urban) teens. Speculation was essentially split down the middle—many assuming rates were higher among rural youth and others assuming the opposite.

In an effort to address this question, in 2013 The National Campaign released a first-of-its-kind analysis of teen childbearing in rural America. Our analysis showed that, in 2010 (the most recent data available by county), the teen birth rate in rural counties was nearly one-third higher compared to rates in the rest of the country, and rates have been falling more slowly in rural areas compared to metropolitan areas.<sup>2</sup>

As discussed later in this report, these higher teen birth rates reflect more sexual activity among teens in rural areas and, among teens who have had sex, less use of contraception. Such differences raise a key question: what accounts for the disparities? Few would suggest that rural teens are intrinsically different from other teens—rather, they likely face a series of factors that increase their risk of early pregnancy and childbearing—factors that are more common, or more intense, in rural communities than in metropolitan areas.

We’ve heard from some rural providers that they face unique challenges in serving the needs of young people, such as limited access to health services and transportation, which in turn raises the risk of teen childbearing in their communities. We’ve also been asked whether rural teen birth rates are higher because more rural teens get married and start their families early, or whether the higher birth rates are largely explained by differences in the racial/ethnic makeup of the local population, or whether it’s simply the case that rural teens have too much time on their hands.

The literature paints an extensive picture of the hardships that can beset rural communities. Poverty rates are higher in rural areas,<sup>3</sup> while reduced economic and career opportunities for youth often encourage relocation to more metropolitan areas.<sup>4</sup> Achieving economies of scale is often more difficult in sparsely populated areas and can leave rural communities underserved by health providers and clinics. What’s more, rural residents may have a harder time reaching what clinics do exist due to transportation barriers, and have a harder time paying for those services due to lower rates of health insurance.<sup>5</sup> Many studies tie these hardships to diminished health and wellbeing for rural residents and rural youth in particular.<sup>b,6</sup> Yet, to our knowledge, there are no studies that directly assess which risk factors explain why recent rates of childbearing are higher in rural communities.<sup>c,7</sup>

To help fill this gap, the results in chapters 3, 4, and 5 describe the extent to which potential risk factors are significantly associated with teen childbearing in counties—*all* counties—across the United States, whether these risk factors are more common in rural communities than metropolitan communities and, finally, which of these factors account for the disparity in teen birth rates between rural and metropolitan counties. This report focuses on the teen birth rate, measured for all 3,141 counties across the United States, using data from the National Center for Health Statistics (NCHS). Data are for 2010, the most recent year for which we could obtain county-level data on teen birth rates as well as the set of risk factors we analyze.

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<sup>b</sup> Some studies show that rural youth are more likely to go without needed medical care for a range of needs, including injury, illness, chronic health problems, and reproductive health. Rural residents overall are also likely to reduce or delay the use of medical services, especially due to cost, and have higher rates of obesity, smoking, death, injury, and chronic health problems compared to metropolitan areas. See Blumenthal & Kagen, 2002; Elliott & Larson, 2004; Meit et al., 2014; Zimmer-Gembeck et al. 1997.

<sup>c</sup> Although one study provides some insight, it includes data on teen births only through 2000, and it assesses whether certain factors impacted teen childbearing differently in rural vs. metropolitan areas, a slightly different question. See Shoff & Yang, 2012.

Explanatory variables include the county's rural/metropolitan status based on the NCHS 2013 Urban-Rural Classification Scheme for Counties (which in turn reflects 2010 population data), as well as several risk factors, basic demographic controls, and state fixed effects. To the extent possible, our analyses also control for (or net out) the effect of differences in access to abortion, which helps us ensure that our results primarily reflect differences in the chances that a teen will get pregnant in the first place, and not simply differences in whether a pregnant teen will seek an abortion.<sup>d</sup> Explanatory variables are also measured at the county level unless otherwise noted, and draw on data from many sources, including NCHS, the Census Bureau, the Bureau of Labor Statistics, the Guttmacher Institute, the Department of Transportation, the Health Resources and Services Agency, and the Substance Abuse and Mental Health Services Agency, among others.<sup>e</sup>

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<sup>d</sup> Ideally, our analyses would focus on teen pregnancy; however consistent data on teen pregnancy rates are not available for all counties. Even so, we believe the patterns and associations we report for teen birth rates largely mirror those we would observe for teen pregnancy rates, as we discuss in more detail in Chapters 2 and 3.

<sup>e</sup> For full list of data sources, see the Technical Appendix available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

## 2. Rural America

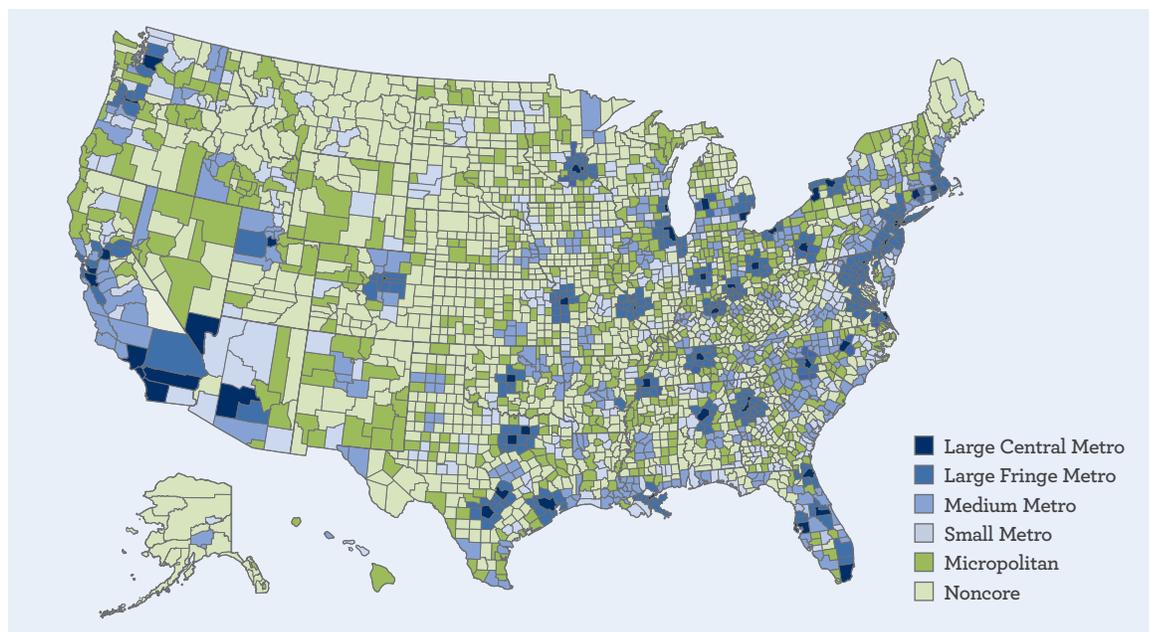
### RURAL GEOGRAPHY

The rural/metropolitan classification we use in our analysis, taken from NCHS, includes six categories ranging from the most rural (noncore) to the most metropolitan (large central metro), as defined in Table 1.<sup>8</sup>

*Table 1. Definition of Metropolitan Status<sup>f</sup>*

Metropolitan Status	2013 NCHS Urban-Rural Classification Scheme	Definition
Metro	Large Central Metro	Counties in a Metropolitan Statistical Area of 1 million or more, which include the area's largest city
	Large Fringe Metro	Counties in a Metropolitan Statistical Area of 1 million or more, which do not qualify as Large Central Metro
	Medium Metro	Counties in a Metropolitan Statistical Area of 250,000-999,999 population
	Small Metro	Counties in a Metropolitan Statistical Area of 50,000-249,999 population
Rural	Micropolitan	Counties in a Micropolitan Statistical Area (An area with an urban population of 10,000 to 49,999)
	Noncore	Counties outside of any Metropolitan or Micropolitan Statistical area

*Figure 1. Map of U.S. Counties, Based on 2013 NCHS Urban-Rural Classification, Data for 2010*



<sup>f</sup> This index uses census data for 2010 and builds on definitions originally created by the Office of Management and Budget. Definitions provided here have been simplified for brevity. For further details, please see NCHS (2012).

The map in Figure 1 applies this categorization to all 3,141 counties across the United States.<sup>9</sup> As can be seen in Figure 1, rural counties can be found in every region and almost every state. They cover 72% of the land area in the United States, however many are sparsely populated, such that only 15% of teen girls live in rural counties, or 1.6 million girls age 15 to 19 as of 2010.<sup>9</sup> This definition of rural includes both counties with small towns (micropolitan), as well as the most rural counties (noncore).

Of course, there are many different ways to define rural areas. We chose the NCHS urban-rural categorization for two reasons. First, it was defined for the purpose of measuring health outcomes. Second, it allows us to differentiate between major metropolitan centers (large central metro) and the suburbs (large fringe metro).<sup>10</sup> Health outcomes tend to be best in suburban counties, and worse at either end of the urbanization continuum, so this definition was the best match for our analysis.<sup>11</sup>

## A CLOSER LOOK AT RURAL AMERICA

Rural America often brings to mind images of wide open spaces in agrarian communities where time has stood still. Yet, today's rural America is far more diverse and dynamic than many expect. Indeed, there is no single 'rural America.' For example, counties dependent on farming are mostly located in the Midwest, while the manufacturing sector plays a major role in rural counties of the Northeast and South.<sup>12</sup> Mining communities, known for some of the greatest economic hardship and long associated with Appalachia, are prevalent in some southern and western states as well.<sup>13</sup>

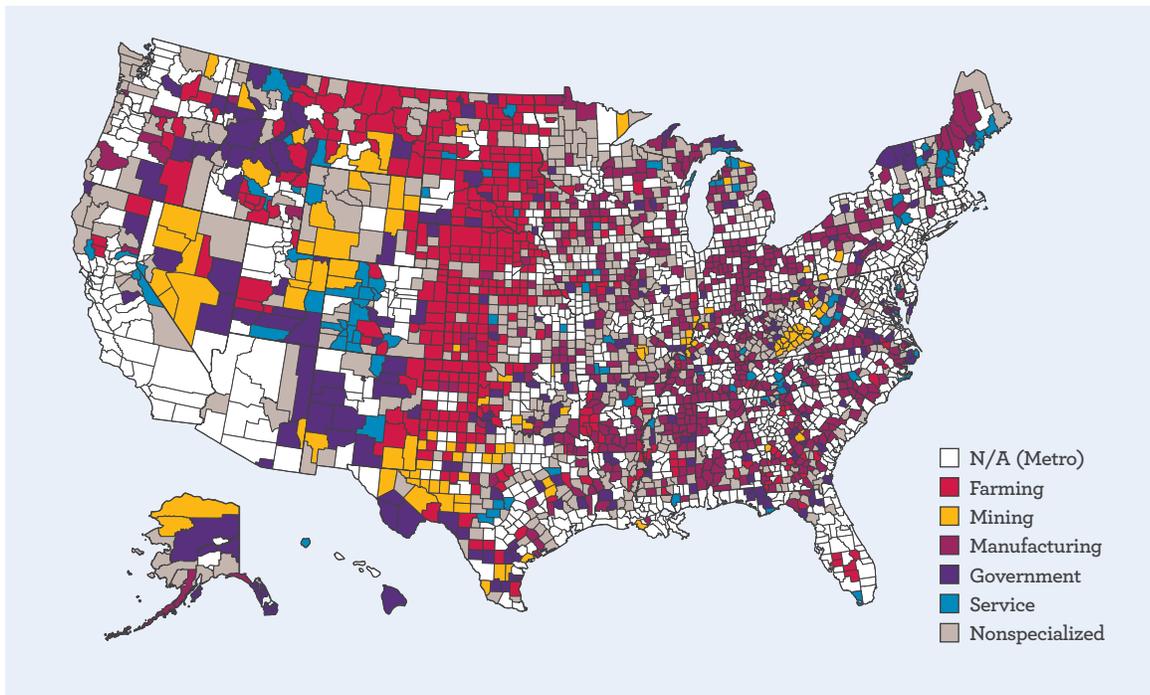
The rural economy is changing, bringing population changes as well. In the Midwest and South for example, new manufacturing centers rely on labor provided by a growing number of Latino immigrants, which, in turn, has helped to stave off the population declines seen in some other rural communities.<sup>14</sup> Rural America has always been more racially diverse than some people realize, and, like the nation overall, is becoming more so over time. Our tabulations indicate that, as of 2010, racial and ethnic minorities accounted for 25% of rural teen girls, compared to 21% in 2000, and the majority of this increase is due to a growing population of Latina teens. This varies by region, and some rural communities are more diverse than others.<sup>15</sup>

For some, rural America may also bring to mind a place steeped in traditional values where youth are sheltered from the influence of urban culture, and we've heard some speculate that higher rural teen birth rates simply reflect more traditional family formation, where early childbearing is largely within marriage. Yet, as with many societal outcomes, rural and metropolitan counties are not as far apart as one might think. While rates of religious adherence, attendance at worship services, and religious importance were all higher in

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<sup>9</sup> For more detail about what this total includes, see Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

Figure 2. Economic Specialization of Rural Counties, 2004



2011 Atlas of Rural and Small Town America, U.S. Department of Agriculture, Economic Research Service (ERS). For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

rural counties compared to metropolitan, our examination of recent data suggests these differences are relatively small. For example, the percentage attending worship at least weekly was 36% in rural counties compared to 33% for metropolitan and 35% for the nation overall.<sup>16</sup> Furthermore, the percentage of teen girls who were married is very low across the board (ranging from 3% in the most rural counties to 2% in the most metropolitan).<sup>17</sup> Accordingly, the vast majority of teen births were outside of marriage in rural and metropolitan counties alike (85% and 89% in rural and metropolitan counties respectively).

Indeed, in recent years, rural areas have gone through their own process of urbanization. Through the growth of suburban areas into exurban communities, and the emergence of so-called micropolitan areas through ‘rural suburbanization,’ the line between rural and metropolitan is blurred. Some have even suggested that rural and metropolitan areas have become so economically integrated with each other that there is no longer any meaningful distinction between them.<sup>18</sup>

The near universal availability of digital media has helped to create a common culture among rural and metropolitan teens, and rural teens are only slightly behind their metropolitan peers in using digital media.<sup>19</sup> They are equally likely to say the Internet is their primary source of information (66% vs. 65%), and nearly as likely to say they watch TV shows online (42% vs. 46%), to have visited a social networking site (72% vs. 77%) or Twitter (20% vs. 26%) in the past 30 days, or to use the Internet on a cell phone at least once a day (20% vs. 29%).<sup>20</sup>

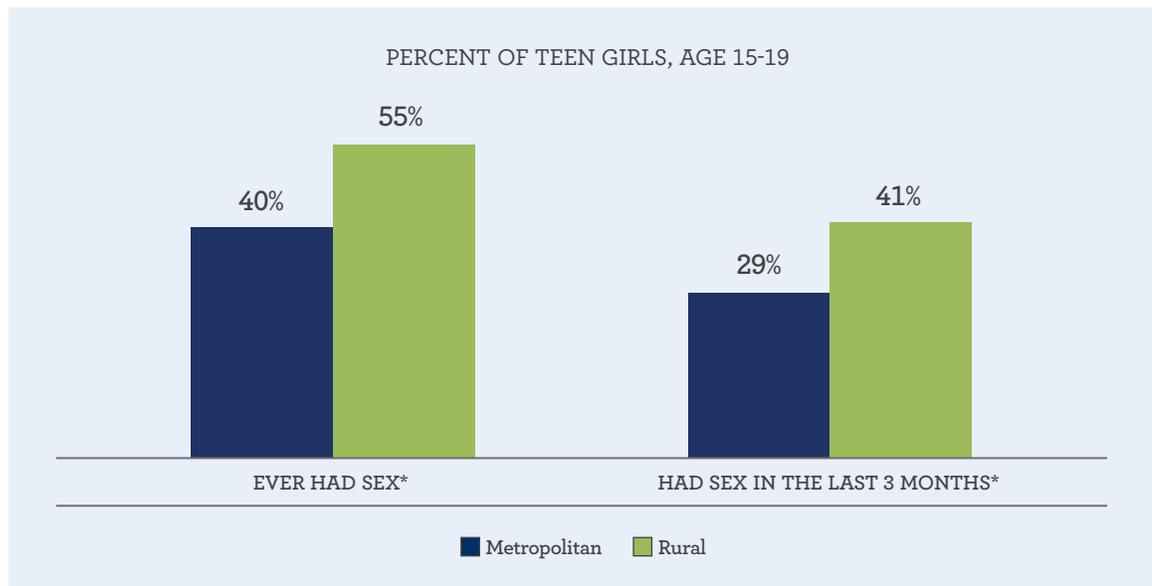
There is extensive literature describing rural communities along many dimensions and our goal here is not to summarize all of it, but rather to simply suggest that rural America is diverse, dynamic, and has more in common with its urban neighbors than conventional wisdom might suggest. Even so, it remains the case that rural communities face unique

challenges, many of which may put those communities at risk for higher teen birth rates. In this report we explore in more detail how teen childbearing and related outcomes vary across the rural/metropolitan continuum, as well as the risk factors that might play a role.

## SEX, CONTRACEPTION, AND CHILDBEARING: HOW DO RURAL TEENS COMPARE?

Sexual activity was higher among rural teens compared to metropolitan teens, measured both in terms of girls who have ever had sex and girls who have had sex in the past three months.<sup>h,21</sup>

*Figure 3. Sexual Activity among Teen Girls, by Metro Status, 2006–2010*



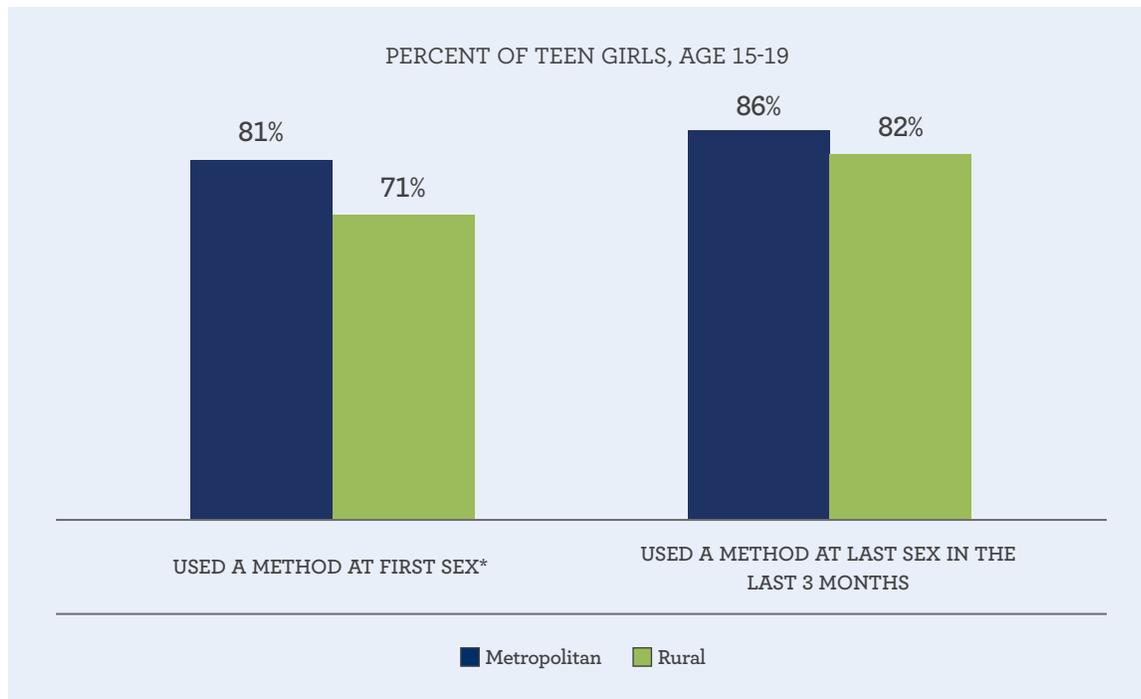
2006–2010 National Survey of Family Growth, National Center for Health Statistics. \*Difference between rural and metropolitan statistically significant,  $p < .05$ .

In addition, a significantly smaller percentage of rural teen girls used contraception the first time they have sex compared to metropolitan teen girls. Differences in their likelihood of using contraception the most recent time they had sex were not statistically significant.<sup>i</sup>

<sup>h</sup> Based on data from the National Survey of Family Growth (NSFG). Results are limited to a two-way comparison of teens—rural vs. metropolitan—rather than a comparison of all rural/metropolitan categories. Even so, the sample for rural teens is particularly small, so estimates are less precise and have larger confidence intervals. Not all rural/metropolitan differences are statistically significant, and we highlight those that are. We note that results of previous studies vary as to whether rates of sexual activity were higher or lower among rural teens, however many studies did not use national data and many date back to the 1990s. See Atav & Spencer 2002; Anderson, 2000; Skatrud, 1998; Milhausen et al. 2003.

<sup>i</sup> To some extent, this lack of significance may reflect the fact that this was measured among a smaller sample of teen girls—only those who had sex in the previous three months.

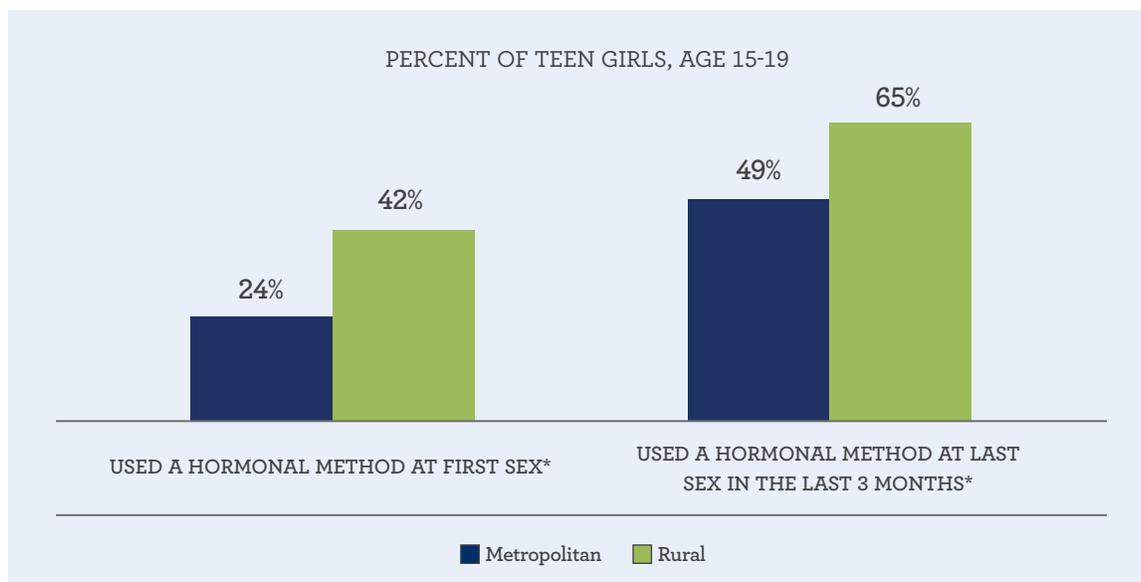
Figure 4. Use of Contraception among Teen Girls, by Metro Status, 2006–2010



2006–2010 National Survey of Family Growth, National Center for Health Statistics. \*Difference between rural and metropolitan statistically significant,  $p < .05$ .

By contrast, among teen girls who were sexually active and using some type of contraception, those in rural areas tended to use more reliable (predominantly hormonal) methods, as shown in the Figure 5.<sup>j</sup>

Figure 5. Method Type among Teens Using Contraception, by Metro Status, 2006–2010

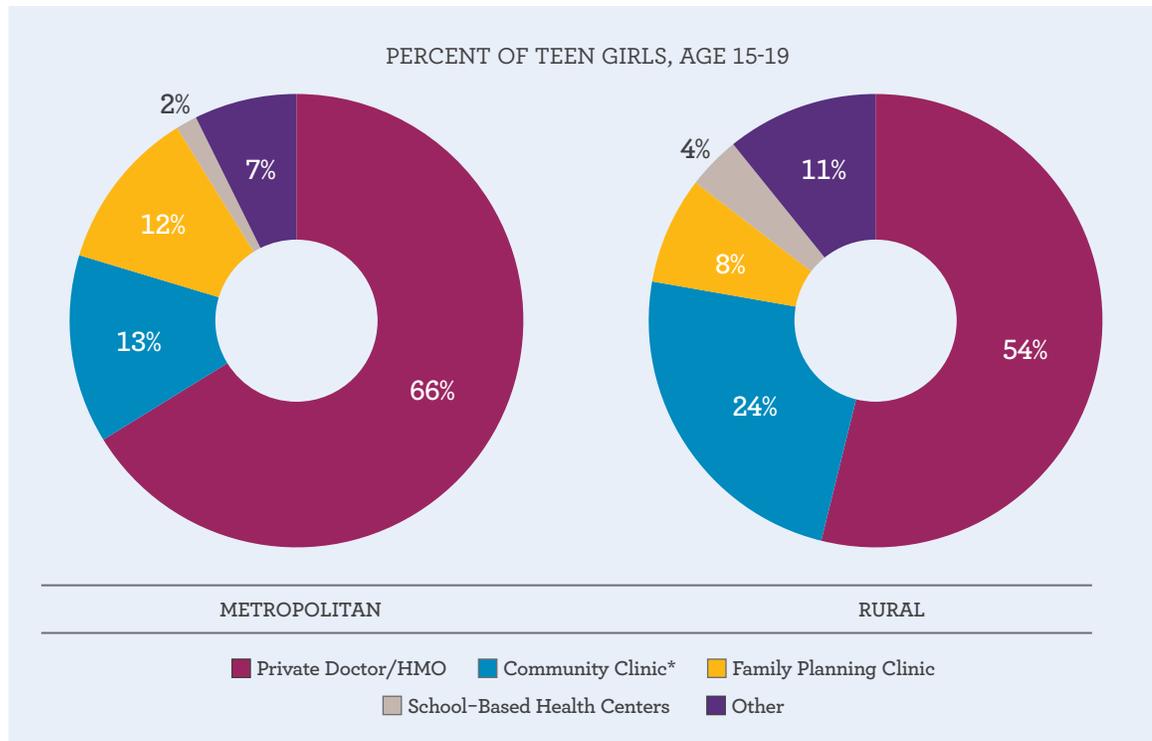


2006–2010 National Survey of Family Growth, National Center for Health Statistics. \*Difference between rural and metropolitan statistically significant,  $p < .05$ .

<sup>j</sup> Reliable methods are defined to include all hormonal methods such as the birth control pill, patch, ring, injectables, implant, hormonal and non-hormonal IUD, and emergency contraception. Note the figures here are presented only among contraceptive users, and would be lower if measured among all teen girls who have had sex.

It's worth noting that, among those with a birth control prescription in the past year, rural teen girls were nearly twice as likely to rely on a community clinic compared to metropolitan teen girls (24% compared to 13%).

*Figure 6. Source of Contraceptive Prescription by Metro Status, 2006–2010*



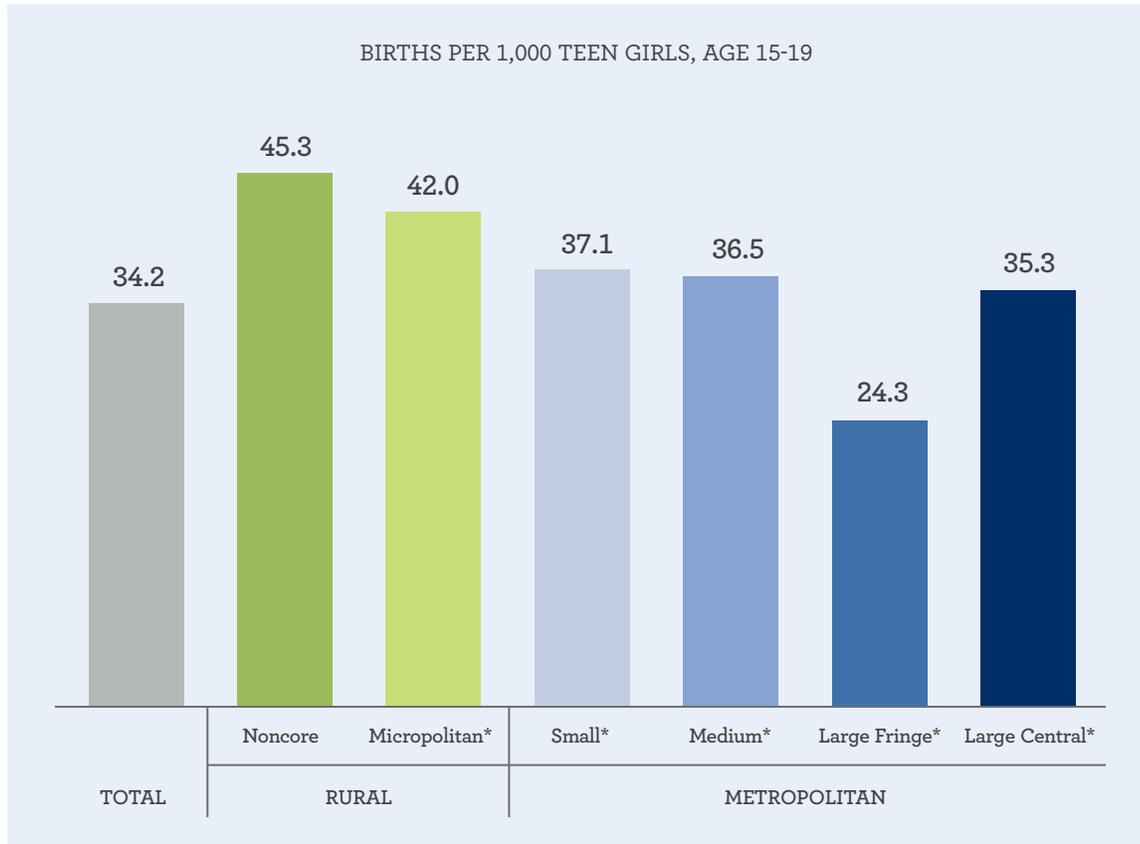
2006–2010 National Survey of Family Growth, National Center for Health Statistics. \*Difference between rural and metropolitan statistically significant,  $p < .05$ .

Data on teen pregnancy rates by level of urbanization are not available, but we do have data on teen *birth* rates by urbanization, and our sense is that the two rates largely track each other.<sup>k</sup> These data indicate that, although rural teens tend to choose more effective contraceptive methods, they remain at greater risk of teen childbearing, presumably due to their increased level of sexual activity and greater likelihood of using no method of birth control at all. As shown in our 2013 research brief and in Figure 7, teen birth rates were significantly higher in the most rural (noncore) counties, and they decreased in almost uniform fashion as the level of urbanization increases.<sup>1,22</sup> Overall, the teen birth rate was 43.3 in rural counties, compared to 32.7 in metropolitan counties (not shown). This difference was primarily a function of childbearing among older teens—those age 18 or 19, rather than younger teens (not shown).

<sup>k</sup> Particular counties may have higher teen birth rates because there is less access to abortion facilities and therefore pregnant teens may be more likely to have a birth instead of an abortion; this may disproportionately impact rural counties. However, for the most part, higher teen birth rates reflect the fact that a teen is more likely to get pregnant in the first place, rather than the fact that a pregnant teen is more likely to have a birth instead of an abortion. This was the case when we compared national trends in teen birth and teen pregnancy rates over time, and when we compared teen birth and teen pregnancy rates across the subset of counties for which we have measures of both rates. See the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>, for more details.

<sup>1</sup> Teen birth rates and other data displayed in this report differ slightly from our 2013 brief, as the urbanization categories have been updated based on a more recent version of the urbanization scheme reflecting metropolitan boundaries as of 2010.

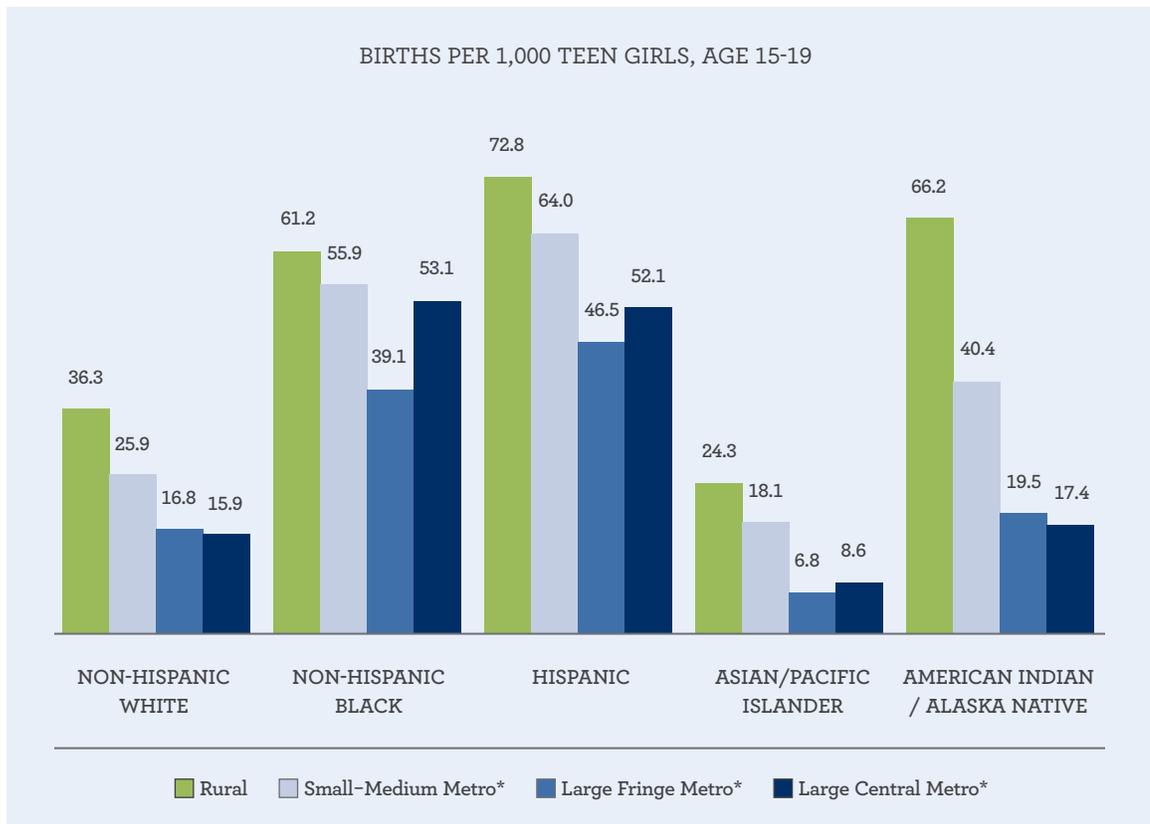
Figure 7. Teen Birth Rates by Metropolitan Classification, 2010



2010 All County Natality File (Restricted Use), National Center for Health Statistics. \*differs significantly from noncore,  $p < .05$

This pattern held true among teens in every racial/ethnic group (shown in Figure 8 using four collapsed categories of urbanization for ease of presentation). The rural/metropolitan difference was most pronounced among American Indian/Alaska Native teens. The overall rural/metropolitan disparity in teen birth rates was also present within every geographic region across the United States, although this difference was largest in the South and West (not shown).

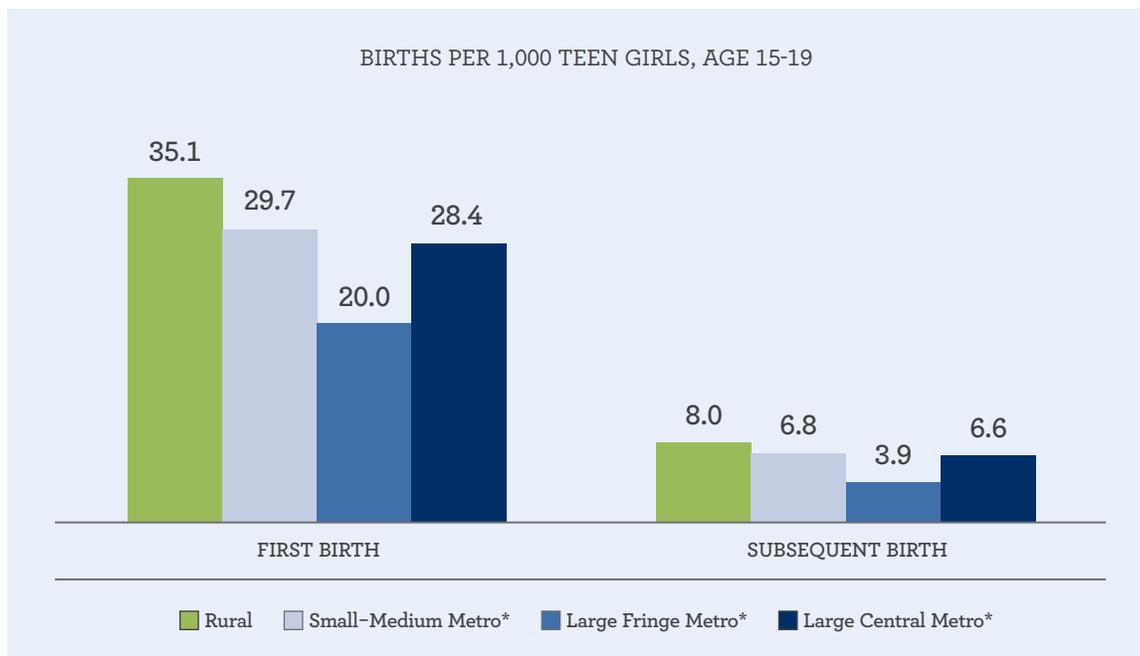
Figure 8. Teen Birth Rates among Racial/Ethnic Groups, by Metropolitan Classification, 2010



2010 All County Natality File (Restricted Use), National Center for Health Statistics. \*differs significantly from noncore, p<.05

Some have suggested that rural teen birth rates are higher because rural teen mothers have more children and not because more rural teens become mothers. In fact, both were true—compared to their metropolitan peers, rural teens were more likely to become mothers (as reflected by the rate of first births) and more likely to have subsequent births as well.

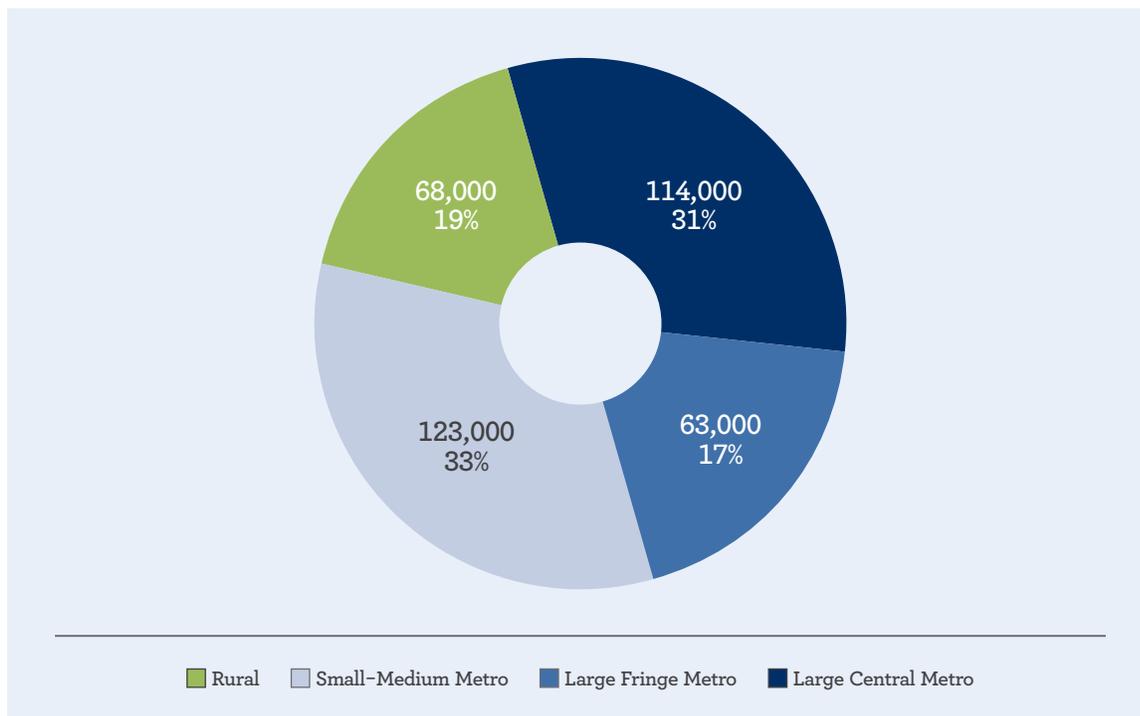
Figure 9. Teen Birth Rates by Live Birth Order, by Metropolitan Classification, 2010



2010 All County Natality File (Restricted Use), National Center for Health Statistics. \*differs significantly from noncore, p<.05

It should be pointed out that while teen birth rates were higher in rural areas, the majority of teen births still occurred in metropolitan areas—81% in fact—which is not surprising given that 85% of teen girls lived in metropolitan areas.

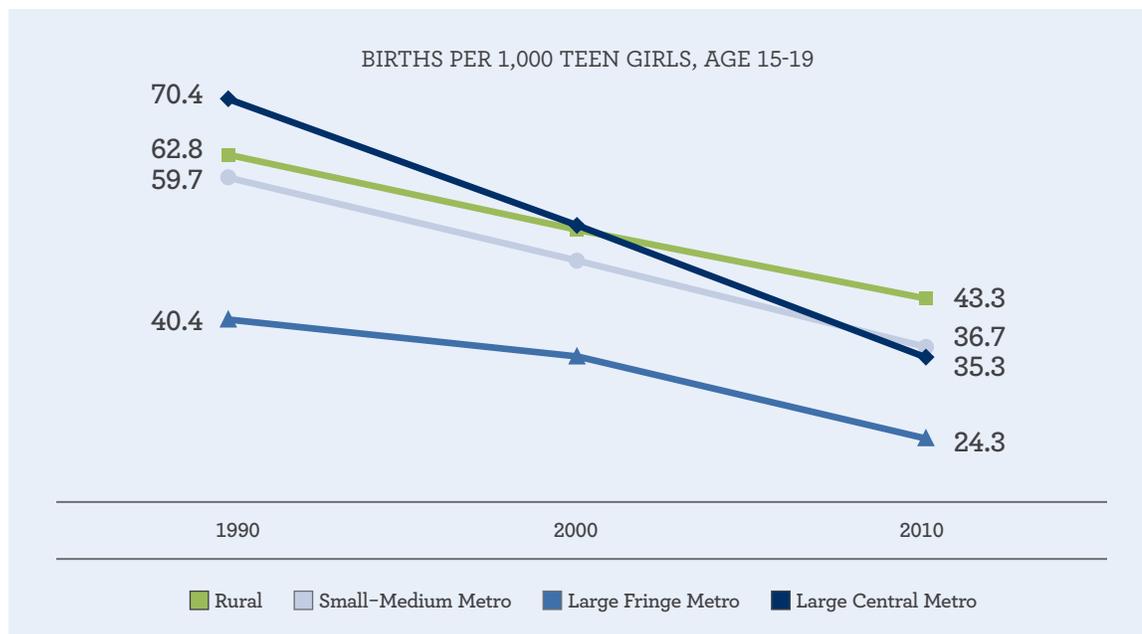
Figure 10. Distribution of Teen Births by Metropolitan Classification, 2010



2010 All County Natality File (Restricted Use), National Center for Health Statistics.

Teen birth rates have been falling all along the rural/metropolitan continuum, but declines have been slower in rural counties. In 1990, the teen birth rate was actually higher in the most metropolitan counties (large central metro) as compared to rural counties (70.4 births per 1,000 teen girls age 15 to 19 compared to 62.8). But over the past 20 years, the birth rate among teen girls living in the most urbanized counties has fallen 50% compared to a 31% decline in rural counties. Throughout the period, the teen birth rate has remained lowest in suburban (large fringe) counties—40.4 in 1990 and declining by 40% through 2010, to a rate of 24.3.<sup>m</sup>

**Figure 11. Trends in Teen Birth Rates by Metropolitan Classification, 1990–2010**



1990, 2000, and 2010 All County Natality File (Restricted Use), National Center for Health Statistics.

Of course this all begs the question—what factors put rural communities at risk for higher teen birth rates? Few would suggest that rural teens are intrinsically different than their more urban peers. Rather, factors that put communities at risk for higher rates of teen childbearing are likely more prevalent in rural counties compared to other counties. To better understand why teen birth rates are higher in rural counties, this report provides results that answer the following questions:

- First, what factors are significant predictors of teen childbearing in counties—*all* counties—across the United States?
- Second, which of these risk factors are more prevalent in rural counties compared to metropolitan counties?
- Third, putting one and two together, how much does each factor contribute to the difference between rural and metropolitan teen birth rates?

<sup>m</sup> This analysis is based on the birth rate among all counties in each urbanization category as of each year. Due to shifts in population, as well as small changes in rural/metropolitan definitions, the counties making up each category as of 2010 are somewhat different than the counties making up each category in 1990 and 2000; however these differences are small and do not change the overall trends presented here. Further details are provided in the Technical Appendix available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

### 3. Which Factors Predict A County’s Rate Of Teen Childbearing?

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County-level teen birth rates are significantly associated with several risk factors, even net of other influences, as shown in Table 2. These results are based on a multivariate analysis, which enabled us to look at all risk factors simultaneously, while also taking into account the demographic makeup of the population and other basic differences that could influence our results. To the extent possible, our analyses also controlled for (or netted out) the effect of differences in access to abortion, which helps ensure that our results primarily reflected differences in the chances that a teen will get pregnant in the first place, and not simply differences in whether a pregnant teen will obtain an abortion. This is discussed in more detail under “Other controls” and in the Technical Appendix (available online at <http://TheNationalCampaign.org/resource/sex-non-city>).

Column 3 in Table 2 shows the percentage change in the teen birth rate (TBR) associated with a one-unit change in each risk factor we examined. Of course, a one-unit change can mean very different things depending on the risk factor in question. So, to help put each result in context, Table 2 also shows the average value of each risk factor across counties.<sup>11</sup> For example, these results show that if the poverty rate (which averaged 16.3% across all counties) increased by one percentage point, then the teen birth rate would increase by 1.3%.<sup>12</sup> The final column shows whether each finding is statistically significant—that is, not simply reflecting chance patterns in the data.

We caution against interpreting these results too literally—they may not reflect the effect of risk factors exactly as we have defined them here. This is because our analysis is limited by what we could measure consistently across counties, and the measures we have are likely crude proxies at best for a more complex set of issues playing out in communities. Nonetheless, we think these results broadly support the notion that economic adversity, lack of health services, limited recreational outlets, and transportation barriers all put a community at risk for higher rates of teen childbearing—echoing what many experts in the field have long asserted anecdotally.<sup>23</sup>

#### ECONOMIC AND EDUCATIONAL PROSPECTS

Taken together, the wide range of indicators presented here strongly associate economic adversity with higher rates of teen childbearing. Our analysis includes both those measures that more directly reflect financial hardship, as well as those that may more broadly reflect limited economic prospects for the future, though of course the two are closely related.

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<sup>11</sup> It is also helpful to keep in mind that our unit of observation was the county or similar geography, not the individual. As such, the average for each risk factor in Table 2 will differ from more familiar national averages measured across individuals.

<sup>12</sup> Unfortunately, these differing units of measurement make it difficult to compare effect sizes across risk factors. We explored several solutions to this but none were ideal. Ultimately, we focused on scaling each risk factor such that a one-unit change was meaningful and sensible relative to its average. For more details on these efforts and our multivariate modeling more broadly, see the Technical Appendix available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

Table 2. Influence of Risk Factors on County-Level Teen Birth Rates

Risk Factors	Average Across Counties	% Change in TBR for Each Unit Change in Risk Factor	sig
<b>Economics, Education, and Community Growth</b>			
% of population in poverty	16.3	1.3%	***
% of households that are female headed	11.0	3.4%	***
% of population unemployed	9.0	-0.9%	**
% of 18-24 year-olds ever in college	41.9	-0.9%	***
% of 16-19 year-olds idle	9.1	0.6%	***
% net migration, 2000-2010	2.8	-0.3%	***
% of population living in another county last year	6.7	-0.8%	**
Mining predominant econ sector (=1 if yes)	0.04	5.9%	*
<b>Access to Health Services</b>			
% of population uninsured	18.3	1.1%	***
Doctors per 10,000 people	13.6	-0.2%	*
Publicly funded clinics within 15 mile radius	7.7	-0.5%	***
Primary care HPSA designation (=1 if yes)	0.5	-7.3%	**
Primary care HPSA score	6.6	0.3%	
<b>Transportation</b>			
% of 2+ person households with fewer than 2 cars	21.8	1.3%	***
Any employment near fixed public transit (=1 if yes)	.06	-3.8%	*
% of employment near fixed public transit stop	0.5	-0.5%	**
<b>Recreation and Risk</b>			
Recreational instruction facilities per 100,000 people	2.3	-0.7%	***
% of teens binge drinking past month	24.5	0.3%	**
% of teens using marijuana past month	13.4	-0.2%	
<b>Other</b>			
% of teen girls married	2.8	0.5%	**
% of population religious adherents	51.3	-0.02%	**
% of population evangelical adherents	23.1	0.04%	***
Rural status (=1 if rural)	0.6	-0.3%	

\*=significant,  $p < .05$ , \*\*=significant,  $p < .01$ , and \*\*\*=significant,  $p < .001$  calculated on the basis of robust standard errors. All results based on a negative binomial multivariate regression model that also controls for the percentage of the population that is non-Hispanic black, the percentage Hispanic, percentage American Indian/Alaska native, and percentage Asian/Pacific Islander (with non-Hispanic white as the omitted category), percentage of the population that was foreign born from Latin America, the state-level teen abortion ratio, and state-fixed effects. In addition to mining, categorical variables for other economic specializations (e.g. farming) are also included but coefficients are small and insignificant, and they are not shown here for the sake of brevity. Some risk factors entered as itself plus the square or square root. In these cases, the results shown here reflect the combined effect of both terms. Measures of many risk factors are lagged to avoid endogeneity, including those related to economics, education, and community growth, as well as marital status.  $N=3,141$  counties. See the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>, for full details of the analysis.

**Financial hardship.** We included three measures that directly reflect financial hardship in the county—the poverty rate, the proportion of households that are female headed, and the unemployment rate. The average county-level poverty rate was 16.3%, and each percentage point increase in the poverty rate was associated with a 1.3% increase in the teen birth rate. Similarly, each percentage point increase in the proportion of female-headed households (which averaged 11%) was associated with a 3.4% increase in teen birth rates. The proportion of female-headed households may play a role in teen childbearing in two ways: because of the financial hardship that can result and because of the greater challenges associated with parental monitoring and other family functions.<sup>24</sup>

Interestingly, a higher unemployment rate was associated with a *lower* teen birth rate—nearly 1% lower for each percentage point increase in unemployment. While this may seem counterintuitive, it is consistent with several studies documenting a connection between the recent economic downturn and declines in teen childbearing.<sup>25</sup>

**Future opportunities.** Additional variables in the model, while linked to financial hardship as well, may also signal a broader sense of future opportunity, or lack thereof. These measures include the proportion of 18-24 year-olds who were ever enrolled in college and the proportion of 16-19 year-olds who were idle (neither in school nor employed), as well as the extent to which the county was losing or attracting residents. All are significant predictors of teen birth rates in the expected direction (i.e. leading to lower birth rates if measured as a protective factor and higher rates if measured as a risk factor). For example, each one point increase in the percentage of young adults who went to college was associated with nearly a 1% decline in the teen birth rate. As noted elsewhere, these and most other risk factors are measured as of 2009 or earlier, so as to more closely reflect the extent to which greater adversity leads to higher teen childbearing, rather than teen childbearing leading to greater adversity.

Finally, we included a set of categorical indicators to reflect each county's primary economic specialization—be it agricultural, manufacturing, government, services, or mining. Mining was the only economic sector significantly tied to teen childbearing—teen birth rates were 5.9% higher in those counties that relied primarily on mining. Although this accounts for only 4% of counties overall, it is particularly noteworthy in those counties.<sup>p</sup>

## HEALTH SERVICES

The only way for teens to avoid pregnancy is either to abstain from sex, or to use contraception consistently and carefully if having sex. Given that the majority of teens have had sex by the time they turn 20,<sup>26</sup> and that the most effective methods of contraception are only available by prescription,<sup>27</sup> adolescent health services are an essential element in teen pregnancy prevention efforts. Publicly funded health services are particularly critical given that they provide contraceptive services to some of the highest risk teens when it comes to adverse outcomes like unplanned pregnancy.<sup>28</sup> To estimate the role of health care in lowering the teen birth rate, we considered both how difficult it is to get to a clinic (measured as the number of publicly funded clinics offering contraception per square mile),<sup>q</sup> as well as how

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<sup>p</sup> Mining is included in our model as a 0/1 variable—thus, an average of 0.04 indicates that 4% of all counties specialize in mining.

<sup>q</sup> We also sought to include measures of clinics without public funding, but were unable to find a reliable and consistent source of data at the county level.

difficult it is to see a doctor (measured as the number of physicians per person who provide patient care in an office setting).<sup>f</sup> We also include measures of health insurance coverage and designation as a health professional shortage area (HPSA).

**Doctors and clinics.** Not surprisingly, greater availability of providers as well as publicly funded clinics offering contraception were associated with significantly lower teen birth rates. For each additional doctor per 10,000 people, the county's teen birth rate was 0.2% lower. Each additional publicly funded clinic offering contraception reduced the teen birth rate by 0.5%.

Broadly speaking, our measures reflect the number of doctors per person and publicly funded clinics per square mile. However, the specific definitions of these variables are refined in several ways to better reflect the complexities of local health care availability. In particular, rather than being measured at the county-level, these are measured at the level of health service area (HSA), which is either a county or a cluster of counties.<sup>29</sup> This accounts for the fact that people are not confined by county boundaries when choosing their provider and the closest provider may be in a neighboring county. Also, both are scaled to ensure that we are modeling the impact of a sensible increase in each variable. For example, rather than modeling the impact of one additional doctor per person, we model the impact of one additional doctor per 10,000 people. And, rather than measuring the impact of one additional clinic per square mile, we measure the impact of one additional clinic per 700 square miles, which loosely equates to a 15 mile radius. Finally, our clinic variable is further adjusted by an index that accounts for how concentrated or spread out the population is.<sup>g</sup>

**Designation as a Health Professional Shortage Area.** Communities that are medically underserved can apply to the Health Resources and Services Administration (HRSA) for designation as a Health Professional Shortage Area, or HPSA, either for the entire county, part of the county, special populations, or specific to particular facilities. Our estimates suggest that receiving a primary care HPSA designation is a protective factor—that is, predictive of lower teen birth rates; 7.3% lower on average net of other factors. While perhaps counterintuitive, this finding is not entirely surprising, given that a HPSA designation can trigger actions meant to strengthen the network of providers or may simply signal a local health administration that is attentive to the health needs of its population, and given that we already controlled for a shortage of clinical resources elsewhere in the model.<sup>t,30</sup> We also used each county's HPSA score, which can range anywhere from one to 25, to examine whether the *magnitude* of health care shortage is related to teen birth rates, and found that it was not significant.

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<sup>f</sup> While providers other than doctors, such as nurse practitioners and physician assistants, often play an important role in medical care, especially in rural areas, our analyses were not sensitive enough to parse out the unique contribution of these providers, and, in the end, a measure based on number of doctors provided a better fit for the data. Our measure of physicians also excludes other medical professionals that wouldn't be a likely source of care (e.g. researchers or administrators). See the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

<sup>g</sup> Further details of how these variables were constructed, as well as discussion of several other measures we considered but did not use are provided in the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

<sup>t</sup> If granted, this designation can trigger incentive payments for physician's services, or attract providers to serve in the area through the National Health Service Corps, among other benefits. See HRSA (2014) Health Professional Shortage Areas (HPSAs) Designation Criteria and Guidelines.

**Uninsured.** Of course, it is not enough to have health services available—those services must also be affordable, and lack of health insurance can put adequate health care, including the best methods of contraception, out of reach for many families. The percentage of the population that was uninsured (meaning they had neither public nor private health insurance) averaged 18% across all counties in 2010, and our estimates suggest that each additional percentage point was associated with a 1.1% increase in the teen birth rate. Of course whether or not a person has health benefits does not tell the full story regarding affordability of health care, but we were limited in our ability to explore this issue by what is consistently measured across counties. Even so, the percentage of the population that was uninsured is an important indicator of affordability and it was a strong predictor of teen birth rates.<sup>u,31</sup>

## TRANSPORTATION

Similarly, a community may not fully realize the benefits of providing health care if people cannot reach those services, and lack of public transit is a common concern raised by youth in rural areas.<sup>32</sup> Yet transportation barriers are not limited to communities that lack public transit. In fact, transportation difficulties may be greater for a suburban family without a car that lives on the fringe of a transit system, than for a rural family with two cars.

Therefore, our analysis included a measure of vehicle ownership (among households with at least two people, the percentage with less than two cars) and measures of public transit (a 0/1 variable indicating if a fixed-guideway transit system exists and, if so, the percentage of employment located within half a mile of a station). This last measure was included as a proxy for how extensive the public transit system is. The results of our model indicate that transportation barriers were indeed a significant risk factor for higher teen birth rates. Teen birth rates were higher in counties where more households did not own a second car (or, in some cases, any car). At the same time, rates were lower in counties with a public transit system, and lower still as the system increases in size.

Measuring the adequacy of transportation across the full rural/metropolitan range of counties is challenging. Although newly available geographic information systems (GIS) data are being used to study the location of services vis-à-vis nearby transit networks for particular states or regions,<sup>33</sup> replicating this effort nationwide is beyond the scope of our research. In addition, rural and metropolitan transit programs provide administrative data through different reporting systems.<sup>34</sup> The very meaning of public transit varies between rural and metropolitan areas, ranging from an on-demand van service to major subway systems.<sup>35</sup> Similarly, lack of a car takes on different meaning in a rural or suburban area versus in a major metropolitan center where many prefer to forego cars as a matter of convenience.

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<sup>u</sup> We recognize that the percentage of people without health insurance has likely declined since 2010, particularly given enactment of the Affordable Care Act (ACA), and this change will vary by state and locality. Even so, some early reports suggest that rural areas may continue to face unique challenges related to health insurance coverage, noting concerns over difficulty doing enrollment outreach in sparsely populated areas, over the disproportionate share of rural residents living in states not expanding Medicaid, the specifications of health care plans that rural residents are opting into, and more. See, for example HRSA and the Affordable Care Act, 2014; Thompson et al., 2014; Luthra, 2014; Newkirk II & Damico, 2014.

In light of these measurement challenges, it's difficult to precisely quantify transportation barriers and the effect they have on teen birth rates. Nonetheless, the general association we found between transportation barriers and teen birth rates was highly significant, a finding that was relatively consistent across a number of different measures we explored.<sup>v</sup> We interpret these results as broadly indicative of the important role that transportation can play.

## RECREATION AND RISK

During conversations with local practitioners about what hurts and what helps in efforts to prevent teen pregnancy, the lack of positive recreational outlets is a frequent topic, along with the worry that such a lack may lead to increased risky behavior, including increased use of drugs and alcohol, which in turn could impair judgment and lead to increased unprotected sex and teen pregnancy.<sup>36</sup> Our estimates provide some support for this concern, though the evidence is modest.

**Recreation.** The results in Table 2 suggest that each additional facility offering sports and recreational instruction (other than academic institutions), was associated with a 0.7% decline in the teen birth rate.<sup>37</sup> This finding was significant, however, it is worth noting that this reflects the impact of a fairly large increase, given that on average there were only 2.3 such facilities per 100,000 people in a county.

**Risky behavior.** Our model included two measures of risky behavior—binge drinking and marijuana use in the prior month. On average, 25% of teens reported binge drinking, and each percentage point increase was significantly associated with a 0.3% increase in the teen birth rate. Roughly 13% of teens reported using marijuana in the past month, although there was no significant association with teen birth rates.

Our ability to measure risky behavior at the local level was seriously limited by the available data. Specifically, the measures included in our model are 10-year averages—the only form in which these indicators were available for public download. As such they only enable us to capture the influence of geographic patterns in risky behavior over the long term. Estimates based on more current indicators might tell a somewhat different story.

## OTHER FACTORS

**Marriage.** It's reasonable to expect that in communities where young adults marry early—even during their late teens—they will likely start their families early as well and teen birth rates might be higher for this reason. Although our results did predict a 0.5% increase in the teen birth rate for every one point increase in the percentage of teens who were married, we caution that it is fairly rare for teens to marry—averaging only 3% even in the most rural counties and slightly less than this overall, according to our tabulations. Consequently, although early marriage was significantly associated with higher teen birth rates in a statistical sense, we do not believe it is a key driver of higher teen childbearing in practice.

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<sup>v</sup> For additional detail on the construction of these variables and alternative specifications that we considered, please consult the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

**Religiosity.** We also assessed the link between religiosity and teen birth rates, although our ability to do so was quite limited given that the only data on religiosity we found available for all counties pertains to membership within each denomination. We estimate that the percentage belonging to any denomination was associated with lower teen birth rates while membership in an evangelical denomination was associated with higher teen birth rates, although both effects are extremely small.

The literature suggests that the influence of religiosity is likely much more complex, depending perhaps on denomination but even more so on frequency of worship—that even conservative religious values may not be associated with the positive family outcomes that people expect unless the individuals holding those values are fully integrated in a faith community that provides support and guidance.<sup>38</sup>

We were able to produce additional estimates (not shown) for a subset of counties that also included variables on the frequency of religious attendance and, consistent with the literature, found this to be a protective factor as well, however the effect sizes of all variables on religiosity remained very small. In the end, the type of cross-sectional analysis presented here may not be sensitive enough to further our understanding of the role that religion plays in communities. This is especially true when it comes to the influence of religion on adolescent sexual activity and related outcomes, for which the literature is mixed, dependent on whether the outcome of interest is sexual activity or contraception, and whether the focus is on initial sexual experiences or current behavior,<sup>39</sup> nuances that we are not able to explore.

**Rural status.** Finally, the variable rural status indicates how much of the rural/metropolitan difference in teen birth rates remains after accounting for the other factors in the model. In simplified models containing just rural status or just rural status and basic control variables (not shown), it was highly significant. However, in the full model, the coefficient on rural status was small and insignificant, indicating that the risk factors examined here fully account for the difference in teen birth rates between rural and metropolitan counties. Furthermore, the full model accounted for 74% of the country-wide variation in county-level teen birth rates overall.<sup>w</sup> Taken together, this suggests that our estimates capture most of the variation in teen birth rates that we set out to examine.

**Other controls.** As noted earlier, the findings we present here are net of controls—that is, after including variables to account for differences in the racial/ethnic composition of the population, the state’s share of teen pregnancies that result in an abortion (the abortion ratio), and state-level fixed effects that account for any other unmeasured factors that are unique to each state, including policies related to abortion. While the prevalence of abortion is not a substantive focus of this report, including the abortion ratio and state fixed effects helps ensure that our findings primarily reflect variation in the extent to which a teen becomes pregnant in the first place, rather than variation in the extent to which a pregnant teen has a birth instead of an abortion.<sup>x</sup>

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<sup>w</sup> A model with the risk factors alone and no other control variables (not shown) accounted for 69%.

<sup>x</sup> To this end, we also considered a measure of county-level attitudes regarding the acceptability of abortion. This variable is not available for all counties, so it does not factor into the results we present in Table 2, but in estimates for the subset of counties where this was measured (not shown), including this variable did not change our main conclusions regarding the importance of the risk factors we explore in this report.

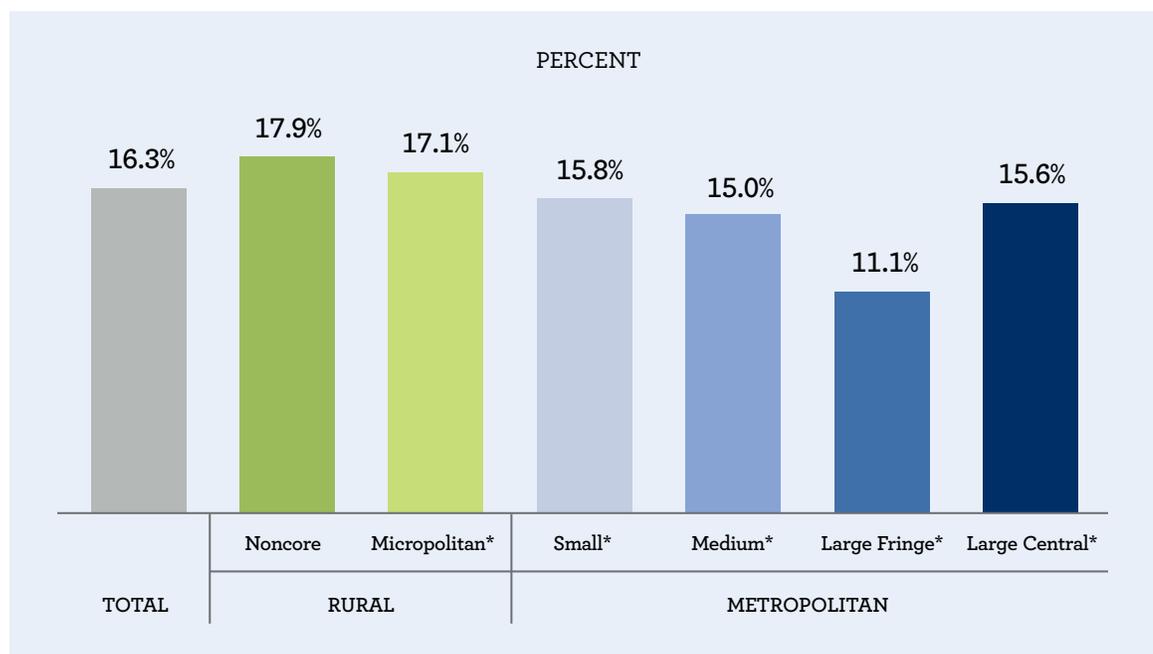
## 4. Which Risk Factors Are More Prevalent In Rural Areas?

The results thus far provide empirical support for the link between various risk factors and teen birth rates in counties—*all* counties—across the country; however, these risk factors are not necessarily unique to rural areas—some are challenges in rural and metropolitan areas alike, and some are even more prevalent in metropolitan areas. In the following section, we will highlight some of the more interesting variation in these risk factors across the rural/metropolitan continuum.<sup>y</sup>

### ECONOMIC AND EDUCATIONAL PROSPECTS

Poverty, a strong predictor of higher teen birth rates as noted in Chapter 3, was more prevalent in rural counties compared to counties at every other point along the rural/metropolitan continuum. The percentage of the population living in poverty was 17.9% in the most rural areas compared to 15.6% in the most metropolitan. The disparity was particularly large between the most rural counties and suburban (large fringe) counties. The combined rate for all rural counties was 17.6%, compared to 14.0% in all metropolitan counties (not shown).

*Figure 12. Percentage of the Population Living in Poverty, 2005–2009*



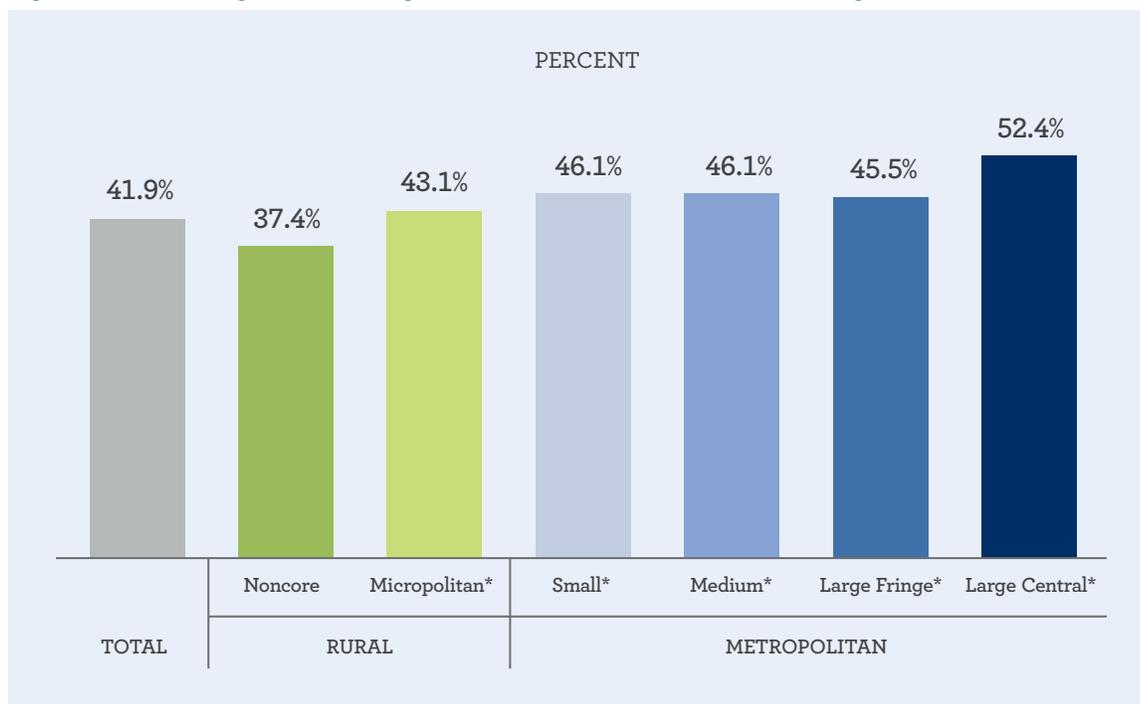
2005–2009 American Community Survey, U.S. Census Bureau. For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore  $p < .05$

<sup>y</sup> A table showing rural/metropolitan differences for the full set of risk factors we considered is included in the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

Rural counties also fared significantly worse on another predictor of teen birth rates—the percentage of 18-24 year-olds ever enrolled in college as of the year before. In the most rural counties, only 37.4% of 18-24 year-olds had ever enrolled in college compared to 52.4% in the most metropolitan counties. Overall, enrollment averaged 39.3% across all rural counties, compared to 46.3% across all metropolitan counties (not shown). College enrollment as of the prior year is intended as a proxy for the general college orientation of a community. Although we do not have county-level data on actual college aspirations among teens, results published for the nation overall confirm that rural teens were significantly less likely to say they had plans to go to college.<sup>40</sup>

To some extent, our measure may also reflect the notion that rural young adults who do go to college leave the area for better opportunities elsewhere. Indeed, studies show that many college-educated rural youth move to metropolitan areas since the return on investment for their degree is higher than in rural areas.<sup>41</sup> In any case, we see our measure as a general indicator of a county’s outlook for future prosperity and opportunity.<sup>42</sup> Again, national results in the literature echo this point, indicating that rural teens are less likely than metropolitan teens to say their standard of living will be better than their parents.<sup>43</sup>

*Figure 13. Percentage of Adults Age 18 to 24 Who Ever Enrolled in College, 2005-2009*

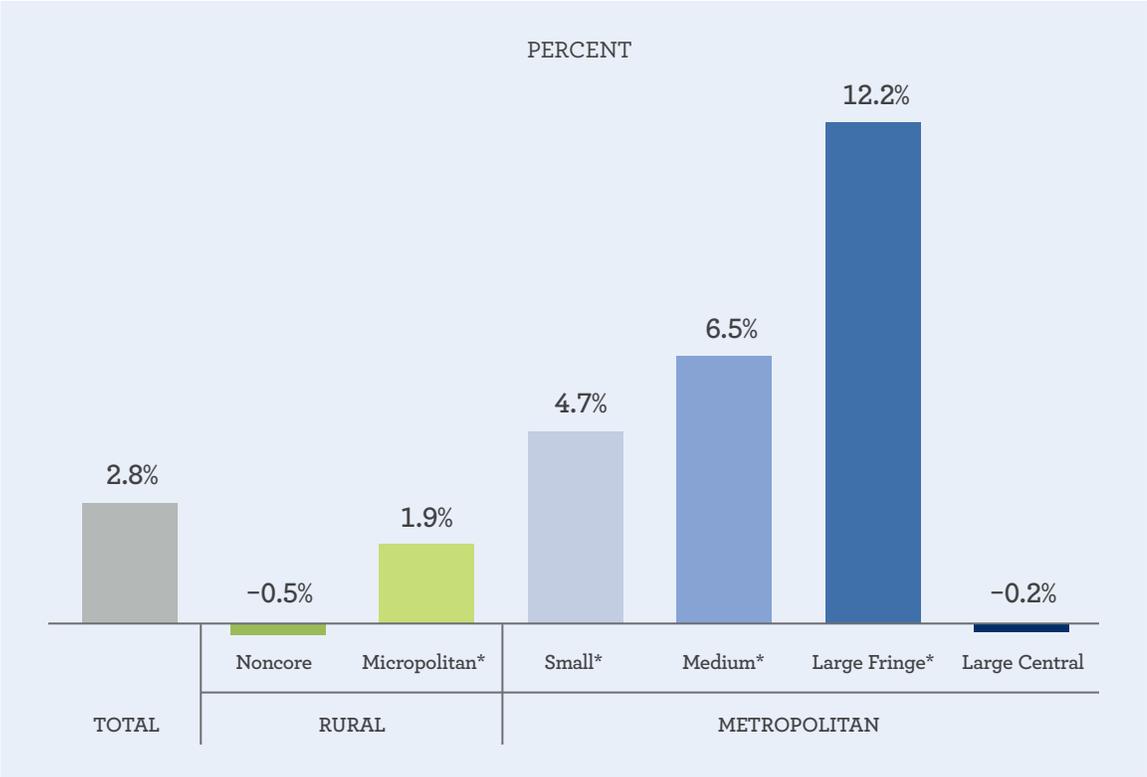


2005-2009 American Community Survey, U.S. Census Bureau. For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore p<.05

Looking at a county’s net migration tells a similar story. Counties with negative net migration (that is, more residents moving out than moving in) can sometimes find themselves in a cycle where businesses leave because of difficulty finding good workers and an adequate consumer base, the most skilled workers and college graduates then go elsewhere to find better jobs, and, subsequently, local business and job opportunities contract even further. This has been particularly prevalent in some rural areas<sup>44</sup> and is consistent with our results. The net migration rate ranged from a decline of 0.5% in the most rural counties

to an increase of 12.2% in suburban (large fringe) counties. The notable exception is the most metropolitan county category, which also had negative net migration (-0.2%). The average net migration rate across all metropolitan counties reflected a 7.4% increase, while it netted out to nearly zero across all rural counties (not shown).<sup>z</sup>

Figure 14. Net Migration Rate Between 2000 and 2010

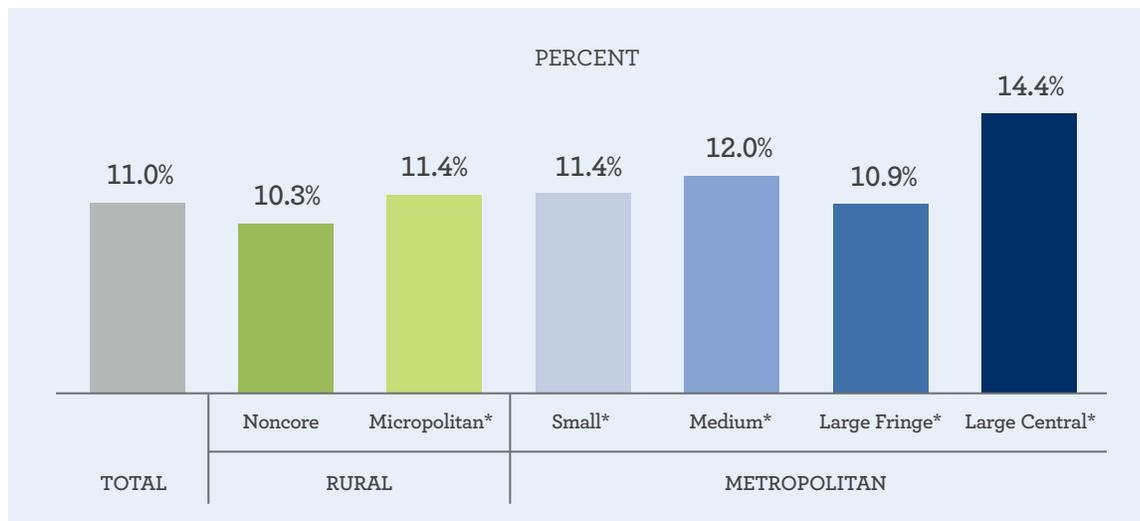


2011 Atlas of Rural and Small Town America, U.S. Department of Agriculture, Economic Research Service (ERS). For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore, p<.05

Other factors, such as the unemployment rate and the percentage of teens who are idle (not shown) varied relatively little between rural and metropolitan counties. By contrast, the percentage of households that are headed by a female was actually lower in rural counties, ranging from 10.3% in the most rural counties to 14.4% in large metropolitan centers. Overall, it averaged 10.7% across all rural counties, compared to 11.6% across all metropolitan counties (not shown). It is worth noting, however, that this pattern may be changing—increases in the percentage of households that are female headed have been steepest in rural areas in recent years.<sup>45</sup> In short, although there are fewer households headed by a female in rural areas, this may not be the case if trends continue.

<sup>z</sup> Note that this does not reflect total population change in the county, which also takes account of births and deaths.

Figure 15. Percentage of Households that are Female Headed, 2005–2009

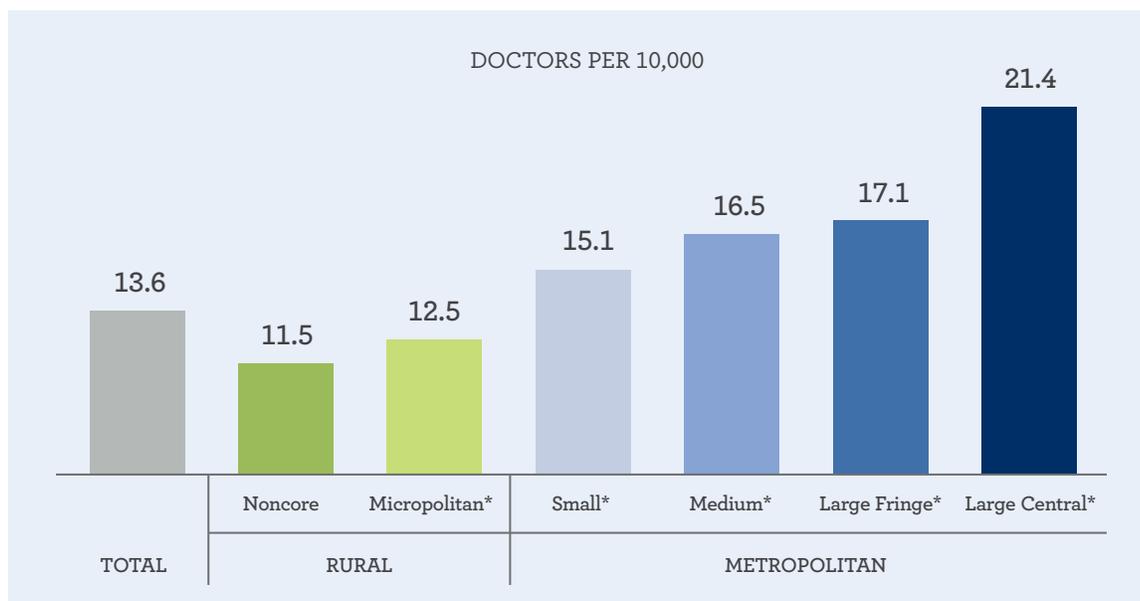


2005–2009 American Community Survey, U.S. Census Bureau. For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore,  $p < .05$

## HEALTH SERVICES

The literature on rural communities speaks extensively about difficulty accessing clinical services<sup>46</sup> and this challenge is echoed in our data as well. The number of doctors per 10,000 in the population ranged from a low of 11.5 in the most rural counties to 21.4 in the most metropolitan, increasing steadily with the level of urbanization.<sup>aa</sup> Overall, doctors per 10,000 averaged 11.8 across all rural counties and 16.6 across all metropolitan counties (not shown).

Figure 16. Number of Doctors per 10,000 People, 2010

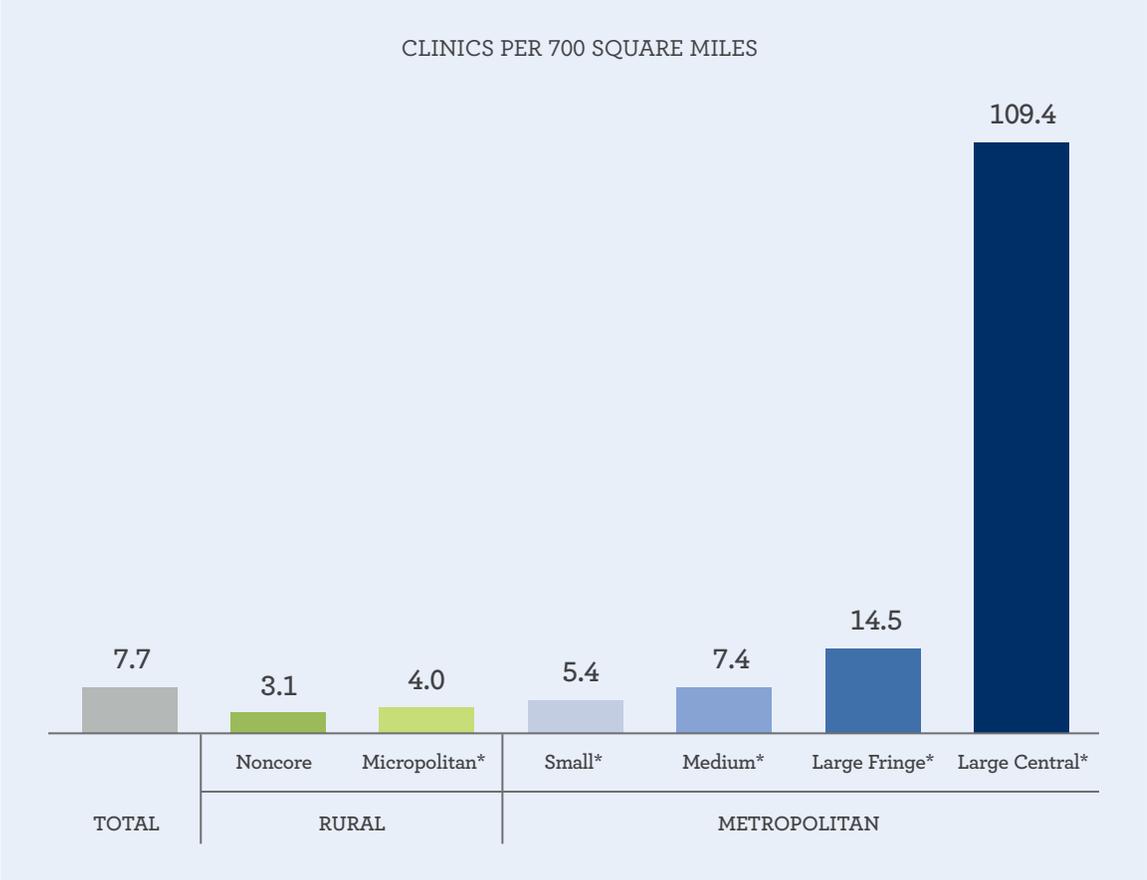


2011–2012 Area Health Resource File (AHRF), Health Resources and Services Administration (HRSA). For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore,  $p < .05$

<sup>aa</sup> This is true even though our measure excluded doctors not actively involved in patient care (e.g. researchers, specialists, and administrators), an exclusion that disproportionately applied to doctors in metropolitan areas.

Rural counties are even more disadvantaged when it comes to the number of nearby publicly funded clinics that offer contraception (that is, within 700 square miles or roughly a 15 mile radius, as defined in Chapter 3). This is not surprising given how large and sparsely populated many rural counties are. Counties at every other point along the rural/metropolitan continuum had significantly more clinics than the most rural (noncore) counties, although the most metropolitan counties were the true outliers, with an average of 109 clinics nearby.

Figure 17. Number of Nearby Publicly Funded Clinics Offering Contraception, 2010

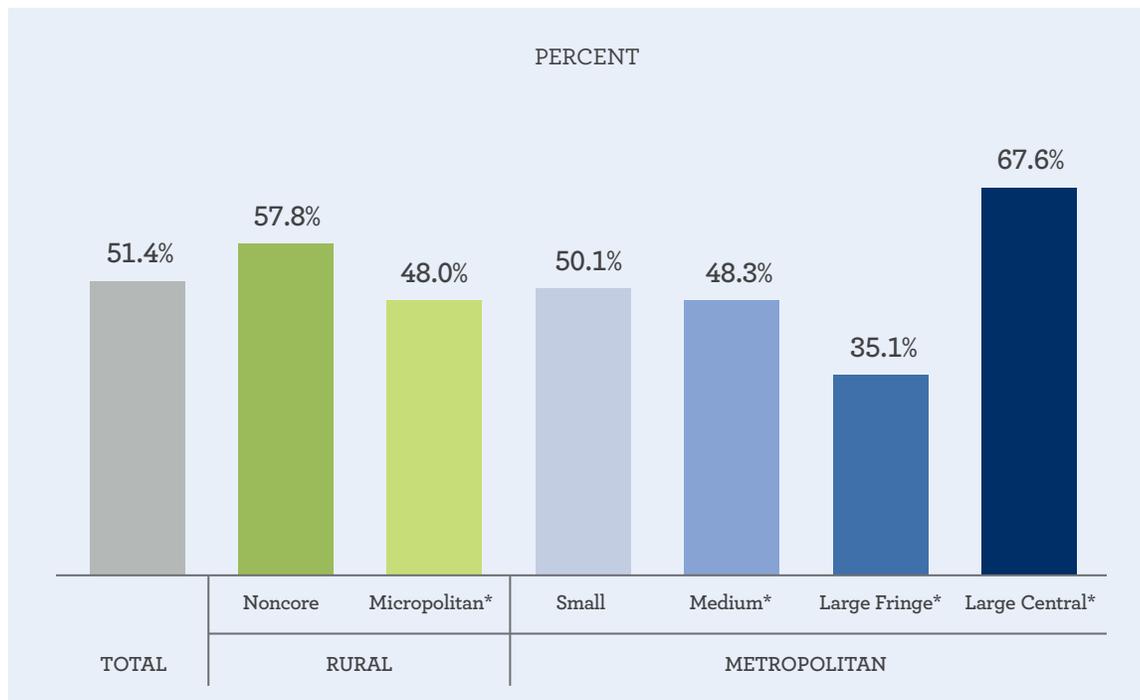


Contraceptive Needs and Services, 2010: Detailed County Tables, Guttmacher Institute. For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore, p<.05

On average, the percentage of the population without health insurance (either private or public) followed a similar pattern—that is, the most rural counties were significantly more disadvantaged than counties at every other point along the rural/metropolitan continuum—although the differences were less dramatic (not shown). Roughly 20% of people were without health insurance in the most rural counties compared to 15.1% in the suburbs and 17.6% in the most metropolitan areas. The literature suggests that this likely reflects disparities in private health benefits, noting that rural employment is less likely to offer private coverage.<sup>47</sup>

Patterns in HPSA designation were less straightforward. As noted in Chapter 3, being designated a Health Professional Shortage Area is actually a protective factor—associated with lower teen birth rates in a county. HPSA designation was more common in counties at either end of the rural-metropolitan continuum—large metropolitan centers and noncore counties were more likely to have populations or geographical areas meeting a particularly low threshold of medical access. These designations are based on areas where physicians are distant, overutilized, or otherwise serve a population with access barriers.<sup>48</sup> Similarly, the average HPSA score (not shown) indicates that the degree of need was highest at each end of the rural/metropolitan continuum.

*Figure 18. Percentage of Counties with a Primary Care HPSA Designation, 2010*

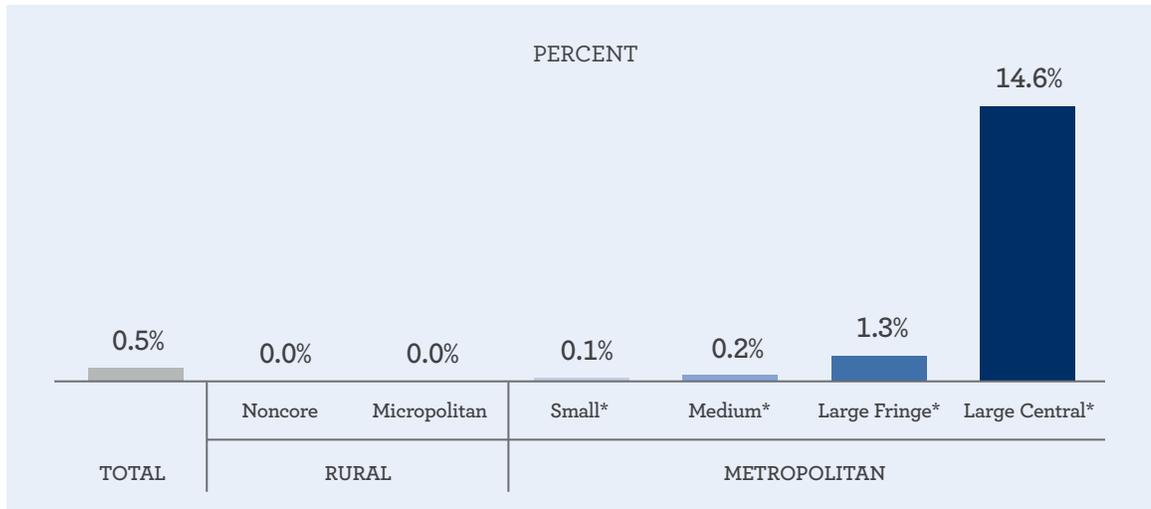


HRSA Data Warehouse, 2014, Health Resources and Services Administration (HRSA). For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore,  $p < .05$

## TRANSPORTATION

Not only do youth have to travel longer distances to reach clinics in rural areas, they also have little in the way of public transit options to reach them—service is frequently unavailable or inefficient and costly.<sup>49</sup> The measure we included, percentage of employment located within a half mile of a fixed guideway (predominantly rail) station, averaged out to nearly zero in all but suburban and large central counties (where it equaled 1.3% and 14.6% respectively). Of course this reflects just one mode of public transit, and does not include bus routes or modes such as on-demand van service that are more prevalent in rural communities.<sup>50</sup> Nonetheless, additional data we consulted specifically on rural transit programs also suggest that public transit services are sparse or nonexistent in the vast majority of rural counties.<sup>bb</sup>

Figure 19. Percentage of Employment Near Fixed Transit Stop, 2010



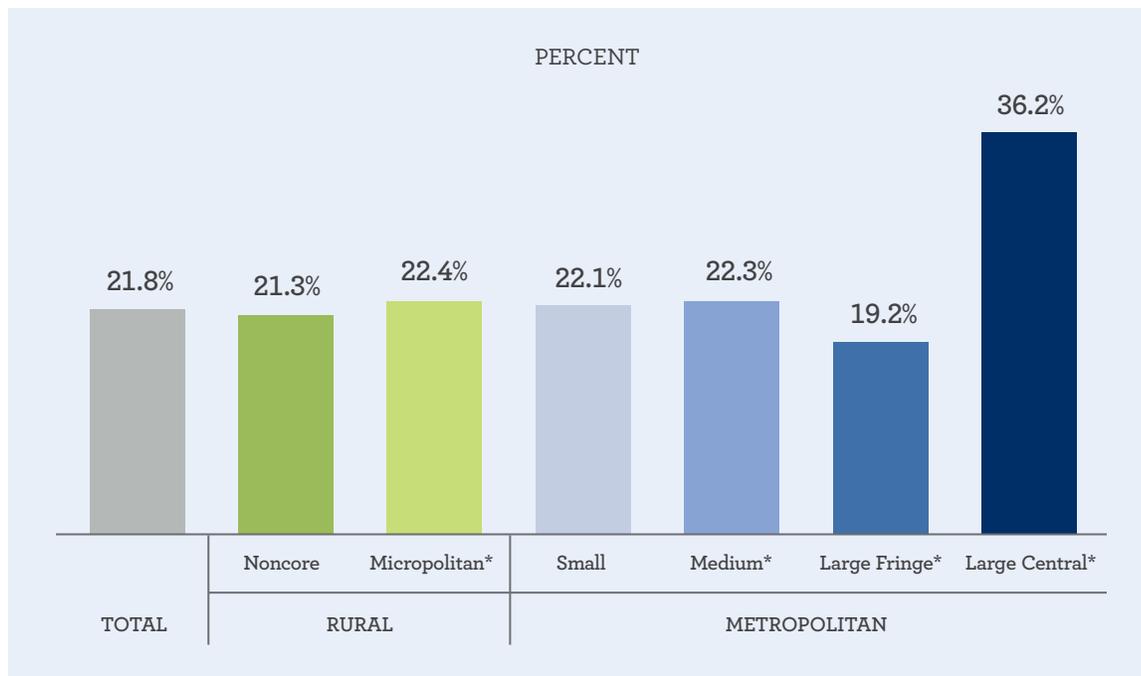
Smart Location Database, 2014, U.S. Environmental Protection Agency (EPA). For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore,  $p < .05$

Even so, transportation difficulties are not simply a function of public transit. Many households continue to rely heavily on private vehicles, and those without a car or even a second car can struggle to meet the demands put on today's busy families. For our analyses we measured, among households with at least two people, the percentage with fewer than two cars. For the most part, this measure varied little across rural and metropolitan counties, with the exception of large metropolitan centers, where 36.2% had fewer than two cars. The average across all metropolitan areas was not significantly different from the average across all rural areas (22.1% vs. 21.7% respectively, not shown).<sup>cc</sup>

<sup>bb</sup> See the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>, for further details.

<sup>cc</sup> We also attempted to construct a single measure indicating whether transportation overall—across all modes—was a greater barrier in rural vs. metropolitan areas, but were unable to develop an informative measure with the data available.

Figure 20. Percentage of Households with Fewer than Two Vehicles, 2007-2011

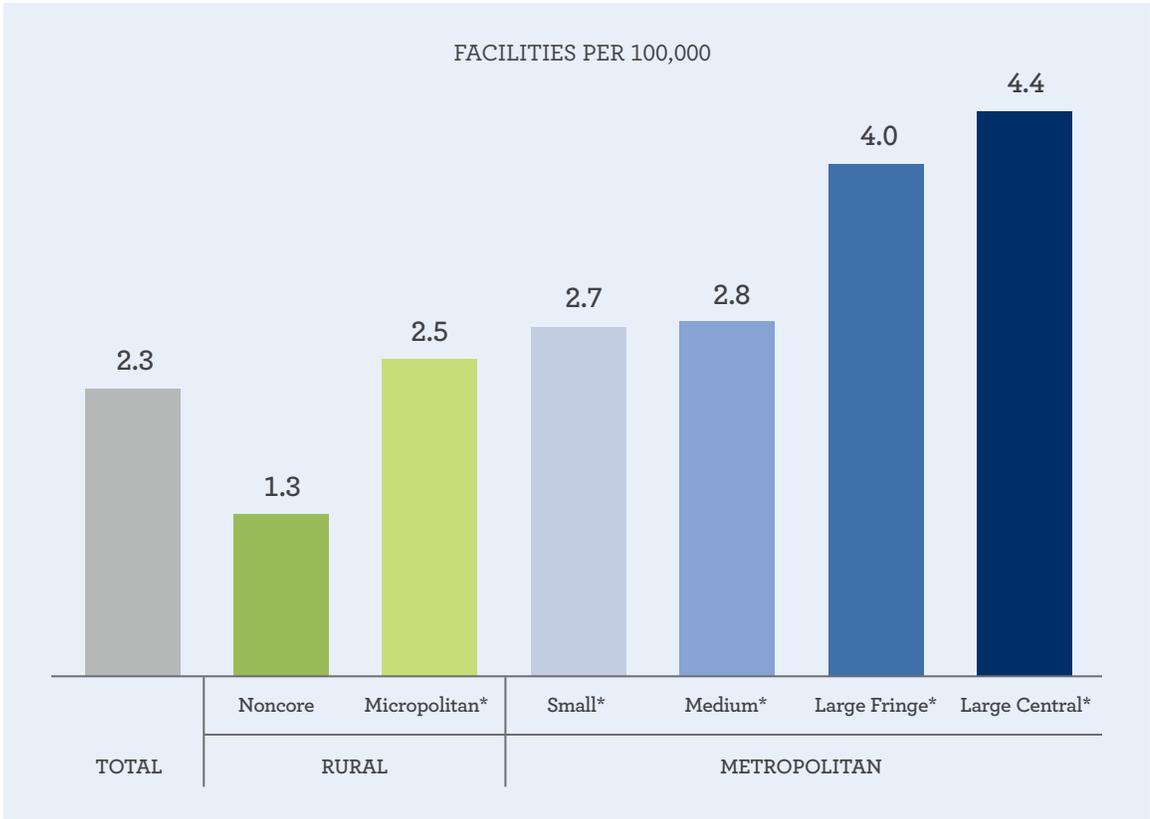


2007-2011 American Community Survey, U.S. Census Bureau. For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore, p<.05

## RECREATION AND RISK

One common refrain is that rural youth have too much free time on their hands and lack positive recreational outlets, leaving a greater potential to engage in risky behavior to fill the void.<sup>51</sup> To help reflect this set of concerns we included a variable defined as the number of facilities offering sports and recreational instruction per 100,000 in the population (other than academic institutions).<sup>52</sup> These facilities were most commonly found in large metropolitan areas, with 4.4 facilities per 100,000 in large metropolitan centers, and 4.0 facilities in large fringe counties, on average. Not surprisingly, the number of recreational instruction facilities was lowest in the most rural counties, where there were only 1.3 facilities per 100,000 on average. Overall, the average number of facilities across all rural counties was significantly lower than for all metropolitan counties (1.7 compared to 3.2, not shown).

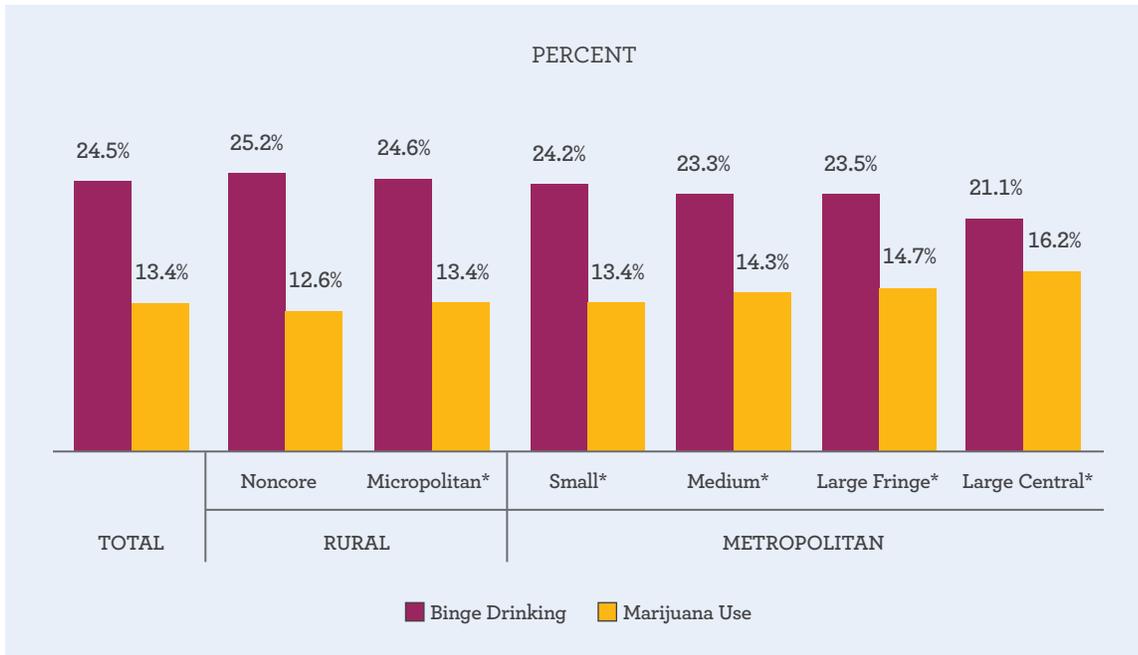
Figure 21. Number of Recreational Instruction Facilities per 100,000 People, 2010



2010 County Business Patterns (CBP), U.S. Census Bureau. For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>. \*differs significantly from noncore, p<.05

Differences in substance use by urbanization level were also statistically significant but not dramatic. Binge drinking ranged from a high of 25.2% in the most rural counties to a low of 21.1% in the most metropolitan. By contrast, marijuana use ranged from a low of 12.6% in the most rural counties to a high of 16.2% in the most metropolitan. As noted earlier, these figures reflect 10 year averages and should be viewed as reflective of long-term patterns rather than recent outcomes. Even so, more recent studies based on national differences between rural and metropolitan teens suggest similar patterns.<sup>53</sup>

Figure 22. Percentage of Teens Reporting Each Behavior in Past Month, 2002-2011



2002-2011 National Survey on Drug Use and Health (NSDUH), Substance Abuse and Mental Health Services Administration (SAMHSA). For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.  
 \*differs significantly from noncore,  $p < .05$ , applies to both Binge Drinking and Marijuana Use.

## 5. What Accounts For The Higher Teen Birth Rates In Rural Areas?

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The importance of any particular factor in explaining why teen birth rates are higher in rural counties will depend on two things—the extent to which that factor is associated with higher teen birth rates in any part of the country, as shown in Chapter 3, and the extent to which it is more prevalent in rural counties, as shown in Chapter 4. The analysis in the following section combines these two elements in order to calculate the share of the rural/metropolitan difference in teen birth rates that can be attributed to each of the risk factors we examined, based on decomposition analysis. Highlights from these results are presented here, while the methodology is described in more detail in the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

Several of the risk factors examined here contributed substantially to the rural/metropolitan disparity in teen birth rates. Others, while significant predictors of local teen birth rates across the country more generally, contributed minimally to rural/metropolitan differences in teen birth rates. This is because, as noted in Chapter 4, these risk factors were not unique to rural areas. Finally, a handful of risk factors even had the opposite effect because they were less prevalent in rural areas compared to metropolitan areas.<sup>dd</sup>

### ECONOMIC AND EDUCATIONAL PROSPECTS

These results suggest that the difference in college prospects (measured as the percentage of 18-24 year-olds ever enrolled as of the previous year) was the largest contributor to higher teen birth rates in rural areas, accounting for 20% of the gap. The percentage of the population in poverty accounted for a similar share, at 19%. As noted in our discussion of the multivariate results in Chapter 3, these measures may reflect the specific factors defined here or the broader notion of whether the community can offer bright prospects for the future. We would also include in this category the extent to which a county is attracting or losing residents, accounting for 13% of the disparity between rural and metropolitan teen birth rates.

The proportion of households headed by females was also a prominent factor. However, because this risk factor was less prevalent in rural counties than in metropolitan counties, it actually reduced the disparity in teen birth rates rather than adding to it, reflected in Figure 23 as a contribution of -22%.

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<sup>dd</sup> It is helpful to keep in mind that a positive contribution means that the factor widens the disparity in teen birth rates between rural and metropolitan areas, while a negative contribution means it narrows the disparity. Although the contributions will sum to 100%, the positive contributions will sum to more than 100%, because they are offset by negative factors.

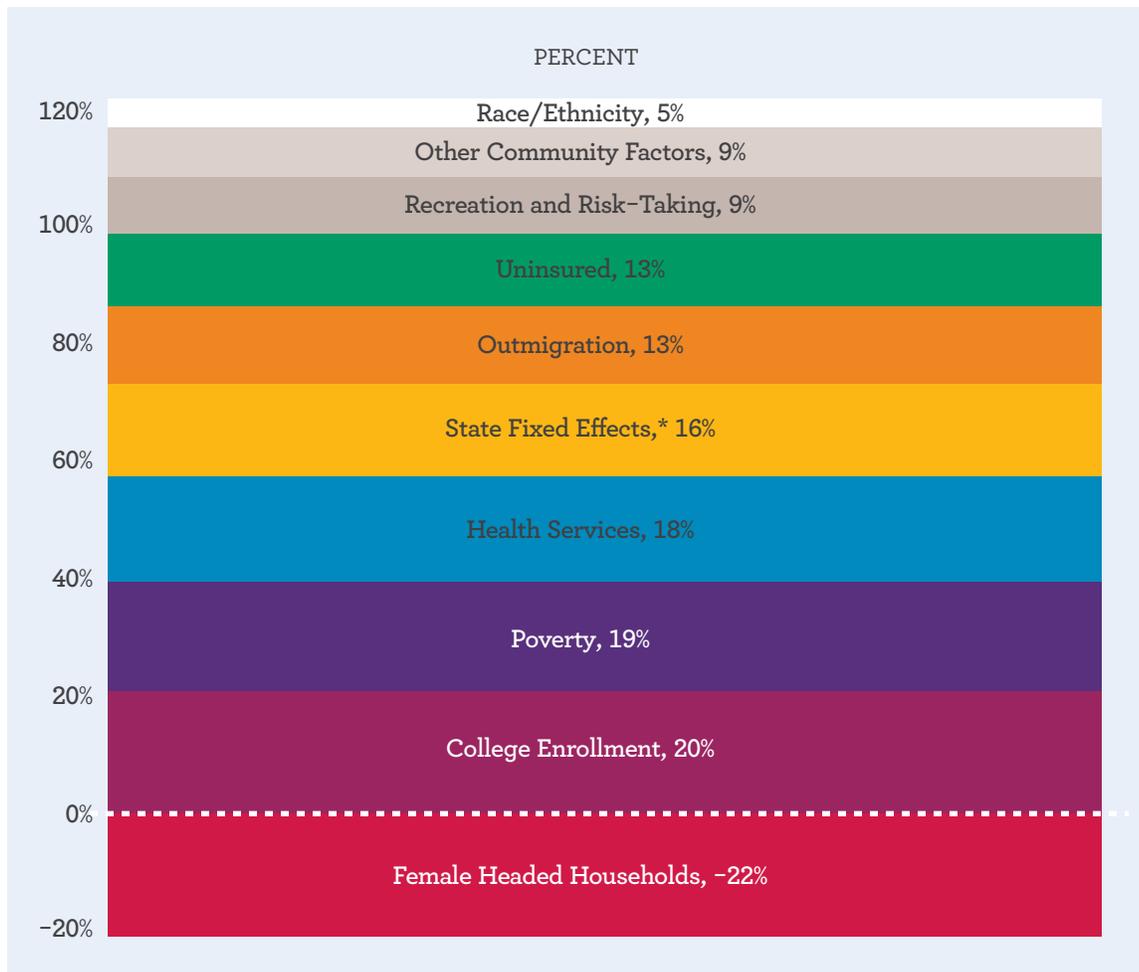
## HEALTH SERVICES

Disparities in the availability of health services also accounted for a major share of the higher teen birth rates in rural counties, at 18%. This includes the share accounted for by differences in publicly funded clinics offering contraception per square mile (15%), differences in providers per person (4%), and differences attributable to HPSA status or score (-1%). A related factor, the percentage without health insurance, accounted for 13% of the disparity between rural and metropolitan teen birth rates.

## RECREATION AND RISK

These findings support the hypothesis that one driver of higher teen birth rates in rural areas is lack of access to positive recreational outlets and an associated increase in risk-taking. However, these factors were much less prominent than economic prospects and health care access. Factors included in this category are the number of sports/recreational facilities per 100,000 in the population (explaining 5% of the difference) and rates of alcohol and drug use (explaining 4%).

Figure 23. What Accounts for the Difference Between Rural and Metropolitan Teen Birth Rates?



\*State fixed effects capture unmeasured factors that are unique to each state. Their contribution can be thought of as the percentage of the disparity that is not explained by the other factors measured in our analysis.

For further detail on variable definitions, see Chapter 3 and the Technical Appendix, available online at <http://TheNationalCampaign.org/resource/sex-non-city>.

## OTHER FACTORS

There were numerous other risk factors that also accounted for a portion of the rural/metropolitan disparity in teen birth rates, but their contribution was much smaller—accounting for 9% of the difference between rural and metropolitan teen birth rates. They are shown together as “Other Community Factors,” and include religiosity in the county (3%), the percentage of teens who are married (2%), transportation barriers (3%), and other economic factors such as economic specialization and percentage of the population unemployed or idle (1%).

While these factors were small contributors to the rural/metropolitan disparity in teen birth rates, some are notable for that very reason—that is, they were not the major factors that some might have expected. For example, one could speculate that a major contributor to higher rural teen birth rates is more prevalent marriage among rural teens, but this was not so because marriage was relatively rare in rural and metropolitan counties alike. Similarly, it would be reasonable to hypothesize that transportation barriers would account for much of the difference between rural and metropolitan teen birth rates, given that it was a significant predictor of county-level teen birth rates. Yet, when considering barriers related to public and private transportation alike, transportation barriers cut across the rural/metropolitan continuum and thus did not explain a large share of the rural/metropolitan disparity in teen birth rates. Differences in the racial/ethnic composition of the population were also not a major factor, accounting for 5%.

## 6. Implications For Teen Pregnancy Prevention

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### CHALLENGES

The results of our analysis are hardly a surprise—rather, they confirm what we have long heard from those working with rural teens in the field. Teens in rural areas are at higher risk for teen pregnancy—they are more likely to be sexually active and less likely to use contraception the first time they have sex. Disparities in the teen birth rate, which we believe mirror disparities in the teen pregnancy rate, are largely explained by differences in economic opportunities and access to health care, including access to contraceptive services. Of course, the variables we could measure in our analyses are crude proxies at best for the problems faced by many rural communities, and in this chapter we draw on the literature as well as thoughts offered by colleagues in the field to provide additional insight as to what this all means in practice.

The image of rural youth growing up in a place where time stands still and where they are sheltered from social problems is outdated and fails to capture the diverse and dynamic trends in rural America. In many ways, rural teens are similar to teens everywhere—they watch the same TV shows, use social networking sites, and share the same attitudes.<sup>54</sup> Among rural teens who are at risk for teen pregnancy, the red flags are no different than what we might expect for teens overall—according to the literature, poor school performance, less parental monitoring, and less parental discussion of contraception are all associated with high-risk sexual activity.<sup>55</sup> Rural parents, too, are not that different from urban parents. They are just as likely to discuss sex and related topics with their teens, including methods of birth control and where to get them.<sup>56</sup> Similarly, rural parents' attitudes towards contraception are not that different.<sup>57</sup> There is no special, common culture throughout rural America that explains the higher rates of unprotected sex and childbearing among rural teens. Rather, it is predominantly a function of the everyday difficulties that communities face in making services and opportunities available to young people, challenges that are associated with higher rates of teen childbearing in many communities, but that occur more frequently or more acutely in rural communities.

Many of the community-level factors associated with teen childbearing are deep-seated and not easily changed. Differences in economic opportunity—particularly educational attainment and poverty—are the most important factors explaining the higher teen birth rates in rural counties. As noted in one study, poverty in rural areas is often “more severe, more persistent, and often less visible,” as compared to metropolitan areas.<sup>58</sup> Not unlike urban centers, the rural poor often live in spatially concentrated areas, where youth follow community patterns.<sup>59</sup> Rural youth are less likely to say they are planning to go to college and less likely to say they expect to be better off than their parents,<sup>60</sup> while those who do go to college often depart for better job opportunities in more metropolitan areas. This decline in population can create a cycle of shrinking labor markets in rural areas, which become less able to attract employers searching for a more highly skilled labor force.<sup>61</sup> This pattern of disadvantage plays a central role in explaining higher rural teen birth rates, yet it does not suggest any easy solutions.

Our analysis also indicates that access to health care, and contraceptive care in particular, is a major factor contributing to higher teen birth rates in rural communities. This is consistent with an extensive body of literature that documents a higher incidence of uninsured and underinsured, and greater difficulty accessing providers and clinics among rural patients.<sup>62</sup> Transportation barriers, although not unique to rural teens, may play a bigger role in rural communities given that clinics are fewer and farther between—a concern we hear often from our partners in the field, and one noted by rural youth as well as providers in some studies.<sup>63</sup> This problem is further exacerbated by rising medical costs and limited funding, which have led many clinics to consolidate.<sup>64</sup> Costs of care are often higher on average in rural areas, where health care providers often cannot take advantage of economies of scale. This leads to even higher costs on average for rural patients, which is particularly concerning given their lower rates of health insurance.<sup>65</sup> Rural patients are more likely to report cost as a barrier when seeking care and are more likely to report deferring care because of costs.<sup>66</sup>

Furthermore, a simple count of clinics and providers in rural areas almost certainly does not tell the whole story, particularly regarding access to contraception. For example, there is some evidence that publicly funded clinics—at least those run by local health departments—are less likely to offer family planning services in rural areas.<sup>67</sup> Also, some research suggests that rural providers on average are less comfortable raising the issue of contraception with teens and are less familiar with the latest information on contraception, particularly the most highly effective methods—long-acting, reversible contraceptives (or LARC), including the implant and the intrauterine device (or IUD).<sup>68</sup> This may be related to the fact that, compared to metropolitan patients, rural patients are more likely to see family doctors instead of specialists, and family doctors on average have a higher degree of discomfort or lack of confidence in providing care to adolescents on topics related to sexuality than obstetrician-gynecologists.<sup>69</sup> It may also reflect the fact that the providers who are most comfortable offering contraceptive care and most familiar with LARC insertion tend to be younger and female—also less common among rural providers.<sup>70</sup>

In fact, an extensive study of providers in the Midwest found that rural Title X clinics were less likely than metropolitan Title X clinics to provide LARCs. The study found that rural clinics were more likely to report numerous barriers in providing family planning services. These include barriers specific to providing LARC, such as high cost, low demand, and lack of trained clinicians, as well as barriers related to family planning services overall, such as limited office hours, inadequate staffing, and distances patients must travel to receive care.<sup>71</sup>

A smaller, qualitative study reported that some rural family doctors were hesitant to prescribe contraception, even as they recognized receiving more of these requests than metropolitan family doctors due to the lack of specialists in rural areas. Some providers in the study even considered teen childbearing to be a community norm that they did not wish to challenge.<sup>72</sup>

These factors are echoed by rural teens in a Midwest study, whose concerns about getting contraceptive care included fear about a provider's reaction and uncertainty about how to gain access to care, as well as cost and insurance. In fact, this study found 50% of sexually active Midwestern youth who needed birth control services did not get them when needed.<sup>73</sup> Another study found that rural women were less likely to report receiving counseling or information about birth control methods in the past year.<sup>74</sup>

Finally, in many rural areas, teens have little assurance of confidentiality, since teens may know other patients or even the clinical staff.<sup>75</sup> Rural teens frequently cite lack of confidentiality as a concern when it comes to accessing contraceptive care.<sup>76</sup>

## STRATEGIES

While economic disparities in rural areas remain a vital concern and important to address in their own right, they are deeply rooted and addressing these challenges is beyond the scope of our report. Instead, we focus here on access to health services in general and contraceptive care in particular, as well as opportunities for outreach and education pertaining to teen pregnancy prevention.

**Protecting the health care safety net.** The health care safety net is important everywhere and this is especially true in rural areas. Publicly funded health insurance is an essential part of the safety net in rural areas, and accounts for a greater share of insured individuals in rural areas compared to metropolitan—25% vs. 19% according to one recent estimate.<sup>77</sup> In fact, even though rural residents are more likely to lack health insurance overall, among the poor, health insurance rates were actually better for rural residents than metropolitan residents.<sup>78</sup> Similarly, eligible children were more likely to be enrolled in Medicaid or SCHIP in rural areas compared to metropolitan.<sup>79</sup>

Of course, we recognize that the health insurance landscape is changing rapidly since the enactment of the Affordable Care Act (ACA) and may be very different from what is depicted even in recent studies. The ACA offers important opportunities to improve access to health care across the country, which could be particularly important for underserved areas like rural communities. Even so, as noted earlier, some early assessments suggest that challenges may remain for many rural communities and the full range of implications for rural health will likely be complex.

Also critical to the safety net is the valuable role played by a wide array of publicly funded clinics. Our analysis indicates that community clinics in particular are an important source of care for rural teens seeking contraception, and they are viewed as a fundamental element of the health care system for rural communities more broadly.<sup>80</sup> These include, for example, community health centers and rural health clinics. Another source of support, the Title X program, helps fund a range of clinics that provide medical care to underserved populations, including those in rural areas, and is “the only federal grant program dedicated solely to providing individuals with comprehensive family planning and related preventive health services.”<sup>81</sup> Our tabulations indicate that, as of 2010, clinics receiving Title X funding accounted for more than half (56%) of all publicly funded clinics providing contraceptive services in rural areas, compared to 45% of clinics in metropolitan areas.

Communities may also be able to secure additional resources if they receive a HPSA designation, and our results suggest receiving such a designation is associated with lower teen birth rates. Each state has a Primary Care Office (PCO), which can help facilities or underserved communities apply for HPSA status if certain qualifications are met.<sup>82</sup>

**Ensuring availability of the full range of contraception.** As noted earlier, beyond the prevalence of health insurance and the availability of clinics and providers, there are challenges within clinics that affect rural communities disproportionately, particularly when it comes to offering the full range of contraceptive methods. Improving the availability of contraception will require not only increasing the availability of all methods—especially LARCs—within clinics, but also providing training to providers on the use of those methods. Research shows that many of the differences in provider attitudes on LARC use are due to the lack of training, which underscores the importance of additional training for rural providers.<sup>83</sup> Training will be important not only for doctors, but also for advance practice nurses, who make up 38% of the rural primary care workforce in rural areas, as compared to 28% in metropolitan areas.<sup>84</sup>

Naturally, changing availability, access, and standards of care regarding teen contraceptive services in rural areas won't happen overnight, but much can be learned in this regard from working with clinics funded by Title X. Studies show that clinics receiving Title X funding lead the way in terms of stocking and providing the most effective methods of contraception, and in providers' comfort with these methods.<sup>85</sup> They are also required to ensure confidentiality when serving minors, which is particularly important to rural teens.<sup>86</sup> At the same time, as noted earlier, rural Title X clinics could benefit from tackling many of the barriers faced by other rural clinics, as they too report access, affordability, and other challenges in their provision of family planning services, and many lag behind their urban Title X counterparts in the provision of the most effective methods.<sup>87</sup> Even so, no pattern is universal. In fact, a study in California showed that more rural Title X clinics carried on-site LARCs than urban clinics, which shows promise for supply in rural areas.<sup>88</sup> Ideally, best practices and improvements in care at rural clinics receiving Title X funds could be replicated at other publicly funded clinics and then in rural health care systems more broadly.

Of course contraceptive services are only helpful if teens use them. While setting aside a separate waiting area or entrance for teens in the clinic can be a helpful way to improve confidentiality, this may be cost prohibitive in some cases. An even simpler step is to advertise the clinic's primary care services alongside family planning, which can help destigmatize seeking care at the clinic. Community outreach that is teen-friendly may encourage more rural teens to seek services, and alleviating transportation barriers would be helpful although this can be a heavy lift. The Rural Assistance Center offers some suggestions for addressing transportation barriers to support better access to health care.<sup>89</sup>

School-based health centers (SBHCs), where available, also offer one way to alleviate transportation barriers. Even though SBHCs are not widespread, they are more common in rural areas—28% are located in rural areas,<sup>90</sup> while only 15% of the teen population is. Unfortunately, only a small share of SBHCs provide contraceptives,<sup>91</sup> and half are actually prohibited from providing them. By far, local policies—either at the school district or school level—were listed as the most common sources for these restrictions, suggesting the importance of a carefully designed outreach strategy.<sup>92</sup> In cases where these policies are not amenable to change it may still be possible to establish a close partnership between the SBHC and local health department for the purposes of referring teens to contraceptive care.

In all health care-related efforts aimed at reducing teen pregnancy—those aimed at the safety net in general or those aimed at contraceptive care more specifically—doing a local assessment of the health care landscape is often a valuable place to start. This could include assessing the percentage uninsured or underinsured, mapping the location of family planning services, tracking how enactment of the Affordable Care Act is affecting access to those services, and assessing local providers' attitudes and knowledge regarding contraception.

**Pregnancy prevention through programs.** There are numerous programs focused on addressing the behavior that can lead to teen pregnancy, as well as federal funding streams to support these efforts.<sup>93</sup> The vast majority of these programs are in-person and offered in a classroom-style setting either after school or during school. In school programs might be particularly attractive in rural communities because schools are often the center of life in rural areas, and rural parents themselves name schools as one of the best locations to address issues related to teen pregnancy.<sup>94</sup> Administering a program during school hours can keep attendance rates high, minimize transportation challenges, and allow the program to reach a wide variety of youth. If conducting a program during school hours isn't possible, explore options for offering a program after school (on school grounds) or in partnership with organizations/locations that serve large numbers of youth. Although a detailed analysis of these programs is beyond the scope of our report, we believe our findings offer a number of insights pertaining to the role they can play.

First and foremost, teen childbearing in rural areas is neither culturally entrenched nor intractable. In fact, there are several programs designed to prevent teen pregnancy that have evidence of effectiveness in rural areas. Among the promising programs are:

- *Making Proud Choices (MPC)*: MPC was applied in highly different urban, rural, and foster care populations in Missouri and was equally effective among all groups, suggesting it is adaptable to different populations. Although there was some initial resistance to MPC in the rural setting—particularly to the condom demonstration—this was overcome through community outreach, and full implementation of the program in rural Missouri was eventually successful.<sup>95</sup>
- *Reducing the Risk (RTR)*: This was implemented in a southern, rural community and shown to be effective—even as compared to a control group that was receiving a curriculum already implemented in the community.<sup>96</sup>
- *Teen Outreach Program (TOP)*: This service learning program was demonstrated to be effective in reducing pregnancy among teens nationwide, and is commonly used in rural areas. Given that this program places a strong emphasis on youth development, and spends less time on reproductive health, it may be particularly well suited to addressing the concerns of some rural communities.<sup>97</sup>
- *Focus on Kids (FOK)*: This program was tested in West Virginia, both as part of a minimally adapted intervention, titled Original Focus on Kids (OFOK), and a fully adapted intervention, titled West Virginia Focus on Kids (WVFOK). The OFOK program did not include the condom demonstrations found in the original, while WVFOK increased the focus on abstinence and lack of economic opportunity. Both adaptations had some success, although less so than the original program.<sup>98</sup>

Furthermore, even if an evidence-based program has not been tested specifically among rural teens or adapted for rural teens, that does not necessarily mean it won't be effective

among rural teens. In many ways, teens across the country are more alike than they are different, as discussed throughout this report, and local providers should consider the full range of evidence-based programs when choosing the one that best fits their needs.

Second, community leaders may assume that rural parents are more opposed to education on topics related to sex and contraception—in fact one study suggests that comprehensive programs are sometimes not even attempted in rural areas due to this assumption<sup>99</sup>—yet, as noted earlier, our results suggest otherwise, at least in the aggregate. Therefore, conducting a local survey of parents may reveal significant community support and give local leaders the encouragement they need to implement a teen pregnancy prevention program. To the extent parental concerns do surface, survey data can help community leaders propose a strategy that is responsive and ultimately successful. For example, if parents are concerned about the emphasis on sex and contraception as opposed to delaying sexual activity, the following approaches may be helpful:

- *Distinguish between abstinence as a program, as a strategy, and as an outcome.* There is a great deal of confusion on the part of parents, school administrators, and the public in general regarding teen pregnancy prevention programs—in particular when it comes to abstinence and abstinence education.
  - » Abstinence education per se (now also referred to as sexual risk avoidance education) refers to a select group of curricula. However, many teen pregnancy prevention programs, including those that focus on both abstinence and contraception and some that are commonly labeled as comprehensive sex education, also seek to delay sexual activity among teens and stress that abstaining from sex is the best way to avoid pregnancy.
  - » In fact, a combined approach—that is, with an emphasis on delaying sex *and* providing medically accurate information on sex and contraception, not one or the other—is exactly the approach favored by the majority of parents across the country.<sup>100</sup>
  - » Furthermore, many of these programs—not just those labeled as abstinence only curricula—have been demonstrated to reduce and/or delay sexual activity. Parents may assume that discussing contraception will result in more sexual activity, and using program evidence to dispel this myth may be helpful.
- *Focus on adolescent health more broadly.* High rates of alcohol use, tobacco use, and obesity are often cited as concerns in rural areas. Implementing teen pregnancy prevention as part of a larger health curriculum may provide more appropriate framing, and make it easier to work with schools.<sup>101</sup> Also, be sure to make a strong case for why teen pregnancy prevention matters in terms of high school completion rates and other key outcomes for teens.
- *Consider the full range of evidence-based options.* If community opposition to the topic of contraception remains high, there are other evidence-based curricula shown to be effective in preventing teen pregnancy:
  - » Several programs meeting the official definition of abstinence-only or sexual risk avoidance programs have been shown effective in teen pregnancy prevention.<sup>102</sup>
  - » A number of youth development programs also have been shown to prevent teen pregnancy. These programs may be a particularly good fit in rural communities

given that they help connect youth to economic opportunity, community services, and extracurricular activities.<sup>103</sup>

Third, rural communities will encounter many of the same challenges to prevent teen pregnancy as every other community. In particular:

- Building community trust is key to the success of any teen pregnancy prevention efforts. Often, communities will be resistant to outside groups who want to make changes, especially on an issue that might not be recognized as a problem or that might be considered controversial by some. Working with someone in the community who already has pre-existing contacts can help tap into the community's resources, and achieve credibility. If these networks do not exist, it is best to work in a pilot year to lay these foundations before attempting to start a program. This approach was used successfully to implement *Making Proud Choices* in rural Missouri, as described previously.<sup>104</sup>
- Cost and logistics—including transportation—are major hurdles and require extensive planning to overcome. Simply pulling a curriculum off the shelf is unlikely to yield success without first carefully articulating and addressing the efforts needed at every level of implementation. Some have suggested that cost and effort can be minimized by providing program sessions back to back; however this may lessen the impact of the intervention.<sup>105</sup> In addition, there is generally a tradeoff between the number of teens reached and the depth of the intervention, and the best approach will depend on each community.

**Beyond clinics and classrooms.** Efforts to prevent teen pregnancy in all communities are more likely to be successful if they are multifaceted. In addition to efforts on the part of schools and clinics, rural communities in particular may need to consider a broad array of partners and explore innovative approaches given many of the unique challenges they face. This could include strategies like the following:

- *Going digital.* Using technology can be an effective, low-cost way to help reach a large number of teens, both in terms of pregnancy prevention programs and clinical services, particularly in sparsely populated areas facing transportation barriers.
  - » We know of only one computer-based teen pregnancy prevention program shown to be effective specifically among rural teens, with modest impacts on a wide range of outcomes, including a delay in the average age of first sex and increased knowledge and self-efficacy. The program reported high completion rates, and ease of replication.<sup>106</sup> Also, efforts are underway to adapt some existing evidence-based curricula for online delivery,<sup>107</sup> and there is a growing list of digital portals containing medically accurate and age-appropriate information related to sex education, including our own StayTeen.org (for teens age 13-17) and Bedsider.org (for young people age 18-29).
  - » Technology can strengthen clinical services through the use of “telehealth,” which HRSA defines as “the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health, and health administration” and can include everything from streaming media to landline telephones. While not without its own challenges, telehealth can be helpful in rural areas where patients may have a hard time getting to a provider and/or pharmacy.<sup>108</sup>

- *Partnering with pharmacies.* Across the country, efforts are expanding to enable highly trained pharmacists to prescribe and dispense certain kinds of medication, including contraception. Research in New Mexico and North Carolina has indicated there is high demand for these services, which are also relatively low cost.<sup>109</sup> While this would not totally alleviate the challenges to clinical services in rural areas (especially given that rural areas face challenges related to pharmacy access as well<sup>110</sup>) it could play a role in making prescription contraception more widely available.
- *Importance of parents.* It's worth noting that studies examining the factors associated with unprotected sex among teens in rural areas found a direct link to parental influence—whether through monitoring, support, or communication about birth control.<sup>111</sup> This suggests that parental guidance and support, while important everywhere, should be an important element of rural efforts in particular.
- *Partnering with faith leaders.* Although the evidence is mixed on the role of religiosity when it comes to sexual activity and related outcomes among teens, data clearly show that religion and religious institutions are influential in rural areas and among rural teens.<sup>112</sup> Experience also shows that faith leaders can be a valuable partner in efforts to prevent teen pregnancy.<sup>113</sup>

Clearly, these insights offer no panacea when it comes to teen pregnancy prevention in rural communities. However teen pregnancy rates are falling, and falling precipitously—even among rural teens. The efforts of clinicians, educators, parents, community leaders, and teens themselves are making a difference. Applying the lessons we've learned from our progress thus far, along with deepening our understanding of the unique strengths and challenges in rural communities, can lead to greater progress in the future.

## QUESTIONS FOR FURTHER RESEARCH

We recognize that the short list of factors explored in our analysis is an imperfect proxy for a more complex dynamic playing out in communities across America. Ideally, we would have been able to consider more cultural factors in our model, since some of the rural/metropolitan disparities may be explained by differences in attitudes. Our analysis would also benefit from stronger measures particularly related to transportation, religiosity, and substance abuse as well as better controls for any divergence between teen birth rates and teen pregnancy rates to the extent those data become available in the future. Although our analyses were not sensitive enough to distinguish the influence of clinics by type of service offered and funding, or reflect the importance of other categories of providers such as advance practice nurses, this could be explored in other ways and could offer further insights.

In addition, our model is based off of a single year of data. The conclusions for a few variables may be sensitive to the year of the data, one example of this being the unemployment rate. Rural employment will often be more seasonal, temporary, or offer fewer hours, so this measure won't necessarily capture the effect of employment instability.<sup>114</sup> Also, since unemployment was high across the board due to the economic recession in 2010, this may have masked rural-metropolitan differences in employment that could exist in non-recession years.<sup>115</sup>

Perhaps even more importantly, the landscape pertaining to health insurance coverage is changing rapidly with the ongoing implementation of the Affordable Care Act (ACA).

The ACA offers great potential for improving access to health care and extensive research is already underway to assess the dramatic influence it will have on reproductive health outcomes and health care more broadly.<sup>116</sup> The same could be said for other rapidly changing aspects of the health care landscape. For example, a growing number of states are allowing pharmacists to prescribe medications such as contraception, yet many pharmacies in rural areas are closing, particularly in counties that are the most underserved by medical providers.<sup>117</sup> Clearly the full picture of what these and other changes imply for health care in rural America is complex and still emerging.<sup>118</sup>

Lastly, there is ample opportunity for further analyses into the effect of region. We recognize that there is no one rural America, and the role of challenges related to clinical access, economic opportunities, transportation, and more will differ between, say, the Southwest and the Northeast. Each region has its own opportunities and challenges, which will be important to take into account in any intervention.<sup>119</sup> Even the dynamics of just one factor—poverty—can result in wide regional variation that implies different strategies.<sup>120</sup> More analyses by region could provide further insight about how to better target teen pregnancy prevention efforts.

Broadly speaking, the reasons why teen pregnancy and childbearing are higher in some communities than others are more nuanced and complex than an analysis such as ours can fully explore. And, while further research is always helpful, the most important insights related to teen childbearing in rural areas are likely to come from the communities themselves. Therefore, the primary goal of this report is to spark conversations among community leaders, practitioners, and experts in the field that can pick up where research leaves off—discussions that identify challenges and potential solutions unique to each community.

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## Mission

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Our mission is to improve the lives and future prospects of children and families and, in particular, to help ensure that children are born into stable, two-parent families who are committed to and ready for the demanding task of raising the next generation.

Our strategy is to prevent teen pregnancy and unplanned pregnancy, especially among single, young adults. We support a combination of responsible behavior by both men and women and responsible policies in both the public and private sectors.

When we are successful, child and family wellbeing will improve. There will be less poverty, more opportunities for young men and women to complete their education or achieve other life goals, fewer abortions, and a stronger nation.

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