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Rapid Growth of Mental Health Services at Community Health Centers

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Abstract

Community Health Centers (CHCs) target medically underserved communities and expanded by 70% in the last decade. We know little, however, about mental health services at CHCs. We analyzed data from 2006 to 2015 and determined county-level drivers of these services. Mental health patients at CHCs fall from 2006 to 2007 but then rise consistently from 2007 to 2015. Counties with fewer physicians, greater percent insured and greater percent white population show faster growth in mental health services. Increases in mental health services at CHCs outpace general CHC growth and reflect federal efforts to integrate behavioral health care into primary care.

Keywords

Community Health Centers; mental health services; Affordable Care Act; Medicaid; medically underserved communities

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Introduction

Federally Qualified Health Centers provide primary health care to low-income, historically disadvantaged communities and serve all patients regardless of ability to pay (Druss et al., 2006). These centers, referred to as Community Health Centers (CHCs), currently serve over 27 million Americans and act as a key safety net provider (HRSA, 2018a). The patient population at CHCs consists primarily of persons with Medicaid (38.5% of total) or no health insurance (37.5% of total) (HRSA, 2010). The reach of CHCs has expanded by an unprecedented 70% in the last decade (Lo Sasso & Byck, 2010) (Rosenbaum et al., 2017). In addition, several provisions of the Affordable Care Act (ACA), as well as generous federal funding, intended to further increase the scope and reach of CHCs.

Mental disorders account for a large share of the overall global burden of disease (Murray et al., 2015) but often remain untreated. A disproportionate fraction of the 43 million Americans with diagnosable mental disorder use either Medicaid or have no health insurance (NIMH, 2017). However, only one in five uninsured persons with a serious mental disorder seek mental health care (Garfield, Zuvekas, Lave, & Donohue, 2011).

CHC expansion in medically underserved areas over the last decade holds the potential to increase help-seeking for primary mental health care. Over three-quarters of CHCs provide mental health services (HRSA, 2018). This circumstance raises the possibility that Medicaid or uninsured persons will seek these services in their local area. Geographic proximity to sources of care serves as an important but overlooked determinant of receiving mental health care (Allard, Tolman, & Rosen, 2003; Fortney, Rost, Zhang, & Warren, 1999; Lindrooth, Lo Sasso, & Lurie, 2006). Distance increases travel time and transportation difficulties, as well as increasing feelings of estrangement and of being unwelcome in places farther removed from one's local environment. For this reason, the creation of new CHCs, and the expansion of current CHCs to include mental health care, may increase the volume of patients seeking primary care mental health services.

The literature includes no recent report of trends in primary care mental health services provided at CHCs (Druss et al., 2006; Wells, Morrissey, Lee, & Radford, 2010). An updated report on CHCs should interest policy scholars for two reasons. First, since 2011 CHCs received over \$11 billion in federal funds. This large financial outlay warrants evaluation by health policy scholars. Second, retrieval of primary mental health care data in specific regions could inform subsequent research on whether increases in supply of primary care benefit the overall system of care—including costly but often unnecessary psychiatric emergency department (ED) visits. Initial evaluations from 2006 to 2011, for instance, indicate that expansion of care provided at CHCs corresponds with fewer psychiatric-related ED visits (Bruckner, Singh, Yoon, Chakravarthy & Snowden, in press), as well as a reduced risk of psychiatric-related revisits to the ED (Singh, Chakravarthy, Yoon, Snowden, & Bruckner, in press). Researchers, therefore, may benefit from a comprehensive assessment of the evolution over time of mental health services provided at CHCs.

We describe trends in mental health services offered at over 1,300 CHCs. We examine 2006 to 2015, a dynamic period which spans the Mental Health Parity and Addiction Equity Act

(MHPAEA) and the Affordable Care Act (ACA). In addition to describing overall trends, we aggregate mental health visits by county and examine whether county-level demographic and health care factors correspond with growth in mental health services offered at CHCs.

Methods

Variables and Data:

We retrieved, via a Freedom of Information Act Request (#17F167), data on all CHCs from 2006 to 2015 from the Uniform Data System (UDS) (HRSA, 2018b). 2015 represents the last year with CHC data available at the time of our request. The federal government requires UDS reports as a condition of receiving federal funding. The UDS includes patient and encounter-level summaries of the volume and type of mental health services offered, by each CHC that receives primary care grant funding from section 330 of the Public Health Service Act (Consolidated Health Centers Act, 2018). UDS uses consistent methodology and forms over this ten year period in collecting the mental health variables of interest.

Mental health diagnoses contained in the UDS reports include depression and other mood disorders, anxiety disorders including posttraumatic stress disorder, attention deficit and disruptive behavior disorders, and other mental disorders excluding drug or alcohol dependence. For each CHC from 2006 to 2011, we summed the patients with these primary diagnoses to arrive at the total number of patients seen for a mental disorder. In addition, we summed encounters with these primary diagnoses to yield the total number of visits for mental disorder at that CHC. Next, we aggregated these values to the county level to permit linkage (by county ID and year) to socio-demographic and health care supply variables in other datasets.

Beginning in 2012, the UDS reports include all mental health diagnoses even if they do not reflect the primary diagnosis of the patient (Bureau of Primary Health Care, 2012). Given this coding change, the number of mental health patients from 2012 to 2015 appears inflated relative to 2011 figures. For this reason, we cannot directly compare the number of mental health patients seen before 2012 to those seen from 2012 through 2015. We therefore analyzed these two periods separately.

We linked county-year data from five additional sources. We used population estimates from the US Census to derive two measures of CHC mental health service penetration: mental health patients seen per 1,000 county population, and mental health visits per 1,000 county population (United States Census Bureau, 2016; United States Census Bureau, 2018). The US Census also contains annual estimates of race/ethnicity composition. We retrieved from the US Census the percent of the county population that identifies as white, non-Hispanic African American, and Hispanic (United States Census Bureau, 2016; United States Census Bureau, 2018).

Given that CHCs tend to serve economically disadvantaged communities, we included as an independent variable the percent of the population living below the poverty line. The Small Area Income and Poverty Estimates Program provides this dataset (SAIPE, 2018). In addition, relatively low health care supply may influence CHC expansion. To gauge supply,

we retrieved physician concentration information from the Area Health Resource Files (AHRF, 2018). We also acquired information on the percent of the population without health insurance from the Small Area Health Insurance Estimates Program (SAHIE, 2018). Lastly, we included an indicator variable for metropolitan county (vs. nonmetropolitan) using the National Center for Health Statistics 2013 classification scheme (NCHS, 2017). We reasoned that the pace of CHC growth may occur unevenly across rural (nonmetropolitan) and urban (metropolitan) counties.

Analysis

We first plotted the annual percent change in mental health patients and overall patients seen at CHCs over time. We also ranked counties based on the rate of increase (from 2006 to 2015) and in the absolute level of increase in mental health service capacity. Next, we performed a longitudinal linear mixed effects regression analysis of county-level CHC growth. We specified total mental health visits at CHCs per 1,000 population in a county as the dependent variable. We analyzed continuous outcomes using ordinary-least-squares (OLS) mixed effect regression. Independent variables at the county level included percent white, percent non-Hispanic African American, percent Hispanic, percent with health insurance, percent in poverty, physicians per 1,000 population, and metropolitan designation (with nonmetropolitan designation as referent) (NCHS, 2017).

For our exploration, the mixed effects model estimates the parameters of interest from variation both across counties (within a year) and across years (within a county). The mixed model also flexibly allows each county to have their own starting level of CHC mental health resources (i.e., random intercept). In addition, we included year “fixed effects” to control for trends over time in CHC growth that occur across the entire nation. We did not include random slope as likelihood ratio tests indicated no significant difference in results upon adding random slope to the simpler model with random intercept only. We specified the “cluster” option of standard errors (SE) given the strong correlation of annual observations within each county. Previous literature in mental health services uses this approach (Cook, Zuvekas, Chen, Progovac, & Lincoln, 2017; Bower et al., 2013). As noted earlier, the UDS coding shift in mental health diagnoses in 2012 necessitates separate analyses for the periods 2006–11 and 2012–15. The latter time period occurs after the enactment of ACA, which allows us to assess whether the ACA Affected county-level drivers of mental health services offered at CHCs. We performed all statistical analyses in Stata SE 14.2 (Statacorp, 2015).

Results

From 2006 to 2015, the total number of patients seen at CHCs rises from 17.8 to 27.8 million. The annual increase in overall patients seen ranges from 0.02% to 9.2% (Figure 1), with a mean of 5.1%. Among patients seen at CHCs with a mental disorder diagnosis, visits fall from 2006 to 2007 but then rise between 8 to 14% per year from 2007 to 2015 (note that we omit 2012 due to the change in UDS coding of mental health diagnoses in 2012). The average annual percent increase in mental health patients outpaces the general growth in overall patients at CHCs.

The rise in mental health visits at CHCs occurs via two mechanisms. First, counties with no CHCs receive funding for the creation of new centers. Whereas 835 counties in 2006 offered mental health services at CHCs, the number of counties with such services grew to 995 in 2015. Second, CHCs initially offering mental health services dramatically expand their capacity. Table 1 lists ten counties with the largest absolute gains in mental health visits at FHQCs from 2006 to 2015. Heavily populated counties tend to show the largest absolute gains, although Santa Fe County, New Mexico and Manatee County, Florida serve as two exceptions. Table 2 lists ten counties with the largest percent increase over time in mental health visits at CHCs, among counties reporting at least 100 mental health visits in 2006. These counties range dramatically in socioeconomic characteristics, with some showing relatively greater affluence (e.g., Clackamas County, Oregon and Marathon County, Wisconsin).

Results from the mixed effects model indicate that, from 2006 to 2011, several county-level factors correspond with CHC growth in mental health visits (Table 3). Counties with fewer physicians per capita, as well as counties with a greater fraction white, show more rapid growth in mental health visits at CHCs. The coefficient for fraction poverty also indicates that high-poverty counties tend to show more rapid growth in mental health visits, although the result does not reach conventional levels of statistical detection. In addition, non-metropolitan counties experience greater growth in mental health visits at CHCs than do metropolitan (i.e., urban) counties.

Inference from the regression results for the period after ACA enactment (Table 3) coheres with that of 2006–11 save for two notable exceptions. First, the share of persons in a county with health insurance now moves positively with mental health visits (coef: 6.86, SE= 2.06, $p=0.001$). Second, the positive association between county-level poverty and mental health visits at CHCs reaches statistical detection (coef: 6.68, SE= 1.95, $p<0.001$). For both time periods we do not observe an association between share of racial/ethnic minority population and mental health visits at CHCs.

To give the reader a sense of the magnitude of our results, we calculated (for 2012–2015 results) the number of mental health visits at CHCs statistically attributable to county-level increases in rates of health insurance coverage. A county's level of health insurance coverage increased from 2012 to 2015 by over seven percent. Linear predictions from our mixed effects model (using Stata's 'margins' command, all other covariates held constant at their means) suggest a gain of 690 mental health visits at CHCs (per 100,000 population) with every unit increase in the percentage of insured population from 2012 to 2015. Application of this increase to the base level of visits in 2012 and the total population of counties with a CHC indicates approximately 900,000 additional mental health visits in 2015 at CHCs statistically attributable to a seven percent rise in health insurance coverage.

Discussion

A disproportionate share of persons with an untreated mental disorder lives in underserved counties where CHCs expanded. We set out to describe trends in the volume of mental health services provided at over 1,337 CHCs in 995 US counties. Our analyses reveal three

novel findings. First, from 2007 to 2015, mental health service capacity at CHCs grows each year. Second, the rise in mental health service capacity outpaces the general rise in patients seen at CHCs. Third, both supply-side and sociodemographic factors at the county level correspond with CHC growth in mental health services. The county-level findings indicate that, especially after the ACA, an increase in Medicaid enrollments may have resulted in an influx of mental health visits at CHCs.

Given the lack of recent literature in this area, we did not have strong *a priori* expectations about the steady increase in CHC mental health services over this time period. We speculate that several factors contributed to this rapid rise. First, the US Health Resources and Services Administration provided Behavioral Health Integration grant awards to certain CHCs to expand access to mental health and substance abuse services (HRSA, 2014). Second, the Mental Health Parity and Addiction Equity Act (MHPAEA), passed in 2008, greatly enhanced the ability of persons with private health insurance plans to receive comprehensive mental health care (Frank, Beronio, & Glied, 2014). The ACA further required that MHPAEA apply to all plans offered in state-based insurance exchange programs, as well as to the newly Medicaid eligible adults with incomes up to 138% of the federal poverty line (Busch, 2012). To the extent that persons newly covered under these plans visited CHCs, these factors may have also contributed to the sustained rise in CHC mental health services.

Another factor that may contribute to the rise in mental health services involves CHCs' increasing efforts to organize activities around the concept of the patient-centered medical home (Neuhausen, Grumbach, Bazemore, & Phillips, 2012). This concept created payment reform incentives (financially supported by state and federal Medicaid initiatives including the ACA) to treat chronic conditions comprehensively and to enhance coordination of care (Croft & Parish, 2013). The ACA specified that, in order for organizations to meet the payment incentive for designation as a "medical home," they must provide care for at least one serious and persistent mental health condition (Kaiser Family Foundation, 2012). Given that Medicaid provides the largest source of financing for CHCs, new financial incentives to treat mental disorders among Medicaid patients may have accounted for the rise in CHC mental health services.

Results from the county-level regression analyses indicate that both supply-side and socio-demographic factors vary with mental health services growth at CHCs. The observation that low physician concentration correlates with growth in mental health services coheres with the notion that CHCs continue to focus on medically underserved communities. In addition, the association of fraction white with mental health visits at CHCs may reflect greater prevalence of help-seeking for mental health among white relative to Hispanic and African American populations. This observation may portend an exacerbation of racial/ethnic disparities in access to mental health care (Snowden, 2001). If others replicate our results, policymakers may want to consider novel strategies to expand mental health services and outreach to racial/ethnic minority populations in low-income communities.

Non-metropolitan counties exhibit substantially lower concentrations of psychiatrists, psychologists and psychiatric nurse practitioners relative to metropolitan areas (Andrilla,

Patterson, Garberson, Coulthard, & Larson, 2018). Non-metropolitan areas also exhibit markedly higher rates of suicides compared to metropolitan regions (Kegler, Stone, & Holland, 2017). Rapid expansion of mental health services at CHCs may serve to reduce these regional disparities in mental health care supply as well as adverse health outcomes. We encourage future research to examine whether expansion of mental health services at CHCs corresponds with a decline in suicidal ideation, self-harm and suicide completion in rural geographies in the US.

After 2011, both county-level poverty and health insurance rates move positively with mental health services at CHCs. Expansion of Medicaid in low-income communities, following the ACA, may account for these findings. The ACA demonstrably reduced the percent uninsured and increased Medicaid enrollments among low-income Americans (Buchmueller, Levinson, Levy, & Wolfe, 2016; Vistnes & Cohen, 2016). Medicaid's substantial financing for CHCs, combined with a variety of policy initiatives since 2010 (noted above), may contribute to the rise in CHC mental health services especially in counties which rapidly expanded Medicaid coverage. This speculative explanation requires further refinement and testing using other datasets with information on individual's health insurance type and use of specific services at CHCs.

Our study permits estimation of associations between county variables but does not permit causal inference. We recommend future work to identify causes underlying the uneven regional growth in CHC mental health services especially after the ACA. In addition, we caution the reader against drawing inferences about individual help-seeking patterns from our county-level data. We, rather, view our work as informing policy efforts to redress regional disparities in access to mental health services. Use of the county as the geographic unit may also mask important local-area variation in terms of which communities access CHCs (Ko & Ponce, 2013).

Garfield and colleagues in 2011 estimated that full implementation of the ACA would result in an additional 1.15 million new mental health service users (Garfield et al., 2011). They reasoned that most of these gains would occur through Medicaid expansion given that almost a quarter of nonelderly adult Medicaid enrollees have a mental disorder. Our results support this general prediction, although we caution against using the CHC data to directly estimate the total number of new patients. After 2011, the CHC data report mental health visits regardless of the nature of the primary diagnosis, such that persons with more than one mental health condition could be counted twice. For this reason, the CHC values after 2011 do not directly correspond with a total number of new mental health services users.

The literature finds that CHCs generally provide high-quality, low-cost care to medically underserved populations (Goldman, Chu, Tran, Romano, & Stafford, 2012; Laiteerapong et al., 2014; Regan, Schempf, Yoon, & Politzer, 2003; Starfield et al., 1994). CHC growth also corresponds with fewer psychiatric ED visits and lower risk of repeat ED visits (Bruckner, Singh, Yoon, Chakravarthy & Snowden, in press; Singh, Chakravarthy, Yoon, Snowden, & Bruckner, in press). We know of no work, however, which evaluates the quality of mental health care delivered at CHCs. Scholars note that shortages in access to subspecialty care may adversely affect CHCs' ability to effectively deliver integrated care especially among

persons with severe mental illness (Merikangas, Bromet, & Druss, 2017). Nevertheless, beginning in 2014, as a condition of receiving federal funding CHCs must report the proportion of patients screened for clinical depression who also have a documented follow-up plan (HRSA, 2018b). This quality improvement measure represents an initial attempt to assess the population-level impact of mental health services delivered at CHCs. We also encourage other investigations regarding the extent to which CHCs provide mental health screening for primary care visits listed as a “physical health” visit. Given the dramatic shift over time in the US in the provision of mental health services by primary care physicians (relative to psychiatrists), such research could evaluate the consequences of this shift on effective provision of mental health care (Olfson, Kroenke, Wang, & Blanco, 2014).

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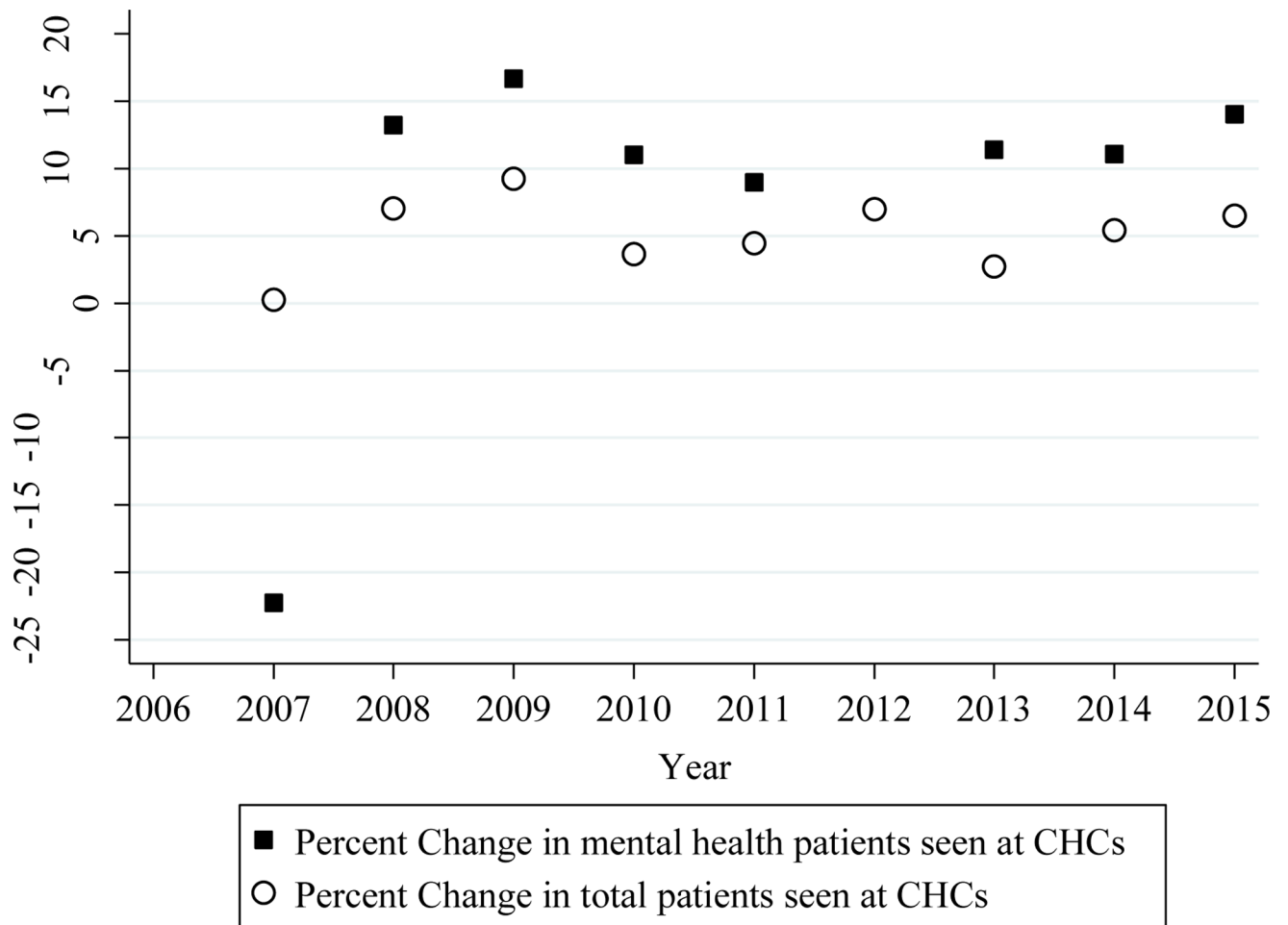


Figure 1.

Annual percent change in patients seen at Community Health Centers, 2006 to 2015. Total patients shown with hollow circles; mental health patients shown in shaded squares.

Footnote: 2012 data for change in mental health visits are unavailable due to coding differences between 2011 and 2012 mental health visit data.

Table 1.

Descriptive Characteristics of the ten counties with the largest absolute gains in mental health visits at Community Health Centers, 2006 to 2015.

State	County	Total population (2015)	Percent insured (2015)	Percent poverty (2015)	Difference in mental health visits (2015–2006)
California	Los Angeles County	10,112,255	87.5	16.7	382,447
New York	New York County	1,641,168	92.1	17.6	348,285
California	San Diego County	3,290,245	90.5	13.9	309,453
Florida	Hillsborough County	1,347,077	85.3	15.8	264,402
Washington	King County	2,114,256	93.5	9.8	258,410
New York	Bronx County	1,449,196	88.9	30.3	241,769
New Mexico	Santa Fe County	147,708	85.1	13.1	230,955
Florida	Miami-Dade County	2,692,593	78.8	20.0	215,283
Florida	Manatee County	363,110	81.9	14.8	196,468
Massachusetts	Suffolk County	776,688	95.4	19.8	192,239

Table 2.

Descriptive Characteristics of the ten counties with the largest percentage growth in mental health visits at Community Health Centers, 2006 to 2015.

State	County	Total population (2015)	Percent insured (2015)	Percent poverty (2015)	Percent change in mental health visits [(2015–2006)/2006]
Louisiana	Jefferson Parish	435,555	84.5	16.3	138.89
Wisconsin	Marathon County	135,782	93.8	9.5	136.04
California	Yolo County	212,202	92.5	17.5	115.80
Oregon	Clackamas County	401,150	93.8	9.4	113.42
Oregon	Benton County	88,271	92.9	18.3	103.17
Ohio	Mahoning County	231,767	92.4	16.8	70.46
Ohio	Trumbull County	203,631	91.6	17.6	70.46
Tennessee	Loudon County	50,978	86.5	13.5	48.53
Tennessee	Monroe County	45,677	85.7	18.6	48.53
Florida	Brevard County	567,934	86.5	13.4	43.67

Footnote: We analyzed only counties with at least 100 mental health visits in 2006 (N = 1,814).

Table 3.

County-level regression results for years 2006–11 & 2012–2015 predicting growth in mental health visits at Community Health Centers.

	<i>2006–2011</i>		<i>2012–2015</i>	
Covariates	Coefficient	Standard Error	Coefficient	Standard Error
Percent white	1.28 **	0.49	4.26 ***	1.55
Percent African American	−20.18	54.97	248.19	174.19
Percent Hispanic	63.08	58.25	263.84	183.28
Percent insured	−0.17	0.65	6.86 ***	2.06
Percent in poverty	1.15 *	0.69	6.68 ***	1.95
Physicians per 1000 population	−8.31 ***	3.13	−40.06 ***	9.56
Metropolitan Area (reference = nonmetropolitan)	−74.54 ***	11.48	−178.09 ***	35.09
Year indicators (fixed effects)				
2006	Reference group			
2007	−21.71 ***	4.48	--	--
2008	15.40 ***	4.43	--	--
2009	−1.42	4.42	--	--
2010	4.22	4.52	--	--
2011	8.48 *	4.61	--	--
2012	--	--	Reference group	
2013	--	--	32.14 ***	8.02
2014	--	--	42.70 ***	10.73
2015	--	--	61.81 ***	14.84

* p value < 0.1

** p value < 0.05

*** p value < 0.01