Medicaid Expansions and New Physician Locations

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Abstract

One of the major aims of the Affordable Care Act was to increase healthcare access among low-income adults by expanding Medicaid. Access to established physicians participating in Medicaid increased post-ACA but with some tradeoffs in time spent with physicians or appointment waiting times. I use novel physician location data in difference-in-differences and event-study specifications to estimate the impact of states' participation in the ACA's Medicaid expansion on the location decisions of post-residency physicians. In general, the results suggest that expanding Medicaid did increase access to health care. While expansions did not affect the number of new physicians choosing to practice in expansion states; they induced new physicians to locate closer to low-income populations within expansion states.

I. Introduction

Among the primary goals of the Patient Protection and Affordable Care Act (ACA) was to create near-universal health insurance coverage in the United States (Gruber, 2011). The pursuit of this goal involved a combination of mandates, public insurance expansions, and subsidies for the purchase of private insurance. These various components were to work toward extending coverage among underserved and largely uninsured populations in the U.S. The various policies, implemented mostly in 2014, sought to improve “accessibility, affordability, and quality of care,” particularly among the very sick as well as uninsured, low-income adults (Obama, 2016).

Historically, gaining health insurance has been perceived as gaining increased access to healthcare. This may come through a combination of facing a reduced price for healthcare services due to being insured and being perceived as a reliable payer by health care providers. All insurance types, however, may not be considered equally appealing by physicians as compensation rates vary, sometimes substantially, across insurance types (Berman et al., 2002, Zuckerman et al., 2012; 2014; 2017). Such differences have been thought to historically limit access to health care for Medicaid enrollees, especially to physicians with established practices and patient rosters.

Physicians, even if willing to see new Medicaid patients, may only be able to accept a limited number or provide them services at the cost of providing services to other patient types. This would mean a tradeoff of access between patients of different insurance types. Additionally, the location of physicians affects access. The further away a doctor is, the more difficult she is to see. If established physicians are time-constrained or inconvenient to reach, then it is important to understand how newly entering physicians respond to changes in public insurance coverage. If physicians are unable or unwilling to make themselves more available to newly insured Medicaid enrollees, then the enrollees’ access to care may be far less than one would hope.

There is relatively little causal research examining the supply-side response to the ACA and its effect on access. This paper's primary contribution is to utilize rich, national data on physicians that are particularly well suited to studying this issue from a geographic perspective. I use difference-in-differences and event-study models to estimate the effect of Medicaid expansions on physician entrants per 100,000 state population and on the population under the federal poverty line (FPL) per 1,000 people near new physician locations. I use these two outcomes as spatial measures of changes in access. Physicians being drawn to expansion states could indicate either a desire to capture the pool of new customers or a hiring response from established practices facing increased demand for their services. It would also suggest a potential loss of access if those physicians would have served similar populations in non-expansion states. If new physicians are willing to locate closer to lower-income populations post-expansion within states, then those populations have arguably greater healthcare access.

The advantages of the data I use, which come from the National Plan and Provider Enumeration System (NPPES), are the ability to precisely locate physicians and to focus exclusively on gross entry. The latter advantage is an improvement over the use of public data which provides net counts of physicians that combines new entrants with recent exits and makes disentangling policy effects on either type difficult. I focus on the location decisions of post-residency (i.e. new) physicians across and within state lines.

In general, I do not find evidence that Medicaid expansions impacted new entrants per 100,000 state population among newly entering physicians. Rather, I find that doctors choose to locate closer to low-income populations within expansion states. Pre-treatment coefficient estimates from event study regressions generally support a causal interpretation of the results.

Taken together, these results suggest an increase in access for low-income adult populations in expansion states that did not come at the expense of non-expansion states.

II. Background

ACA Medicaid Expansion

With the implementation of the ACA, there were significant gains of health insurance for the previously uninsured (Courtemanche et al., 2017; Frean et al., 2017; Courtemanche et al., 2018a; Courtemanche et al., 2018b) and expansions of public health insurance led to increases in health care demand and utilization (Baicker et al., 2013; Ghosh et al., 2017; Finkelstein et al., 2012; Kolstad and Kowalski, 2012; Miller, 2012a; Miller, 2012b; Simon et al., 2017; Wherry and Miller, 2016). Simon et al. (2017) found increases in the probability that poor adults had a personal physician due to Medicaid expansions. Ghosh et al.'s (2017) findings suggest greater prescription drug access for chronic conditions among new Medicaid enrollees. These findings as well as others point toward greater access to healthcare for the newly insured (Rhodes et al., 2017; Mazurenko et al., 2017; Antonisse et al., 2018). The American Medical Association (AMA) reported statistically significant increases in Medicaid patients as a share of average physicians' patient mix in expansion states in its Physician Practice Benchmark Surveys (Unlisted Staff Writer, 2017). Neprash et al. (2018), however, found little to no increase in physician Medicaid participation due to the Medicaid expansions and that Medicaid patients remained concentrated among relatively few physicians. Additionally, mixed positive and null findings of the expansions' effect on preventive care usage suggest some limitations on access gains (Finkelstein et al., 2012; Courtemanche et al. 2018b).

Other research and a survey of Michigan doctors by the University of Michigan suggests that the ACA insurance expansions led to longer initial wait times (Benitez et al., 2019) and less time spent by physicians with patients (Garthwaite, 2012; Slowery et al., 2018). Rhodes et al. (2017), however, did find wait time for appointments for the privately insured to be stable across 10 states in mid-2014 despite increased Medicaid enrollment. This suggests that established physicians were not at their capacity constraints at this time, the tradeoff was being made with Medicare patients, or that the tradeoff was in time spent with patients. Tipirneni et al.'s (2019) post-Medicaid expansion survey of Michigan primary care providers (PCPs), however, did list capacity as the most commonly reported factor influencing the acceptance of new Medicaid patients. Those PCPs accepting new Medicaid patients tended to be female, minorities, nonphysician providers, specialized in internal medicine, paid by salary, or working in practices with Medicaid-predominant payer mixes (Tipirneni et al., 2019). Broadly, the evidence suggests that there were tradeoffs in access made by time-constrained physicians. Such constraints and the lack of a substantial change in Medicaid participation by practicing physicians means that the decisions of newly entering physicians, who are less location-constrained than established physicians, could be vital to ensuring access for newly insured populations.

On June 28, 2012, the United States Supreme Court ruled that the expansion of Medicaid programs was at the discretion of the states (KFF, 2012). This introduced the potential for significant variation in state expansion decisions. Twenty-six states and the District of Columbia expanded Medicaid in 2014. However, the ACA allowed states to expand Medicaid before and after 2014 and multiple states did so to some degree (Courtemanche et al., 2017). As noted earlier, the expansions of public insurance brought significant gains in insurance coverage. According to the Kaiser Family Foundation, before the implementation of the ACA, Medicaid and the Children's Health Insurance Program (CHIP) had just over 56.8 million enrollees across the United States, and by the end of 2016, this number had swelled to just under 75 million (KFF, 2020).

The ACA not only generated a large increase in new enrollment via state Medicaid expansions but also tried to incentivize physicians to be more willing to accept Medicaid enrollees. The federal government fully sponsored a notable increase in Medicaid compensation for 146 primary care services (Maclean et al., 2018). Physicians who specialized in primary care or for whom these services constituted a certain majority percentage of the services they provided qualified for the increased compensation. This “fee bump” was a temporary, nationwide measure lasting for the years 2013 and 2014. The federal government ultimately did not elect to continue paying for this fee increase, and funding for it ended after December 2014 with an estimated cost between 7 to 12 billion dollars (Medicaid and CHIP Payment and Access Commission, 2015). As of July 2016, 19 states had decided to continue funding the fee increase fully or partially or extend it to other specialties beyond primary care (Zuckerman et al., 2017).

Some evidence suggests that the fee bump increased access to healthcare (Polsky et al., 2015; MACPAC, 2015; Rhodes et al., 2017; Alexander and Schnell, 2017), though other research found little change in physicians’ acceptance of Medicaid (Decker, 2016; 2018). This picture is one of increased access for Medicaid enrollees among physicians who already participated in Medicaid (Neprash, 2018; Tipirneni 2019), with the primary care fee bump providing little incentive for additional participation (Decker, 2016; 2018). This could lead to participating providers to hire more physicians to address the additional demand which would be faced disproportionately by them. Additionally, while established physicians may not be willing to accept the costs of participating in Medicaid (Timbie et al., 2017), newly entering physicians may be drawn to Medicaid as an arena in which there is less established provider competition.

Zukerman and Goin (2012) show Medicaid-Medicare compensation ratios for various medical services. A large majority of Medicaid programs compensate physicians less than

Medicare for their services and compensate primary care and other specialty services at different relative rates. Excluding Tennessee, 34 of 49 states' fee-for-service Medicaid programs compensated other, non-obstetric services relatively higher than primary care. Among the other states, 12 compensated primary care services relatively higher than other services, and four compensated them at an equal ratio. These ratios do not reveal what specialties are paid more; however, they show how close compensation for one insurance type is to another for various services. All else equal, this shows if the two insurance types are close or remote substitutes in compensation.

Similar data from 2016 showed that between 26 and 30 states fee-for-service programs compensated other, non-obstetric services relatively higher (KFF 2016). The range arises from certain states electing to continue the primary care fee bump in some fashion. These differences suggest that primary care physicians may find new Medicaid enrollees less appealing than other specialists during the sample period from 2011 to 2016. Primary care physicians may also face greater competition from non-physician providers such as nurse practitioners and physician assistants who can provide many of the same basic services (Van Vleet and Paradise 2015). To explore potential response differences, I perform a subsample analysis for primary care physicians and other specialists.

Existing Literature

There is a host of literature examining the location decisions of physicians. The broad finding in this literature is that physician supply tends to respond to policy changes. Research focusing on physician responses to tort reform, such as the capping of non-economic damages for malpractice, finds that the implementation of these caps increases physician supply, particularly in specialties most at risk of malpractice claims (Kessler, 2005; Klick and Stratmann, 2007; Matsa, 2007; Chou and Lo Sasso, 2009; Malani and Reif, 2015; Pesko et al., 2017; Chatterji et al., 2018). However, there are dissenting opinions that find no effect of malpractice reform on supply (Paik et al., 2016; Hyman et al., 2015). Some research suggests that the riskiest physicians in states may sort undesirably into neighboring reform states (Leiber, 2014).

Research focusing on physicians' urban-rural decision finds that student loan forgiveness programs increase the supply of physicians in rural counties (Kulka and McWeeny, 2017; Falcetone, 2017). Within this literature, however, is evidence that physicians are somewhat resistant to moving across state lines. Falcetone (2017) found that physicians prefer to locate near their place of residency and relays the fact that 54 percent of physicians remain in their state of residency for their first job. Taken together these literatures motivate my investigation of the effect of the ACA Medicaid expansion on physician location decisions. On one hand, physicians seem to be responsive to policy changes when it comes to location decisions. On the other hand, the seeming distaste of physicians for Medicaid implies that incentives for relocating with respect to this specific policy may not be particularly strong. Additionally, since physicians have a preference for remaining within their state of residency, it is important to examine within-state location decisions, not just cross-state decisions.

The Pathway to Becoming a Physician

The first step for future physicians after medical school is their residency training. Residency lengths vary among specialties and can be as short as 3 years or as long as 7 years. If a physician wants to sub-specialize, then they will need to apply for and accept sub-specialty training in what is called a fellowship. Most fellowships are an additional 1 to 2 years, however, some may be 3 or 4 more years.[1]

To practice medicine independently, physicians in the U.S. must acquire a medical license for their specialty in the state in which they practice. While medical licensure for physicians occurs at the state level, there is a required national exam component. The other requirements can vary but all states require applicants to have some amount of post-graduate training (residency), pass their national exams, provide information about malpractice suits, and pay a fee to the state for initial licensure and license renewal (Kocher, 2014). When a physician must acquire a license varies. California requires licensure during residency; however, other states have not codified such a requirement. In Georgia, at least some residents are given a grace period at the end of residency to pursue licensure.[2] Following licensure, physicians pursue board certification. Physicians cannot become board certified before completing residency. Residents typically search for their first post-residency job during their final year of residency and most will start in their new position mere weeks after completing their residency training (Darves, 2014). As residency years typically end in June, this suggests there are few opportunities to adapt location decisions in the six months leading up to the bulk of Medicaid expansions which occur in January.

III. Data

Sources and Outcome Construction

I ask two questions in my analysis. The first is, did the Medicaid expansions change the level of new physician entry in expansion states relative to non-expansion states? The second is, did the Medicaid expansions induce new physicians to locate er to poor populations? To address

[1] See: https://education.uwmedicine.org/pages/specialties-subspecialties/
[2] This information comes from an interview with a resident physician in Georgia.

the first question, I construct a count of new physicians per 100,000 state population from a sample of new physicians. This sample was extracted from the monthly publications of the National Plan and Provider Enumeration System (NPPES), which contains the near universe of physicians, from April 2011 to December of 2016.[3]

To bill insurance and transmit health information protected under the Health Insurance Portability and Accountability Act (HIPAA), physicians in the US were required to obtain a unique numeric identifier known as a national provider identifier (NPI) by May 23, 2008. Registration has no monetary cost and is compulsory for insurance reimbursement. Therefore, the NPI registry contains the near universe of licensed physicians and other entities that directly bill insurance or transmit protected data. Individuals and organizations have separate NPIs that allow for unique identification. In 2013, the CMS began requiring the use of an NPI when writing prescriptions, making it even more difficult for a physician to avoid having one.

Each month of NPPES data contains physicians' unique identifier, their primary practice location at the street level, and their current, precise specialty (taxonomy code). This data does not contain demographic nor other individual information outside of sex and sole proprietor status. By CMS guidelines, resident physicians are only to change their taxonomy code from that of a student trainee to that of a physician after they are licensed. Therefore, those with physician taxonomy codes in the NPPES represent the near universe of licensed physicians. I observe the point of licensure for those who make this change during my sample period; however, the completion of residency is not provided. Figure 1. shows the national level count of licensed allopathic and osteopathic physicians observed in this data. The December 2016 count of these physicians in

[3] January to March of 2011 was not available from the data source and May 2013 was also missing.

Figure 1 is just over 908,000. For contrast, Young et al. (2017) counted 953,695 allopathic and osteopathic physicians by the end of 2016 using data from the Federation of State Medical Boards. My count makes up over 95% of the physician count found by Young et al. (2017). The doctors used in my analysis also include podiatrists and optometrists. Their inclusion brings the count of doctors to just over 978,000 by the end of 2016.

Given that licensure can occur during residency, the date of licensure cannot reliably be used to identify new physician entry. To identify the date of entry, I follow Falcetone (2017) and utilize the CMS's Medicare Physician Compare. Medicare Physician Compare provides information on physicians and medical groups that participate in Medicare. While this data set does not contain all physicians, it does contain participating physicians' NPI and their year of graduation from medical school. Year of entry can, therefore, be identified by adding the years of required training for a specialty to the year of graduation. Employing this method, I constructed my sample's annual state-level count of entering physicians per 100,000 state population. I aggregate entries to the year level as sparsely populated states do not always have a physician enter every month. As a precaution, I examined my prospective entrants years later in the NPPES' publication for June of 2020. If an individual identified as a potential entrant did not have a physician's taxonomy code in 2020 or became a sub-specialist after my sample period, then I removed them from my sample. This avoids conflating post-training entrants with those who did not remain a physician or did not complete their fellowship training during the sample period. This removed less than 4.5 percent of potential entrants.

To examine if the Medicaid expansions induced doctors to locate closer to poor populations, I estimate the number of individuals under the federal poverty line (FPL) per 1000 population residing within twenty, ten, and five miles of a new entrant's location. The maximum size of this radius comes from research in the states of Kentucky and Washington. One paper found that about 82% of patients traveled less than 20 miles for their healthcare visit (Cashion et al., 2013). The other found that surveyed adults would be willing to travel just over 20 miles on average for routine care, though average trips at the time were considerably shorter (Yin, 2013).

I infer the general population and those under the federal poverty line near physician locations using American Community Survey (ACS) data at the census block group level; which is the lowest level geography publicly available. I utilize the five-year files for the ACS, which are one percent national samples for each year and the only files which publish census block group data. I assume the data best represents the middle year of each five-year period from 2009-2018.

There is limited information offered at the census block group level given that some groups have very small population sizes. I infer the number of individuals under the FPL living in each block group using block group population, number of households in each block group, and the number of households in various income categories. Taking the average household size and assuming households are uniformly distributed within income categories, I estimate the population under or at the poverty line in each block group. Figure 2. plots the annual poverty rate I infer alongside that reported by the Census Bureau using Current Population Survey's (CPS) data (Semega et al., 2017). My inferred percentage is consistently about one percentage point higher than the CPS but tracks it very well. Assuming each census block group's population lives in its centroid, I construct the number of individuals under the federal poverty line per 1000 population living within twenty, ten, and five miles of each entering physician's location. Table 1. displays a table of summary statistics for the aggregate state and individual level outcomes by pre and post-expansion periods.

Data Limitations

There are limitations to using Medicare Physician Compare to identify entry and the NPPES's primary practice location for physicians. Pediatricians, returning physicians, and foreign-born physicians are likely underrepresented in my sample. Pediatricians do not tend to participate in Medicare and relatively few appear in the Physician Compare data. Physicians who return from an extended break from practice or who are foreign-born enter on non-traditional timelines. Both types require additional training to be licensed and basing entry on graduation year likely excludes the majority of these physicians. The Medicaid expansions were designed, however, to increase healthcare access for poor adults and the sample's lack of pediatricians is less concerning than it might be in other circumstances. I exclude those that do appear in Physician Compare from my sample as my concern is about poor adult access to care.

The effect of omitting returning physicians is ambiguous as there is little research on returning physicians. It has been estimated that around 10,000 physicians could return to practice each year; however, there is little information on how many do return and in what specialties (AMA Reentry Fact Sheet, 2011).[4] The omission of foreign-born physicians, on the other hand, likely leads to conservative results. Around twenty-five percent of physicians practicing in the US have medical degrees from foreign countries, and evidence suggests that most of these physicians are not US citizens (AIC, 2018). This report finds that foreign-trained physicians constitute nearly one-third of doctors practicing in areas where at least 30 percent of the population are at the federal

[4] The year is not listed on the sheet, however another source mentions that the study providing this number is from 2011, see: https://khn.org/news/for-doctors-who-take-a-break-from-practice-coming-back-can-be-tough/
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poverty level. This suggests the omission of these doctors' location choices will lead to understated levels of low-income individuals near entering physician locations.

The benefit of having a precise location for each physician's primary practice location is limited by the fact that physicians may practice at multiple locations. The NPPES does not track nor require physicians to report all locations of practice. The effect this may have is ambiguous and depends on where else physicians may practice. If a physician's additional practice locations are in higher-income areas, then results implying increased access for low-income populations would be overstated. A similar argument could be made for an understated or unaffected result. There is not an obvious means to address this limitation and I rely on the assumption that the majority of each physician's time is spent at their primary practice location.

IV. Methods

I employ difference-in-differences (DiD) and event-study specifications in both my cross and within-state choice analyses. The examination of cross-state location choices determines if the Medicaid expansions induced differential sorting. If the composition of state entrants changed after expansions, then the interpretation of within-state results needs to acknowledge this change. My preferred specification uses only the 40 states which expanded in January 2014 or did not expand before 2017. I exclude those states which expanded earlier or later in my sample period. I do not have pre-expansion data for early expansion states. My sample period from April 2011 to December 2016 and I cannot examine any response to these early expansions. Further, the late expansion states have long pre-expansion periods and short post-expansion periods (one as short as six months). This introduces potentially unwanted variation in pre and post-expansion results due to changes in number and type of contributing states. There is a growing literature that expresses concerns about the legitimacy of event-study results and pre-trend tests when the timing of treatment is heterogeneous (Sun and Abraham 2020). My preferred specification avoids this concern and creates balance in the periods before and after expansion supporting a more causal interpretation of results. My cross-state decision DiD specification is as follows

$$Entries\_Per\_100K\_Pop_{it} = \beta_0 + \beta_1 Medicaid\_Exp_{it} + \boldsymbol{X_{it}}\boldsymbol{\lambda} + \boldsymbol{\tau}_t + \boldsymbol{\gamma}_i + \mu_{it} \qquad (1)$$

where $Entries\_Per\_100K\_Pop_{it}$ is the count of all entering physicians or a specific group of physicians in state *i* in year *t* per 100,000 state population, $Medicaid\_Exp_{it}$ is an indicator equal to 1 if state *i* has expanded its Medicaid program in year *t* or years prior and 0 otherwise. $\boldsymbol{X_{it}}$ is a vector of state-level controls[5] for state *i* in year *t*, $\boldsymbol{\tau}_t$ and $\boldsymbol{\gamma}_i$are year and state fixed effects respectively, and μ_{it} is the error term.

The event study specification closely resembles equation (1), and is as follows

$$Entries\_Per\_100K\_Pop_{it} = \beta_0 + \sum_k (Ever\_Expanded_i \text{ x } Year_k)\boldsymbol{\phi} + \boldsymbol{X_{it}}\boldsymbol{\lambda} + \boldsymbol{\tau}_t + \boldsymbol{\gamma}_i + \mu_{it} \qquad (2)$$

$Ever\_expanded_i$ is an indicator equal to 1 if state *i* expanded Medicaid in January of 2014. $Year_k$ is an indicator for a given year such that k ϵ {2011, 2012, 2014, 2015, 2016}, leaving 2013 as the comparison year.

My within-state decision specification is very similar to that of my cross-state and is as follows

$$Pop\ Under\ FPL\ Per\ 1000\ Pop\ Near\ doc_{ijkt}$$
$$= \alpha_0 + \alpha_1 Medicaid\_Exp_{kt} + \boldsymbol{X_{kt}}\boldsymbol{\lambda} + \delta_1 female_{ijkt} + \boldsymbol{\tau}_{jt} + \boldsymbol{\gamma}_{jk} + \boldsymbol{\varepsilon}_{ijkt} \qquad (3)$$

[5] These controls include state-level means of race, education, insured levels, income, and population. Additionally, I control for whether states kept the primary care fee pump in any fashion and had any policy changes affecting malpractice.

Where $Pop\ Under\ FPL\ Per\ 1000\ Pop\ Near\ doc_{ijkt}$ is the population under the federal poverty line per 1000 population living within 20, 10, or 5 miles of doctor i of type j in state k in year t. $\boldsymbol{X_{kt}}$ remains a vector of state-level controls, $female_{ijkt}$ indicates if the entrant is female, the fixed effects are now year by doctor type (primary care, surgery, and other specialties) and state by doctor type respectively.

The event study specification for states which expanded in 2014 is as follows

$$Pop\ Under\ FPL\ Per\ 250\ Pop\ Near\ doc_{ijkt} = \alpha_0 + \sum_k (Ever\_Expanded_i \text{ x } Year_k)\boldsymbol{\pi} + \boldsymbol{X_{kt}}\boldsymbol{\lambda} + \boldsymbol{Z_{it}}\boldsymbol{\delta} + \boldsymbol{\tau}_{jt} + \boldsymbol{\gamma}_{jk} + \boldsymbol{\varepsilon}_{ijkt} \quad (4)$$

where the year before expansion is again used as the reference year.

V. Results

<u>Results</u>

Table 2 displays the difference-in-differences estimates for my preferred cross-state decision specification. Figure 3 displays the cross-state event study for all physician types, primary care, and other specialties. Tables for these event studies can be found in the appendix. I find little evidence that the Medicaid expansions induced changes in physician entries per 100,000 state population. The 95 percent confidence intervals for the difference-in-differences results, however, do not rule out potentially meaningful effects. The interval for all physician types includes effects ranging from a 13.7 percent decrease in physicians entering expansion states to an 11.1 percent increase. The event-study results in Figure 3 also do not suggest meaningful changes in the state-level entry for any doctor type, however, the possibility of such changes cannot be entirely ruled out.

Table 3 shows the difference-in-differences estimates for my preferred within-state specification. Figure 4 displays the within-state event studies for radii of twenty, ten, and five miles respectively. As the radius tightens around those living nearest physicians, a clear pattern emerges. I find significant evidence that all physician types chose to locate closer to poor populations in expansion states. The five-mile radius results for all physician types suggest the population under the federal poverty line per 1,000 residents near new physician locations increased by 3.6 percent relative to the pre-expansion mean in the first year of expansion, 4.9 percent in the second year, and 7.9 percent in the third year. Figure 5 displays the sub-sample event studies for primary care and other specialties. The results for primary care are insignificant in the first two years but suggest an increase of 7.3 percent in the third year. The results for the other specialties suggest increases of 4.3 percent in the first year, 4.9 percent in the second, and 8.3 percent in the third. These results imply that newly entering physicians located increasingly closer to poor populations in expansion states over time.

Robustness

Figures 6, and 7 examine the sensitivity of results to the exclusion of states by expansion timing. They explore the potential concern that excluding populous states like California, in which many physicians begin practice, may significantly influence results. Excluding the early and late expanding states reduced the sample by nearly 9,000 entrants which is almost 25 percent of all entrants in the sample. Just over 3,000 of those excluded entrants started practice in California. Figure 6 displays three event studies for all physician types which include the addition of early expanding states to the preferred set, of later expanding states, and the use of all states. Consistent with the preferred set, the inclusion of early expanders, late expanders, or all states in the cross-state analysis does not result in any statistically significant findings. This suggests that cross-state results are not driven by state exclusions.

Figure 7 displays similar event studies for the within-state analysis. The within-state results are largely robust to the inclusion of early and late expansion states. Following Courtemanche et al. (2017) I assume that the full expansion for early expansion states occurred in January of 2014. Figure 7 displays the five-mile, event-study results for all doctor types with the inclusion of early expanders, of late expanders, of all states, and all states except Michigan. The inclusion of early expansion states does little to change the post-expansion results, however, a significant pre-trend appears in 2011. This trend does not persist in 2012 but could suggest a response to early expansions in 2010 and 2011. A lack of data prior to 2011 prohibits further exploration.

The inclusion of late expansion states introduces more heterogenous timing in expansions and produces noisier results. The results are similar to my preferred results for those years shared by all included states (three years prior through the year of expansion). In the shared periods, there are no significant pre-trends and there are significant increases in the year of expansion. The results for the subsequent expansion years are suggestive of increases but are insignificant. The use of all states presents a similar story, suggesting that the noisiness of post-expansion results is driven by the inclusion of late-expanding states. The exclusion of Michigan, which expanded in April of 2014, addresses this lack of precision and provides results similar to my preferred specification. While it is reassuring that statistical imprecision is not systemic to all late expanding states, the source of it in Michigan cannot be explained by this analysis.

VI. Discussion

My findings suggest healthcare access increased for low-income populations within expansion states without reducing access in non-expansion states. The broad ACA literature suggests access increased to those physicians already participating in Medicaid but physician participation did not change. This places increased importance on new physician decisions. If Medicaid expansions had induced new physicians to enter expansion states over non-expansion states, then it likely would have been those predisposed to serving Medicaid patients. This could have led to undesirable access tradeoffs among low-income populations. In such a case, the gain in the probability of low-income adults in expansion states having a personal physician (Simon et al., 2017), might have come at the expense of similar populations in non-expansion states. Finding only within-state effects suggests expansion states increased access without negatively impacting their non-expansion neighbors. Therefore, findings of increased prescription drug access for chronic conditions (Ghosh et al., 2017) would not be diminished by accompanying access tradeoffs in non-expansion states.

I find somewhat smaller and less precise estimates for primary care physicians relative to other specialists. This could be due to a somewhat smaller sample or to differences in relative compensation rates. For a majority of states non-primary care, non-obstetric services are compensated at a higher relative rate (Zukerman and Goin 2012; KFF 2016). The weaker results among newly entering primary care physicians could be due to a relatively weaker financial incentive to serve Medicaid enrollees. It could also be due to greater competition for these populations from non-physician PCPs (Tiperneni et al. 2019).

I find physicians' location decisions are responsive to changes in Medicaid, but only within their chosen state of practice. This may be because physicians prefer to stay within their state of residency (Falcetone, 2017) and the relatively low compensation offered by Medicaid was unable to overcome this preference (Zuckerman et al.; 2012, 2014, 2017). The malpractice reform literature finds state-level effects on physician supply, sometimes only for at-risk specialties, using area-level counts or post-residency decisions from a single state (Chatterji et al., 2018). My sample, while unlikely to be representative, is national and uses only entrants. This reduces the risk of results being influenced by physician exit or being highly localized. Figure 1 shows a declining poverty rate in the US from 2014 to 2016 for both my inferred rate and the CPS measure. This suggests my results are not driven by changes in poverty but by changes in location decisions.

This work contributes to a sparse literature on supply-side responses to the ACA and the wider literature on physician location decisions. My results support demand-side research suggesting increased healthcare access. They imply the supply-side response was to reallocate entrants within states to accommodate the increased demand from expanded Medicaid. It also demonstrates a need for additional supply-side research as estimates of access changes require a fuller understanding of both supply and demand responses.

This paper brings a novel, national dataset to bear on an underexplored area of research and indicates valuable future work to be done. My results are suggestive of increased access but do not address physician persistence in their post-residency location. If physicians remain in their post-residency location for extended periods, then my results suggest increasing access over time for low-income populations. However, if they move on quickly to serve high-income areas and are merely being replaced by new entrants, then access increased in a more limited fashion.

My work is policy informative and provides insight into the effect of Medicaid expansions. However, a limitation is that it does not comment on the cost-effectiveness of increases in access. It is beyond the scope of this paper to evaluate the costs and benefits of changes in access. Nevertheless, research on insurance expansions in the US remains relevant as the national debate on the form health insurance and healthcare should take is ongoing. My work suggests that the observed gains in access in expansion states came in the most preferred form. Expansion states increased healthcare access for low-income populations without evidence of damaging their non-expansion neighbors. While I do not suggest that physicians will never be induced to locate across state lines by changes in Medicaid policy, my results suggest that Medicaid policy may be a means of addressing access disparities within states without damaging one's neighbors. Policy has changed with administrations over time and is likely to change again in the future. This creates a need for continued, causal research to inform the decisions of policymakers.

References

Alexander, D., M. Schnell, “Closing the Gap: The Impact of the Medicaid Primary Care Rate Increase on Access and Health”, Working Paper, No. 2017-10, Federal Reserve Bank of Chicago, Chicago, IL (2017)

Antonisse, L., Garfield, R., Rudowitz, R., Artiga, S., “The Effects of Medicaid Expansion under the ACA: Updated Findings from a Literature Review” https://www.kff.org/medicaid/issue-brief/the-effects-of-medicaid-expansion-under-the-aca-updated-findings-from-a-literature-review-march-2018/ last accessed July, 2019, (2018)

Baicker, K., Taubman, S., Allen, H., et al. “The Oregon Experiment – Effects of Medicaid on Clinical Outcomes” New England Journal of Medicine 368, 18, 1713-1722, (2013)

Benitez J., Tipirneni, R., Perez, V., Davis, M., “Does Primary Care Provider Supply Influence Medicaid Acceptibility?” Medical Care 57(5) p. 348-352, (2019)

Berman, S., J. Dolins, S.-f. Tang, and B. Yudkowsky (2002). "Factors that influence the willingness of private primary care pediatricians to accept more Medicaid patients." Pediatrics 110(2): 239-248 (2002)

Chou, C., A. Lo Sasso, “Practice location choice by new physicians: The importance of malpractice premiums, damage caps, and health professional shortage area designation.” Health Services Research, 44: 1271-1289. (2009)

Courtemanche, C., Marton, J., Ukert, B., Yellowitz, A., Zapata, D. “Early Impacts of the Affordable Care Act on Health Insurance Coverage in Medicaid Expansion and Non-Expansion State” Journal of Policy Analysis and Management 36, p. 178-210, (2017)

Courtemanche, C., Marton, J., Ukert, B., Yellowitz, A., Zapata, D., Fazlul, I. “The three-year impact of the Affordable Care Act on disparities in Insurance Coverage” Health Service Resources. (2018a)

Courtemanche, C., Marton, J., Ukert, B., Yellowitz, A., Zapata, D. “Early Effects of the Affordable Care Act on Health Care Access, Risky Health Behaviors, and Self-Assessed Health” Southern Economic Journal 84(3), p. 660-691 (2018b)

Darves, B., “Physician Job-Search Timeline: Delayed Approach Not Advised” The New England Journal of Medicine Career Center, online article, published Oct. 8, (2014)

Decker, S. “The 2013–2014 Medicaid Primary Care Fee Bump, Primary Care Physicians' Medicaid Participation, and Patient Access Measures.” Paper presented at the Association for Public Policy Analysis and Management annual fall research conference, Washington, DC, November 3–5. (2016)

Decker S., "No Association Found Between the Medicicaid Primary Care Fee Bump and Physician-Reported Participation in Medicaid" Health Affairs, vol. 37, NO. 7, July (2018)

Finkelstein, A., Taubman, S., Wright, B., et al. “The Oregon Health Insurance Experiment: Evidence from the First Year” Quarterly Journal of Economics 127(3), p. 1057-1106, (2012)

Frean, M., Gruber, J., Sommers, B., “Premium subsidies, the mandate, and Medicaid expansion: Coverage effects of the Affordable Care Act” Journal of Health Economics. 53 p. 72-86, (2017)

Garthwaite, C., “The Doctor Might See You Now: The Supply Side Effects of Public Health Insurance Expansions” American Economic Journal of Economic Policy 4(3) p. 190-215 (2012)

Ghosh, A., K. Simon, and B. Sommers, The effect of state Medicaid expansions on prescription drug use: Evidence from the Affordable Care Act. NBER Working Paper. (2017)

Gottlieb J. A. Hale Shapiro, A. Dunn, "The Practice of Medicine: The Complexity of Billing and Paying for Physician Care" Health Affairs, 37(4) (2018)

Gruber, J., The impacts of the Affordable Care Act: How reasonable are the projections? National Bureau of Economic Research, Working paper no. 17168. (2011)

Hyman, D., D., Silver, B., Black, and M., Paik, "Does tort reform affect physician supply? Evidence from Texas." International Review of Law and Economics, 42: 203-218. (2015)

Kaiser Family Foundation, "A Guide to the Supreme Court's Decision on the ACA's Medicaid Expansion", see: https://www.kff.org/health-reform/issue-brief/a-guide-to-the-supreme-courts-decision/, August 2012, last accessed July 2020

Kaiser Family Foundation, Total Monthly Medicaid Enrollment, see: https://www.kff.org/health-reform/state-indicator/total-monthly-medicaid-and-chip-enrollment/?currentTimeframe=39&selectedRows=%7B%22wrapups%22:%7B%22united-states%22:%7B%7D%7D%7D&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D, Last accessed: July 2020

Kaestner, R., B., Garrett, A., Gangopadhyaya, and C., Fleming, "Effects of the ACA Medicaid expansion on health insurance coverage and labor supply." National Bureau of Economic Research, Working paper no. 21836. (2015)

Kessler, D., W. Sage, and D. Becker. "Impact of malpractice reforms on the supply of physician services." Jama 293(21): 2618-2625. (2005)

Klick, J. and T., Stratmann, "Medical malpractice reform and physicians in high-risk specialties." Journal of Legal Studies 36: S121-S142 (2007)

Kolstad, J., Kowalski A., "The Impact of Health Care Reform on Hospital and Preventive Care: Evidence from Massachusetts" Journal of Public Economics 96(11-12) p. 909-929

Matsa, D. "Does malpractice liability keep the doctor away? "Evidence from tort reform damage caps." Journal of Legal Studies 36: S143-S182, (2007)

Mazurenko, O., Balio, C., Agarwal, R., Carroll, A., Menachemi, N., "The Effects of Medicaid Expansion Under the ACA: A Systematic Review" Health Affairs 37(6) p. 944-950, (2017)

Miller, S., "The effect of insurance on emergency room visits: An analysis of the 2006 Massachusetts health reform" Journal of Public Economics 96(11-12) p. 893-908 (2012)

Miller, S., "The Effect of the Massachusetts Reform on Health Care Utilization" Inquiry: Journal of Health Care, Organ Provision, and Finance 49(4) [. 317-326 (2012)

Neprash, Hannah, A., Zink, J., Gray, and K. Hempstead, "Physicians' Participation in Medicaid Increased Only Slightly Following Expansion", Health Affairs, Vol 37, No 7, (2018)

Niees, MA, IV. Blair, A. Furniss, and A.J. Davidson, "Specialty Physician Attitudes and Beliefs about Medicaid Patients", Journal of Family Medicine 5(3) p. 1-9, (2018)

Obama, B., "United States Health Care Reform Progress to Date and Next Steps" Journal of the American Medical Association, 316 (5) p. 525-532, (2016)

Paik, M., Black, B., and Hyman, D., "Damage Caps and the Labor Supply of Physicians: Evidence from the Third Reform Wave.", American Law and Economics Review 18(2): 463-505, (2016) Polsky, D., M. Richards, S. Basseyn, D. Wissoker, G.. Kenney, S. Zuckerman, and K.. Rhodes, “Appointment Availability after Increases in Medicaid Payments for Primary Care.” New England Journal of Medicine 372 (6): 537–45. (2015)

Rhodes, K., S. Basseyn, A. Friedman, G. Kenney, D. Wissoker, D. Polsky, “Access to Primary Care Appointments Following 2014 Insurance Expansions”, Annals of Family Medicine, 15(2) p. 107-112, March (2017)

Semega, J., K. Fontenot, and M. Kollar, “Income and Poverty in the United States: 2016”, United State Census Bureau, Current Population Reports, September (2017)

Simon, K., A. Soni, and J. Cawley, “The impact of health insurance on preventive care and health behaviors: evidence from the first two years of the ACA Medicaid expansions”, Journal of Policy Analysis and Management (2017)

Slowery, M., Riba, M., Udow-Phillips, M., “Changes in Primary Care Physicians’ Patient Characteristics Under the ACA” Center for Health and Research Transformation website: https://www.chrt.org/publication/changes-primary-care-physicians-patient-characteristics-affordable-care-act/, last accessed: July, 2019, (2018)

Staff News Writer (Unlisted), “Physician data offer new insights into ACA’s coverage impact” American Medical Association website: https://www.ama-assn.org/delivering-care/patient-support-advocacy/physician-data-offer-new-insights-acas-coverage-impact, last accessed: July, 2019, (2017)

Timbie J., C. Buttoff, V. Kotzias, S. Case, A. Mahmud, “Examining the Implementation of the Medicaid Primary Care Payment Increase” Research Report, RAND Corporation (2017)

Tipirneni, Renuka, E., Kieffer, J. Ayanian, E. Campbell, C., Salman, S., Clark, T., Chang, A., Haggins, E., Solway, M., Kirch, S., Goold, "Factors Influencing Primary Care Providers' Decisions to Accept New Medicaid Patient's Under Michigan's Medicaid Expansion", American Journal of Managed Care, Vol. 25, Issue 3, (2019)

Van Vleet, A., and J., Paradise, “Tapping Nurse Practitioners to Meet Rising Demand for Primary Care” Kaiser Family Foundation Brief, January (2015)

Wherry, L., Miller, S., “Early Coverage Access, Utilization, and Health Effects Associated With the Affordable Care Act Medicaid Expansions: A Quasi-experimental Study” Annals of Internal Medicine 164(12) p. 795-803, (2016)

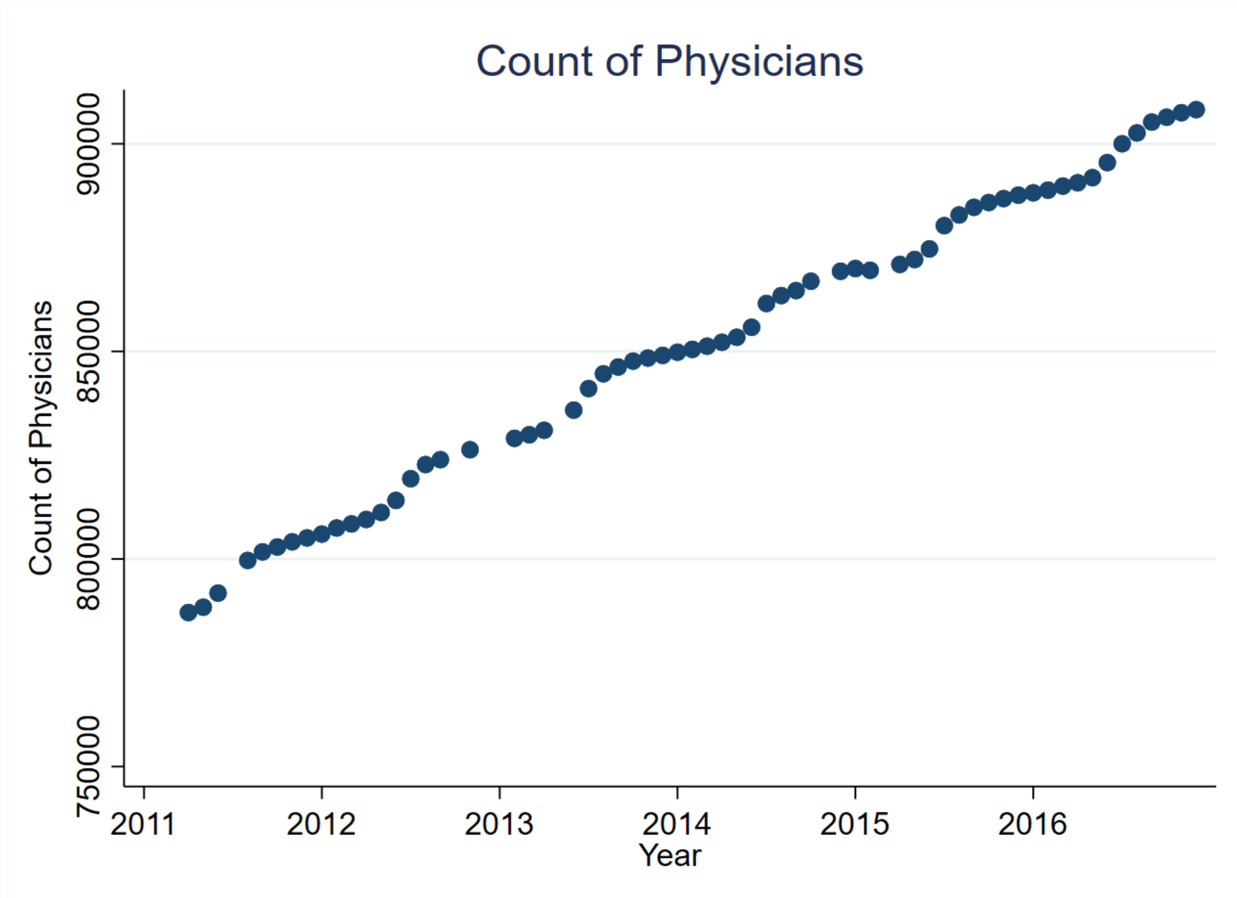
Zuckerman, S. and D. Goin, “How much will Medicaid physician fees for primary care rise in 2013? Evidence from a 2012 survey of Medicaid physician fees. Kaiser Commission on Medicaid and the Uninsured”, Kaiser Family Foundation (2012)

Zuckerman, S., L. Skopec and K. McCormack, "Reversing the Medicaid fee bump: how much could Medicaid physician fees for primary care fall in 2015." Health Policy Center Brief. (2014)

Zuckerman, S., L. Skopec and M. Epstein “Medicaid Physician Fees after the ACA Primary Care Fee Bump”, The Urban Institute (2017)

Tables and Figures

Figure 1. Count of Licensed Allopathic and Osteopathic Physicians in NPPES



Note: May 2013 is missing from my dataset.

Figure 2. Inferred Percent in Poverty

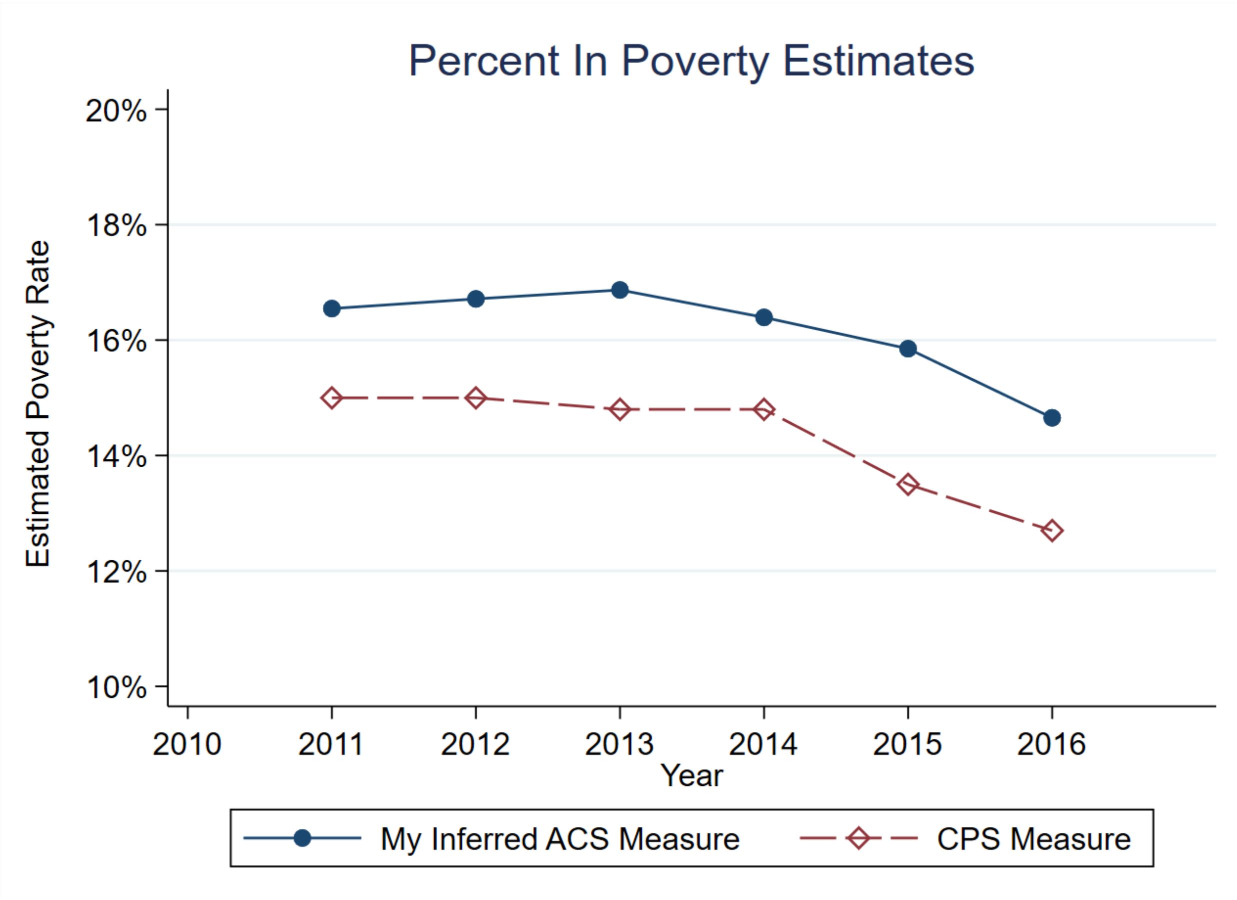


Table 1. Summary Statistics

State Entries Per 100K Population	Mean (2012-2013)	Mean (2014-2016)
All Doctors	2.60	2.77
Primary Care	1.10	1.16
Other Specialties	1.50	1.60

Population Under FPL Per 1,000 Near Physician Location	Mean (2012-2013)	Mean (2014-2016)
Within 20 Miles		
All Doctors	167.04	154.40
Primary Care	167.71	155.86
Other Specialties	166.57	153.39
Within 10 Miles		
All Doctors	184.75	169.85
Primary Care	185.73	171.11
Other Specialties	184.07	168.99
Within 5 Miles		
All Doctors	204.02	188.13
Primary Care	208.38	190.83
Other Specialties	200.99	186.27

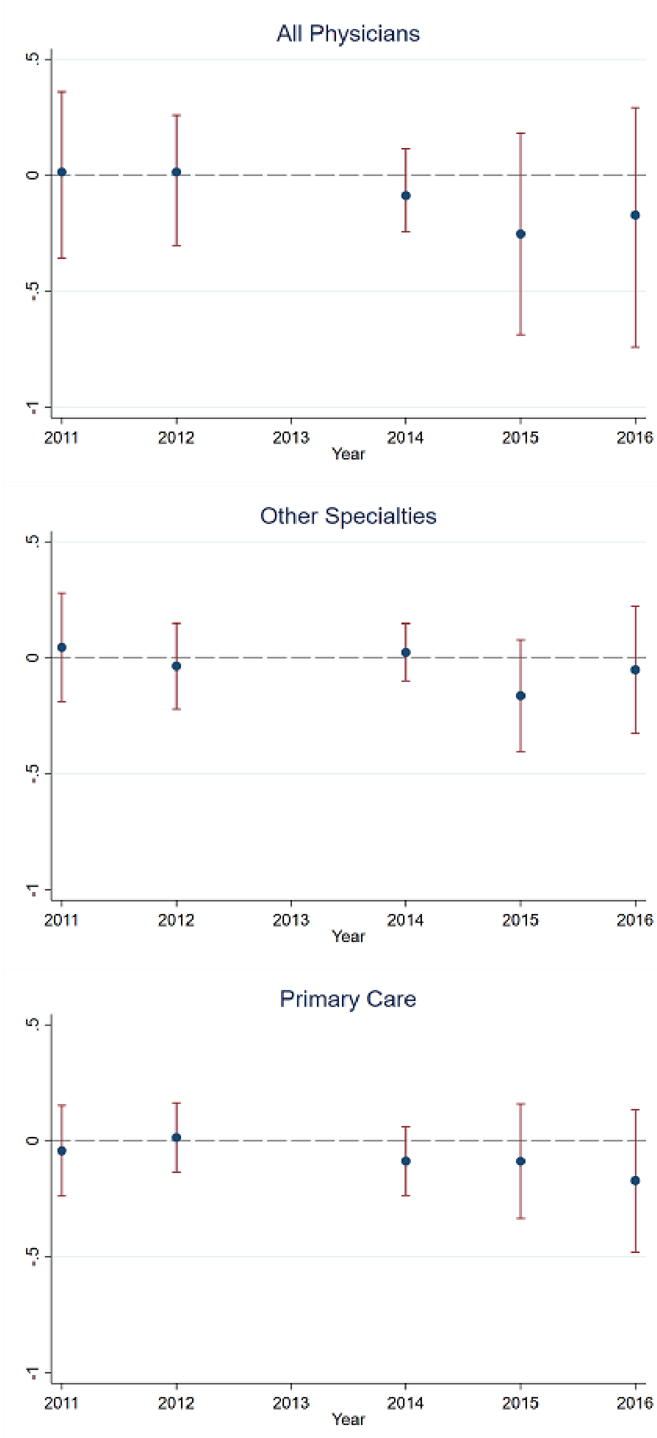
Note: 2011 is excluded here as the physician data begins in April of that year. Its inclusion would reduce the pre-period state entry means due to this. For consistency, 2011 is excluded in the doctor level means as well.

Table 2. Cross-State DiD - Entrants Per 100K State Population

Variables	All Doctors	Primary Care	Other Specialties
Medicaid Expansion	-0.0339	-0.0348	0.0010
	(0.1597)	(0.0983)	(0.0930)
State FE	x	x	x
Year FE	x	x	x
Observations	240	240	240

Note: The outcome of interest is the state-level count of new entries per 100,000 state population. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform and if primary care fee bump was kept, and state and year fixed effects. Standard errors in parentheses are robust and clustered at the state level (+ p<0.10 * p<0.05 ** p<0.01 *** p<0.001).

Figure 3. Cross-state Event Study – Entries Per 100k Population



Note: The outcome of interest is the state-level count of new entries per 100,000 state population. Explanatory variables of interest are interactions between Medicaid expansion status and year. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform, and if primary care fee bump was kept, and state and year fixed effects. 2013 is the comparison year and graphs display 90% confidence intervals. Standard errors are robust and clustered at the state level.

Table 3. Within-state DiD

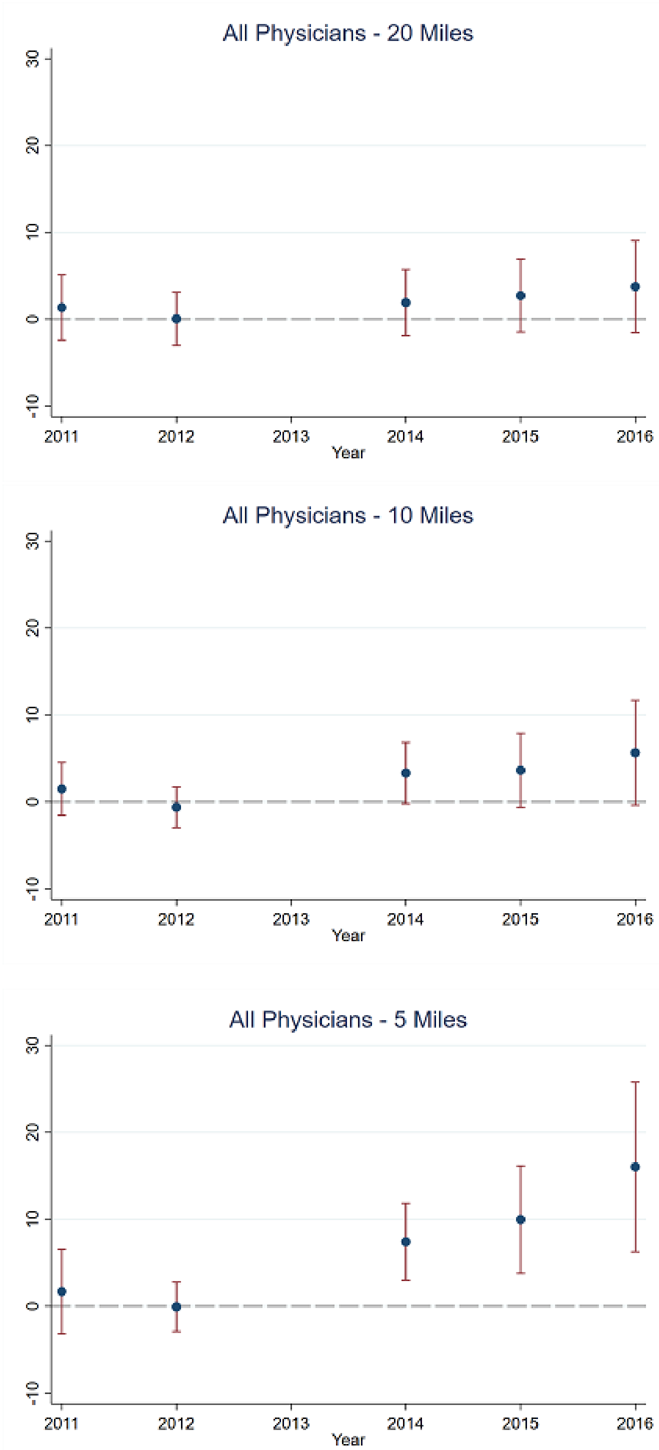
Panel 1. 5 Mile Radius	All Docs (5 mi.)	Primary Care (5 mi.)	Other. Spec. (5 mi.)
Medicaid Expansion	6.5248**	4.6286	8.6457*
	(2.1100)	(4.7646)	(3.4059)
Year FE		x	x
State FE		x	x
Year x Doctor Type FE	x		
State x Doctor Type FE	x		
Observations	30243	12353	17890

Panel 2. 10 Mile Radius	All Docs (10 mi.)	Primary Care (10 mi.)	Other. Spec. (10 mi.)
Medicaid Expansion	3.1119+	-0.4109	5.9858**
	(1.6557)	(3.8391)	(1.7873)
Year FE		x	x
State FE		x	x
Year x Doctor Type FE	x		
State x Doctor Type FE	x		
Observations	30254	12360	17894

Panel 3. 20 Mile Radius	All Docs (20 mi.)	Primary Care (20 mi.)	Other. Spec. (20 mi.)
Medicaid Expansion	1.8718	0.2873	3.1118+
	(1.9714)	(3.1234)	(1.7254)
Year FE		x	x
State FE		x	x
Year x Doctor Type FE	x		
State x Doctor Type FE	x		
Observations	30255	12361	17894

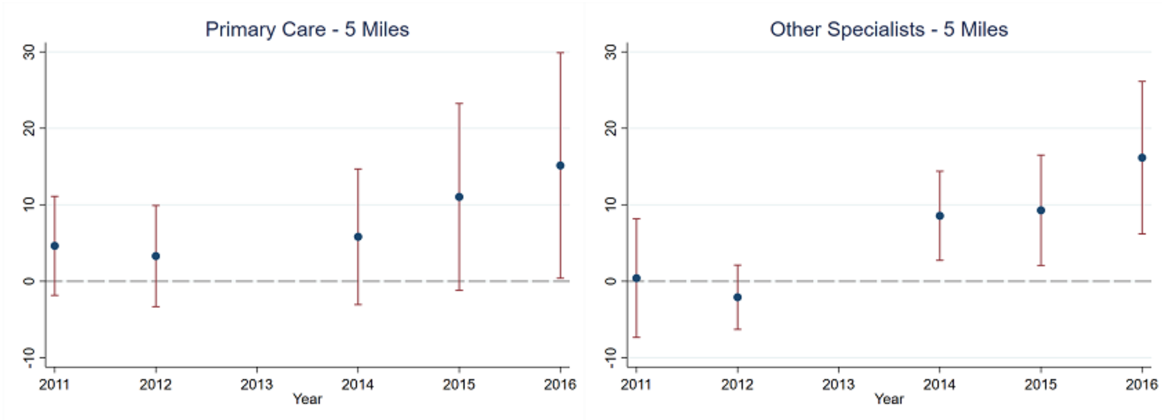
Note: The outcome of interest is the population under the federal poverty line per 1000 population living within 20, 10, and 5 miles of newly entering physicians. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform and if primary care fee bump was kept, and state by physician type and year by physician type fixed effects. Standard errors in parentheses are robust and clustered at the state level (+ $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$).

Figure 4. Within-State Event Study: 20, 10, and 5 Mile Radius



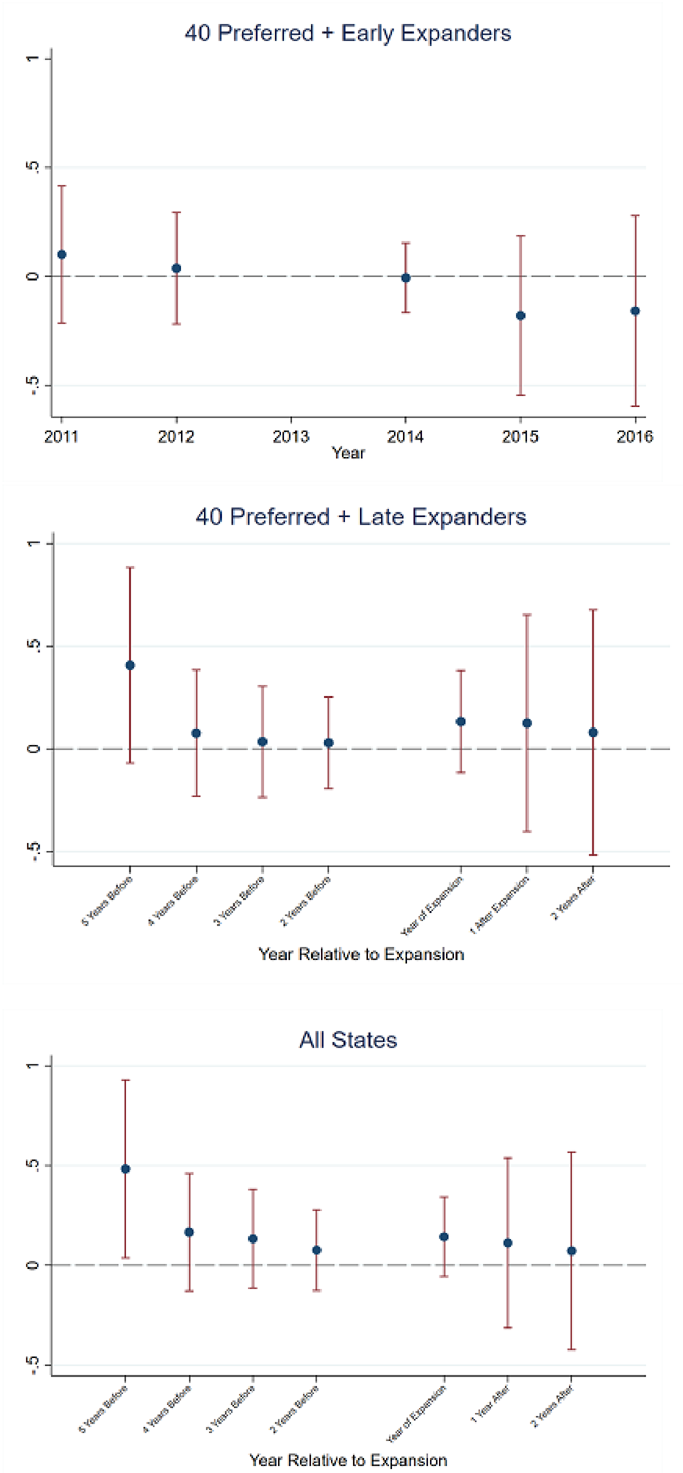
Note: The outcome of interest is the population under the federal poverty line per 1000 population living within 20, 10, and 5 miles of newly entering physicians. Explanatory variables of interest are interactions between Medicaid expansion status and year. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform, and if primary care fee bump was kept, and state by doctor group (primary care or other specialists) and year by doctor group type fixed effects. 2013 is the comparison year and graphs display 90% confidence intervals. Standard errors are robust and clustered at the state level.

Figure 5. Sub-Sample Analysis – Primary Care and Other Specialists



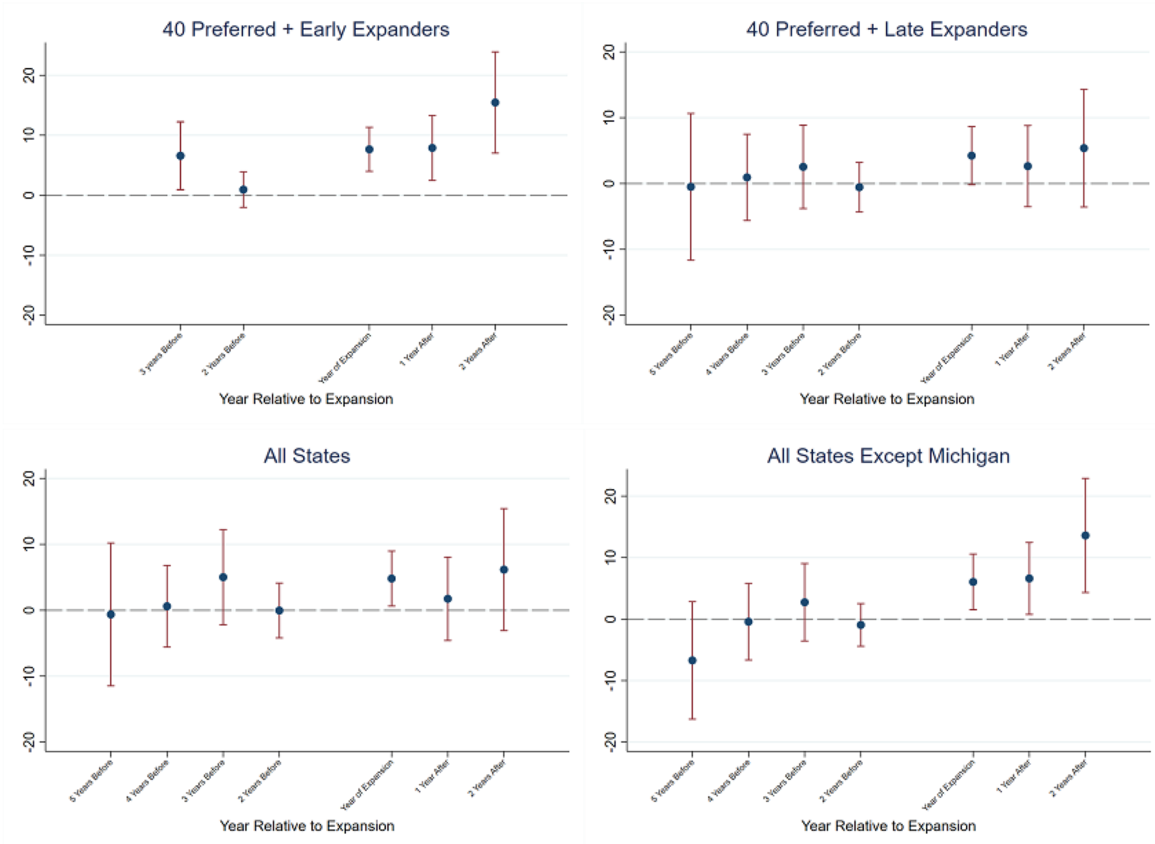
Note: The outcome of interest is the population under the federal poverty line per 1000 population living within 5 miles of newly entering physicians. Explanatory variables of interest are interactions between Medicaid expansion status and year. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform, and if primary care fee bump was kept, and state by doctor group (primary care or other specialists) and year by doctor group type fixed effects. 2013 is the comparison year and graphs display 90% confidence intervals. Standard errors are robust and clustered at the state level.

Figure 6. Cross-State Event Studies – Varying State Inclusions



Note: The outcome of interest is the state-level count of new entries per 100,000 state population. Explanatory variables of interest are interactions between Medicaid expansion status years relative to expansion. For early expansion states, January of 2014 is assumed to be the official expansion date. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform, and if primary care fee bump was kept, and state and year fixed effects. 2013 is the comparison year and graphs display 90% confidence intervals. Standard errors are robust and clustered at the state level.

Figure 7. Within-State Event Studies – Varying State Inclusions



Note: The outcome of interest is the population under the federal poverty line per 1000 population living within 5 miles of newly entering physicians. Explanatory variables of interest are interactions between Medicaid expansion status and year. Other controls include state-level demographics, education, unemployment, indicators for malpractice reform, and if primary care fee bump was kept, and state by doctor group (primary care or other specialists) and year by doctor group type fixed effects. 2013 is the comparison year and graphs display 90% confidence intervals. Standard errors are robust and clustered at the state level.

Appendix

Table A1. Cross-State Event Study - Count of Entries Per 100K State Population

Variables	All Doctors	Primary Care	Other Specialties
Ever Expanded x 2011	0.0200	-0.0317	0.0365
	(0.2165)	(0.1206)	(0.1097)
Ever Expanded x 2012	-0.0047	0.0219	-0.0274
	(0.1626)	(0.0865)	(0.0926)
Ever Expanded x 2014	-0.0639	-0.0905	-0.0422
	(0.1084)	(0.0887)	(0.0625)
Ever Expanded x 2015	-0.2598	-0.0979	-0.1780+
	(0.2555)	(0.1455)	(0.1054)
Ever Expanded x 2016	-0.2280	-0.1772	-0.0800
	(0.3076)	(0.1857)	(0.1320)
State FE	x	x	x
Year FE	x	x	x
Observations	240	240	240

Standard errors in parentheses
+ p<0.10 * p<0.05 ** p<0.01 *** p<0.001

Table A2. Within-State Event Studies For 5, 10, and 20 Mile Radii

5 Mile Radius

Variables	All Docs (5 mi.)	Primary Care (5 mi.)	Other. Spec. (5 mi.)
Ever Expanded x 2011	1.6806	4.6303	-0.3015
	(2.8880)	(3.8421)	(4.4893)
Ever Expanded x 2012	-0.0858	3.2931	-2.4525
	(1.6811)	(3.9219)	(2.3592)
Ever Expanded x 2014	7.3972**	5.8144	8.7365*
	(2.6298)	(5.2654)	(3.4214)
Ever Expanded x 2015	9.9623**	11.0290	9.7751*
	(3.6631)	(7.2478)	(4.3225)
Ever Expanded x 2016	16.0180**	15.1352+	16.6085**
	(5.7948)	(8.7538)	(5.9260)
Year FE		x	x
State FE		x	x
Year x Doctor Type FE	x		
State x Doctor Type FE	x		
Observations	30243	12353	17890

10 Mile Radius

Variables	All Docs (10 mi.)	Primary Care (10 mi.)	Other. Spec. (10 mi.)
Ever Expanded x 2011	1.4864	1.8702	1.2702
	(1.8002)	(4.1620)	(2.6823)
Ever Expanded x 2012	-0.6244	-0.7464	-0.7631
	(1.3824)	(3.4513)	(1.7984)
Ever Expanded x 2014	3.3059	-0.9717	6.2627**
	(2.0864)	(4.2267)	(1.8855)
Ever Expanded x 2015	3.6282	1.2990	5.3685+
	(2.5247)	(4.8459)	(2.8503)
Ever Expanded x 2016	5.6478	1.1541	8.5811*
	(3.5751)	(5.4068)	(3.3689)
Year FE		x	x
State FE		x	x
Year x Doctor Type FE	x		
State x Doctor Type FE	x		
Observations	30254	12360	17894

20 Mile Radius

Variables	All Docs (20 mi.)	Primary Care (20 mi.)	Other. Spec. (20 mi.)
Ever Expanded x 2011	1.3386	-1.6270	3.2467
	(2.2221)	(3.1000)	(2.2520)
Ever Expanded x 2012	0.0424	0.4133	-0.2586
	(1.8196)	(2.5933)	(1.6895)
Ever Expanded x 2014	1.9127	0.1213	3.2514+
	(2.2648)	(3.6750)	(1.7011)
Ever Expanded x 2015	2.7150	2.7372	2.9532
	(2.4834)	(3.3404)	(2.4928)
Ever Expanded x 2016	3.7445	2.2655	5.1846+
	(3.1365)	(4.0849)	(3.0323)
Year FE		x	x
State FE		x	x
Year x Doctor Type FE	x		
State x Doctor Type FE	x		
Observations	30255	12361	17894

+ p<0.10 * p<0.05 ** p<0.01 *** p<0.001