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Public Spillovers from Private Insurance Contracting: Physician Responses to Managed Care[†]

By MICHAEL R. RICHARDS AND D. SEBASTIAN TELLO-TRILLO*

Managed care is rebounding as more emphasis is placed on cost containment. These efforts may benefit consumers but challenge providers; however, empirical evidence on how supply-side managed care influences physicians is incomplete. We leverage a quasi-experiment³ in which a commercial insurer imposed a new contract regime on behavioral health providers in response to recent policy shifts. We demonstrate spillovers in the form of negative effects on local physician supply and positive effects on Medicare and Medicaid participation in areas where the insurer has market power. Commercially insured patients are also not obviously harmed but receive less intense services in some settings. (JEL G22, I11, I13, I18, I38, J22, J44)

As the United States (US) continues to navigate its most recent health reforms, the latest cost projections for US health spending predict that 20 percent of GDP will flow to the sector by 2025.¹ Consumers, industry experts, and policymakers continue to debate the measures needed to restrain growing expenditures in this area; however, the right mixture has proven elusive. Despite repeated calls for more innovation as a potential solution, some old ideas for health care cost containment are receiving new attention.

Health Maintenance Organizations (HMOs), in particular, are enjoying a resurgence as the Affordable Care Act (ACA) continues to reshape the individual

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¹ Spending projections are from the Center for Medicare & Medicaid Services. See here: <https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nhe-fact-sheet.html>.

insurance market in the United States (Japsen 2016). HMOs, with their accompanying restrictive networks, are the predominant health plan type within the online insurance exchanges (a.k.a. “marketplaces”), and some expect more employers to push their employees toward HMO products (Japsen 2016). The gaining HMO momentum is a manifestation of a broader shift toward stronger managed care as health insurers, employers, and consumers search for lower cost coverage options—a stark reversal from the managed care backlash during the early 2000s (e.g., see Mays, Hurley, and Grossman 2003; Shen and Melnick 2006; Dranove et al. 2008; and Fang and Rizzo 2010). Narrow network plans, more broadly, are playing an important role in contemporary insurance markets as a source of cheaper plan offerings (Blumenthal and Collins 2014; Herman 2015; Spurlock and Shannon 2015; Haeder, Weimer, and Mukamel 2016; Polsky, Cidav, and Swanson 2016), and recently increased regulatory measures to limit consumer financial risk exposure appear to encourage greater supply-side cost sharing (e.g., selective contracting, risk contracting, and utilization management)—including for mental health services (Teichert 2016).

The contemporary appeal of managed care strategies stems from a proven track record. Managed care ultimately influences (and typically blunts) the profit opportunities facing providers (Hellinger 1996), and placing downward pressure on negotiated service prices is a prominent spending-reduction tool (Cutler, McClellan, and Newhouse 2000; Polsky and Nicholson 2004; Wu 2009).² More broadly, research has found that increased managed care presence dampens local health care spending through changes in provider behavior, capacity, and technology adoption (Feldman et al. 1986; Miller and Luft 1994; Chernew 1995; Baker 1997; Baker and Brown 1999; Baker 2001; Baker and Phibbs 2002; Baker 2003; Melichar 2009; Baicker, Chernew, and Robbins 2013; Baicker and Robbins 2015).³ Reflecting on the broader literature, Baker (2003) argues that managed care organizations (MCOs) have the ability to mold health care markets and appear capable of imposing cost containment without obviously harming patient health.⁴ Yet, it remains unclear how providers will adapt to a new wave of managed care. Much of the prior physician-focused literature is dated and often does not incorporate contemporary health care market features, such as growing insurer consolidation. Some key margins (e.g., public payer exposure) are also yet to be empirically explored.

In this paper, we focus on a recent quasi-experiment where a powerful commercial insurer invigorated its managed care tactics in the state of Florida. As discussed below, the state’s largest insurer, Blue Cross Blue Shield of Florida (BCBSFL), outsourced all of its insurance functions for mental health care to a specialty behavioral health management firm.⁵ The strategic move (i.e., insurance “carve-out”) was counter to current industry trends and likely a response to tougher coverage mandates

²Providers accept significant price reductions in exchange for greater patient volume due to managed care steering efforts. Admittedly, not all research finds clear links between managed care penetration and spending levels (Hill and Wolfe 1997, Baker and Spetz 1999).

³The effects are also sometimes strongest among high-need, high-cost patients (Chernew, DeCicca, and Town 2008).

⁴One study does argue that hospitals have worse short-run performance for AMI care when exposed to greater HMO penetration (Shen 2003). However, the effect is very small.

⁵The MCO is now commonly referred to as “Florida Blue” in the state; however, we maintain the full name for purposes of clarity in our exposition and empirics. Across states and over time, Blue Cross Blue Shield plans often

and regulatory constraints. The event, coupled with several key data sources, offers a unique empirical opportunity to investigate changes in affected physician labor supply and care delivery. Our setting also departs from much of the existing literature in several aspects. First, we are able to estimate managed care effects on physicians in recent times, as opposed to decades earlier (e.g., during the 1980s and 1990s). Second, we benefit from a targeted managed care change affecting a very specific provider type, rather than impacting all local providers (the common experience in prior studies), which improves identification and inferences. Third, we observe physicians' participation in the Medicaid and Medicare programs—allowing us to quantify any spillover effects on the publicly insured. Finally, we also know the particular managed care techniques used, instead of merely observing the level of managed care in the market.

We subsequently leverage a triple differences research design to elucidate mental health providers' response to the introduction of a more aggressive managed care environment. Specifically, our data have the ability to home in on markets with disproportionately high BCBSFL market share, which is advantageous since the sheer size of an insurer can hold sway over providers beyond just network formation (Foreman, Anderson Wilson, and Scheffler 1996; Brooks, Dor, and Wong 1997; Hirth and Chernew 1999).⁶ Commercial-insurance markets are also more heterogeneous than the more monolithic public payers, making the importance (e.g., financial impact) to local providers of a given insurer's strategic decision dependent on its market position. We consequently capture the important interaction between a payer's shift to more supply-side cost sharing and its local market power.

Managed care's influence on mental health clinicians, in particular, warrants greater attention because these providers are known for low rates of insurance participation at baseline. Only 55 percent of psychiatrists nationally accept Medicare patients, with barely above 40 percent willing to see those from Medicaid.⁷ Their aversion to public as well as private insurance seems to have risen over time, which they often attribute to inadequate payment rates and difficult interactions with insurers (Bishop et al. 2014, Johnson 2016).

Overall, we find that physicians are sensitive to a tougher managed care environment. In areas where BCBSFL has significant market power, psychiatrists strongly increase their willingness to see publicly insured patients after the carve-out decision (by 15–20 percent across payers), which represents a positive externality accruing to Medicaid and Medicare patients. These adjustments predominantly occur on the intensive margin (i.e., public patient panel size) as opposed to the extensive margin (i.e., public program participation). However, psychiatrists' share of the total physician supply contracts by 20 percent, and there is stagnant growth in new practices within these same areas. We then complement our provider-focused analyses with

hold some level of monopoly and monopsony power in local health care markets (Foreman, Anderson Wilson, and Scheffler 1996).

⁶Greater consolidation in the health insurance industry has also been a growing and sometimes concerning feature of the contemporary US health care landscape (Laszewski 2015; Pear 2015; Gaynor, Mostashari, and Ginsburg 2017), and recent empirical work shows that such consolidation can negatively impact physician employment and earnings growth (Dafny, Duggan, and Ramanarayanan 2012).

⁷Medicare is the public insurance program predominantly for elderly Americans; meanwhile, the Medicaid program offers public insurance to lower income children, families, and individuals.

detailed patient utilization data to better speak to the consumer-welfare consequences from this BCBSFL business tactic. Our results indicate that commercially insured patients suffering from mental illness are not receiving care in emergency departments (EDs) more frequently or in obviously worse condition when presenting to an ED following the insurer's strategic move, but they are treated less intensely. There is also suggestive evidence that these patients are steered away from inpatient care within psychiatry specialty hospitals. Taken together, more aggressive private insurer contracting generates a mix of positive and negative public spillovers when the carrier holds a dominant position. These results, in turn, shed new light on the payer-provider dynamic, with relevance to recent policy discussions around health care regulation and antitrust.

I. Background on MCO and Physician Interactions

Managed care is believed to have exerted a significant and increasing influence on physicians starting in the 1990s (Gold et al. 1995, Mitchell and Hadley 1999). MCOs ultimately bargain with health care providers over allowable services and accompanying prices and use the threat of network exclusion as a means to force a favorable agreement (Town and Vistnes 2001; Capps, Dranove, and Satterthwaite 2003; Ho 2006, 2009). While these actions can appeal to cost-conscious health care consumers and employers, physicians expectedly report a distaste for MCOs and their business models (Donelan et al. 1997; Feldman, Novack, and Gracely 1998; Grumbach et al. 1998). Relatedly, high HMO penetration areas tend to attract fewer new physician graduates, encourage greater market exit, and demonstrate slower growth in physician supply over time (Escarce et al. 1998, Escarce et al. 2000, Polsky et al. 2000). HMO-heavy markets also seem to suppress physician labor supply on intensive margins, such as work hours and throughput, as well as their incomes and earnings potential (Simon and Born 1996, Hadley and Mitchell 1997, Hadley and Mitchell 1999, Polsky et al. 2000).⁸ Perhaps unsurprisingly, physicians operating in these markets express a greater degree of work dissatisfaction (Hadley and Mitchell 1997) and may even withhold some charity care (Cunningham et al. 1999).

Additional studies find providers to engage in strategic consolidation when dealing with a stronger managed care landscape (Shortell, Gillies, and Anderson 1994; Baker and Brown 1999; Dranove, Simon, and White 2002), and one previous study documents a negative correlation between physician self employment and HMO penetration (Mitchell and Hadley 1999).⁹ Other work also shows that providers change how they deliver and standardize care when facing a larger MCO presence, even for patients outside of managed care plans (Glied and Zivin 2002; Bundorf et al. 2004; Baicker, Chernew, and Robbins 2013; Baicker and Robbins 2015).

⁸Some work argues that managed care growth can positively impact primary care providers' incomes due to the implicit incentive structures and emphases imbedded within MCO operations (Simon, Dranove, and White 1998). Related work projected that the US health care workforce would eventually shift toward primary care, leaving specialist surpluses (Weiner 1994)—though this obviously did not happen.

⁹However, such integration and consolidation responses exhibited by physicians are not consistently found among hospitals; they seem to consolidate for other motives (Town et al. 2007).

II. Mental Health Carve-Out MCOs and the Florida Context

While mental illness is thought to exert a substantial burden on society, the US health care system has typically dealt poorly with this public health issue. Primary care providers often struggle to make successful referrals to psychiatric care (Cunningham 2009), and some estimate that roughly half of all US counties lack any mental health clinicians (Ross Johnson 2016).¹⁰ These facts rest uncomfortably against a backdrop of known and possibly escalating mental health problems across the nation (Becker and Kleinman 2013).¹¹

That said, the passing of the federal Mental Health Parity and Addiction Equity Act (MHPAEA) as well as the more recent ACA have been championed as turning points for treatment access and financial protection among those suffering from mental illness (Barry and Huskamp 2011). The 2008 MHPAEA legislation (enacted in 2010) specifically introduced coverage mandates for services and required associated cost sharing to be on par with that of medical and surgical care. It also restricted non-quantitative treatment limits (NQTLs) for insurers, meaning that carriers could not be more aggressive in managing enrollees' mental health care (e.g., via prior authorization or utilization review measures) compared with other care domains. MHPAEA regulations also applied to benefits available through fully insured and self-insured products, which is not the case for state-based parity laws (Barry, Huskamp, and Goldman 2010).

Despite these policy and coverage developments, consumers still report access barriers to mental health treatment. Persistent points of contention include interpreting the breadth of the law's application to plan designs as well as establishing compliance for a given carrier (Abelson 2013, Graham 2013). Importantly, insurers' past and present reticence toward mental health coverage is grounded in economic issues. Moral hazard and adverse selection risks loom large in mental health service markets (Frank, Koyanagi, and McGuire 1997). Yet, it has often been assumed, if not advocated, that managed care techniques can help limit any spending increases from more generous mental health coverage (Barry, Frank, and McGuire 2006). Such a perspective eventually gave rise to an entire niche industry exclusively focused on the provision of insurance for mental health treatment.

A. Managed Behavioral Health Organizations

Managed behavioral health organizations (MBHOs)—commonly referred to as behavioral health “carve-out” firms—have specialized expertise in the construction of provider networks, contract negotiations, and managing patient utilization of mental health and substance abuse treatments (Barry, Frank, and McGuire 2006). Carve-out firms, in turn, alleviate insurers' moral hazard and financial concerns linked to mental health care, and their popularity grew rapidly from the 1990s through the

¹⁰ A related report from the federal Substance Abuse and Mental Health Services Administration that cites this and other key behavioral health workforce statistics can be found here: <https://store.samhsa.gov/system/files/sma16-4989.pdf>.

¹¹ Even industry-leading health systems report launching new initiatives to better address mental illness and help integrate it with other forms of care delivery (Modern Healthcare 2016).

early 2000s (Frank, Koyanagi, and McGuire 1997; Ma and McGuire 1998; Barry, Frank, and McGuire 2006). By 2003, 72 percent of health plans relied on MBHO contracting; however, their existence and use has routinely attracted ambivalent feelings from consumers, policymakers, and advocacy groups (Frank and Garfield 2007).

These specialized firms operate independent of the accompanying general medical insurance plan—meaning they construct their own provider networks and coverage determinations as well as carry out their own administrative and insurance functions. And some consider the network margin to be MBHOs' most powerful cost-containment tool (Barry, Frank, and McGuire 2006). They also benefit from economies of scale through their group purchasing function for multiple payers.¹² Access to behavioral health providers through MBHO plans is typically better, though more tightly managed; meanwhile, effects on quality appear murkier, especially for special needs populations (Ma and McGuire 1998, Frank and Garfield 2007). Empirical studies of carve-outs show immediate and sustained cost savings for behavioral health care—primarily through steep price discounts per service, as opposed to restrictive benefit designs or denials of care (Frank and Garfield 2007). Relatedly, MBHOs' managed care techniques held in check hospitalization and outpatient care spending for mental illness, even as spending in these domains for physical illness continued to climb (Frank, Goldman, and McGuire 2009). Paralleling broader managed care and provider tensions, behavioral health clinicians negatively view the mental health carve-out industry, which is believed to have harmed their incomes (Frank and Garfield 2007; Frank, Goldman, and McGuire 2009).

B. BCBSFL Carve-Out Decision

While mental health coverage has become more prevalent, the appeal of MBHOs seems to be waning (Frank and Garfield 2007). A total of 171 million covered lives are currently part of carve-out plans, but this is after a “decade of erosion.” State agencies are moving away from them within their Medicaid programs, and three of the five largest commercial insurers have done likewise in recent years. Some industry experts project that trends and stipulations embedded within the ACA will be further deterrents for carve-out use (Dalzell 2012). Interestingly, Dalzell (2012) also notes in a trade press article that Humana and BCBSFL “have bucked the tide” in their recent shift to mental health carve-out contracting.¹³

BCBSFL's now unusual step of carving out their behavioral health services followed the full implementation of federal parity and invited uproar among the local mental health community. Specifically, BCBSFL partnered with “New Directions” (an MBHO headquartered in Kansas) during the fall of 2011. The new partnership led to a termination of all existing BCBSFL contracts with behavioral health

¹² As Frank and Garfield (2007) remarks, small- to medium-size health insurers would lack the needed leverage to negotiate favorable terms with providers; however, MBHOs can aggregate the total volume of patients across general health insurers to garner bargaining advantages vis-à-vis providers.

¹³ The author also remarks that ACA rules allow MCOs that outsource mental health on a capitated payment basis to count these payments in full when calculating their medical loss ratios (current ACA rules require 80–85 percent of collected premium dollars to go toward utilization or quality-improvement initiatives).

providers, and all providers wishing to reestablish in-network status for BCBSFL plans had to accept new contract terms dictated by the MBHO. The new contracts would then be active as of January 1, 2012. As part of these renegotiations, the MBHO implemented rigid network participation requirements, and reimbursement cuts ranged from 30–60 percent for many common services (Graham 2013).¹⁴ This particular MBHO also had a reputation for very aggressive managed care measures and slashing costs—e.g., a similar business move by BCBS Alabama was blamed for the eventual closure of one of its larger behavioral health operations, previously serving 28,000 patients (Yeager 2015). Florida providers and other advocacy groups unsurprisingly protested the move from the state's largest insurer and warned of adverse consequences for providers and patients. They also claimed the BCBSFL decision was a direct violation of MHPAEA (Ragusea 2012, Graham 2013) and went as far as appealing to elected officials and regulators, including the Florida Department of Insurance Regulation and the US Department of Health and Human Services.¹⁵ However, the BCBSFL strategy prevailed, and all mental health specialists in Florida had to adapt to a new and intense managed care landscape courtesy of the state's largest commercial insurer.

III. Data

We use a unique combination of data resources to document the BCBSFL effect on multiple relevant provider margins. We then couple these findings with analyses devoted to patient health outcomes and utilization behavior in order to more comprehensively characterize the consumer-welfare implications from the BCBSFL carve-out decision.

A. BCBSFL Market Penetration

The county-level insurance enrollment information for the state of Florida is proprietary data from the Decision Resources Group (DRG). The data provider tracks individual enrollment counts across payers (i.e., Medicare, Medicaid, and individual commercial insurers) as well as insurance contract types (e.g., HMO versus PPO and self-insured versus fully insured plans). The primary source of commercial-insurance information is the DRG National Medical and Pharmacy Census, which is distributed to all relevant carriers and then supplemented with secondary sources (e.g., company-specific web resources and the National Association of Insurance Commissioners data) when necessary. We use the available county-level BCBSFL enrollment totals (fully insured and self-insured markets) in January 2012 and

¹⁴ These and other details are provided in this direct letter to the DOL, DHHS, and Treasury secretaries, available here: <http://www.apapracticecentral.org/reimbursement/rates-letter.pdf>. We also received supporting details of these price cuts from the Florida Psychological Association (FPA), which conducted a contemporary survey of Florida mental health providers to support subsequent legal challenges to the BCBSFL decision. We thank the Florida Psychological Association (FPA) for kindly sharing their survey results with us.

¹⁵ Additional details as well as a timeline of BCBSFL actions and formal provider appeals can be found here: <http://www.apapracticecentral.org/update/2012/03-29/organizational-psychology.aspx>.

accompanying counts of all privately insured individuals in a given county to generate BCBSFL's market share per Florida county.

Figure 1 displays the variation in BCBSFL market shares across the state in January 2012 (when the switch to mental health carve-out contracting took effect).¹⁶ On the low-end, counties may have a BCBSFL percentage that is only in the single digits; however, in counties with greater BCBSFL penetration, as much as one-half to two-thirds of the privately insured population is enrolled in a BCBSFL product. The map also clearly displays variation between these two extremes and demonstrates that BCBSFL plans are relatively more popular in less urban places. For example, the Miami, Orlando, and Tampa Bay areas (not explicitly marked) have some of the lowest BCBSFL market shares in the state.

B. Provider Supply and Behavior

Our core provider data come from the Florida Physician Workforce Survey, which gathers detailed information about individual physicians licensed in Florida from 2009 to 2015. This annual survey is mandatory for physicians and completed upon initial license granting or license renewal (occurs every two years) and offers a near universe of Florida's physicians, with both cross-sectional and longitudinal information at the individual provider level.¹⁷ Survey responses are provided in either January of the corresponding year or in the preceding few months of the prior year (e.g., respondents to the 2012 survey would have filled out the questionnaire in the fall of 2011 or by January 2012). This creates some ambiguity in terms of defining the post-period for our analyses. Considering the 2012 wave as part of the post-period may be overly conservative since many of the responses could have been made before much of the BCBSFL strategic change was fully understood or felt by providers (e.g., any revenue losses would not have materialized by this point). Additionally, the petitioned regulatory reviews—and hence judgments—were yet to be completed by the time many, if not all, participants in the 2012 survey submitted their responses. For these reasons, we explore the sensitivity of our subsequent findings and inferences to an alternative cut point for the post-period classification.

The survey includes basic demographic characteristics as well as the physician's medical specialty. We also have information on the practice setting (e.g., hospital-versus nonhospital-based employment), the county where the practice is located, and labor supply measures pertaining to the practice (e.g., time allocated to patient care and weekly patient throughput). Each respondent is also asked about participation in the public insurance programs (Medicare and Medicaid), with a separate question for each of the two payers. Prior empirical work has been interested in the dynamic implications for private and public payers since providers sell services in

¹⁶We have also explored market share measures two years prior (i.e., in 2010, more than a year before any carve-out announcement). Having a high penetration rate of BCBSFL products is a strongly persistent feature of counties; thus, our inferences are not meaningfully influenced by year-to-year changes in market shares. Additionally, we have determined that using an alternative measure that captures the BCBSFL share among all insured individuals in a county (i.e., commercial, Medicaid, and Medicare) does not affect our findings. The relative ranking of counties is largely preserved.

¹⁷Because of the two-year interval for licensing renewal, the longitudinal structure of the data is best thought of as a biennial panel.

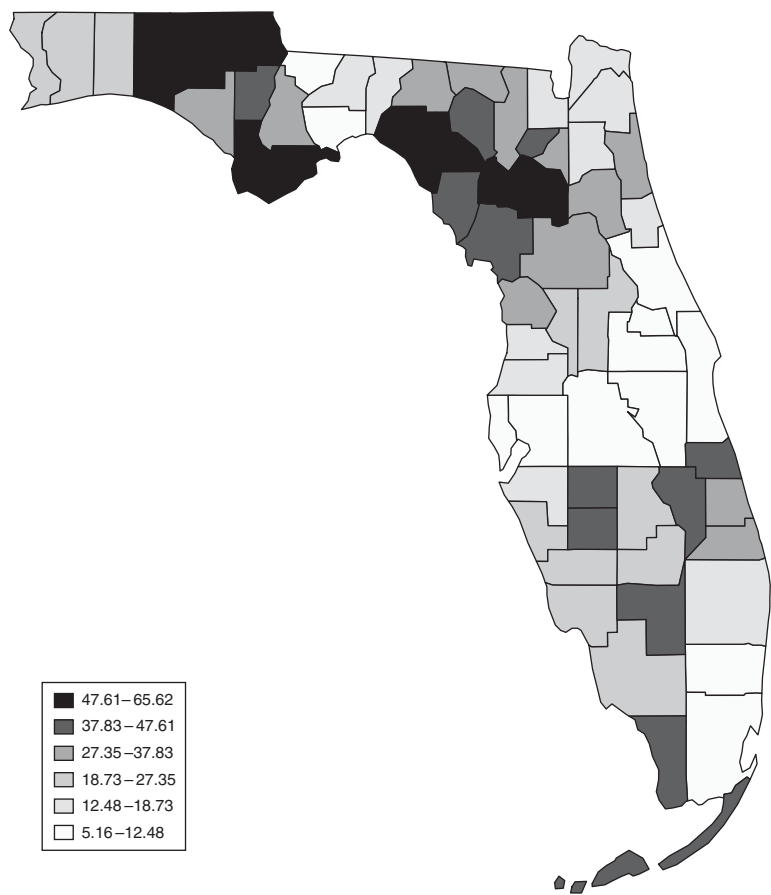


FIGURE 1. BCBSFL MARKET SHARES ACROSS ALL FLORIDA COUNTIES IN 2012

Notes: This figure shows the Decision Resources Group proprietary data. Market shares are calculated as of January 2012. Numbers in the figure key are percentages of the entire commercially insured population in a given county.

a mixed economy (i.e., facing multiple payers), and evolving incentives specific to one payer may create spillovers for the other market participants (Sloan, Mitchell, and Cromwell 1978; Hellinger 1996; Yip 1998; Garthwaite 2012; Schmitz 2013; Maclean, Popovici, and Stern 2017). For example, in Garthwaite’s (2012) setting, public insurance expansions exert an influence (via crowd-out) on demand from private payers and thus induce greater participation in the public insurance market for affected physicians. Our context is similar except for the effect on the private demand curve originates with the behavior of a private insurer, as opposed to a public insurer. Moreover, the insurance enrollment data from Section IIIA allow us to account for heterogeneity in the size of the shock transmitted to local physicians’ demand from the privately insured due to BCBSFL’s share of the commercial market in the area. The workforce survey also specifically asks about acceptance of *new* Medicaid or Medicare patients (i.e., intensive margin), rather than nonzero (i.e., extensive margin) participation in either public insurance market. We supplement

this information with statewide Medicaid provider registration data. All Florida health care providers must undergo formal registration in order to bill the state program for services rendered. We consequently use the publicly available Provider Master List of Florida Medicaid to capture the exact year a given physician in our workforce database initially enrolled in the program. We are then able to construct a binary measure of Medicaid extensive margin participation for each respondent.

Our analyses restrict to physicians actively practicing (i.e., non-retired) in the state.¹⁸ Table 1 briefly summarizes our analytic data according to specialty (psychiatry versus not) and BCBSFL market exposure. Across both geographies, the psychiatrists are slightly older and more likely to be female, on average. They also have far weaker public insurance participation when compared to the average non-psychiatry physician—typically a 20 percentage point difference or more. The data in Table 1 also indicate that physicians have a much lower presence in high BCBSFL penetration areas, irrespective of specialty type, which is consistent with the patterns in Figure 1 (i.e., larger market shares in more sparsely populated areas).

C. Patient Utilization and Treatment Intensity

Our health care utilization analyses use the universe of quarterly discharge data from the State of Florida's Agency for Health Care Administration (AHCA). The AHCA directs and serves the Florida Medicaid program and performs licensing functions for all health care facilities. It also collects, maintains, and distributes extensive health care utilization data pertaining to the state. We use the ED and inpatient discharges to examine episodes due to mental illness occurring in each care setting. The data span the first quarter of 2009 through the fourth quarter of 2014 and focus on all discharge records with a primary International Classification of Disease (ICD) 9 diagnosis code ranging from 290.0 to 316.0.¹⁹ We then observe the payer mix within each setting as well as the treatment intensity for each mental health-related encounter occurring in the state.

IV. Empirical Strategies and Results

For our subsequent analyses, we leverage the heterogeneity in BCBSFL market presence in two ways: (i) stratify all counties as being above or below the median market share (27 percent) in 2012 and (ii) use the continuous measure to exploit all of the geographic variation in market shares.²⁰ For visual and analytic simplicity, we primarily rely on the former (binary) categorization of BCBSFL market power.

¹⁸We also define psychiatry physicians (i.e., the treated group) as those practicing adult psychiatry as well as child psychiatry specialists. The latter group is too small to analyze in isolation. We also exclude a vanishingly small minority of mental health physicians working outside of traditional patient care settings (e.g., law enforcement forensics).

¹⁹All discharge records include a principal ICD-9 diagnosis code that is meant to represent the primary health problem underlying the patient's visit (i.e., what caused the patient to seek care at the ED or be admitted to the hospital).

²⁰Of note, the average BCBSFL market share for the above-median subgroup is 44 percent.

TABLE 1—SUMMARY STATISTICS FOR FLORIDA PHYSICIAN WORKFORCE DATA, 2009–2015

	Psych high BCBS	Non-psych high BCBS	Psych low BCBS	Non-psych low BCBS
<i>Age</i>	55.5 (12.5)	51.9 (11.1)	55.8 (11.9)	51.6 (11.4)
<i>Male</i> (percent)	68.2	76.1	64.8	74.9
<i>New Medicare</i> (percent)	56.7	84.3	56.7	80.8
<i>New Medicaid</i> (percent)	40.8	62.4	39.8	58.5
<i>Hospital based</i> (percent)	27.6	28.4	21.3	25.5
Observations	797	15,446	5,297	122,819

Notes: Standard deviations are in parentheses for the *Age* variable. *New Medicare* and *New Medicaid* are binary variables for currently accepting new patients from these insurers. *Hospital based* is equal to one for respondents that have their primary practice setting within a hospital or health system. Note, the number of observations in this table reflects the largest number for the summary variables listed. Some variables are missing for a small number of respondents and therefore have a slightly lower denominator than what is represented in the last row of this table. “High” and “low” BCBS counties reflect counties above and below the median BCBS market share as of January 2012, respectively.

A. Public Insurance Acceptance and Clinical Effort

Our key labor supply responses from the workforce survey include: public payer participation, clinical hours worked, and patient throughput. We then implement parsimonious difference-in-differences (DD) and triple differences (DDD) specifications, which directly map to corresponding trends in outcomes. These trends provide evidence for the assumptions of the research design and thereby produce estimates that lend themselves to causal interpretations.²¹

The estimation strategy is also straightforward since we have clearly demarcated treatment (psychiatrists) and control (all nonmental health physicians) groups. The corresponding DD specification is

(1)
$$Y_{it} = \alpha + \beta Psych_i + \gamma Post_t + \delta (Psych \times Post)_{it} + \varepsilon_{it},$$

where Y is a labor supply outcome of interest for physician i in year t ; $Psych$ is a binary indicator equal to one for those in the treatment group, and $Post$ is equal to one for all survey years 2012–2015. The delta parameter recovers our DD estimate. As previously mentioned, the key strength in our strategy comes from the ability to assess heterogeneity in the carve-out effect according to BCBSFL exposure—meaning we now focus on labor supply outcomes of physician i in year t and county type c . The third “D” in our DDD regression models is either the binary indicator for a physician having her primary practice in a “high” BCBSFL market share (i.e., above the median) county or is the continuous measure capturing the full gamut

²¹We also empirically test if the slopes on the pre-trends are statistically different from zero across our treatment and control groups to further confirm the appropriateness of our inferences.

of county-level market shares facing providers. The DDD model is then a simple extension of equation (1):

$$(2) \quad Y_{ict} = \alpha + \varphi \text{Psych}_i + \zeta \text{Post}_t + \psi \text{HighBCBS}_c + \lambda_1 (\text{Psych} \times \text{Post})_{it} \\ + \lambda_2 (\text{Psych} \times \text{HighBCBS})_{ic} + \lambda_3 (\text{Post} \times \text{HighBCBS})_{ct} \\ + \delta (\text{Psych} \times \text{Post} \times \text{HighBCBS})_{ict} + \varepsilon_{ict}.$$

The delta coefficient in the DDD model is our key estimate of interest and reveals if the BCBSFL carve-out decision is more influential in areas with greater BCBSFL market power. Although the analytic data are being treated as repeated cross sections to capture what are best conceptualized as market-wide changes in behavior over time, the standard errors for equations (1) and (2) are clustered at the physician level to allow for any autocorrelation from repeat observations.²²

To enhance our inferences, we exploit the longitudinal nature of our workforce data to generate more nuanced insights. Typically, related studies would be restricted to one type of data; however, we have the benefit of both. We ultimately leverage our ability to track the same physicians over time (via the two-year licensure renewal requirement in the state) to implement longitudinal analyses at the individual physician level in order to disentangle aggregate changes in outcomes due to provider compositional shifts (i.e., who enters and exits the market) as opposed to behavior change among incumbent (and persistent) providers. All that is analytically required is the addition of a physician fixed effect (η) into our DDD model (equation (2)):

$$(3) \quad Y_{ict} = \alpha + \varphi \text{Psych}_i + \zeta \text{Post}_t + \psi \text{HighBCBS}_c + \lambda_1 (\text{Psych} \times \text{Post})_{it} \\ + \lambda_2 (\text{Psych} \times \text{HighBCBS})_{ic} + \lambda_3 (\text{Post} \times \text{HighBCBS})_{ct} \\ + \delta (\text{Psych} \times \text{Post} \times \text{HighBCBS})_{ict} + \eta_i + \varepsilon_{ict}.$$

The DDD parameter in equation (3) will consequently reflect within-physician changes in our labor market outcomes of interest over the pre- and post-periods.²³

Table 2 offers our first set of results using equations (1) and (2) and focuses on public insurer participation among Florida physicians. Both binary outcomes are equal to one when a respondent reports currently accepting *new* patients from the specific payer. Column 1 (the DD model) shows no change in psychiatrists' willingness to increase their Medicaid exposure overall, but this masks important heterogeneity by market environment. Both columns 2 and 3 (Table 2) demonstrate greater receptivity toward the traditionally low-paying insurer after the BCBSFL

²² To ensure conservative inferences, we have also examined our results when removing clustering and when clustering at a higher level (e.g., physician specialty). There is no indication that we are understating our standard errors.

²³ We also explore the sensitivity of our inferences to an alternative choice of post-period window (i.e., using the 2013 wave as the start of the post-period) due to the potential misalignment of survey administration (as discussed in Section IIIB) and the rollout of the BCBSFL managed care change.

TABLE 2—EFFECTS OF BCBSFL NETWORK AND PRICING SHOCK ON PSYCHIATRISTS’ LABOR SUPPLY

	Accept new Medicaid patients			Accept new Medicare patients		
	Diff-in-diff	Triple difference		Diff-in-diff	Triple difference	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Psych</i>	−0.195 (0.012)	−0.183 (0.013)	−0.152 (0.020)	−0.257 (0.012)	−0.242 (0.013)	−0.192 (0.020)
<i>Post</i>	0.057 (0.002)	0.058 (0.002)	0.060 (0.004)	0.027 (0.002)	0.029 (0.002)	0.030 (0.003)
<i>DD estimate</i>						
<i>Psych × Post</i>	0.004 (0.011)	−0.007 (0.012)	−0.035 (0.019)	0.015 (0.011)	0.002 (0.012)	−0.044 (0.019)
<i>DDD estimate</i>						
<i>Psych × Post × HighBCBS</i> market share	—	0.068 (0.033)	0.226 (0.096)	—	0.078 (0.035)	0.342 (0.099)
Effect size at BCBS market share median (27%) BCBS market share	—	Discrete	0.061 Continuous	—	Discrete	0.092 Continuous
Observations	142,255	138,786	138,786	142,768	139,270	139,270

Notes: Standard errors are clustered at the physician level. *Post* includes all survey years between 2012 and 2015. The treated group is composed of general psychiatry physicians. The comparison (control) group is composed of all non-psychiatry specialists. *HighBCBS* market share in columns 2 and 5 is defined as primarily practicing in a county with above the median BCBS market share among all Florida counties. In columns 3 and 6, the BCBS market share is a continuous variable. Only key coefficients are reported from triple differences (DDD) specifications. The pre-reform mean for psychiatrists in the high BCBSFL market group is 0.34 for the Medicaid outcome and 0.51 for the Medicare outcome.

mental health carve-out—but only for psychiatrists practicing in areas with higher reliance on BCBSFL insurance products. Focusing on the model relying on the discrete market-type classification (column 2, Table 2), local psychiatrists are 6.8 percentage points more likely to be accepting new Medicaid patients after the BCBSFL decision—a 20 percent increase relative to their pre-period rate. An identical pattern emerges for accepting new Medicare patients (columns 4–6, Table 2). Those practicing within the high BCBSFL counties are 7.8 percentage points more likely to report accepting new Medicare patients, which is a 15 percent improvement over their pre-BCBSFL carve-out level. The DDD results are also statistically significant across both public insurance outcomes in Table 2.

Relative to the low- and high-end of the reported service price cuts (i.e., 30 percent and 60 percent, respectively), the implied publicly insured patient acceptance elasticity is between 0.67 and 0.33 for Medicaid and 0.5 and 0.25 for Medicare. These magnitudes also seem plausible, given what is known about private-to-public price differentials for the same service. For example, a recent nationwide study found that commercial insurers often pay 10–100 percent above Medicare rates for common physician services (Pelech 2018). Within another southern state (Texas), private prices for psychiatry care, specifically, are typically set 60 percent and 12 percent above the prevailing Medicaid and Medicare rates, respectively (Krause, Ukhanova, and Revere 2016).²⁴ Using these as reference points, the degree of service price reductions emanating from BCBSFL appears consistent with markedly shrinking—perhaps even eliminating—the price wedge between private and public

²⁴Zuckerman, Skopec, and Epstein (2017) calculates a composite (i.e., spanning many different physician services, including behavioral health) value of 0.58 for the Medicaid FFS-to-Medicare FFS ratio in Florida.

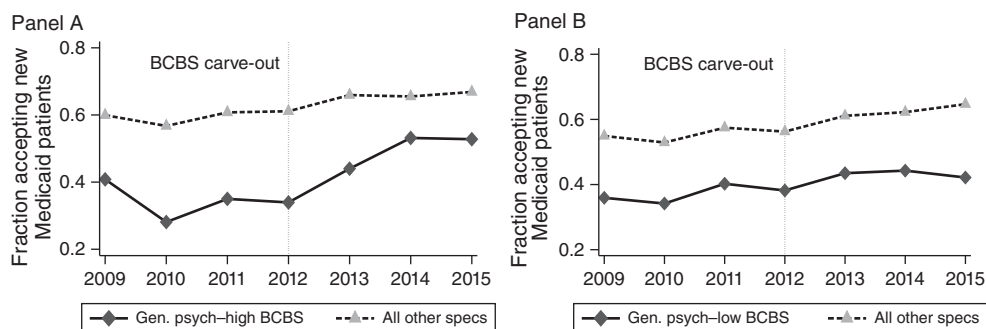


FIGURE 2. FRACTION ACCEPTING NEW MEDICAID PATIENTS 2009–2015 IN HIGH (PANEL A) AND LOW (PANEL B) BCBSFL AREAS

Notes: This figure shows results from the Florida Physician Workforce Survey. “High” and “low” BCBS counties reflect counties above and below the median BCBS market share as of January 2012, respectively.

payers. So long as Florida psychiatrists do not have a distaste for treating the publicly insured, this should translate to greater indifference over the specific payer type attached to the marginal patient.

We also note that the specification using a continuous measure of BCBSFL market share (columns 3 and 6, Table 2) generates a much larger DDD coefficient since it reflects a projection of the marginal effect over a change in the market share variable from 0.0 to 1.0, which is outside the range of observed values. Therefore, the resulting estimate must be scaled by actual market share values. Directly below the DDD estimate, we show the scaled effect at the median market share level (0.27). Unsurprisingly, the scaled effect (columns 3 and 6) is quite similar to the mean effect captured in the DDD models with the simple binary indicator (columns 2 and 5).²⁵

The patterns from Table 2 are further confirmed in Figures 2 and 3. These figures display the accompanying trends for the intensive margin Medicaid and Medicare outcomes, respectively, and stratified by BCBSFL market type. The trends closely parallel what is seen in Table 2: virtually no differential changes in markets with weaker BCBSFL presence, but strong level shifts among psychiatrists practicing in areas with high BCBSFL exposure after the 2012 survey wave.²⁶ Compared to the pre-carve-out new patient Medicaid and Medicare acceptance levels in Figures 2 and 3, the prevailing acceptance rates achieved by the end of our study period (2015) are approximately 40 percent and 30 percent higher, respectively, among the affected psychiatrists. Taken together, the results belonging to Table 2 and Figures 2–3 are consistent with the BCBSFL decision leading to better access for publicly insured patients (i.e., a positive externality), who are typically attached to

²⁵ Note, we have also re-estimated the discrete market share models using terciles, quartiles, and quintiles as alternative thresholds for a “high” BCBSFL market. The effects on public insurance participation conform to a monotonic pattern, as expected. Thus, the use of the market share median value for Florida counties in our main analyses is not distorting our inferences.

²⁶ Online Appendix Figure A1 also provides the results from a formal test of pre-period trends across the two types of counties in terms of BCBSFL market penetration (i.e., “high” versus “low”).

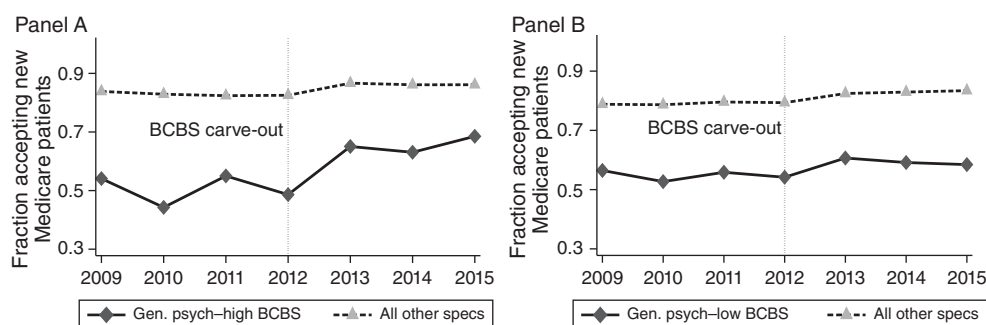


FIGURE 3. FRACTION ACCEPTING NEW MEDICARE PATIENTS 2009–2015 IN HIGH (PANEL A) AND LOW (PANEL B) BCBSFL AREAS

Notes: This figure shows results from the Florida Physician Workforce Survey. “High” and “low” BCBS counties reflect counties above and below the median BCBS market share as of January 2012, respectively.

lower reimbursement rates.²⁷ These findings also align with the view that the public insurance markets serve as an outside option for physicians as they navigate their commercial contract landscape (Clemens and Gottlieb 2017).²⁸

Table 3 re-estimates our DDD specification (equation (2)) with our alternative post-period definition (i.e., beginning in the 2013 survey wave, which captures responses from the final months of 2012 and January 2013) and then does likewise with equation (3) (i.e., models with physician fixed effects). As expected, the DDD results for public insurance acceptance are both larger and more precise for each payer type (columns 1 and 3, Table 3). Columns 2 and 4, which incorporate physician fixed effects, further support our inferences for these labor supply margins.²⁹ Positive changes in the willingness to see new Medicaid patients as well as new Medicare patients following the BCBSFL decision are evident within a given physician. These findings indicate that psychiatrists in the markets with the greatest BCBSFL penetration prior to the carve-out change are willing to reallocate more clinical services to publicly insured patients after witnessing a tougher commercial managed care landscape. The estimates in Table 3 also reveal that the cross-sectional (or market-wide) changes observed in Table 2 are primarily driven by physician behavior change, as opposed to compositional changes.

²⁷ We do note that an additional Medicaid policy was implemented during our analytic window, courtesy of the ACA. Although Florida did not expand Medicaid in 2014, it was affected by the federal “fee bump” for all Medicaid primary care services. However, if we remove primary care physicians from our composite control group of physicians, our Medicaid participation inferences are unaffected. Medicare also gradually rolled out its own mental health parity initiative from 2010–2014; however, this was aimed at reducing enrollees’ out-of-pocket burden. It did not improve Medicare prices for mental health providers and would also be considered a common shock to all markets.

²⁸ Of note, our data are not sufficiently granular to separate out greater public insurer participation due to relative price changes from that due to BCBSFL network exclusion. Although, as discussed in Section IIB, these two motivations are deliberately working in tandem in our context (i.e., psychiatrists wishing to regain in-network status must accept the much lower service prices from the MBHO).

²⁹ We have also estimated equation (3) when using 2012–2015 as the post-period. As expected, the DDD estimate’s magnitudes are attenuated, just as was found for the specifications without physician fixed effects (i.e., using equation (2)).

TABLE 3—EFFECTS OF BCBSFL NETWORK AND PRICING SHOCK ON PUBLIC INSURANCE PARTICIPATION USING 2013–2015 AS THE POST-PERIOD AND WITH AND WITHOUT PHYSICIAN FIXED EFFECTS

	Accept new Medicaid patients		Accept new Medicare patients	
	(1)	(2)	(3)	(4)
DDD estimate	0.105 (0.035)	0.081 (0.034)	0.107 (0.035)	0.081 (0.035)
BCBS market share	Discrete	Discrete	Discrete	Discrete
Physician (FE)	No	Yes	No	Yes
Observations	139,215	139,215	139,270	139,707
Unique physicians	—	52,532	—	52,628

Notes: Standard errors are clustered at the physician level. The treated group is composed of general psychiatry physicians. The comparison (control) group is composed of all non-psychiatry specialists. Only key coefficients reported from the triple differences (DDD) models, and the columns 2 and 4 specifications include individual physician fixed effects (FE). The pre-reform mean for the high BCBSFL market group for psych is 0.34 for the *New Medicaid* variable and 0.51 for *New Medicare*.

Online Appendix Table A1 shows that the public insurance intensive margin results are also robust to more demanding specifications (e.g., including covariates and county-level time trends), and online Appendix Table A2 re-estimates equation (2) with alternative control groups (i.e., specific subsets of nonpsychiatric physicians). The results and inferences are largely preserved with an arbitrary choice of specialty comparison.

Table 4 parallels Table 2 and examines two other labor supply measures capturing clinical effort and throughput. The indicator outcome variables are for spending more than 30 hours per week in direct patient care and running a relatively low-volume practice (i.e., 25 patients or less per week), respectively. Consistent with what was observed in Table 2, psychiatrists in markets more dominated by BCBSFL seem to devote more time to revenue-generating activities (i.e., spending time with patients); however, the DDD estimates are less precise for these outcomes, and there are strongly divergent patterns between psychiatrists in low versus high BCBSFL areas (i.e., the DD and DDD estimates are opposite in sign in columns 2 and 5). Moreover, the trends for these two outcomes (online Appendix Figures A2 and A3) show much less pronounced market-wide changes in high BCBSFL areas, particularly when compared to the sharper and larger level shifts for public insurance participation (Figures 2 and 3), which challenge clear inferences for these specific labor supply measures.³⁰

Online Appendix Table A3 extends our Medicaid analyses to providers’ extensive margin (i.e., initial program enrollment to be granted reimbursement eligibility). While the DDD estimate in columns 1 and 2 is substantive and precisely estimated, the trends in outcomes (online Appendix Figure A4) do not show a strongly persistent differential increase for psychiatrists in BCBSFL dominant markets. Similarly, the

³⁰We also note that physician fixed effects results for the clinical effort outcomes do not demonstrate compelling within-physician behavior change. Thus, the labor supply adjustments seem to largely localize to public payer participation.

TABLE 4—EFFECTS OF BCBSFL NETWORK AND PRICING SHOCK ON PSYCHIATRISTS' LABOR SUPPLY

	More than 30 hours of patient care per week			See 25 patients or less per week		
	Diff-in-Diff	Triple difference		Diff-in-Diff	Triple difference	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Psych</i>	−0.107 (0.011)	−0.107 (0.012)	−0.098 (0.018)	0.052 (0.009)	0.047 (0.010)	0.046 (0.017)
<i>Post</i>	−0.036 (0.002)	−0.036 (0.002)	−0.036 (0.004)	0.031 (0.002)	0.032 (0.002)	0.035 (0.003)
<i>DD estimate</i>						
<i>Psych × Post</i>	−0.015 (0.011)	−0.023 (0.011)	−0.050 (0.019)	0.019 (0.009)	0.033 (0.010)	0.057 (0.017)
<i>DDD estimate</i>						
<i>Psych × Post</i>	—	0.054	0.207	—	−0.062	−0.195
× <i>HighBCBS</i> market share	—	(0.033)	(0.097)	—	(0.028)	(0.085)
Effect size at BCBS market share median (27%)			0.056			−0.053
BCBS market share	—	Discrete	Continuous	—	Discrete	Continuous
Observations	145,351	142,064	142,064	143,282	140,133	140,133

Notes: Standard errors are clustered at the physician level. *Post* includes all survey years between 2012 and 2015. The treated group is composed of general psychiatry physicians. The comparison (control) group is composed of all non-psychiatry specialists. *HighBCBS* market share in columns 2 and 5 is defined as primarily practicing in a county with above the median BCBS market share among all Florida counties. In columns 3 and 6, the BCBS market share is a continuous variable. Only key coefficients are reported from triple differences (DDD) specifications. The pre-reform mean for the high BCBSFL market group for psych is 0.67 for the >30 hours of patient work and 0.21 for the “see 25 patients or less per week.”

findings are weaker when using physician fixed effects (column 4)—the *t*-statistic is only 1.5. We, in turn, cautiously view the results across online Appendix Table A3 as only offering limited evidence of a carve-out effect on the Medicaid extensive participation margin.³¹

B. Care Utilization and Treatment Intensity

To complement our prior empirics, we next analyze changes in care-seeking behavior and care delivery among those suffering from mental illness in Florida. We first establish that affected patients are not being treated in an ED—the setting sometimes referred to as “dumping ground” for patients with mental illness (Castellucci 2016)—more frequently and then investigate any changes to how physicians approach patients with acute mental health problems in markets with greater BCBSFL exposure.³²

³¹Online Appendix Table A4 offers some additional labor supply outcomes available in our workforce survey, including longer term retirement and migration plans as well as job settings. None of the four outcomes reveals any clear response to the BCBSFL carve-out strategy. We also explored outpatient treatment intensity changes for Medicare beneficiaries (described in online Appendix C and reported in online Appendix Table C1). As noted in their description, these analyses are inherently limited, but at a minimum, we do not detect increased numbers of visits for Florida Medicare beneficiaries that reside within high BCBSFL penetration areas and are receiving mental health outpatient care during our study period.

³²Note, in online Appendix Table B1, we show that the payer mix for mentally ill ED patients within high BCBS areas is not obviously changing after the BCBS carve-out decision—at least not in the short run. Moreover,

We specifically measure the intensity of services mentally ill ED patients receive in addition to the standard physician evaluation. A stronger managed care environment has the potential to mitigate the quantity of services delivered (which increases total revenue from the encounter) for ED-based care. We can then quantify any changes in ED physician behavior by simply implementing a DDD estimation approach that parallels our prior setup. The research design relies on self-pay (i.e., uninsured but non-indigent) patients as a control comparison group and considers privately insured patients the intent-to-treat group:³³

$$(4) \quad Y_{pct} = \alpha + \varphi Private_p + \zeta Post_t + \psi HighBCBS_c + \lambda_1 (Private \times Post)_{pt} \\ + \lambda_2 (Private \times HighBCBS)_{pc} + \lambda_3 (Post \times HighBCBS)_{ct} \\ + \delta (Private \times Post \times HighBCBS)_{pct} + \varepsilon_{pct}.$$

The model aims to capture any differential effects for privately insured patients (p) receiving ED care in high BCBSFL penetration areas after the carve-out decision relative to the self-pay group.³⁴ The implicit assumption is that the privately insured enrollees seeking care in counties with greater BCBSFL market share are more likely to be on BCBSFL plans and thus linked to MBHO's aggressive management tactics. We also re-estimate the DDD models (equation (4)) with county fixed effects and then facility (firm-level) fixed effects as sensitivity analyses.

The estimates in Table 5 are consistent with ED physicians being impacted by the carve-out change when it comes to determining how much care to provide to affected patients. The outcome in columns 1–3 is a continuous measure for the number of ancillary services, and the outcome for the remaining columns is an indicator variable for receiving at least eight additional services/procedures while in the ED (the top quartile of the analytic sample's distribution). The precisely estimated coefficients reveal that patients with an acute mental health problem receive nearly a half less service per encounter (11 percent decline), on average, and are 4–5 percentage points less likely to have a relatively high intensity episode of ED care (18 percent decline).³⁵ Crucially, these effects are only found in areas with

in online Appendix Table B2, we can see that privately insured patients presenting to an ED located in a high BCBS area for a mental health problem are not more likely to report suicidal ideation (i.e., a proxy for illness severity) relative to the self-insured comparison group. Thus, the data do not reveal an increased reliance on ED services or an obviously worse mental health condition for privately insured patients more exposed to the BCBSFL contracting change.

³³ Note, self-pay does not include charity care or bad debt cases (separate designation in the data); thus, these are patients expected to ultimately pay for the services received. The privately insured are the ITT group because the discharge records do not contain information on specific commercial plan types (e.g., BCBSFL or another carrier).

³⁴ Recall, the analytic data are discharge records collected and maintained by a state agency, as opposed to administrative claims data. This is important and valuable in our setting since it causes patients to be classified based on their initial characteristics (e.g., insurance status), rather than ex post claims activity (e.g., claim acceptance or denial by the insurer), which might be a downstream effect of the contracting change. In this way, we can be confident that our self-pay group captures patients who present to the ED without any health insurance coverage, instead of a mixture of these patients as well as private patients experiencing claims denials. Of note, the lack of payer-mix change in online Appendix Table B1 further confirms the low-to-no risk of misclassifying some treated patients (i.e., privately insured) as our control group (i.e., the self-insured) within our empirical approach.

³⁵ The calculated declines are relative to the pooled mean for the analytic sample in the period prior to the BCBSFL mental health carve-out change (i.e., 2009–2011).

TABLE 5—BCBS CARVE-OUT EFFECTS ON MENTALLY ILL PRIVATELY INSURED PATIENTS’
EMERGENCY DEPARTMENT CARE

	Number of ED physician ancillary services (pre-period mean = 4.7)			High intensity of physician services (pre-period mean = 0.29)		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>DD estimate</i>						
<i>Private × Post</i>	0.086 (0.092)	0.066 (0.085)	0.046 (0.080)	0.0002 (0.008)	−0.002 (0.007)	−0.002 (0.007)
<i>DDD estimate</i>						
<i>Private × Post × HighBCBS</i>	−0.564 (0.168)	−0.516 (0.156)	−0.478 (0.154)	−0.051 (0.016)	−0.047 (0.015)	−0.043 (0.016)
County FE	No	Yes	No	No	Yes	No
Facility FE	No	No	Yes	No	No	Yes
Observations	514,271	514,271	514,271	514,271	514,271	514,271

Notes: Standard errors are clustered at the facility level. The analytic sample is restricted to privately insured and self-pay Florida residents with a mental health problem as their primary diagnosis. *Post* is equal to one for all quarters after and including 2012:I. *HighBCBS* are counties with above the median BCBS market share. Only key coefficients reported high intensity of services outcome are equal to one for encounters with at least eight CPT procedures. Of note, specifications with linear time trends and patient demographics (age, sex, race, and the number of additional health problems listed) have no material effect on the estimates (available by request).

strong BCBSFL market power—just as before when studying psychiatrists’ labor supply and behavior. As previously mentioned, these are ITT effects, meaning they could be substantively larger (perhaps as much as doubled) among the subset of patients actually belonging to BCBSFL plans.³⁶

Figures 4 and 5 plot the corresponding outcomes over time, which affirm the research strategy and bolster the inferences from the regression results. Interestingly, the divergence between the treatment and control groups seems to begin in late 2012 for both outcomes, which is again consistent with some lagged market adjustments to the new managed care climate. The results also demonstrate that the mean-level effect (columns 1–3, Table 5) is likely driven by bringing in the “right tail” of treatment/diagnostic quantities per encounter (i.e., restraining providers from delivering a relatively high volume of ancillary ED services for a given patient). It also seems reasonable that this is where the MBHO would exert some of its strongest managed care pressure.³⁷

³⁶Recall, the average market share in the “high” BCBSFL group of counties is 44 percent. Of note, we have also estimated identical models comparing Medicaid and Medicare patients to the intensity of services received by self-pay mentally ill patients. No robust effects are found for the Medicaid group. The DDD estimates for Medicare patients are substantive and statistically significant, but the pretreatment trends strongly diverge from the self-pay group—failing the parallel-trends assumption.

³⁷One potential confounding concern for the ED results is that the 2012 carve-out decision might affect the enrollment population among BCBSFL plans. Online Appendix Figure B1 displays the market share trends over time across our “high” and “low” county types. While they parallel each other from 2008–2012, the trajectories seem to somewhat diverge afterward, which is statistically evident in the corresponding regression output beneath online Appendix Figure B1—though the estimation sample is small and precision is sensitive to model specification (online Appendix Table B3). To determine if enrollment behavior changes for BCBSFL plans could alter our ED-care delivery inferences, we show in online Appendix Table B4 and online Appendix Figure B2 that there are no sharp or strong changes in patients’ demographic characteristics across BCBSFL penetration areas (online Appendix Table B4) or payer types within the high penetration areas (online Appendix Figure B2) at the time of carve-out implementation. Only the average age characteristic in online Appendix Figure B2 displays any

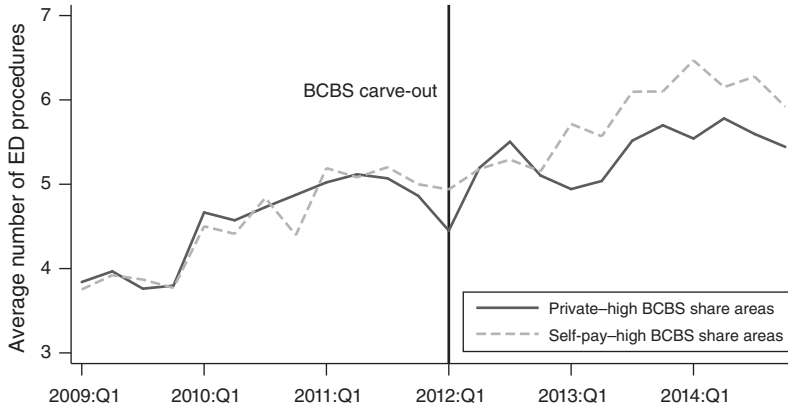


FIGURE 4. AVERAGE NUMBER OF ANCILLARY PHYSICIAN SERVICES PERFORMED IN THE EMERGENCY DEPARTMENT

Notes: This figure shows Florida AHCA discharge data, restricted to encounters with a primary diagnosis (ICD-9) of a mental health problem. Counts reflect the total number of CPT codes for a specific encounter that are listed in addition to the evaluation billing code (i.e., all additional physician services performed).

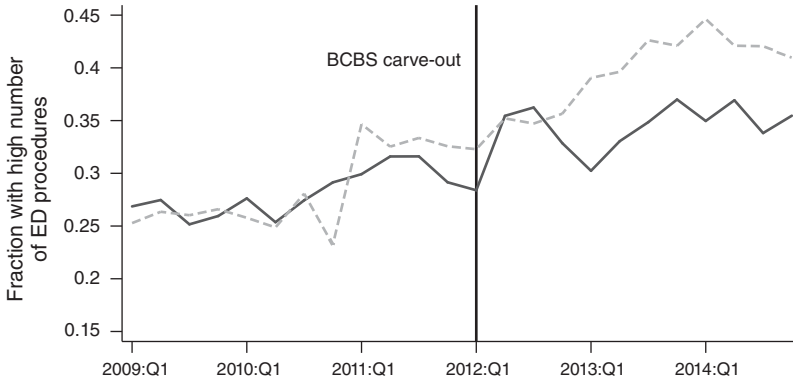


FIGURE 5. FRACTION OF ENCOUNTERS WITH A HIGH NUMBER OF ANCILLARY PHYSICIAN SERVICES PERFORMED IN THE EMERGENCY DEPARTMENT

Notes: This figure shows Florida AHCA discharge data, restricted to encounters with a primary diagnosis (ICD-9) of a mental health problem. The outcome is equal to one for all ED encounters with at least eight listed CPT codes for additional physician services beyond the initial evaluation.

As a falsification test, we construct identical trends in these outcomes for all *non-*mental illness related ED episodes in our discharge data. Online Appendix Figure B3 shows these results, which reinforce our prior interpretations. We see no compelling evidence that the ancillary service intensity differentially changed among the privately insured when examining cases not linked to mental health problems. The privately insured trend is relatively flat over most of the analytic period, and any

pre- versus post-difference across the private (treatment) and self-pay (control) groups, but the difference is small and actually occurs prior to the carve-out change being announced, much less implemented.

TABLE 6—BCBS CARVE-OUT EFFECTS ON MENTALLY ILL PRIVATELY INSURED PATIENTS’ RECEIPT OF SPECIFIC ED-BASED SERVICES

	Blood count	Alcohol screen	Drug screen	Metabolic panel	EKG
Pre-period mean	0.41 (1)	0.37 (2)	0.20 (3)	0.28 (4)	0.21 (5)
<i>DD estimate</i>					
<i>Private × Post</i>	0.002 (0.009)	−0.013 (0.008)	0.013 (0.012)	0.001 (0.009)	0.011 (0.006)
<i>DDD estimate</i>					
<i>Private × Post × HighBCBS</i>	−0.013 (0.026)	−0.011 (0.014)	−0.043 (0.021)	−0.030 (0.018)	0.003 (0.014)
Facility FE	Yes	Yes	Yes	Yes	Yes
Observations	514,271	514,271	514,271	514,271	514,271

Notes: Standard errors are clustered at the facility level. The analytic sample is restricted to privately insured and self-pay Florida residents with a mental health problem as their primary diagnosis. *Post* is equal to one for all quarters after and including 2012:I. *HighBCBS* are counties with above the median BCBS market share. All outcomes are binary indicators for receiving the specific service during the ED encounter. These specific services represent the five most common ancillary procedures (by CPT code) performed for all mentally ill patients seen in Florida 2009–2011. Only key coefficients are reported.

narrowing between the two payer types occurs in later years—but is not sustained and is due to movement in the control group, rather than the treatment group. Thus, the previously identified care delivery effects seem to be found only among mentally ill patients presenting to an ED in a high BCBSFL penetration market.³⁸

In Table 6, we employ the DDD models with facility-level fixed effects to examine changes in the probability of receiving specific common services from ED physicians—i.e., the five most prevalent services for all mentally ill patients treated within a Florida ED prior to the first quarter of 2012—in order to gain some sense of where the treatment intensity reductions may be coming from. A differential decline in the likelihood of receiving a given service is more compelling for drug screens and metabolic panels (columns 3 and 4, Table 6) and represents a decrease of approximately 20 percent and 11 percent, respectively, on average. The coefficients for the other three diagnostic tests are both small and noisy. It again seems plausible that the MBHO would target services that are perhaps done routinely for these patients at baseline but have only weak clinical justifications and/or implications for actual treatments. In other words, the MBHO may be refusing to pay for what is perceived as excessive and low-value ED-based testing for acute mental health issues.³⁹

For completeness, we perform analogous empirical exercises focused on inpatient hospital care for patients admitted because of a mental health problem. Inpatient facilities for mental health care come in two varieties: psychiatric specialty hospitals and general acute care hospitals. The former manages about one-third of the inpatient episodes observed in our data; however, there are only 31 such facilities in the entire state (compared to more than 200 acute care hospitals)—and only six operate

³⁸We also examined the propensity to code the ED encounter as the highest evaluation and management level, which often garners the highest reimbursement level and has been flagged as a source of improper (abusive) ED billing practices by commercial and public insurers. Online Appendix Table B5 shows no change in this behavior.

³⁹Consistent with this interpretation, drug screens and other routine lab tests have been identified as vulnerable to provider abuse (i.e., clinically unnecessary for patients but financially beneficial to providers) in related behavioral health contexts (Kacik 2018).

within one of the BCBSFL dominant markets. In turn, we are more limited in what we can empirically learn for this specific care setting.

We first look at changes in payer mix and then use total length of stay for the inpatient episode as a proxy measure for treatment intensity. Within online Appendix Table B6, there is no evidence of a change to payer mix among general hospitals (columns 4–6), but there is an approximately 7 percentage point decline in commercially insured admissions to psychiatric specialty hospitals (columns 1–3). This is a 25 percent drop relative to the pre-period mean for this analytic sample. The length of stay outcome in online Appendix Table B7 using the DDD approach displays an identical pattern. No changes for general hospitals, but for the privately insured patients that the specialty hospitals do receive, they stay roughly one day fewer, on average, once BCBSFL has moved to carve-out contracting (columns 1–3). Both sets of findings for inpatient care could be consistent with a stronger managed care presence for mental and behavior health in BCBSFL dominated markets, but we caution against strong inferences from these results since we are only able to observe a limited number of these highly specialized firms. The trends in the raw data for these outcomes (online Appendix Figures B4 and B5) are also less sharp and persuasive when compared to our findings for ED care delivery.

V. Discussion

The sudden shift to mental health carve-out contracting by BCBSFL offers a unique and valuable opportunity to understand how providers respond to greater managed care exposure—namely restrictive networks and steep price discounts. We also benefit from a variety of detailed administrative data sources to explore the effects across multiple margins.

Our DDD estimates do not reveal any clear labor supply adjustments on the clinical delivery margins previously focused on in the literature (e.g., hours worked and patient volumes), but they do demonstrate that impacted providers strongly increase their willingness to participate in the public insurance markets (i.e., the Medicaid and Medicare programs). The effect also seems to localize to the intensive margin whereby providers extend their existing patient panels for these payers. Greater labor supply devoted to the publicly insured represents an important, positive externality for these patients, courtesy of a private insurer's cost-containment efforts; it is also something that has often been overlooked by the strand of literature most closely related to this work. Prior theoretical work (Hirth and Chernew 1999), for example, predicts that the physician labor market effects of managed care will be slow to materialize. But the authors' analysis ignores the mixed economy belonging to the market for physician services. Allocating more services to other payers is a feasible short-run strategy for most physicians and is consistent with rational economic behavior (McGuire and Pauly 1991). Other recent work shows a similar private-to-public spillover phenomenon using a very different data source and analytic context as well (Bond et al. 2017).

That said, some descriptive analyses indicate that the aggregate supply of psychiatrists may be responding unfavorably to the BCBSFL decision. Figure 6, from our workforce survey data, shows a roughly 20 percent drop in psychiatrists' share of

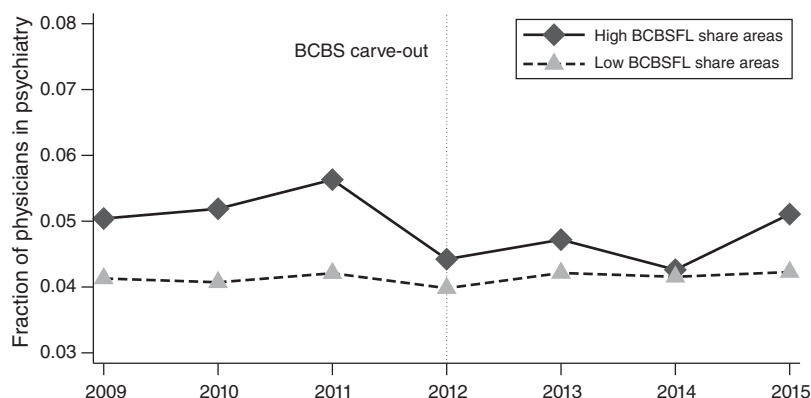


FIGURE 6. SHARE OF FLORIDA PHYSICIAN WORKFORCE IN PSYCHIATRY FROM 2009–2015

Notes: This figure shows results from the Florida Physician Workforce Survey. “High” and “low” BCBS counties reflect counties above and below the median BCBS market share as of January 2012, respectively.

all physician specialties in markets dominated by BCBSFL plans. No such reduction is seen elsewhere in Florida. Likewise, leveraging an outside administrative data source that tracks the quantity of physician practices, we observe weaker psychiatry practice expansion (and even some contraction) in these markets following the carve-out move (Figure 7).⁴⁰ A similar trend is not revealed for non-psychiatry practices in these areas nor for psychiatry practices located in other parts of the state—in fact, their rate of growth is outpacing the other practice groups over time.⁴¹ While we cannot assign causal interpretations to these data patterns, they are consistent with a degree of restrained provider supply in markets where BCBSFL has greater sway—and hence a negative externality for local consumers. However, the large expansion of physician supply prior to the BCBSFL event seen in Figure 7 (and online Appendix Figure A5) cautions against solely attributing these patterns to the contracting change. Overly enthusiastic growth in earlier years could have induced some corrective supply contractions later on.⁴²

Beyond mental health provider implications, we see evidence of additional managed care sensitivity in the market. ED physicians reduce their service intensity to

⁴⁰These physician practice-level data are from SK&A, a commercial research firm that collects detailed information on office-based physician practices across the United States. The available data are biennial and span 2009 to 2015, which we use to track the prevalence of single-specialty psychiatry clinics in Florida. However, we do acknowledge limitations from these data as they are not a full universe of physician practices, especially during early years when the data vendor’s catchment area was still growing considerably.

⁴¹Similar negative growth is seen at the individual physician level when using the Florida workforce survey (online Appendix Figure A5). However, market exit seems to drive the reduced stock of psychiatrists (e.g., via retirement), rather than decreased flows of new providers (online Appendix Tables A5 and A6). In this way, our provider-supply patterns do not perfectly conform to the findings from earlier studies.

⁴²Although, such an interpretation does require that over-expansion activity disproportionately affects psychiatrists working in high BCBSFL penetration markets. Online Appendix Table A7 does not reveal a differential pre-BCBS carve-out trend across our two market-penetration classifications or when using the continuous measure of BCBSFL market share. And importantly, if over-expansion was a significant driver of the data patterns in Figures 6–7, it would still struggle to explain the sharp and robust changes in public payer participation we observe for high BCBSFL-exposure psychiatrists as well as ED physician behavior in these same areas found within our main findings (Section IV).

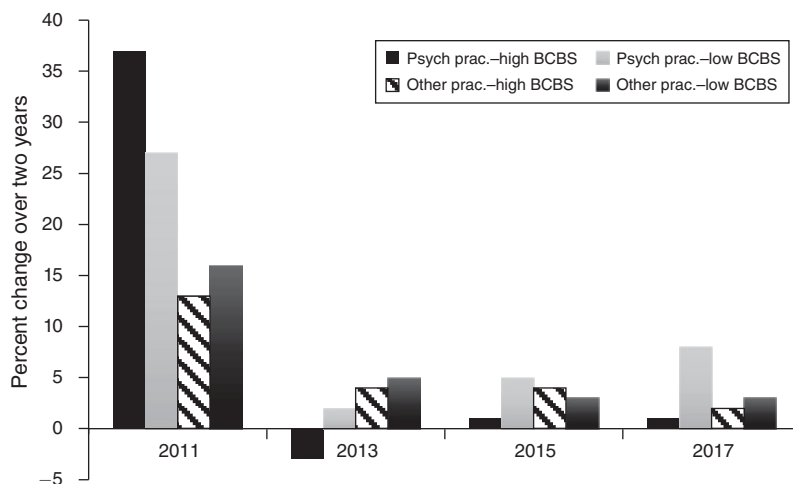


FIGURE 7. GROWTH IN FLORIDA PHYSICIAN PRACTICES OVER TWO-YEAR INTERVALS FROM 2009–2017 BY SPECIALTY AND BCBSFL MARKET PENETRATION

Notes: This figure shows results from the SK&A office-based physician practice survey. “High” and “low” BCBS counties reflect counties above and below the median BCBS market share as of January 2012, respectively. The 2011 percentages reflect practice growth from 2009 to 2011. In 2009, there were 73 psychiatry specialty practices in high BCBS areas, 622 psychiatry practices elsewhere in Florida, 1,898 other physician practices in high BCBS areas, and 14,325 other physician practices elsewhere in Florida.

mentally ill patients in areas with high BCBSFL penetration. And there is suggestive evidence of patient steering to reduce care delivery in psychiatry specialty hospitals. Both behavior changes align with the strategic motives of the carve-out firm and comport with the wide-ranging influences of MCOs found in the literature. We also have no empirical indication that patients are demonstrably worse off. Privately insured and mentally ill patients in these same areas are not being treated in the ED more often or presenting in an obviously more severe state after the BCBSFL decision; though, subtle effects (e.g., increased appointment delays or forced provider switching) cannot be detected in our data.

The fact that all of our observed effects are concentrated among providers working within BCBSFL dominated markets mirrors other research showing that insurer market power strongly shapes the consequences from a strategic move (Dafny and Ramanarayanan 2012) and lends credibility to our inferences. Our findings also highlight the importance of being able to characterize detailed local market conditions and having a clear identification strategy for analyzing physician behavior. Prior work, especially studies relying on aggregate MCO measures, often lacked such detail as well as strong empirical approaches, which may account for the substantive discrepancies between these earlier findings and our results.

Bishop et al. (2014) remarks that psychiatrists’ low affinity for entering into formal agreements with insurance providers is a threat to patient access even in the presence of parity legislation. Our findings reveal that the nature of the contracts will further shape the access landscape, but with different knock-on effects for different patient populations. Even within the same patient population (e.g., the publicly insured), aggressive contracting terms can generate a mix of benefits and costs

(e.g., more local providers accepting more publicly insured patients but perhaps fewer providers in the market overall).⁴³ If policies and preferences further limit insurers' ability to shift more of the cost burden onto consumers, then the appeal for greater supply-side cost sharing should only grow. Some states are also contemplating taking the management of Medicaid patients with behavioral health needs out of public provider hands and placing them under the remit of private MCOs (Greene 2017). Our study suggests that policymakers should consider the relative market positions of potential contract awardees as well as local providers' participation constraints. These latter elements may materially influence the resulting access picture for enrollees.

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⁴³The growing influence of managed care and related commercial-insurance network and contract provisions is also not likely to dissipate in the near future (Keehan et al. 2016). Recent evidence suggests that consumers, even with high socioeconomic status, struggle to make optimal consumption decisions when faced with less generous and more complex health insurance plans (Brot-Goldberg et al. 2015).

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