Expanding Public Health Insurance to Parents: Effect on Parents' and Children's Well-being

Michelle Marcus Xuan Zhang

September 11, 2024

Expanding public health insurance to parents may not only benefit parents, but may also have spillover effects on their children. In this paper, we exploit the natural experiment arising from the Affordable Care Act to estimate the causal effects of expanding public health insurance to low-income parents on the well-being of parents and their children. Using a difference-in-differences model with data from the 2010–2017 National Health Interview Surveys, we find significant improvements in health care access, increases in health care utilization, reductions in financial burden, and a slight improvement in health status for low-income parents. For low-income children in the Medicaid expansion states, we find decreases in both emergency care utilization and hospitalizations. These findings suggest short-term positive spillover effects of parental insurance coverage on low-income children's well-being via improved health care utilization.

Keywords: Medicaid; parents; children; health care access; health care utilization; health status; financial burden

JEL Codes: I18, I38, J13

1 Introduction

The health insurance rate among US adults is low compared to other developed countries, and the cost of US health care is the highest in the world (OECD 2017; Peterson-Kaiser 2019). Low-income adults have especially low health insurance coverage, resulting in lower health care access, health care utilization, and health status (Tolbert, Drake and Published, 2023). Among working-age adults in the US, about half are parents living with children, and 18% did not have any insurance as of 2010 (Schondelmyer 2016; The Annie E. Casey Foundation 2017). Compared with that of childless adults, parents' health insurance coverage might be especially important, because it may not only improve parents' own health care access, health care utilization, and health status (Busch and Duchovny 2005; McMorrow et al. 2017), but may also benefit their children.

In this paper, we aim to first document how low-income parents' insurance coverage can affect their own well-being. Next, we explore four potential channels through which parents' insurance coverage can affect children's well-being in a unified setting (see Figure 1). First, expanding insurance coverage to parents may increase the coverage for their already-eligible but not-yet-insured children (Aizer and Grogger 2003; Dubay and Kenney 2003; Hudson and Moriya 2017; Hamersma, Kim and Timpe 2019; Ugwi, Lyu and Wehby 2019; Sacarny, Baicker and Finkelstein 2022), and children's own insurance coverage is critical for their health care use and health outcomes (Currie and Gruber 1996; Aizer 2007). Second, parents' health insurance may improve their own health care access and utilization after being covered (Busch and Duchovny 2005; Baicker et al. 2013). They may also bring their children to doctors more regularly (Venkataramani, Pollack and Roberts 2017) due to convenience of scheduling on the same day or increased familiarity with the healthcare system. Previous research has shown that parents' and children's health care utilization is positively correlated (Hanson 1998; Carter 2007). Third, health insurance coverage may reduce the financial burden for low-income families (Gross and Notowidigdo 2011; Finkelstein et al. 2012; Baicker et al. 2013). Parents may feel more secured and may have more resources to better care for or invest in their children. Finally, parents' physical or mental health status may improve via better health care access and utilization and/or reduced financial burden (Finkelstein et al. 2012;

Baicker et al. 2013). Parents' improved mental and physical health status can in turn have a positive impact on children's mental and physical development (National Research Council and Institute of Medicine 2004; Guldi and Hamersma 2023).

To estimate the impact of the expansion of low-income parents' health insurance coverage on children's well-being and the underlying mechanisms, we use the 2010–2017 National Health Interview Surveys (NHIS) with a repeated cross-sectional sample and exploit the exogenous variation in the change of parents' health insurance coverage arising from the Affordable Care Act (ACA). There are two main expansions under the ACA: state-level Medicaid expansion to low-income adults and county-level exchange premium subsidies for moderate-income adults.[1] In this study, we focus on the state-level Medicaid expansion for low-income adults. As our population of interest includes parents and their children, we specifically investigate the effects of the policy changes that were relevant for the parent population. Unlike the conventional classification of states into Medicaid expansion and non-expansion states by the income eligibility of the whole adult population, we divide states into three categories (parental expansion, parental non-expansion, and pre-ACA parental coverage) based on the state-level pre- and post-ACA Medicaid income eligibility threshold specifically for parents, following the information provided by the Kaiser Family Foundation (2021). This is an important distinction from previous work because around half of the Medicaid expansion states under the ACA already covered low-income parents prior to the ACA.[2]

We estimate the effect of low-income parents' public health insurance coverage on the well-being of parents and children using a cross-state difference-in-differences (DID) estimation strategy. We compare low-income parents and children in the treatment and control groups before and after the Medicaid expansion under the ACA. Our treatment group includes parents and children with family income below 139% of the federal poverty line (FPL) in the parental expansion states and our control group includes their counterparts in the parental non-expansion states.

[1] According to Frean, Gruber and Sommers (2017), the health insurance mandate has a negligible impact on insurance coverage.

[2] Due to this different classification of state expansion status, our estimates are generally larger than those also examining parents' insurance coverage on their well-being under the ACA, for example, McMorrow et al. (2017) and Simon, Soni and Cawley (2017).

We document a significant improvement in parents' well-being during the four post-ACA years (2014–2017). First, compared with low-income parents in non-expansion states, the uninsured rate among low-income parents in expansion states decreases by 11.6 percentage points, which is a 31.6% decrease relative to the average uninsured rate among low-income parents. Second, we find greater health care access for low-income parents in expansion states, as the likelihood of skipping care decreases by 3.7 percentage points. In addition, we find that low-income parents increase doctor visits by 0.6 visits per year after Medicaid expansion. Third, low-income parents' financial burden is alleviated after Medicaid expansion, as the probability of having problems paying medical bills decreases by 10.3 percentage points and family spending on medical care decreases by $98 per year on average in the post-period. The reduced financial burden might increase investment in children's human capital (Bullinger, Gopalan and Lombardi 2021) and improve the mental health status of parents. However, despite the positive impacts we find for parents regarding health care access, health care utilization, and alleviated financial burden, we find only weak evidence (at 10% significance level) of a short-term improvement in low-income parents' self-reported health status. In addition, there is little change in parents' overall mental health index.

Regarding the spillover effects on children, we find that low-income children in expansion states experience a decrease in hospital stays by 0.06 nights per year and a decrease in Emergency Room (ER) use by 0.13 visits per year after the ACA, even though there is no detectable change in children's insurance rate. We also find an increase in the diagnosis of ADD/ADHD.

Our paper contributes to the following three bodies of literature. First, our study contributes to the literature examining the effects of parents' insurance coverage on parental well-being. Our evidence is consistent with existing work that finds the ACA Medicaid expansions increased insurance coverage for low-income parents and women of reproductive age (McMorrow et al., 2017; Johnston et al., 2018, 2020; Bullinger, Simon and Edmonds, 2022).[3] In addition, our findings expand upon the existing work showing a decline in financial burden for parents, including reductions in parents' problems paying medical bills and severe psy-

[3]Several studies find that the ACA expansions increased parents' insurance coverage, but by a smaller magnitude than the increases for childless adults (Kaestner et al., 2017; Simon, Soni and Cawley, 2017; Johnston et al., 2018, 2020; Bullinger, Simon and Edmonds, 2022).

chological distress (McMorrow et al., 2017).[4] Bullinger (2021) find that ACA increases the ability of noncustodial parents to pay child support, and Lombardi, Bullinger and Gopalan (2022) find that parents are less likely to be stuck in their job (job lock) because of insurance and medical cost concerns. Moreover, Simon, Soni and Cawley (2017) find that parents increase their access to personal doctor by 2.8 percentage points, and Gopalan, Lombardi and Bullinger (2022) find that the ACA improved parents' self-reported health. In addition, Venkataramani, Pollack and Roberts (2017) find that increasing adults' Medicaid eligibility thresholds between 2001 and 2013 lead to an increase in children's pediatric preventive care utilization. Our paper builds on this literature by studying effects over relatively longer time horizon after the expansions and by specifically excluding states that had already expanded Medicaid for parents prior to the ACA expansions. We also provide new evidence of the impacts of expansions on several important additional measures of parental well-being, including measures of parental health care access and utilization.

Second, our evidence also adds to a small literature on the effect of parents' insurance coverage on children's well-being. This research has primarily focused on the effect through increasing children's insurance coverage (channel 1 in Figure 1). For a number of different health insurance reforms, existing work has found a positive causal relationship of parents' (public) insurance coverage on children's (public) insurance coverage (Aizer and Grogger, 2003; Dubay and Kenney, 2003; DeVoe et al., 2015; Sommers et al., 2016*a*; Smith and Chien, 2019; Sacarny, Baicker and Finkelstein, 2022). While Hudson and Moriya (2017) find a positive spillover effect on children's insurance coverage under the ACA , such an effect only exists for Medicaid coverage but not for the overall insurance rate of children due to the crowd-out effect of private insurance coverage (Ugwi, Lyu and Wehby, 2019; Lombardi, Bullinger and Gopalan, 2022). In our setting, we also do not find evidence of a significant change in overall insurance coverage for children.

Beyond children's insurance coverage, research has documented a positive correlation between parents' insurance coverage and children's health care access and utilization (Davidoff et al. 2003; Gifford, Weech-Maldonado and Short 2005; Guendelman et al. 2006). However,

[4] McMorrow and Kenney (2021) find that for parents who were already eligible for Medicaid before the ACA, the ACA also reduces their uninsurance rate, unmet medical care need due to costs, and problems of paying medical bills.

without exogenous variation in parents' insurance coverage, we cannot interpret this relationship as causal, since parents' insurance coverage is correlated with many other factors that can affect children's health care access and utilization directly. In fact, Smith and Chien (2019) find mixed causal effects of parents' insurance coverage on children's health care access. Using the Massachusetts Health Reform as a natural experiment, they find that the adult-oriented health insurance expansion increased children's specialty care access but decreased children's preventive care access. In addition, Gopalan, Lombardi and Bullinger (2022) find that parents' insurance coverage has no significant impact on children's use of routine doctor visits or parents' assessment of their children's health status. We contribute to this literature by providing evidence of the spillover effects on children across a wider range of outcomes to better understand the mechanisms through which these effects might arise.

Finally, our research contributes to a broad literature investigating the effects of the ACA. Most of the existing studies on the ACA focus on childless adults and have consistently found increased insurance rate, better access to care, and no increase in risky behavior for childless adults (Sommers et al., 2015; Frean, Gruber and Sommers, 2017; Kaestner et al., 2017; Simon, Soni and Cawley, 2017; Courtemanche et al., 2018*a*,*b*; Cotti, Nesson and Tefft, 2019). Findings on the effect of the ACA on adults' health care utilization and health status have been more mixed.[5] Unlike these studies focusing on childless adults, we focus on the effect of the ACA on parents and their children.

The rest of the paper proceeds as follows. Section 2 describes the background on the ACA Medicaid expansions. Section 3 describes the data, sample, main outcome variables, and summary statistics. Section 4 illustrates the empirical strategy. Section 5 reports the effects on parents' health care access, utilization, and health outcomes. Section 6 shows the effects on children. Section 7 shows additional results and robustness checks, and Section 8 concludes.

[5]For example, Wherry and Miller (2016) and Miller and Wherry (2017) find an increase in adults' health care utilization only in the first year, but the effect is not sustained. Simon, Soni and Cawley (2017) find an increase in certain preventive care use and a modest improvement in self-reported health status. Using the same data, Courtemanche et al. (2018*a*) find no change in self-reported health status in the first two years after the ACA. However, Sommers et al. (2015) find improvements in self-reported physical health status from a phone survey. Courtemanche et al. (2018*b*) also find an improvement in adults' excellent health, but the effect is mainly driven by non-expansion states.

2 Background

The ACA was passed in 2010, and the main Medicaid expansion and Marketplace have been in place since 2014. Participation in Medicaid expansion is determined by state. Participating states have an income limit for Medicaid at 138% of the FPL. The Marketplace provides subsidized health insurance for people with income above 138% (100% in non-expansion states) and up to 400% of the FPL. Of the different levels of plans (Bronze, Silver, Gold, and Platinum), Silver plans are the most popular. These two policies under the ACA have greatly improved health insurance coverage among low-income and moderate-income working-age adults.[6] Compared with other developed countries, the US has a lower insurance rate among working-age adults and higher health care costs (OECD, 2017; Peterson-Kaiser, 2019).

Medicaid has been generous in terms of insurance coverage for children and pregnant women since the 1990s. In general, children with family income below 140% of the FPL are eligible for Medicaid and CHIP in all states.[7] Pregnant women with family income below 139% of the FPL are also eligible for Medicaid. Individuals aged 65 and over are normally covered by Medicare. Therefore, working-age adults are the age group most likely to have no insurance coverage, especially low-income adults without employer-provided insurance from a full-time job.

Unlike other studies looking at the whole adult population, we focus specifically on parents and their children. Therefore, our classification of the treatment and control groups relies on the Medicaid rules specific to parents. Table 1 shows the Medicaid expansion status for parents in each state as of 2017. We have fewer expansion states compared with studies which examine all adults, because many of the Medicaid expansion states already covered low-income parents prior to the ACA (Kaiser Family Foundation, 2021). In addition, we show the Medicaid income eligibility threshold for parents in 2013 in each state in column (2), (4), and (6) to reflect their baseline generosity of parental Medicaid coverage. Eighteen

[6]The federal health insurance mandate was also implemented in 2014, but had relatively little impact on coverage. There was also an expansion of health insurance coverage for young adult dependent children up to age 26 under the ACA. This should not affect our analysis, since we focus on children under the age of 18.

[7]Some states have the income limit at over 300% of the FPL.

states, shown in column (5), already provided Medicaid coverage for all of the low-income parents (typically up to at least 138% of the FPL) prior to the ACA. Seventeen states, listed in column (1), had expanded Medicaid to low-income parents between 2014 and 2017, most of which expanded in 2014. The remaining sixteen states in column (3) had not expanded coverage to low-income parents as of 2017.[8] In many states, even though it was possible for some low-income parents to obtain Medicaid prior to the ACA, the income eligibility threshold was quite low, usually under 50% of the FPL. Figure 2 shows the geographical distribution of the Medicaid expansion to low-income parents as of 2017.

3 Data and Summary Statistics

3.1 Data

The primary data for this paper are the restricted version of the 2010–2017 NHIS. There are several files in each wave, and we use the household file, family file, imputed income file, person file, sample adult file, and sample child file. The restricted household file provides state identifiers, allowing us to link different policies and local economic conditions to individuals. The family file provides information on family structure, family background, and family-level outcome variables related to financial burden. The restricted imputed income file has detailed family income, so we can divide parents and children into different income groups to construct our treatment group. The person file has abundant demographic information and some information on individual health care access and self-reported health status. The sample adult and sample child files include a random subsample of individuals and record abundant information about parents' and children's health care access, health care utilization, and health status.[9]

The NHIS surveys approximately 100,000 individuals annually, and about 30,000 adults and 10,000 children are included in the sample adult and sample child files. Although the data have a large sample size and abundant information related to health care, one

[8] However, as shown by the years in parentheses, 8 of the 16 states in column (3) had expanded Medicaid by 2023.

[9] From each family in the NHIS, one "sample child" aged 17 years or under is randomly selected (if any child is in the family) and one "sample adult" aged 18 years or over is randomly selected.

disadvantage of the data is that the sample is not a panel, because different families are surveyed in different years.

In addition, we merge several other datasets with the NHIS based on state and year. The key independent variable, state-level Medicaid expansion status for parents, is constructed from the Kaiser Family Foundation Medicaid Income Eligibility Limits for Parents 2002–2021 (Kaiser Family Foundation 2021). State-level unemployment rates are from the Bureau of Labor Statistics (BLS), and the state-level GDP is from the Bureau of Economic Analysis (BEA).

3.2 Sample and Main Outcome Variables

We examine changes in outcomes for parents (age 19–64) and children (under age 18). For both children and parents, we look at their insurance coverage, health care access, health care utilization, and health outcomes. We also look at the family-level financial burden related to medical costs. The details of each outcome are listed below:

Health insurance coverage

We use an indicator variable to describe an individual's insurance coverage status at the time of survey, which is equal to one if an individual is *not* covered by any health insurance and zero otherwise.

Health care access

Our measure of health care access is whether an individual (parent or child) has skipped need care due to costs in the past year.

Health care utilization

We start with broad health care utilization measures for individuals over the past year, such as the number of hospitalizations, ER visits, and doctor office visits. We also consider parents' and children's utilization of mental health care (any visit to a mental health professional).

Next, we consider preventive care utilization, since many studies have suggested that low-income individuals have inadequate preventive care, and having health insurance can alleviate this problem (Perry and Kenney 2007; Koh and Sebelius 2010; Sommers et al. 2016*b*). For parents, we create an indicator variable for any preventive test (tests include

blood pressure, cholesterol, blood sugar, and colon cancer) in the past year. For children, we consider whether they had any well-child checkup in the past year.

Parents' financial burden

Medical bills cause roughly 26% of personal bankruptcies among low-income households, and having insurance can reduce bankruptcies among low-income families (Gross and Notowidigdo 2011). Therefore, we examine whether health insurance expansion to low-income parents relieves their financial burden by increasing their ability to pay medical bills and/or reducing their medical costs. Our variables of interest include the amount a family spent for medical care in the past year and an indicator for problems paying or being unable to pay medical bills in the past year.

Health outcomes

For health outcomes, we consider both physical health and mental health measures. For physical health status, we look at an individual's self-reported health status. We define good health status if an individual reports their health as "excellent", "very good", or "good", and we define poor health if an individual reports their health status as "poor".[10]

For mental health, we focus on summary indices for both parents and children. For parents' mental health status, we look at the frequency of six negative emotions in the previous 30 days (Kessler Psychological Distress Scale): feeling sad, nervous, restless, hopeless, everything was an effort, and worthless. The answers are grouped into five categories: none, a little, some, most, and always, which we re-code as 0 to 4. We construct a summary Z-score by taking the average after normalizing each measure by its mean and standard deviation. Children's mental health measures are recorded differently depending on their age: age 2–3 and age 4–17. Due to the small sample size of toddlers, we focus on mental health measures among older children (age 4–17) only. Similar to the summary index we construct for parents, we also construct a Z-score for children's mental health status based on four measures reported by their parents referring to their behavior in past six months: (1) whether a child has many worries, or often seems worried, (2) whether a child is often unhappy, depressed or tearful, (3) whether a child is getting along better with adults than with children, and

[10]There are five categories of self-reported health status: excellent (1), very good (2), good (3), fair (4), and poor (5). The larger the value, the poorer health status an individual reports.

(4) whether a child has difficulties in any of the following areas: emotions, concentration, behavior, or being able to get along with other people. For both mental health summary indices, the higher the score, the worse the reported mental health status. Finally, we also consider whether a child is ever told they have ADD/ADHD.

3.3 Summary Statistics

Table 2 compares the average demographic characteristics of the low-income parents (panel A) and children (panel B) in the parental expansion states and parental non-expansion states before and after the implementation of the ACA in 2014. On average, the uninsured rate of low-income parents in expansion states declines by 21 percentage points. The uninsured rate among low-income parents in non-expansion states also declines, but by 12 percentage points only.

Compared with the reduction in parents' uninsured rate, children's uninsured rate only decreases slightly by 3 percentage points in both expansion and non-expansion states. Therefore, if parents' insurance coverage has any impact on children's well-being under the ACA, it is more likely via channels other than an increase in children's insurance coverage.

As for demographic characteristics, compared with low-income individuals in non-expansion states, low-income individuals in expansion states have similar age, similar gender composition, similar marriage rate, and similar years of schooling. However, there is a greater share of non-Hispanic White sample in expansion states and thus a smaller share of Hispanic and non-Hispanic Black sample. The family size and family income are slightly larger in non-expansion states. We control for these demographic characteristics for parents and children in all relevant regressions.

4 Empirical Strategy

We rely on a cross-state DID model as our main empirical strategy and compare low-income parents and children in the expansion and non-expansion states before and after the ACA. We exclude the pre-ACA parental coverage states (column [5] of Table 1) from our analysis, because Medicaid already covered parents whose family income is below 138% of the FPL

before the ACA in these states. Therefore, the effect of ACA on these pre-ACA coverage states should be relatively limited. Appendix Figure A1 verifies that compared to the Medicaid expansion states under the ACA, the increase in the insurance coverage rate among low-income individuals in the pre-ACA parental coverage states is indeed smaller.

Our main estimation is based on the specification (1):

$$y_{ist} = \beta_0 + \beta_1 Exp_s \cdot postACA_t + \gamma X_{it} + \delta econ_{st} + \alpha_s + \mu_t + \varepsilon_{ist}, \tag{1}$$

where i indexes individuals, s indexes states, t indexes years, and y_{ist} represents different outcomes for parents and children. For parents and children, we consider insurance coverage, health care access, health care utilization, and health outcomes. We also consider families' financial burden related to medical care. The detailed outcome variables are defined as in Section 3.2.

Our sample includes only citizens, because Medicaid coverage for non-citizens varies by state. Similarly, we exclude low-income pregnant women and people who receive supplemental security income, because they were already eligible for Medicaid prior to the expansions.

The primary explanatory variable is the interaction term between the treatment group Exp_s and an indicator equal to one after state s expands Medicaid, $postACA_t$. Since we do not have panel data, we cannot control for individual fixed effects. Instead, we include state fixed effects, α_s, to control for time-invariant differences in characteristics across states. In addition, we include individual characteristics X_{it}, such as age, gender, race/ethnicity, (parent's) marital status, and family size. We also include year fixed effects, μ_t, to control for macro-level influences and shocks by year. Since state-level economic activity can potentially affect Medicaid expansion status and our outcomes simultaneously, we also control for time-varying state-level economic conditions, $econ_{st}$, such as unemployment rate and GDP. To address the concern that there may be negative weighting for two-way fixed effects estimates due to heterogeneous treatment effects with staggered treatment timing (de Chaisemartin and D'Haultfœuille 2020; Callaway and Sant'Anna 2021), we focus on the 2014-expansion states only.[11] Standard errors are clustered at the state level to adjust for within-cluster

[11] We exclude New Hampshire, because it expanded Medicaid in July 2014. Therefore, as of January 2014, it had not increased the parental Medicaid eligibility limit to 138%.

correlation and heteroskedasticity. In addition, due to the small number of clusters in our analysis (28), we also report p-values and confidence intervals from the Wild Cluster Bootstrap procedure.

In addition, we also plot event study estimates from the following specification:

$$y_{ist} = \beta_0 + \beta_k \sum_{k=-4,-3,-2}^{k=0,1,2,3} Exp_s \cdot 1(k = t - t_0) + \gamma X_{it} + \delta econ_{st} + \alpha_s + \mu_t + \varepsilon_{ist}, \quad (2)$$

where k is the relative year from the ACA Medicaid expansion year t_0. All the other variables remain the same as in equation (1).[12]

As a robustness check, we also use parents' Medicaid income eligibility threshold in each year as the key independent variable and explore how parents' and children's well-being are affected by the increase in parents' Medicaid income eligibility threshold, as shown in equation (3):

$$y_{ist} = \beta_0 + \beta_1 EligibilityThreshold_{st} + \gamma X_{it} + \delta econ_{st} + \alpha_s + \mu_t + \varepsilon_{ist}, \quad (3)$$

where $EligibilityThreshold_{st}$ is a continuous variable, measuring parents' Medicaid income eligibility threshold in state s and year t. All the other variables remain the same as in equation (1).

5 Results: Effects on Parents' Well-being

We begin by documenting the impact of expanding insurance coverage on low-income parents' well-being. Not only are low-income parents an important group, but also any meaningful impacts on parents' health insurance coverage, health care access, health care utilization, and financial burden may have important spillover effects on their children. Figure 1 shows our conceptual framework, and we explore each of the mechanisms through which low-income parents' insurance coverage may affect their children's well-being.

First, Figure 3 and Table 3 reveal that compared to low-income parents in the non-

[12]Following Freyaldenhoven et al. (Forthcoming), we show the mean of outcome variable in the reference period −1 on the Y-axis in our event study figures.

expansion states, the uninsured rate of low-income parents in the expansion states decreases by 11.6 percentage points (31.9%), demonstrating the effectiveness of the ACA in terms of parents' insurance coverage. This estimate, shown in column (1) of Table 3, is statistically significant.

Second, we consider parents' health care access and health care utilization. Figure 4 (a) and column (1) in panel A of Table 4 demonstrate the significant improvement in parents' health care access. Table 4 panel A column (1) indicates that parents are 3.7 percentage points (20.1%) less likely to skip needed medical care. Figure 4 (a) shows flat pre-trends for skipping needed medical care, and the significant decline in skipping needed medical care arises shortly after the Medicaid expansion.

Figure 4 (b)–(f) and columns (2)–(6) in panel A of Table 4 show the effects of Medicaid expansion on parents' health care utilization. In general, the evidence indicates that parents increase doctor visits by 0.6 times per year (17.3%). However, we do not find any significant change in hospitalizations, ER visits, any mental health visit, and any preventive test use.

Third, Figure 5 and Table 5 demonstrate the alleviation of parents' financial burden related to medical costs. Consistent with previous findings on Medicaid and financial burden (Gross and Notowidigdo 2011; Finkelstein et al. 2012; Baicker et al. 2013), we find that financial burden, as measured by the probability of having problems paying medical bills, decreased by 10.3 percentage points in 2014–2017 among low-income parents in the expansion states compared to those in the non-expansion states.[13] In addition, family spending on medical care decreased by $98 per year (12.6%) on average in the post-period. Both estimates are statistically significant at the 5 percent level and event study estimates show no evidence of pre-trends. This alleviated financial burden may benefit children in at least two ways. First, alleviated financial burden might improve parents' mental and/or physical health status, which may improve parenting quality and child care time (Soni and Morrissey, 2022). Second, parents may have more financial resources to invest in their children's development.

Finally, Figure 6 and panel A of Table 6 show the effects on parents' physical and mental health status. In general, there is only weakly significant evidence suggesting an improve-

[13]The magnitude is moderately smaller than previous findings from the Oregon experiment (Finkelstein et al., 2012; Baicker et al., 2013), but it is still a substantial decrease.

ment in parents' health status.[14] For parents' poor and good health status, which are only marginally significant at the 10 percent level. The 95% wild cluster bootstrap lower and upper bounds are -0.020 (-48%) and 0.001 (2%) for poor health status, respectively; and the 95% wild cluster bootstrap lower and upper bounds are -0.014 (-17%) and 0.068 (84%) for good health status, respectively. This suggests that we cannot rule out a null effect at the 95 percent level of confidence for poor and good health status. These results are merely suggestive, given our limited power. However, we note that these measures are somewhat coarse and unlikely to capture all relevant changes in parents' physical and mental health.

6 Results: Effects on Children's Well-being

Given the statistically significant beneficial impacts on parents' insurance coverage, health care access, health care utilization, and financial burden, we now turn to explore whether there are any spillover effects on children's well-being, as measured by children's health insurance coverage, health care access, health care utilization, and physical and mental health status.

Although we find a large reduction in the uninsured rate among low-income parents, such an increase does not translate into an increase in children's health insurance coverage. Both Figure 3 and Table 3 column (2) show that there is no statistically significant impact of parental insurance coverage on children's overall insurance coverage.[15]

Figure 7(a) and column (1) in panel B of Table 4 illustrate the effect on children's health

[14]For completeness, Figure A2 and Table A1 show separate estimates for variables included in the mental health Z-score. Table A1 finds a significant decrease in the likelihood that parents felt hopeless. While effects for feeling sad and worthless are also marginally significant, the event study estimates show little evidence of a meaningful deviation from pre-treatment levels.

[15]To examine the degree of crowd-out between private insurance and Medicaid coverage, we present results in Table A2 for the uninsurance rate and medicaid coverage for parents and children. For parents, the increase in medicaid coverage (0.119) is similar to the decrease in uninsurance rate (0.116), suggesting that most of the newly covered parents previously had no insurance coverage, rather than private insurance. For children, we detect no statistically significant change in either the uninsurance rate or medicaid coverage. However, we note that we lack the precision to detect very small effect sizes for children. Our confidence intervals overlap with estimates found in other papers that use different samples (Sommers et al., 2016*a*; Hudson and Moriya, 2017; Ugwi, Lyu and Wehby, 2019; Lombardi, Bullinger and Gopalan, 2022; Sacarny, Baicker and Finkelstein, 2022). For example, our wild cluster bootstrap 95% confidence intervals cannot rule out decreases in the uninsurance rate of up to 6 percentage points or increases in medicaid coverage of up to 9 percentage points.

care access. In general, we do not find an increase in low-income children's health care access as measured by whether they skip needed health care.

However, even though there is no increase in low-income children's health care access, Figure 7 (b)–(f) and columns (2)–(6) in panel B of Table 4 reveal some improvement in children's health care utilization. We find statistically significant decreases in hospitalizations and ER visits. Compared to low-income children in the non-expansion states, low-income children in the expansion states reduced their hospitalizations by 0.06 times per year (69.2%) and ER visits by 0.13 times per year (28.3%) after the Medicaid expansion to their parents.[16]We see no statically significant changes in doctor visits or the likelihood of visiting a mental health professional in Table 4, but event study estimates suggest a slight increase in the probability of visiting a mental health professional in panel (e) of Figure 7. The decrease in emergency care and inpatient care demonstrate an improvement in low-income children's health care utilization and lower health care costs.

Finally, Figure 8 and panel B of Table 6 show the change in children's physical and mental health status. Panels (a)–(b) of Figure 8 show that there is little evidence of a change in low-income children's physical health status, as measured by parent-reported health status of their children. Columns (1) and (2) in panel B of Table 6 confirms that there are no statistically significant impacts on children's physical health status.

In terms of mental health measures, panel (c) of Figure 8 shows that there might be an increase in children's mental health issues, but this appears to arise prior to treatment.[17] Trends in ADD/ADHD diagnosis in Figure 8 panel (d), on the other hand, appear flat prior to the ACA expansion and increase one to two years after the expansion. Panel B of Table 6 shows no statistically significant change in children's mental health Z-score, but column (4) shows a statistically significant 3.5 percentage point increase in the detection of ADD/ADHD among low-income children.[18] The increase in ADD/ADHD diagnosis may suggest greater

[16]While these point estimates are large relative to the mean, the distributions of these variables are right-skewed. 95% and 75% of low-income children never have hospital admissions or use ED in a year, respectively. Among the 5% and 15% of children who have been hospitalized or used ED at least once per year, the average number of hospitalizations or ED visits is about 1.5 and 1.9, respectively. Although we cannot directly identify compliers due to the repeated cross-sectional structure of NHIS, it may be that the effects we find are driven by reductions among those in the tail of the distribution.

[17]A higher mental health Z-score indicates more parent-reported mental health problems of children.

[18]When we consider ADD/ADHD detection by children's age in Table A3, we find that young children

or more timely detection of this disease and may be a mechanism through which higher reading test scores arise (Bullinger, Gopalan and Lombardi, 2023; Wehby, 2022). Existing studies have shown that parents play a major role in helping detect relevant symptoms and there is evidence that parents spend more time on childcare following Medicaid expansions (Soni and Morrissey, 2022). Increased parental contact with the healthcare system through increased doctor visits may also provide parents with an opportunity to discuss observed symptoms with providers. Alternatively, lower stress from reduced financial burden may give parents needed mental bandwidth to observe and address their child's symptoms. For example, low parental income and lack of insurance can delay the timing of the diagnosis and the associated treatment (Hamed, Kauer and Stevens, 2015). The increased diagnosis of ADD/ADHD among low-income children is likely to improve children's well-being in the long run.

7 Additional Analyses and Robustness

In addition to our main outcomes of interest, Table A4 includes results for additional outcomes, such as whether an individual's medical care is delayed, whether an individual has a usual place of care, whether an individual has any GP visit, the number of work/school days missed, and whether a family's medical bill is paid over time. All of these variables refer to the past 12 months. While we include these results in the appendix for completeness, we do not find convincing evidence of meaningful changes in these measures due to either lack of statistical power or non-parallel pre-trends.

Next, we show the robustness of our main results to using an alternative specification that exploits variation in the income eligibility threshold by states across time. Column (2) of Table 1 shows the income eligibility threshold for parents in expansion states in 2013. After expansion, eligibility increased to 138% of the FPL in expansion states. Expansion states with very low pre-ACA eligibility threshold for parents, such as Arkansas (16% of FPL in 2013), may experience an even larger effect of expansion than states with higher pre-ACA

of age group 6–8 experience the most significant increase, although the confidence intervals of all age groups overlap.

eligibility thresholds, such as Ohio (96% of FPL in 2013). Our specification, from equation (3), leverages this variation.

We present the results using a continuous measure of parents' Medicaid income eligibility threshold as the key variation in Tables A5 and A6. All of our key results hold, except that self-reported poor and good health status are no longer weakly significant for low-income parents. For the other outcomes, the effect sizes are larger and equally or more statistically significant. Column (1) in Table A5 shows that when parental Medicaid eligibility threshold increases by 100%, parents' uninsured rate decreases by 14.3 percentage points (39%). Column (1) in panel A of Table A6 shows that low-income parents are 4.6 percentage points (25.1%) less likely to skip needed medical care, and column (4) indicates that they visit doctors 0.8 times more per year (20.8%) if parental Medicaid eligibility threshold increases by 100%. Column (2) in panel B of Table A6 shows that low-income children reduce hospitalizations by 0.07 times per year (86.9%) and reduce ER visits by 0.17 times per year (36%) when parental Medicaid eligibility threshold increases by 100%. As for family financial burden, column (3) and column (4) in Table A5 reveal that low-income families reduce their medical spending by $100.3 per year (12.9%) and their likelihood of having problems paying medical bills also reduces by 11.3 percentage points (34.2%) when parental Medicaid eligibility threshold increases by 100%.

Finally, we consider whether the benefits of Medicaid expansion differ for families with more underlying medical needs. To better understand whether Medicaid expansion had a heterogeneous effect on those low-income parents with and without underlying medical conditions, we conduct heterogeneity analysis by whether an individual has any physical or mental limitations. For low-income parents, Table A7 shows that compared to parents without any limitation, parents with any limitation generally benefit more from the Medicaid expansion. Although the insurance coverage rate increases more for parents without any limitation (12.7 vs. 6.3 percentage points), column (2) shows that parents with any limitation are 7.1 percentage points less likely to skip medical care after the ACA, while parents without any limitation are 3.0 percentage points less likely to skip medical care. In addition, column (3) shows that their family spend $280.8 less on medical care after the ACA, whereas parents without any limitation do not experience a significant decrease in

their family medical spending. The likelihood of having problems paying medical bills reduces by 15.2 percentage points for parents with limitation(s) and by 9.0 percentage points for parents without limitation(s). As for health care utilization, column (9) indicates that parents with limitation(s) increase their doctor visits by 0.7 times per year, and parents without limitation(s) increase by 0.5 times per year. Moreover, we find weakly significant improvement in both physical and mental health status among parents with limitation(s). Column (10) reveals that they are 2.4 percentage points less likely to report poor health status, and their mental Z-score reduces by 0.2 standard deviation. These results suggest that parents with underlying medical conditions benefit even more from the Medicaid expansions we study.

For low-income children, as shown in Table A8, we also find generally larger effects on children with any limitation. Column (3) demonstrates that children with any limitation reduce their hospitalizations by 0.1 times per year, while children without any limitation reduce hospitalizations by 0.05 times per year. Column (6) indicates that children with any limitation increase their likelihood of visiting a mental health professional by 16.2 percentage points, while the increase is only 4.1 percentage points for children without limitation(s). Column (11) reveals that children with any limitation are 10.5 percentage point more likely to be detected ADD/ADHD (although not statistically significant), while the increase is 4.2 percentage points for children without limitation(s). However, as for ER visits, the reduction is mainly driven by children without limitation(s), who reduce their ER visits by 0.1 times per year.

8 Conclusion

In this paper, we have focused on a specific subgroup of adults – parents – to investigate how the expansion of public health insurance for low-income parents under the ACA affects their own and their children's well-being with a cross-state DID analysis. In contrast to the existing work that finds limited effect of the ACA on parents' health care access and utilization (Simon, Soni and Cawley 2017; McMorrow et al. 2017), we find an improvement in parents' health care access and a modest improvement in their health care utilization.

In addition, we find a substantial reduction in parents' financial burden related to medical costs. We also find a slight improvement in parents' self-reported health status.

Moreover, in addition to the positive effects on low-income parents' own well-being, we also find positive spillover effects of parental insurance coverage on low-income children's well-being. Even though we do not find an increase in low-income children's insurance coverage, we find a significant improvement in children's health care utilization. Low-income children in the Medicaid expansion states significantly reduce utilization of inpatient care and emergency care, compared to their counterparts in the non-expansion states. Additionally, we find an increase in the detection of ADD/ADHD.

Our analysis demonstrates the positive direct effects of parental insurance coverage on their own well-being and spillover effects of parental insurance coverage on children's well-being in a four-year window after the Medicaid expansion under the ACA. It suggests that when we do a cost-benefit analysis of public health insurance programs that involve parents, we might need to not only take into account of the direct effects but also take into account of the positive spillover effects on children. Future research can further explore if there are even longer-term spillover effects of parental insurance coverage on children's well-being.

References

Aizer, Anna. 2007. "Public Health Insurance, Program Take-Up, and Child Health." *The Review of Economics and Statistics*, 89(3): 400–415.

Aizer, Anna, and Jeffrey Grogger. 2003. "Parental Medicaid Expansions and Health Insurance Coverage." National Bureau of Economic Research Working Paper 9907.

Baicker, Katherine, Sarah L. Taubman, Heidi L. Allen, Mira Bernstein, Jonathan H. Gruber, Joseph P. Newhouse, Eric C. Schneider, Bill J. Wright, Alan M. Zaslavsky, and Amy N. Finkelstein. 2013. "The Oregon Experiment — Effects of Medicaid on Clinical Outcomes." *New England Journal of Medicine*, 368(18): 1713–1722.

Bullinger, Lindsey Rose. 2021. "Child Support and the Affordable Care Act's Medicaid Expansions." *Journal of Policy Analysis and Management*, 40(1): 42–77. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/pam.22238.

Bullinger, Lindsey Rose, Kosali Simon, and Brownsyne Tucker Edmonds. 2022. "Coverage Effects of the ACA's Medicaid Expansion on Adult Reproductive-Aged Women, Postpartum Mothers, and Mothers with Older Children." *Maternal and Child Health Journal*, 26(5): 1104–1114.

Bullinger, Lindsey Rose, Maithreyi Gopalan, and Caitlin Lombardi. 2021. "Impacts of Publicly Funded Health Insurance for Adults on Children's Academic Achievement." Annenberg Institute at Brown University. Publication Title: EdWorkingPapers.com.

Bullinger, Lindsey Rose, Maithreyi Gopalan, and Caitlin McPherran Lombardi. 2023. "Impacts of publicly funded health insurance for adults on children's academic achievement." *Southern Economic Journal*, 89(3): 860–884.

Busch, Susan H., and Noelia Duchovny. 2005. "Family coverage expansions: Impact on insurance coverage and health care utilization of parents." *Journal of Health Economics*, 24(5): 876–890.

Callaway, Brantly, and Pedro H. C. Sant'Anna. 2021. "Difference-in-Differences with multiple time periods." *Journal of Econometrics*, 225(2): 200–230.

Carter, Jimmy. 2007. "Parental Health Insurance Coverage as Child Health Policy : Evidence from the Literature."

Cotti, Chad, Erik Nesson, and Nathan Tefft. 2019. "Impacts of the ACA Medicaid expansion on health behaviors: Evidence from household panel data." *Health Economics*, 28(2): 219–244.

Courtemanche, Charles, James Marton, Benjamin Ukert, Aaron Yelowitz, and Daniela Zapata. 2018*a*. "Early Effects of the Affordable Care Act on Health Care Access, Risky Health Behaviors, and Self-Assessed Health." *Southern Economic Journal*, 84(3): 660–691.

Courtemanche, Charles, James Marton, Benjamin Ukert, Aaron Yelowitz, and Daniela Zapata. 2018*b*. "Effects of the Affordable Care Act on Health Care Access and Self-Assessed Health After 3 Years." *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 55: 0046958018796361. Publisher: SAGE Publications Inc.

Currie, Janet, and Jonathan Gruber. 1996. "Health Insurance Eligibility, Utilization of Medical Care, and Child Health." *The Quarterly Journal of Economics*, 111(2): 431–466.

Davidoff, Amy, Lisa Dubay, Genevieve Kenney, and Alshadye Yemane. 2003. "The effect of parents' insurance coverage on access to care for low-income children." *Inquiry: A Journal of Medical Care Organization, Provision and Financing*, 40(3): 254–268.

de Chaisemartin, Clément, and Xavier D'Haultfœuille. 2020. "Two-Way Fixed Effects Estimators with Heterogeneous Treatment Effects." *American Economic Review*, 110(9): 2964–2996.

DeVoe, Jennifer E., Miguel Marino, Heather Angier, Jean P. O'Malley, Courtney Crawford, Christine Nelson, Carrie J. Tillotson, Steffani R. Bailey, Charles Gallia, and Rachel Gold. 2015. "Effect of Expanding Medicaid for Parents on Children's Health Insurance Coverage: Lessons From the Oregon Experiment." *JAMA Pediatrics*, 169(1): e143145–e143145.

Dubay, Lisa, and Genevieve Kenney. 2003. "Expanding Public Health Insurance to Parents: Effects on Children's Coverage under Medicaid." *Health Services Research*, 38(5): 1283–1302.

Finkelstein, Amy, Sarah Taubman, Bill Wright, Mira Bernstein, Jonathan Gru-

ber, Joseph P. Newhouse, Heidi Allen, and Katherine Baicker. 2012. "The Oregon Health Insurance Experiment: Evidence from the First Year*." *The Quarterly Journal of Economics*, 127(3): 1057–1106.

Frean, Molly, Jonathan Gruber, and Benjamin D. Sommers. 2017. "Premium subsidies, the mandate, and Medicaid expansion: Coverage effects of the Affordable Care Act." *Journal of Health Economics*, 53: 72–86.

Freyaldenhoven, Simon, Christian Hansen, Jorge Pérez Pérez, and Jesse M. Shapiro. Forthcoming. "Visualization, identification, and estimation in the linear panel event-study design." *Advances in Economics and Econometrics: Twelfth World Congress*. Stata package and article, Video series, R package.

Gifford, Elizabeth J., Robert Weech-Maldonado, and Pamela Farley Short. 2005. "Low-income children's preventive services use: implications of parents' Medicaid status." *Health Care Financing Review*, 26(4): 81–94.

Gopalan, Maithreyi, Caitlin McPherran Lombardi, and Lindsey Rose Bullinger. 2022. "Effects of parental public health insurance eligibility on parent and child health outcomes." *Economics & Human Biology*, 44: 101098.

Gross, Tal, and Matthew J. Notowidigdo. 2011. "Health insurance and the consumer bankruptcy decision: Evidence from expansions of Medicaid." *Journal of Public Economics*, 95(7): 767–778.

Guendelman, Sylvia, Megan Wier, Veronica Angulo, and Doug Oman. 2006. "The Effects of Child-Only Insurance Coverage and Family Coverage on Health Care Access and Use: Recent Findings among Low-Income Children in California." *Health Services Research*, 41(1): 125–147.

Guldi, Melanie, and Sarah Hamersma. 2023. "The effects of pregnancy-related Medicaid expansions on maternal, infant, and child health." *Journal of Health Economics*, 87: 102695.

Hamed, Alaa M., Aaron J. Kauer, and Hanna E. Stevens. 2015. "Why the Diagnosis of Attention Deficit Hyperactivity Disorder Matters." *Frontiers in Psychiatry*, 6: 168.

Hamersma, Sarah, Matthew Kim, and Brenden Timpe. 2019. "The Effect of Parental Medicaid Expansions on Children's Health Insur-

ance Coverage." *Contemporary Economic Policy*, 37(2): 297–311. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/coep.12392.

Hanson, K. L. 1998. "Is insurance for children enough? The link between parents' and children's health care use revisited." *Inquiry: A Journal of Medical Care Organization, Provision and Financing*, 35(3): 294–302.

Hudson, Julie L., and Asako S. Moriya. 2017. "Medicaid Expansion For Adults Had Measurable 'Welcome Mat' Effects On Their Children." *Health Affairs*, 36(9): 1643–1651.

Johnston, Emily M., Andrea E. Strahan, Peter Joski, Anne L. Dunlop, and E. Kathleen Adams. 2018. "Impacts of the Affordable Care Act's Medicaid Expansion on Women of Reproductive Age: Differences by Parental Status and State Policies." *Women's Health Issues*, 28(2): 122–129.

Johnston, Emily M., Stacey McMorrow, Tyler W. Thomas, and Genevieve M. Kenney. 2020. "ACA Medicaid Expansion and Insurance Coverage Among New Mothers Living in Poverty." *Pediatrics*, 145(5): e20193178.

Kaestner, Robert, Bowen Garrett, Jiajia Chen, Anuj Gangopadhyaya, and Caitlyn Fleming. 2017. "Effects of ACA Medicaid Expansions on Health Insurance Coverage and Labor Supply." *Journal of Policy Analysis and Management*, 36(3): 608–642.

Kaiser Family Foundation. 2021. "Medicaid Income Eligibility Limits for Parents, 2002-2021."

Koh, Howard K., and Kathleen G. Sebelius. 2010. "Promoting Prevention through the Affordable Care Act." *New England Journal of Medicine*, 363(14): 1296–1299.

Lombardi, Caitlin McPherran, Lindsey Rose Bullinger, and Maithreyi Gopalan. 2022. "Better Late Than Never: Effects of Late ACA Medicaid Expansions for Parents on Family Health-Related Financial Well-Being." *Inquiry: A Journal of Medical Care Organization, Provision and Financing*, 59: 00469580221133215.

McMorrow, Stacey, and Genevieve M. Kenney. 2021. "How did the Affordable Care Act Medicaid Expansion Affect Coverage and Access to Care for Low-Income Parents Who Were Eligible for Medicaid Before the Law Was Passed?" *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 58: 00469580211050213. Publisher: SAGE Publications Inc.

McMorrow, Stacey, Jason A. Gates, Sharon K. Long, and Genevieve M. Kenney. 2017. "Medicaid Expansion Increased Coverage, Improved Affordability, And Reduced Psychological Distress For Low-Income Parents." *Health Affairs*, 36(5): 808–818.

Miller, Sarah, and Laura R. Wherry. 2017. "Health and Access to Care during the First 2 Years of the ACA Medicaid Expansions." *The New England Journal of Medicine*, 376(10): 947–956.

National Research Council, US, and US Institute of Medicine. 2004. "Influences on Children's Health." In *Children's Health, The Nation's Wealth: Assessing and Improving Child Health.*. Washington (DC):National Academies Press (US).

OECD. 2017. "Health at a Glance 2017: OECD Indicators."

Perry, Cynthia D., and Genevieve M. Kenney. 2007. "Preventive Care for Children in Low-Income Families: How Well Do Medicaid and State Children's Health Insurance Programs Do?" *Pediatrics*, 120(6): e1393–e1401.

Peterson-Kaiser. 2019. "Percent insured."

Sacarny, Adam, Katherine Baicker, and Amy Finkelstein. 2022. "Out of the Woodwork: Enrollment Spillovers in the Oregon Health Insurance Experiment." *American Economic Journal: Economic Policy*, 14(3): 273–295.

Schondelmyer, Emily. 2016. "No Kids in the House: A Historical Look at Adults Living Without Children." US Census Bereau.

Simon, Kosali, Aparna Soni, and John Cawley. 2017. "The Impact of Health Insurance on Preventive Care and Health Behaviors: Evidence from the First Two Years of the ACA Medicaid Expansions." *Journal of Policy Analysis and Management*, 36(2): 390–417.

Smith, Anna Jo Bodurtha, and Alyna T. Chien. 2019. "Adult-Oriented Health Reform and Children's Insurance and Access to Care: Evidence from Massachusetts Health Reform." *Maternal and Child Health Journal*.

Sommers, Benjamin D., Kao-Ping Chua, Genevieve M. Kenney, Sharon K. Long, and Stacey McMorrow. 2016*a*. "California's Early Coverage Expansion under the Affordable Care Act: A County-Level Analysis." *Health Services Research*, 51(3): 825–845.

Sommers, Benjamin D., Munira Z. Gunja, Kenneth Finegold, and Thomas Musco. 2015. "Changes in Self-reported Insurance Coverage, Access to Care, and Health

Under the Affordable Care Act." *JAMA*, 314(4): 366–374.

Sommers, Benjamin D., Robert J. Blendon, E. John Orav, and Arnold M. Epstein. 2016*b*. "Changes in Utilization and Health Among Low-Income Adults After Medicaid Expansion or Expanded Private Insurance." *JAMA Internal Medicine*, 176(10): 1501–1509.

Soni, Aparna, and Taryn Morrissey. 2022. "The effects of Medicaid expansion on home production and childcare." *Southern Economic Journal*, 88(3): 931–950.

The Annie E. Casey Foundation. 2017. "Proportion of American Parents Without Health Insurance Hits Five-Year Low."

Tolbert, Jennifer, Patrick Drake, and Anthony Damico Published. 2023. "Key Facts about the Uninsured Population." Kaiser Family Foundation.

Ugwi, Patience, Wei Lyu, and George L. Wehby. 2019. "The Effects of the Patient Protection and Affordable Care Act on Children's Health Coverage." *Medical Care*, 57(2): 115–122.

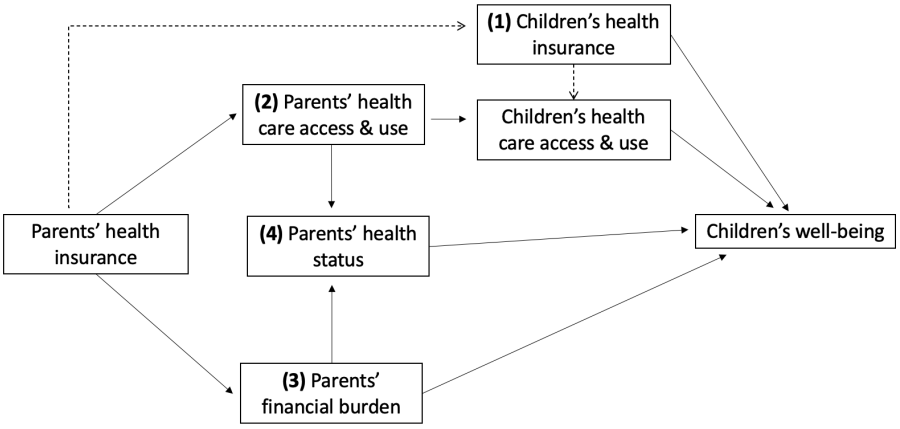
Venkataramani, Maya, Craig Evan Pollack, and Eric T. Roberts. 2017. "Spillover Effects of Adult Medicaid Expansions on Children's Use of Preventive Services." *Pediatrics*, 140(6): e20170953.

Wehby, George L. 2022. "The Impact Of Household Health Insurance Coverage Gains On Children's Achievement In Iowa: Evidence From The ACA: Study examines the impact of household health insurance coverage on children's achievement." *Health Affairs*, 41(1): 35–43.

Wherry, Laura R., and Sarah Miller. 2016. "Early Coverage, Access, Utilization, and Health Effects Associated With the Affordable Care Act Medicaid Expansions: A Quasi-experimental Study." *Annals of Internal Medicine*, 164(12): 795.

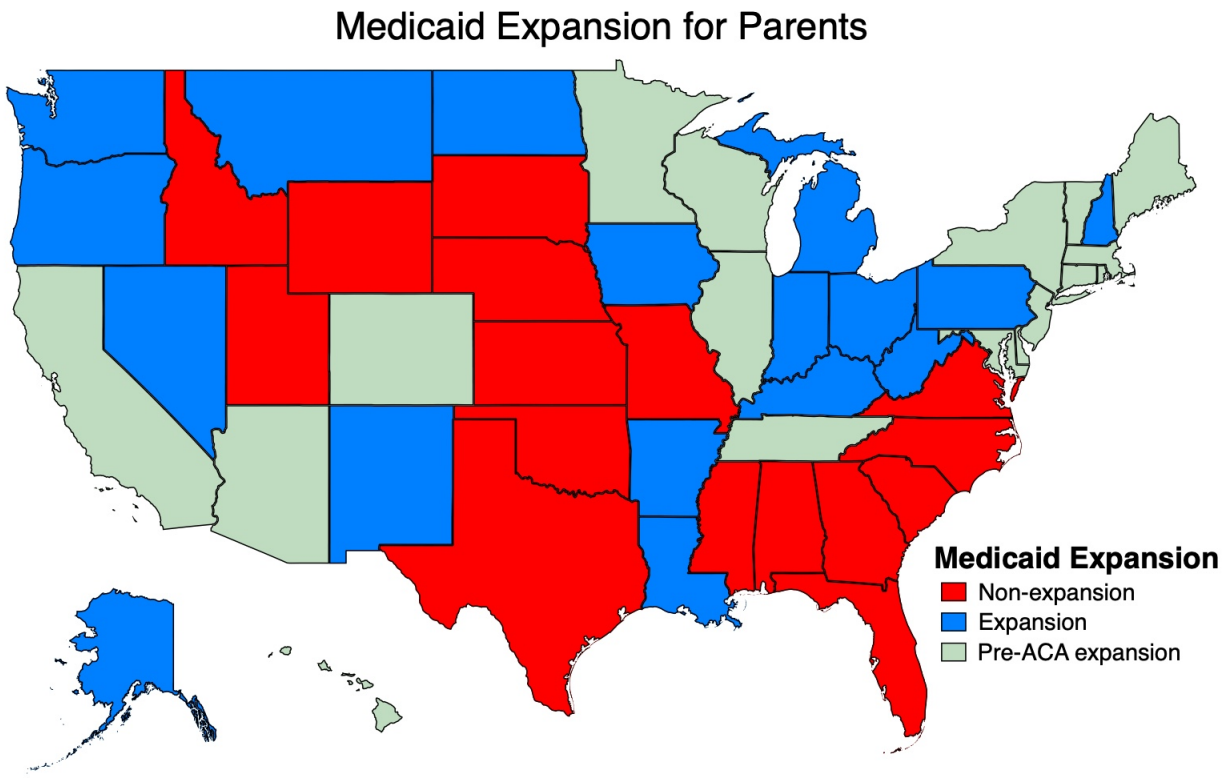
Figures

Figure 1: Potential Mechanisms



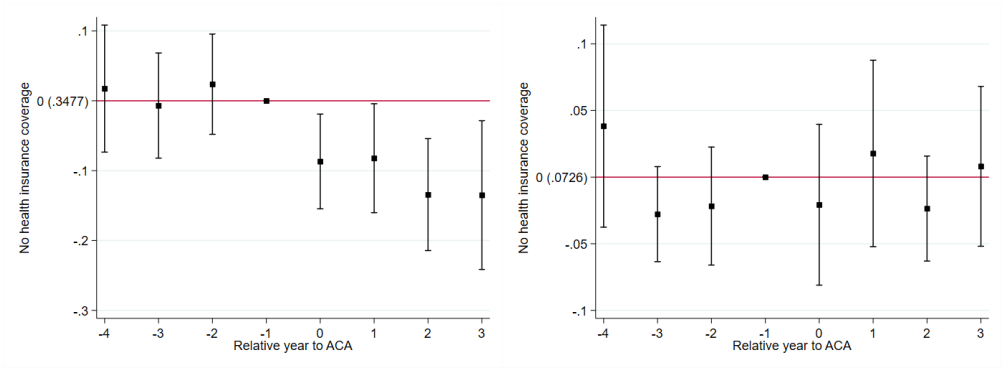
Note: This relationship map illustrates how we think parents' (public) health insurance coverage can affect children's well-being via different channels.

Figure 2: Medicaid Expansion Map



Note: This map shows the state-level Medicaid expansion status for low-income parents as of 2017. Pre-ACA expansion means that parents with family income up to 138% of the FPL were already eligible for Medicaid before the ACA.

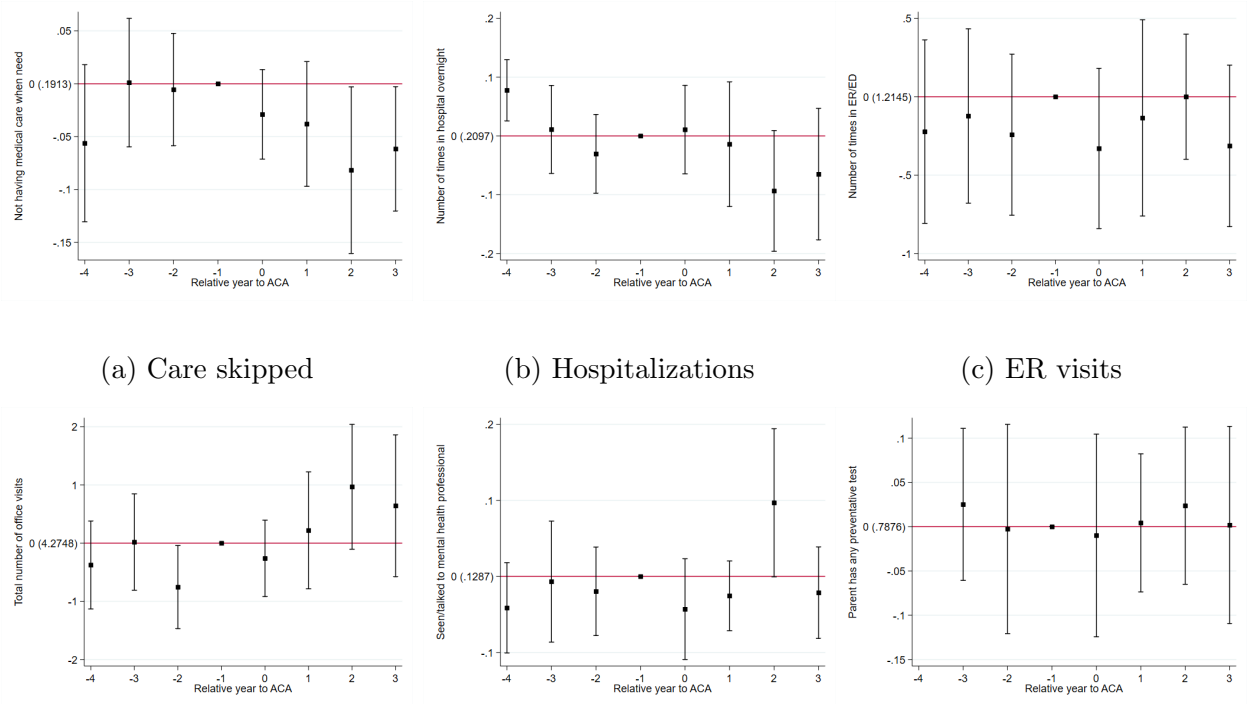
Figure 3: Insurance Coverage



(a) Uninsured rate of parents (b) Uninsured rate of children

Notes: Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

Figure 4: Parents' Health Care Access and Utilization

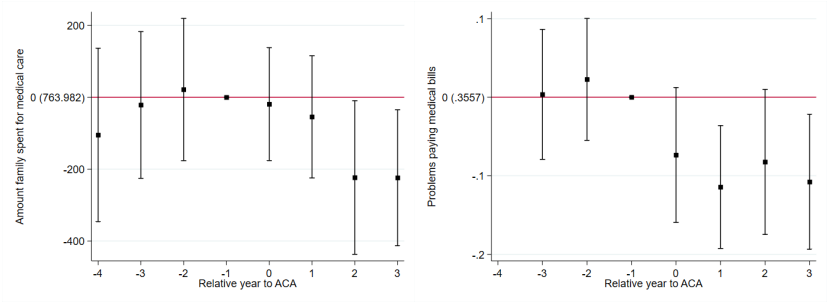


(a) Care skipped (b) Hospitalizations (c) ER visits

(d) Doctor visits (e) Any mental health visit (f) Any preventive test

Notes: Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. Outcome variables come directly from the NHIS and refer to health care access and utilization in the past 12 months, except for (f) parents' preventive test utilization. It is constructed based on the following preventive tests: blood pressure, cholesterol, blood sugar, and colon cancer tests. It takes 1 if one has received any of these preventive tests in the past 12 months. Outcomes in (f) are only available from 2011 to 2017. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

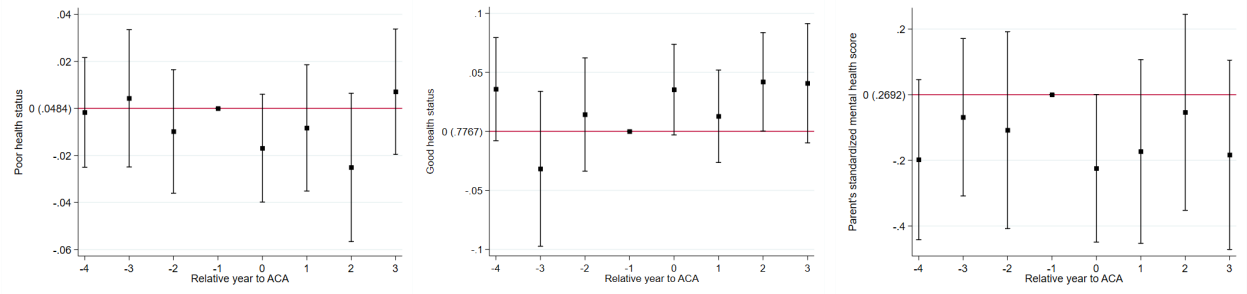
Figure 5: Family Financial Burden Related to Medical Care



(a) Medical spending (b) Problem paying

Notes: Outcomes in (b) and (c) are only available from 2011 to 2017. Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

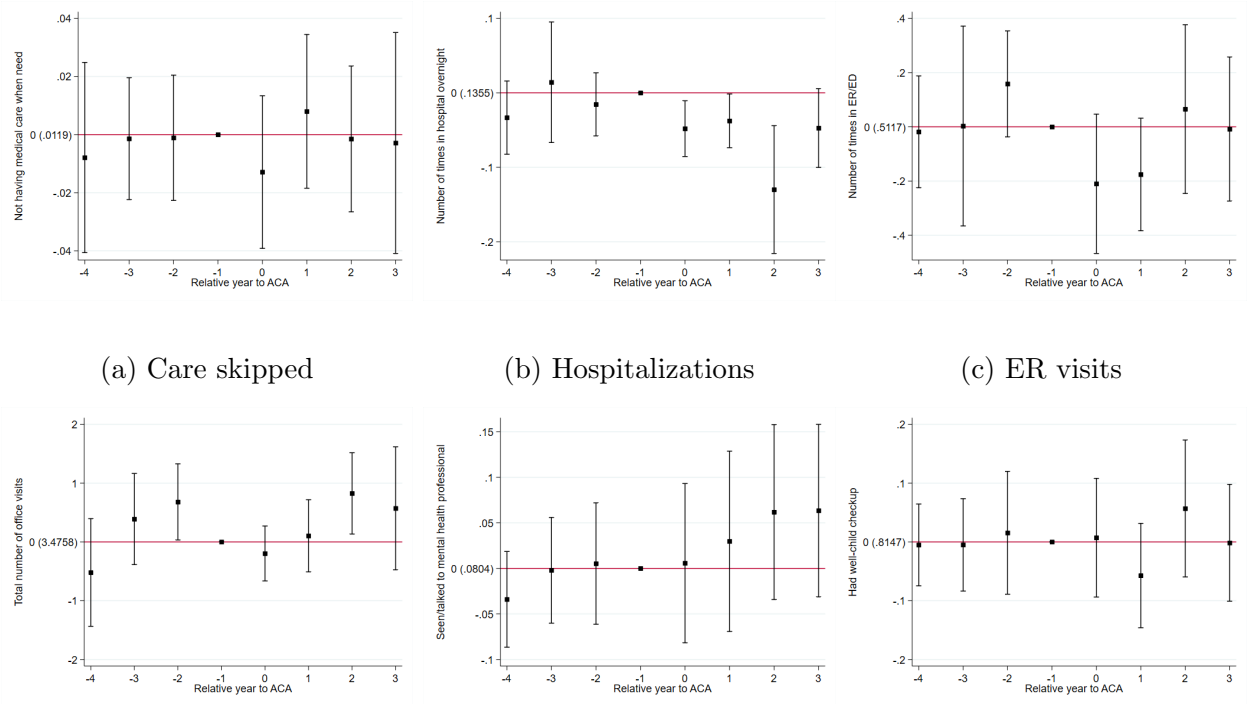
Figure 6: Parents' Health Status



(a) Poor health (b) Good health (c) Mental Z-score

Notes: Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

Figure 7: Children's Health Care Access and Utilization

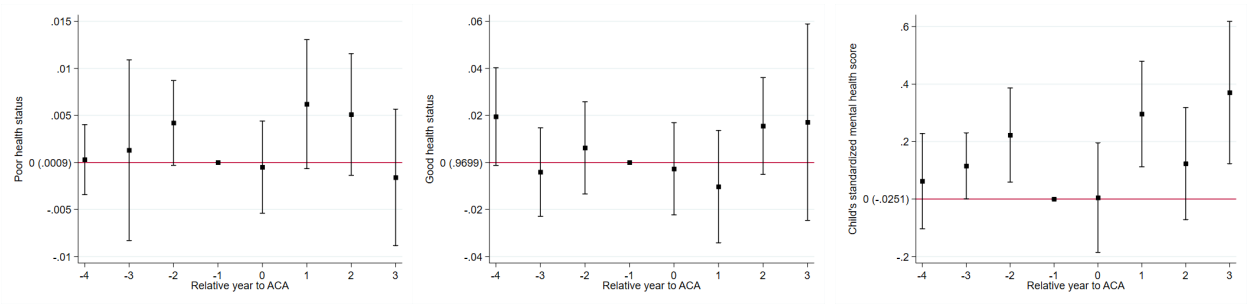


(a) Care skipped (b) Hospitalizations (c) ER visits

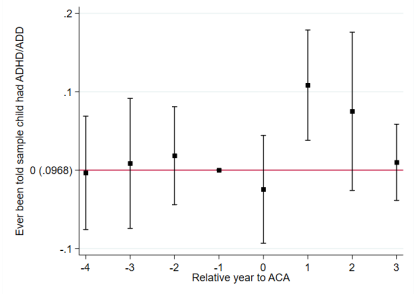
(d) Doctor visits (e) Any mental health visit (f) Well-child checkup

Notes: Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. Outcome variables come directly from the NHIS and refer to health care access and utilization in the past 12 months. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

Figure 8: Children's Health Status



(a) Poor health (b) Good health (c) Mental Z-score



(d) ADD/ADHD

Notes: Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

Tables

Table 1: Medicaid Expansion Status as of 2017

(1) Expansion states	(2)	(3) Non-expansion states	(4)	(5) Pre-ACA coverage	(6)
Alaska [1]	78%	Alabama	23%	Arizona [3]	106%
Arkansas	16%	Florida	56%	California [3]	106%
Indiana (2015)	24%	Georgia	48%	Colorado [3]	106%
Iowa	80%	Idaho (2020)	37%	Connecticut	191%
Kentucky	57%	Kansas	31%	Delaware	120%
Louisiana (2016)	24%	Mississippi	29%	District of Columbia	206%
Michigan	64%	Missouri (2021)	35%	Hawaii	138%
Montana (2016)	54%	Nebraska (2020)	58%	Illinois	139%
Nevada	84%	North Carolina (2023)	47%	Maine	200%
New Hampshire [2]	47%	Oklahoma (2021)	51%	Maryland [3]	122%
New Mexico	85%	South Carolina	89%	Massachusetts	133%
North Dakota	57%	South Dakota (2023)	50%	Minnesota	215%
Ohio	96%	Texas	25%	New Jersey	200%
Oregon	39%	Utah (2020)	42%	New York	150%
Pennsylvania (2015)	58%	Virginia (2019)	30%	Rhode Island	181%
Washington	71%	Wyoming	50%	Tennessee [4]	122%
West Virginia	31%			Vermont	191%
				Wisconsin [5]	200%
17		16		18	

Notes: Years in parentheses indicated the year of Medicaid expansion if a state expanded Medicaid after 2014. Columns (2), (4), and (6) show the Medicaid income eligibility thresholds for parents in 2013 in expansion states, non-expansion states, and pre-ACA coverage states, respectively. [1] In January 2014, Alaska increased income eligibility to 128% of the FPL; In 2015, it further increased income eligibility to 146%. [2] New Hampshire expanded Medicaid since July 2014. [3] These states had parental income eligibility below 139% but above 100% of the PFL by 2013, and thus are classified as pre-ACA parental expansion states. [4] Although Tennessee did not expand Medicaid under the ACA, historically it had generous coverage for low-income parents. Prior to the ACA, the eligibility for parents was 122% of the FPL. The income threshold has gradually decreased to 100% of the FPL since 2014. [5] Similarly, Wisconsin used to have Medicaid coverage for low-income parents, up to 200% of the FPL before 2014. Since 2014, Wisconsin has provided Medicaid to adults up to the poverty level under a Medicaid waiver, and the eligibility for parents has also decreased to 100% of the FPL.

Table 2: Summary Statistics

	Expansion states		Non-expansion states	
	Pre-2014	Post-2014	Pre-2014	Post-2014
Income as % of the FPL	<139	<139	<139	<139
Panel A: Parents				
Share uninsured	0.34	0.13	0.49	0.37
	(0.47)	(0.34)	(0.50)	(0.48)
Average age	34.57	35.47	34.71	34.98
	(9.18)	(9.35)	(9.19)	(9.15)
Share male	0.37	0.38	0.36	0.35
	(0.48)	(0.49)	(0.48)	(0.48)
Share married	0.66	0.68	0.67	0.64
	(0.47)	(0.47)	(0.47)	(0.48)
Share white	0.68	0.66	0.48	0.45
	(0.47)	(0.47)	(0.50)	(0.50)
Share Hispanic	0.09	0.10	0.20	0.20
	(0.29)	(0.30)	(0.40)	(0.40)
Share black	0.19	0.19	0.28	0.31
	(0.39)	(0.39)	(0.45)	(0.46)
Years of schooling	13.74	13.91	13.71	13.85
	(2.70)	(2.61)	(2.73)	(2.82)
Family size	4.01	4.12	4.13	4.06
	(1.42)	(1.49)	(1.41)	(1.37)
Poverty ratio / family income	78.01	82.00	81.43	81.57
	(38.25)	(35.94)	(37.26)	(37.21)
N	2974	2432	5552	4491
Panel B: Children				
Share uninsured	0.07	0.04	0.10	0.07
	(0.26)	(0.20)	(0.29)	(0.25)
Average age	7.68	8.17	7.56	7.84
	(5.11)	(5.04)	(4.99)	(5.01)
Share male	0.51	0.51	0.50	0.50
	(0.50)	(0.50)	(0.50)	(0.50)
Share white	0.54	0.50	0.33	0.30
	(0.50)	(0.50)	(0.47)	(0.46)
Share Hispanic	0.21	0.23	0.37	0.38
	(0.41)	(0.42)	(0.48)	(0.49)
Share black	0.21	0.23	0.27	0.29
	(0.41)	(0.42)	(0.44)	(0.45)
Years of schooling	2.94	3.22	2.79	3.02
	(3.53)	(3.57)	(3.46)	(3.53)
Family size	4.49	4.62	4.60	4.56
	(1.64)	(1.71)	(1.53)	(1.50)
Poverty ratio / family income	74.75	77.38	75.91	76.70
	(37.73)	(36.16)	(37.46)	(37.03)
N	5103	4298	11141	9092

Notes: This table shows the average characteristics of parents and children in the low-income ($\leq$ 138% of the FPL) bracket in the parental expansion and non-expansion states before and after 2014. We exclude states that already covered parents up to 138% of the FPL with Medicaid before the ACA.

Table 3: Effect of Medicaid Expansion to Parents on Insurance Coverage

	(1) Parents: uninsured	(2) Children: uninsured
Expansion state*Post-ACA	-0.116***	-0.0004
	(0.032)	(0.0259)
Observations	16,867	15,236
R-squared	0.109	0.047
Mean of Y	0.367	0.075
WCB p-value	0.000	0.986
WCB CI lower	-0.208	-0.061
WCB CI upper	-0.046	0.064
Individual controls	yes	yes
State controls	yes	yes
State FE	yes	yes
Year FE	yes	yes

Notes: This table shows the effect of Medicaid expansion to parents on parents' and children's uninsured rates. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Table 4: Effect of Medicaid Expansion for Parents on Health Care Access and Utilization

Panel A: Parents	(1) Care skipped	(2) Hospitalizations	(3) ER visits	(4) Doctor visits	(5) Any mental health visit	(6) Any preventative test
Expansion state*Post-ACA	-0.0369***	-0.0490	-0.0519	0.6410**	0.0147	-0.0035
	(0.0125)	(0.0344)	(0.1260)	(0.2750)	(0.0111)	(0.0202)
Observations	16,927	16,919	7,852	7,825	7,868	6,940
R-squared	0.037	0.012	0.042	0.062	0.033	0.061
Mean of Y	0.184	0.184	0.836	3.702	0.088	0.764
WCB p-value	0.014	0.223	0.698	0.040	0.228	0.864
WCB CI lower	-0.071	-0.125	-0.344	0.043	-0.010	-0.045
WCB CI upper	-0.009	0.037	0.250	1.352	0.042	0.049
Panel B: Children	**Care skipped**	**Hospitalizations**	**ER visits**	**Doctor visits**	**Any mental health visit**	**Well-child checkup**
Expansion state*Post-ACA	-0.0001	-0.0559***	-0.1330**	0.1140	0.0432	-0.0020
	(0.0100)	(0.0182)	(0.0633)	(0.2820)	(0.0265)	(0.0270)
Observations	15,252	15,250	5,879	5,863	4,903	5,873
R-squared	0.023	0.039	0.041	0.059	0.053	0.088
Mean of Y	0.023	0.081	0.470	3.326	0.082	0.793
WCB p-value	0.995	0.026	0.071	0.724	0.694	0.941
WCB CI lower	-0.026	-0.099	-0.278	-0.751	-0.035	-0.067
WCB CI upper	0.021	-0.007	0.016	0.715	0.055	0.058
Individual controls	yes	yes	yes	yes	yes	yes
State controls	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes

Notes: This table shows the effect of Medicaid expansion for parents on parents' and children's health care access and utilization. Outcome variables come directly from the NHIS and refer to health care access and utilization in the past 12 months, except for parents' preventive test utilization. It is constructed based on the following preventive tests: blood pressure, cholesterol, blood sugar, and colon cancer tests. It takes 1 if one receives any of these preventive tests in the past 12 months. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Table 5: Effect of Medicaid Expansion to Parents on Family Financial Burden

	(1)	(2)
	Medical spending	Problems paying medical bills
Expansion state*Post-ACA	-97.87**	-0.103***
	(46.02)	(0.021)
Observations	11,643	10,391
R-squared	0.109	0.052
Mean of Y	777.30	0.33
WCB p-value	0.084	0.001
WCB CI lower	-192.90	-0.15
WCB CI upper	23.36	-0.06
Individual controls	yes	yes
State controls	yes	yes
State FE	yes	yes
Year FE	yes	yes

Notes: This table shows the effect of Medicaid expansion to parents on family financial burden. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

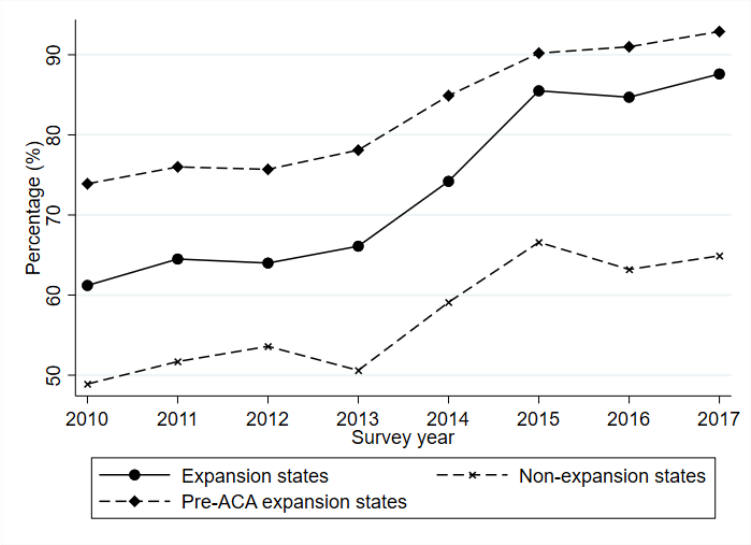
Table 6: Effect of Medicaid Expansion to Parents on Health Outcomes

	(1)	(2)	(3)	(4)
Panel A: Parents	Poor health	Good health	Mental Z-score	
Expansion state*Post-ACA	-0.0092*	0.0285*	-0.0704	
	(0.0047)	(0.0164)	(0.0542)	
Observations	16,931	16,931	7,759	
R-squared	0.038	0.082	0.062	
Mean/SD of Y	0.042	0.813	1.160	
WCB p-value	0.074	0.172	0.291	
WCB-CI1	-0.020	-0.014	-0.214	
WCB CI upper	0.001	0.068	0.058	
Panel B: Children	Poor health	Good health	Mental Z-score	ADD/ADHD
Expansion state*Post-ACA	0.0009	-0.0015	0.0792	0.0354**
	(0.0020)	(0.0058)	(0.0595)	(0.0148)
Observations	15,260	15,260	3,968	4,913
R-squared	0.005	0.012	0.066	0.090
Mean/SD of Y	0.003	0.971	0.770	0.105
WCB p-value	0.675	0.829	0.242	0.036
WCB CI lower	-0.004	-0.014	-0.057	0.002
WCB CI upper	0.005	0.014	0.217	0.068
Individual controls	yes	yes	yes	yes
State controls	yes	yes	yes	yes
State FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

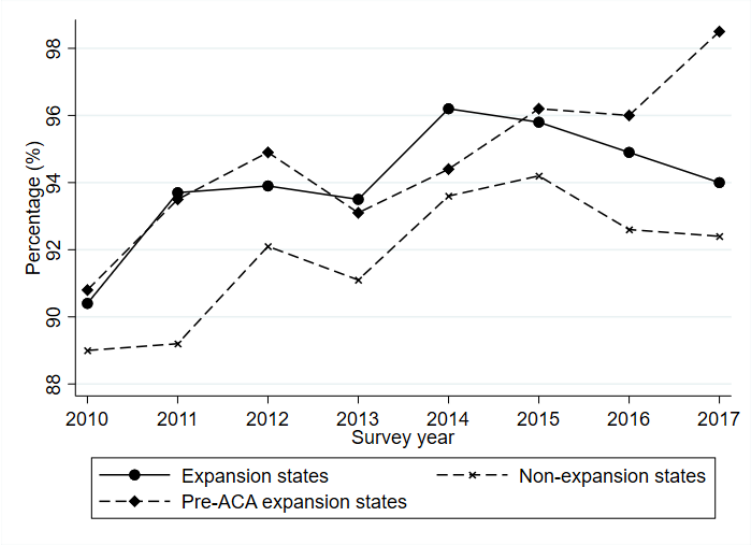
Notes: This table shows the effect of Medicaid expansion to parents on parents' and children's health outcomes. Poor health means an individual has poor self-reported health status; Good health means an individual has good self-reported health status. Parents' mental Z-score is based on the Kessler Psychological Distress Scale: feeling sad, nervous, restless, hopeless, everything was an effort, and worthless. Children's mental Z-score is based on worried, unhappy, getting along better with adults than children, and difficult with emotions. For both mental Z-scores, the higher the value, the worse mental health status an individual has. For these Z-scores, instead of reporting the mean of Y, we report the standard deviation (SD) of Y. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Appendix

Figure A1: Insured Rate Among Three State Groups

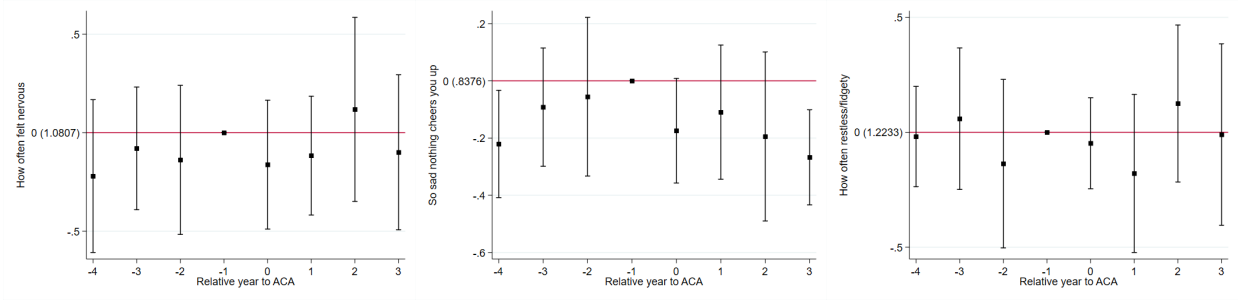


(a) Insured rate of low-income parents

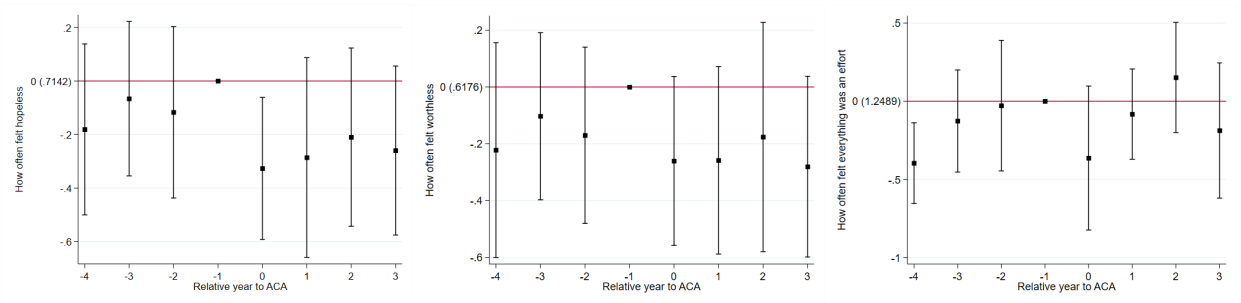


(b) Insured rate of low-income children

Figure A2: Parents' Mental Health Status



(a) Nervous (b) Sad (c) Restless



(d) Hopeless (e) Worthless (f) Feel effort

Notes: Event study results are shown in the figures. Dots represent point estimates. Caps indicate 95% confidence intervals. The number in the parentheses of Y-axis represents the mean of Y in relative year -1. State fixed effects, year fixed effects, individual controls, and state controls are included in regressions. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity.

Table A1: Effect of Medicaid Expansion to Parents on Mental Health Outcomes

Panel A: Parents	(1) nervous	(2) sad	(3) restless	(4) hopeless	(5) worthless	(6) effort
Expansion states	0.0364	-0.0950*	-0.0081	-0.1830***	-0.1220*	-0.0018
*Post-ACA	(0.0691)	(0.0501)	(0.0600)	(0.0652)	(0.0620)	(0.0859)
Observations	7,779	7,779	7,778	7,776	7,777	7,769
R-squared	0.058	0.049	0.056	0.046	0.043	0.038
Mean of Y	0.812	0.622	0.946	0.428	0.35	0.882
WCB p-value	0.65	0.106	0.897	0.032	0.133	0.985
WCB CI lower	-0.125	-0.223	-0.136	-0.358	-0.276	-0.224
WCB CI upper	0.197	0.0251	0.132	-0.026	0.0396	0.191
Individual controls	yes	yes	yes	yes	yes	yes
State controls	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes

Notes: This table shows the effect of Medicaid expansion to parents on parents' and children's health outcomes. SRH stands for self-reported health status, ranging from 1 to 5, where the larger the number, the poorer SRH an individual has. Poor means an individual has poor health status; Good means an individual has good health status. Outcome variables come directly from the NHIS, except for mental Z-score. Parents' mental Z-score is based on the Kessler Psychological Distress Scale: feeling sad, nervous, restless, hopeless, effort, and worthless. Children's mental Z-score is based on worried, unhappy, getting along better with adults than children, and difficult with emotions. For both mental Z-scores, the higher the value, the worse mental health status an individual has. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Effect of Medicaid Expansion to Parents on Insurance Coverage

	(1)	(2)	(3)	(4)
	Parents:		Children:	
	Uninsured	Medicaid	Uninsured	Medicaid
Expansion state*Post-ACA	-0.116***	0.119***	-0.0004	-0.0034
	(0.032)	(0.033)	(0.0259)	(0.0377)
Observations	16,867	16,867	15,236	15,236
R-squared	0.109	0.184	0.047	0.110
Mean of Y	0.187	0.564	0.187	0.564
WCB p-value	0	0	0.986	0.942
WCB CI lower	-0.208	0.0450	-0.0608	-0.0941
WCB CI upper	-0.0464	0.219	0.0637	0.0945
Individual controls	yes	yes	yes	yes
State controls	yes	yes	yes	yes
State FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Notes: This table shows the effect of Medicaid expansion to parents on parents' and children's uninsured rates and Medicaid coverage. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Table A3: Diagnosis of ADD/ADHD by Age Group

	ADD/ADHD
Treat*Age 3 and below	0.0349
	(0.0255)
Treat*Age 4–5	0.0286
	(0.0324)
Treat*Age 6–8	0.0575*
	(0.0327)
Treat*Age 9–11	0.0252
	(0.0275)
Treat*Age 12–14	0.0524
	(0.0617)
Treat*Age 15–17	0.0252
	(0.0357)
Observations	4,913
R-squared	0.097
Under 3 Mean of Y	0.015
4-5 Mean of Y	0.036
6-8 Mean of Y	0.096
9-11 Mean of Y	0.158
12-14 Mean of Y	0.171
15-17 Mean of Y	0.139
Individual controls	yes
State controls	yes
State FE	yes
Year FE	yes

Notes: This table shows the effect of Medicaid expansion to parents on children's ADD/ADHD diagnosis by children's age group. Treat represents Expansion state*Post-ACA. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among each age group.

Table A4: Effect of Medicaid Expansion to Parents on Additional Outcomes

	(1)	(2)	(3)	(4)	(5)
Panel A: Parents	Care delayed	Usual place of care	Any GP visit	Work days missed	Medical bills paid off over time
Expansion state*Post-ACA	-0.0348**	0.0300	0.0482	0.1850	-0.0402*
	(0.0164)	(0.0272)	(0.0315)	(1.4920)	(0.0201)
Observations	16,935	7,888	7,856	5,439	10,366
R-squared	0.039	0.088	0.063	0.022	0.048
Mean of Y	0.1943	0.729	0.555	4.554	0.319
WCB p-value	0.0771	0.294	0.135	0.908	0.0761
WCB CI lower	-0.0741	-0.0305	-0.0156	-3.062	-0.0915
WCB CI upper	0.00561	0.1	0.129	4.009	0.00419
Panel B: Children	Care delayed	Usual place of care	Any GP visit	School days missed	
Expansion state*Post-ACA	0.0065	-0.0064	0.0207	-0.126	
	(0.0096)	(0.0194)	(0.0309)	(0.4260)	
Observations	15,256	5,908	5,885	3,594	
R-squared	0.023	0.036	0.048	0.064	
Mean of Y	0.0329	0.946	0.796	3.5460	
WCB p-value	0.534	0.779	0.578	0.813	
WCB CI lower	-0.0175	-0.0503	-0.0525	-1.419	
WCB CI upper	0.0273	0.0408	0.106	0.889	
Individual controls	yes	yes	yes	yes	yes
State controls	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes

Notes: This table shows the effect of Medicaid expansion to parents on parents' and children's multiple outcomes. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Table A5: Effect of Medicaid Expansion for Parents on Insurance Coverage and Family Financial Burden: Continuous Eligibility

	(1) Parents: uninsured	(2) Children: uninsured	(3) Medical spending	(4) Problems paying medical bills
EligibilityPct	-0.143***	0.0259	-100.30*	-0.113***
	(0.0373)	(0.0246)	(58.47)	(0.0246)
Observations	16,867	15,236	11,643	10,391
R-squared	0.110	0.047	0.109	0.052
Mean of Y	0.187	0.187	777.3	0.330
WCB p-value	0.00400	0.389	0.168	0
WCB CI lower	-0.233	-0.0416	-241.8	-0.177
WCB CI upper	-0.0464	0.0789	51.19	-0.0630
Individual controls	yes	yes	yes	yes
State controls	yes	yes	yes	yes
State FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Notes: EligibilityPct represents Medicaid eligibility income threshold for parents in each state in each year across 2010–2017. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Table A6: Effect of Medicaid Expansion for Parents on Health Care Access, Utilization, and Health: Continuous Eligibility

Panel A: Parents	(1) Care skipped	(2) Hospitalizations	(3) ER visits	(4) Doctor visits	(5) Any mental health visit	(6) Any preventative test	(7) Poor health	(8) Good health	(9) Mental Z-score	(10)
EligibilityPct	-0.0461***	-0.0505	-0.0602	0.7700***	0.0177	0.0080	-0.0076	0.0241	-0.0560	
	(0.0127)	(0.0405)	(0.1410)	(0.267)	(0.0125)	(0.0258)	(0.0066)	(0.0160)	(0.0636)	
Observations	16,927	16,919	7,852	7,825	7,868	6,940	16,931	16,931	7,759	
R-squared	0.037	0.012	0.042	0.063	0.033	0.061	0.038	0.082	0.062	
Mean of Y	0.0848	0.121	0.836	3.702	0.0883	0.764	0.0182	0.910	0.00266	
WCB p-value	0.00300	0.291	0.688	0.0591	0.251	0.763	0.290	0.177	0.469	
WCB CI lower	-0.0789	-0.161	-0.443	-0.0328	-0.0129	-0.0578	-0.0246	-0.0137	-0.225	
WCB CI upper	-0.0197	0.0605	0.276	1.340	0.0475	0.0689	0.00634	0.0619	0.0947	
Panel B: Children	**Care skipped**	**Hospitalizations**	**ER visits**	**Doctor visits**	**Any mental health visit**	**Well-child checkup**	**Poor health**	**Good health**	**Mental Z-score**	**ADD/ ADHD**
EligibilityPct	0.0051	-0.0698***	-0.1690**	-0.0092	0.0166	-0.0002	-0.0005	-0.0018	0.0316	0.0254
	(0.0093)	(0.0197)	(0.0699)	(0.3390)	(0.0226)	(0.0298)	(0.0026)	(0.0074)	(0.0606)	(0.0160)
Observations	15,252	15,250	5,879	5,863	4,903	5,873	15,260	15,260	3,968	4,913
R-squared	0.023	0.039	0.041	0.059	0.052	0.088	0.005	0.012	0.065	0.090
Mean of Y	0.0848	0.121	0.470	3.326	0.0820	0.793	0.0182	0.910	-0.000512	0.105
WCB p-value	0.621	0.0210	0.0501	0.985	0.431	0.994	0.898	0.832	0.619	0.132
WCB CI lower	-0.0200	-0.114	-0.325	-0.965	-0.0267	-0.0700	-0.00647	-0.0229	-0.0859	-0.0102
WCB CI upper	0.0251	-0.0126	-0.000505	0.744	0.0755	0.0660	0.00628	0.0160	0.184	0.0546
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
State controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Notes: EligibilityPct represents Medicaid eligibility income threshold for parents in each state in each year across 2010–2017. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Mean of Y represents the mean of an outcome variable across all years in the sample period among the analysis sample. WCB p-value represents p-value from the Wild Cluster Bootstrap method. WCB CI lower (WCB CI upper) represents the lower (upper) bound of the confidence interval of the estimate from the Wild Cluster Bootstrap method.

Table A7: Heterogeneity by Limitation: Parents

Panel A	(1) Uninsured	(2) Care skipped	(3) Medical spending	(4) Problems paying medical bills
Treat*any limitation	-0.0632*	-0.0712**	-280.80***	-0.1520***
	(0.0317)	(0.0341)	(95.59)	(0.0325)
Treat*no limitation	-0.1270***	-0.0298**	-48.42	-0.0903***
	(0.0320)	(0.0135)	(47.72)	(0.0221)
Observations	16,852	16,912	11,630	10,380
R-squared	0.123	0.046	0.114	0.071
Mean of Y (any limitation)	0.231	0.293	1017.00	0.507
Mean of Y (no limitation)	0.393	0.163	722.90	0.311
Obs (any limitation)	2,653	2,661	1,991	1,792
Obs (no limitation)	14,349	14,419	9,690	8,645

Panel B	(5) Hospitalizations	(6) ER visits	(7) Doctor visits	(8) Any mental health visit	(9) Any preventative test
Treat*any limitation	-0.0669	-0.2000	0.7220*	0.0512	-0.0130
	(0.0615)	(0.2540)	(0.3830)	(0.0426)	(0.0217)
Treat*no limitation	-0.0497	-0.0361	0.5480*	0.0023	-0.0007
	(0.0316)	(0.1190)	(0.2800)	(0.0129)	(0.0208)
Observations	16,904	7,845	7,818	7,861	6,934
R-squared	0.046	0.086	0.183	0.100	0.083
Mean of Y (any limitation)	0.491	1.740	7.426	0.255	0.923
Mean of Y (no limitation)	0.126	0.654	2.957	0.055	0.732
Obs (any limitation)	2,649	1,251	1,245	1,255	1,109
Obs (no limitation)	14,424	6,617	6,595	6,629	5,847

Panel C	(10) Poor health	(11) Good health	(12) Mental Z-score
Treat*any limitation	-0.0240*	0.0568	-0.2130*
	(0.0120)	(0.0339)	(0.1200)
Treat*no limitation	-0.0080	0.0272	-0.0423
	(0.0054)	(0.0188)	(0.0518)
Observations	16,916	16,916	7,752
R-squared	0.147	0.247	0.173
Mean of Y (any limitation)	0.212	0.396	0.662
Mean of Y (no limitation)	0.010	0.892	-0.131
Obs (any limitation)	2,661	2,661	1,236
Obs (no limitation)	14,426	14,426	6,538
Individual controls	yes	yes	yes
State controls	yes	yes	yes
State FE	yes	yes	yes
Year FE	yes	yes	yes

Notes: This table shows the heterogeneous effect of Medicaid expansion to parents on parent outcomes by parent mental and physical limitations. Treat represents Expansion state*Post-ACA. Medical spending (column [3]) and problem paying medical bills (column [4]) are at the family level. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A8: Heterogeneity by Limitation: Children

Panel A	(1) Uninsured	(2) Care skipped
Treat*any limitation	0.0235	0.0167
	(0.0299)	(0.0244)
Treat*no limitation	-0.0041	-0.0015
	(0.0268)	(0.0100)
Observations	15,220	15,233
R-squared	0.048	0.024
Mean of Y (any limitation)	0.056	0.036
Mean of Y (no limitation)	0.077	0.021
Obs (any limitation)	2,699	2,700
Obs (no limitation)	27,465	27,526

Panel B	(3) Hospitalizations	(4) ER visits	(5) Doctor visits	(6) Any mental health visit	(7) Any preventative test
Treat*any limitation	-0.1000**	-0.0630	0.4990	0.1620*	0.0323
	(0.0446)	(0.4340)	(0.7680)	(0.0793)	(0.0469)
Treat*no limitation	-0.0480***	-0.1180**	0.1840	0.0413*	-0.0017
	(0.0163)	(0.0478)	(0.2310)	(0.0208)	(0.0275)
Observations	15,233	5,875	5,859	4,900	5,869
R-squared	0.041	0.058	0.094	0.127	0.089
Mean of Y (any limitation)	0.157	0.852	5.262	0.297	0.825
Mean of Y (no limitation)	0.073	0.430	3.118	0.056	0.790
Obs (any limitation)	2,698	1,150	1,143	1,116	1,148
Obs (no limitation)	27,531	11,229	11,176	9,639	11,219

Panel C	(8) Poor health	(9) Good health	(10) Mental Z-score	(11) ADD/ADHD
Treat*any limitation	-0.0067	0.0209	0.0787	0.1050
	(0.0090)	(0.0262)	(0.0712)	(0.0700)
Treat*no limitation	0.0023	-0.0071	0.1060	0.0422***
	(0.0016)	(0.0047)	(0.0626)	(0.0152)
Observations	15,241	15,241	3,965	4,910
R-squared	0.016	0.043	0.114	0.164
Mean of Y (any limitation)	0.022	0.884	0.514	0.391
Mean of Y (no limitation)	0.001	0.980	-0.066	0.071
Obs (any limitation)	2,701	2,701	986	1,120
Obs (no limitation)	27,544	27,544	7,922	9,669
Individual controls	yes	yes	yes	yes
State controls	yes	yes	yes	yes
State FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Notes: This table shows the heterogeneous effect of Medicaid expansion to parents on child outcomes by child mental and physical limitations. Treat represents Expansion state*Post-ACA. Standard errors are clustered at the state level, adjusted for within-cluster correlation and heteroskedasticity, and reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.