

Consumer & Community Context

A series examining economic and financial topics affecting consumers and communities

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At the Fed, Consumers and Communities Matter

Welcome to the first issue of *Consumer & Community Context*. This new article series will highlight Federal Reserve research and analysis of the financial conditions and experiences of consumers and communities, including traditionally underserved and economically vulnerable households and neighborhoods. Our goal for this series is not just to share insights, but to provide context for the complex economic and financial issues that affect individuals, communities, and the broader economy—and, in the process, enhance understanding of and enrich the dialogue on issues that touch all of our lives.

The series will be published periodically throughout the year, and each issue will have a theme. In this inaugural issue, we feature two articles on student loans, a topic of great interest to the many people who have borrowed to pursue higher education. The [first article](#) explores the impact that rising student loan debt levels may have on homeownership rates among young adults. The [second](#) considers the relationship between the amount of student loan debt individuals acquire and their decisions to live in rural or urban areas.

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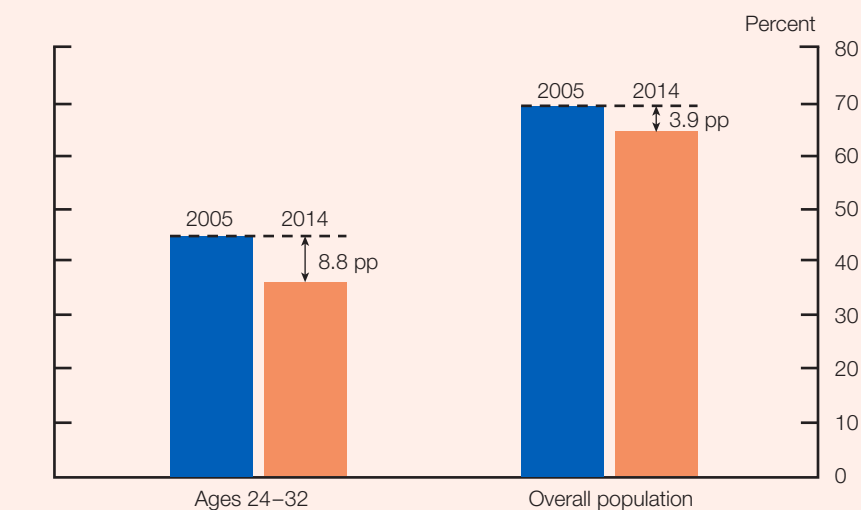


Can Student Loan Debt Explain Low Homeownership Rates for Young Adults?

by Alvaro Mezza, Daniel Ringo, and Kamila Sommer, Federal Reserve Board Division of Research & Statistics

The homeownership rate in the United States fell approximately 4 percentage points in the wake of the financial crisis, from a peak of 69 percent in 2005 to 65 percent in 2014. The decline in homeownership was even more pronounced among young adults. Whereas 45 percent of household heads ages 24 to 32 in 2005 owned their own home, just 36 percent did in 2014—a marked 9 percentage point drop (figure 1).¹

Figure 1. Change in homeownership rate between 2005 and 2014



PP is percentage point.

Source: Current Population Survey 2005 and 2014 (authors' calculations).

While many factors have influenced the downward slide in the rate of homeownership, some believe that the historic levels of student loan debt have been particular impediments.² Indeed, outstanding student loan balances have more

1. Source: Current Population Survey (authors' calculations).

2. For some examples, see "CFPB Director: Student Loans Are Killing the Drive to Buy Homes," Housing Wire, May 19, 2014; and J. Mishory and R. O'Sullivan, "Denied? The Impact of Student Loan Debt on the Ability to Buy a House," https://www.cgsnet.org/ckfinder/userfiles/files/Denied-The-Impact-of-Student-Debt-on-the-Ability-to-Buy-a-House-8_14_12.pdf.

than doubled in real terms (to about \$1.5 trillion) in the last decade, with average real student loan debt per capita for individuals ages 24 to 32 rising from about \$5,000 in 2005 to \$10,000 in 2014.³ In surveys, young adults commonly report that their student loan debts are preventing them from buying a home.⁴

In Mezza, Ringo, Sherlund, and Sommer (forthcoming and summarized in this article),⁵ we estimate that roughly 20 percent of the decline in homeownership among young adults can be attributed to their increased student loan debts since 2005. Our estimates suggest that increases in student loan debt are an important factor in explaining their lowered homeownership rates, but not the central cause of the decline.

Estimating the Effect of Student Loan Debt on Homeownership

The relationship between student loan debt and homeownership is complex. On the one hand, student loan payments may reduce an individual's ability to save for a down payment or qualify for a mortgage. On the other hand, investments in higher education also, on average, result in higher earnings and lower rates of unemployment. As a result, it is not immediately clear whether, on balance, the impact of student loan debt on homeownership would be positive or negative.

Since we are interested in isolating the negative effect of increased student loan burdens on homeownership from the potential positive effect of additional education, our analysis aims to estimate the effect of debt on homeownership holding all other factors constant. In other words, if we were to compare two individuals who are otherwise identical in all aspects but the amount of accumulated student loan debt, how would we expect their homeownership outcomes to differ?

To estimate the effect of the increased student loan debt on homeownership, we tracked student loan and mortgage borrowing for individuals who were be-

We found that a \$1,000 increase in student loan debt . . . causes a 1 to 2 percentage point drop in the homeownership rate for student loan borrowers during their late 20s and early 30s.

3. Figures are based on authors' calculation from the Equifax/Federal Reserve Bank of New York Consumer Credit Panel data set. Nominal amounts are deflated by CPI-U into constant 2014:Q2 dollars.

4. See, for example, C. Stone, C. Van Horn, and C. Zukin, "Chasing the American Dream: Recent College Graduates and the Great Recession," *Work Trends*, John J. Heldrich Center for Workforce Development, May 2012; and Sarah Shahdad, "What Younger Renters Want and the Financial Constraints They See," Fannie Mae, May 5, 2014.

5. Alvaro Mezza, Daniel Ringo, Shane Sherlund, and Kamila Sommer, "Student Loans and Homeownership," *Journal of Labor Economics*, forthcoming.

According to our calculations, the increase in student loan debt between 2005 and 2014 reduced the homeownership rate among young adults by 2 percentage points.

tween 24 and 32 years old in 2005.⁶ Using these data, we constructed a model to estimate the impact of increased student loan borrowing on the likelihood of students becoming homeowners during this period of their lives. We found that a \$1,000 increase in student loan debt (accumulated during the prime college-going years and measured in 2014 dollars) causes a 1 to 2 percentage point drop in the homeownership rate for student loan borrowers during their late 20s and early 30s. Our estimates suggest that student loan debt can be a meaningful barrier preventing young adults from owning a home. Next, we apply these estimates to another interesting question: How much of the 9 percentage point drop in the homeownership rate of 24 to 32 year olds between 2005 and 2014 can be attributed to rising student loan debt?

The Rise in Student Loan Debt and Decline in Homeownership since 2005

Answering this question requires two steps. First, we calculate an expected probability of homeownership in 2005 for each individual in our sample using the estimated model from our previous research. Second, we produce a simulated scenario for the probability of homeownership by increasing each individual's debt to match the student loan debt distribution of this age group in 2014. The difference between the probabilities calculated in these two steps determines the effect of the increased debt on the homeownership rate of the young, holding demographic, educational, and economic characteristics fixed.

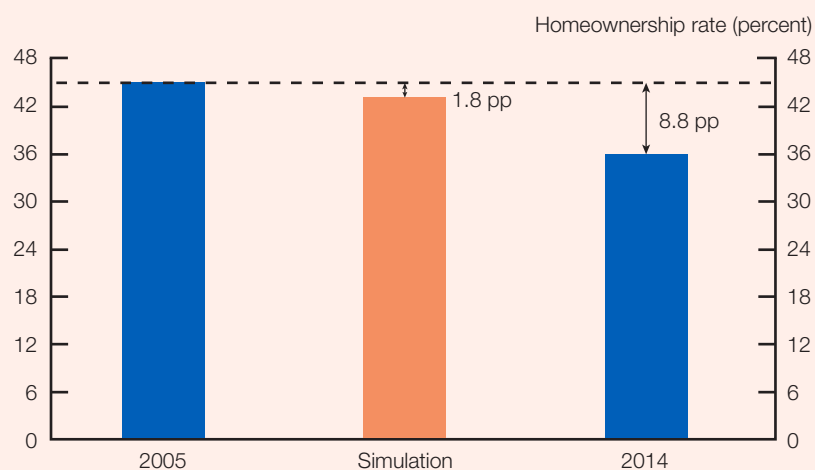
This exercise captures two key dimensions of the shifts in the distribution of student loan debt between 2005 and 2014, in addition to the overall increase in the average amounts borrowed. First, the fraction of young individuals who have borrowed to fund postsecondary education with debt has increased by roughly 10 percentage points over this period, from 30 to 40 percent. Second, the amounts borrowed at the upper end of the distribution increased more rapidly than in the middle.⁷

6. The data combines individual credit bureau records provided by TransUnion, LLC, with educational records on postsecondary enrollment spells provided by the National Student Clearinghouse, federal student loan borrowing provided by the National Student Loan Data System, SAT information provided by CollegeBoard, and postsecondary institution-level records drawn from the Integrated Postsecondary Educational Data Systems. All the merges of individual-level information have been performed by TransUnion, LLC, in conjunction with the National Student Clearinghouse, the Department of Education, and the College Board. The merges were based on a combination of Social Security number, date of birth, and individuals' first and last names. None of this personal identifying information used to merge individuals across sources is available in our data set.

7. For example, while the median individual in the 24 to 32 age cohort had no borrowing in either 2005 or 2014, the debt levels of the 95th percentile increased by about \$6,500 between 2005 and 2014.

According to our calculations, the increase in student loan debt between 2005 and 2014 reduced the homeownership rate among young adults by 2 percentage points. The homeownership rate for this group fell 9 percentage points over this period (figure 2), implying that a little over 20 percent of the overall decline in homeownership among the young can be attributed to the rise in student loan debt. This represents over 400,000 young individuals who would have owned a home in 2014 had it not been for the rise in debt.

Figure 2. Homeownership rate, ages 24–32



An important caveat to keep in mind when interpreting our estimates is the difference in mortgage market conditions before and after the financial crisis. The model used to develop these estimates was built using data for student loan borrowers who were between 24 and 32 years old in 2005, so a large fraction had made their home-buying decisions before 2008, when credit was relatively easier to obtain. Following the crisis, loan underwriting may have become more sensitive to student loan debt, increasing its importance in explaining declining homeownership rates.

Student Loan Debt May Have Even Broader Implications for Consumers

There are multiple channels by which student loans can affect the ability of consumers to buy homes. One we would like to highlight here is the effect of student loan debt on credit scores. In our forthcoming paper, we show that higher student loan debt early in life leads to a lower credit score later in life, all

else equal. We also find that, all else equal, increased student loan debt causes borrowers to be more likely to default on their student loan debt, which has a major adverse effect on their credit scores, thereby impacting their ability to qualify for a mortgage.⁸

This finding has implications well beyond homeownership, as credit scores impact consumers' access to and cost of nearly all kinds of credit, including auto loans and credit cards. While investing in postsecondary education continues to yield, on average, positive and substantial returns, burdensome student loan debt levels may be lessening these benefits. As policymakers evaluate ways to aid student borrowers, they may wish to consider policies that reduce the cost of tuition, such as greater state government investment in public institutions, and ease the burden of student loan payments, such as more expansive use of income-driven repayment.

8. Alvaro Mezza and Kamila Sommer (2015) show that, unconditionally, student loan delinquencies are highest among individuals with relatively small amounts of student loan debt. This is because these individuals are less likely to have advanced degrees and are more likely to have dropped out of college or attend one-year or two-year institutions. Attendance at a for-profit college is another important factor associated with increased risk of student loan default. See "A Trillion Dollar Question: What Predicts Student Loan Delinquency Risk?" FEDS Notes 2015-10-16 (Washington: Board of Governors of the Federal Reserve System, 2015), <https://www.federalreserve.gov/econresdata/notes/feds-notes/2015/trillion-dollar-question-what-predicts-student-loan-delinquency-risk-20151016.html>.

“Rural Brain Drain”: Examining Millennial Migration Patterns and Student Loan Debt

By PJ Tabit and Josh Winters, Federal Reserve Board Division of Consumer and Community Affairs

Much of rural America is aging, losing population, and increasingly lagging urban areas in the share of individuals holding college degrees. Between 2010 and 2016, for example, about 68 percent of rural counties lost population, and just 7 percent of rural counties grew more than 5 percent.¹ Since 2000, the number of employed prime age workers declined 11 percent in rural areas while rising in urban and suburban areas.² Additionally, the college attainment gap between rural and urban populations has widened from 4.8 percentage points in 1970 to 14 percentage points in 2015.³ Researchers have also found that individuals in rural areas are less likely to have college degrees and are more likely to be unemployed.⁴ The loss of college-educated young people from rural areas—commonly called “rural brain drain”—could have important effects on the economic vitality of these rural communities and raises questions about what rural policymakers should do to reverse this trend.

Although prior research on rural brain drain has compared where those with and without college degrees choose to live, less attention has been paid to the relationship between the amount of student loan debt individuals hold and

1. John Cromartie, “Rural Areas Show Overall Population Decline and Shifting Regional Patterns of Population Change,” *Amber Waves*, U.S. Department of Agriculture (USDA) Economic Research Service, September 5, 2017, <https://www.ers.usda.gov/amber-waves/2017/september/rural-areas-show-overall-population-decline-and-shifting-regional-patterns-of-population-change/>.

2. Kim Parker, Juliana Menasce Horowitz, Anna Brown, Richard Fry, D’Vera Cohn, and Ruth Igielnik, “What Unites and Divides Urban, Suburban, and Rural Communities,” Pew Research Center, May 22, 2018, <http://www.pewsocialtrends.org/2018/05/22/demographic-and-economic-trends-in-urban-suburban-and-rural-communities/>.

3. Brigitte S. Waldorf, “Brain Drain In Rural America,” Paper presented at annual meeting of the *American Agricultural Economics Association*, Portland, Oregon, July 29–August 1, 2007, <https://ageconsearch.umn.edu/bitstream/9866/1/waldorf.pdf>; and USDA Economic Research Service, “Nonmetro Education Levels Are Improving, but Still Lag Metro,” 2017, <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58306>.

4. USDA Economic Research Service, “Rural Education at a Glance,” *Economic Information Bulletin* 171, April 2017, <https://www.ers.usda.gov/webdocs/publications/83078/eib-171.pdf?v=42830>; and Alison Weingarden, “Labor Market Outcomes in Metropolitan and Non-Metropolitan Areas: Signs of Growing Disparities,” FEDS Notes (Washington: Board of Governors, September 25, 2017), <https://www.federalreserve.gov/econres/notes/feds-notes/labor-market-outcomes-in-metropolitan-and-non-metropolitan-areas-signs-of-growing-disparities-20170925.htm>.

their decisions about where to live.⁵ Because student loan debt can influence a range of important financial and life choices, including buying a home, having children, and changing jobs, we explore the relationship between rural millennials' student loan balances and where they choose to live after entering repayment.⁶ We call these "migration patterns" for short. We also look at the credit and economic outcomes for rural students who move to urban areas compared to the outcomes of individuals who remain in rural areas.

For our analysis, we used the Equifax/Federal Reserve Bank of New York Consumer Credit Panel (CCP), which contains credit reporting data, age, and census tract location for a nationally representative 5 percent sample of all adults with a Social Security number and a credit report.⁷ The CCP is longitudinal and updated quarterly, allowing us to follow changes in an individual's credit history and location over time.

To study the migration patterns of student loan borrowers, we measured changes in individuals' census tract locations at several points in time: the quarter in which they first enter the panel (i.e., the point at which they start their credit history); the quarter in which they enter repayment; and then one, two, and three years after we estimate that they enter repayment.⁸ Since we do not observe individuals' repayment statuses directly in the CCP, we consider them to be in repayment five quarters after originating their last student loan. This methodology yields results that are consistent with the Department of Education's reported statistics on the percentage of student loan balances in repayment. Finally, we grouped individuals into four geographic categories—metropolitan, micropolitan, small town, and rural—according to their census tract and corresponding Rural-Urban Commuting Area (RUCA) code.⁹ Our analysis includes both federal and private student loans.

5. Ann Marie Fieore, Linda S. Niehm, Jessica L. Hurst, Jihyeong Son, Amrut Sadachar, Daniel W. Russel, David Swenson, and Christopher Seeger, "Will They Stay or Will They Go? Community Features Important in Migration Decisions of Recent University Graduates," *Economic Development Quarterly* 29, no. 1 (2015): 23–37, <http://journals.sagepub.com/doi/pdf/10.1177/0891242414559070>; and David Luther, "Leaked State Secret: How to Stop the Brain Drain," 2017, <https://www.zippia.com/advice/states-that-lose-graduates/>.

6. We define millennials as members of the generation born between 1981 and 1996.

7. Our sample of student loan borrowers includes individuals who entered repayment and were between the ages of 18 and 22 in 2003 through 2017.

8. By observing individuals several years after entering repayment, we increase confidence that we are observing the locations where they have chosen to settle rather than a temporary residence such as a college address.

9. Rural-Urban Commuting Area codes are established by the USDA's Economic Research Service and classify census tracts using measures of population density, urbanization, and daily commuting.

Although the CCP contains detailed credit reporting data, it does not contain information about the individual's college completion status, family income, race, or other information that may also influence migration patterns, so we are unable to control for these factors. Still, we believe this analysis contributes to the discussion about the effect that student loan debt may have on rural student loan borrowers and communities.

Findings

Key observations from our analysis include:

- Individuals with student loan debt are less likely to remain in rural areas than those without it. Only 52 percent of rural student loan borrowers still live in rural areas six years after entering the CCP, compared to about 66 percent of non-borrowers.
- Furthermore, individuals in the highest quartile of outstanding student loan balances are the most likely to leave rural areas. Just 37 percent of rural individuals in the highest quartile of student loan balances remain in rural areas one year after entering repayment, compared to 73 percent of those in the lowest quartile of student loan balances.
- Within the period of study, rural individuals who move to metro areas fare better than those who stay in rural areas across several financial and economic measures, including student loan delinquency rates and balance reduction.

Individuals with student loan debt are less likely to remain in rural areas than those without it.

The subsequent sections explain these findings in more detail.

Student Loan Borrowers More Likely to Leave Rural Areas than Non-Borrowers

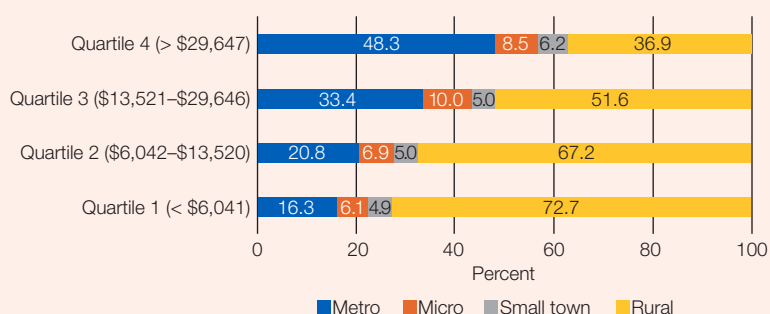
Only about 4 percent of millennials live in rural areas when they are first observed in the CCP, a figure that mirrors the distribution of the general population. However, this percentage quickly shrinks as millennials age, and student loan borrowers are less likely to remain in rural areas than non-borrowers. Just 52 percent of rural student loan borrowers still live in rural areas six years after entering the CCP, compared to about 66 percent of non-borrowers.

High-Balance Borrowers Are Most Likely to Leave Rural Areas

Among rural student loan borrowers, individuals in the highest quartile of student loan balances when entering repayment are about 41 percent less likely to remain in a rural area as individuals in the lowest quartile of balances. Just

49 percent of rural borrowers in the highest quartile of balances at repayment are still in a rural area when entering repayment, compared to nearly 83 percent of borrowers in the lowest quartile of balances.¹⁰ One year after entering repayment, student loan borrowers in all quartiles are less likely to remain in rural areas, though high-balance borrowers remain much less likely to stay (37 percent) than low-balance borrowers (73 percent) (figure 1). Our estimates for two and three years after entering repayment show similar trends.

Figure 1. Rural student borrowers: Location on entering panel vs. one year after entering repayment



Source: Equifax/Federal Reserve Bank of New York Consumer Credit Panel.

Importantly, we have not determined whether the relationship between loan balances and borrowers' migration patterns is causal—for example, if, in order to repay their loans, high-balance borrowers seek higher wages in metropolitan areas. Instead, we may be observing the effects of factors correlated with loan balances, but not included in the CCP. These may include factors such as family income, degree completion, school selection, or the pursuit of an advanced degree.¹¹

Rural Student Loan Borrowers Who Move to Metro Areas Have Better Credit Outcomes

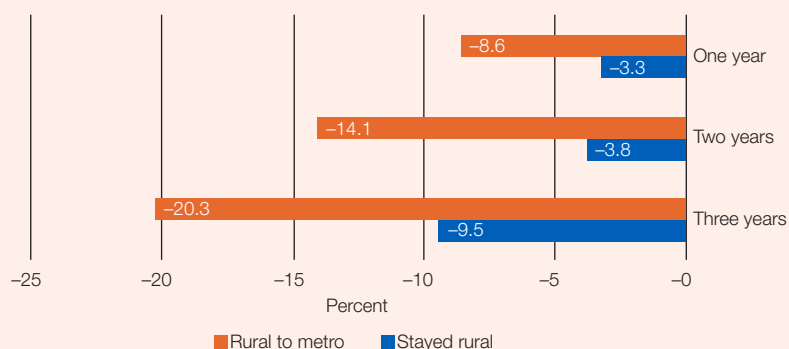
In the first several years after entering repayment, rural millennials with student loans who move to metropolitan areas (“rural-to-metro” individuals) fare better on several measures of economic and financial well-being compared to those who remain in rural areas. Our data show that rural-to-metro students are faster to pay down their student loans, are less likely to be delinquent on their student loans, and are more likely to carry mortgage debt, an indicator of homeownership.

10. The median student loan balance at entering repayment among rural individuals who move to metro areas is \$23,660, compared to \$9,938 among those who remain in rural areas.

11. Sandy Baum and Martha Johnson, *Student Debt: Who Borrows Most? What Lies Ahead?* (Washington: Urban Institute, April 2015), <https://www.urban.org/sites/default/files/alfresco/publication-pdfs/2000191-Student-Debt-Who-Borrows-Most-What-Lies-Ahead.pdf>.

On average, student loan balances for rural-to-metro borrowers decreased 8.6 percent one year after entering repayment, compared to only 3.3 percent for the group that stayed rural (figure 2). Three years after entering repayment, rural-to-metro individuals have paid back more than twice as much (20.3 percent) of their student loans on average compared to those who remained in rural areas (9.3 percent).

Figure 2. Average percent change in student loan balance by number of years after entering repayment



Source: Equifax/Federal Reserve Bank of New York Consumer Credit Panel.

Over time, rural-to-metro millennials also fare better when it comes to serious student loan delinquency.¹² One year after entering repayment, rural-to-metro individuals are only slightly less likely to become seriously delinquent (9.1 percent) compared to those who remain in rural areas (9.6 percent). However, three years into repayment, the rural-to-metro serious delinquency rate declines to 8.2 percent while increasing to 10.7 percent for those who remain in rural areas.

We also observed that rural-to-metro borrowers are more likely to carry mortgage debt, a proxy for homeownership. Slightly more than 14 percent of rural-to-metro millennials have mortgage debt within one year of entering repayment, compared to just 3.8 percent of those who remain in rural areas. The gap between the two groups continues to widen after three years, with 24.6 percent of rural-to-metro individuals holding mortgage debt compared to 8.2 percent of those who remain in rural areas. This disparity is especially surprising given that homeownership rates overall are higher in rural areas. Since homeownership has historically provided wealth-building advantages, this disparity could have long-term effects on rural student loan borrowers.¹³

12. Loans that are 120 days or more past due are considered “seriously delinquent.”

13. Michal Grinstein-Weiss, Clinton Key, Shenyang Guo, Yeong Hun Yeo, and Krista Holub, “Homeownership and Wealth among Low-and Moderate-Income Households,” *Housing Policy Debate* 23, no.2 (April 2013): 259–79, <http://dx.doi.org/10.1080/10511482.2013.771786>.

Rural-to-Metro Borrowers Face Better Economic Conditions

To better understand local economic factors that may contribute to these disparate credit outcomes, we merged the CCP data with Quarterly Census of Employment & Wages (QCEW) and Local Area Unemployment Statistics (LAUS) data from the Bureau of Labor Statistics. The QCEW provides the average annual wage for all covered establishments within a county for a given year, and the LAUS provides the average annual unemployment rate for each county and year in our sample.¹⁴

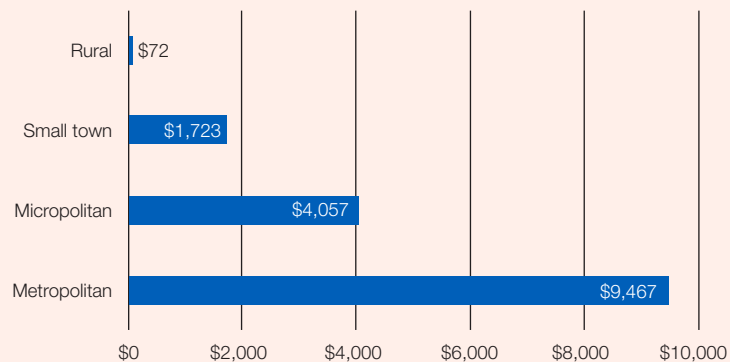
We also used Regional Price Parities (RPP) data from the Bureau of Economic Analysis (BEA) to adjust county average annual wages to take into consideration regional cost of living differences and adjusted the wages using the Consumer Price Index (CPI) to account for inflation over time. These data allow us to make general comparisons of the economic conditions between the areas in which individuals entered the panel and where they enter student loan repayment at the time that they entered repayment.

Using these blended data, we find that rural-to-metro millennials move to areas with substantially higher average annual wages, even after accounting for cost of living differences, and lower unemployment rates than their home areas. One year after entering repayment, the counties to which rural-to-metro individuals moved had average annual wages that were \$9,467 higher than their home counties ([figure 3](#)). Conversely, rural-to-rural millennials who moved to new counties saw no significant change in the average annual wages of the new rural areas.

In addition to substantially higher average annual wages, these metropolitan areas had unemployment rates that were, on average, 1.2 percentage points lower than the rural areas where they lived when they entered the panel. This change in area unemployment rates was much lower for rural-to-rural millennials, who moved to counties with unemployment rates that were just one-quarter point lower than their home counties, on average.

14. The BLS QCEW program provides data, at several geographic levels and time periods (which in our case are at the county and annual level), about employment levels and wages of establishments within a specific geographic area which report to the Unemployment Insurance (UI) programs of the United States. The BLS reports that employment covered by these UI programs represent about 97 percent of all wage and salary civilian employment in the country.

Figure 3. Average difference in county annual average wages adjusted for cost of living: Entering panel vs. one year after entering repayment



Source: Equifax/Federal Reserve Bank of New York Consumer Credit Panel.

Migration Patterns Shift over Time

Though the direction of migration in recent years has generally favored urban areas, these patterns have shifted over time. Following decades of urbanization, net migration shifted toward rural areas in the 1970s and mostly remained that way through the 1990s.¹⁵ Migration overall then slowed in the early 2000s and during the 2007–09 recession, but shifted toward urban areas in the post-recession period.¹⁶

The factors contributing to these patterns are complex and have changed over time. The decline of urban manufacturing in the 1970s and advances in telecommunications in the 1990s contributed to rural migration.¹⁷ However, the sluggish economy of the early 2000s and subsequent recession effectively “froze people in place” due to poor labor market prospects, housing market turmoil, and lost retirement savings.¹⁸ Post-recession, strong urban economic growth and slow rural growth have shifted migration trends toward metro areas.¹⁹

15. Anil Rupasingha, Liu Yongzheng, and Mark Partridge, “Rural Bound: Determinants of Metro to Non-Metro Migration in the U.S.,” International Center for Public Policy Working Paper Series, 2014, <https://scholarworks.gsu.edu/icepp/6>.

16. Kenneth M. Johnson, Katherine J. Curtis, and David Egan-Robertson, “How the Great Recession Changed U.S. Migration Patterns,” *Population Trends in Post-Recession Rural America*, May 2016, https://w3001.apl.wisc.edu/b01_16.

17. Rupasingha, Yongzheng, and Partridge, “Rural Bound.”

18. Johnson, Curtis, and Egan-Robertson, “How the Great Recession Changed U.S. Migration Patterns.”

19. Economic Innovation Group, “The New Map of Economic Growth and Recovery,” May 2016, <https://eig.org/wp-content/uploads/2016/05/recoverygrowthreport.pdf>.

With students borrowing at higher rates and in larger amounts to pursue postsecondary education, student loan debt may play an increased role in the dynamics of urban-rural migration.

With students borrowing at higher rates and in larger amounts to pursue postsecondary education, student loan debt may play an increased role in the dynamics of urban-rural migration. Factors that previously drew individuals to rural areas may be outweighed by the desire or need for greater economic opportunity in urban centers. Rural policymakers and community development professionals may consider adapting existing strategies to respond to these new dynamics.

Many rural communities have already made attempts to address the challenges associated with brain drain by offering financial incentives to individuals to move there. Some towns, such as Marquette, Kansas, offer free land to potential residents.²⁰ South Dakota's Rural Attorney Recruitment Program offers subsidies to attorneys who agree to practice law in rural counties for five years.²¹ Wisconsin's Rural Physician Residency Assistance Program provides educational funding for rural physicians.²² In addition, the federal government offers a variety of loan repayment and forgiveness programs for healthcare professionals in underserved rural areas.²³ It is unclear how effective these programs and others like them are, but researchers and policymakers alike should continue to consider approaches to plugging the rural brain drain.

Opportunities for Further Study

The loss of college educated young people could have important effects on the economic vitality of rural areas and raises questions about what rural policymakers could do to retain a larger share of these individuals. As more college students borrow to finance their educations, this question becomes even more pressing. Additional research of this topic could use regression models to help clarify the relationship between student loan debt and migration patterns. Researchers could also explore community development strategies that might create conditions that lead to more college graduates living in rural areas.

20. Kevin Murphy, "Midwest Towns Cannot Give Land Away to Modern Homesteaders," *Reuters*, March 31, 2012, <https://www.reuters.com/article/us-land-free/midwest-towns-cannot-give-land-away-to-modern-homesteaders-idUSBRE83001N20120401>.

21. See <http://ujs.sd.gov/Information/rarprogram.aspx>.

22. See <http://www.fammed.wisc.edu/rural/>.

23. See <https://www.ruralhealthinfo.org/rural-monitor/loan-repayment-and-forgiveness/>.

