The Expansionary and Contractionary Supply-Side Effects of Health Insurance*

Eilidh Geddes†
Northwestern University

Molly Schnell‡
Northwestern University
and NBER

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Abstract

We examine how health insurance expansions affect the entry and location decisions of health care clinics. Exploiting county-level changes in insurance coverage following the Affordable Care Act and 1,721 retail clinic entries and exits, we find that local increases in insurance coverage do not lead to growth in the concentration of clinics on average using two-way fixed effects and instrumental variable designs. However, this null effect masks important heterogeneity by insurance type: growth in private insurance leads to large growth in clinic entry, whereas clinic penetration is dampened by increases in Medicaid coverage. Consistent with a model in which firms face demand from markets with both administered and market-based pricing, we find that the positive (negative) supply-side effects of private insurance (Medicaid coverage) are concentrated in states with low provider reimbursements under Medicaid. We further show that similar location patterns are observed among other types of health care clinics, including urgent care centers. While it has long been accepted that reductions in the prices paid by consumers following insurance expansions should lead the supply side to expand to meet increased demand (Arrow, 1963), our results demonstrate that whether health insurance expansions cause the supply side to expand or contract further depends on how the prices received by providers are affected.

JEL: I11, I13, I14, H44
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†eilidhgeddes@u.northwestern.edu; 2211 Campus Drive, Evanston, IL 60208

‡schnell@northwestern.edu; 2211 Campus Drive, Evanston, IL 60208

I Introduction

Insurance expansions increase demand for health care by decreasing the prices paid by consumers (Manning et al., 1987). This increase in demand is in turn anticipated to cause supply-side responses that increase the market-level supply of health care resources (Arrow, 1963). Recent empirical work has confirmed these positive general equilibrium effects, showing that firm entry, technology adoption, and labor supply in the health care sector increase in response to sizable insurance expansions (Finkelstein, 2007; Kondo and Shigeoka, 2013; Hackmann et al., 2021). However, all health insurance is not created equal, and expansions of insurance with generous patient cost-sharing but low reimbursement rates for providers might generate the anticipated demand-side, but not supply-side, responses. How the quality of health insurance affects the supply-side effects of insurance expansions—and whether expansions of health insurance that is less desirable for providers might lead the supply side to contract—remains an open question.

In this paper, we examine the effects of the largest insurance expansion in decades on the entry and location decisions of on-demand health care clinics.[1] This expansion was unique in that it both increased the number of people with health insurance and changed the composition of insurance types across locations, allowing us to examine how both the quantity and quality of insurance affect supply-side responses. Combining data from 2010–2016 on the share of the population with health insurance from the one-year American Community Survey (ACS) with information on the entry and exit decisions of the universe of retail clinics from Merchant Medicine, we find that recent increases in health insurance coverage had no effects on the concentration of clinics on average. Notably, however, this null effect is driven by opposing effects of different types of insurance coverage, with growth in private insurance leading to significant increases in clinic concentration and growth in Medicaid significantly diminishing clinic penetration. Using data on the universe of urgent

[1] On-demand health care clinics, such as retail clinics and urgent care centers, have been key contributors to growth in health care systems in recent decades. These clinics compete with traditional health care providers by offering convenience, and, in the case of retail clinics, lower and more transparent pricing. Retail clinics are located in retail outlets, are staffed by nurse practitioners or physician assistants, and treat a limited range of low-acuity conditions and provide preventative care. Urgent care centers, on the other hand, treat more severe conditions, are typically staffed by physicians in addition to nurse practitioners and physician assistants, and often have imaging equipment available on site.

care centers in 2021 from the National Urgent Care Realty (NUCR) database, we document that urgent centers exhibit similar location patterns, suggesting that our results govern entry decisions in the on-demand health care market more generally. Taken together, our findings indicate that supply-side responses to sizable insurance expansions can depend critically on the type of insurance being expanded and can even cause the supply side to contract.

We begin by introducing a theoretical model outlining how changes in insurance provision influence clinic entry and exit. The model is based on the framework of Sloan et al. (1978) and considers a firm that faces demand from patients in a market with administered prices (in our setting, Medicaid patients) and patients in a market with market-based pricing (patients with private or no insurance). As in Garthwaite (2012), we model Medicaid expansions as shifting a portion of the population from market-based pricing to the administered price. Private expansions, on the other hand, increase the willingness to pay among patients in the non-Medicaid market.

The model generates three sets of predictions about the effects of changes in insurance coverage on firm entry patterns. First, if the firm was not accepting Medicaid patients at baseline, increases in private coverage serve to increase firm profits, thereby inducing entry. This occurs because demand among patients in the non-Medicaid market becomes more inelastic, allowing the firm to charge higher prices. Second, growth in Medicaid coverage reduces profits and induces exit, again among firms that were not accepting Medicaid patients at baseline. This occurs because shifting patients from the non-Medicaid to the Medicaid market reduces the size of the population being served by the clinic. Finally, both expansions of private insurance and Medicaid coverage generally have no effects on the profits of clinics that were serving both markets at baseline. The model demonstrates that whether clinics accept Medicaid is closely linked to Medicaid payment rates, with clinics being more likely to accept Medicaid when the administered payment under Medicaid is higher, and thus the opposing supply-side responses to growth in private insurance and Medicaid coverage should be more pronounced when Medicaid rates are lower.

To examine the relationship between health insurance provision and market structure empirically, we begin by using a two-way fixed effects specification to examine how retail clinic concentration covaries with the share of the population with any health insurance coverage

at the county-year level. This analysis reveals a surprising result demonstrating that positive supply-side responses need not accompany sizable insurance expansions: despite significant variation in insurance growth and clinic penetration over our sample period, there was no association between within-county changes in health insurance coverage and clinic growth. While counties in the highest decile of insurance growth experienced average increases in insurance coverage of nearly 12 percentage points compared to only two percentage points among counties in the lowest decile, counties in both groups saw an increase of approximately 0.15 retail clinics per 100,000 people. To examine whether clinic growth depends on the type of insurance being expanded, we then estimate two-way fixed effects specifications that exploit conditional variation in the share of the population with private insurance and Medicaid coverage across counties over time. This analysis reveals pronounced heterogeneity by insurance type, with growth in private insurance coverage associated with large growth in the concentration of clinics and growth in Medicaid coverage associated with reduced clinic penetration.

While informative, our two-way fixed effects specifications might be confounded by changes in local socio-demographics. Notably, income eligibility requirements for Medicaid and the provision of the majority of private insurance through employers ensures that health insurance in the United States is closely tied to income. As such, changes in the share of the population with private insurance or Medicaid coverage will capture both changes in insurance provision driven by policy as well as changing socio-demographics within locations. To isolate variation in health insurance driven by policy, we instrument for changes in insurance levels and types using four features of the Affordable Care Act (ACA).

First, following previous work, we exploit the fact that growth in Medicaid coverage was larger among counties that were in states that expanded Medicaid and that had a larger share of their population below 138 percent of the federal poverty level (FPL). Moreover, we introduce two novel instruments for private insurance: one that exploits baseline variation in the share of the population between 138 and 400 percent of the FPL—the population eligible for subsidies on the exchanges—to shift direct purchase insurance and one that exploits baseline variation in the share of the population employed—the population targeted by the mandate for large employers to provide health insurance—to shift employer-sponsored cov-

erage. These instruments are powerful and help deal not only with endogeneity concerns but also measurement error in the available county-year level data on health insurance coverage that is both self-reported and collected from a one percent sample of households.

Results from our instrumental variables analysis confirm the patterns observed in the two-way fixed effects specifications. The results are large and show that growth in private insurance coverage of five percentage points—the average increase experienced by counties in our sample over our time period—led to an increase of 0.142 retail clinics per 100,000, or nearly 25 percent relative to the mean. In contrast, growth in Medicaid coverage of four percentage points—the average increase experienced by counties in our sample over our time period—led to a reduction of 0.202 retail clinics per 100,000, or over 30 percent relative to the mean. Additional analyses using first difference specifications show that these impacts are driven by effects on both entries and exits, with private insurance growth leading to increased clinic entry and Medicaid growth leading to increased clinic exit.

As outlined above, theory predicts that the effects of private and Medicaid expansions should be more pronounced in areas in which it was not profitable to serve the Medicaid market at baseline. Combining data on state-level Medicaid reimbursement rates for office visits from Alexander and Schnell (2019) with hand-collected data outlining which CVS MinuteClinics—the largest operator of retail clinics over our sample period—listed at least one Medicaid plan as an accepted form of payment in 2020, we first show that clinics are more likely to accept Medicaid in states with higher Medicaid reimbursement rates. Splitting the sample by Medicaid rates at baseline, we then show that the positive effects of growth in private insurance coverage on retail clinic growth is most pronounced among counties in the bottom tercile of Medicaid reimbursements. In fact, there is no significant relationship between growth in private insurance coverage and clinic penetration among counties in states with the highest Medicaid payments (i.e., locations in which clinics are most likely to accept Medicaid). We observe similar heterogeneity in the relationship between county-level growth in Medicaid coverage and clinic concentration, with the negative effects of Medicaid growth being most pronounced in locations with low Medicaid reimbursement rates at baseline.

On-demand health care clinics are the ideal setting in which to examine the supply-side effects of health insurance. While seminal work by Finkelstein (2007) focused on the entry

of hospitals in the late 1960s, entry of hospitals in recent decades has been rare, with fewer than 200 openings between 2010 and 2016.[2] In contrast, nearly 200 retail clinics opened in each year of our sample period, allowing for a careful statistical examination of how entry is driven by changes in local health insurance rates and composition. Moreover, in contrast to inpatient services for which transaction prices vary substantially within hospitals across insurers (Cooper et al., 2018), retail clinics offer a limited set of services at relatively low prices (Thygeson et al., 2008; Mehrotra et al., 2009). This limits the scope for variation in insurance status and generosity to affect their location and entry decisions, suggesting that analogous effects on the entry of other health care delivery mechanisms might be even more pronounced.

Our work contributes to three literatures. First, we build on the literature examining the supply-side effects of health insurance. Finkelstein (2007) found that the introduction of Medicare in 1965 led to hospital entry and increased adoption of new technologies. Outside of the United States, Kondo and Shigeoka (2013) demonstrated that the 1961 introduction of universal health insurance coverage in Japan led to increases in the number of hospital beds but had no conclusive effects on the number of medical institutions or medical labor supply. In Germany, a recent paper by Hackmann et al. (2021) documents that the introduction of universal, long-term care (LTC) insurance in 1995 led to sizable increases in the number of LTC firms and workers. We contribute to this work by examining the impacts of the largest insurance expansion in the United States in decades and show that firm-level entry responses—an anticipated mechanism through which supply keeps pace with growing demand—depend on the type of coverage being expanded.

Our finding that the type of coverage being expanded is important for shaping supply-side responses relates to work documenting the importance of insurance generosity on the behavior of providers. Recent work shows that the reluctance of providers to accept Medicaid is driven by the program's low reimbursement rates for providers relative to other payers

[2]The number of hospital entries is computed using annual surveys from the American Hospital Association (AHA). We identify entering hospitals from 2010 to 2016 as short-term, non-federal hospitals that were not present in AHA surveys in either 2006 or 2008 but responded to an AHA survey at some point between 2010 and 2016. To avoid misclassifying changes in hospital ownership as hospital entry, we exclude new hospital identifiers that are located in the same geographic location as a previous hospital identifier from our set of potential entrants.

(Alexander and Schnell, 2019) and billing hassles that plague the Medicaid system (Dunn et al., 2021). Focusing on technology adoption and pharmaceutical innovation, Freedman et al. (2015) show that expansions of Medicaid eligibility for pregnant women in the 1980s and 1990s did not affect hospitals' adoption of neonatal intensive care units, while Garthwaite et al. (2021) document that research and development activities—which are typically linked to market size—did not respond to recent Medicaid expansions.[3] Both sets of authors attribute these null effects to Medicaid's low reimbursement rates relative to other providers. We add to this work by showing that firm-level entry responses are likewise shaped by insurance generosity, uncovering the contractionary supply-side effects of Medicaid expansions in a setting in which the expansionary effects of growth in private insurance coverage can be simultaneously confirmed.

Finally, our work contributes to recent discussions surrounding the impacts of new health care delivery mechanisms on access to and use of care. Much of the recent literature has focused on the effects of retail clinics and urgent care centers on emergency room (ER) use and aggregate health care costs. While Alexander et al. (2019) and Allen et al. (2021) show that retail clinics and urgent care centers reduce unnecessary ER use, respectively, Ashwood et al. (2016), Currie et al. (2021), and Wang et al. (2021) show that these clinics can nevertheless lead to increased costs by increasing total health care utilization. In contrast to prior work, we focus on the location decisions of such clinics and examine how their expansion patterns have been shaped by changing insurance landscapes. This focus relates to recent work by Magnolfi et al. (2022), who estimate an equilibrium model of market structure for urgent care centers and hospitals and find that hospital presence deters the entry of urgent care centers. While these location patterns could suggest that on-demand health care will help equalize access across the United States, our findings indicate that retail clinics and urgent care centers—by avoiding areas with growth in Medicaid beneficiaries and concentrating in areas with high rates of private insurance coverage and existing health care resources—are unlikely to meaningfully address access barriers faced by disadvantaged

[3]Focusing on physician labor supply, Garthwaite (2012) found that physicians decreased their time spent with patients following the 1997 implementation of the State Children's Health Insurance Program (SCHIP)—a program that expanded health insurance for low-income children who do not qualify for traditional Medicaid.

populations as many health policy experts have hoped (see, for example, Bechrach and Frohlich, 2016).[4]

This paper proceeds as follows. In Section II, we outline the data sets that we use. Section III introduces a theoretical framework that delivers predictions about the impacts of changes in insurance provision on clinic entry and exit. Section IV presents our empirical strategies and discusses identification. Our main results are presented in Section V, and extensions are presented in Section VI. Section VII provides a discussion and concludes.

II Data

We use data from two main sources. The locations and operating dates of all retail clinics in the United States from 2010–2016 come from Merchant Medicine. Data on the county-level shares of the population with different types of health insurance and local socio-demographics in each year over the same period come from the ACS. We supplement these data with information on (1) the locations of all urgent care centers in the United States in 2021 from NUCR, (2) state-level Medicaid expansions from the Kaiser Family Foundation (KFF), and (3) county-level shares of the population that were targeted by different provisions of the ACA from the 2013 Small Area Health Insurance Estimates (SAHIE). Each of these data sources is described in more detail below. As outlined in Section VI, we further use information on state-level reimbursement rates under Medicaid from Alexander and Schnell (2019) when examining heterogeneity by baseline payment levels and information on county-level health care resources from the Health Resources and Services Administration (HRSA) when examining potential welfare implications.

[4] A 2010 report by the RAND Corporation notes that "some champions have argued that retail clinics may improve access to care for populations in underserved areas" (Weinick et al., 2010). However, the report emphasizes that "the viability of retail clinics in underserved areas in uncertain and remains largely unexplored as a model for improving access to care in such areas."

II.A On-demand health care clinics

Information on retail clinics comes from Merchant Medicine, a management consulting firm serving the on-demand health care market.[5] These data are comprehensive and contain the geo-coded locations and operating dates of all retail clinics ever operating in the United States. Using this data set, we create a panel of the total number of operating clinics and the number of entries and exits at the county–quarter level. As shown in Figure 1(a), the number of retail clinics was growing steadily over our sample period, with the number of clinics nationally increasing by 66 percent from 1,224 at the beginning of 2010 to 2,036 by the end of 2016. Moreover, there was substantial churn in the market, with an average of over 50 entries and nearly 22 exits in each quarter from 2010–2016 (see Figure A1).

We supplement these data with information on the locations of all urgent care centers operating in the United States in 2021 from the NUCR database. The NUCR data are less comprehensive than the Merchant Medicine data and only include information on the year of entry and geo-coded locations for clinics that remained open in 2021. Given this limitation, we focus much of our analysis on the entry and exit behavior of retail clinics, but we use the NUCR data to examine whether the location patterns of urgent care centers and retail clinics exhibit a similar relationship with health insurance provision in the cross-section. As shown in Figure A2(a), there were nearly 13,000 urgent care centers operating in 2021, only 25 percent of which were open in 2010.

II.B Insurance shares and other county-level characteristics

We combine these data on on-demand health care clinic locations with information on county-level characteristics from the ACS. Our main independent variables of interest are the shares of the population with any health insurance and health insurance of different types at the county-year level. We focus on private insurance (employer-sponsored and direct purchase) and Medicaid coverage, although we control for Medicare coverage and all other types of health insurance in our analyses.[6]

[5]This proprietary data is available for purchase to qualified researchers. For more information, contact UCP Merchant Medicine here: https://www.ucpmm.com/contact-us.

[6]When constructing insurance shares, we hold population fixed in 2010. This is done to ensure that our analysis is capturing changes in the number of patients with a given insurance type available to clinics rather

In order to capture annual changes in these variables, we use data from the one-year ACS in our primary analyses. Since only counties with at least 65,000 residents are included in the single-year files, we restrict these analyses to the 555 counties that were in every one-year ACS from 2010–2016; these counties account for over 75 percent of the total U.S. population and nearly 87 percent of all operating retail clinics in 2016 (see Table A1 and Figure 1(b)). When considering location patterns of retail clinics and urgent care centers in the cross-section, we instead use information on health insurance coverage for all U.S. counties from the five-year pooled ACS.[7]

As shown in Figure 2(a), the share of the population with health insurance coverage across the United States increased from less than 85 percent in 2010 to nearly 92 percent in 2016. This increase was driven almost entirely by the onset of the ACA in 2014. Moreover, as shown in Figure 2(b), the increase in health insurance coverage nationally was driven both by sizable increases in private insurance and Medicaid coverage. At the county-level, there is variation in the levels and types of coverage expanding over this time period, with some areas seeing large growth in Medicaid coverage only, private insurance coverage only, or both between 2013 and 2015 (Figure 2(c)).

To control for other differences across counties that could influence clinic penetration, we further consider a range of socio-demographics from the ACS. As shown in Table 1, retail clinics in 2016 were more likely to be located in dense, urban hubs. This can further be seen in Figure 1(b), in which we see that the geographic distribution of retail clinics across the United States in 2016 largely mirrored the distribution of the population. Reflecting the demographics of urban areas, retail clinics in 2016 were more likely to be located in areas with a more diverse, educated population and with higher median income and rates of employment. This is true both when considering only counties in the one-year ACS (Table 1) and all U.S. counties (Table A1). Moreover, while growth in urgent care centers had spread beyond the largest metropolitan areas by 2021, Table A2 shows that such centers were likewise concentrated in counties that were relatively economically prosperous and racially

than changes in population. All of our analyses include a time-varying control for population to account for population growth.

[7]More precisely, we compare location patterns of retail clinics in 2016 (urgent care centers in 2021) to local characteristics from the 2012–2016 (2016–2020) ACS.

diverse, with nearly every county with a retail clinic in 2016 seeing an urgent care center operating in 2021 (see Figure A2(b)).

II.C Instrument components

As outlined in Section IV.B below, we instrument for changes in insurance coverage using different provisions of the ACA. Two additional data sets are used for the construction of these instruments. First, we use information from the KFF on state-level Medicaid expansions. We consider all states that expanded their Medicaid programs to include individuals making up to at least 138 percent of the FPL by 2014 as having expanded Medicaid; this includes 20 states that did so in 2014 and five states that did so in part between 2010 and 2014 (see Figure A4). Moreover, we use information on the share of the population that is uninsured, between ages 18 and 64, and in different income bins targeted by provisions of the ACA at the county-level in 2013 from the SAHIE. Additional details on the construction of these instruments are provided in Section IV.B below.

III Theoretical framework

In this section, we introduce a theoretical model of entry and exit for on-demand health care clinics (hereafter referred to as "clinics"). In our setting, clinics decide whether to enter the market and, if so, which price to charge. We aim to examine how expansions of private insurance and Medicaid coverage affect firm profits, and in turn firm-level entry and exit decisions. The model delivers a number of theoretical insights that both rationalize our main findings and motivate additional empirical exercises.

We follow the general setup of Sloan et al. (1978), who introduce a mixed-economy model formalizing providers' decisions surrounding optimal participation in government insurance programs.[8] Our setting differs from this previous work in two key ways. First, in contrast to settings in which providers can ration appointment availability based on insurance coverage and type, on-demand health care clinics serve patients on a first come, first served basis.

[8]More recently, Garthwaite (2012) adapted the model introduced by Sloan et al. (1978) to outline predictions of the introduction of SCHIP on physicians' program participation and labor supply.

Clinics in our setting are therefore faced with a binary decision of whether to accept Medicaid patients—rather than a decision of how many Medicaid patients to accept—and face the potential of seeing any number of patients covered by public insurance once they opt to serve the program's beneficiaries. Moreover, while previous work has focused predominately on the decision of whether to accept a given type of insurance coverage conditional on entry, our primary goal is to examine how changes in the share of the population covered by different types of insurance affect firm profitability and equilibrium market structure.

III.A Baseline model

Clinics face demand from consumers in two markets: (1) a market with administered prices in which they serve the s_M share of the population covered by Medicaid and (2) a market with market-based prices in which they serve the $1 - s_M$ share of the population that is privately insured or uninsured ("non-Medicaid patients"). Let p_M denote the price that clinics receive when treating patients covered by Medicaid; this price reflects the administered price net of any hassle costs associated with program billing.

Total demand facing the clinic is shown in Figure 3(a). Since Medicaid patients do not incur any out-of-pocket costs, the demand curve is perfectly elastic at p_M with length s_M.[9] At all other prices, the firm faces downward sloping demand from the non-Medicaid population. As shown in Figure 3(a), the resulting kinks in the total demand curve lead to discontinuities in the associated marginal revenue curve. In particular, while marginal revenue is downward sloping and lies below the demand curve when demand is downward sloping, the marginal revenue and demand curves overlap on the perfectly elastic portion of the demand curve.[10] This reflects the fact that clinics do not need to lower price in order to attract an additional Medicaid patient when $p = p_M$, thereby keeping revenue from both marginal and infra-marginal patients constant.

Figure 3(a) shows the profit-maximizing prices and quantities set by clinics faced with

[9]Note that providers are not allowed to accept payment from known Medicaid patients, and thus the program's beneficiaries cannot opt for self-pay.

[10]In Figure 3(a), marginal revenue is negative when $q > D(p_M)$; this will typically be the case unless very few patients are covered by Medicaid (i.e., the elastic portion of the total demand curve is very short) or the Medicaid price is relatively high (i.e., few non-Medicaid patients have willingness to pay greater than p_M).

different marginal cost curves. When there is a single intersection between marginal revenue and a given marginal cost curve, this intersection determines the quantity of patients that the clinics serves (i.e., q^* is such that $MR(q^*) = MC(q^*)$). To achieve this optimal quantity, the firms sets $p^* = D^{-1}(q^*)$. Whether the firm accepts Medicaid depends on how p^* compares to p_M: if $p^* > p_M$, the clinic does not serve Medicaid patients, whereas the clinic accepts patients covered by Medicaid if $p^* \leq p_M$. As p_M increases—that is, as the program becomes more generous for providers—it becomes more likely that the firm will accept Medicaid. Note that when the clinic serves both market segments, the share of the clinic's q^* patients that are covered by Medicaid is indeterminant and depends on patient arrival patterns.

Two examples of marginal cost curves with single marginal revenue intersections are shown in Figure 3(a). When marginal costs are given by MC_1, the clinic sets $p = p_1^*$. Since $p_1^* > p_M$, the clinic does not serve patients covered by Medicaid and instead serves q_1^* patients coming from the non-Medicaid market. In contrast, when marginal costs are given by MC_2, the single intersection between marginal revenue and marginal costs occurs on the perfectly elastic portion of the demand curve. The firm sets $p = p_2^* = p_M$, thereby accepting patients covered by Medicaid, and serves q_2^* patients coming from both the Medicaid and non-Medicaid markets.

Given the discontinuities in the marginal revenue curve, there need not be a single intersection between marginal revenue and marginal costs. In particular, there can be two intersections between the discontinuous marginal revenue curve and a given marginal cost curve near the first jump in marginal revenue and no intersections near the second jump. The determination of prices and quantities in each of these cases is shown in Figure A5. When there are two intersections between marginal revenue and marginal costs (see Figure A5(a)), the firm must further consider average total costs to compare profits at each potential set of prices and quantities. Alternatively, when the marginal cost curve lies entirely between the different portions of the marginal revenue curve (as in Figure A5(b)), the firm sets $p^* = p_M$ and sees all patients willing to pay at least p_M (i.e., the firm does not need to restrict capacity).

III.B Insurance expansions and firm entry decisions

Recall that we aim to examine how health insurance expansions affect firm profits, and in turn firm entry and exit decisions. We begin by demonstrating how expansions of Medicaid coverage and private insurance affect the demand facing clinics. As shown in Figure 3(b), Medicaid expansions increase the share of the population covered by Medicaid, thereby lengthening the perfectly elastic component of the total demand curve. In contrast, expansions of private insurance coverage increase the willingness to pay among non-Medicaid patients by reducing out-of-pocket costs among some segments of this population. As shown in Figure 3(b), this serves to rotate the demand curve among the non-Medicaid population upward.

How do such insurance expansions affect firm entry? Firms will enter (exit) the market when the average total cost is below (above) the profit-maximizing price. We first consider the effects of a private insurance expansion. As shown in Figure 4(a), an upward rotation of the demand curve among non-Medicaid patients leads clinics that did not accept Medicaid at baseline to increase quantity and prices (i.e., $q_2^* > q_1^*$ and $p_2^* > p_1^*$). Profits increase, inducing additional entry into the market. In contrast, it is possible for private expansions to have no effects on firm profits when the firm accepts Medicaid at baseline.[11] As shown in Figure 4(b), optimal quantity and price do not change (i.e., $q_2^* = q_1^* = p_M$ and $p_2^* = p_1^* = p_M$) when the marginal cost curve intersects the marginal revenue curve on a portion that is unaffected by the private expansion. Profits stay the same, and the expansion will have no effect on firm entry.

Now consider the effects of a Medicaid expansion. As shown in Figure 4(c), an inward shift in the demand curve among non-Medicaid patients leads clinics that did not accept Medicaid at baseline to decrease quantity and prices (i.e., $q_2^* < q_1^*$ and $p_2^* < p_1^*$). Profits decrease, and firms exit the market. However, as was the case with private expansions, it is

[11] There are two cases in which a private insurance expansion will cause profits to increase among firms that accepted Medicaid at baseline. First, suppose that marginal costs and marginal revenue intersected along the perfectly elastic portion of the demand curve but close to the first kink in total demand at baseline. If the upward rotation in demand among the non-Medicaid market is sufficient to cause the firm to stop accepting Medicaid (i.e., $p_2^* > p_1^* = p_M$), then profits will increase. Moreover, suppose that the marginal cost curve lies between the portions of the marginal revenue curve at baseline (i.e., there is no intersection). As shown in Figure A6(a), while optimal pricing is unaffected (i.e., $p_2^* = p_1^* = p_M$), optimal quantity—and firm profits—will increase.

possible for Medicaid expansions to have no effects on firm profits when the firm accepted Medicaid at baseline.[12] As shown in Figure 4(d), profits stay the same and the expansion will not lead to exit when the marginal revenue curve is unaffected by the expansion near its intersection with marginal costs.

IV Empirical strategy

IV.A Two-way fixed effects

Let $Clinics_{ct}$ denote the number of open retail clinics per 100,000 in county c in year t. To examine how county-level changes in the share of the population with health insurance covary with county-level changes in the number of retail clinics, we estimate the following specification:

$$Clinics_{ct} = \beta \cdot Insured_{ct} + \delta \cdot X_{ct} + \gamma_c + \gamma_t + \epsilon_{ct} \tag{1}$$

where $Insured_{ct}$ is the share of the population in county c in year t with health insurance coverage of any type; X_{ct} are time-varying, county-level controls listed in Table 1; and γ_c and γ_t are county and year fixed effects, respectively. Observations are weighted by county population in 2010, and standard errors are clustered by county.

Estimation of equation (1) shows how the concentration of retail clinics within a county covaries with the share of the population covered by any type of health insurance over time. To examine whether retail clinics respond differently to changes in the share of the population with different types of health insurance, we estimate the following specification:

$$Clinics_{ct} = \beta_1 \cdot Private_{ct} + \beta_2 \cdot Medicaid_{ct} + \delta \cdot X_{ct} + \gamma_c + \gamma_t + \epsilon_{ct} \tag{2}$$

where $Private_{ct}$ and $Medicaid_{ct}$ are the shares of the population with private insurance or Medicaid coverage in county c in year t, respectively, and all other variables are defined as in

[12] There is one case in which a Medicaid expansion will cause profits to increase among firms that accepted Medicaid at baseline. Suppose that the marginal cost curve lies between the different portions of the marginal revenue curve at baseline (i.e., there is no intersection). As shown in Figure A6(b), while optimal pricing will be unaffected by an expansion of Medicaid coverage in this case (i.e., $p_2^* = p_1^* = p_M$), optimal quantity increases (i.e., $q_2^* > q_1^*$). Profits likewise increase, leading to firm entry.

equation (1).[13] Observations are again weighted by county population in 2010, and standard errors are clustered by county.

While informative, results from estimation of equations (1) and (2) may not provide evidence of the causal effects of changes in health insurance on the concentration of retail clinics. Notably, health insurance in the United States is closely tied to income: while income eligibility requirements ensure a close connection between the share of the population with Medicaid coverage and the share living in poverty, the correlation between income and employment also leads the share of the population with private insurance—which is largely provided through employers—to be closely linked to the share of the population with incomes well above the FPL. While equations (1) and (2) control for county-level median income and the share of the population living in poverty, it could nevertheless be the case that any supposed preference for the privately insured (and distaste for those covered by Medicaid) is simply capturing retail clinics' preference for the wealthy (and distaste for the poor) rather than heterogeneity in the supply-side effects of health insurance coverage by insurance type.

IV.B Instrumental variables

To isolate the impacts of different types of insurance coverage separately from other county-level characteristics that are correlated with health insurance composition and might directly influence the entry and exit decisions of retail clinics, we instrument for changes in insurance coverage driven by changes in policy. In particular, we leverage four features of the ACA that drove differential changes in the share of the population covered by private insurance and the share of the population covered by Medicaid in each county.

The first two features affected changes in the share of the population eligible for Medicaid and have been commonly used in previous work. Most notably, 20 states expanded their Medicaid programs to extend eligibility to low-income, childless adults in 2014, with five states making similar changes between 2010 and 2013 (see Figure A4). As shown in Figure

[13] When considering effects by insurance type, X_{ct} further includes controls for the share of the population with Medicare and the share of the population with other types of insurance. With these additional controls, β_1 and β_2 reflect the impacts of increases in private insurance and Medicaid coverage, respectively, relative to the uninsured. Since changes in the share of population covered by health insurance other than private or Medicaid were minimal over our sample period, results are nearly identical if we exclude these additional controls.

A7(a), state-level variation in the decision of whether or not to expand Medicaid was a key driver of changes in Medicaid enrollment from 2013 to 2015.

Second, nearly all Medicaid expansions expanded coverage to individuals with incomes up to 138 percent of the FPL. As such, counties in expansion states with a higher share of their population making less than 138 percent of the FPL at baseline saw the greatest changes in the share of their populations covered by Medicaid after 2014. This is shown in Figure A7(b), in which we see that counties that were in states that expanded Medicaid by 2014 and had an above median share of the population under 138 percent of the FPL in 2013 saw among the largest increases in the shares of their populations with Medicaid coverage from 2013 to 2015.

We exploit two additional features of the ACA to instrument for changes in private insurance coverage. To the best of our knowledge, these instruments are novel and might be useful to researchers in other contexts. First, the ACA mandated that employers with 50 or more full-time employees provide health insurance coverage. Since over 70 percent of jobs are in companies with at least 50 employees (QWI, 2013), this provision led to increases in employer-sponsored health insurance coverage that were closely tied to a county's employment rate at baseline.

Moreover, starting in 2014, the ACA directed the federal government to begin providing subsidies for individuals with incomes between 138 and 400 percent of the FPL to purchase insurance through the newly designed exchanges ("direct purchase"). This provision led to increases in private coverage that were more pronounced among counties with a larger share of their population making incomes between 138 and 400 percent of the FPL at baseline. The impact of these provisions on changes in the share of the population covered by private insurance are shown in Figure A7(c) and (d), in which we see that county-level changes in the share of the population covered by private insurance from 2013 to 2015 were concentrated among counties with an above median employment rate and an above median share of the population with incomes between 138 and 400 percent of the FPL in 2013.

We use these instruments to examine the causal effects of changes in health insurance on the concentration of retail clinics. To isolate variation in insurance stemming from these

policy changes, we estimate first stages of the form:

$$\begin{aligned}\{Insured_{ct},\, Private_{ct},\, Medicaid_{ct}\} = \\ &\alpha_1 \cdot Post_t \cdot Employed_c^{2013} + \alpha_2 \cdot Post_t \cdot [138 - 400\%\ FPL]_c^{2013} \\ &+ \alpha_3 \cdot Post_t \cdot [< 138\%\ FPL]_c^{2013} \cdot Expansion_s \\ &+ \alpha_4 \cdot Post_t \cdot [< 138\%\ FPL]_c^{2013} + \alpha_5 \cdot Post_t \cdot Expansion_s \\ &+ \delta \cdot X_{ct} + \gamma_c + \gamma_t + \epsilon_{ct} \end{aligned} \tag{3}$$

where $Post_t$ is an indicator denoting years 2014 and onward; $Expansion_s$ is an indicator denoting whether state s expanded Medicaid by 2014; $Employed_c^{2013}$ denotes the share of the population that was employed in 2013 in county c; $[138 - 400\%\ FPL]_c^{2013}$ and $[138 - 400\%\ FPL]_c^{2013}$ denote the share of the population that was uninsured, between the ages of 18 and 64, and either below 138 percent of the FPL or between 138 and 400 percent of the FPL, respectively, in county c in 2013; and all other variables are defined as in equation (1). Throughout this section, observations are again weighted by county population in 2010, and standard errors are clustered by county.

We estimate equation (3) separately using the county-year share of the population with any health insurance, private insurance coverage, or Medicaid coverage as the dependent variable. While the first instrument ($Post_t \cdot Employed_c^{2013}$) shifts individuals into employer-sponsored health insurance, the second instrument ($Post_t \cdot [138 - 400\%\ FPL]_c^{2013}$) shifts individuals into direct purchase, and the third instrument ($Post_t \cdot [< 138\%\ FPL]_c^{2013} \cdot Expansion_s$) shifts individuals into Medicaid, we nevertheless include all three instruments when considering a given type of insurance since there could be crowd-out across different types of insurance.

Again letting $Clinics_{ct}$ denote the number of open retail clinics per 100,000 in county c in year t, we then estimate the following second-stage regressions:

$$\begin{aligned} Clinics_{ct} \;=\; &\left\{\beta \cdot \widehat{Insured}_{ct},\ \beta_1 \cdot \widehat{Private}_{ct} + \beta_2 \cdot \widehat{Medicaid}_{ct}\right\} \\ &+\alpha_4' \cdot Post_t \cdot [< 138\%\ FPL]_c^{2013} + \alpha_5' \cdot Post_t \cdot Expansion_s \\ &+\delta' \cdot X_{ct} + \gamma_c' + \gamma_t' + \epsilon_{ct}' \end{aligned} \tag{4}$$

where $\widehat{Insured}_{ct}$, $\widehat{Private}_{ct}$, and $\widehat{Medicaid}_{ct}$ denote the predicted shares of the population with health insurance of any type, private insurance coverage, and Medicaid coverage at the county-year level from estimation of equation (3), respectively, and all other variables are defined as in equation (3). As in Section IV.A, we estimate this equation separately using either the share of the population with any type of health insurance or the shares of the population with private insurance and Medicaid coverage as the key independent variables to examine both the average effects of health insurance coverage and differences in effects by insurance types.

Figure A8 shows how this instrumental variables approach addresses endogeneity concerns stemming from the relationship between insurance rates and local socio-demographics. In particular, the figure displays output from balancing regressions in which we examine how insurance provision at the county-year level correlates with local socio-demographic compositions across various specifications. For each insurance type in each subfigure, the top row shows results from estimation of equation (2) without county fixed effects ("Cross-section"), the second row shows results from estimation of equation (2) ("County FEs"), and the final row shows results from estimation of equation (4) ("2SLS").

As shown by the cross-sectional specifications, differences in the share of the population with different types of insurance coverage across counties are associated with differences in population density, share white, median income, and the employment rate. Notably, however, many of these associations are attenuated when we consider within-county changes in demographics and insurance provision, although increasing private insurance coverage is still associated with increases in local employment and income. Reassuringly, our instrumental variables approach further attenuates these relationships, isolating variation in insurance provision that is driven by changes in policy rather than changes in local socio-demographics that might independently influence the entry and exit decisions of retail clinics.

IV.C Openings versus closings

Variation in the number of clinics over our sample period is driven both by clinic entry and exits; as noted in Section II, there were over 50 entries and nearly 22 exits on average in

each quarter from 2010–2016 (see Figure A1). To examine whether the effects of health insurance coverage on the concentration of retail clinics are driven by entries, exits, or both, we conduct two additional set of analyses.

First, we estimate analogs of the two-way fixed effects specifications introduced in Section IV.A using the number of clinics entries or exits at the county-year level as the dependent variable. Since entries and exits are flow measures, rather than stocks, we specify the right-hand side of the equation in first differences when considering these outcomes. We further control for the number of retail clinics per 100,000 in the previous period to account for the fact that openings (closings) are less (more) common in markets with many retail clinics. Letting $Entries_{ct}$ and $Exits_{ct}$ denote the number of retail clinic entries or exits at the county-year level, respectively, we estimate the following specification:

$$\begin{aligned}\{Entries_{ct},\, Exits_{ct}\} = \;& \{\beta \cdot \Delta Insured_{ct},\; \beta_1 \cdot \Delta Private_{ct} + \beta_2 \cdot \Delta Medicaid_{ct}\} \\ & + \eta \cdot Clinics_{ct-1} + \delta \cdot \Delta X_{ct} + \gamma_t + \epsilon_{ct} \end{aligned} \tag{5}$$

where Δ denotes the first difference operator and all other variables are defined as in equations (1) and (2). Throughout this section, observations are weighted by county population in 2010, and standard errors are clustered by county.

Second, we estimate analogs of the instrumental variables specifications introduced in Section IV.B using the number of clinic entries or exits at the county-year level as the dependent variable. In these specifications, both the first and second-stage regressions are in first differences. In particular, we estimate the following first-stage regressions to predict one-year changes in the share of the population with any insurance, private insurance, and Medicaid coverage:

$$\begin{aligned}\{\Delta Insured_{ct},\, \Delta Private_{ct},\, \Delta Medicaid_{ct}\} = \\ & \alpha_1 \cdot \Delta \left\{ Post_t \cdot Employed_c^{2013} \right\} + \alpha_2 \cdot \Delta \left\{ Post_t \cdot [138 - 400\%\ FPL]_c^{2013} \right\} \\ & + \alpha_3 \cdot \Delta \left\{ Post_t \cdot [< 138\%\ FPL]_c^{2013} \cdot Expansion_s \right\} \\ & + \alpha_4 \cdot \Delta \left\{ Post_t \cdot [< 138\%\ FPL]_c^{2013} \right\} + \alpha_5 \cdot \Delta \left\{ Post_t \cdot Expansion_s \right\} \\ & + \delta \cdot \Delta X_{ct} + \eta \cdot Clinics_{ct-1} + \gamma_t + \epsilon_{ct} \end{aligned} \tag{6}$$

We then estimate the following second-stage regressions using the predicted insurance changes from equation (6):

$$\begin{aligned}\{Entries_{ct},\, Exits_{ct}\} = \; & \left\{\beta \cdot \Delta\widehat{Insured}_{ct},\; \beta_1 \cdot \Delta\widehat{Private}_{ct} + \beta_2 \cdot \Delta\widehat{Medicaid}_{ct}\right\} \\ & + \alpha_4' \cdot \Delta\left\{Post_t \cdot [< 138\%\ FPL]_c^{2013}\right\} + \alpha_5' \cdot \Delta\left\{Post_t \cdot Expansion_s\right\} \\ & + \delta' \cdot \Delta X_{ct} + \eta' \cdot Clinics_{ct-1} + \gamma_t' + \epsilon_{ct}' \end{aligned} \tag{7}$$

where Δ again denotes the first difference operator, and all other variables in equations (6) and (7) are defined as in equations (3) and (4).

V Results

V.A Raw data

We begin by examining patterns in the raw data. Recall from Figure 2(a) that the share of the population with health insurance coverage across the United States (dark, solid line) increased by seven percentage points from 2010 to 2016, with most of this growth concentrated from 2013 to 2015. Notably, the number of open retail clinics (light, dashed line) were also growing over this period, suggesting that retail clinic growth might be driven by increased insurance provision.

To examine whether growth in retail clinic penetration was concentrated in areas with growth in insurance coverage, we examine how county-level changes in the number of retail clinics from 2013 to 2015 covary with county-level changes in health insurance coverage over the same period. In particular, Figure 5(a) groups counties into deciles based on changes in the share of the population with health insurance from 2013 to 2015 and plots the average change in retail clinics per 100,000 over the same period among counties in each decile. Perhaps surprisingly, there is no relationship between growth in insurance coverage and retail clinic growth in the raw data. Counties saw an average growth of approximately 0.15 retail clinics per 100,000 people from 2013 to 2015, with strikingly similar growth in areas both with and without large gains in the share of the population with any health insurance

coverage.

While there is no association between changes in any health insurance and retail clinic growth, this null effect could be masking heterogeneity by insurance type. Recall from Figure 2(b) that both private insurance and Medicaid coverage grew rapidly from 2013 to 2015, accounting for nearly all of the growth in health insurance coverage over the time period. To examine how retail clinic growth is associated with changes in different types of insurance, we replicate Figure 5(a) using either changes in private insurance or Medicaid coverage across counties from 2013 to 2015. Since county-level changes in private insurance and Medicaid coverage are somewhat negatively correlated over this time period (see Figure 2(c)), we show both the raw association between changes in retail clinic concentration and changes in each type of insurance as well as these patterns conditional on changes in all other types of health insurance coverage.

These relationships are shown in Figures 5(b) and (c). Comparing the two subfigures, a striking pattern emerges: retail clinic growth is strongly, positively correlated with growth in private insurance and strongly, negatively correlated with growth in Medicaid coverage. These patterns hold even conditional on changes in other types of health insurance, indicating that the opposing patterns are not simply driven by the negative correlation between changes in the two insurance types. Looking first to Figure 5(b), we see that counties that experienced the largest growth in private insurance coverage following the ACA saw an increase of over 0.2 retail clinics per 100,000 people compared to an increase of less than 0.10 clinics per 100,000 in counties with the lowest growth in the share of the population with private insurance. The association between changes in Medicaid coverage and retail clinic growth is even more pronounced, with counties that experienced high growth in Medicaid coverage seeing almost no increase in retail clinic concentration over the time period (Figure 5(c)). In contrast, areas that experienced low growth in Medicaid coverage saw increases in retail clinic penetration that were comparable—even conditional on changes in private insurance coverage—to those experienced in areas with the highest growth in private insurance coverage.

V.B Two-way fixed effects

To control for general time trends and differences across locations, we estimate equations (1) and (2). As shown in column (1) of Table 2, there is no statistically significant effect of county-level growth in health insurance coverage on the concentration of retail clinics. This finding counters the common belief that supply-side responses will necessarily accompany sizable insurance expansions.

However, as suggested by the patterns in the raw data, this null result masks important heterogeneity by insurance type. As shown in column (2) of Table 2, growth in private insurance leads to significant increases in clinic growth, whereas growth in Medicaid coverage leads to significant reductions. The estimates suggest that growth in private insurance coverage of five percentage points, the average increase experienced by sample counties over our time period, led to a relative increase of 0.049 retail clinics per 100,000, or an increase of 8.0 percent relative to the mean. Moreover, growth in Medicaid coverage of four percentage points, the average increase experienced by counties in our sample over our time period, led to a relative reduction of 0.051 retail clinics per 100,000, or a decrease of 8.4 percent relative to the mean.

These results suggest that retail clinics have a strong preference for private insurance and a strong distaste for Medicaid. To examine this distaste for Medicaid further, we estimate an analogue of equation (2) in which we interact the county-level shares of the population with either private insurance or Medicaid coverage with an indicator denoting whether the county experienced an above median increase in Medicaid coverage from 2013 to 2015. This indicator largely proxies for counties in states that expanded Medicaid but further incorporates the fact that some counties in Medicaid expansion (non-expansion) states nevertheless experienced small (large) increases in Medicaid coverage.

As shown in column (3) of Table 2, increases in private insurance coverage only led to relative growth in the concentration of retail clinics in areas that experienced below median increases in Medicaid coverage. Moreover, increases in Medicaid coverage only led to relative reductions in the concentration of retail clinics in areas that experienced above median increases in the share of the population covered by Medicaid. These patterns underscore

retail clinics' apparent distaste for Medicaid and the lexicographic nature of their preferences: retail clinics appear to first avoid counties with high increases in Medicaid coverage and then locate in counties with large increases in private insurance coverage among this subset.[14]

V.C Instrumental variables

The patterns in the raw data and the two-way fixed effects analyses suggest that growth in private insurance provision leads to increases in the concentration of retail clinics whereas growth in Medicaid coverage dampens clinic penetration. To ensure that these relationships are being driven by changes in insurance rather than other county-level characteristics that might affect retail clinic presence and correlate with changes in insurance, we isolate changes in insurance coverage induced by changes in policy. This instrumental variables approach has the additional benefit of correcting for measurement error in county-level insurance rates, which is likely to be significant since this data is based on self-reports from a survey of approximately one percent of the population.

As outlined in Section IV.B, we exploit provisions of the ACA to instrument for changes in insurance coverage. First-stage results from estimation of equation (3), which show the impacts of these instruments on changes in the share of the population with any health insurance coverage and health insurance coverage of different types, are shown in the top panel of Table 3. Looking first to column (1), we see that all three instruments strongly predict county-level changes in the share of the population with any health insurance coverage. This is because the vast majority of growth in insurance coverage over our sample period was driven by changes in private insurance and Medicaid coverage, and the instruments strongly predict changes in these insurance types: As shown in column (3), areas with higher employment and a greater share of the population between 138 and 400 percent of the FPL at baseline saw greater increases in private insurance coverage following the implementation

[14] An alternative way to see this is to estimate equation (2) separately among states that did and did not expand Medicaid. As shown in Table A3, increases in private insurance coverage only led to significant increases in the concentration of retail clinics in states that did not expand Medicaid. This is despite the fact that many counties in Medicaid expansion states also experienced sizable increases in private insurance coverage: counties in states that expanded Medicaid experienced an average increase in private insurance coverage of 2.2 percentage points over our sample period (range: -12.7 to 14.8 percentage points) compared to an average increase of 5.8 percentage points among counties in states that did not expand Medicaid (range: -5.2 to 23.5 percentage points).

of the ACA. Moreover, growth in Medicaid coverage was significantly higher following the ACA in counties that had a higher share of the population below 138 percent of the FPL at baseline and were in states that expanded Medicaid (column (4)).

The two-stage least squares estimates from estimation of equation (4), which show the impacts of instrumented insurance changes on growth in the concentration of retail clinics, are provided in the bottom panel of Table 3. As shown in column (2), there is no statistically significant effect of the share of the population with any health insurance on retail clinic concentration. However, as suggested by our previous analyses, this null effect masks important heterogeneity by insurance type: as shown in column (5), growth in private insurance leads to large growth in clinic penetration, whereas growth in Medicaid coverage leads to large reductions in the concentration of retail clinics.

The effects by insurance type are not only statistically significant, but also economically meaningful. In particular, the estimates in column (5) indicate that growth in private insurance coverage of five percentage points—the average increase experienced by counties in our sample over our time period—leads to an increase of 0.142 retail clinics per 100,000, or nearly 25 percent relative to the mean. The effects for Medicaid are even more pronounced, with growth in Medicaid coverage of four percentage points—the average increase experienced by sample counties over our time period—leading to a reduction of 0.202 retail clinics per 100,000, or over 30 percent relative to the mean. Notably, the instrumental variable estimates are much larger than the corresponding two-way fixed effects estimates for both private insurance and Medicaid coverage, suggesting that the estimates in Table 2 were severely attenuated by measurement error.

V.D Openings versus closings

Recall that there was significant entry and exit of retail clinics over our sample period (see Figure A1). To examine whether the effects of insurance growth on clinic concentration are driven by changes in entry, exit, or both, we estimate equations (5) and (7). First-stage results from estimation of equation (6), which confirm that annual changes in our instruments are strong predictors of annual changes in insurance growth, are provided in Table A4.

We again begin by considering the effects of changes in health insurance coverage of any

type. As shown in columns (1) and (2) of Table 4, there are no significant effects of changes in health insurance provision on either the entry (top panel) or exit (bottom panel) of clinics. It is worth noting, however, that the point estimates go in the anticipated directions, with the coefficient on insurance coverage being positive in the entry specifications and negative in the exit specifications. Moreover, the point estimates from the instrumental variables analyses (column (2)) are again much larger than the two-way fixed effects specifications (column (1)).

Columns (3) and (4) in Table 4 turn to examining the effects of different types of health insurance coverage. Looking first to the results for private insurance, we in the top panel of Table 4 that growth in private insurance coverage leads to large increases in clinic entry. In particular, the instrumental variables estimate in the top panel of column (4) indicates that growth in private insurance coverage of 0.86 percentage points—the average annual change among sample counties over our sample period—led to an annual increase of 0.028 retail clinic entries per 100,000, or over 35 percent relative to the mean. Moreover, growth in private insurance coverage led to significant reductions in clinic exit: as shown in the bottom panel of column (4), private insurance growth of 0.86 percentage points reduced annual clinic exit by 0.011 per 100,000, a 33 percent reduction relative to the average exit rate. These results show that the positive effects of private insurance coverage on clinic growth are driven both by increased clinic entry and reduced clinic exit.

Turning to the results for Medicaid coverage, we see that the dampening of clinic growth in areas with increasing Medicaid coverage is driven predominately by increased exit. As shown in the bottom panel of column (4), increased Medicaid coverage of 0.69 percentage points—the average annual change among sample counties over our sample period—led to an increase in annual clinic exit of 0.012 per 100,000, an increase of over 35 percent relative to the average exit rate. These results call into question the viability of retail clinics in markets with increasing Medicaid coverage and suggest that such clinics are not well positioned to help absorb additional health care demand stemming from such expansions.

V.E Robustness

We conduct a number of additional analyses to probe the robustness of our findings. As outlined in Sections IV.A and IV.B, we include time-varying, county-level controls in our baseline specifications and weight county-level observations by county population in 2010. Reassuringly, these empirical choices have little impact on the magnitude of our estimated effects and the precision of our estimates. This can be seen in Figure A9, which shows how our baseline estimates first presented in Tables 2 and 3 change under alternative specifications. As shown in the top three rows of each sub-panel of each subfigure, our two-way fixed effects estimates (top panel) and two-stage least squares estimates (bottom panel) are quantitatively robust to excluding time-varying sociodemographic controls and to giving all observations equivalent weight in estimation. This is true both for our estimated effects of the share of the population with private insurance (subfigure (a)) and for the share of the population with Medicaid coverage (subfigure (b)).

As outlined in Section II, we consider states as having expanded Medicaid if they expanded their Medicaid programs to include individuals making up to at least 138 percent of the FPL by 2014. This includes 20 states that did so in 2014 and five states (California, Connecticut, Delaware, Minnesota, and New Jersey) that did so in part between 2010 and 2014. Since the timing of our instrumental variables analysis—which considers 2014 onwards as the "post" period for Medicaid expansions—will be less accurate for these early expanders, we replicate our analysis dropping counties in these five early expansion states. As shown in the final row of each sub-panel in Figure A9, our results are very similar when we exclude early expanders.

VI Extensions

VI.A Heterogeneity by Medicaid reimbursement rates

As outlined in Section III, the impacts of changes of insurance provision should vary depending on whether a clinic was accepting Medicaid at baseline (or would have accepted Medicaid, had they entered). While we do not have historical information on retail clinic

acceptance of Medicaid coverage, we do have historical information on state-level Medicaid reimbursement rates for office visits from Alexander and Schnell (2019). As shown in Figure A10(a), there was wide variation across the United States in the amount that providers were reimbursed under Medicaid for a low-complexity office visit (CPT 99201) in 2010.

Since the level of Medicaid reimbursements dictates the vertical positioning of the perfectly elastic component of demand in the framework introduced in Section III, reimbursement levels across states should correlate with Medicaid acceptance at retail clinics. In particular, holding marginal costs fixed, clinics in states with higher reimbursement rates should be more likely to accept Medicaid, and thus less responsive to changes in Medicaid and private expansions. Reassuringly, Figure A10(b) shows that states with above-median reimbursements under Medicaid in 2015 (the latest year available in the reimbursement data) were more likely to have some form of Medicaid accepted at their CVS MinuteClinics in 2020.[15]

We therefore use state-level Medicaid payment rates in 2010 as a proxy for whether clinics within that state were likely to have accepted Medicaid at baseline. Splitting the sample by terciles of Medicaid reimbursement levels in 2010, we replicate Figures 5(b) and (c) separately for states in the bottom and top terciles of Medicaid reimbursements. In particular, for each payment tercile, we group counties into deciles based on changes in the share of the population with private insurance or Medicaid coverage from 2013 to 2015 and plot the average change in retail clinics per 100,000 over the same period among counties in each decile. As before, we focus on changes in a given type of insurance conditional on changes in other types of health insurance coverage.

These results are presented in Figure 6. Despite losing some precision when focusing on a subset of states, we see in Figure 6(a) that the positive association between growth

[15]We hand-collected data on Medicaid acceptance among CVS MinuteClinics—which accounted for an average of 49.6 percent of all retail clinics in each year over our sample period—in 2020. To do so, we navigated to CVS's "Insurance Check" website, selected an insurance carrier and plan from the dropdown menu, filled in a zip code, and then recorded all clinics within 20 miles of the chosen zip code that accepted the selected carrier and plan. Repeating this for all combinations of carriers, plans, and zip codes, we recovered a comprehensive list of the locations in which CVS MinuteClinics accepted at least one Medicaid plan in 2020. Among the 34 with CVS MinuteClinics, these data indicate that at least some form of Medicaid coverage was accepted at the company's clinics in 23 (67.6 percent). We thank Danielle Handel and Jimmy Kim for help with this exercise.

in private insurance coverage and clinic penetration is most pronounced among counties in the bottom tercile of Medicaid payments (i.e., locations in which clinics are least likely to accept Medicaid). Consistent with the theory outlined in Section III, there is no apparent relationship between growth in private insurance coverage and growth in retail clinics among counties in states with the highest Medicaid payments. As shown in Figure 6(b), similar patterns are observed for Medicaid coverage, with the negative effects of growth in Medicaid coverage on the concentration of retail clinics being the most pronounced in locations with low Medicaid payments at baseline.

VI.B Heterogeneity by baseline resources

An outstanding question is whether the heterogeneous supply-side responses to different types of health insurance expansions that we document are good or bad from the perspective of the social planner. If private insurance expansions induce clinics to enter previously underserved areas, whereas Medicaid expansions induce clinics to exit (or stop entering) areas that had an excess supply of health care resources at baseline, then such responses might simultaneously address existing access barriers while limiting the scope for unnecessary service provision. However, if clinics enter areas with sufficient baseline resources following private insurance expansions and exit areas with insufficient baseline resources following Medicaid expansions, then such responses will exacerbate inequities in health care access and may lead to additional and unnecessary service use in well-resourced areas.

To examine how supply-side responses to insurance expansions vary by baseline health care resources, we supplement our main data sets with two measures of primary care resources in 2010 from the HRSA. First, we use information on whether each county was designated a primary care shortage area in 2010; these designations are determined by the HRSA using information on the number of providers per capita, distance to the nearest source of care, local poverty rates, and measures of infant health. Splitting the sample into counties that were and were not designated as full primary care shortage areas in 2010, we replicate Figures 5(b) and (c) separately among these two groups of counties.[16] Second, to examine potential

[16]The HRSA divides counties into three groups: (1) whole county designated as a primary care shortage area ("full shortage"), (2) one or more parts of county designated as a primary care shortage area ("partial

heterogeneity in effects by baseline resources alone, we use county-level information from the HRSA on the number of primary care physicians and nurse practitioners ("primary care providers") per capita. Splitting the sample by terciles of primary care providers per capita in 2010, we replicate Figures 5(b) and (c) separately among counties in the bottom and top terciles.[17] As before, we focus on changes in a given type of insurance conditional on changes in other types of health insurance coverage.

Results from these analyses are presented in Figure 7. Looking first to subfigure (a), which presents heterogeneity by shortage designation, we see that the positive supply-side effects of private insurance expansions (left subfigure) are predominately concentrated in non-shortage areas. In contrast, the negative supply-side effects of Medicaid expansions (right subfigure) are observed across both shortage and non-shortage areas. When splitting the sample by primary care providers per capita at baseline in subfigure (b), we see that the positive supply-side effects of private insurance (left subfigure) are observed in areas with both a high and low concentration of primary care providers, whereas the negative supply-side effects of Medicaid coverage (right subfigure) are concentrated in areas with the lowest supply of providers at baseline. Taken together, these results show that the heterogenous supply-side responses to different types of health insurance expansions are unlikely to address existing access barriers and may exacerbate unnecessary service provision in well-resourced areas.

In addition to highlighting that both the positive and negative supply-side responses to insurance expansions are concentrated in the "wrong" places from the perspective of the

shortage"), or (3) none of the county designated as a primary care shortage area ("no shortage"). In 2010, 42 (40) (18) percent of U.S. counties were designated as full (partial) (non-) primary care shortage areas. A similar distribution is observed among our sample of 555 counties, with 37, 49, and 14 percent of counties being designated as full, partial, and non- primary care shortage areas, respectively. Since only 76 sample counties are designated as non-shortage areas, we group partial shortage and non-shortage areas and compare outcomes relative to full shortage areas.

[17] If provider location decisions are affected by Medicaid reimbursement rates, then this analysis will be closely related to the findings in Section VI.A. Suppose that areas with low reimbursements rates are both (1) less likely to have Medicaid accepted at local clinics and (2) have fewer local providers. In this case, because of the positive correlation between provider concentration and Medicaid acceptance that runs through reimbursement rates, we might observe that the positive (negative) supply-side effects of private insurance (Medicaid) coverage are concentrated in areas with few local providers. However, as shown in Figure 7, we find that the positive effects of growth in private insurance and the negative effects of Medicaid coverage are, if anything, concentrated in areas with differing baseline resources. Nevertheless, we provide a version of Figure 7 that controls for state-level Medicaid reimbursement rates at baseline. As shown in Figure A11, the patterns are very similar when controlling for baseline rates.

social planner, we note that this analysis further rules out an alternative mechanism for the negative supply-side effects of Medicaid expansions that we observe. Since individuals moving from being uninsured to having Medicaid coverage may increase their use of more traditional health care delivery outlets (Finkelstein et al., 2012; Taubman et al., 2014), Medicaid expansions might not generate growth in demand for retail clinics. If this were the case, then the heterogenous effects of insurance expansions might be driven by differential effects on demand rather than differential effects on provider pricing. While the results in Section VI.A already suggest that provider prices play an important role, the patterns in Figure 7 further suggest that differential demand-side responses are unlikely to explain our findings. In particular, the negative supply-side effects of growth in Medicaid coverage are largest in areas with the least primary care providers per capita. Since areas with few providers at baseline offer the least scope for use of traditional health care delivery mechanisms, increased demand for retail clinics following Medicaid expansions should, if anything, be most pronounced in such areas.

VI.C Urgent care centers

To examine whether our results are likely to extend to other providers in the primary care market, we examine the location patterns of urgent care centers. Like retail clinics, urgent care centers are on-demand health care clinics that have experienced dramatic growth in the past two decades. In contrast to retail clinics, however, urgent care centers are typically staffed by medical doctors rather than nurse practitioners, treat both minor and moderately severe conditions rather than only minor illnesses, and are increasingly owned and operated by hospital systems rather than major retail outlets.

As outlined in Section II, data covering the locations of all 12,721 urgent care centers operating in the United States in 2021 come from the NUCR database. As these data contain no information on urgent care centers that opened and closed before 2021, it is difficult to replicate our primary analyses for these clinics. However, we can examine how the association between the local provision of health insurance and the concentration of urgent care centers in the cross-section compares to that observed among retail clinics to probe whether these clinic types exhibit similar location patterns. In particular, we examine how the number of retail

clinics per 100,000 in 2016 and the number of urgent care centers per 100,000 in 2021 covary at the county level with the share of the population covered by different types of insurance in the 2012–2016 and 2016–2020 ACS, respectively. As these cross-sectional relationships could be confounded by other differences across locations, we consider the correlation between insurance coverage and clinic penetration both unconditional and conditional on a range of local socio-demographics.

As shown in Figure 5(a), the county-level concentration of retail clinics in 2016 was strongly increasing in the share of the population covered by private insurance and strongly decreasing in the share of the population covered by Medicaid. The raw gradients are striking: counties with the highest rates of private insurance coverage or the lowest rates of Medicaid coverage had nearly 1.2 retail clinics per 100,000 whereas counties at the other end of each spectrum were largely unserved by retail clinics. While these relationships are somewhat attenuated when controlling for local socio-demographics including the local racial, age, education, and income structure, pronounced gradients in clinic penetration persist among counties with similar demographics but different shares of the population covered by private insurance or Medicaid.

Moreover, as shown in Figure 5(b), the relationship between local insurance composition and the concentration of urgent care centers in 2021 closely mirrors the patterns observed among retail clinics in 2016. While counties with the lowest (highest) share of patients covered by private insurance (Medicaid) had less than 3.5 urgent care centers per 100,000 in 2021, counties with the highest (lowest) shares of patients covered by private insurance (Medicaid) had nearly thirty percent more clinics per capita. While these gradients are again attenuated when conditioning on other local socio-demographics, in part due to the fact that conditioning on such demographics absorbs much of the variation in the share of the population with private insurance coverage across counties, the location patterns in the raw data nevertheless indicate that urgent care centers—like retail clinics—are disproportionately located in areas with high rates of private insurance and low rates of Medicaid coverage.

VII Discussion and conclusion

Seminal work by Arrow (1963) argued that health insurance expansions should lead the supply side to expand. The economics behind this insight is simple: Health insurance expansions reduce the prices paid by consumers for any level of service provision, thereby shifting the demand curve outwards. This shifting of the demand curve leads to upward movement along the supply curve—that is, the supply side expands—to arrive at a new equilibrium.

We show that this understanding of health insurance expansions is incomplete. To understand how health insurance expansions affect the supply side, one must also take into account how such expansions affect the prices paid to providers. In markets with a mix of patients covered by insurance that pays either administered or market-based pricing, a common feature of modern health insurance markets in both the United States and abroad, health insurance expansions can lead the supply side to contract if such expansions (1) shift patients into programs with administered prices and (2) these administered prices are sufficiently low such that firms did not opt to serve the program's beneficiaries at baseline.

We begin by confirming the predictions of Arrow (1963) for health insurance expansions that reduce the prices paid by consumers but are likely to weakly increase the prices received by providers. Leveraging growth in private insurance stemming from the ACA, we find that expansions of private insurance increase the concentration of retail clinics. These effects are large and indicate that an increase in private insurance coverage of five percentage points—the average increase experienced by sample counties following the ACA—led to an increase in clinic concentration of nearly 25 percent relative to the mean.

Moreover, additional analyses show that these positive supply-side effects of health insurance are likely the result of outward shifts in demand. In particular, while we consider employer-sponsored and direct purchase insurance jointly as "private" insurance coverage throughout, consumers who directly purchase their health insurance are more likely to be covered by high-deductible health plans (HDHPs) than consumers who receive their insurance through their employer.[18] If patients with HDHPs are unlikely to have reached their deductibles, and thus are effectively uninsured for the services that they receive, then the out-

[18] In 2016, over 50 percent of adults with direct purchased coverage were enrolled in HDHPs compared to only 39 percent among adults with employment-based coverage (NCHS, 2017).

ward shift in demand—and the subsequent positive supply-side effects of health insurance—should be less pronounced for expansions of direct purchase versus employer-sponsored coverage. Examining the effects of direct purchase and employer-sponsored coverage separately, we find that the positive supply-side effects of private insurance are driven predominately by employer-sponsored coverage.[19] Consistent with Arrow (1963), this suggests that the positive supply-side effects of health insurance are mediated by the generosity of cost-sharing for patients.

However, not all insurance expansions weakly increase the prices received by providers. In the United States, Medicaid tends to pay providers less than private coverage (Alexander and Schnell, 2019), and these lower reimbursement rates are compounded by administrative hassles that providers face billing the program (Dunn et al., 2021). Despite being very generous for patients, with limited to no cost-sharing, we find that in the case of on-demand health care clinics—key contributors to the expansion of health care systems in recent years—recent growth in Medicaid coverage caused the supply side to contract. The effects are large, with the negative effects on clinic penetration in counties with the average increase in Medicaid coverage being similar in magnitude, but opposite in sign, to the positive effects on the concentration of clinics in counties with average growth in private insurance coverage.

The supple-side effects that we document are likely inefficient from the perspective of the social planner. While growth in clinics following private insurance expansions is larger in areas with sufficient baseline resources, reductions in clinic penetration following growth

[19]We conduct two sets of analyses to examine whether clinic penetration responds differently to private insurance plans that are directly purchased rather than provided through employers. First, we estimate analogues of our primary specifications that include the county-year level shares of the population with employer-sponsored coverage and direct purchase insurance separately on the right-hand side instead of the share of the population with private insurance. While the coefficient on the share of population with employer-sponsored coverage is twice the corresponding baseline estimate for all private insurance and statistically significant at the one percent level in the instrumental variables specification, the coefficient on the share of the population with direct purchase insurance is negative and not statistically significant at conventional levels (see Table A5). Second, we estimate versions of equations (4) that leverage each of our private insurance instruments separately. Since the first instrument—the baseline employment rate—predominately shifts individuals into employer-sponsored health insurance while the second instrument—the baseline population share with incomes between 138 and 400 percent of the FPL—predominately shifts individuals into direct purchase coverage, the estimated effects of private insurance coverage from versions of equation (4) that only include the first or second private insurance instrument can be loosely thought of as showing the effects of employer-sponsored and direct purchase insurance, respectively. The results from this analysis further suggest that the positive supply-side effects of private insurance coverage are driven predominately by employer-sponsored coverage (see Table A6).

in Medicaid coverage are more pronounced in areas with fewer providers per capita. This suggests that supply-side responses to insurance expansions have the potential to contribute to unnecessary service use in well-resourced areas while further limiting access in areas with an already limited supply of providers. We note, however, that the effects on consumer welfare remain uncertain. While an increase in health care access might improve patient welfare in areas with growth in private insurance coverage, insurers might increase premiums for consumers in response to increased service use. A careful examination of how the effects of health insurance expansions on the entry and location patterns of firms affect consumer welfare is a fruitful area for future research.

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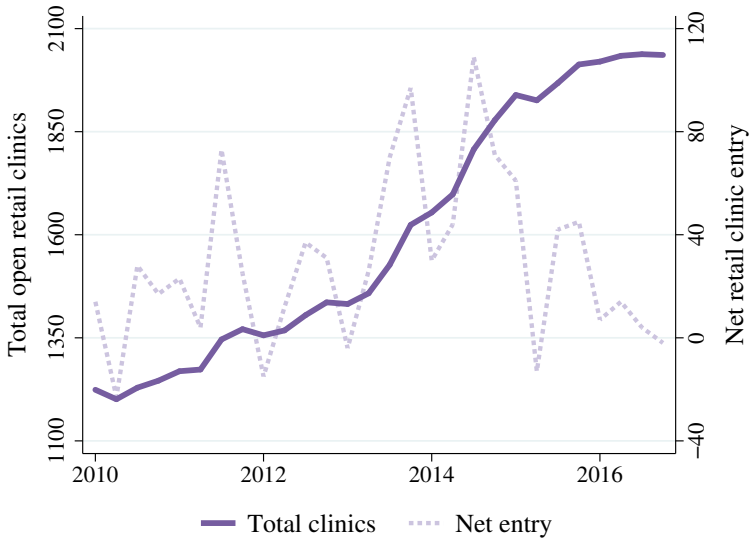
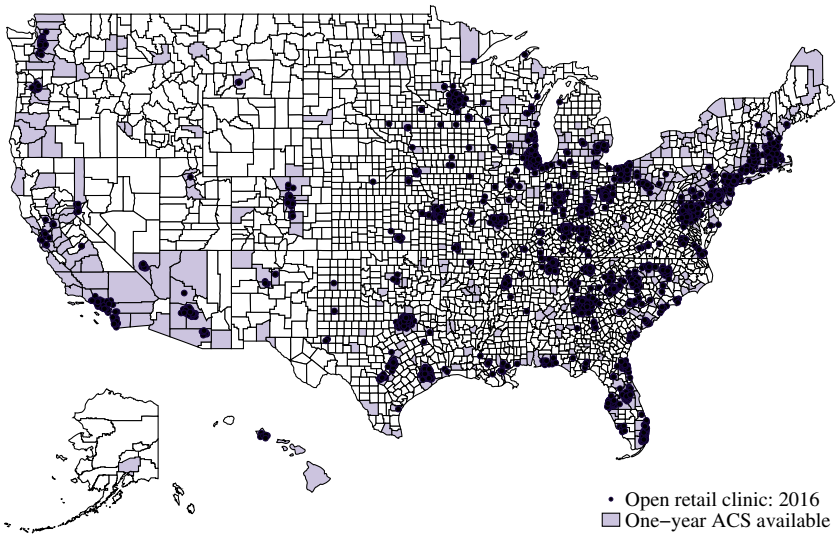
VIII Figures

Figure 1: Retail clinics across the United States

(a) Quarterly total and net entry: 2010–2016



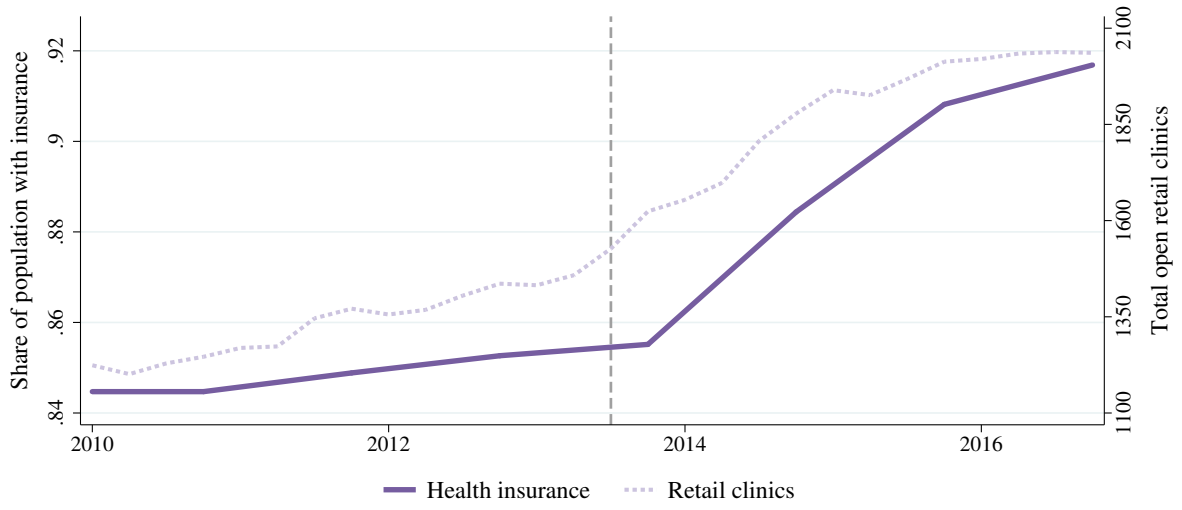
(b) Locations: 2016



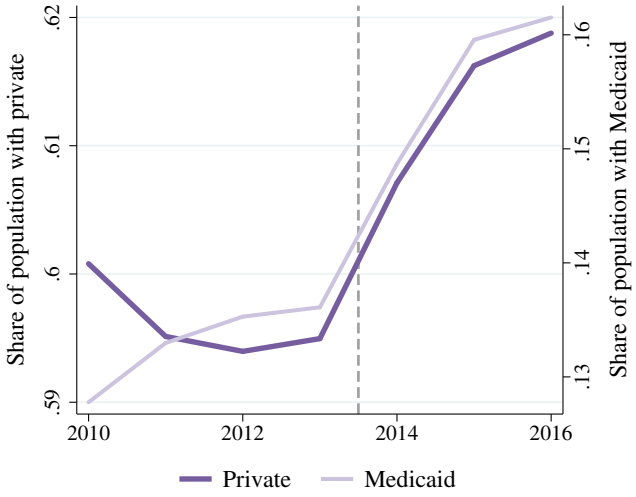
Notes: The above figures show the number and locations of retail clinics across the United States. Subfigure (a) shows the total number of retail clinics (dark, solid line) and net entry (light, dashed line) quarterly from 2010–2016. "Net entry" refers to the total number of openings net of the total number of closings in a given quarter; refer to Figure A1 for openings and closings separately over the same period. Subfigure (b) shows the locations of retail clinics in 2016 (geo-coded dots). Subfigure (b) further displays counties with data available in every one-year ACS from 2010–2016 (shaded counties); counties must have a population of 65,000 or more to be included in the one-year ACS in a given year. Data on retail clinics come from Merchant Medicine.

Figure 2: Changes in health insurance coverage: 2010–2016

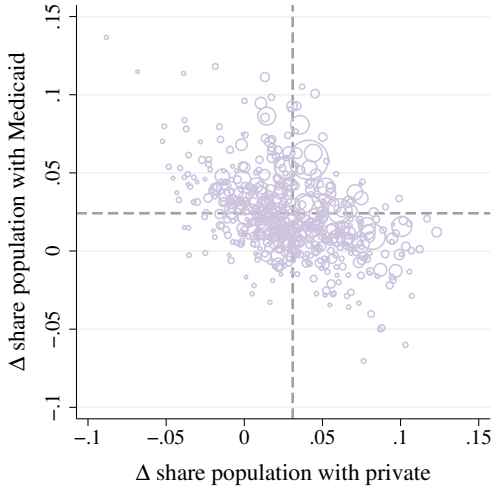
(a) Health insurance and retail clinics



(b) Share with private or Medicaid coverage



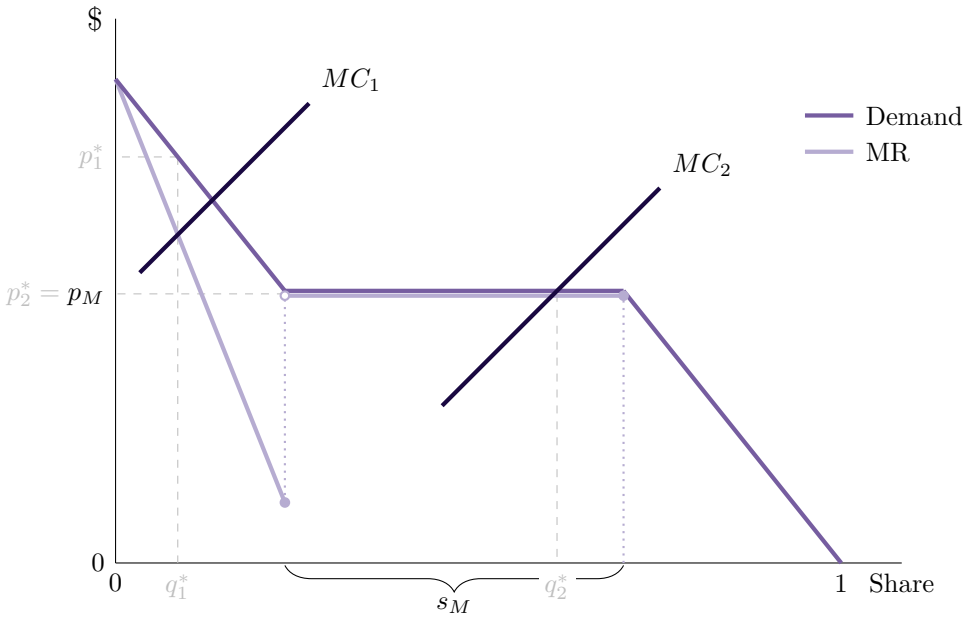
(c) Changes in private vs. changes in Medicaid



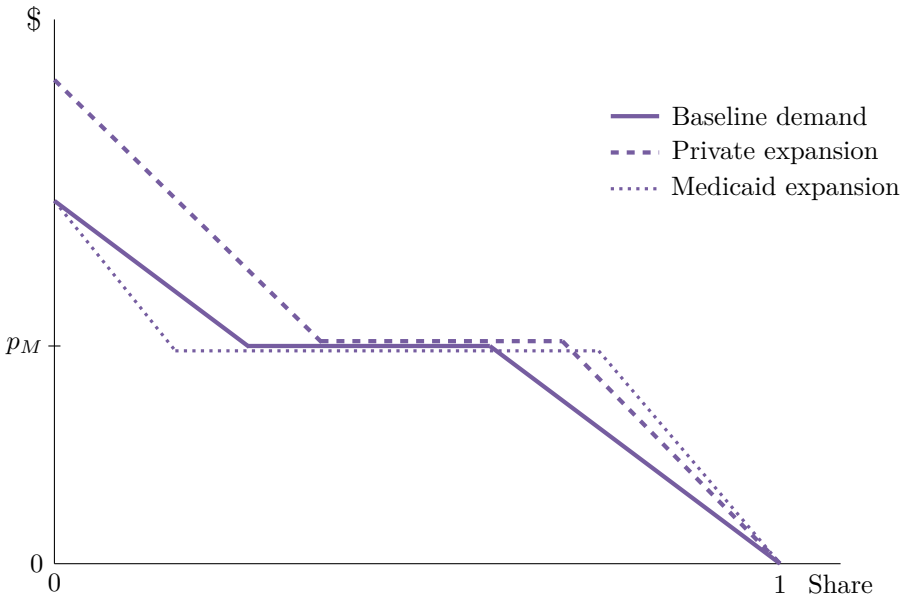
Notes: The above figures show changes in the share of the population with different types of health insurance from 2010–2016. Subfigure (a) displays the annual share of the population with health insurance of any type (dark, solid line) and the quarterly number of retail clinics (light, dashed line). Subfigure (b) displays the annual share of the population with private insurance (dark, thick line) or Medicaid coverage (light, thin line). Subfigure (c) shows how county-level changes in the share of the population covered by Medicaid from 2010 to 2016 covary with county-level changes in the share of population with private insurance over the same period. The size of the markers in subfigure (c) denote county-level population in 2010; the dashed lines denote the population-weighted median of changes in Medicaid coverage and private insurance from 2010 to 2016. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine; data on health insurance come from the one-year ACS.

Figure 3: Clinic in market with both administered and market-based prices

(a) Firm's baseline problem

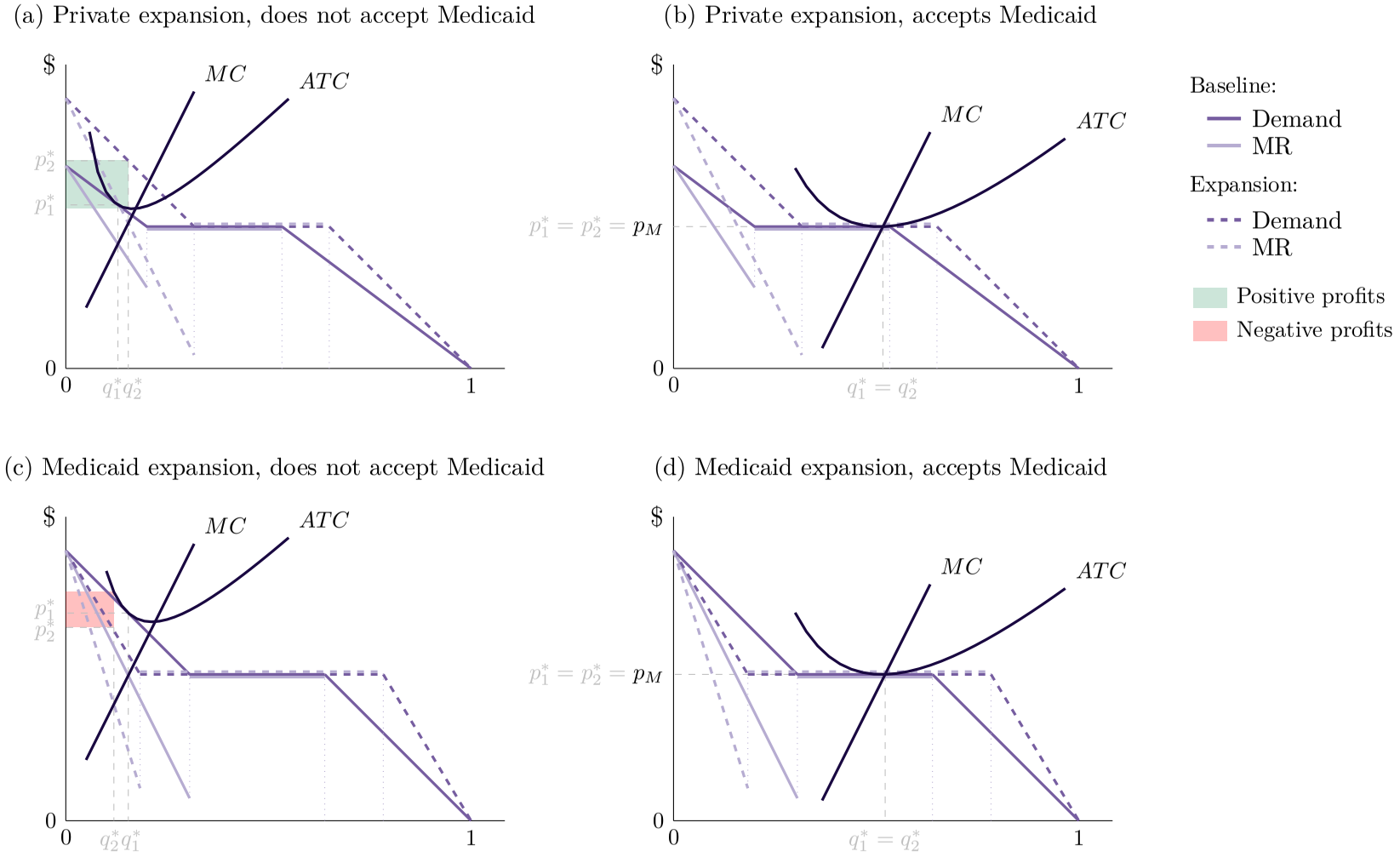


(b) Impact of insurance expansions on demand



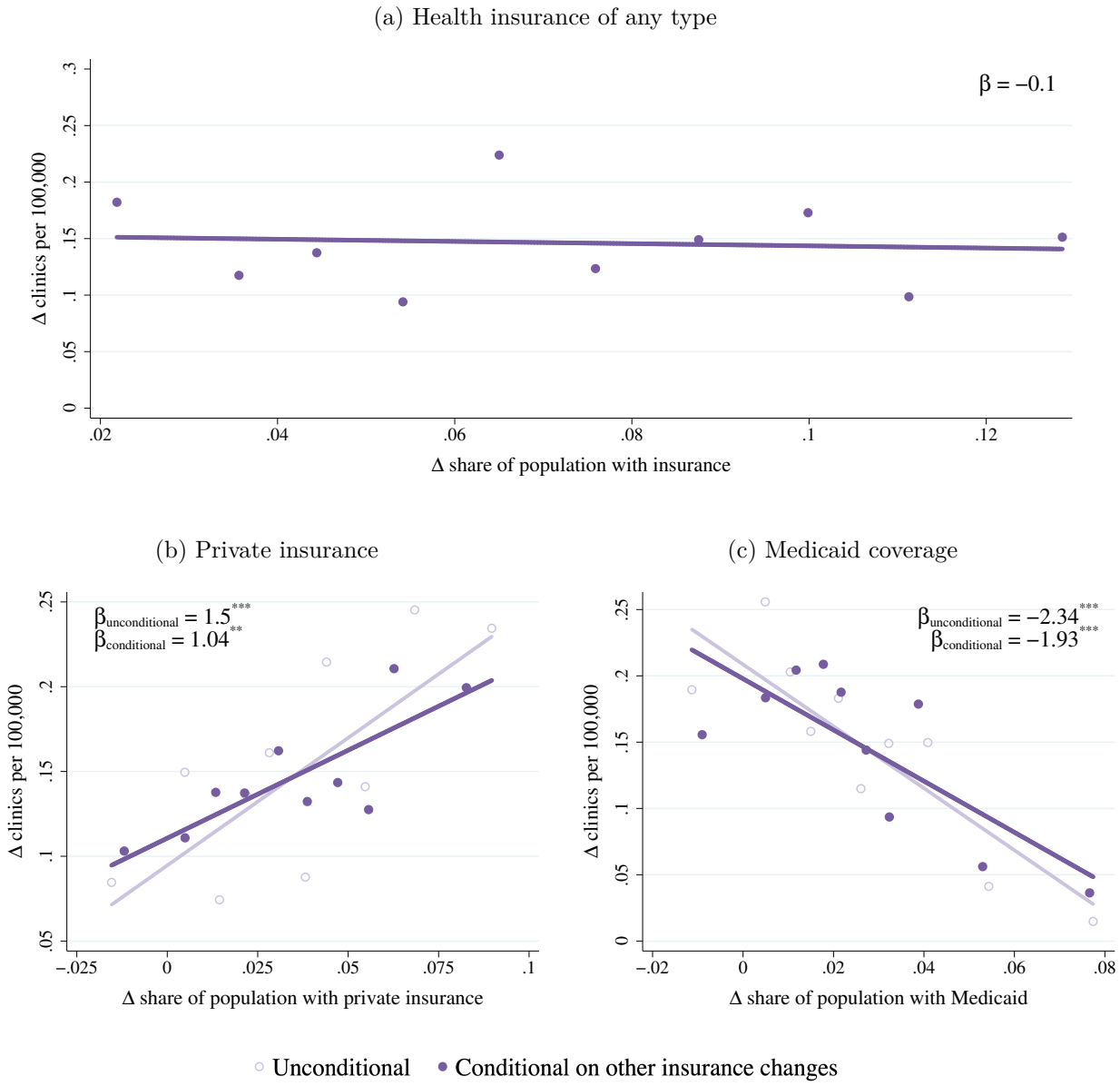
Notes: The above figures consider a firm in a market with both administered and market-based prices. Subfigure (a) displays the total demand curve (dark purple line) and associated marginal revenue curve (light purple line); the demand curve is perfectly elastic at the administered Medicaid price (p_M) with length equivalent to the share of the population covered by Medicaid (s_M). Subfigure (a) additionally shows how prices and quantities are determined when there is single intersection between marginal revenue and marginal costs; the cases in which there are two intersections or no intersections are shown in Figure A5. Subfigure (b) shows how the demand curve changes under expansions of private insurance (dashed line) and Medicaid coverage (dotted line).

Figure 4: Effects of insurance expansions on clinic's profits



Notes: The above figures show how expansions of private insurance (subfigures (a) and (b)) and Medicaid coverage (subfigures (c) and (d)) affect firm profits, both when the firm accepted Medicaid patients at baseline (subfigures (b) and (d)) and when the firm did not (subfigures (a) and (c)). As shown in subfigure (a), private expansions increase firm profits when the firm was not accepting Medicaid patients at baseline; in contrast, Medicaid expansions decrease profits for such firms (subfigure (c)). As shown in subfigures (b) and (d), firm profits are unaffected by both private and Medicaid expansions if the firm accepted Medicaid patients at baseline and the marginal cost curve intersected the marginal revenue curve on the perfectly elastic component at baseline. The impacts of private and Medicaid expansions when there is no intersection between marginal costs and marginal revenue at baseline are shown in Figure A6.

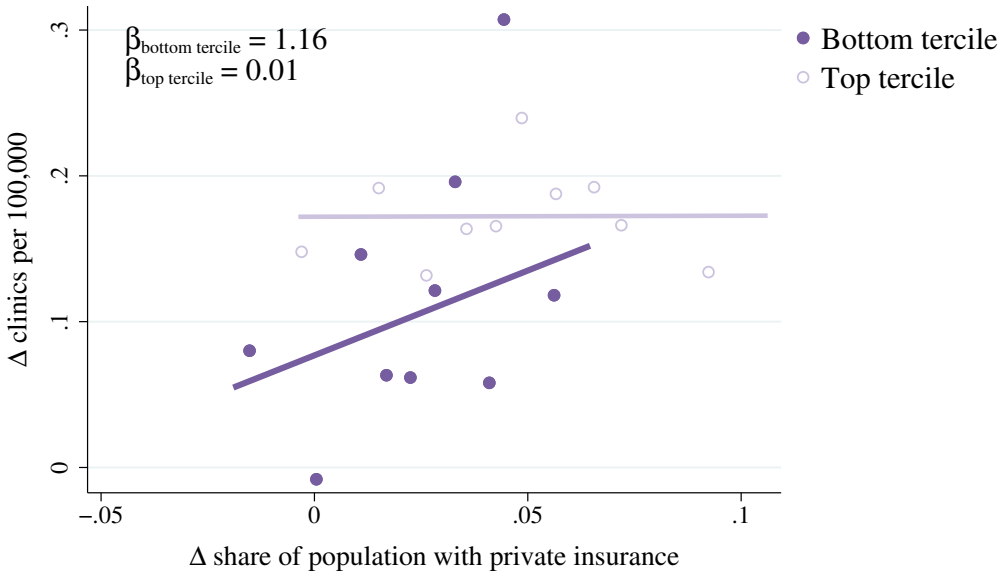
Figure 5: Changes in retail clinic presence versus changes in health insurance: 2013–2015



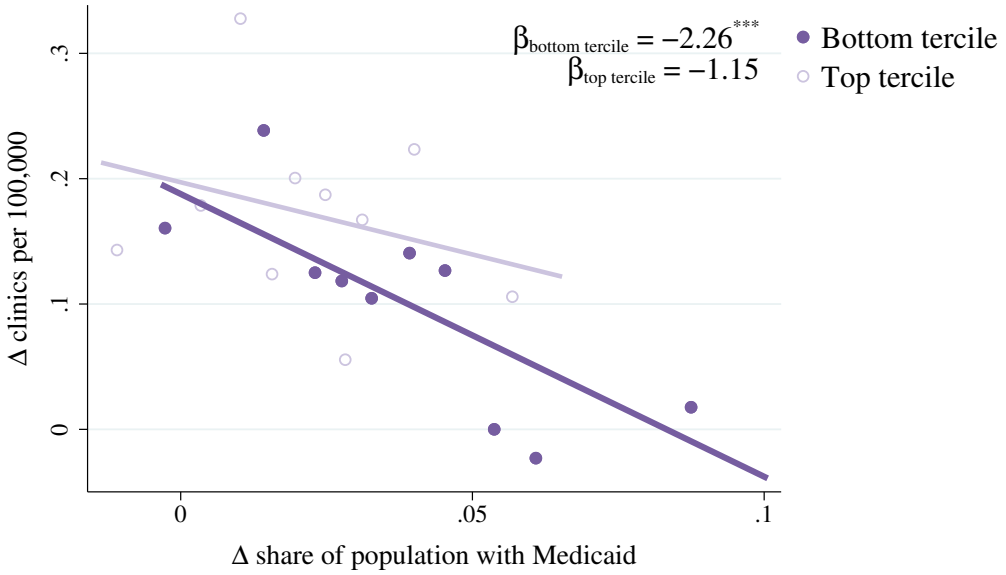
Notes: The above figures show how county-level changes in retail clinics per 100,000 from 2013 to 2015 covary with county-level changes in the share of the population with health insurance of any type (subfigure (a)), private insurance coverage (subfigure (b)), and Medicaid coverage (subfigure (c)) over the same period. In subfigures (b) and (c), both the unconditional relationships (light lines, hollow dots) and the relationships conditional on changes in other types of health insurance (dark lines, solid dots) are shown. In all subfigures, counties are grouped into deciles accounting for approximately equal shares of the population based on the variable denoted on the x-axis. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine; data on health insurance come from the one-year ACS.

Figure 6: Changes in clinic presence versus changes in insurance by baseline Medicaid rates

(a) Private insurance



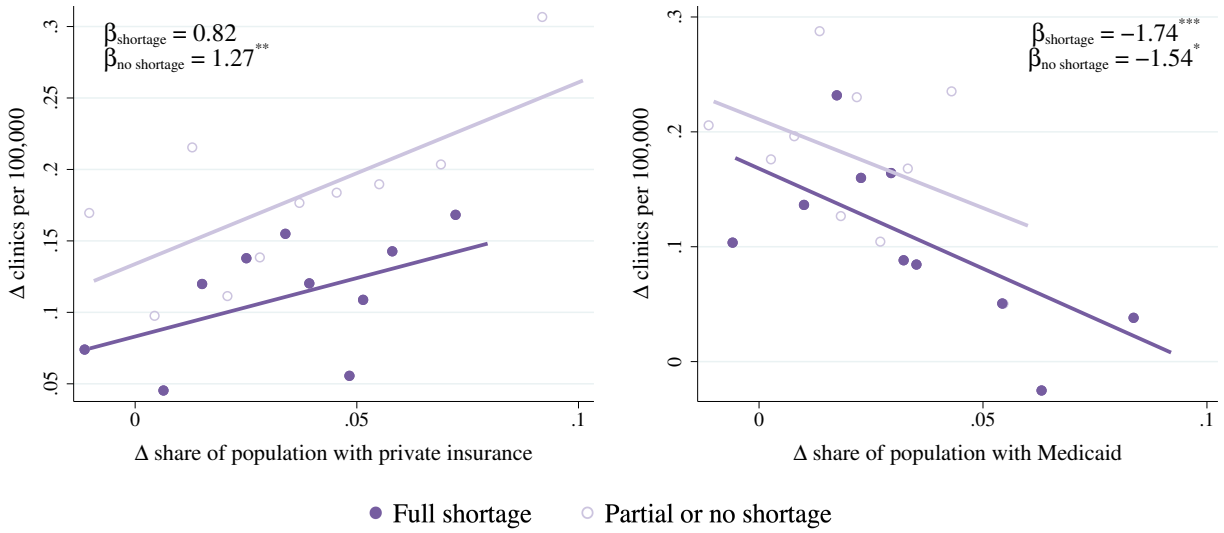
(b) Medicaid coverage



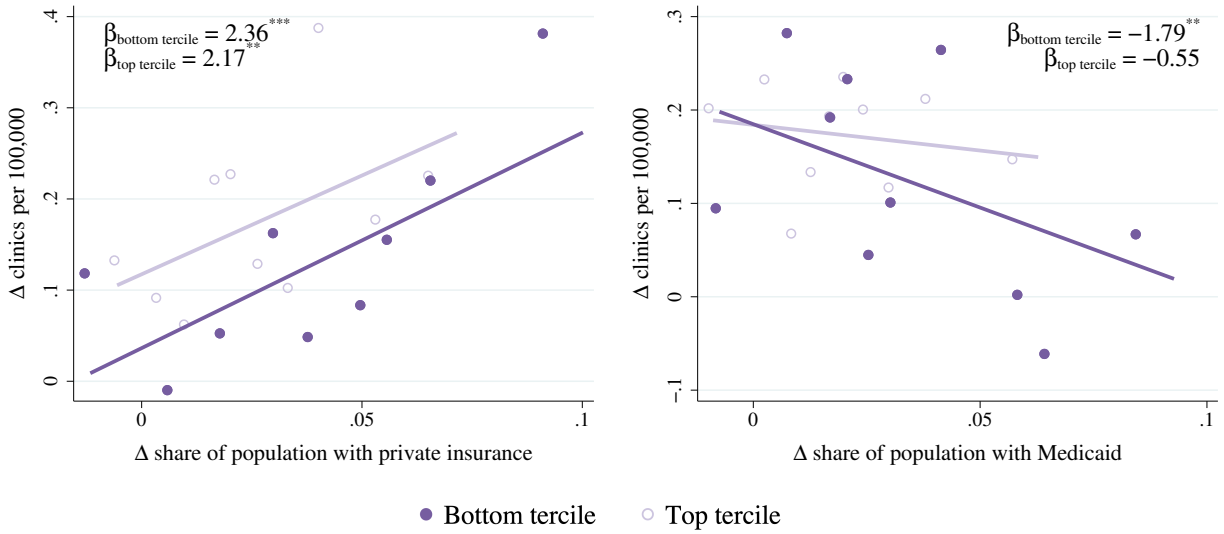
Notes: The above figures show how county-level changes in retail clinics per 100,000 from 2013 to 2015 covary with county-level changes in the share of the population with private insurance coverage (subfigure (a)) and Medicaid coverage (subfigure (b)) over the same period. These relationships are conditional on changes in other types of health insurance and are shown separately among counties in states with Medicaid reimbursement rates for office visits of low complexity (CPT 99201) in the bottom tercile (light lines, hollow dots) and the top tercile (dark lines, solid dots) across all states in 2010. In both subfigures, counties are grouped into deciles accounting for approximately equal shares of the population based on the variable denoted on the x-axis. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine, data on health insurance come from the one-year ACS, and data on Medicaid reimbursement rates come from Alexander and Schnell (2019).

Figure 7: Changes in clinic presence versus changes in insurance by baseline resources

(a) Primary care shortage areas



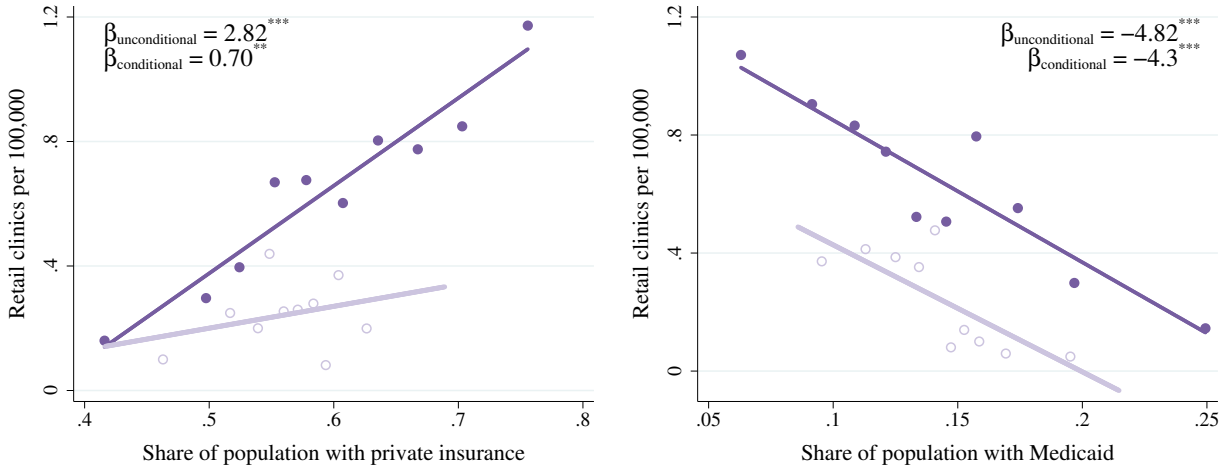
(b) Primary care providers per capita



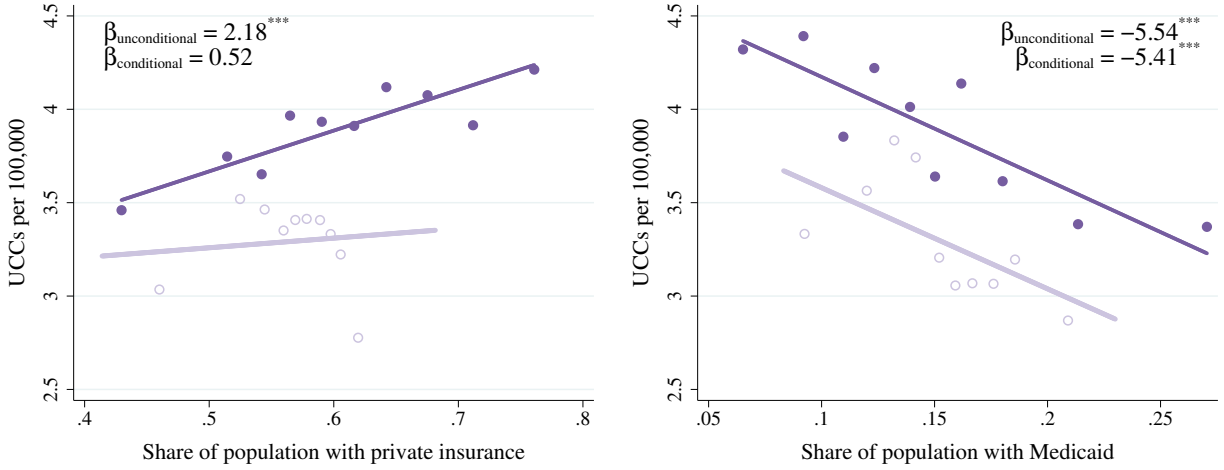
Notes: The above figures show how county-level changes in retail clinics per 100,000 from 2013 to 2015 covary with county-level changes in the share of the population with private insurance coverage (left subfigures) and Medicaid coverage (right subfigures) over the same period. These relationships are conditional on changes in other types of health insurance and are shown separately among counties that are and are not designated "primary care shortage areas" by the Health Resources and Services Administration (HRSA; subfigure (a)) and across terciles of the number of primary care providers per capita (subfigure (b)) in 2010. Primary care providers include physicians in primary care and nurse practitioners. In all subfigures, counties are grouped into deciles accounting for approximately equal shares of the population based on the variable denoted on the x-axis. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine, data on health insurance come from the one-year ACS, and data on primary care shortage areas and the number of primary care providers per capita come from the HRSA's Area Health Resource Files.

Figure 8: Retail clinic and urgent care center presence by health insurance coverage

(a) Retail clinics: 2016



(b) Urgent care centers: 2021



Notes: The above figures show how the county-level number of retail clinics per 100,000 in 2016 (subfigure (a)) and urgent care centers per 100,000 in 2021 (subfigure (b)) covary with the county-level share of the population with private insurance coverage (left subplot in each subfigure) and Medicaid coverage (right subplot in each subfigure) in 2012–2016 (subfigure (a)) and 2016–2020 (subfigure (b)). In all subfigures, both the unconditional relationship (dark lines, solid dots) and the relationship conditional on the share of the population with other types of health insurance and local socio-demographic characteristics (light lines, hollow dots) are shown. Counties are grouped into deciles accounting for approximately equal shares of the population based on the variable denoted on the x-axis. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine, data on urgent care centers come from the NUCR database, and data on health insurance come from the five-year ACS.

IX Tables

Table 1: County-level summary statistics: retail clinics and socio-demographics

	Number of retail clinics in 2016		
	One or more (1)	None (2)	P-value (3)
a. Retail clinics			
2016			
Open clinics	5.51	0	
Clinics per 100,000	1.11	0	
2010–2016			
Openings	3.66	0.10	
Closings	1.39	0.32	
Share ever clinic	1.00	0.19	
b. County characteristics (2016)			
Basic demographics			
Total population	610,456	221,138	0.000
Population density (per sq. mile)	3,397	715	0.001
Share White	0.67	0.77	0.000
Share Black	0.15	0.10	0.000
Share Hispanic	0.21	0.17	0.022
Share under 18	0.23	0.23	0.101
Share aged 18–64	0.63	0.61	0.000
Income and education			
Median income	59,270	50,398	0.000
Share poverty	0.13	0.15	0.000
Share employed	0.62	0.58	0.000
Share high school	0.24	0.28	0.000
Share some college	0.28	0.31	0.000
Share college plus	0.36	0.28	0.000
Health insurance			
Share insured	0.92	0.92	0.605
Share private	0.63	0.59	0.000
Share Medicaid	0.16	0.17	0.007
Share Medicare	0.07	0.07	0.413
Expanded Medicaid by 2014	0.58	0.51	0.215
Number of counties	321	234	

Notes: The above table presents information on the concentration of retail clinics (panel (a)) and local socio-demographics and insurance status (panel (b)) at the county-year level. Column (1) provides averages across counties with one or more open retail clinics in 2016, column (2) provides averages across counties with no open retail clinics in the same year, and column (3) provides p-values showing whether the values in columns (1) and (2) are statistically different. Only counties with data available in every one-year ACS from 2010–2016 are included; counties must have a population of 65,000 or more to be included in the one-year ACS. Data on retail clinics come from Merchant Medicine; data on county-level characteristics come from the one-year ACS. Refer to Table A1 for analogous statistics across all counties using data from the five-year ACS.

Table 2: Changes in insurance and retail clinic penetration: OLS

	Retail clinics per 100,000		
	(1)	(2)	(3)
Share insurance	0.239		
	(0.412)		
Share private		0.979**	1.205**
		(0.452)	(0.487)
$\times \mathbb{1}\{\Delta Medicaid > median\}$			–0.894
			(0.596)
Share Medicaid		–1.279***	0.483
		(0.448)	(0.766)
$\times \mathbb{1}\{\Delta Medicaid > median\}$			–1.728**
			(0.758)
County fixed effects	X	X	X
Year fixed effects	X	X	X
Demographic controls	X	X	X
Observations	3,870	3,870	3,870
R^2	0.898	0.900	0.901
Mean dependent variable	0.612	0.612	0.612
Share private $\times (1 + \mathbb{1}\{\Delta Medicaid > med.\})$			0.311
			(0.566)
Share Medicaid $\times (1 + \mathbb{1}\{\Delta Medicaid > med.\})$			–1.244***
			(0.451)

Notes: The above table shows the association between retail clinics per 100,000 and the share of the population with different types of health insurance from estimation of equations (1) and (2). Observations are at the county-year level from 2010–2016. All specifications include county fixed effects, year fixed effects, and time-varying socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county.

Table 3: Effects of insurance on retail clinic penetration: 2SLS

Dependent variable:	Any health insurance		By insurance type		
	Share insured (1)	Retail clinics per 100,000 (2)	Share private (3)	Share Medicaid (4)	Retail clinics per 100,000 (5)
a. First stage					
$Post_t \times Employed_c^{2013}$	0.131***		0.198***	–0.059***	
	(0.027)		(0.023)	(0.017)	
$Post_t \times [138 - -400\%\ FPL]_c^{2013}$	0.545***		0.370***	0.091	
	(0.086)		(0.066)	(0.071)	
$Post_t \times Expansion_s \times [< 138\%\ FPL]_c^{2013}$	0.296***		–0.035	0.322***	
	(0.112)		(0.083)	(0.050)	
b. Two-stage least squares					
Share insurance		0.646			
		(1.172)			
Share private					2.848**
					(1.312)
Share Medicaid					–5.045**
					(2.025)
County fixed effects	X	X	X	X	X
Year fixed effects	X	X	X	X	X
Demographic controls	X	X	X	X	X
Observations	3,870	3,870	3,870	3,870	3,870
R^2	0.950		0.981	0.964	
Mean dependent variable	0.885	0.612	0.613	0.145	0.612
First stage F-stat		158.8			116.0

Notes: The above table shows the effects of the share of the population with different types of health insurance on the number of retail clinics per 100,000 from estimation of equation (4) (panel (b)). First-stage estimates showing the relationship between our instruments and the share of the population with different types of health insurance from estimation of equation (3) are provided in panel (a). Observations are at the county-year level from 2010–2016. All specifications include county fixed effects, year fixed effects, and time-varying socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county. Cragg-Donald Wald F statistics are reported.

Table 4: Effects of insurance on retail clinic penetration: openings versus closings

	Any insurance		By type	
	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)
a. Openings per 100,000				
Share insurance	0.161	2.199		
	(0.194)	(1.471)		
Share private			0.325	3.259*
			(0.210)	(1.921)
Share Medicaid			–0.123	–0.235
			(0.238)	(2.659)
b. Closings per 100,000				
Share insurance	–0.070	–0.441		
	(0.118)	(0.465)		
Share private			–0.159	–1.317**
			(0.130)	(0.652)
Share Medicaid			0.113	1.753*
			(0.142)	(1.032)
County fixed effects	X	X	X	X
Year fixed effects	X	X	X	X
Demographic controls	X	X	X	X
Observations	3,314	3,314	3,314	3,314
R^2 : openings	0.058		0.060	
R^2 : closings	0.089		0.090	
Mean openings	0.075	0.075	0.075	0.075
Mean closings	0.034	0.034	0.034	0.034
First stage F-stat		35		7.7

Notes: The above table shows the effects of the share of the population with different types of health insurance on the number of retail clinic entries (panel (a)) and exits (panel (b)) per 100,000 from estimation of equation (5) (columns (1) and (3)) and equation (7) (columns (2) and (4)). First-stage estimates showing the relationship between our instruments and the first difference of the share of the population with different types of health insurance from estimation of equation (6) are provided in Table A4. Observations are at the county-year level from 2010–2016. All specifications include year fixed effects and the first difference of time-varying, socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county. Cragg-Donald Wald F statistics are reported.

Online Appendix

The Expansionary and Contractionary
Supply-Side Effects of Health Insurance

Geddes and Schnell (2022)

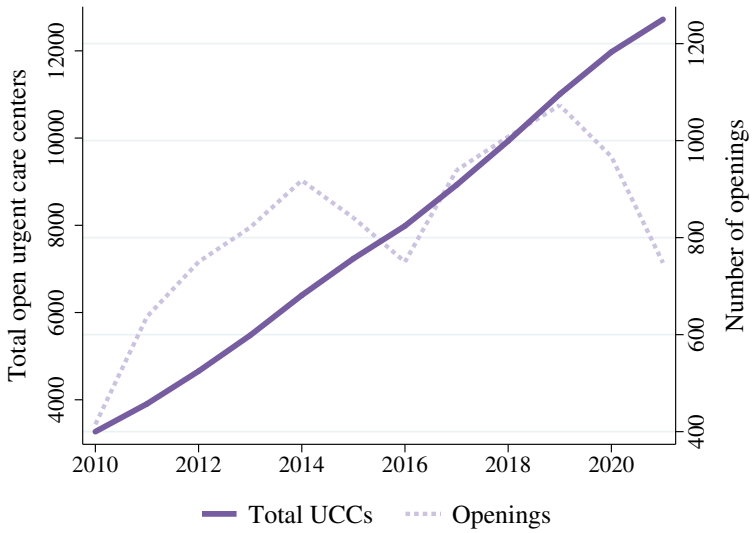
A Supplementary figures

Figure A1: Retail clinic openings and closings: 2010–2016

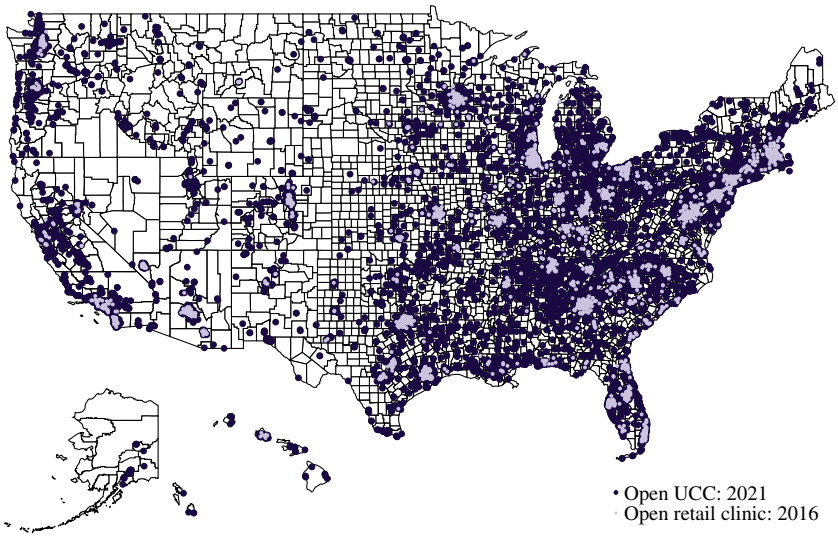
Notes: The above figure shows the number of retail clinic openings (dark, thick line) and closings (light, thin line) quarterly from 2010–2016. The dashed horizontal lines denote the quarterly averages of each measure over the entire sample period. Refer to Figure 1 for the total number of open retail clinics and net entry (the number of openings net of the number of closings in a given quarter) over the same period. Data come from Merchant Medicine.

Figure A2: Urgent care centers across the United States

(a) Total open and annual entry: 2010–2021

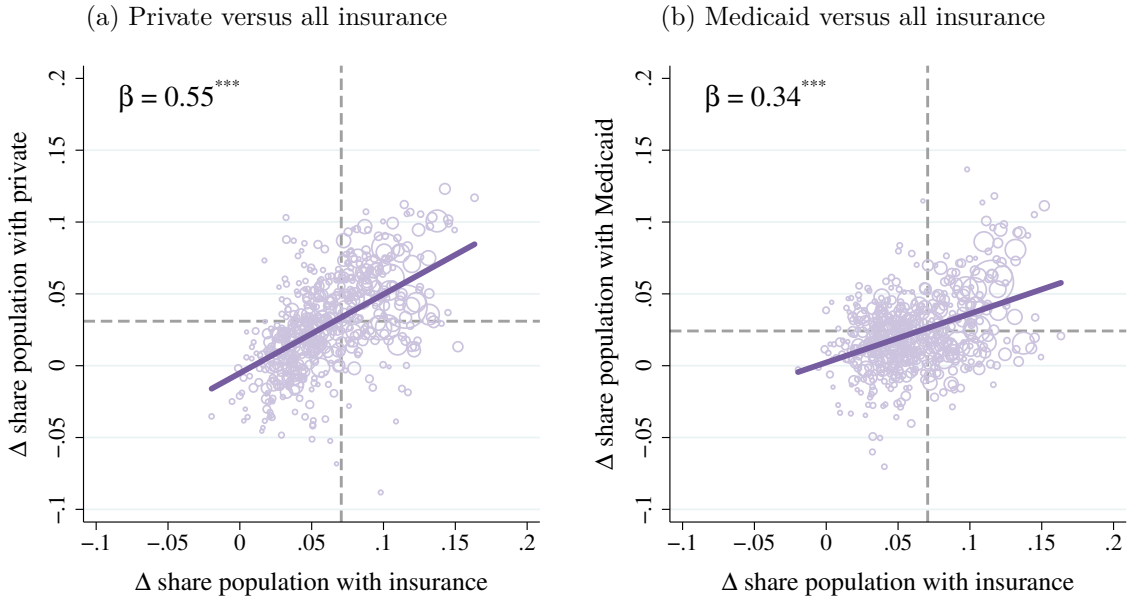


(b) Locations: 2021



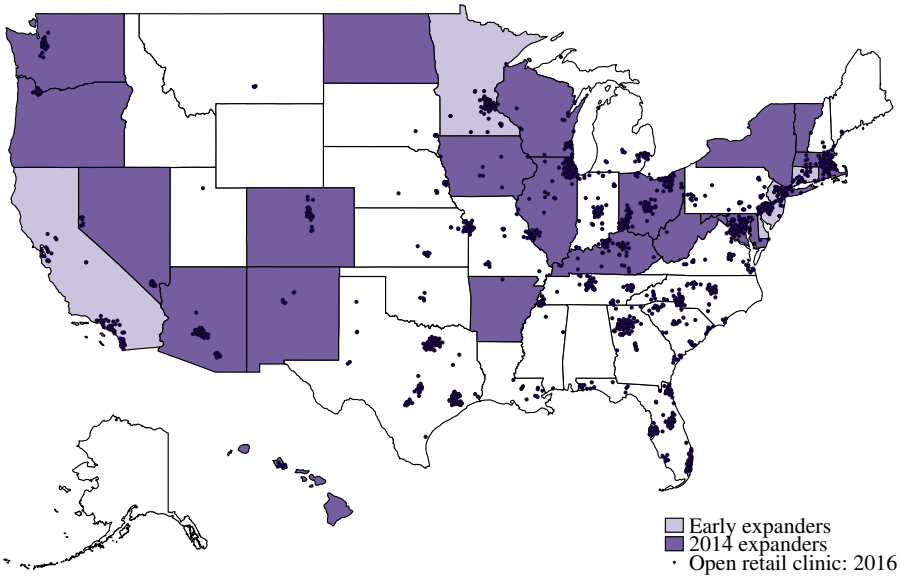
Notes: The above figures show the number and locations of urgent care centers across the United States. Subfigure (a) shows the total number of open urgent care centers (dark, solid line) and annual entry conditional on survival to 2021 (light, dashed line) from 2010–2021. Subfigure (b) shows the locations of urgent care centers in 2021 (geo-coded, dark dots) and retail clinics in 2016 (geo-coded, light dots). Data on urgent care centers come from the NUCR database; data on retail clinics come from Merchant Medicine.

Figure A3: Correlation between changes in insurance types: 2013–2015



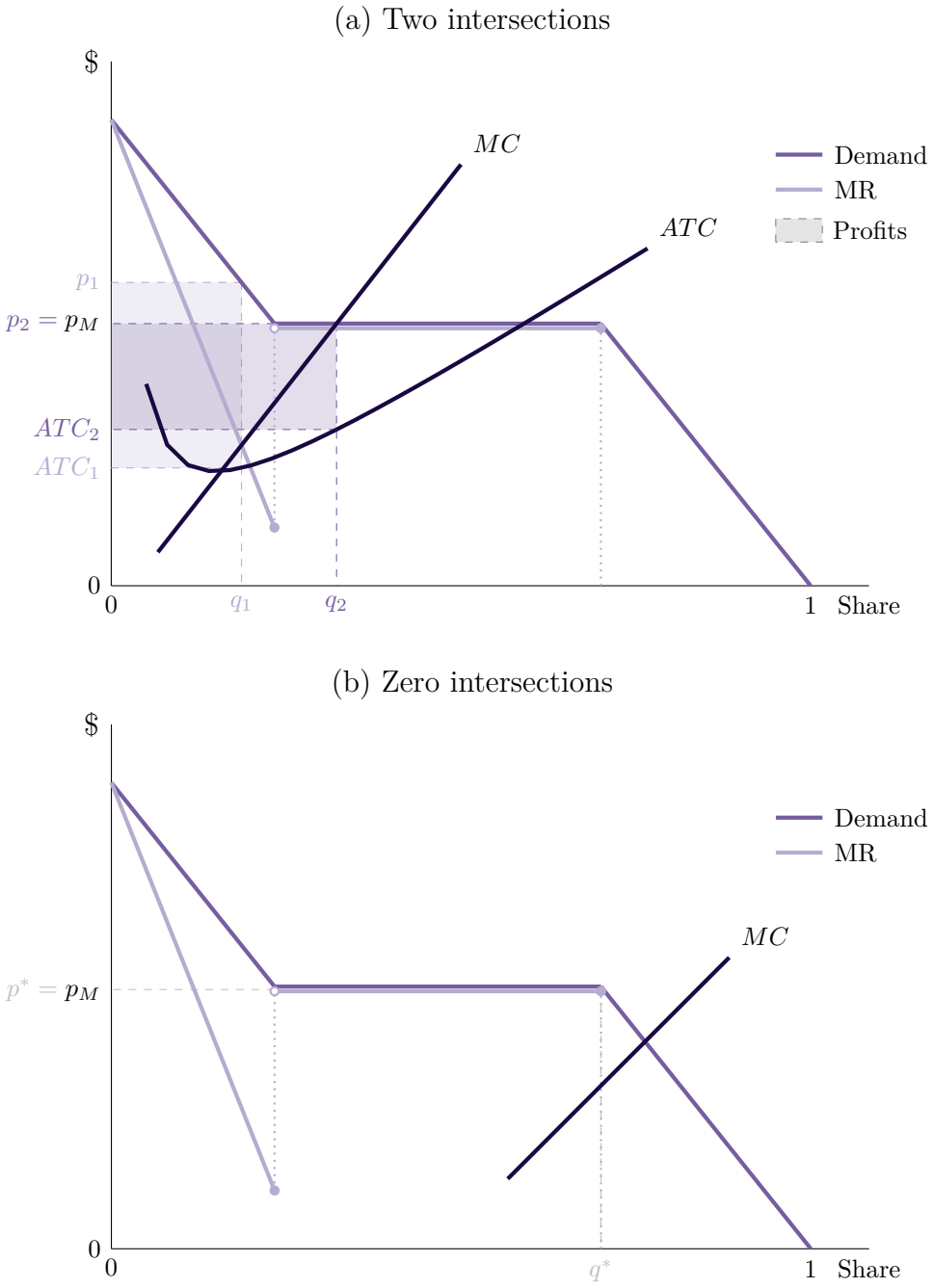
Notes: The above figures show how county-level changes from 2013 to 2015 in the share of the population with private insurance (subfigure (a)) and the share of the population covered by Medicaid (subfigure (b)) covary with county-level changes in the share of population with health insurance coverage of any type over the same period. The size of the markers denotes county-level population in 2010; the solid lines denotes the best fit line. Private insurance includes employer-sponsored coverage and direct purchase. Data come from the one-year ACS. Refer to Figure 2(c) for county-level changes in the share of the population with Medicaid coverage versus county-level changes in the share of the population with private insurance over the same period.

Figure A4: Medicaid expansion status and retail clinic locations



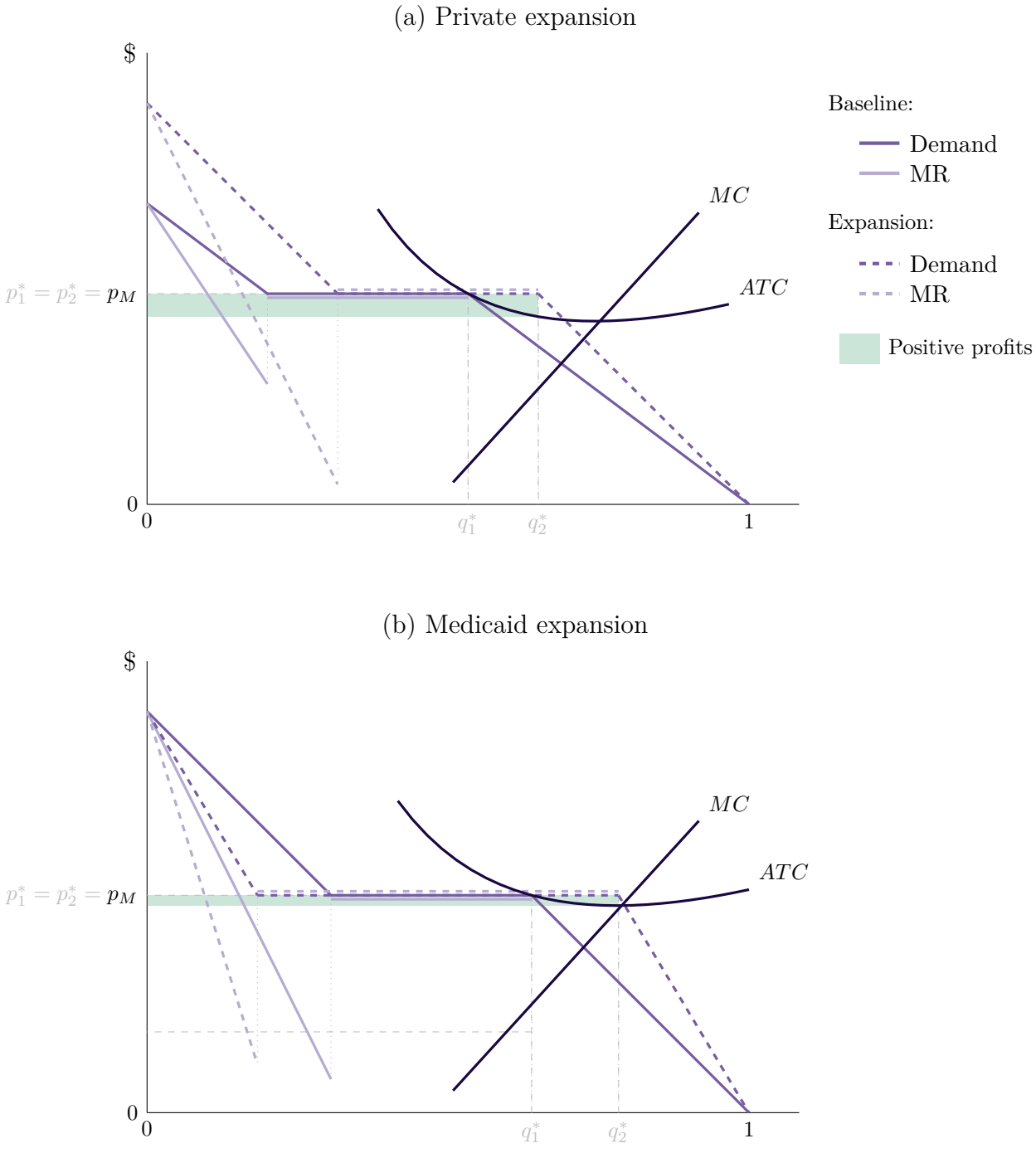
Notes: The above figure shows the locations of open retail clinics in 2016 (geo-coded dots) and state-level Medicaid expansions by 2014 (shaded states) across the United States. Data on retail clinics come from Merchant Medicine; data on Medicaid expansions come from the Kaiser Family Foundation.

Figure A5: Additional solutions to firm's baseline problem



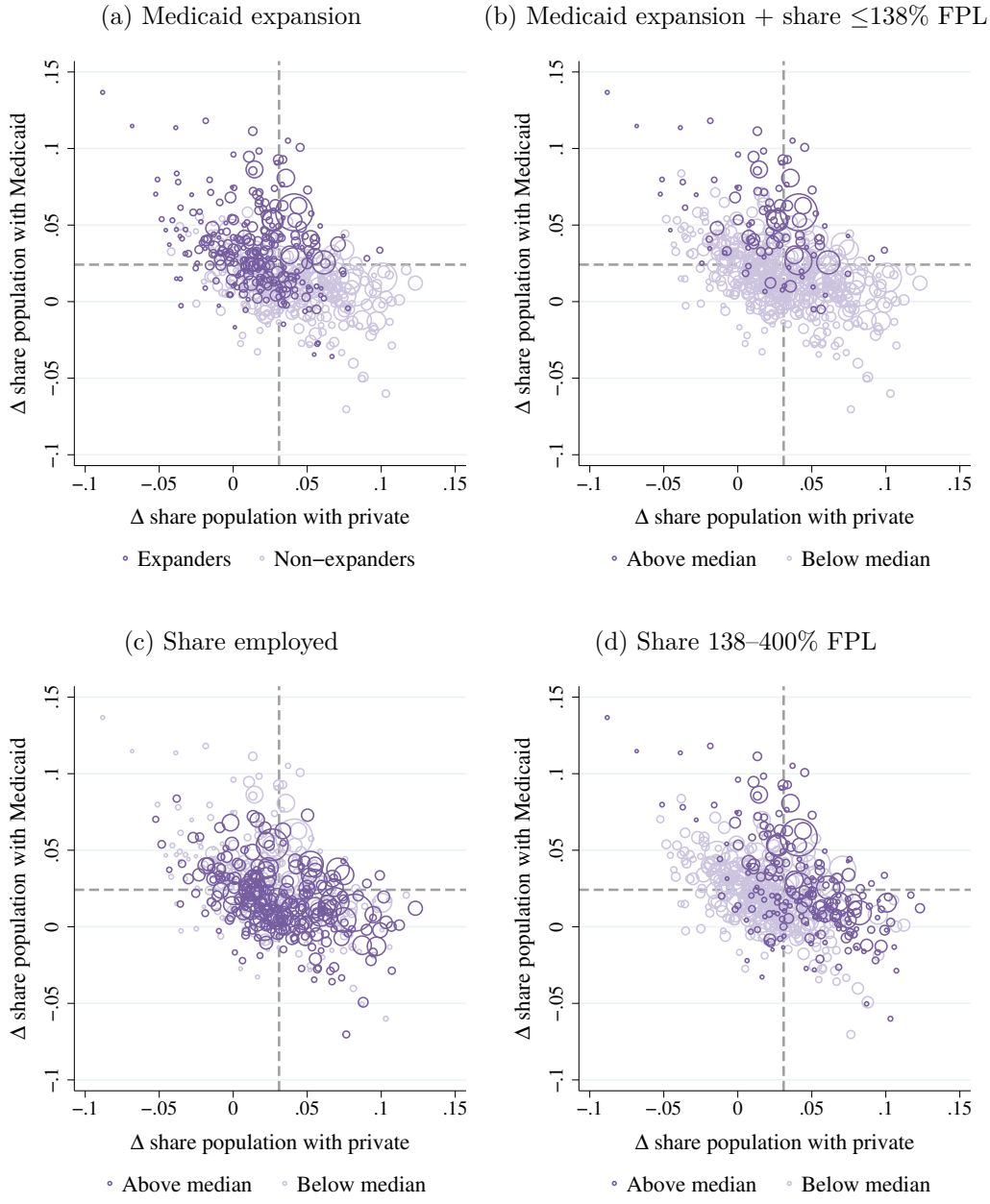
Notes: The above figures show how prices and quantities are determined when marginal revenue and marginal costs intersect twice (subfigure (a)) or not at all (subfigure (b)). As outlined in Figure 3, the total demand curve (dark purple line) and associated marginal revenue curve (light purple line) in each subfigure are for a firm in a market with both administered and market-based prices. The demand curve is perfectly elastic at the administered Medicaid price (p_M) with length equivalent to the share of the population covered by Medicaid. As shown in subfigure (a), the firm must consider average total costs to compare profits at each potential set of prices and quantities when there are two intersections between marginal revenue and marginal cost. As shown in subfigure (b), the firms sets $p^* = p_M$ and sees all patients willing to pay at least p_M (i.e., the firm does not need to restrict capacity) when the marginal cost curve lies entirely below the positive portion of the marginal revenue curve.

Figure A6: Effects of expansions when no intersection between marginal revenue and costs



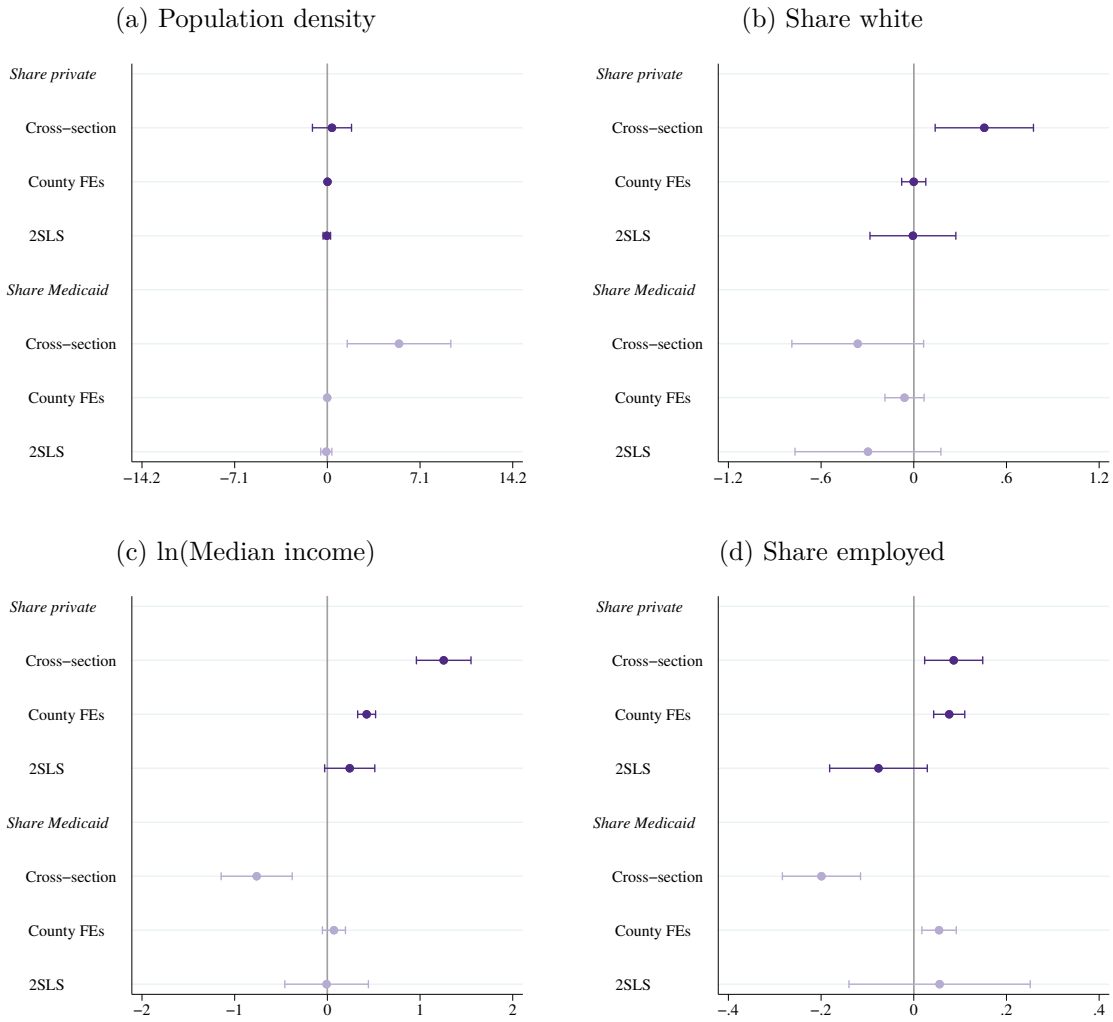
Notes: The above figures show how expansions of private insurance (subfigure (a)) and Medicaid coverage (subfigure (b)) affect firm profits when there is no intersection between marginal costs and marginal revenue at baseline. As shown in the subfigures, both private and Medicaid expansions tend to increase firm profits when the marginal cost curve lies entirely below the positive portion of the marginal revenue curve at baseline.

Figure A7: Changes in insurance types (2013–2015) by instrument components



Notes: The above figures show how the different instrument components isolate county-level changes in the share of the population covered by Medicaid (y-axis) and private insurance (x-axis) from 2013 to 2015. In all subfigures, the size of the markers denotes county-level population in 2010, and the dashed lines denote the population-weighted median of changes in Medicaid coverage and private insurance from 2013 to 2015. In subfigure (a), the dark (light) circles denote counties in states that expanded (did not expand) Medicaid by 2014. In subfigure (b), the dark circles denote counties that both had an above median share of the population under 138 percent of the federal poverty level (FPL) in 2013 and are in states that expanded Medicaid by 2014. In subfigure (c), the dark (light) circles denote counties with an above (below) median share of the population employed in 2013. In subfigure (d), the dark (light) circles denote counties with an above (below) median share of the population between 138 and 400 percent of the FPL in 2013. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine; data on health insurance come from the one-year ACS.

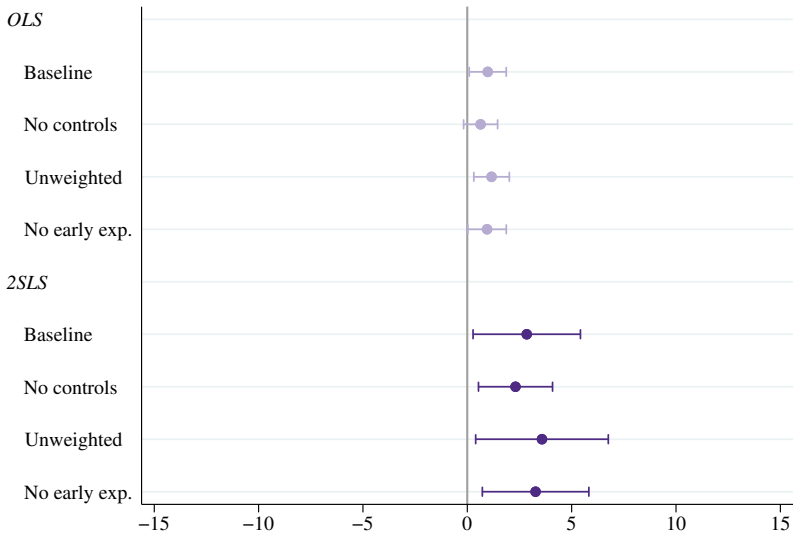
Figure A8: Balancing regressions: alternative specifications



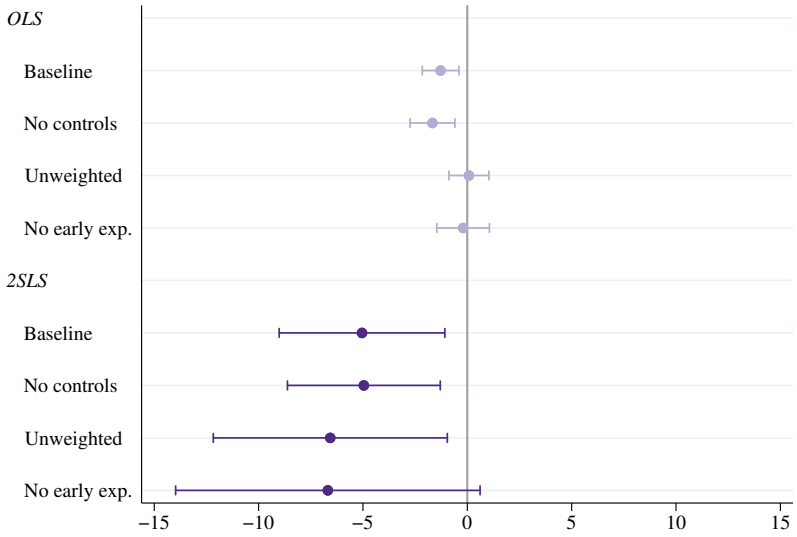
Notes: The above figures show output from estimation of the specifications denoted on the y-axis with different potential confounders as the dependent variable. In particular, "cross-section" refers to estimation of equation (2) without county fixed effects, "county FEs" refers to estimation of equation (2), and "2SLS" refers to estimation of equation (4). The share of the population with private insurance and Medicaid coverage are always included in the same regression. Private insurance includes employer-sponsored coverage and direct purchase. Data come from the one-year ACS.

Figure A9: Effects of insurance on retail clinic penetration: robustness

(a) Share private



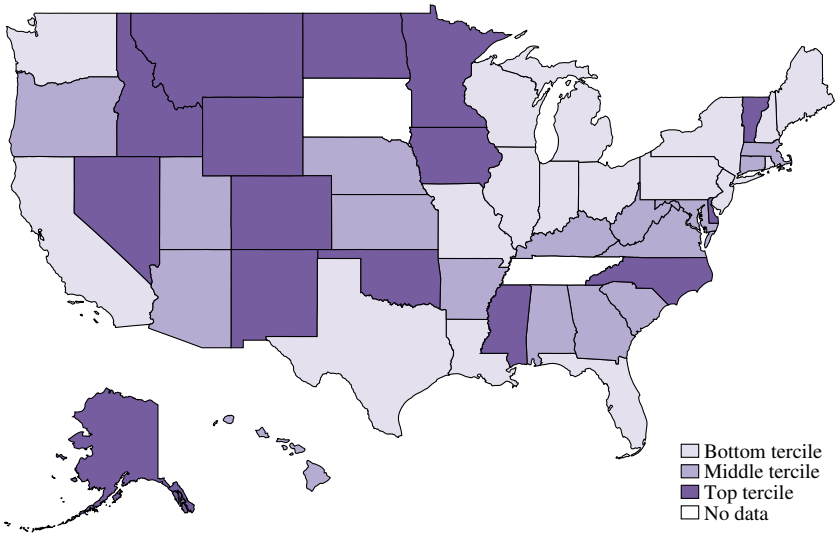
(b) Share Medicaid



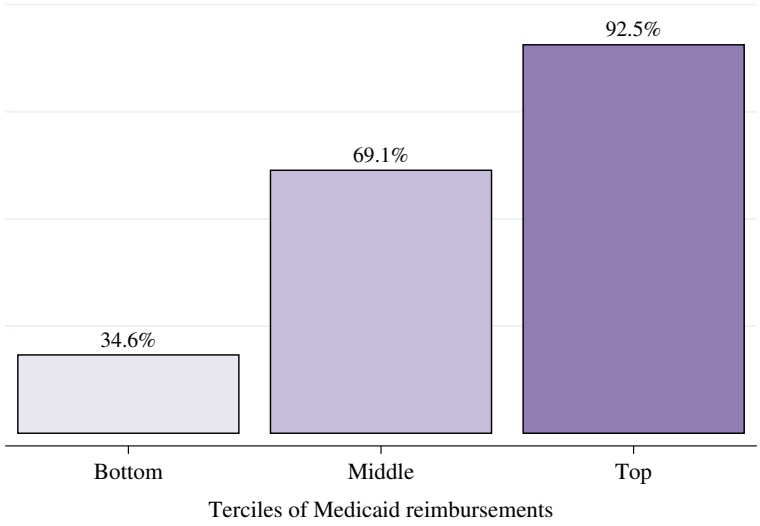
Notes: The above figures show the sensitivity of our baseline estimates to alternative empirical specifications. The top panel of each subfigure ("OLS") shows output from estimation of equation (2), and the bottom panel ("2SLS") shows output from estimation of equation (4). As outlined in these equations, the outcome variable is retail clinics per 100,000 at the county-year level, and the share of the population with private insurance and Medicaid coverage are always included in the same regression. Each row displays results from an alternative specification or sample: "Baseline" refers to our baseline estimates first displayed in column (2) of Table 2 and column (5) of 3, "No controls" refers to specifications excluding all time-varying, county-level controls, "Unweighted" refers to specifications in which observations are not weighted by county population in 2010, and "No early exp." refers to specifications that drop counties in the five states that expanded Medicaid before 2014 from the sample. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine; data on health insurance come from the one-year ACS.

Figure A10: Medicaid reimbursement rates and coverage acceptance

(a) Medicaid reimbursement rates: 2010



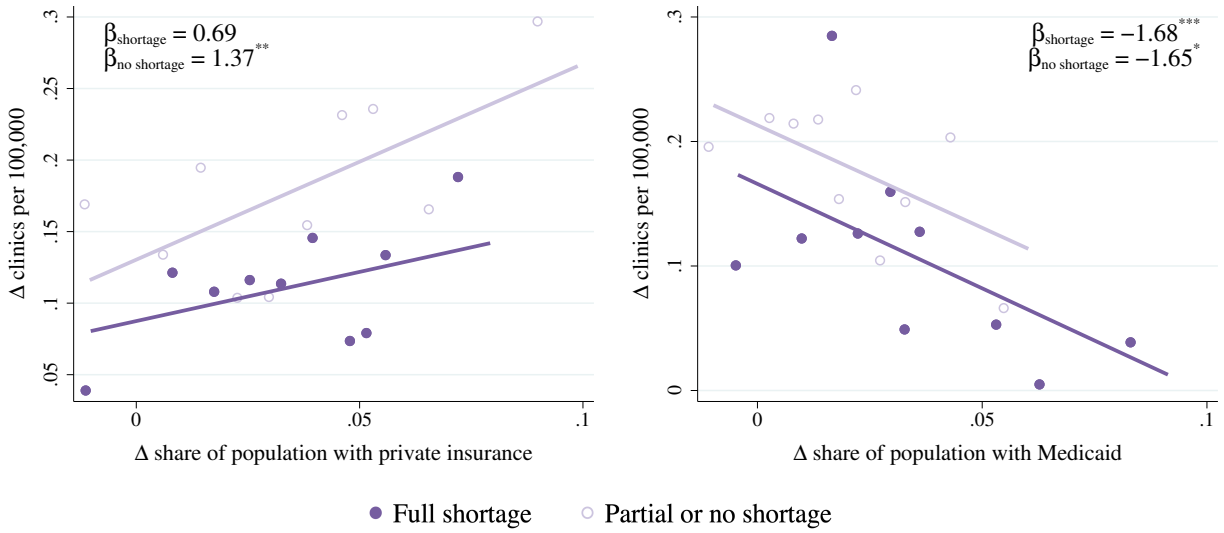
(b) Medicaid acceptance (2020) versus reimbursements (2015)



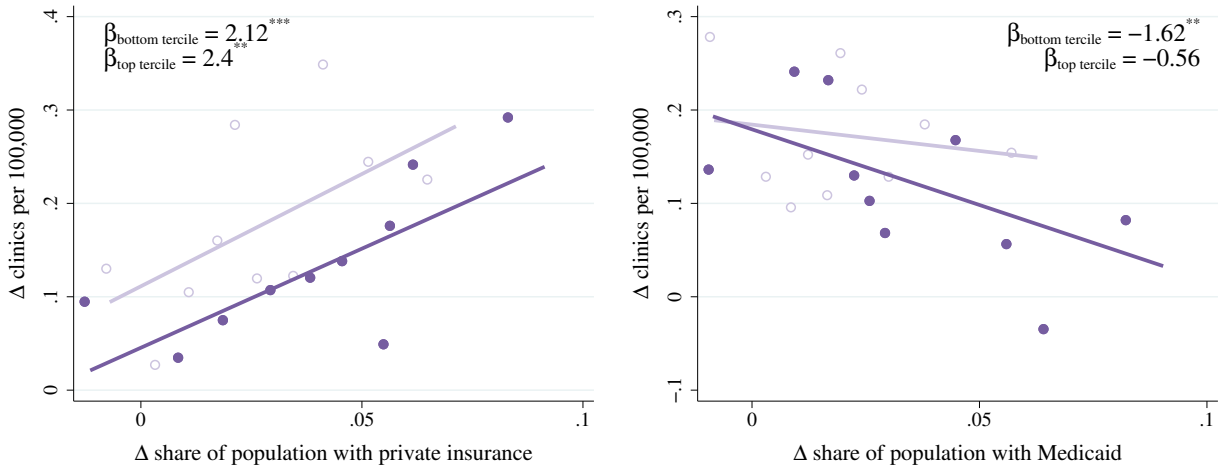
Notes: The above figures show Medicaid reimbursement rates and coverage acceptance by retail clinics across the United States. Subfigure (a) shows state-level Medicaid reimbursement rates for an office visit of low complexity (CPT 99201) in 2010. Subfigure (b) shows the share of states in which CVS MinuteClinics accepted at least one form of Medicaid coverage in 2020 within each tercile of Medicaid reimbursements rates in 2015 (the latest year of data available for Medicaid reimbursements). Only the 34 states with CVS MinuteClinics are considered in subfigure (b). Data on Medicaid reimbursement rates come from Alexander and Schnell (2019), and data on Medicaid acceptance by CVS MinuteClinics was collected by the authors as outlined in footnote 15.

Figure A11: Effects by baseline resources conditional on baseline Medicaid rates

(a) Primary care shortage areas



(b) Primary care providers per capita



Notes: The above figures show how county-level changes in retail clinics per 100,000 from 2013 to 2015 covary with county-level changes in the share of the population with private insurance coverage (left subfigures) and Medicaid coverage (right subfigures) over the same period. These relationships are shown separately among counties that are and are not designated "primary care shortage areas" by the Health Resources and Services Administration (HRSA; subfigure (a)) and across terciles of the number of primary care providers per capita (subfigure (b)) in 2010. Primary care providers include physicians in primary care and nurse practitioners. All subfigures are conditional on county-level changes in other types of health insurance and state-level Medicaid reimbursement rates for an office visit of low complexity (CPT 99201) in 2010. Counties are grouped into deciles accounting for approximately equal shares of the population based on the variable denoted on the x-axis. Private insurance includes employer-sponsored coverage and direct purchase. Data on retail clinics come from Merchant Medicine, data on health insurance come from the one-year ACS, data on primary care shortage areas and the number of primary care providers per capita come from the HRSA's Area Health Resource Files, and data on Medicaid reimbursement rates come from Alexander and Schnell (2019).

B Supplementary tables

Table A1: County-level summary statistics by availability in one-year ACS

Retail clinics in 2016:	In one-year ACS		Not in one-year ACS	
	One+ (1)	None (2)	One+ (3)	None (4)
a. Retail clinics				
2016				
Open clinics	5.51	0	1.60	0
Clinics per 100,000	1.13	0	2.39	0
2010–2016				
Openings	3.66	0.10	1.17	0.01
Closings	1.39	0.32	0.16	0.02
Share ever clinic	1.00	0.19	1.00	0.02
b. County characteristics (2012–2016)				
Basic demographics				
Total population	599,659	218,500	81,073	25,371
Population density (per sq. mile)	3,382	699	312	100
Share White	0.68	0.78	0.85	0.84
Share Black	0.15	0.10	0.09	0.09
Share Hispanic	0.21	0.18	0.08	0.08
Share under 18	0.23	0.24	0.24	0.23
Share aged 18–64	0.63	0.62	0.61	0.60
Income and education				
Median income	56,676	48,253	53,306	42,463
Share poverty	0.14	0.17	0.13	0.17
Share employed	0.61	0.57	0.59	0.54
Share high school	0.25	0.28	0.30	0.35
Share some college	0.28	0.31	0.30	0.30
Share college plus	0.35	0.27	0.28	0.20
Health insurance				
Share insured	0.88	0.89	0.90	0.88
Share private	0.62	0.58	0.65	0.56
Share Medicaid	0.14	0.16	0.12	0.15
Share Medicare	0.06	0.07	0.06	0.08
Expanded Medicaid by 2014	0.58	0.51	0.35	0.37
Number of counties	321	234	167	2,420

Notes: The above table presents information on the concentration of retail clinics from Merchant Medicine (panel (a)) and local socio-demographics and insurance status from the 2012–2016 five-year ACS (panel (b)) for counties that are in the one-year ACS (columns (1)–(2)) and counties that are not in the single-year files (columns (3)–(4)). Counties must have a population of 65,000 or more to be included in the one-year ACS. Columns (1) and (3) provide averages across counties with one or more open retail clinics in 2016, and columns (2) and (4) provide averages across counties with no open retail clinics in the same year.

Table A2: County-level summary statistics by urgent care center presence

	Number of UCCs in 2021		
	One or more (1)	None (2)	P-value (3)
a. On-demand health care clinics			
Urgent care centers (2021)			
Open clinics	6.81	0	
Clinics per 100,000	5.54	0	
Retail clinics (2016)			
Share any clinic	0.25	0.01	
Open clinics	1.08	0.02	
Clinics per 100,000	0.36	0.05	
b. County characteristics (2016–2020)			
Basic demographics			
Total population	166,336	12,313	0.000
Population density (per sq. mile)	2,277	120	0.000
Share White	0.70	0.82	0.000
Share Black	0.13	0.10	0.008
Share Hispanic	0.19	0.09	0.000
Share under 18	0.22	0.22	0.061
Share aged 18–64	0.62	0.58	0.000
Income and education			
Median income	57,966	43,045	0.000
Share poverty	0.13	0.16	0.000
Share employed	0.60	0.53	0.000
Share high school	0.26	0.36	0.000
Share some college	0.29	0.31	0.000
Share college plus	0.34	0.19	0.000
Health insurance			
Share insured	0.91	0.90	0.000
Share private	0.62	0.55	0.000
Share Medicaid	0.15	0.17	0.000
Share Medicare	0.08	0.10	0.000
Expanded Medicaid by 2014	0.52	0.37	0.000
Number of counties	1,869	1,274	

Notes: The above table presents information on the concentration of on-demand health care clinics (panel (a)) and local socio-demographics and insurance status (panel (b)) at the county-year level. Column (1) provides averages across counties with one or more open urgent care centers in 2021, column (2) provides averages across counties with no open urgent care centers in the same year, and column (3) provides p-values showing whether the values in columns (1) and (2) are statistically different. Data on urgent care centers come from the NUCR database, data on retail clinics come from Merchant Medicine, and data on county-level characteristics come from the 2016–2020 five-year ACS.

Table A3: Changes in insurance and retail clinic penetration: OLS by expansion status

	All counties		Medicaid non-expanders		Medicaid expanders	
Dependent variable: retail clinics per 100,000	(1)	(2)	(3)	(4)	(5)	(6)
Share insurance	0.239		1.439**		–1.497***	
	(0.412)		(0.559)		(0.405)	
Share private		0.979**		1.736***		–1.329**
		(0.452)		(0.585)		(0.573)
Share Medicaid		–1.279***		0.839		–1.431***
		(0.448)		(0.797)		(0.469)
County fixed effects	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X
Demographic controls	X	X	X	X	X	X
Observations	3,870	3,870	2,038	2,038	1,832	1,832
R^2	0.898	0.900	0.888	0.890	0.914	0.914
Mean dependent variable (2013)	0.54	0.54	0.591	0.591	0.484	0.484

Notes: The above table shows the association between retail clinics per 100,000 and the share of the population with different types of health insurance from estimation of equations (1) and (2). These regressions are estimated using all counties (columns (1)–(2)), counties in states that did not expand Medicaid under the ACA (columns (3)–(4)), and counties in states that did expand Medicaid under the ACA (columns (5)–(6)). The results in columns (1) and (2) were first reported in Table 2. Observations are at the county-year level from 2010–2016. All specifications include county fixed effects, year fixed effects, and time-varying socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county.

Table A4: First-stage results from first difference specification

Dependent variable:	Share insured (1)	Share private (2)	Share Medicaid (3)
$Post_t \times Employed_c^{2013}$	0.064***	0.073***	0.002
	(0.016)	(0.017)	(0.012)
$Post_t \times [138 - 400\%\ FPL]_c^{2013}$	0.279***	0.225***	0.014
	(0.053)	(0.052)	(0.037)
$Post_t \times Expansion_s \times [< 138\%\ FPL]_c^{2013}$	0.147**	-0.023	0.172***
	(0.065)	(0.052)	(0.036)
Year fixed effects	X	X	X
Demographic controls	X	X	X
Observations	3,314	3,314	3,314
R^2	0.515	0.334	0.285
Mean dependent variable	0.017	0.007	0.006

Notes: The above table shows first-stage estimates of the relationship between our instruments and the first difference of the share of the population with different types of health insurance from estimation of equation (6). Corresponding two-stage least squares results showing the effects of the share of the population with different types of health insurance on the number of retail clinic entries and exits are provided in Table 4. Observations are at the county-year level from 2010–2016. All specifications include year fixed effects and the first difference of time-varying, socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county.

Table A5: Effects of insurance on retail clinic penetration: ESI versus direct purchase

Dependent variable:	OLS	2SLS			
	Retail clinics per 100,000 (1)	Share ESI (2)	Share direct (3)	Share Medicaid (4)	Retail clinics per 100,000 (5)
a. First stage					
$Post_t \times Employed_c^{2013}$		0.171***	0.027**	–0.059***	
		(0.020)	(0.011)	(0.017)	
$Post_t \times [138 - -400\%\ FPL]_c^{2013}$		0.128**	0.242***	0.091	
		(0.059)	(0.061)	(0.071)	
$Post_t \times Expansion_s \times [< 138\%\ FPL]_c^{2013}$		0.106*	–0.142***	0.322***	
		(0.065)	(0.049)	(0.050)	
b. OLS/ 2SLS					
Share ESI	0.904*				7.161***
	(0.484)				(2.236)
Share direct purchase	1.235*				–8.146*
	(0.696)				(4.628)
Share Medicaid	–1.266***				–6.998***
	(0.444)				(2.407)
County fixed effects	X	X	X	X	X
Year fixed effects	X	X	X	X	X
Demographic controls	X	X	X	X	X
Observations	3,870	3,870	3,870	3,870	3,870
R^2	0.900	0.979	0.913	0.964	
Mean dependent variable	0.540	0.526	0.088	0.135	0.540
First stage F-stat					37.2

Notes: The above table shows the effects of the share of the population with different types of private health insurance coverage (employer-sponsored [ESI] or direct purchase) on the number of retail clinics per 100,000 from estimation of analogues of equation (2) (column (1)) and equation (4) (column (5)). First-stage estimates showing the relationship between our instruments and the share of the population with different types of health insurance from estimation of analogues of equation (3) are provided in columns (2)–(4). Observations are at the county-year level from 2010–2016. All specifications include county fixed effects, year fixed effects, and time-varying socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county. Cragg-Donald Wald F statistics are reported.

Table A6: Effects of insurance on retail clinic penetration: instrument components

Dependent variable:	Private instrument 1			Private instrument 2		
	Share private (1)	Share Medicaid (2)	Retail clinics per 100,000 (3)	Share private (4)	Share Medicaid (5)	Retail clinics per 100,000 (6)
a. First stage						
$Post_t \times Employed_c^{2013}$				0.210***	–0.056***	
				(0.024)	(0.018)	
$Post_t \times [138 - -400\%\ FPL]_c^{2013}$	0.431***	0.072				
	(0.064)	(0.072)				
$Post_t \times Expansion_s \times [< 138\%\ FPL]_c^{2013}$	–0.124	0.348***		0.021	0.336***	
	(0.080)	(0.053)		(0.086)	(0.049)	
b. Two-stage least squares						
Share private			–2.284			5.913***
			(2.139)			(1.830)
Share Medicaid			–3.613			–2.134
			(2.232)			(2.428)
County fixed effects	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X
Demographic controls	X	X	X	X	X	X
Observations	3,870	3,870	3,870	3,870	3,870	3,870
R^2	0.979	0.963		0.980	0.963	
Mean dependent variable	0.614	0.135	0.540	0.614	0.135	0.540
First stage F-stat			69.8			132.2

Notes: The above table shows the effects of the share of the population with different types of health insurance on the number of retail clinics per 100,000 from estimation of equation (4) (panel (b)) using either only one of our two private insurance instruments. First-stage estimates showing the relationship between these subsamples of our instruments and the share of the population with different types of health insurance from estimation of equation (3) are provided in panel (a). Observations are at the county-year level from 2010–2016. All specifications include county fixed effects, year fixed effects, and time-varying socio-demographic controls including total population, population density, percent white, percent black, and the age and education structure. Standard errors are clustered by county. Cragg-Donald Wald F statistics are reported.