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Community Health Centers (CHCs) Under Environmental Uncertainty: An Examination of the Affordable Care Act of 2010 and Early Medicaid Expansion on CHC Margin

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Abstract:

Nonprofit community health centers (CHCs) are the largest subset of safety net clinics in the United States and, in many vulnerable and underserved areas, act as the only provider of vital health services in the community. The expansion of Medicaid provision under the Affordable Care Act of 2010 led to a fundamental change in the core client demographics of CHCs, with higher income thresholds and single childless individuals now eligible for Medicaid. This expansion of the Medicaid population creates both opportunities and threats that may impact CHCs' long term financial sustainability. Accumulating reserves through positive net margins is a managerial tactic that nonprofits can utilize to buffer against environmental uncertainty. This study utilizes data from IRS Form 990s, American Community Survey, HRSA grantee lists, and the Area Resource File to model the differences in net margins between CHCs in early Medicaid expansion and non-expansion states from 2008–2012. Results show higher margins for CHCs in early expansion states compared to non-expansion states, even after accounting for organizational and environmental covariates. CHCs who are HRSA grantees are associated with positive margins whereas those relying more heavily on program revenue show negative margins. Further, CHCs located in counties with higher percentages of persons in poverty also demonstrate reduced margins. This exploratory study contributes to the nonprofit finance literature by highlighting the importance of incorporating contextual variables to deepen our understanding of changes in nonprofit financial health.

Keywords: Affordable Care Act, community health centers, early medicaid expansion, financial reserves, net margin

1 Introduction

For over 50 years, nonprofit community health centers (CHCs) have been an integral part of the health care safety net that provide vital services to vulnerable and underserved communities. A core mandate of CHCs is not just to improve individual health and well-being, but to promote overall community health and to generate economic opportunities for low-income community residents.

While CHCs have been resilient through policy and regulatory changes in the 1990s (Felland et al. 2003), the Affordable Care Act (ACA) of 2010 had the potential to dramatically alter CHCs' operating environments. Specifically, over the long term, it remains to be seen if the Medicaid expansion provision of the ACA provides opportunities for CHCs to capture new clients or leads to increased competition where CHCs continue to serve higher numbers of uninsured patients, while new Medicare enrollees turn to other providers. The long-term viability of a CHC likely depends on its ability to generate and accumulate financial resources. Preliminary reports indicate that, indeed, a greater share of CHC revenue is coming from Medicaid payments following expansion (Kaiser Family Foundation 2017). Beyond revenue, however, few studies have explicitly modelled changes in CHC net margin, an important measure of long-term financial sustainability (Bowman 2011).

The variation in state decisions to expand Medicaid has allowed for a "natural experiment" condition in which it is possible to study the impact in client composition on CHC margins. This exploratory study uses panel data from IRS Form 990, between 2008–2012, to compare CHCs in five early expansion states and the District of Columbia to non-expansion states. Results indicate that CHC margins are higher in these early expansion states, which supports the hypothesis that CHCs have been, at least initially, able to take advantage of the opportunities stemming from the Affordable Care Act. This study makes an important contribution to the nonprofit financial management literature by examining how environmental changes – enactment of a new public policy leading to changes in client composition – can potentially affect an important measure of financial sustainability.

The paper proceeds as follows: the next section briefly reviews Galaskiewicz and Bielefeld's (1998) organizational change framework as a way to understand why organizations choose specific tactics, before we look to the nonprofit financial management literature in order to demonstrate that the accumulation of reserves, through positive net margins, is a useful strategy in uncertain environments. Next, we discuss the community health center (CHC) movement and the significance of CHCs in serving vulnerable communities. This leads to a discussion of the Medicaid expansion provision of the Affordable Care Act of 2010 and how this may impact CHC margins. Our data, variables, and analysis procedure will be reviewed in the methods section. This is followed by the presentation of our results, a discussion of the implications of our findings for policy and practice, limitations, areas for further research, and the conclusion.

2   Accumulation of Reserves as a Tactical Response to Environmental Uncertainty

Nonprofits operate in uncertain environments. Environmental uncertainty may come from changes in public policy or professional norms (regulatory and institutional environment), client demands and preferences (market environment), or increases/decreases in competitors (organizational environment) (Shea and Hamilton 2015). Bigelow and Stone (1995) outline a model for an organization's responses to changes in the institutional and regulatory environments that can range from compliance (actual or symbolic) to resistance, depending on internal administrative and coalition values and skills, as well as external relationships and dependencies. For changes in market and organizational environments, response can include streamlining expenses to improve efficiencies, attempts to capture new revenue sources, increased marketing, or mergers and partnerships with other organizations (Galaskiewicz and Bielefeld 1998). How organizations respond may largely depend on whether an organization is more sensitive to institutional or market forces.

We draw from Galaskiewicz and Bielefeld (1998) organizational change framework to understand accumulating resources as a useful strategy in uncertain environments. Galaskiewicz and Bielefeld (1998) introduced the "niche" concept as a way to examine the alignment between organizational strategies and environment. An organization's niche is the space – not necessarily geographically bounded – in which organizations compete for resources. Niches are segmented along areas of "structural equivalence" (p. 13). For example, organizations share the same niche if they compete for similar resources such as capital, sales, technology, or labor (p. 13). Acquisition of resources, as a key driver of organizational strategy and tactics, must be aligned to the conditions and demands of its respective niche in order to procure both resources and legitimacy.

Organizations operating in the health sector, such as general hospitals and health clinics, exist in niches that emphasize both output and process controls (Galaskiewicz and Bielefeld 1998). That is, in order to procure resources, health care organizations must compete along service quality and costs (output controls) as well as adhere to regulatory requirements and professional norms of conduct (process controls).[1] As such, nonprofits that provide health services (i. e. surgeries, health exams, dental procedures, x-rays, etc.) can be referred to as commercial nonprofits as they rely heavily on fees (versus donative or grant income) and paid employees (versus volunteers) as core resources. Managerial tactics such as improving cost efficiencies, enhancing financial and quality controls, or realignment of executive and support positions, are particularly salient for "commercial" healthcare nonprofits when competing for resources in changing environments.[2]

A key managerial tactic in response to environmental uncertainty is to build reserve funds to be used in the case of resource scarcity or loss. The accumulation of reserves by nonprofits as a buffer against financial vulnerability is a well-documented tactic in the nonprofit finance literature (Calabrese 2012, 2013). This is especially critical for nonprofits in underserved areas where they may be more financially vulnerable (Lam and McDougle 2016). Nonprofits build unrestricted reserves through the gradual accumulation of excess revenue over expenses. This measure is referred to as a "profit margin" or simply as "margin" and commonly calculated by dividing the change in net assets (revenue minus expenses) over total revenue. Nonprofit finance scholars such as Tuckman and Chang (1991) define a positive "margin" as an explicit measure of financial stability; sim-

ilarly, Greenlee and Bukovinsky (1998) refer to a "savings indicator" as a measure of resource adequacy; and Bowman (2011) operationalizes "return on assets" as a crucial measure of long-term financial sustainability.[3]

Additionally, studies utilizing "margin" as a predictor of financial vulnerability find consistent and significant results (see Hager 2001 for arts organizations; Greenlee and Bukovinsky 1998; Clemenson and Sellers 2013, for social services). In the health sector, operating and financial margins are also used to measure the financial viability of hospitals (Bazzoli, Fareed, and Waters 2014; Antonisse et al. 2018), trauma centers within safety-net hospitals (Knowlton et al. 2018), and safety-net health systems (Chokshi, Chang, and Wilson 2016). Below, we rely on margins as a measure of the viability of CHCs.

3 Community Health Centers

Stemming from the civil rights movement and Lyndon Johnson's War on Poverty, the CHC program was established in 1965 to provide federal grants for health projects serving the poor as well as for projects that addressed the overall health of communities (Bailey and Goodman-Bacon 2015; Katz et al. 2011; Henry 2015; Fiscella and Jack Geiger 2014). Funding sought to improve access to primary health services by supporting programs with ancillary services, such as home health care, mobile units, transportation services, English translation services, and clinic sites located in underserved communities (Bailey and Goodman-Bacon 2015).

At present, CHCs are the largest subset of "safety-net" providers in the nation whose mission is to provide services for the uninsured, underinsured and other socio-economically vulnerable populations (Kaiser Family Foundation 2017; Bailey and Goodman-Bacon 2015; Fiscella and Jack Geiger 2014). There were 1,375 CHCs in 2015, providing care to 24.3 million patients and almost 17 % (1 to 6) of all Medicaid enrollees (Kaiser Family Foundation 2017; NACHC 2013). Over 70 % of patients served by CHCs earn <100 % of the federal poverty level, and >50 % are racial/ethnic minorities (NACHC 2013). CHCs also provide business development opportunities as employers, having created 189,000 jobs for disadvantaged neighborhoods in 2009, requiring patients to serve as board members, and community development through intervention programs to address the social, economic, and environmental determinants of health problems (McAlearney 2002; Kotelchuck, Lowenstein, and Tobin 2011). In short, CHCs are a vital resource for underserved and vulnerable communities.

Virtually all CHCs are incorporated as 501c(3) nonprofit organizations and, as such, are subject to the basic tenets of proper nonprofit financial management practices. One such basic tenet is to generate enough resources in order to cover expenses and break even, or to generate a surplus in excess of expenses, which may then be saved to build a reserve or savings fund. As Felland et al. (2003) note in their study of the resiliency of the health care safety net, CHCs adopt a "no margin, no mission" principal (p. 13).

The health care market differs from competitive markets for traditional goods and services in several respects. First, prices for health services are not generally established by consumer demand but established centrally by state or federal agencies (Allard and Smith 2014). Prices that are charged for certain health care services and procedures often do not cover the full costs of production (Allard and Smith 2014; Walker and Osterhaus 2010). Payments for services often do not come directly from the patients but from third party insurers, such as private insurance companies or Medicaid and Medicare programs. As such, there ensues a waiting period between when services are provided (i. e. costs incurred) and when expenses are reimbursed by the third-party insurer. In addition, barriers to entry in the health care market may be more difficult as certain states require Certificates of Need (CON).[4] This may be a significant barrier which has been found to curtail the expansion and establishment of health facilities, with substance abuse providers as an example (Noh and Brown 2018).

These unique aspects of the health care market, combined with serving impoverished populations, may negatively impact CHCs' long term financial sustainability. Medicaid patients make up nearly half of all CHC patients (49 % in 2015) with the uninsured making up a quarter (24 % in 2015) (Kaiser Family Foundation 2017). Revenue from Medicaid payments is the largest percentage of total CHC revenue (44 % in 2015), followed by Medicare (7 %), private insurance (9 %), Section 330 grants (18 %), and state/local/private grants and contracts (11 %) (Ibid).

Evidence from prior studies of CHC finances suggests that, on average, CHCs do not earn large margins and may be left financially vulnerable under managed care arrangements (McAlearney 2002; Henderson and Markus 1996; Schauffler and Wolin 1996). More recent estimates of CHCs' finances indicate that, on average, centers have very low (or negative) margins, with revenue exceeding expenses by <1 % from 2001–2008 and between 2–5 % from 2009–2011 (NACHC 2013). This estimate is similar to other studies that have found safety net providers, including hospitals, have low operating margins (Chokshi, Chang, and Wilson 2016; Knowlton et al. 2018).

With little ability to save and generate income reserve, it may be difficult for CHCs to expand services, plan for unexpected contingencies, or cope with major disruption in their revenue streams. As mentioned previ-

ously, underlaying the ability for organizations to respond to their external environmental is an organization's financial sustainability. Long term financial sustainability, measured by positive net margins, is crucial to an organization's ability to operate and respond to external shocks (Bowman 2011). At the policy level, understanding the changing financial condition of CHCs, the potential shifting demographics of the patients served, and the impact of the ACA on their services and mission, is critical to evaluating the Affordable Care Act's success in serving low-income populations.

4   Affordable Care Act

The Affordable Care Act (ACA) of 2010 afforded health insurance to millions who were previously uninsured, thus offering individuals and families a degree of financial security (Cantor et al. 2012; Allen et al. 2017; Antonisse et al. 2018). At the same time, the ACA also changed the health care market by allowing for more choice of health insurance plans as well as health care providers (Doonan and Katz 2015). The impact of these changes on individual health outcomes, individual health-seeking behavior, individual health insurance usage behavior, service quality, and financial stability of safety-net health providers is just beginning to be understood (Kaiser Family Foundation 2018).

First, the impact of the ACA on individual health insurance coverage is clear, as studies indicate CHCs in Medicaid expansion states serve a greater percentage of Medicaid patients than those in non-expansions states, and fewer uninsured patients (Han, Luo, and Ku 2017; Huguet et al. 2017; Miller and Wherry 2017). Service utilization also differed as CHCs in expansion states experienced increases in new patients, visits for preventative and mental health services, and limited-service visits (Hoopes et al. 2016; Han, Luo, and Ku 2017). At the state level, newly enrolled Medicaid patients had higher rates of primary care, behavioral, mental health visits, and increased demand for non-emergency ambulatory care (DeVoe et al. 2015; Ku et al. 2011). Finally, descriptive reports of the impact of expansion on CHC finances indicate that CHCs in Medicaid expansion states report higher revenue, largely from Medicaid payments (Kaiser Family Foundation 2017).

Given that Medicaid patients account for a large share of CHC patients, and that Medicaid reimbursements are the largest percentage of total revenue for CHCs, the Medicaid expansion provision of the ACA may have the most significant impact on CHC finances (Choski et al. 2016; Kaiser Family Foundation 2017). Under the ACA, the Medicaid income-based eligibility increased to 138 % of the federal poverty level (FPL) and categorical based eligibility came to include a large subset of the population that were previously ineligible, namely, single, childless adults (Katz et al. 2011). Since the passage of the ACA in 2010, five states (California, Washington, New Jersey, Connecticut, Minnesota) and the District of Columbia, opted for early expansion (Sommers et al. 2013). As of May 2019, 37 states including the DC have opted for Medicaid expansion and 14 states have not (Kaiser Family Foundation 2019). This variation in state policies on Medicaid expansion allows for a "natural experiment" condition to compare the financial sustainability of CHCs located in Medicaid expansion versus non-expansion states.

The expansion of Medicaid presents both opportunities and threats to CHCs (Fiscella and Jack Geiger 2014; Chokshi, Chang, and Wilson 2016). First, expansion will increase the total number of Medicaid eligible beneficiaries, with CHCs seeing a higher percentage of Medicaid patients in expansion versus non-expansion states (Han, Luo, and Ku 2017; Huguet et al. 2017; Miller and Wherry 2017). A larger clientele will translate to higher revenues and, assuming that costs remain unchanged, higher margins. Estimates of CHC revenue appear to find partial support for this hypothesis as total revenue from Medicaid increased from 40 % in 2013, one year prior to ACA expansions, to 44 % in 2015 (Kaiser Family Foundation 2017). The impact on margins, however, is still unclear.

On the other hand, CHCs may face competition as a larger Medicaid beneficiary pool may attract new providers or entice current providers to expand services to new Medicaid beneficiaries. As "commercial" nonprofits, CHCs are more likely to compete with for-profit providers - and other nonprofits - as market demand increases (Galaskiewicz and Bielefeld 1998). In fact, studies have documented the equivalence of certain health care services and outcomes between CHCs and other providers (Evans et al. 2015; Bruen et al. 2013). In addition, if the newly eligible Medicaid beneficiaries (i. e. childless adults up to 133 % of FPL) are healthier and do not choose CHCs for primary health care services, this may lead to a two-tiered system in which CHCs will continue to serve the most vulnerable populations, with greater health needs, without capturing new Medicaid patients. The result of this second potential scenario is a decrease in revenue with increased costs, leading to lower net margins. Of course, the likelihood of either of these scenarios is dependent on a number of factors including, but not limited to, whether a state has a managed care option, certificates of need in place, and demands for services (Katz et al. 2011; Noh and Brown 2018).

4

This study will contribute to the literature in several ways. Foremost, it examines net margins, an important measure of long-term financial sustainability (Bowman 2011), rather than total revenue or total expenses (Kaiser Family Foundation 2017). This study also examines several contextual variables and will contribute to an understanding of the relationship between changes in environmental conditions and financial sustainability. Finally, this study samples a more comprehensive population of CHCs using data from the IRS rather than from the Uniform Data System (UDS). While the UDS is an important source for data on CHC services, health outcomes, and patient characteristics, it provides only limited data on CHC finances. Thus, a study of CHC finances should, arguably, utilize data, such as IRS Form 990, which explicitly accounts for financial constructs. The next section presents data sources and description and operationalization of the primary variables of interest.

5 Methodology

5.1 Data Sources

This study incorporates data from three sources: National Center for Charitable Statistics (NCCS), the American Community Survey, 1–year data, and the Health Resources and Services Administration (HRSA) grantee list and Area Resource File. Organizational data for the outcome variable and covariates are drawn from IRS Form 990 Core Trend Files from the NCCS for 2008–2012. Based on 2008 IRS guidelines, nonprofits with gross receipts of $25,000 (shifting to $50,000 in 2010) or more are required to file Form 990 with the IRS annually. IRS Form 990 is self-reported and contains financial information from the organization's operating statement, balance sheet, and functional expenses. CHCs are identified in the dataset using the National Taxonomy of Exempt Entities (NTEE) and nteeIRS code E32 for "Community Clinics." In 2011, there were approximately 1,706 nonprofits identified as community clinics in the dataset. The IRS files contain a broader list of community clinics compared to the data from the HRSA database. Organizations in the IRS Core files include FQHCs, FQHC look-alikes, and a smaller number of organizations that were neither. A comparison between the list of organizations in the Core trend file against the list of CHCs in the HRSA database for one county (San Diego), revealed that approximately 89 % of the organizations in the HRSA list were also captured in the Core trend file list.[5]

The Core trend files for 2008–2012 is a panel dataset for "E32" community clinics and contains 8,534 organization year observations (~1,700 observations per year). Of the 8,534 observations, 73.3 % had observations for all five years, 14.3 % had observations four of the five years, 5.3 % had observations for three of the five years, 4.1 % had observations for two of the five years, and 3.0 % had observations for only one year. Thus, the data is an unbalanced panel set.

HRSA grantee data for award years 2008–2012 was drawn from the HRSA data warehouse.[6] Data at the county level for percentage Medicaid beneficiaries is drawn from the American Community Survey, 1–year data, and downloaded from the Integrated Public Use Microdata Series (IPUMS) website for 2008–2012. Data for the number of hospitals and federally qualified health centers at the county level was drawn from the HRSA's Area Resource Files, 2013–2014.

5.2 Outcome Variable

While nonprofit financial health can be measured along several dimensions, such as liquidity, solvency, and profitability or net margin (see Bowman 2011 for a fuller discussion of financial capacity and sustainability), we focus only on net margin as a fundamental measure of financial health as supported by McAlearney (2002), Knowlton et al. (2018), Bazzoli, Fareed, and Waters (2014), and Chokshi, Chang, and Wilson (2016), who have examined the financial health of safety-net providers.

Net margin, a profitability measure, is an indicator of whether an organization's revenue is sufficient to cover its expenses. We use a modified version of net margin, taking the ratio of total revenue divided by total expenses. This was preferred over taking net margin divided by total expenses, given that we log the outcome variable; this transformation would result in undefined values when transforming negative total margins, representing organizations operating in deficit. Thus, the ratio of total revenue over total expense transforms deficits (defined as ratios less then 1) into negative values when logged, while values greater than 1 (representing surplus) remain positive when logged (see Table 1 for summary statistics).[7]

5.3   Primary Independent Variable

The primary independent variable is the location of CHCs in an early expansion state. Following passage of the ACA in 2010, only five states and the District of Columbia voted for early Medicaid expansion, as written in the ACA (Sommers and Epstein 2013). These states were California, Minnesota, New Jersey, Connecticut, and Washington. The "expansion" variable was measured as dichotomous (1 = location in expansion state; 0 = location in non-expansion state). In addition, this variable was treated as time-variant as expansion did not occur in any state in the first two years of the dataset (2008 and 2009).

5.4   Organizational Covariates

As a control for organizational size, we include total assets (time invariant). As a measure for the percentage of total revenue from Medicaid payments, we include "program revenue" (IRS Form 990, Part I, line 9) as a covariate (time variant). We calculate the "program revenue" covariate as the percentage of program revenue over total revenue. Finally, we include an indicator of receipt of any HRSA key program grant between 2008–2012. Receipt of a HRSA grant is used as a proxy for FQHC designation. Given that this designation confers with it a range of benefits, centers that are designated FQHCs may be able to weather changes in market conditions more successfully. Receipt of a HRSA grant is measured as a dichotomous variable (1 = yes; 0 = no) and is time-invariant. This HRSA grantee list was joined with the Core trend file using the organization's employer identification number (EIN).

5.5   County Covariates

As measures of competition, the density of hospitals and FQHCs per 10,000 persons were included as covariates. The number of hospitals was available only for two years (2010 and 2011) and the number of FQHCs was only available for four years (2010–2013) from the HRSA Area Resource File. We took the average of these values and divided it by the average population estimates for the same years in each county to obtain a per capita value. Next, we multiplied this per capita value by 10,000. Thus, these two measures, operationalized as the number of hospitals and FQHCs per 10,000 persons are time-invariant.

Two covariates were considered as measures of need and demand for services. The first is percent persons in poverty, drawn from the Area Resource File. Populations in poverty may have higher demands for services and incur higher service costs and thus lower margins. The percentage of those in poverty is measured as the average of the percentage of the population in poverty over total population, averaged across the five years under study and treated as time invariant. The next measure of demand is percentage of Medicaid beneficiaries in the county and state. Given that Medicaid beneficiaries make up a large share of CHC total patient mix, higher percentages of Medicaid beneficiaries may translate to higher revenues and potentially higher margins. We calculated this variable as the percentage of the population with Medicaid insurance over total population (time-variant).

6   Analysis Procedure

We examine associations between CHC margins and Medicaid expansion using a system generalized method of moments (GMM) dynamic panel models. These models (Formula 1) account for the following: a dependent variable that is partly a function of its past values(βy_{it-1}), organization-specific unobserved characteristics (α_i), time-invariant characteristics (βz_i), time-variant characteristics (βx_{it}), idiosyncratic shocks (μ_{it}), and time effects (λ_t).[8]

$$y_{it} = \alpha_i + \beta y_{it-1} + \beta z_i + \beta x_{it} + \mu_{it} + \lambda_t \tag{1}$$

7   Results

7.1   Summary Statistics

Table 1 presents summary statistics of all variables at baseline (2008) and the percentage change in mean and median values between 2008 and 2012. On average, CHCs had positive margins with median total revenue 1.03 times total expenses. Overall, margins remained relatively stable from 2008–2012, with median values ranging between 1.02 and 1.03. Approximately 36 % of organizations were HRSA grantees, and program revenue accounted for 43 % of total revenue in 2008 with a 1 % decrease in the mean and 3 % decrease in the median values between 2008–2012.

At the county level, there were, on average, approximately 0.26 hospitals and 0.30 federally qualified health centers (FQHCs) per 10,000 persons. Approximately 10 % of counties and 17 % (303 of 1,737) of organizations were located in one of the six early Medicaid expansion states in 2011. At the county level, data for percentage of Medicaid was only available for a limited number of counties from the American Community Survey 1–year data. The median percentage of the population was 17 % and this increased by 19 % between 2008 and 2012. Similarly, at the state level, the percentage of the population on Medicaid was 15 % with a 15 % increase between 2008 and 2012. Table 2 presents a correlation table for all variables and across all years in the model.

Table 1: Summary statistics of outcome and control variables(a).

	N	mean	SD	min	median	max	% change 2008–2012 (mean)	% change 2008–2012 (median)
Outcome Variable								
Margin(b)	8,425	1.32	2.89	0.00	1.03	85.13	−0.01	−0.002
Log of Margin	8,425	0.05	0.67	−15.37	0.03	4.44	–	–
Organizational Level Covariates								
HRSA Grantee(c)	8,425	0.36	0.48	0	–	1	(j)	(j)
Percent program revenue(d)	8,414	0.43	0.40	−0.40	0.45	13.86	−0.01	−0.03
Total Assets (in millions $)	8,425	6.27	33.70	−0.04	1.06	1540.00	0.69	−0.02
County Level Variables								
Number of hospitals per 10,000 persons(e)	8,420	0.26	0.40	0.00	0.18	7.98	(j)	(j)
Number of FQHC per 10,000 persons(f)	8,425	0.30	0.82	0.00	0.13	20.97	(j)	(j)
Percentage poverty(g)	8,384	0.16	0.05	0.04	0.16	0.41	(j)	(j)
Percentage Medicaid beneficiaries(h)	4,419	0.18	0.06	0.03	0.17	0.45	0.17	0.19
Expand(i)	8,425	0.07	0.26	0	–	1	–	–
State Level Variables								
Percentage Medicaid	8,384	0.17	0.03	0.08	0.17	0.27	0.15	0.17

(a) For all valid observations of dependent variable; 15 outliers with negative revenues and 12 outliers with margins greater than 100 were excluded. Results reported in Table 3 are also consistent (to third decimal point) when excluding margins >5.
(b) Calculated as total revenue/total expenses.
(c) Awarded a HRSA grant between 2008–2012, dichotomous time-invariant variable (source: HRSA data warehouse).
(d) Calculated as program revenue/total revenue.
(e) Total number of hospitals (averaged from 2010–2011) per capital multiplied by 10,000 (source: HRSA Area Resource File, 2013–2014).
(f) Total number of FQHC (averaged from 2010–2013) per capital multiplied by 10,000 (source: HRSA Area Resource File, 2013–2014).
(g) Percentage persons in poverty (averaged from 2008–2012), defined as (source: American Community Survey 1–yr data).
(h) Calculated as number of Medicaid beneficiaries over total population (source: HRSA Area Resource File, 2013–2014).
(i) County located in one of six early Medicaid Expansion states (CA, MN, NJ, WA, DC, CT), dichotomous variable treated as time variant as early expansion decision occurred in 2010 and after with zero values for all counties in 2008 and 2009. Summary in this table is for fiscal year 2011.
(j) Time invariant.

Table 2: Correlation matrix, for all observations across all years (2008–2012).

(n = 8,334)		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	Margin	1									
(2)	Expansion	−0.01	1								
(3)	Medicaid Percent State	−0.04	0.14	1							
(4)	HRSA Recipient	−0.01	0.01	0.04	1						
(5)	FQHC Density	−0.02	−0.03	0.02	0.16	1					
(6)	Hospital Density	−0.01	−0.07	−0.11	0.01	0.09	1				
(7)	Poverty Percent	−0.04	−0.10	0.21	0.14	0.19	0.08	1			
(8)	Program Revenue Percentage	−0.17	0.05	0.08	0.23	0.07	0.08	0.05	1		
(9)	Total Assets	0.00	0.07	0.08	0.07	−0.01	−0.03	−0.02	0.12	1	
(10)	Fiscal Year	−0.04	0.29	0.33	−0.03	−0.01	0.00	−0.02	−0.01	0.04	1

7.2 Results

Models 1 to 5 of Table 3 demonstrate the impact of Medicaid expansion on CHCs' margins, with the variable for Medicaid expansion significant and positive in all models. The effect of expansion is measured in the resulting percentage change in the organization's margins, accounting for a slight auto-regressive trend in the dependent variable.[9] This varies slightly across models, 5.2 % in our parsimonious model (Model 1), 5.74 % in our model introducing organization-level covariates (Model 2), 3.60 % when county-level covariates are introduced (Model 3-with a lack of Medicaid data for some counties reducing n), 5.72 % when state Medicaid data replace county averages (Model 4), and 5.76 % when taking into account density of FQHCs and hospitals as a proxy for competition (Model 5). These results demonstrate a substantively and statistically significant positive influence of Medicaid expansion on CHC margins.[10] We also find that three other variables influence CHCs' margins. At the organizational level, both HRSA grant funding and reliance on program service revenues influence margins. HRSA grant recipients have margins that are dramatically higher than their peers (ranging from 15.62 % in Model 3 to 21.25 % in Model 5).

Table 3: Community health centers-medicaid expansion and margins.

	Expansion (1)		Expansion and Organization-Level Covariates (2)		Adding Country Level Covariates (3)		Substituting State-Level Medicaid Reliance (4)		With Competition (FQHC and Hospitals) (5)	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Log Total Margins $_{T-1}$	0.174 ***	0.059	0.132 ***	0.046	0.088 *	0.047	0.140 ***	0.043	0.140 ***	0.043
Medicaid Expansion	0.042 ***	0.015	0.049 ***	0.015	0.032 **	0.015	0.048 ***	0.016	0.048 ***	0.016
FQHC Density	–		–		–		–		0.000	0.004
Hospital Density	–		–		–		–		0.015	0.017
Percent on Medicaid State	–		–		–		0.393	0.548	0.494	0.577
Percent on Medicaid Country	–		–		–0.078	0.433	–			
Country Percent Poverty	–		–		–0.185	0.401	–0.276 **	0.130	–0.295 **	0.133
HRSA Grant Received	–		0.148 ***	0.054	0.133 ***	0.037	0.166 **	0.072	0.168 **	0.072
Percent Program Revenue	–		–0.298 ***	0.092	–0.306 ***	0.105	–0.305 ***	0.077	–0.306 ***	0.074
Log Total Assets $_{T-1}$	–		–0.021	0.021	–0.015	0.013	–0.028	0.029	–0.029	0.029
n	6,189		6,172		3,217		6,140		6,136	
groups	1,830		1,824		1,064		1,816		1,815	
AB Test AR1	0.000		0.000		0.000		0.000		0.000	
AB Test AR2	0.454		0.571		0.444		0.509		0.484	
Hansen	0.216		0.295		0.898		0.360		0.381	
Prob > F	0.000		0.000		0.000		0.000		0.000	

* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

We find that increased reliance on program service revenue is associated with lower margins, with a 1 % change in an organization's reliance on program revenue resulting in an approximate −0.35 % change in an organization's margins. We suspect this is a function of CHCs' program revenues failing to cover core expenses, with revenue in excess of these expenses coming from contributions or government grants (substituting contributions percentage results in a positive but statistically insignificant coefficient).[11]

At the county level, the percentage of the population living below the poverty line negatively associates with margins, with a 1 % increase in percentage in poverty resulting in a −0.28 % change in the CHC's margins in Model 3 and −0.30 % change in Model 5. Altogether, these results demonstrate that the financial condition of CHCs is influenced by state policy, organizational-level factors, and the service populations in which they operate.

8   Discussion

The Medicaid expansion provision of the ACA might have presented either threats or opportunities for CHCs. Results from this exploratory study suggest that Medicaid expansion resulted in higher net margins for these organizations. This effect is present even when accounting for organizational and environmental differences between organizations.

At the county level, poverty is associated with negative margins. This finding is consistent with studies of the social determinants of health (Alvarez et al. 2015), which may lead to higher cost of care expected due to negative health outcomes manifested in adverse conditions (stress, poor nutrition, etc.). The absence of client insurance for those living in poverty and potential lack of discretionary income to pay may also be reducing CHCs' margins in these counties, as would be a reduced tendency to access preventative care services (Taubman et al. 2014).

At the organizational level, both HRSA grant funding and program service revenues associate with CHCs' margins in different ways. It is not surprising that CHCs who are HRSA grant recipients, a proxy for FQHC designation, have higher margins. Federal FQHC designation confers a myriad of benefits, including enhanced reimbursements from Medicaid and Medicare, discounts for pharmaceuticals, as well as grants for capital and operational expenses, amongst others (Katz et al. 2011). These enhanced benefits may allow FQHCs a stronger foundation upon which to provide services or sustain environmental shocks.

For program revenue, the negative relationship may be partially explained by a number of alternatives. First, this finding supports the argument that funders of nonprofit service providers often do not pay for the full cost of service production (Walker and Osterhaus 2010). For the health sector in particular, prices for certain procedures are established at the state or federal level and are decoupled from the expenses incurred by providers at the ground level. Thus, higher program service revenue in the form of third-party reimbursements (i. e. Medicaid) may mean higher administrative costs, longer wait times for payment, and non-competitive and below market prices for services rendered.

Additionally, there is also a waiting period or gap between service provision and service payment by third party insurers such as Medicaid. To supplement this payment gap, as well as to cover the full cost of service, CHCs may need to fund raise alternative revenue sources such as grants or individual donations. As such, the negative coefficient for program revenue may be a reflection of the need for a diversity of revenue streams, although further analysis is needed.

Galaskiewicz and Bielefeld's (1998) model of organizational change reminds us that organizations operate in niches with varying process and output controls. Health care nonprofits operate in niches where both output and process control are dominant. The value of this insight is that managerial tactics, such as accumulation of financial reserves through positive net margins, can only advance nonprofits so far in acquiring resources and legitimacy. Political or legitimation tactics, both internal and external, such as developing policies based on regulatory mandates (i. e. affirmative action, whistle blower, etc.), advocacy, re-branding, or securing funding from reputable institutions, are just as important. If so, low margins may not be immediately worrisome if nonprofits are also politically savvy enough to acquire other resources in order to weather environmental changes.

9   Limitations and Areas for Further Research

One important limitation of this study is that we only examine data for five early expansion states and the District of Columbia. The full implementation of Medicaid expansion occurred in 2014, two years after the final observation year of this study. Thus, the true impact of Medicaid expansion on net margin may not be fully

realized in the years of this study. This may be true if there are both lagged and "spill-over" effects due to spatial or geographic adjacency between expansion and non-expansion states.

There are also limitations with the IRS Form 990 data as is well documented in prior studies utilizing this dataset. Firstly, as the data is self-reported this may lead to inaccuracies, although Froelich, Knoepfle, and Pollak (2000) report consistency between IRS Form 990 and audited financial statements. Secondly, the use of NTEE codes designated as "E32 – Community Clinics" may not capture all FQHCs. Given that NTEE codes are based on an organization's stated mission, this filter may invariably miss FQHCs that provide multiple programs, including social and health services, and thus can be categorized as "human service organizations" rather than "community clinics" (see footnote #5).

Additionally, as Allard and Smith (2014) point out, the "program revenue" line item on the IRS Form 990 (Part I, line 9) captures revenue not only from Medicaid, but also from private insurance, Medicare, out-of-pocket payors, and other earned income strategies (i. e. selling food in an inhouse coffee shop). Thus, we cite prior studies documenting the large percentage of revenue from Medicaid (Kaiser Family Foundation 2017) and make an assumption that this also applies to our data. However, we acknowledge that the "program revenue" measure used in our study may indeed have other, non-Medicaid revenue, the exact percentages of which remain unknown.

Finally, the large difference in mean (1.33) and median (1.02) margin values in Table 1 for 2008 points to outliers in our data. While we exclude 27 extreme outliers, there remains variation in the dataset as is also evidenced by the standard deviation (2.52) (the 25th and 75th percentile values for 2008 are 0.96 and 1.15 respectively). Nevertheless, we believe that a log transformation of the outcome variable is appropriate to address the variation. Additionally, mean and median values are closer (1.09 vs. 1.03) when excluding margin values greater than 5 and results (not presented) are consistent with Table 3. This suggests that the skewness in the distribution of margins, does not substantively impact our findings.

A follow up study will limit the analysis to just FQHCs and look-alikes as listed in the UDS. It will also examine a longer and more recent time period (2005–2015) to see if the initial findings from this exploratory study is consistent with more current data.

10 Conclusion

The uncertainty created by the expansion of Medicaid and its impact on CHCs' financial resources remains to be determined. However, there does appear to be contextual effects at the organization and county level that may moderate the impact of Medicaid expansion, such as the population in poverty in a given area or the receipt of prior HRSA funding. Without adequate reserves, liquidity, or other methods, including borrowing or access to lines of credit to cover deficits, CHCs may not be viable in the long term. At the minimum, this study points to specific ways in which changes to the patient environment may impact CHCs, and that managers and directors of CHCs should prepare for these changes by building reserves that will allow them to adapt to a potentially more competitive environment.

Notes

1 While the health care market is not a pure competitive market as information asymmetries exists and prices are not based on demand but rather negotiated and established centrally among government agencies and managed care organizations, health care organizations nevertheless are influenced by competitive market forces that may impact costs and service quality.

2 In addition to managerial tactics, Galaskiewicz and Bielefeld (1998) also outline political and retrenchment tactics and each of these three tactics can also be internal or externally focused (see Table 1.1, p. 10).

3 Bowman's (2011) "return on assets" is a slight variation on Tuckman and Chang's (1991) "margin" measure in that Bowman divides "change in net assets" over total assets rather than total revenue. Similarly, Greenlee and Bukovinsky's (1998) "savings indicator" is calculated by dividing "change in net assets" over "total expenses."

4 For current list of states the require CON, please see: http://www.ncsl.org/research/health/con-certificate-of-need-state-laws.aspx (accessed June 2019).

5 Twenty-eight "administrative" and "administrative/service delivery" sites were identified in San Diego County from the HRSA data warehouse (https://data.hrsa.gov/data/download) (accessed February 2019). Employee Identification Numbers (EIN) were gathered from Guidestar. Overall, 25 of the 28 (89 %) of the centers listed in the HRSA database were matched with the organizations in the CORE trend file via EINs in San Diego County.

6 http://datawarehouse.hrsa.gov/tools/dataportal.aspx (downloaded October 2014).

7 We thank Woods Bowman for suggesting this alternative measure (email correspondence, September 26, 2014).

8 GMM models rely on STATA xtabond2 command developed by Roodman. These use feasibly efficient two-step estimation with Windmeijer (2005) corrected standard errors, which is: asymptotically efficient, and robust to heteroskedasticity, non-sphericity of error terms, correlation between unit-specific effects and time invariant characteristics, and omitted-variable bias (Hsaio 2014, 99–101; 119–121; Roodman 2006, 8). The models presented instrument time-variant independent variables with all available lags in the difference equation. Time invariant variables at the county and state level are considered exogenous and instrumented in the levels equation, as are dummy variables for fiscal years (not presented below). Model results satisfy the expectations of the AB tests for autocorrelation (see significant AB1 and insignificant AB2 tests) as well as Hansen tests for the exogeneity of instruments (Hansen > 0.05 and less than potentially problematic values near 1).

9 $(100*[e^{\beta EXPANSION}-1]/\{1-\beta MARGINS_{T-1}\})$.

10 These models were confirmed by fixed effects models accounting for fixed effects at the state, county, organization, and fiscal year level (fiscal year both partial out and accounted for with dummy variables), although these models are vulnerable to Nickell bias due to serial correlation in the dependent variable.

11 We caution against interpreting these results as a prescriptive finding regarding CHC revenue management, but rather as a suggestion that CHCs with this type of revenue structure are likely to generate fewer net assets, as we do not model organizations' capacity to capture any sources of revenue or the expenses that correspond with these revenue sources.

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