Dependent Insurance Coverage and Parental Job Lock: Evidence from the Affordable Care Act*

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Abstract

Coverage for dependents is a standard feature of employer-sponsored insurance. While prior work shows that employees trade off job mobility for their own coverage, less is known about the intra-family spillovers of dependent coverage on parental labor supply. We study this question using a large panel of employer-based insurance claims that links dependent enrollment to a proxy for parental job retention. We use a regression discontinuity design that exploits a sharp change in the duration of dependent eligibility by birth month under the Affordable Care Act. We find that additional dependent insurance eligibility increases both dependent take-up and parental job retention. This "job lock" effect is strongest among parents more likely to be on the margin of a job exit, for families that place higher value on dependent coverage, and employees of firms offering a broader range of insurance options.

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1 Introduction

Nearly half of Americans rely on employer-sponsored health insurance for coverage (Kaiser Family Foundation 2022). This tight link between insurance and employment has been shown to generate "job lock" in the labor market: that is, the availability of employer-sponsored health insurance can distort labor supply decisions and reduce job mobility (Madrian 1994; Gruber and Madrian 1995).[1] Most research in this area has focused on how an individual's *own* coverage affects employment decisions. Yet a common feature of employer-sponsored plans is that they often extend coverage to employees' children. 96 percent of employers offering health insurance also offer dependent coverage, and roughly half of U.S. children under 19 are enrolled in such plans (Kaiser Family Foundation 2020, 2023).

Despite the prevalence of dependent coverage, relatively little is known about its effects on parental labor supply. Theoretically, dependent coverage functions as non-wage compensation and could, like own coverage, create job lock. But the effect may be muted if children are younger and healthier and thus value insurance less, or if parents are already "job locked" by their own coverage. Understanding these intra-family spillover effects is important given the ubiquity of dependent coverage and the focus of many public policies, such as the Children's Health Insurance Program (CHIP), on providing insurance for children.

One factor that has limited prior work on this question is the lack of data linking insurance take-up and employment across family members. Surveys that provide such links often have small or non-representative samples.[2] We overcome these limitations through a novel application of a dataset that has been widely used in other contexts: employer-sponsored health insurance enrollment data. These data offer three advantages: they link planholders and dependents across a large, multi-year panel; they record monthly dependent enrollment;

1. Recent empirical work showing evidence of job lock from own coverage includes Boyle and Lahey (2010), Garthwaite, Gross, and Notowidigdo (2014), Dague, DeLeire, and Leininger (2017), Dave et al. (2015), and Wettstein (2020).

2. For example, the Survey of Income and Program Participation (SIPP) has a sample size of up to 50,000 households per panel and only collects insurance coverage information for adult dependents if they reside with their parents (Jun 2023).

and they allow us to proxy parental job retention using information on the number of months a parent is enrolled with any plan offered by their employer, even if the insurer changes.[3] Furthermore, the insurance claims data provide the sample size to support heterogeneity analyses on different subgroups, which is useful for understanding mechanisms.

We use these data to study the effects of a major expansion in dependent coverage introduced by the Affordable Care Act (ACA). The ACA's "dependent mandate" requires private insurers to extend coverage to adult children up to age 26, whereas before the reform, coverage typically ended at age 19, or age 23 for full-time students. Prior research on the mandate has focused on young adults, finding large increases in insurance coverage (e.g., Akosa Antwi, Moriya, and Simon 2013; Sommers et al. 2013; Barbaresco, Courtemanche, and Qi 2015; Barkowski, McLaughlin, and Ray 2020; Carpenter et al. 2021; Kim 2022) and various downstream health and financial impacts (Sommers et al. 2013; Hernandez–Boussard et al. 2014; Barbaresco, Courtemanche, and Qi 2015, 2015; Daw and Sommers 2018; Blascak and Mikhed 2023).

To estimate the effects of the dependent coverage expansion on dependents and their parents, we develop a regression discontinuity (RD) design that exploits a discontinuity in the number of months a dependent is eligible for coverage based on their birth month. While the mandate requires coverage through age 26, implementation varies across plans: some terminate coverage in the dependent's birth month, while others extend coverage through the end of the calendar year. As a result, adult children born just after January 1 are, on average, eligible for more months of coverage than those born just before. This generates a discontinuity in the total duration of coverage eligibility by birth month that we use for identification.

Our data span the years 2000 to 2012. Because the mandate extends coverage through age 26 and our data end in 2012, we restrict the analysis to dependents born in 1985 and 1986——cohorts for whom the full eligibility window is observable. Each observation in our

3. We define job retention as any continued enrollment with the same employer during the outcome period. As described in Section 3.2, survey evidence suggests that this measure is a reliable proxy of job retention.

sample corresponds to a dependent–parent pair. To identify causal effects, we implement an RD design using birth month as the running variable, with a cutoff at December 1985. By focusing on a narrow window around the threshold, the design avoids identification challenges associated with prior difference-in-differences approaches (Slusky 2017), and we validate it by showing that demographic and employer characteristics evolve smoothly across the cutoff.

We measure outcomes beginning in 2011, when the mandate took effect for most employer-sponsored plans, through the end of the sample in 2012. For dependents, we track enrollment and enrollment duration in a parent's plan. For parents, we proxy job retention using indicators for whether they remain continuously enrolled in any plan offered by the same employer during the outcome period.

We find that dependents just to the right of the December 1985/January 1986 cutoff—— those eligible for longer coverage——are more likely to enroll and remain covered for longer once the mandate is in effect. Dependent enrollment increases by 1.8 percentage points at the cutoff, an increase of 9.2 percent over the enrollment rate for dependents born in December 1985. In addition, the enrollment duration increases by 9.7 days (14.6 percent). Turning to their parents, we find that parental job retention likelihood increases by 1.0 percentage point (1.8 percent) and job duration increases by 5.8 days (1.6 percent) to the right of the cutoff. When scaled by the estimated share of dependents on end of year plans, our findings imply that 12 additional months of dependent coverage correspond to a 7.7 percent increase in job retention likelihood and a 7.0 percent increase in retention duration.

Our estimates remain very similar under a variety of robustness checks, including dropping controls, excluding weights, clustering on the running variable, using alternate bandwidths, and replacing our linear control function with a local linear specification. We also assess potential threats to our identification assumption — that factors other than coverage eligibility do not change at the discontinuity — by conducting placebo analyses using cohorts that were either too old or too young to be eligible for the dependent mandate. Reassuringly, we find no effects on dependent enrollment or parental job retention across a variety

of placebo cohorts.

We conduct a variety of heterogeneity analyses using the main RD specification to explore the mechanisms driving parental job lock. We find evidence of greater job lock among parents who may have otherwise been more likely to leave their jobs: those eligible for retirement benefits. Job lock is also higher for parents who likely value coverage more: those whose dependents are in poorer health, those who were on (typically more generous) fee-for-service (FFS) plans pre-reform, and those at firms which offer a greater diversity of plan types. Additionally, we do not find evidence that the dependent coverage was "job locking" parents for whom the return to working is particularly low – those with lower incomes – or the cost of working is high – parents in poor health themselves.

Our results are consistent with the increased insurance eligibility for adult dependents making parents' current jobs more valuable, leading to parental job lock. The response we capture could be driven by two distinct mechanisms: the direct value of dependent insurance among families that take up coverage, as well as the indirect insurance value of having the *option* of adding an eligible dependent in the future. We find evidence that the direct value drives most of the job lock response, as the parental job retention effects are concentrated among those who actually take up dependent coverage. This is consistent with recent work by Aouad (2023), which finds that after their child experiences an unexpected health shock (appendicitis), parents are more likely to stay at their job going forward – presumably because the direct value of the coverage they already have has increased for them. Similar to our approach, Aouad (2023) uses a large database of employer-based health insurance claims to measure job tenure.[4]

Combining the estimates of dependent coverage take-up and parental job retention implies that a one percent increase in the share of dependents covered is associated with a 0.20 percent increase in the parental job retention rate. Applying this ratio to extrapolate

4. While the data in Aouad (2023) are from a single insurer, a potential benefit of our data is that we can follow employees across insurance plans. However, empirical evidence suggests the frequency of such switches is limited (Handel 2013; Aouad 2023).

the effect of the overall ACA dependent mandate, which was estimated to have increased dependent coverage by 30 percent, implies that about 580,000 parents were "job locked" by the ACA mandate (Akosa Antwi, Moriya, and Simon 2013).

Lastly, we further demonstrate the external validity of our results by considering a difference-in-differences (DD) design on an expanded sample. This identification strategy compares the outcomes of dependents born in 1986 to those born between 1983 and 1984, who are ineligible for the ACA dependent mandate. We find qualitatively similar results to our main RD specification, though we interpret these results as secondary to our RD specification due to the known issues associated with using DD designs to study the ACA dependent mandate (Slusky 2017).

2 Policy Context

Under the ACA dependent coverage mandate, private health insurers were required to extend coverage to adult children through age 26 (Cantor et al. 2011).[5] Prior to the mandate, most plans offered dependent coverage through age 19 for non-students and through age 23 for full-time students. Some states enacted laws that extended coverage beyond age 23, but these mandates were limited in scope: they applied only to specific categories of dependents – such as those claimed as tax dependents – and did not apply to self-insured plans, which cover more than half of private-sector workers with employer-sponsored health insurance (Levine, McKnight, and Heep 2011; Monheit, DeLia, and Belloff 2011; Akosa Antwi, Moriya, and Simon 2013).

The ACA mandate applied to all insurance plans beginning September 23, 2010. To qualify for extended coverage under the mandate, dependents had to be born in January 1985 or later, meaning they would turn 26 in January 2011 or later. The mandate also required that plans treat adult dependents the same as younger dependents: plans could not charge higher premiums for adult dependents or provide them with different benefits. In

5. For more information on the dependent mandate, see: https://obamawhitehouse.archives.gov/sites/default/files/rss_viewer/qa_young_adults_may.pdf (accessed on May 22, 2022).

addition, premiums paid for adult dependent coverage remained tax-favored. The mandate was highly salient and broadly popular: over 70 percent of the public was aware of it within a month of enactment (Kaiser Family Foundation 2010). The other major provisions of the ACA, including the establishment of healthcare exchanges and the coverage mandates for mid and large-sized firms, were implemented later in 2013 and 2014. Because our data end in 2012, these provisions should not affect our analysis.[6]

While the dependent mandate only requires plans to insure dependents through the month in which they turn 26, some plans choose to provide coverage through the end of the year in which they turn 26. As explained by Healthinsurance.org: "young adults can remain on a parent's health plan until age 26. Some plans will keep the young adult insured until the end of the plan year (which often corresponds to the calendar year) in which they turn 26, although others will drop them from the plan the month they turn 26."[7] We refer to these plans as "end of year" vs. "birth month" plans, respectively. While we cannot directly observe plan type in our data, we present evidence in Section 4.2 of both plan types in our sample.

The number of additional months of coverage provided by the ACA mandate varies by plan type and dependent birth month, as illustrated in gray in Figure 1a. For dependents in birth month plans, the number of additional months increases linearly in birth month. For example, individuals born December 1985 were eligible for 12 months of additional coverage, losing eligibility when they turn 26 in December 2011. Those born in January 1986 were eligible for 13 months of coverage, losing eligibility in January 2012.[8]

6. For a full timeline of ACA implementation, see: https://www.ncbi.nlm.nih.gov/books/NBK241401/.

7. Source: https://www.healthinsurance.org/faqs/under-the-aca-can-young-adults-still-remain-on-their-parents-health-plans-until-age-26/. For example, Kaiser Permanente notes: "If you're a dependent on your parent's plan, you may lose coverage under that plan either at the end of your birth month or end of the calendar year." (https://continuecoverage.kaiserpermanente.org/losing-parents-plan/).

8. This discussion assumes that plan years align with the calendar year. Our empirical design requires that this type of plan is more prevalent than other types. In our MarketScan sample, we observe plan-year start dates for a minority of enrollees — 26% of parents in 2011-2012. For all of these parents, the plan year start date is January 1st. Furthermore, other research shows that most employer-sponsored health insurance plans begin on January 1st, with enrollment for the upcoming year occurring during a limited window in October or November (Swartz and Graves 2014).

For dependents on end of year plans, the number of additional months jumps discontinuously between the December 1985 and January 1986 cohorts. Dependents born in December 1985 are eligible for 12 months of coverage. In contrast, those born in January 1986 are eligible for 24 months, because they retain coverage through the end of 2012 despite turning 26 in January of that year. With both plan types in the sample, we would expect the discontinuity at January 1986 to be a weighted average of the 12 additional months for dependents on end of year plans and the one additional month for those on birth month plans. The blue points in Figure 1a illustrate an example of the average discontinuity if half of dependents are on each type of plan. Because these cohorts are likely otherwise similar, this discontinuity motivates our use of a regression discontinuity design based on birth month.

3 Data

3.1 Sample and Outcome Construction

MarketScan Database Our primary data source is the Truven Health MarketScan CCE Database ("MarketScan"), covering the years 2000 to 2012. MarketScan is a large panel of employer-sponsored health insurance claims, providing detailed information on individual claims, monthly enrollment records, and enrollee demographics. The dataset includes employees aged 18 to 64. Although the data disproportionately represent the South, they have wide geographic coverage (Baker et al. 2014; Blewett et al. 2018).

The data were provided to MarketScan by 246 large employers and health insurers ("data contributors"). For our analysis, we use data from employers rather than insurers (212 out of the 246 contributors), which allows us to track employees over time within the same firm. These firms are primarily Fortune 500 companies, and medium and small firms are underrepresented (Adamson, Chang, and Hansen 2008). This sample includes 48.9 million individuals covered by employer-sponsored plans, of whom 21.6 million are planholders (employees) and 27.3 million are spouses and dependents.

A key feature of the MarketScan employer data is that it allows us to track employees

over time as long as they remain with the same employer and retain health insurance, even if they switch between plans offered by that employer (Adamson, Chang, and Hansen 2008). Each enrollee has a unique ID, enabling tracking over time, as well as a family ID which links planholders to their covered dependents. This structure allows us to analyze job retention and tenure, and to observe dependent coverage outcomes within families. However, we can only track dependents while they remain covered by the same employee. For instance, if a child disenrolls from one parent's plan and re-enrolls on another parent's plan, they can no longer be followed. This is because the dependent's unique ID is specific to the planholder.

Analysis Sample Each observation in our sample corresponds to a unique dependent-planholder pair. We begin with a dataset of all such pairs, totaling 17 million observations. We then impose a series of sample restrictions, which we describe at a high level below. A detailed explanation of our sample construction process can be found in Appendix Section A.1.

Our first set of sample restrictions pertains to dependents. We limit the sample to dependents born between January 1985 and December 1986, ensuring that they turned 26 in 2011 or 2012. Because our dataset extends only through 2012, restricting to these birth cohorts allows us to fully observe their additional months of eligibility under the ACA's dependent mandate and accurately capture their take-up behavior.

We also require that dependents were covered for at least one month in the pre-ACA period while under the age of 23. Age 23 was the age limit for student dependents under pre-ACA rules and represents the most common disenrollment age among pre-ACA cohorts in our sample, as shown in Appendix Figure A.1.[9] This restriction prevents endogenous selection into dependent coverage by birth month in the post-ACA period. Importantly, dependents remain in our sample regardless of whether they re-enrolled after 2009 under the ACA dependent mandate; the key requirement is that they had dependent coverage under

9. In robustness exercises, we instead use age 19, the pre-ACA coverage limit for non-students. Doing so limits reduces our sample size considerably, but produces very similar results.

their parent's plan at some point before age 23.[10]

Next, we apply a set of restrictions to planholders (i.e., parents). First, we require that planholders are over the age of 45, to ensure at least a 16-year age gap between dependents and planholders in order to capture parent-child relationships, and remain under 65 by the end of 2012, to avoid the effects of Medicare eligibility on private insurance enrollment. Second, we restrict our sample to planholders with only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. This restriction simplifies the definition of treatment to be at the family-level. We apply several additional, minor sample restrictions, described in Appendix Section A.1, to account for specific features of the MarketScan data. Our final analysis sample consists of 393,791 planholder-dependent pairs, or families.

To provide context on the size and scope of our sample, we re-construct our sample in the 2014 Survey of Income and Program Participation (SIPP), which includes information on employer-sponsored health insurance and employment.[11] We construct two samples to estimate the size of two relevant populations. First, we estimate the size of the narrow population to which our regression discontinuity (RD) estimates apply: parents aged 45–65 who have employer-sponsored health insurance covering a dependent and have one child born 1987–1988.[12] We estimate that approximately one million parents met these criteria in 2014, representing about 0.8 percent of all employed workers in the fourth quarter of that year.[13]

Second, we estimate the size of the broader population of parents whose children were eligible for coverage under the ACA dependent mandate. This group includes parents with

10. For example, consider a dependent born in 1986 who disenrolled from their parent's plan in 2009 at age 22. Whether or not they re-enrolled in 2011 at age 25 under the dependent mandate, they would still be included in our sample. Among dependents in our sample, the last age at which they were enrolled before turning 23 is: 18 and under (15.0%), 19 (10.8%), 20 (9.5%), 21 (10.9%), and 22 (53.7%).

11. We use the 2014 SIPP for this calculation because it collects information about adult dependents who live outside of the household. Earlier years of the panel only collect information about adult dependents who live within the household.

12. We shift the birth years forward by two years relative to our main analysis sample (1985–1986) because the SIPP data are from 2014, while our primary data end in 2012. This group reflects the specific sample restrictions required for our RD design.

13. Source for quarterly count of employed workers: https://www.bls.gov/opub/mlr/2015/article/continued-improvement-in-u-s-labor-market-in-2014.htm.

employer-sponsored health insurance who have at least one child aged 19–25. Although our RD estimates are not identified on this broader population, they may generalize under an assumption of external validity. We estimate that approximately 22 million parents met these criteria in 2014, representing about 15 percent of all employed workers.

Outcomes Our analysis focuses on two key outcomes that measure whether and for how long parents and their dependents remain covered by the parent's pre-ACA employer in the post-ACA period. These outcomes are: (1) the likelihood of enrollment, defined as whether the dependent or parent is enrolled for at least one month during 2011–2012 ("enrollment likelihood") and (2) the total number of days of enrollment during this period ("enrollment duration").[14] These outcomes serve as our measures of post-mandate insurance coverage for dependents and job retention for their parents.

As a result of our data structure and sample restrictions, our measures of dependent coverage have some key limitations worth noting. Our "enrollment likelihood" outcome does not capture the full impact of the ACA mandate on dependent coverage for three reasons. First, our analysis requires all dependents to be covered by their parent's plan in the pre-ACA period. As such, we are not capturing any adult dependents who join their parent's plan for the first time after 2009. Second, our measures only capture coverage linked to the parent's pre-mandate employer. If the parent changes employers after 2010, we lose the ability to track whether they provide coverage to the dependent under a new employer's plan. Third, we cannot observe alternative sources of coverage that might be available to the dependent, such as insurance obtained through a different parent or through their own employer.

Summary Statistics Table 1 presents summary statistics for our analysis sample, where each observation reflects a parent-child pair. We report means of our outcome variables and control variables for both the full sample (column 1) as well as by dependent birth year (columns 2-3). Of the 393,791 parents in our sample, 181,470 (46 percent) have dependent

14. Job retention measures only include enrollment periods during which the planholder is classified as an active employee, excluding instances where coverage is extended following early retirement or job loss.

children born in 1985 and 212,321 (54 percent) have dependent children born in 1986.

Comparing dependents in the 1985 and 1986 birth cohorts, the share enrolled for at least one month during 2011-2012 increases from 0.14 to 0.26, or by 86 percent. Similarly, there is a large increase in the total number of coverage days during 2011-2012, from 35.9 to 127.7, or 254 percent. This difference in coverage between the two cohorts reflects the fact that the 1985 cohort is only eligible for coverage under the dependent mandate in 2011 (when they turn 26), whereas the 1986 cohort is eligible in both 2011 and 2012. As for parents, those with dependents born in 1986 vs. 1985 are slightly more likely to remain with their pre-ACA employer for at least one month in 2011 to 2012 (0.56 vs. 0.54, or a 3.7 percent increase). Similarly, total job days during 2011-2012 increases from 354.3 to 366.8, or by 3.5 percent.

Table 1 also reports means of our control variables for the 1985 and 1986 birth cohorts. All time-varying controls are measured with respect to the pre-period, before 2010. There is little difference across these cohorts in the following characteristics: the share of dependents who are female (50 percent for both cohorts), the share of parents who are female (40 percent), whether a spouse was added to the plan prior to 2010 (78 to 79 percent), the number of dependent children added to the plan prior to 2010, including the focal dependent (2.3 to 2.4), and whether the dependent received inpatient care prior to 2010 (7 to 8 percent). As for parental birth month, dependents born in 1985 tend to have older parents than dependents born in 1986, as would be expected. Since younger parents will tend to retire later, increased job retention for those with dependents in the 1986 vs. 1985 cohort may reflect the effects of age, rather than job lock. This point emphasizes the importance of controlling for parental age in our analyses.

The last set of control variables measure the generosity and flexibility of the parent's pre-period insurance coverage options. The construction of these variables is described in Appendix Section A.2. The first is an indicator for whether the parent's pre-period plan is a health maintenance organization (HMO), which tend to be less expensive but more restrictive than fee-for-service (FFS) plans. The second variable is an indicator for whether

the parent's pre-period employer offers both HMO and FFS plans. This measure is meant to capture the diversity of plan options offered by an employer, which should increase the option value of staying with that firm. There is no difference in the means of these measures across dependent birth cohorts: 0.23 for an employee's own pre-period HMO coverage, and 0.74 to 0.75 for being at a firm that offers both types of plans.

As noted earlier, MarketScan disproportionately captures employees from large firms, indicating that our sample may skew toward higher-income workers. We calculate that nearly all employees in our sample work full-time (98.1 percent). Furthermore, our predicted income measures in Section 6.5 suggest that, based on their industry, full-time employee status, and demographics, our sample is comprised of relatively high-income workers. Therefore, caution is warranted when generalizing our findings to lower-wage or part-time workers.

3.2 Insurance Dis-enrollment as a Proxy for Job Exit

In this subsection, we assess the validity of our proxy for parental job retention. In our analysis, we measure job retention using an indicator for whether parents maintain enrollment in any health insurance plan offered by their pre-mandate employer. This measure may misclassify some cases: specifically, if a parent remains employed but chooses to forego employer-sponsored health insurance, our proxy would incorrectly code them as having left their job.

To evaluate the extent of this potential measurement error, we use data covering 2011-2013 from the Panel Study for Income Dynamics (PSID) to examine how often individuals remain with the same employer but drop their employer-sponsored health insurance. Appendix Section A.3 describes the sample construction and analysis in more detail. We focus on individuals with characteristics similar to parents in our analysis sample and who remain employed at the same firm through 2013. We then construct an indicator for whether they no longer receive health insurance coverage from that employer in 2013. Appendix Table A.1 presents the results: only one percent of these individuals drop their employer-sponsored health insurance while remaining with the same employer. This suggests that such occur-

rences are rare and that our proxy captures true job retention reasonably well.

4 When do Dependents Exit Parental Coverage?

In this section, we examine the timing of dependent disenrollment from parental coverage. These patterns provide further evidence that the dependent mandate shifted patterns of coverage across birth cohorts and also confirm the presence of both birth month and end of year plans in our sample.

4.1 Effect of the Dependent Mandate on Age of Disenrollment

Appendix Figure A.1 plots the age at which dependents exit coverage provided by their parent's pre-ACA employer. Specifically, for each dependent, we calculate their age in months at the time they *last* appear on their parent's plan ("exit age"). For the 1983 and 1984 birth cohorts, who were too old to qualify for the dependent mandate, the most common exit age is exactly 23 years (12.2 percent and 11 percent of dependents in each cohort, respectively). This pattern reflects the pre-ACA rule allowing full-time students to remain on their parents' plans until age 23, suggesting that many of the dependents in our sample attended college. Smaller spikes in disenrollment appear at ages 24 and 25, corresponding to state mandates that extended coverage beyond age 23. Virtually no disenrollments occur at or after age 26 in these cohorts.

In contrast, the distributions for the 1985 and 1986 cohorts, who were eligible for the dependent mandate, are consistent with the policy extending dependent coverage to age 26. A spike emerges at exactly age 26, and for the later cohort it becomes by far the most common exit month.[15]

15. One subtlety in interpreting these graphs is that many dependents in the 1985 and 1986 cohorts——who turned 23 in 2008 and 2009, respectively——would have aged out of coverage at 23 under pre-ACA rules, and then re-enrolled when the dependent mandate took effect in 2011. Because we define "exit age" as the final month a dependent appears on a parent's plan, these earlier exits are not visible in the data, but may have occurred.

4.2 Evidence of Birth Month and End of Year Plans

As discussed in Section 2, the number of additional months of coverage provided by the ACA mandate depends on a dependent's birth month and whether their plan follows a birth month or end of year rule. Under birth month plans, coverage ends in the month the dependent turns 26, creating a linear relationship between birth month and coverage duration. Under end of year plans, coverage extends through the calendar year in which the dependent turns 26, creating a discontinuity in coverage length between dependents born in December 1985 and January 1986. For our empirical design, we require that there are end of year plans in our sample.

While insurer documents and policy manuals indicate that both plan types exist, we cannot directly observe this plan characteristic in our data.[16] However, we can use disenrollment patterns to provide evidence of end of year plans in the aggregate. Specifically, we expect that dependents on end of year plans will disproportionately exit coverage in December of the year they turn 26, even if they are not themselves born in December.

Figure 1b shows the distribution of exit months for dependents who disenroll in the year they turn 26, excluding those *born* in December and those who exit in their birth month. A disproportionate share of these disenrollments occur in December, consistent with a substantial share of end of year plans. We calculate that among dependents who exit on or after their birth month in their 26th year (i.e., excluding those who exit before their eligibility runs out on either type of plan), 23 percent exit after their birth month. We take this to imply that 23 percent of dependents are on end of year plans.

5 Empirical Strategy

Our primary empirical strategy is a regression discontinuity (RD) design, using dependent birth date as the running variable. Under the ACA dependent coverage mandate, the average

16. We also cannot infer plan type from the plan or employer identifiers in our data. Plan identifiers are missing for most of the sample and, when available, are not stable over time. Employer-level exit month distributions suggest that many firms offer a mix of plan types.

number of additional months of coverage increases discontinuously between dependents born in December 1985 and January 1986 (Figure 1a). We focus on the 1985 and 1986 birth cohorts because our study period (2011–2012) captures the entire period of additional coverage eligibility for these cohorts. Older cohorts were not eligible for extended coverage under the mandate, while younger cohorts did not turn 26 until after the end of our sample period.

We use i to denote the parent and j to denote the dependent. Each observation in our dataset represents a single parent-dependent pair. Let B_j denote the birth date (year and month) of dependent j, and define the cutoff c as December 1985. Our outcome variable, Y_{ij}, measures either dependent enrollment or parental job retention. We estimate the following specification:

$$Y_{ij} = \alpha + \beta\ \mathbf{1}[B_j > c] + \mathbf{1}[B_j > c] \cdot f(B_j - c) + f(B_j - c) + X_{ij}\gamma + \varepsilon_{ij}, \tag{1}$$

where $f(\cdot)$ is a control function based on dependent birth date. In our baseline specification, $f(\cdot)$ is linear. This choice is motivated by the policy variation depicted in Figure 1a, which shows that, outside the discontinuity from December 1985 to January 1986, the number of additional coverage months increases linearly in dependent birth month. The term $\mathbf{1}[B_{jt} > c] \cdot f(B_j - c)$ allows the slope of the outcome variable to vary on either side of the cutoff c. We weight each observation using triangular weights, which decrease linearly in distance from the cutoff month, and cluster standard errors at the dependent-parent pair level.

The vector X_{ij} is a set of controls: gender of the parent and dependent; parental birth date (year and month); number of dependents added to the parent's plan in the pre-ACA period (i.e., before 2010); whether a spouse was ever added to the plan in the pre-period; whether the dependent ever received inpatient care in the pre-period; whether the parent's pre-period plan was an HMO; and whether the employer offered both HMO and FFS plans to their employees during the pre-period. Including parental birth month controls for the fact that younger children have younger parents—because younger parents are less likely to have retired, without this control, parental job retention is linearly increasing in dependent

birth month. We present the unadjusted RD estimates below in robustness exercises. The other control variables are added as robustness against confounding variation and to improve precision.

The coefficient of interest is β, which captures the effect of additional dependent coverage eligibility on dependent enrollment and parental job retention during 2011-2012. A positive β on dependent enrollment would indicate that dependents born after the cutoff were more likely to enroll or were enrolled for longer. Likewise, a positive β on parental job retention indicates that the parents of dependents born after the cutoff were more likely to remain at their pre-mandate employer or worked there for longer during our study period.

We conduct numerous robustness checks to assess the sensitivity of our results. These include omitting the triangular weights, varying the bandwidth, excluding the control variables X_{ij}, clustering standard errors by birth month rather than by parent-dependent pair, and applying the robust, bias-corrected method of Calonico, Cattaneo, and Titiunik (2014) and Calonico et al. (2019), among others. In addition, we perform placebo tests by re-estimating Eq. 1 using alternative cutoff dates corresponding to dependent cohorts who were either too old to qualify for additional coverage under the mandate or too young to be affected during our study period.

Tests of Identification Assumptions The validity of our RD design relies on the assumption that, absent the ACA dependent coverage mandate, outcomes would evolve smoothly across the cutoff in dependent birth month. This assumption would be violated if there were systematic differences between families on either side of the cutoff unrelated to the policy. Although we cannot prove that this assumption holds, two ways to assess its plausibility are to evaluate whether the density of the running variable is smooth at the cutoff and to test whether observable characteristics evolve smoothly across the cutoff.

These tests help detect potential manipulation, misreporting, or other systematic differences around the cutoff that could threaten identification. For example, parents might attempt to misreport a dependent's birth month as January rather than December to obtain

extra coverage.[17] Alternatively, misreporting by the data provider——such as defaulting missing birth months to January——could generate a discontinuity in birth month assignment.

We first assess the density of dependent birth months around the cutoff. Appendix Figure A.2 plots the distribution of birth months for the 1985 and 1986 cohorts. The distribution appears smooth through the cutoff, and we fail to reject the null hypothesis of continuity in the density: the estimated discontinuity is -0.018 with a p-value of 0.17.

Next, we examine whether observable characteristics of dependents, parents, and employers change discontinuously at the cutoff. Specifically, we test for discontinuities in the eight control variables listed in Table 1: the gender of the parent and dependent; parental birth date; whether the parent's plan covered a spouse or additional dependents in the pre-period; whether the dependent received pre-period inpatient care; whether the parent was enrolled in an HMO in the pre-period; and whether the parent's pre-period employer offered both HMO and FFS plans.

Appendix Figure A.3 plots the unadjusted means of these variables by dependent birth month. Visually, these graphs appear smooth through the cutoff. All are relatively flat except for parent's birth date, which is linearly increasing. This reflects the fact that younger children will tend to have younger parents. To formalize these visual tests, we re-estimate Eq. 1, using each observable characteristic as the outcome and omitting the control vector X_{ij}. Estimates of β are reported in Table 2. Across the eight characteristics, the estimated effects are uniformly small and statistically insignificant at conventional levels. Taken together, the results of the McCrary density test (Appendix Figure A.2), the covariate balance plots (Appendix Figure A.3), and the formal tests reported in Table 2 provide support for the validity of our RD design.

17. This particular scenario seems unlikely in our data, however, as we define birth month based on enrollment information collected several years prior to the ACA dependent mandate – thus, parents would have to anticipate the reform years in advance.

6 Results

6.1 Main Results

We begin by estimating the effects of additional months of dependent coverage on both dependent enrollment and parental job retention. For each outcome, we present graphical evidence ("RD graphs") as well as estimates of β from Eq. 1. The RD graphs plot residualized means of our outcome variables, adjusted for the vector of controls X_{ij} in Eq. 1. One important reason for residualizing is to control for parental birth date, which increases linearly in the running variable (as shown in Appendix Figure A.3). Because parental job retention decreases in parental age, the raw trend in parental job retention slopes upward in a way that is unrelated to variation in dependent coverage eligibility.

Figures 2a-2b present RD graphs for dependent enrollment likelihood and duration in 2011-2012. Each graph includes linear fits on either side of the cutoff. Panel (a) of Table 3 reports the corresponding regression estimates of β and their standard errors. We also report the mean of the outcome variables for dependents in the December 1985 (control) cohort, which we use to calculate percent changes.

We hypothesize that expanded dependent coverage should increase both the likelihood that a dependent remains enrolled on a parent's plan and the duration of that enrollment. Consistent with this, Figures 2a-2b show clear discontinuities at the birth date cutoff.[18] The corresponding regression estimates and standard errors are reported in Table 3. Enrollment likelihood increases by 1.8 percentage points (9.2 percent of the December 1985 mean), and duration increases by 9.7 days (14.6 percent). Both effects are statistically significant at the

18. The difference in slopes across the cutoff in Figure 2a reflects how the take-up likelihood outcome——an indicator for enrollment in either 2011 or 2012——interacts with eligibility differences across cohorts. The 1985 cohort, which turns 26 in 2011, is only eligible during that year, with the number of eligible months increasing in birth month. This results in a steeper increase with respect to birth month, consistent with stronger incentives to enroll when more months of coverage are available. In contrast, the 1986 cohort is uniformly eligible for 12 months of coverage in 2011, regardless of birth month. While additional months become available in 2012, they only affect the take-up measure if the dependent is not already enrolled in 2011. The modest upward slope for the 1986 cohort may reflect anticipation effects——where families expecting longer coverage in 2012 are more likely to enroll in 2011——or late enrollment occurring in 2012 alone.

1 percent level.

We next estimate the effects of expanded dependent coverage on parental job retention. Figures 2c–2d present RD graphs for parental job retention likelihood and duration during 2011–2012. Both graphs show a clear upward shift in outcomes to the right of the cutoff. Visually, the discontinuity appears to occur in February 1986 rather than exactly at the January 1986 cutoff, which is somewhat puzzling. This pattern is not present in the dependent enrollment graphs and does not appear to be driven by changes in the density of the running variable (Appendix Figure A.2) or in observable characteristics (Appendix Figure A.3) for the January 1986 cohort. The confidence intervals in Figures 2c–2d indicate that the January 1986 estimates are not statistically different from the linear trend, suggesting the deviation may simply reflect noise.

Parental job retention appears less sensitive than dependent take-up to month-to-month variation in dependent coverage eligibility away from the cutoff, suggesting the discontinuity itself may have had increased salience. However, the RD graphs are somewhat noisy, so we interpret these patterns with caution.

Table 3 reports that the likelihood a parent retains their job increases by 1.0 percentage points (1.8 percent). Correspondingly, our measure of job duration increases by 5.8 days (1.6 percent). These estimates are statistically significant at the 1 and 5 percent levels, respectively.

The magnitude of our coefficients is attenuated relative to what we would estimate if all families were on end of year plans——that is, if *all* January 1986 dependents were eligible for 12 additional months of coverage relative to December 1985 dependents, not just the ones on end of year plans. In Section 4.2, we estimated that 23 percent of dependents in our sample are on end of year plans. Scaling our RD estimates by this share implies a 4.2 percentage point increase in job retention likelihood (0.0098 / 0.23) and a 25-day increase in job duration (5.76 / 0.23) if all dependents had received 12 additional months of coverage. In percentage terms, these scaled estimates correspond to a 7.7 percent increase in job retention

likelihood and a 7.0 percent increase in retention duration.

6.2 Robustness and Placebo Checks

We next assess the robustness of our main findings to alternative specifications and sample definitions. In columns (1)-(5) of Appendix Table A.2, we make the following changes one at a time: excluding control variables; clustering standard errors by birth month (the running variable); and varying the bandwidth around the cutoff. Results are reported in Appendix Table A.2, which includes the baseline specification in column (1) for comparison. Reassuringly, there is very little change in the magnitude or precision of our estimates across specifications.[19]

In column (6), we restrict the sample to dependents enrolled in the pre-period while under age 19 rather than age 23. Before the ACA mandate, coverage was universally available through age 19, while only students remained eligible through age 23. Although many dependents in our sample exit coverage at age 23, this narrower restriction provides additional reassurance that policies affecting coverage between ages 20 and 22 are not confounding our results.

The drawback of this approach is that it reduces our sample size by about one-third.[20] This reduction in sample size reduces our power somewhat. Still, column (6) of Appendix Table A.2 shows that point estimates from this smaller sample are very similar——and nearly identical in percent terms——to our main results. All estimates remain statistically significant at the 5 percent level.

19. Data constraints prevent us from testing a wider set of bandwidths beyond the 8- and 10-month windows reported. Our running variable spans January 1985 to December 1986. We cannot extend the bandwidth further in either direction due to other discontinuities. On the right, there is a sharp eligibility change between December 1986 and January 1987: dependents born in December 1986 are eligible for up to 24 months of coverage under the ACA mandate, whereas those born in January 1987 can receive up to 36 months under end of year plans. Moreover, we do not observe full coverage histories for the 1987 cohort, as their eligibility extends into 2013——beyond our data window, which ends in 2012. On the left, the 1984 cohort is not eligible for coverage under the mandate, introducing a kink (and a small jump) in coverage between December 1984 and January 1985.

20. This is due to (1) requiring dependents to be observed under age 19, and (2) limiting to data contributors with continuous coverage from 2004 to 2012 (rather than 2008–2012). The latter restriction drives most of the sample loss, as many contributors entered the dataset after 2004 (see Appendix Figure A.4). Appendix Section A.1 provides detail on contributor restrictions.

Next, we compare our baseline RD estimates to those produced using the robust, bias-corrected method of Calonico, Cattaneo, and Titiunik (2014) and Calonico et al. (2019), as reported in Appendix Table A.3. Column (1) presents our main specification, which uses a linear control function and triangular weights and column (2) switches to uniform weights. Columns (3) and (4) replace the linear specification with a local linear regression. Column (3) applies triangular weights and column (4) applies uniform weights. Each column reports three estimates: the conventional (unadjusted) estimate, the bias-corrected estimate, and the bias-corrected estimate with robust standard errors.

The conventional estimates vary slightly across weighting schemes——most notably, the estimate for parental retention is somewhat larger under uniform weights, likely due to reduced influence of the low value just above the cutoff. The bias-corrected estimates are more sensitive: under triangular weights (column 3), the estimate is attenuated and imprecise; under uniform weights (column 4), it increases. This instability likely reflects the limited number of mass points near the cutoff, which makes the bias correction procedure highly sensitive to small local changes in the outcome trend.

Next, we estimate a series of placebo RD designs using cohorts that were either too old or too young to be affected by the ACA dependent mandate. Too-old cohorts were over 26 at the start of the ACA and therefore ineligible for expanded coverage. For this group, we examine the following placebo cutoffs: December 1981, December 1982, and December 1983.[21] Too-young cohorts were under 19 in 2012 (the end of our post-ACA period) and were thus universally covered under pre-ACA dependent coverage rules. For this group, we examine the following placebo cutoffs: December 1994, December 1995, and December 1996.[22]

Appendix Figure A.5 compares the RD estimates from these placebo cutoffs to those from our main cutoff (December 1985). The results show that our main estimate is much larger than the placebo estimates, which are all smaller and statistically insignificant. The

21. We do not extend this group to 1980 or earlier due to data constraints: our sample requires individuals to be observed at age 22 or younger, and our data begin in 2002.

22. For each cutoff, we construct a separate dataset following the same procedures outlined in Appendix Section A.1.

associated RD graphs all exhibit smooth trends through the placebo cutoffs.[23] These findings provide further evidence against confounding factors——such as unobserved demographic characteristics or sample selection criteria——that change discontinuously at the December vs. January threshold.

We then consider how our results vary by outcome year (2011 vs. 2012). Appendix Figure A.6 and column (1) of Appendix Table A.4 present results for dependent enrollment, and Appendix Figure A.7 and column (2) of Appendix Table A.4 present corresponding results for parental job retention by year. We observe clear discontinuities at the RD cutoff in both years for both outcomes. The small jump at the cutoff in 2011 is notable given that dependents on both sides of the cutoff were eligible for coverage that year. This suggests that the jump captures an anticipatory response to the additional months of eligibility in 2012, rather than a direct response to eligibility differences in 2011. The patterns in dependent enrollment in 2012 align with the mechanical variation generated by the coverage expansion——dependents to the left of the cutoff should be mostly ineligible for coverage that year, while those to the right will continue to have some coverage in 2012. Note, however, that jumps in enrollment duration at the cutoff are relatively similar in magnitude across the two years. The discontinuities in parental job retention are also similar across the two years, which is consistent with parents making their retention decision based on the expected duration of dependent coverage.

6.3 Heterogeneity Analysis and Mechanisms

In this section, we explore heterogeneity in the parental job retention response across subgroups defined by parent, dependent, and employer characteristics to shed light on potential mechanisms. In a simple model of job-to-job transitions, an insurance mandate applied uniformly across employers should not affect job mobility. However, job lock may arise if some employees are closer to the margin of labor force exit, if there is variation in plan generosity or structure, or if frictions exist in switching plans——such as the costs of re-establishing care with new providers. Differences in job retention across subgroups may reflect a combination

23. Results available on request.

of these "push" and "pull" factors employees consider when deciding whether to stay at a job.

To investigate these mechanisms, we estimate effects separately by subgroup. Figure 3 shows percent changes in parental job retention across subgroups, while Appendix Figure A.8 shows the corresponding dependent take-up responses. Coefficients and standard errors are reported in Appendix Tables A.5, A.6, and A.7. Appendix Figure A.9 shows the ratio of parental retention to dependent take-up by subgroup. As the subgroup differences are generally not statistically significant, we interpret the patterns as suggestive.

We first examine heterogeneity by parent and dependent gender. If male planholders are more likely to be sole earners, they may face stronger incentives to remain employed in order to provide dependent coverage. Consistent with this, we find a larger job retention response among male parents. We also observe larger effects for parents of female dependents, which could be explained by a higher perceived value of coverage or fewer alternative insurance options for these dependents.

Next, we examine whether parents nearing retirement are more likely to be "job locked" by the coverage expansion. These parents may exhibit a stronger job lock response for two reasons. First, they are more likely to be on the margin of exiting the labor force and thus may be more responsive to job retention incentives. Second, their outside options are less likely to include insurance—– while they may qualify for retiree coverage, these typically do not extend to dependents. We split parents by whether they are above or below age 55, since individuals can begin withdrawing from 401(k) accounts without penalty at age 55, making it a common early retirement threshold.[24] Accordingly, we find that parents over 55 are more likely to remain employed due to the mandate than younger parents.

We then examine whether parents who covered other family members——children or spouses——on their plan in the pre-period responded differently to additional dependent coverage. These parents may already be job locked by their existing coverage obligations,

24. Indeed, in our sample, age 55 is the first age at which a significant share of employees leave their jobs.

and may also face higher costs of exiting employment or switching plans due to a larger family. However, we do not find consistent differences in job retention by whether parents covered a spouse or additional children prior to the mandate.

While we cannot directly observe how much a parent or dependent values coverage, it is reasonable to assume that the value——and thus the extent of job lock——is greater for parents of dependents in worse health. To examine this, we use a proxy for poor dependent health: whether the dependent received inpatient care during the pre-period, as observed in the Marketscan claims data. Figure 3 shows a larger estimated job retention response among parents of children with prior inpatient care, suggesting that health-related needs may play a role in driving job lock.

We also expect that families with more valuable employer-sponsored health insurance to be more likely to experience job lock. An employee may value their insurance because of the generosity of the coverage or the flexibility in provider or plan choice. As a proxy for insurance generosity, we consider whether a family was enrolled in an HMO or FFS plan prior to the ACA. HMO plans restrict coverage to in-network providers and typically offer limited or no out-of-network benefits, whereas FFS plans are generally less restrictive. We find that job retention responses are larger among families enrolled in FFS plans.

One potential concern with looking at each individual family's plan type is that plans also differ in their premiums and cost-sharing, which we cannot directly observe. This motivates an employer-level measure: the number of plans offered by the parent's employer. We expect that employees value having more choice, so job lock may be stronger at firms offering multiple plans. Offering both HMO and FFS plans is also likely correlated with greater variety in other plan features, such as provider networks or coverage levels. We split employers by whether they offer only FFS or both HMO and FFS plans.[25] We find that parental job retention effects are driven by parents at firms offering both plan types.

Taken together, the heterogeneity analyses on patient-level prior utilization, plan-level

25. In our sample, all employers offer at least one type of FFS plan.

generosity, and firm-level flexibility are consistent with job lock arising when families value the insurance at their current employer more.

6.4 Scaling the Job Lock Response by the Change in Dependent Coverage

A unique advantage of our setting and data is that we can observe both parental and dependent outcomes. This allows us to calculate a scaled measure: the ratio between the job retention response and the dependent take-up response. Specifically, we convert the effects on dependent coverage and parental job retention in Table 3 to percent changes relative to the average for the December 1985 cohort, and then calculate the ratio between the percent change in job retention and the percent change in dependent take-up. For the full sample, the ratio of the percent change in job retention likelihood with respect to the percent change in dependent coverage likelihood is 0.20 (the "job retention likelihood ratio"), and the ratio of the percent change in job duration to the percent change in dependent coverage duration is 0.11 (the "job duration ratio").[26]

The scaled measure is useful for extrapolating parental job retention effects given some change in dependent coverage. Since the ACA dependent mandate was estimated to increase coverage by 30 percent (Akosa Antwi, Moriya, and Simon 2013), we combine this with our job retention likelihood ratio of 0.20 to estimate that approximately 580,000 parents were "job locked" by the mandate.[27]

One caveat to this scaled measure, however, is that the parental retention response may partly reflect the *option value* of coverage eligibility——that is, the value of having access to dependent coverage, even if the dependent does not ultimately enroll. If so, the numerator of the ratio (parental retention) may not align perfectly with the denominator (realized dependent coverage take-up).

26. The job retention likelihood ratio is calculated as $\frac{0.0098/0.54}{0.0175/0.19}$ and the job duration ratio is calculated as $\frac{5.7603/357.63}{9.6811/66.48}$.

27. Using the SIPP and Census, we calculate that 9.7 million parents were affected by the dependent mandate. We arrive at this number by calculating the share of adults aged 44-63 with children aged 19-25 in the 2008 wave of the SIPP, and then extrapolating using the total number of adults from the 2010 Census. The percentage point change in job retention, 1.8, divided by percent change in take-up, 9.0, is 0.20. Multiplying this by 30 implies that 6 percent of affected parents, or about 580,000, were "job locked."

To assess the importance of this "option value" channel, we re-estimate our main specification restricting to families who *ex post* do not take up dependent coverage. If the option value drives much of the retention response, we would expect parents to the right of the cutoff, who gain 12 additional months of eligibility, to be more likely to stay at their job purely for the option value, *even* if their child ultimately does not take up dependent insurance. However, Appendix Table A.8 shows that there is no effect among these families. This suggests that the parental job lock effect is primarily driven by the direct value of realized take-up, rather than by the indirect option value of eligibility.

6.5 Policy Implications

One policy implication our results can shed light on is whether mandating dependent coverage as a parental employment benefit would be preferable to simply offering *public* coverage, for example through programs like CHIP.[28] A key input to answering this question is identifying which parents take up dependent coverage and whether these parents face particularly high costs or low returns to working. If the parents who value this coverage the most are themselves in poor health or earn low wages, then tying dependent insurance to employment may not be preferable. In such cases, directly covering dependents through public insurance, rather than mandating it as part of their parents' employer-sponsored insurance, may be a better policy solution.

To this end, in Appendix Table A.9, we examine heterogeneity by parental health and income. We measure parental health using pre-ACA annual out-of-pocket spending on outpatient and inpatient care. In contrast to our results by dependent health, we find that healthier parents are *more* responsive to the mandate—those in the top quartile of out-of-pocket spending (i.e., the sickest) show little to no take up or job retention response, and

28. It is important to note that from an individual welfare perspective, since we are studying voluntary take-up in response to a policy that expanded coverage eligibility, by revealed preference the marginal family that responds should be no worse off than they were prior to the policy. This is under the assumption that from the point of view of the enrollees, the insurance generosity and premiums were unaffected by the mandate. Depew and Bailey (2015) show that employers did not pass the additional costs associated with the mandate onto employees through higher employee contributions.

the effect is driven by parents in the bottom three quartiles.

We then consider heterogeneity by parental income in Appendix Table A.10. While MarketScan does not directly report income, we observe employer industry for 77 percent of our sample. Using the American Community Survey (ACS) data, we construct a predicted income measure by combining parent demographics and industry information, and then split parents into terciles of predicted income.[29] The results by income are less clear-cut. Parents in the lowest income tercile show smaller duration responses but similar (or even larger) take-up likelihoods. While this suggests limited heterogeneity by income, we highlight two key caveats to this analysis: (1) our sample consists of full-time workers at large firms, which limits generalizability to lower-income workers, and (2) our income predictions are relatively imprecise.

Taken together, our heterogeneity results by parental health and income do not indicate that mandating dependent coverage through employer benefits is "job locking" parents who face higher costs or lower returns to working.

7 Alternate Strategy: Difference-in-Differences Design

Finally, to further assess the external validity of our RD findings, we conduct a complementary difference-in-differences (DD) analysis. This approach estimates the causal effect of the ACA dependent mandate on dependent enrollment and parental job retention using extensive margin variation in eligibility across dependent birth cohorts and ages.

7.1 Empirical Strategy

We construct a dataset at the dependent-planholder pair $\times$ dependent age-level, covering ages 23 to 26, and examine how outcomes vary by age across cohorts who were differentially affected by the ACA dependent coverage mandate.[30] The 1986 birth cohort serves as the treated group, as its members became eligible for the mandate at ages 25 and 26 (in 2011 and 2012). We compare them to two control cohorts—1983 and 1984— who were too old to

29. We discuss the construction of this measure in further detail in Appendix Section A.4.
30. Full detail on the sample construction steps is provided in Appendix Section A.1.

qualify. Thus, the analysis sample includes the 1983, 1984, and 1986 cohorts, observed from ages 23 to 26.[31]

Appendix Figures A.10a-A.10b plot the raw trends in dependent enrollment by age for each cohort. While all cohorts have declining enrollment between ages 23 and 24, the 1986 cohort displays a clear upward shift at age 25, coinciding with the start of the mandate. We formalize this comparison using the following difference-in-differences specification:

$$Y_{ia} = \gamma \underbrace{1(\text{Age} \geq 25)_a}_{\text{Eligible ages}} \times \underbrace{1(\text{Born in } 1986)_i}_{\text{Eligible cohort}} + \lambda_a + \theta_{b(i)} + X_i\kappa + \epsilon_{ia} \tag{2}$$

where Y_{ia} is an outcome for dependent-parent pair i when dependent is age a. $1(\text{Age} \geq 25)_a$ indicates that the dependent is age 25 or 26 — the ages for which the dependent mandate applied for the 1986 cohort. $1(\text{Born in } 1986)_i$ indicates the dependent was born in 1986, making them eligible for the ACA mandate. λ_a are fixed effects for dependent age (in years). $\theta_{b(i)}$ denotes fixed effects for dependent birth month (e.g., January 1986, February 1986, etc.). X_i denotes the same set of controls used to estimate the RD design in Eq. 1. Standard errors are clustered by dependent birth date $b(i)$.

The coefficient of interest, γ, estimates the mandate's effect on dependent enrollment and parental job retention under the assumption that, absent the mandate, outcomes for the 1986 birth cohort would have evolved similarly to those of the control cohorts at ages 25 and 26.

7.2 Results and Discussion

Consistent with the patterns in Appendix Figures A.10a-A.10b, we find a substantial increase in enrollment for the treated cohort at age 25. Rows 1-2 of Table 4 show that dependent enrollment likelihood rises by 23 percentage points (82 percent of the sample mean of the treated group at ages 23-24) and the enrollment duration increases by 65.6 days (also 82

31. We exclude the 1985 cohort because it was partially treated during the period over which our outcomes are measured (2011-2012). Specifically, they gained coverage in 2011, at age 26, but not 2012, at age 27. Appendix Table A.11 shows that, as expected, including the 1985 cohort yields similar but attenuated results.

percent).

Rows 3–4 of Table 4 show corresponding increases in job retention among parents with dependents eligible for expanded coverage: the likelihood of staying with the employer rises by 2.7 percentage points (4.3 percent) and job duration increases by 10.7 days per year (5.0 percent). All estimates are statistically significant at the 1 percent level. Including the partially treated 1985 cohort produces similar, slightly attenuated results (Appendix Table A.11).

To compare the DD and RD estimates, we adjust for differences in the amount of additional dependent coverage eligibility across the treated groups. We assume that, as in our RD sample, 23 percent of households in the DD sample are on end of year plans. Under this assumption, treated households in the DD are eligible for an average of 1.62 additional years of dependent coverage.[32] In contrast, treated households in the RD sample are eligible for 0.23 additional years on average. Thus, to compare the RD and DD estimates, we multiply the RD result by approximately 7 ($=\frac{1.62}{0.23}$). This adjustment is consistent with our findings on enrollment duration: the RD coefficient from Table 3 is 9.68 days, while the DD estimate in Table 4 is 65.57—roughly 6.8 times larger.

Turning to parental job retention, the RD estimates imply a 1.6 percent increase in job duration, while the DD estimates imply a 5 percent increase. The DD effect is therefore about half the magnitude we would expect based on the scaled RD estimate. This could reflect differences in the compliers across the two specifications – parents that take up coverage in response to the RD variation could value the dependent coverage more than those who respond to the DD variation, or their labor supply responses could be more sensitive to job lock.

The DD design has two comparative strengths over the RD design. First, it captures extensive margin variation in eligibility by comparing groups that are either eligible or inel-

32. All dependents in the 1986 cohort are eligible for coverage in 2011. In 2012, we assume that 23 percent of the cohort are on end of year plans and are eligible for the entire year. For the remaining 77 percent, we assume that the average birth month is June so they are eligible for half a year. Thus the additional eligibility is $1 + (0.77 \times 0.5 + 0.23) = 1.615$.

igible for an entire year. In contrast, the RD design captures the intensive margin variation of additional months of dependent coverage. Second, the DD design addresses some of the external validity challenges of the RD design – the DD sample is more broadly defined on a larger sample, whereas the RD sample focuses narrowly on dependents born around the December 1985 cutoff.

However, it is important to note that the DD estimates of the ACA dependent mandate should be interpreted with caution (Slusky 2017). Because these DD designs necessarily make comparisons across ages and birth cohorts, they may be influenced by age-specific labor market trends which vary across dependent birth cohorts and their parents. Thus, the identifying assumption that parental job retention would have remained similar across age 25-26 for these different cohorts may not necessarily hold unless a narrower age window (like the one employed by our RD) is used to define the treatment and control groups.

8 Conclusion

In this paper, we study the effect of increased coverage for adult dependents under the Affordable Care Act on parental job lock. While prior research provides evidence of job lock due to one's own coverage, less is known about the effects of dependent coverage, despite the fact that it is a widely provided benefit. We compare dependent insurance take-up and parental job retention outcomes in families with adult children who, depending on whether they were born in January vs. December, gained access to different numbers of months of insurance coverage on average.

Our dataset is a large panel of employer-sponsored health insurance claims and enrollment records. By linking together parents and their adult children, we can observe both dependent coverage and a proxy for parental job retention. This linkage is key to understanding the extent to which insurance coverage for one family member distorts job mobility for others.

Leveraging the discontinuous increase in eligibility at the January-December cutoff, we first show that adult dependents with access to more coverage months are more likely to take

up insurance and remain enrolled longer. Enrollment likelihood increases by 9.2 percent, and duration increases by 14.6 percent. We then find that parents of dependents eligible for more coverage are more likely to remain with their employer. In our main regression discontinuity analysis, we find that this additional eligibility leads to a 1.8 percent increase in the likelihood that the parent stays at their job in the next two years, and a 1.6 percent increase in the job duration. Note that we are making this comparison across two groups that are both eligible for *some* dependent coverage – the difference at the January-December cutoff is a comparison between cohorts with access to different eligibility *duration*.

We also find evidence of heterogeneity in parental responses. Parents nearing retirement age, those with dependents in worse health, and those whose employers provide more generous or flexible insurance offerings all face more job lock from the additional dependent coverage. These scenarios correspond to cases in which a job exit would otherwise be more probable or dependent insurance is more valuable.

Additional analyses suggest that job lock is primarily driven by the direct value of realized coverage take-up, rather than the indirect option value of eligibility. We also find no evidence that job lock is concentrated among parents in poor health or with low income, suggesting that offering dependent coverage as an employee benefit is not "job locking" parents with low returns or high costs of working.

It is informative to compare the magnitude of our estimated job retention effects to estimates in the literature on *own* job lock. The closest evidence is from Gruber and Madrian (1997), which finds that one additional year of continued access to employer-sponsored health insurance increases the transition rate to unemployment by 14 percent. After scaling our estimates to be more comparable to theirs, we find that access to an additional year of

dependent coverage decreases parents' job transition rate by about 12 percent.[33] This is slightly smaller than Gruber and Madrian (1997)'s estimate about own insurance, though it is within a reasonable range. It is plausible that individuals do not value dependent insurance as much as their own insurance, especially since the dependents in question are likely to have access to other sources of insurance.

The best evidence on job lock induced by *dependent* coverage is from Aouad (2023), who finds a 13 percent reduction in one-year job mobility for parents whose children face an acute health shock – appendicitis. Qualitatively speaking, our results are consistent with Aouad (2023) in that we both find that parents are more likely to stay at a job once the associated dependent coverage becomes more valuable. However, it is difficult to directly compare our estimates, since the source of job lock in our settings differ substantially. While we are looking at a policy-driven expansion in eligibility for dependent coverage, Aouad (2023) studies the effect of a change in perceived value of insurance after a serious dependent health shock.

The job lock effect that we estimate is also meaningful from a policy perspective given the sheer scale of the ACA dependent mandate. As discussed in Section 3, we estimate that in 2014, approximately 22 million parents had a child between 19 to 25 who would have been eligible for the ACA dependent mandate. Among eligible dependents, Akosa Antwi, Moriya, and Simon (2013) find evidence of substantial take-up of the policy – they estimate that 2.06 million young adults enrolled in parental insurance. Given the relatively large segment

33. We make two adjustments to our estimates to make them more comparable to Gruber and Madrian (1997). First, we focus just on male parents' responses, since their estimate is derived from working-age men. Second, since we estimate that only 23 percent of families in our sample are on end of year plans, we scale our estimate up to calculate the effect of offering the additional year of dependent coverage to our entire sample. The effect on job transition rates in terms of percent is calculated as:

$$\frac{TreatmentEffect \times (1/ShareElig) \times (ShareTranstoUnemploy)}{(TransitionRate) \times (ShareTranstoUnemploy)} \times 100\%, \tag{3}$$

where *TreatmentEffect* is the raw treatment effect on job retention for male parents (0.0130, Appendix Table A.5), *ShareElig* is the share of families on end of year plans (0.23, Section 4.2), *TransitionRate* is the 2-year job transition rate (i.e., transition to another job or not unemployment, equal to 1 - job retention rate) among male employees (1-0.53 = 0.47, Appendix Table A.5), and *ShareTranstoUnemploy* is the share of all job separations that would be to unemployment (i.e., as opposed to job-to-job mobility). Note that *ShareTranstoUnemploy* is in both the numerator and the denominator and thus cancels out.

of workers affected by the dependent mandate, even modest changes to their labor supply through job lock could translate into meaningful effects for the labor market. Furthermore, if working parents with children under 19 also value the option of accessing dependent insurance when their children are older in the future, then our estimates represent a lower bound on the total job lock effect, as they do not capture this broader effect.

Overall, our findings suggest that the entire package of employer-sponsored health insurance, covering both employees and their dependents, contribute to labor supply decisions. Policies that expand access to dependent health insurance coverage, whether through public insurance or private insurance mandates, may therefore have important within-family spillover effects on employment and job mobility.

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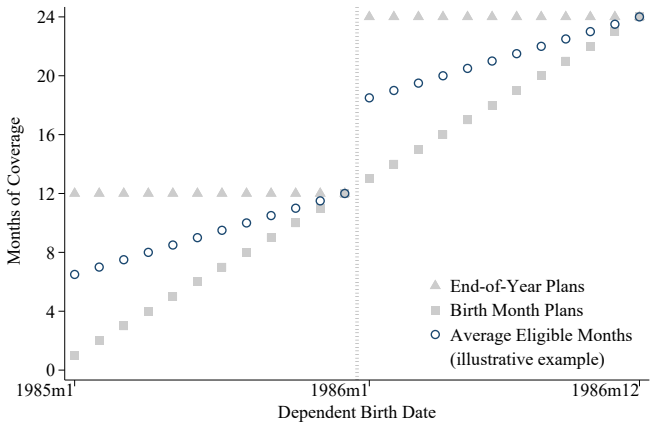
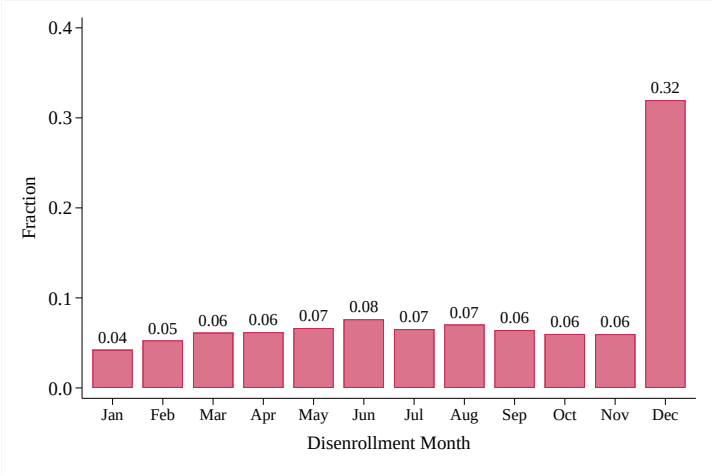
Figure 1: Dependent Coverage Expansion and Disenrollment Patterns

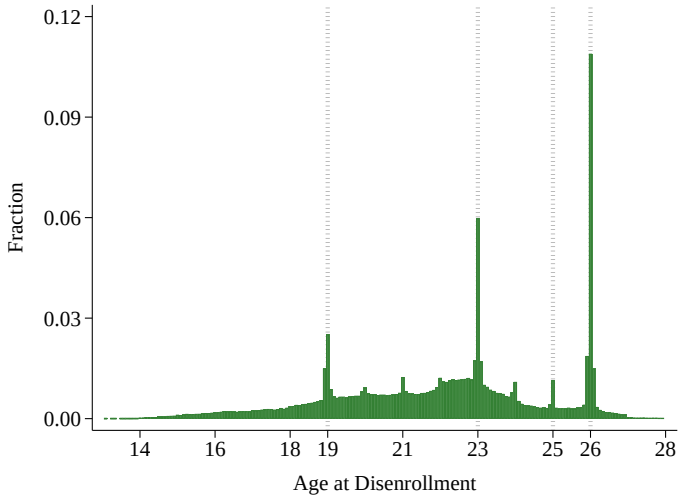
(a) Added Coverage by Plan Type



(b) Exit Timing in the Year Dependents Turn 26

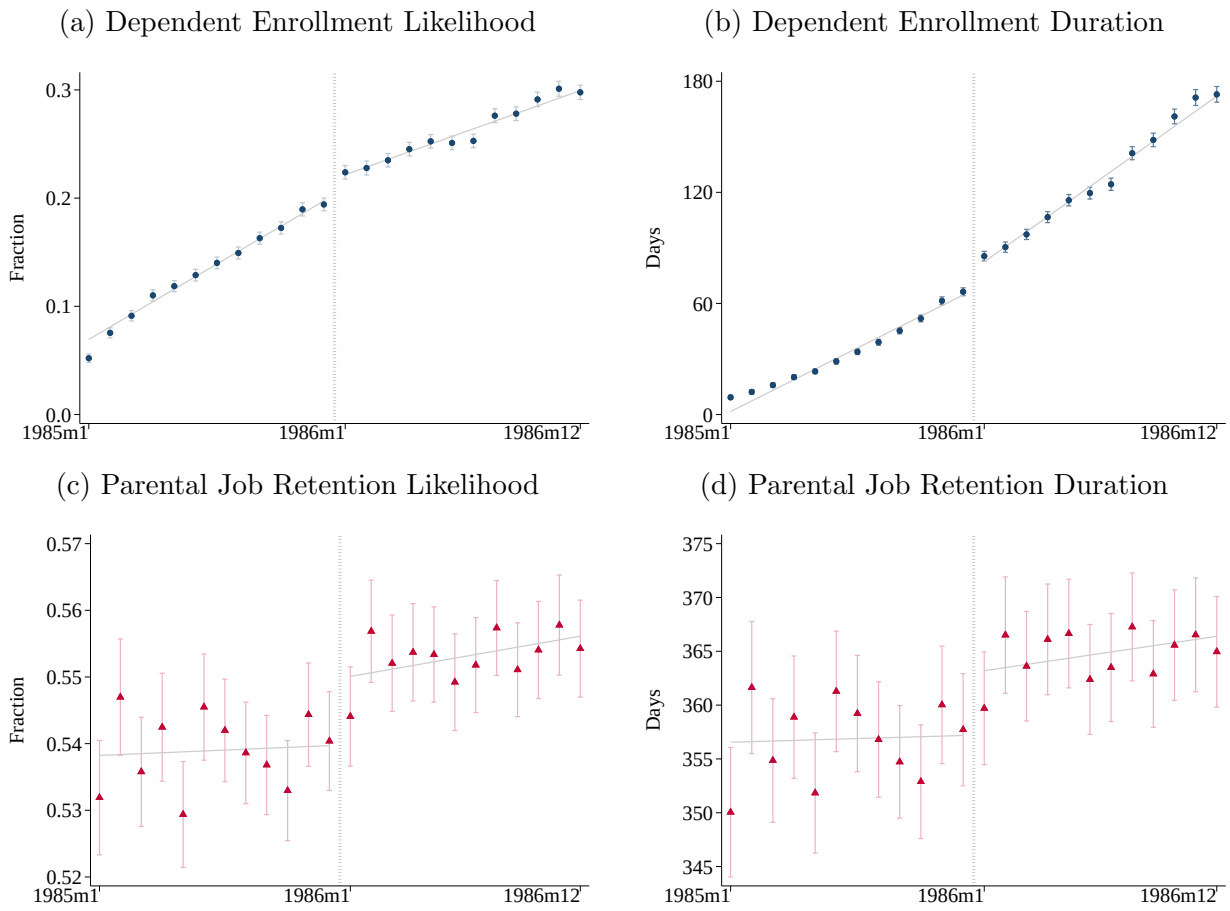


(c) Dependent Age in Months at Exit



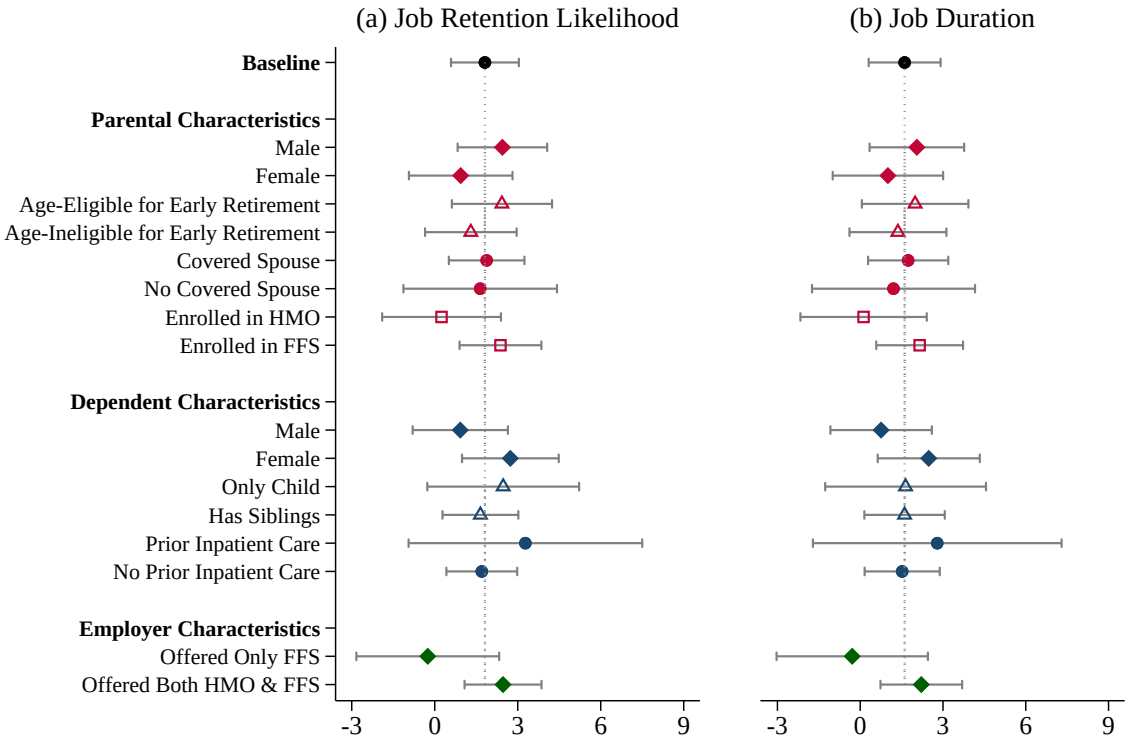
Notes: Subfigure 1a shows the total months of dependent coverage for birth cohorts 1985 and 1986 under the dependent mandate. "Birth Month Plans" provide coverage until the dependent's 26th birthday month, while "End of Year Plans" extend coverage through December of that year. "Average eligible months" assumes an equal split between the two plan types, with plan years starting on January 1 and no other coverage beyond age 23. The vertical line at December 1985 marks the cutoff used in the regression discontinuity design. Detailed sample construction steps are available in Appendix Section A.1. Subfigure 1b further restricts the sample to dependents who (1) are not born in December, (2) disenroll ("exit") from their parent's plan in the year they turn 26 during the post-ACA period, and (3) exit in a month other than their birth month and plots the share of disenrollments by calendar month. Subfigure 1c displays the distribution of dependents' ages (in months) when they exit coverage provided by their parents' pre-ACA employer. Exits may occur before or after the dependent mandate. For dependents who disenroll multiple times, only the final exit is considered.

Figure 2: Effects of Dependent Coverage on Enrollment and Parental Job Retention



Notes: This figure displays regression-adjusted means and 95 percent confidence intervals of our dependent enrollment and parental job retention measures by dependent birth date. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. The outcome variable in subfigure 2a is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). In subfigure 2b, the outcome is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, the outcome variable in subfigure 2c is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. In subfigure 2d, the outcome is total days of insurance enrollment with their pre-ACA employer during the post-ACA period.

Figure 3: Heterogeneity: Percent Change in Parental Job Retention



Notes: The figures above display RD estimates (β from Eq. 1), expressed as a percent of the control mean (i.e., for parents of children born December 1985). We report estimates for the overall sample ("Baseline") as well as subsamples by characteristics of the parents, dependents, and employers. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1.We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Job Duration" is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period. The notes to Table 1 provide definitions for the characteristics of parents, dependents, and employers.

Table 1: Summary Statistics

	(1)	(2)	(3)
	Full Sample	By Dependent Birth Cohort	
		1985	1986
(a) Dependent Enrollment, 2011-2012			
Likelihood	0.20	0.14	0.26
Duration (days)	85.40	35.91	127.70
(b) Parental Job Retention, 2011-2012			
Likelihood	0.55	0.54	0.56
Duration (days)	361.02	354.30	366.77
(c) Parental Characteristics			
Female	0.40	0.40	0.40
Parent's Birth Date	9/1957	4/1957	2/1958
Spousal Coverage	0.78	0.79	0.78
Enrolled in HMO	0.23	0.23	0.23
(d) Dependent Characteristics			
Female	0.50	0.50	0.50
Number of Dependents	2.34	2.33	2.35
Prior Inpatient Care	0.07	0.08	0.07
(e) Employer Characteristics			
Offer Both HMO and FFS	0.74	0.74	0.75
Observations	393,791	181,470	212,321

Notes: The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. Panels (a) and (b) provide summary statistics for our main outcome variables. "Dependent Enrollment" refers to coverage provided by the parent's pre-ACA employer. "Likelihood" indicates that the dependent was covered for at least one month during 2011-2012 ("post-ACA period"). "Duration" measures the total days of coverage in the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. "Parental Job Retention" refers to whether (and for how many days) the parent was enrolled on an insurance plan provided by their pre-ACA employer during the post-ACA period. Panels (c), (d) and (e) provide summary statistics for control variables used in our regression. "Parent's Birth Date" refers to the year and month the planholder parent was born. "Spousal Coverage" is an indicator for whether the planholder parent provided coverage to a spouse in the pre-ACA period. "Enrolled in HMO" is an indicator for whether the planholder parent was enrolled on an HMO plan in the pre-ACA period. "Number of Dependents" indicates the total dependents covered by the planholder parent in the pre-ACA period. "Prior Inpatient Care" indicates whether the dependent received inpatient care in the pre-ACA period. "Offered both HMO and FFS" is an indicator for whether the parent's pre-ACA employer offered both HMO and FFS plans.

Table 2: Tests for Covariate Balance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Parental Characteristics				Dependent Characteristics			Employer Characteristics
	Female	Birth Date	Spousal Coverage	Enrolled in HMO	Female	Number of Dependents	Prior Inpatient Care	Offer Both HMO&FFS
RD Estimate	-0.0035	0.0257	-0.0031	-0.0028	0.0009	0.0139*	-0.0019	0.0012
	(0.0034)	(0.3959)	(0.0028)	(0.0029)	(0.0034)	(0.0078)	(0.0018)	(0.0030)
Mean, left of cut-off	0.41	-28.66	0.79	0.23	0.50	2.36	0.07	0.74
Observations	393,791	393,791	393,791	393,791	393,791	393,791	393,791	393,791
Controls	No	No	No	No	No	No	No	No
Weighting scheme	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Bandwidth	±12 mo	±12 mo	±12 mo	±12 mo	±12 mo	±12 mo	±12 mo	±12 mo
Degree of polynomial	1	1	1	1	1	1	1	1

Notes: This table reports estimates of β from a version of Eq. 1 that excludes the vector of control variables (X_{ij}). Robust standard errors are reported in parentheses. Each coefficient and standard error are from a separate regression in which the dependent variable is indicated in the column heading. "Parent's Birth Date" is enumerated in months relative to January 1960, so the average value of -29 indicates August 1957. "Mean, control cohort" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. The notes to Table 1 provide definitions for the characteristics of parents, dependents, and employers. * p<0.10, ** p<0.05, *** p<0.01.

Table 3: Effects of Additional Dependent Coverage, RD Estimates

	(1)
(a) Dependent Enrollment, 2011-2012	
(1) Likelihood	0.0175***
	(0.0028)
Mean, left of cut-off	0.19
(2) Duration (days)	9.6811***
	(1.1164)
Mean, left of cut-off	66.48
(b) Parental Job Retention, 2011-2012	
(1) Likelihood	0.0098***
	(0.0034)
Mean, left of cut-off	0.54
(2) Duration (days)	5.7603**
	(2.3791)
Mean, left of cut-off	357.63
Observations	393,791
Controls	Yes
Weighting scheme	Triangular
Bandwidth	±12 mo
Degree of polynomial	1

Notes: The table above reports estimates of β from Eq. 1. Robust standard errors are reported in parentheses. Each coefficient and standard error pair are from a separate regression in which the outcome variable is indicated in the first column. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. "Job Duration" measures total days of insurance enrollment with their pre-ACA employer during the post-ACA period. * p<0.10, ** p<0.05, *** p<0.01.

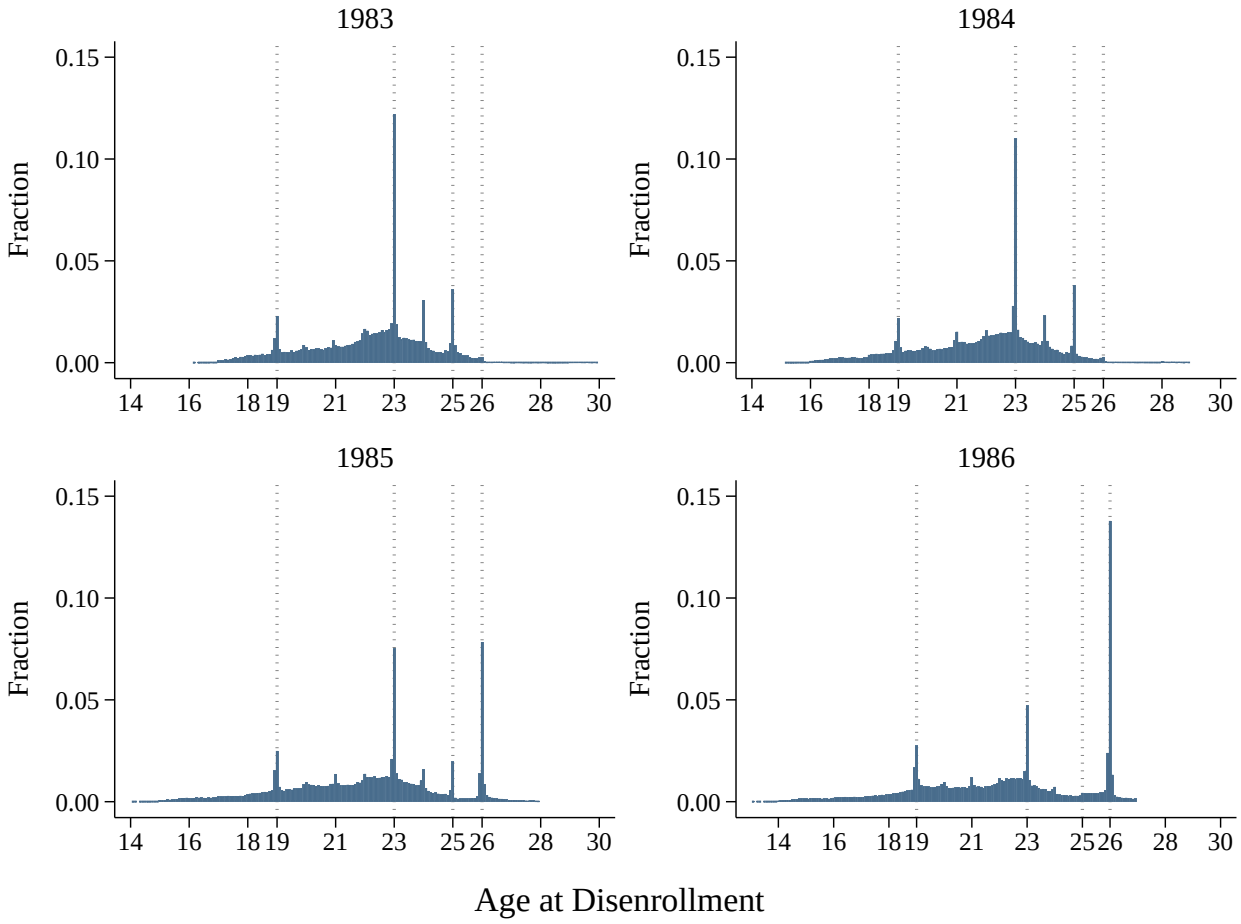
Table 4: Effects of Dependent Coverage Expansion, DiD Estimates

	(1)
(a) Dependent Enrollment	
(1) Likelihood	0.2301***
	(0.0062)
Mean, Dep Var	0.28
(2) Duration (days)	65.5709***
	(2.9597)
Mean, Dep Var	79.49
(b) Parental Job Retention	
(1) Likelihood	0.0265***
	(0.0017)
Mean, Dep Var	0.61
(2) Duration (days)	10.7073***
	(0.6267)
Mean, Dep Var	213.78
Observations	1,571,288
Controls	Yes

Notes: The table above presents estimates of γ from Eq. 2, which captures the effect of being born in 1986 (relative to 1983 or 1984) and being age 25 or 26 (compared to younger ages). The Dependent Mandate provided dependent coverage for the 1986 cohort at ages 25 and 26, whereas it did not apply to the 1983 and 1984 cohorts. Standard errors, reported in parentheses, are clustered at the level of birth date (in months). Each coefficient and standard error pair are from a separate regression in which the outcome variable is indicated in the first column. "Mean, Dep. Var." is the average value of the outcome variable for dependents born in 1986 at ages 23-24 (i.e., during 2009-2010 or the"pre-ACA period"). The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. To be included in the sample, dependents must be (1) born in 1983, 1984, or 1986, (2) first covered by their parents in the pre-ACA period, and (3) aged 23 to 26. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born in 1983, 1984 or 1986, although additional siblings born outside these years are permitted. The regression sample is a panel, with each observation corresponding to a unique dependent-planholder (i) and dependent age (a, ranging from 23-26). There are 392,822 dependent-planholder pairs in the data. A full set of sample construction steps for the DD sample is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator of whether a dependent is enrolled in a plan provided by their parent's pre-ACA employer at age a. "Enrollment Duration" represents the total days of enrollment at age a. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" indicates whether the parent is enrolled in an insurance plan provided by their pre-ACA employer in the year their dependent is age a. "Job Duration" measures the total days of insurance enrollment with their pre-ACA employer during the year in which their dependent is age a. * p<0.10, ** p<0.05, *** p<0.01.

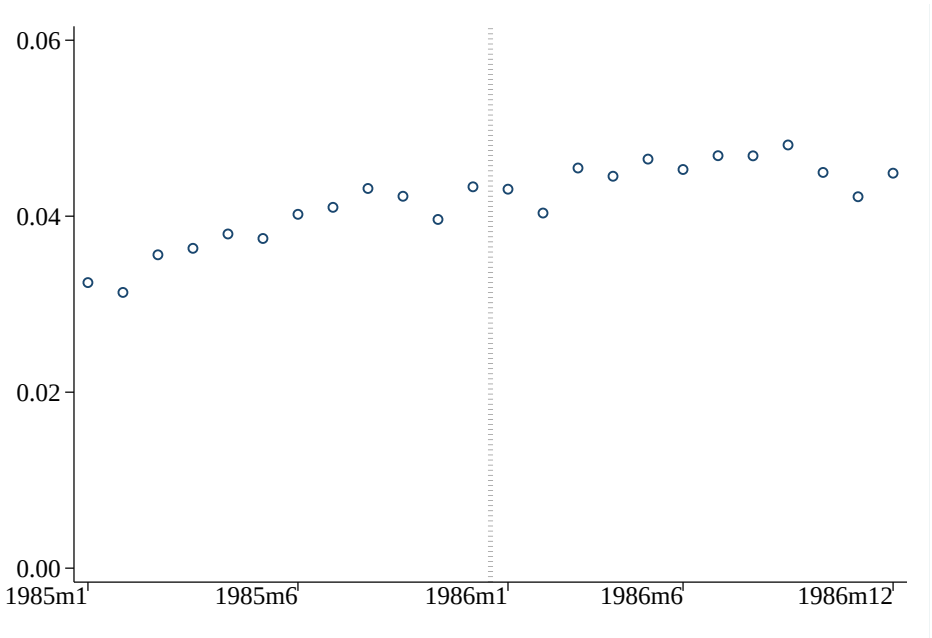
Appendix Figures and Tables

Figure A.1: Distribution of Age in Months at Dis-enrollment by Birth Cohort



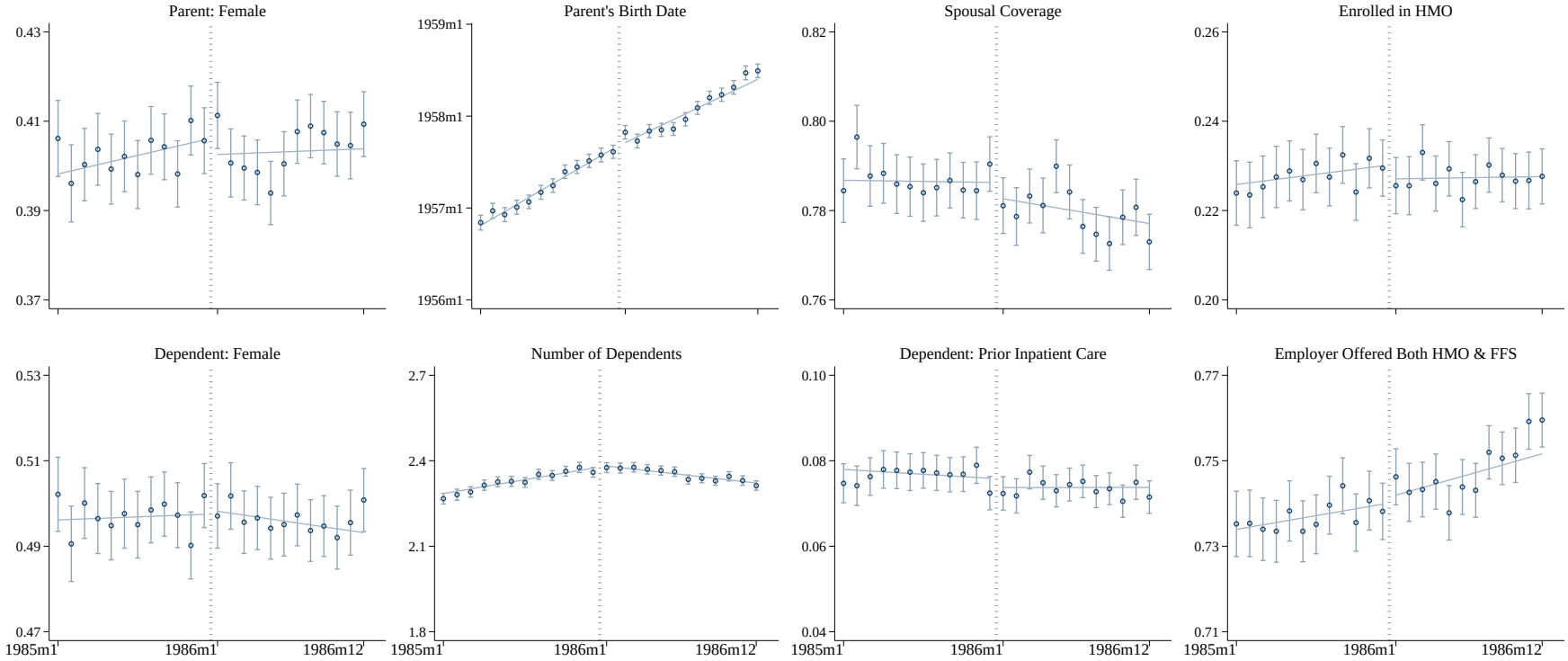
Notes: The figure displays the distribution of dependents' age in months when they disenroll from coverage provided by their parents' pre-ACA employer, separately by birth cohort. If dependents dis-enroll multiple times, we consider only the last disenrollment. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1983 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1983 to 1986, although additional siblings born outside these years are permitted. Otherwise, the sample is constructed following the same steps used to create our main RD sample with one exception. Because we include the 1983 and 1984 cohorts in this analysis, we limit data contributors to those that participate continuously from 2006-2012, rather than from 2008-2012. A full set of sample construction steps for the RD sample is provided in Appendix Section A.1.

Figure A.2: McCrary Density Test



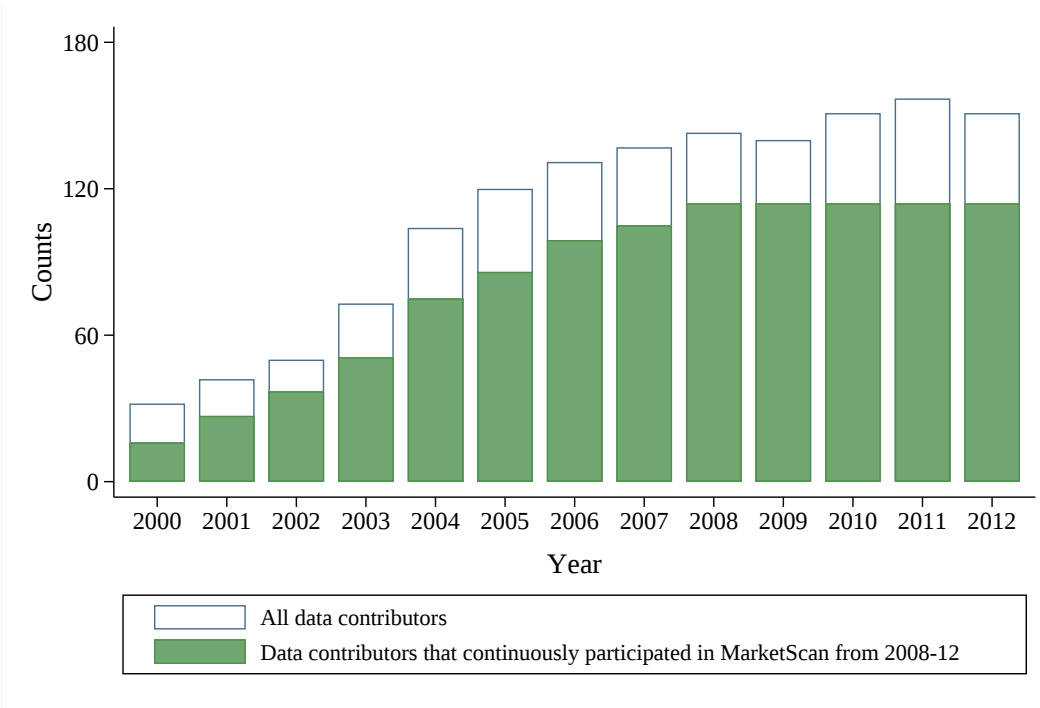
Notes: This figure displays the density of dependents in our RD sample by their birth month. We conduct a McCrary density test in Stata by using DCDensity.ado, written by Justin McCrary and Brian Kovak. The discontinuity estimates from the McCrary density test are -0.01803 (standard error=0.01191, p-value=0.16848). The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1983 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps for the RD sample is provided in Appendix Section A.1.

Figure A.3: Characteristics by Birth Month



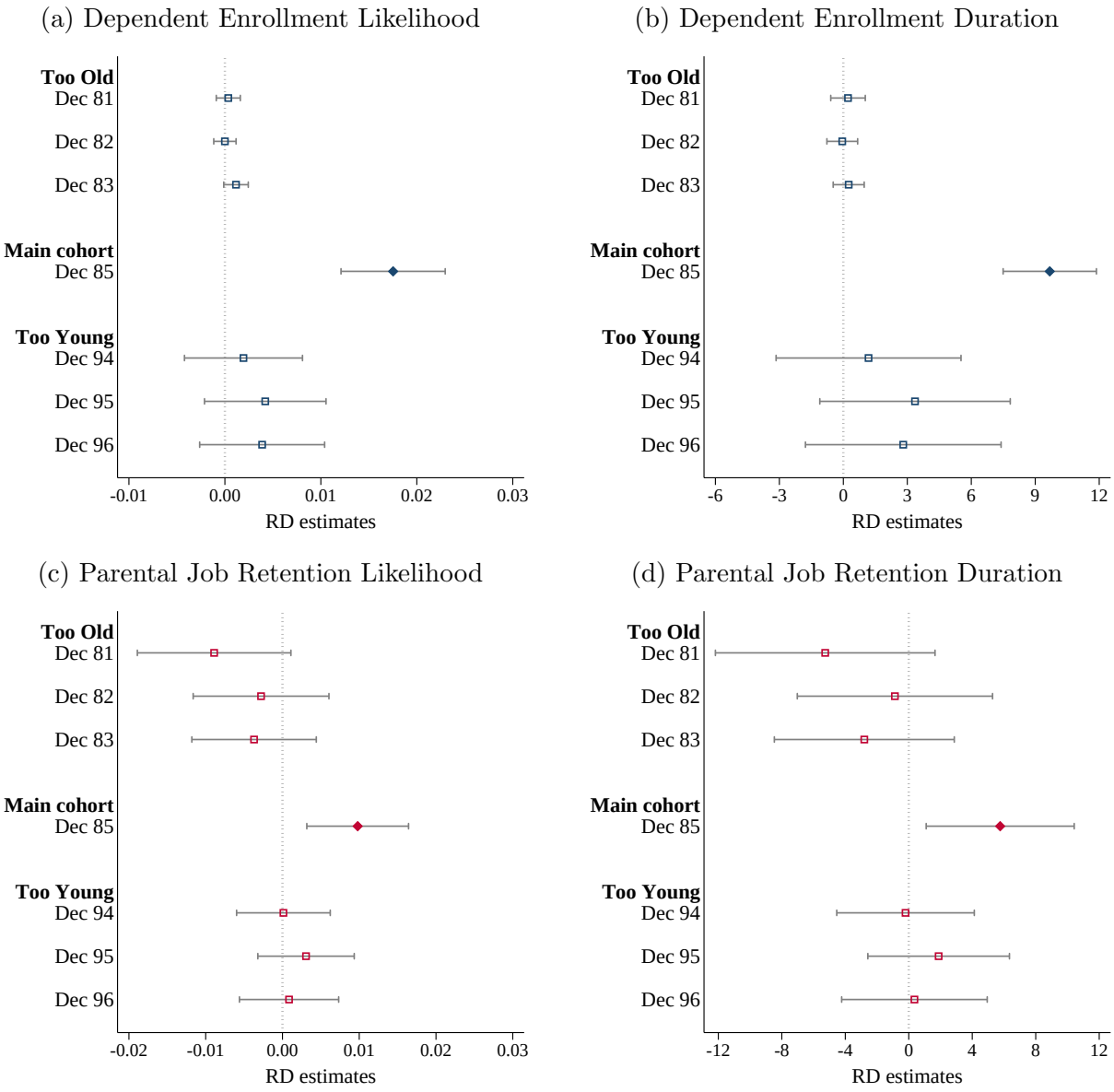
Notes: This figure displays regression-adjusted means and 95% confidence intervals of our control variables by dependent birth cohort. Table 2 reports corresponding regression discontinuity estimates. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be born from January 1983 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps for the RD sample is provided in Appendix Section A.1. The notes to Table 1 provide definitions for the characteristics of parents, dependents, and employers.

Figure A.4: Employers that Contribute Data, Truven MarketScan Panel



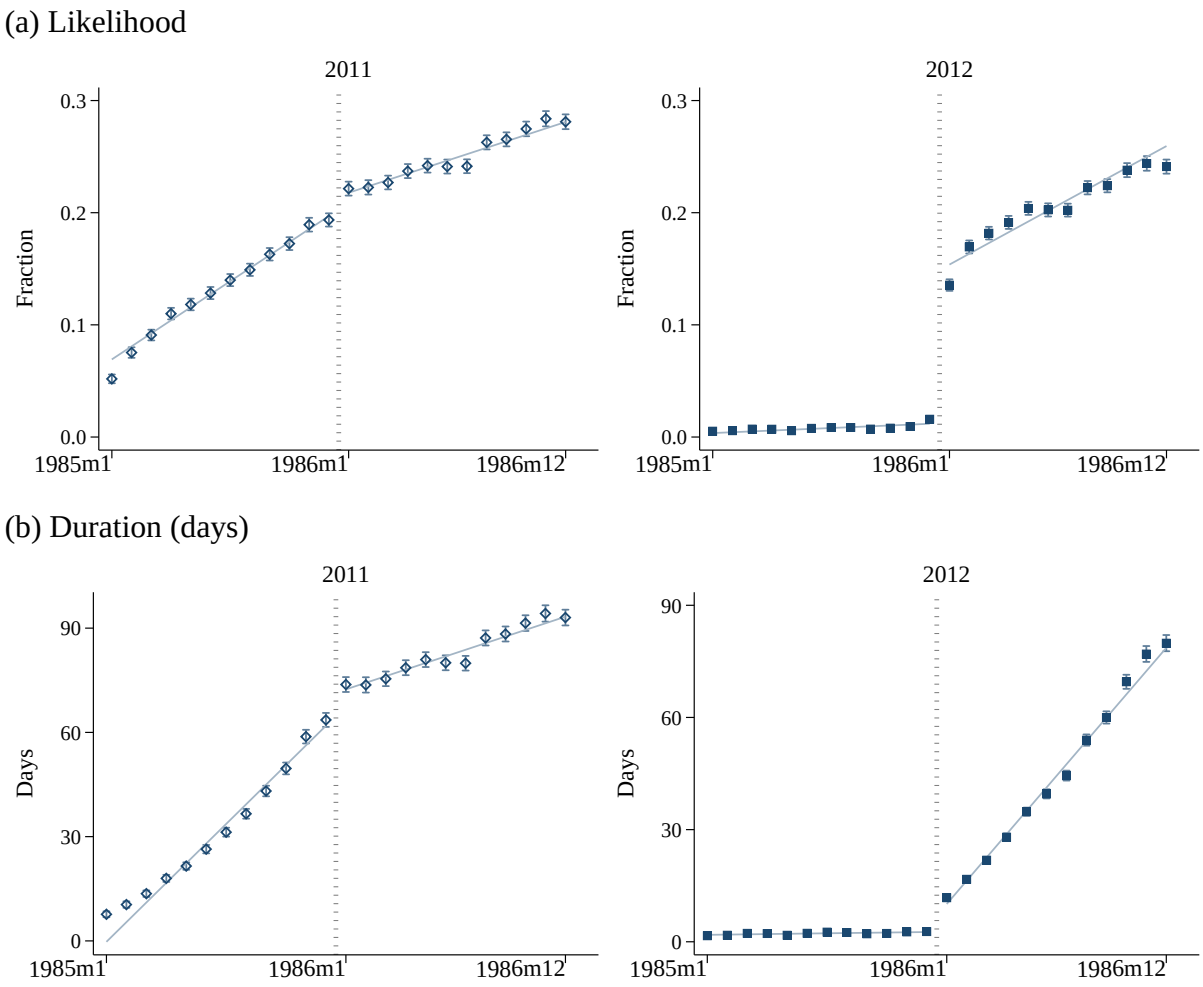
Notes: Ths figure plots the number of employers who contribute in each year of the Truven MarketScan CCE Database panel from 2000-2012. Of these employers, 114 continuously provided data from 2008-2012 and are thus included in our main sample.

Figure A.5: Placebo Test



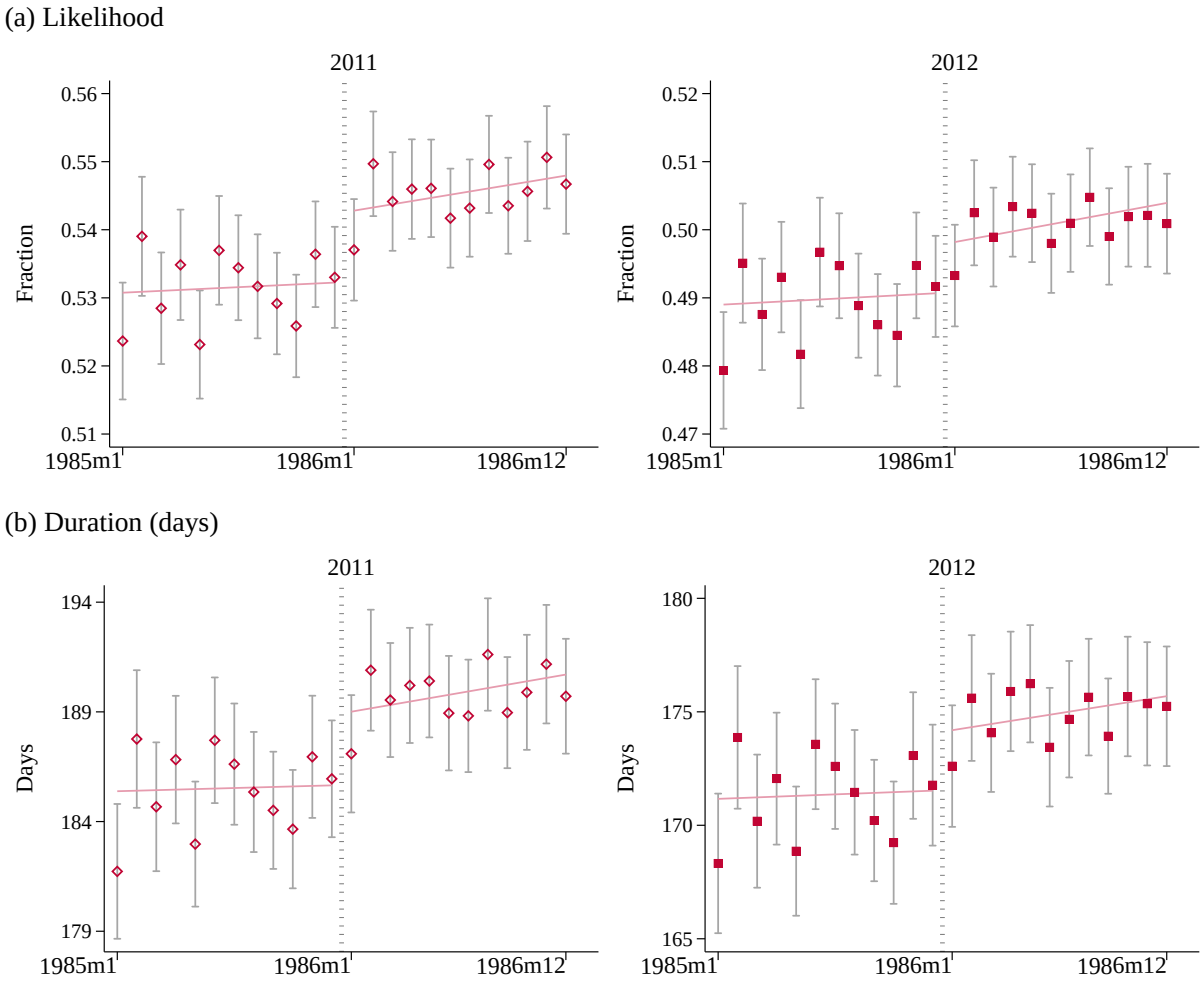
Notes: This figure displays the RD estimates and the corresponding 95% confidence intervals by the RD cutoffs. The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. The placebo cutoffs to define "too old" cohorts include December 1981, December 1982, and December 1983, since dependents born 12 months before and after these cutoffs are above 26 and thus ineligible for the dependent mandate coverage under the ACA during 2011-2012. The placebo cutoffs to define "too young" cohorts include December 1994, December 1995, and December 1996, since dependents born 12 months before and after these cutoffs are under 23 and thus younger than the age requirement for the dependent mandate coverage under the ACA during 2011-2012. The outcome variable in subfigure A.5a is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011-2012 ("post-ACA period"). In subfigure A.5b, the outcome is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, the outcome variable in subfigure A.5c is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. In subfigure A.5d, the outcome is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period.

Figure A.6: Effects of Dependent Coverage on Dependent Enrollment, by Enrollment Year



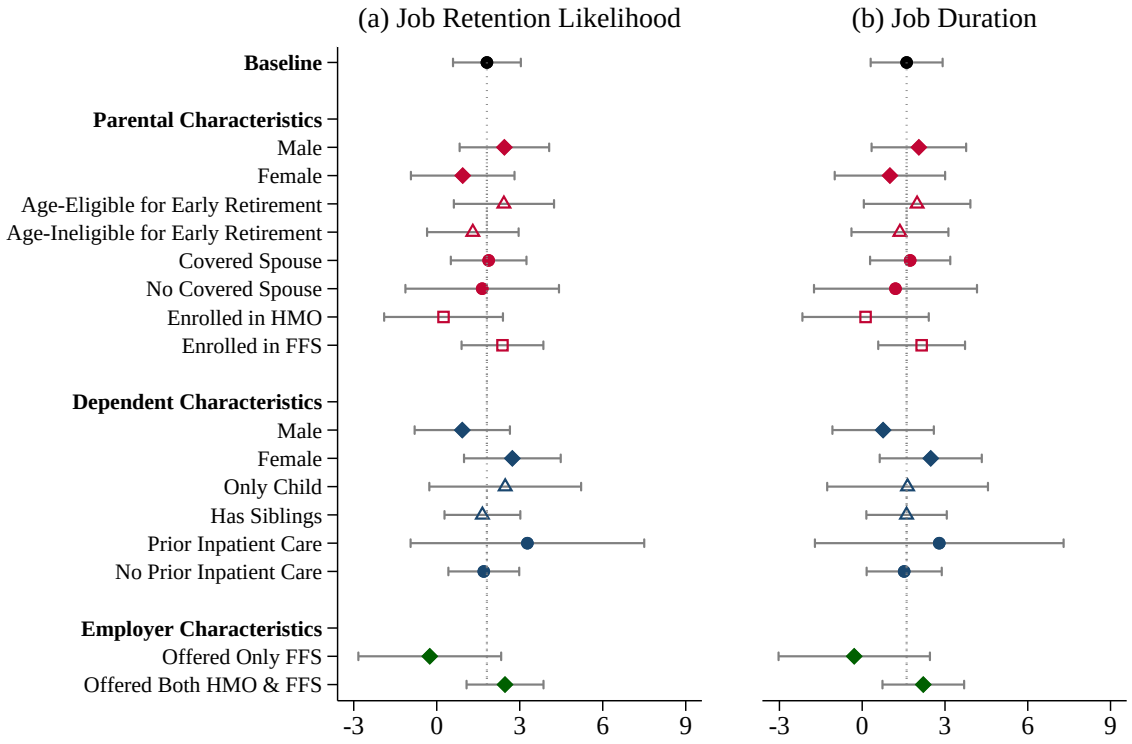
Notes: This figure displays regression-adjusted means and 95% confidence intervals of the dependent enrollment outcomes by dependent birth date, separately by enrollment year. The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. The outcome variable in Panel (a) is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). In Panel (b), the outcome is total days of enrollment during the post-ACA period.

Figure A.7: Effects of Dependent Coverage on Parental Job Retention, by Enrollment Year



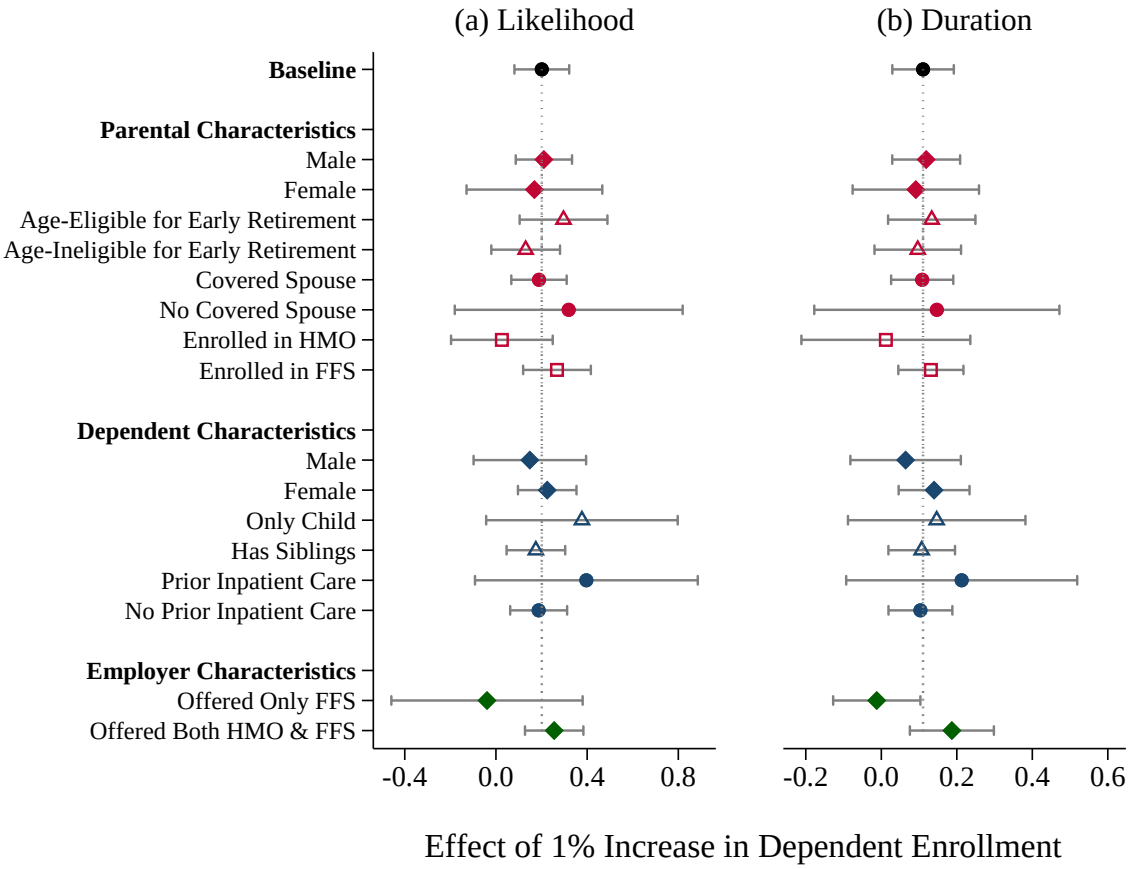
Notes: This figure displays regression-adjusted means and 95% confidence intervals of the parental job retention outcomes by dependent birth date, separately by enrollment year. The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, the outcome variable in Panel (a) is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). In Panel (b), the outcome is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period.

Figure A.8: Percent Change from Baseline: Dependent Enrollment



Notes: The figures above display RD estimates (β from a version of Eq. 1), expressed as a percent of the control mean (i.e., the mean for cohort December 1985), along with corresponding 95% confidence intervals. We report estimates for the overall sample ("Baseline") as well as subsamples by characteristics of the parents, dependents, and employers. The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. The outcome variable in Panel (a) is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). In Panel (b), the outcome is total days of enrollment during the post-ACA period. All characteristics of parents, dependents, and employers are measured prior to 2010, in the pre-ACA period. The notes to Table 1 provide definitions for these characteristics.

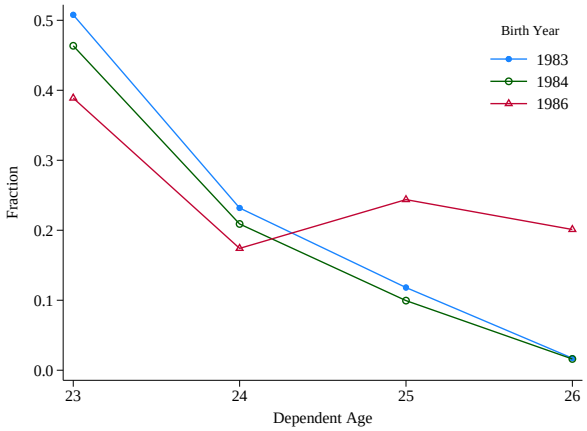
Figure A.9: Ratio of Parental Job Retention Response to Dependent Enrollment Response



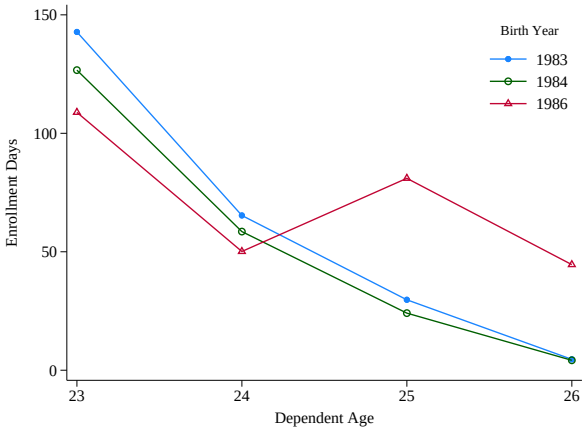
Notes: The figures above display the ratio between our estimates of the change in parental job retention and the change in dependent enrollment take-up, along with corresponding 95% confidence intervals. In particular, the left panel (a) depicts the percent change in parental job retention likelihood associated with a 1 percent increase in dependent enrollment likelihood. The right panel (b) depicts the percent change in parental job retention duration associated with a 1 percent increase in dependent enrollment duration. We report estimates for the overall sample ("Baseline") as well as subsamples by characteristics of the parents, dependents, and employers. The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. We proxy for parental job retention likelihood with an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. All characteristics of parents, dependents, and employers are measured in the pre-ACA period. The notes to Table 1 provide definitions for these characteristics.

Figure A.10: Dependent Enrollment and Parental Job Retention by Birth Cohort

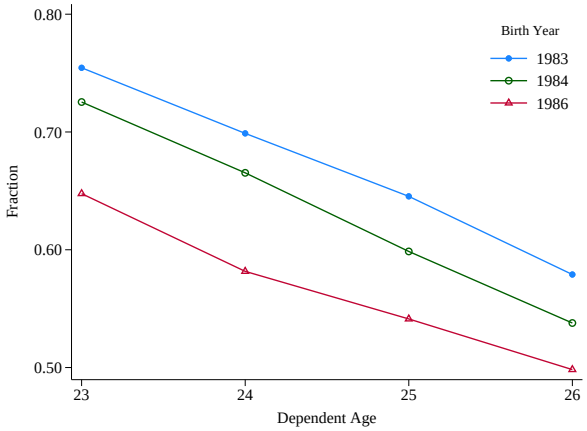
(a) Dependent Enrollment Likelihood



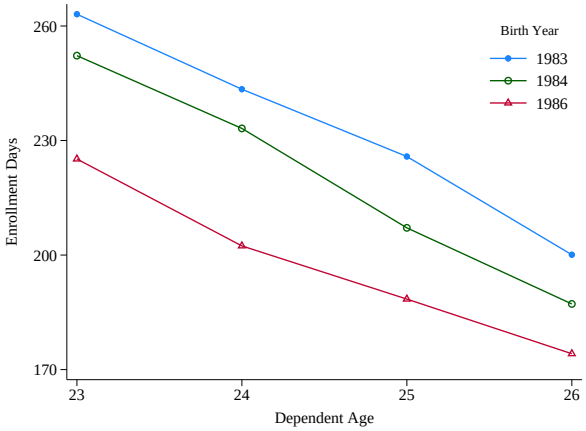
(b) Dependent Enrollment Duration



(c) Parental Job Retention Likelihood



(d) Parental Job Retention Duration



Notes: The figure above graphs dependent enrollment and our proxies for parental job retention by dependent age and birth cohort. The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be born in 1983, 1984, or 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps for the DD sample is provided in Appendix Section A.1. We proxy for parental job retention likelihood with an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer.

Table A.1: PSID: Share of Employees Who Remain Employed but Drop Insurance within 2 Years

	Drops Insurance		Total
	Yes	No	
N	84,420	8,001,158	8,008,578
Share	0.01	0.99	1.00

Notes: The source of data is the Panel Study of Income Dynamics, Waves 2011-2013. The sample is limited to heads of household born between 1948 and 1970, who are planholders of an employer-sponsored plan in 2011 and who remain at the same employer by 2013. "Drops Insurance by 2013" is an indicator for whether the individual is no longer covered by their employer by 2013. Sample counts reflect the use of 2013 PSID cross-sectional individual-level weights. See Appendix Section A.3 for more information on sample and outcome construction.

Table A.2: Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)
(a) Dependent Enrollment, 2011-2012						
(1) Likelihood	0.0175***	0.0171***	0.0175***	0.0208***	0.0197***	0.0158***
	(0.0028)	(0.0028)	(0.0022)	(0.0034)	(0.0030)	(0.0032)
(b) Duration (days)	9.6811***	9.4946***	9.6811***	10.7675***	10.1435***	6.9478***
	(1.1164)	(1.1212)	(0.9597)	(1.3556)	(1.2144)	(1.2524)
(b) Parental Job Retention, 2011-2012						
(1) Likelihood	0.0098***	0.0092***	0.0098***	0.0085**	0.0094**	0.0093**
	(0.0034)	(0.0034)	(0.0028)	(0.0041)	(0.0037)	(0.0041)
(b) Duration (days)	5.7603**	5.3384**	5.7603***	4.7457	5.4837**	6.0359**
	(2.3791)	(2.4009)	(1.9401)	(2.8991)	(2.5947)	(2.8882)
Observations	393,791	393,791	393,791	269,378	334,369	266,855
Sample	age $<$ 23	age $<$ 23	age $<$ 23	age $<$ 23	age $<$ 23	age $<$ 19
Controls	Yes	No	Yes	Yes	Yes	Yes
Weighting Scheme	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Control Function	Linear	Linear	Linear	Linear	Linear	Linear
Bandwidth	±12 mo	±12 mo	±12 mo	±8	±10	±12 mo
Std Error	Robust	Robust	Cluster(birth month)	Robust	Robust	Robust

Notes: This table examines the robustness of our estimates to modifications of Eq. 1 and our baseline analysis sample. Column (1) reports our baseline estimates from Table 3, whereas columns (2)-(6) report the following modifications: excluding the control variables; clustering the standard errors at the level of birth month (the running variable); employing different bandwidths around the cutoff months; and restricting the main sample to dependents who were on their parent's plan in the pre-ACA period while under the age of 19 instead of 23. The data source is the Truven Health MarketScan CCE Database. The baseline sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. "Job Duration" measures total days of insurance enrollment with their pre-ACA employer during the post-ACA period. * p<0.10, ** p<0.05, *** p<0.01.

Table A.3: Additional RD Specification Robustness Check

	(1)	(2)	(3)	(4)
	Baseline		Calonico, Cattaneo, and Titiunik (2014) estimates	
(1) Dependent Enrollment Likelihood				
Conventional	0.0175***	0.0138***	0.0150***	0.0090***
	(0.0028)	(0.0026)	(0.0031)	(0.0025)
Bias-corrected			0.0169***	0.0213***
			(0.0031)	(0.0025)
Robust			0.0169***	0.0213***
			(0.0047)	(0.0039)
(2) Dependent Enrollment Duration				
Conventional	9.6811***	9.7020***	11.4530***	12.8761***
	(1.1164)	(1.0874)	(1.1994)	(1.0180)
Bias-corrected			10.0081***	9.2091***
			(1.1994)	(1.0180)
Robust			10.0081***	9.2091***
			(1.7550)	(1.4900)
(3) Parental Job Retention Likelihood				
Conventional	0.0098***	0.0101***	0.0093**	0.0104***
	(0.0034)	(0.0031)	(0.0038)	(0.0032)
Bias-corrected			0.0053	0.0099***
			(0.0038)	(0.0032)
Robust			0.0053	0.0099**
			(0.0058)	(0.0049)
(4) Parental Job Duration				
Conventional	5.7603**	5.8330***	5.3881**	5.8706***
	(2.3791)	(2.2114)	(2.7035)	(2.2248)
Bias-corrected			2.4838	6.4783***
			(2.7035)	(2.2248)
Robust			2.4838	6.4783*
			(4.0810)	(3.4500)
Observations	393,791	393,791	393,791	393,791
Controls	Yes	Yes	Yes	Yes
Weighting Scheme	Triangular	Uniform	Triangular	Uniform
Control Function	Linear	Linear	Local Linear	Local Linear
Bandwidth	±12 mo	±12 mo	±12 mo	±12 mo

Notes: This table examines the robustness of our RD estimates to alternative specifications of Eq. 1. Column (1) replicates the baseline estimates from Table 3; Column (2) replaces triangular weights with uniform weights. Columns (3) and (4) implement the robust bias-corrected RD procedure of Calonico, Cattaneo, and Titiunik (2014) and Calonico et al. (2019), using a local linear control function and a fixed 24-month bandwidth. Column (3) applies triangular weights, while Column (4) uses uniform weights. Each column reports three estimates: the conventional (unadjusted) estimate, the bias-corrected estimate, and the bias-corrected estimate with robust standard errors. Each observation is a unique dependent-parent pair. The data source is the Truven Health MarketScan CCE Database. The baseline sample covers 2000-2012 and is restricted to data provided by employers. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. "Job Duration" measures total days of insurance enrollment with their pre-ACA employer during the post-ACA period. * p<0.10, ** p<0.05, *** p<0.01.

Table A.4: RD Estimates of Effects of Dependent Coverage, by Year

	(1)	(2)
	Enrollment Year	
	2011	2012
(a) Dependent Enrollment, 2011-2012		
(1) Likelihood	0.0152***	0.1324***
	(0.0028)	(0.0019)
Mean, control cohort	0.194	0.016
(2) Duration (days)	8.3972***	1.2246***
	(0.9268)	(0.3358)
Mean, control cohort	63.730	2.750
(b) Parental Job Retention, 2011-2012		
(1) Likelihood	0.0098***	0.0068**
	(0.0034)	(0.0034)
Mean, control cohort	0.533	0.492
(2) Duration (days)	3.1153**	2.4515**
	(1.2195)	(1.2220)
Mean, control cohort	185.928	171.702
Observations	393,791	393,791
Controls	Yes	Yes
Weighting scheme	Triangular	Triangular
Bandwidth	±12 mo	±12 mo
Degree of polynomial	1	1

Notes: The table above reports estimates of β from Eq. 1, separately for outcomes in 2011 (column 1) and 2012 (column 2). The data source is the Truven Health MarketScan CCE Database. The sample covers 2000-2012 and is restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer in 2011 (column 1) or 2012 (column 2). "Enrollment Duration" is total days of enrollment in 2011 (column 1) or 2012 (column 2). We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer in 2011 (column 1) or 2012 (column 2). "Job Duration" measures total days of insurance enrollment with their pre-ACA employer in 2011 (column 1) or 2012 (column 2). Robust standard errors are reported in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table A.5: Heterogeneity by Parental Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	Gender		Early Retirement		Spousal Coverage		Enrolled in	
		Male	Female	Age-Eligible	Age-Ineligible	Yes	No	HMO	FFS
(a) Dependent Enrollment, 2011-2012									
(1) Likelihood	0.0175***	0.0214***	0.0117***	0.0162***	0.0190***	0.0198***	0.0091	0.0228***	0.0160***
	(0.0028)	(0.0035)	(0.0045)	(0.0038)	(0.0040)	(0.0032)	(0.0056)	(0.0062)	(0.0031)
Mean, left of cut-off	0.19	0.18	0.21	0.20	0.19	0.20	0.18	0.24	0.18
(2) Duration (days)	9.6811***	10.8855***	7.8602***	10.0577***	9.2287***	10.9316***	4.9358**	8.6487***	9.9660***
	(1.1164)	(1.4225)	(1.7952)	(1.5551)	(1.6045)	(1.2859)	(2.2220)	(2.4941)	(1.2442)
Mean, left of cut-off	66.48	63.02	71.56	67.56	65.21	68.15	60.20	85.64	60.77
(b) Parental Job Retention, 2011-2012									
(1) Likelihood	0.0098***	0.0130***	0.0052	0.0122***	0.0076	0.0103***	0.0085	0.0015	0.0122***
	(0.0034)	(0.0044)	(0.0053)	(0.0047)	(0.0049)	(0.0038)	(0.0073)	(0.0069)	(0.0039)
Mean, left of cut-off	0.54	0.53	0.56	0.50	0.58	0.55	0.52	0.63	0.51
(2) Duration (days)	5.7603**	7.2349**	3.6696	6.5533**	5.3409	6.3029**	4.0824	0.5155	7.2840***
	(2.3791)	(3.0801)	(3.7307)	(3.2464)	(3.5025)	(2.6891)	(5.0995)	(4.9401)	(2.7140)
Mean, left of cut-off	357.63	352.31	365.42	329.47	390.79	362.72	338.45	422.86	338.20
Observations	393,791	234,968	158,823	211,907	181,884	308,284	85,507	89,616	304,175
Weights					Triangular				
Controls					Yes				
Bandwidth					± 12 mo				
Degree of polynomial					1				

Notes: This table reports estimates of β from Eq. 1, separately for subsamples by parental characteristics. Robust standard errors are reported in parentheses. Each coefficient and standard error pair are from a separate regression. The outcome variable, Y_{ij} is reported in the first column. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Job Duration" is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period. The notes to Table 1 provide definitions for the characteristics of parents, dependents, and employers. * p<0.10, ** p<0.05, *** p<0.01.

Table A.6: Heterogeneity by Dependent Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	Gender		Number of Dependents		Prior Inpatient Care	
		Male	Female	Only Child	Has Siblings	Yes	No
(a) Dependent Enrollment, 2011-2012							
(1) Likelihood	0.0175***	0.0126***	0.0225***	0.0112*	0.0189***	0.0189*	0.0174***
	(0.0028)	(0.0040)	(0.0039)	(0.0057)	(0.0032)	(0.0108)	(0.0029)
Mean, left of cut-off	0.19	0.20	0.19	0.17	0.20	0.23	0.19
(2) Duration (days)	9.6811***	8.3204***	11.0817***	6.4587***	10.3574***	10.6651**	9.5896***
	(1.1164)	(1.6042)	(1.5521)	(2.3005)	(1.2739)	(4.5653)	(1.1488)
Mean, left of cut-off	66.48	70.63	62.36	57.65	68.93	81.34	65.32
(b) Parental Job Retention, 2011-2012							
(1) Likelihood	0.0098***	0.0050	0.0147***	0.0130*	0.0090**	0.0185	0.0092***
	(0.0034)	(0.0048)	(0.0048)	(0.0073)	(0.0038)	(0.0122)	(0.0035)
Mean, left of cut-off	0.54	0.54	0.54	0.52	0.54	0.56	0.54
(2) Duration (days)	5.7603**	2.7139	8.8768***	5.6716	5.8044**	10.4637	5.4199**
	(2.3791)	(3.3559)	(3.3735)	(5.1293)	(2.6848)	(8.6158)	(2.4748)
Mean, left of cut-off	357.63	357.87	357.39	345.09	361.11	374.73	356.29
Observations	393,791	198,240	195,551	84,920	308,871	29,499	364,292
Weights				Triangular			
Controls				Yes			
Bandwidth				± 12 mo			
Degree of polynomial				1			

Notes: This table reports estimates of β from Eq. 1, separately for subsamples by dependent characteristics. Robust standard errors are reported in parentheses. Each coefficient and standard error pair are from a separate regression. The outcome variable, Y_{ij} is reported in the first column. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Job Duration" is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period. The notes to Table 1 provide definitions for the characteristics of parents, dependents, and employers. * p<0.10, ** p<0.05, *** p<0.01.

Table A.7: Heterogeneity by Employer Characteristics

	(1)	(2)	(3)
	All	Offered	
		FFS Only	Both HMO & FFS
(a) Dependent Enrollment, 2011-2012			
(1) Likelihood	0.0175***	0.0109**	0.0197***
	(0.0028)	(0.0052)	(0.0033)
Mean, left of cut-off	0.19	0.17	0.20
(2) Duration (days)	9.6811***	13.6299***	8.2904***
	(1.1164)	(2.2198)	(1.2910)
Mean, left of cut-off	66.48	56.54	70.01
(b) Parental Job Retention, 2011-2012			
(1) Likelihood	0.0098***	-0.0013	0.0136***
	(0.0034)	(0.0067)	(0.0039)
Mean, left of cut-off	0.54	0.51	0.55
(2) Duration (days)	5.7603**	-0.9670	8.1041***
	(2.3791)	(4.6702)	(2.7629)
Mean, left of cut-off	357.63	333.75	366.10
Observations	393,791	101,246	292,545
Weights		Triangular	
Controls		Yes	
Bandwidth		± 12 mo	
Degree of polynomial		1	

Notes: This table reports estimates of β from Eq. 1, separately for subsamples of employers based on their plan offerings in the pre-ACA period: FFS only or FFS and HMO. Robust standard errors are reported in parentheses. Each coefficient and standard error pair are from a separate regression. The outcome variable, Y_{ij} is reported in the first column. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Job Duration" is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period. * p<0.10, ** p<0.05, *** p<0.01.

Table A.8: Regression Results for Indirect Value of Insurance Test

	(1) RD Estimate
Parental Job Retention, 2011-2012	
(1) Likelihood	-0.0002
	(0.0038)
Mean, left of cut-off	0.43
(2) Duration (days)	-0.8569
	(2.6136)
Mean, left of cut-off	281.92
Observations	313,707
Controls	Yes
Weighting scheme	Triangular
Bandwidth	±12 mo
Degree of polynomial	1

Notes: This table reports estimates of β from Eq. 1 for the subsample of households whose dependents were not enrolled in 2011 or 2012. The outcome variable, Y_{ij} is reported in the first column. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Job Duration" is the total days of insurance enrollment with their pre-ACA employer during the post-ACA period. See the notes to Table 1 for more information on the data source, sample construction, and variable definitions. Robust standard errors are reported in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table A.9: Heterogeneity by Average Parental Out-of-Pocket Costs Pre-ACA

	(1)	(2)
	Annual Parental Out-of-Pocket Costs, Pre-ACA Years	
	Below fourth quartile	Above fourth quartile
(a) Dependent Enrollment, 2011-2012		
(1) Likelihood	0.0220***	0.0033
	(0.0033)	(0.0051)
Mean, left of cut-off	0.21	0.16
(2) Duration (days)	11.2657***	4.6339**
	(1.3216)	(2.0361)
Mean, left of cut-off	70.88	53.63
(b) Parental Job Retention, 2011-2012		
(1) Likelihood	0.0116***	0.0021
	(0.0039)	(0.0068)
Mean, left of cut-off	0.57	0.46
(2) Duration (days)	7.0825***	0.1366
	(2.7418)	(4.6773)
Mean, left of cut-off	379.07	295.04
Observations	295,344	98,447
Controls	Yes	Yes
Weighting scheme	Triangular	Triangular
Bandwidth	±12 mo	±12 mo
Degree of polynomial	1	1

Notes: This table reports estimates of β from Eq. 1 in which the RD cutoff is December 1985, split by pre-ACA annual out-of-pocket spending on outpatient and inpatient care of parents (planholders). Each coefficient and standard error pair are from a separate regression. Robust standard errors are reported in parentheses. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. "Job Duration" measures total days of insurance enrollment with their pre-ACA employer during the post-ACA period. * p<0.10, ** p<0.05, *** p<0.01.

Table A.10: Heterogeneity by Predicted Parental Income

	(1)	(2)	(3)
	Parental Predicted Income		
	Bottom Tercile	Middle Tercile	Upper Tercile
(a) Dependent Enrollment, 2011-2012			
(1) Likelihood	0.0268***	0.0199***	0.0124**
	(0.0048)	(0.0060)	(0.0056)
Mean, left of cut-off	0.17	0.20	0.21
(2) Duration (days)	11.8036***	8.7727***	14.2710***
	(1.8968)	(2.3756)	(2.3599)
Mean, left of cut-off	56.15	67.69	72.38
(b) Parental Job Retention, 2011-2012			
(1) Likelihood	0.0168***	0.0128*	0.0160**
	(0.0061)	(0.0073)	(0.0067)
Mean, left of cut-off	0.52	0.53	0.50
(2) Duration (days)	8.1505*	9.3354*	12.3158***
	(4.2860)	(5.1179)	(4.6852)
Mean, left of cut-off	347.17	347.35	327.51
Mean of predicted income	\$44.8k	\$51.0k	\$66.8k
Observations	119,441	85,149	100,538
Controls	Yes	Yes	Yes
Weighting scheme	Triangular	Triangular	Triangular
Bandwidth	±12 mo	±12 mo	±12 mo
Degree of polynomial	1	1	1

Notes: This table reports estimates of β from Eq. 1 in which the RD cutoff is December 1985, split by tercile of predicted parental income. Appendix Section A.4 describes the construction of the predicted income measure. Each coefficient and standard error pair are from a separate regression. Robust standard errors are reported in parentheses. "Mean, left of cutoff" is the average value of the outcome variable for dependents born in December 1985. The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. Each observation is a unique dependent-parent pair. To be included in the sample, dependents must be (1) born from January 1985 to December 1986 and (2) first covered by their parents in the pre-ACA period while under 23. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born from 1985 to 1986, although additional siblings born outside these years are permitted. A full set of sample construction steps is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator for whether a dependent is enrolled on a plan provided by their parent's pre-ACA employer at any point during 2011 to 2012 ("post-ACA period"). "Enrollment Duration" is total days of enrollment during the post-ACA period. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" is an indicator for whether the parent is enrolled in an insurance plan provided by their pre-ACA employer at any point during the post-ACA period. "Job Duration" measures total days of insurance enrollment with their pre-ACA employer during the post-ACA period. * p<0.10, ** p<0.05, *** p<0.01.

Table A.11: DiD Estimates of Effects of Dependent Coverage Expansion, including 1985 Cohort

	(1)
(a) Dependent Enrollment	
(1) Likelihood	0.1615***
	(0.0156)
Mean, Dep Var	0.30
(2) Duration (days)	44.0261***
	(5.4258)
Mean, Dep Var	83.99
(b) Parental Job Retention	
(1) Likelihood	0.0173***
	(0.0027)
Mean, Dep Var	0.64
(2) Duration (days)	7.1859***
	(1.0134)
Mean, Dep Var	221.63
Observations	1,987,568
Controls	Yes

Notes: The table above presents estimates of γ from Eq. 2, which captures the effect of being born in 1985 and 1986 (relative to 1983 or 1984) and being age 25 or 26 (compared to younger ages). The Dependent Mandate provided dependent coverage for the 1985 and 1986 cohorts at ages 25-26, whereas it did not apply to the 1983 and 1984 cohorts. Standard errors, reported in parentheses, are clustered at the level of birth date (in months). Each coefficient and standard error pair are from a separate regression in which the outcome variable is indicated in the first column. "Mean, Dep. Var." is the average value of the outcome variable for dependents born in 1985 or 1986 at ages 23-24 (i.e., during 2008-2010 or the"pre-ACA period"). The data source is the Truven Health MarketScan CCE Database, covering 2000-2012 and restricted to data provided by employers. To be included in the sample, dependents must be (1) born in 1983, 1984, or 1986, (2) first covered by their parents in the pre-ACA period, and (3) aged 23 to 26. Parents (planholders) are (1) born after 1947 and (2) have only one dependent born in 1983, 1984 or 1986, although additional siblings born outside these years are permitted. The regression sample is a panel, with each observation corresponding to a unique dependent-planholder (i) and dependent age (a, ranging from 23-26). A full set of sample construction steps for the DD sample is provided in Appendix Section A.1. "Enrollment Likelihood" is an indicator of whether a dependent is enrolled in a plan provided by their parent's pre-ACA employer at age a. "Enrollment Duration" represents the total days of enrollment at age a. We proxy for parental job retention with information on their enrollment in employer-provided health insurance. Specifically, "Retention Likelihood" indicates whether the parent is enrolled in an insurance plan provided by their pre-ACA employer in the year their dependent is age a. "Job Duration" measures the total days of insurance enrollment with their pre-ACA employer during the year in which their dependent is age a. * p<0.10, ** p<0.05, *** p<0.01.

A.1 Appendix: Sample Construction

In Section 3, we provide an overview of the most important sample restrictions used to define our main analysis sample. In this appendix section, we describe all of the sample restrictions in detail. Appendix Figure A.11 presents a flowchart illustrating the sequence of these restrictions and indicates whether they apply to dependents, parents, or employers.

To organize the large number of restrictions, we classify them into two groups: major restrictions and minor restrictions. Broadly, major restrictions are those made to capture important policy variation relevant to our empirical strategy. These restrictions are described in the main text and this section. Minor restrictions, additionally described here, are needed because of the specific structure of the MarketScan data.

Each observation in our sample is a unique dependent-planholder pair. We begin with the Truven MarketScan CCE Database from 2000 to 2012, restricted to data provided by employers rather than insurers. This initial sample contains 17 million dependent-planholder pairs.

Our first set of restrictions are applied to dependents. First, we keep dependents born in 1985 or 1986. These cohorts turn 26 in 2011-2012, the last two years in our analysis sample. Thus, we observe all coverage months they receive under the dependent mandate. By comparison, the 1984 cohort is too old to be affected by the dependent mandate, and the 1987 cohort turns 26 in 2013.

Second, we require that dependents were covered on their parent's plan during the pre-ACA period (i.e., prior to 2010) for at least one month while younger than 23. By requiring that dependents are first observed on their parent's plan in the pre-ACA period, we avoid selection by birth month due to enrollment incentives created by the dependent mandate. Prior to the ACA mandate, dependent students were universally covered until age 23. Indeed, Appendix Figure A.1 shows that, among older dependent cohorts, the most common exit age is 23 years and 0 months. Therefore, the "under-23" requirement ensures that we avoid selection into the sample based on pre-existing state-level mandates (or other exceptions) that only selectively provided coverage past 23. In a robustness exercise, we instead require that dependents are enrolled in the pre-ACA period while under 19, the age limit for for non-students. Using the age-19 restriction significantly reduces our sample size, however, so the age-23 restriction is our preferred approach.

Third, we require that dependents were enrolled on their parent's plan in the pre-ACA period for at least 12 consecutive months. This restriction allows us to infer the dependent's birth month. Birth dates are not directly reported in the MarketScan data; instead, enrollee age is reported as of the first day of each enrollment month. We use this information to back out the birth month, which is defined as the month prior to the observed age increase. Doing so requires that dependents be enrolled for at least 12 consecutive months.

Note that the second requirement ("under-23") is not automatically accomplished by the last requirement ("12 months"). For example, a dependent born in January 1985 would be 23 in January 2008. Thus, we could observe him/her for 12 months continually sometime between January 2008 and December 2009 (the last month of the pre-ACA period) while they are over 23.

We also impose several sample restrictions that pertain to planholders. The first major

restriction requires that planholders remain under the age of 65 during the post-ACA period (2011 to 2012). This avoids Medicare-induced exits from private insurance, which we might otherwise confuse with job exits. The second major restriction requires that planholders cover exactly one dependent born in 1985 pr 1986. This ensures we can precisely assign treatment based on dependent birth month. Planholders in our sample may still cover other dependents born in other years.

As for the minor restrictions, we first require that there is a 16-year age gap between the dependent and the planholder in order to restrict to parent-child relationships. Second, planholders must always serve as the sole planholder, which avoids rare cases where the linkage between insurance coverage and employment is not as straightforward. Third, we require that planholders are active employees for at least 12 months in the pre-ACA period. This restriction excludes cases in which planholders receive coverage as early retirees or following job loss, ensuring that the sample focuses on employment-linked insurance.

Our last restriction pertains to employers, or data contributors. We limit the sample to employers that continuously participate in MarketScan from 2008 to 2012. New employers are added to the MarketScan sample each year in January, as shown in Appendix Figure A.4. This step ensures that we avoid selection into the sample by dependent birth date. In particular, Appendix Table A.12 lists, for each birth cohort in our sample (January 1985-December 1986), the range of enrollment months during which we could possibly observe them enrolled on their parent's plan while under the age of 23. The range starts in January 2000 because that is the first month of our MarketScan sample. Our goal is to avoid differential selection into the sample between December and January birth months in response to the ACA mandate. Adding new data contributors in January of each calendar year would result in new sets of dependents with January birth months (as compared to December birth months). Imposing this initial enrollment age restriction limits the sample to planholders whose data contributors continuously participate in MarketScan from 2008 to 2012.

The sample used to estimate the difference-in-differences specification ("DD sample") is constructed similarly but with three differences (Appendix Figure A.12). First, we define the dependent birth cohorts 1983 and 1984 as the control group and 1986 as the treated group. Second, due to the expanded dependent birth range, we require that employers provided data to MarketScan continuously from 2006 to 2012, rather than from 2008 to 2012. Third, the data are expanded from the level of dependent-planholder to dependent-planholder $\times$ dependent age, with dependent age ranging from 23 to 26 for each of the included cohorts. A flowchart summarizing these restrictions is provided below. For a robustness exercise reported in Appendix Table A.11, we additionally include the partially treated 1985 cohort.

We include Appendix Table A.13 for reference. This table indicates, for each birth cohort from 1983 to 1986, the relevant sample, the year they would have aged out of the "under-23" rule prior to the ACA, the age immediately before the ACA, as well as their eligibility in 2011-2012.

Figure A.11: Sample Restrictions for Main Analysis Sample ("RD Sample")

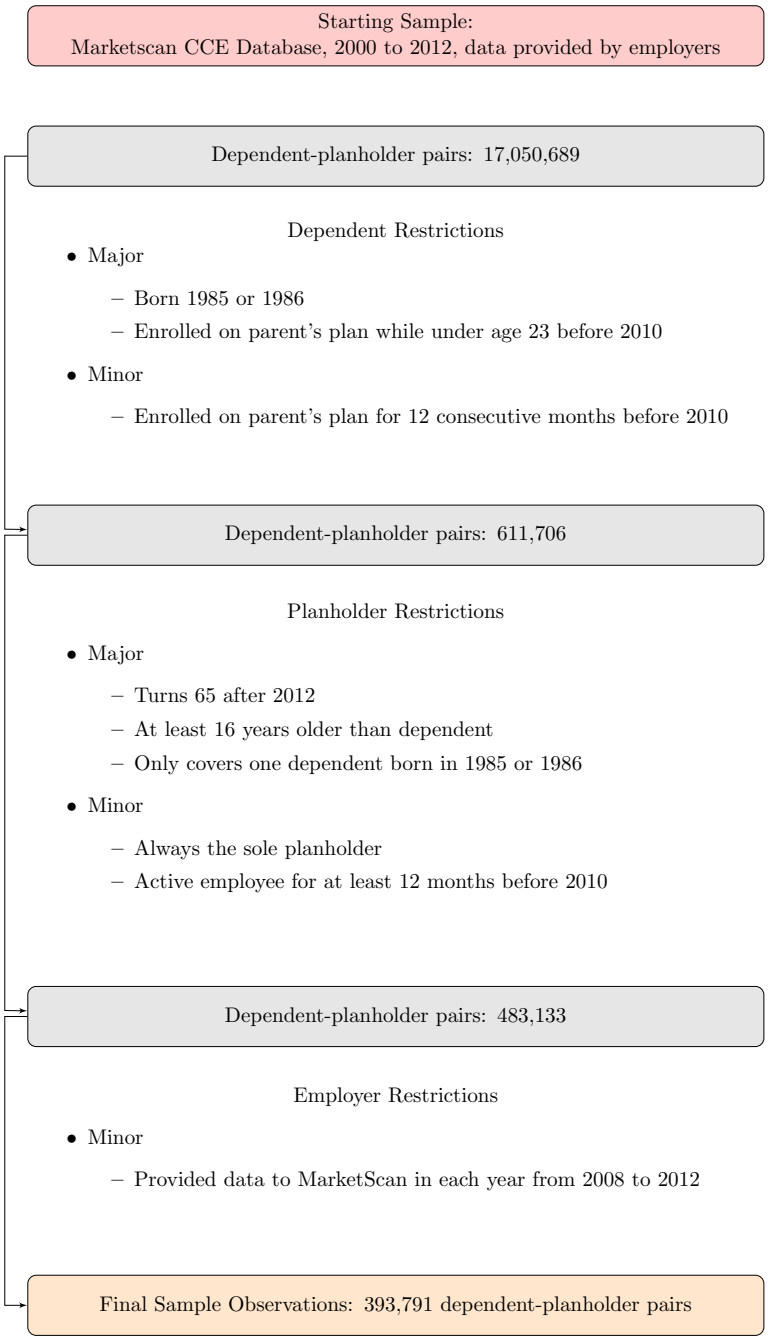


Figure A.12: Sample Restrictions for DD Sample

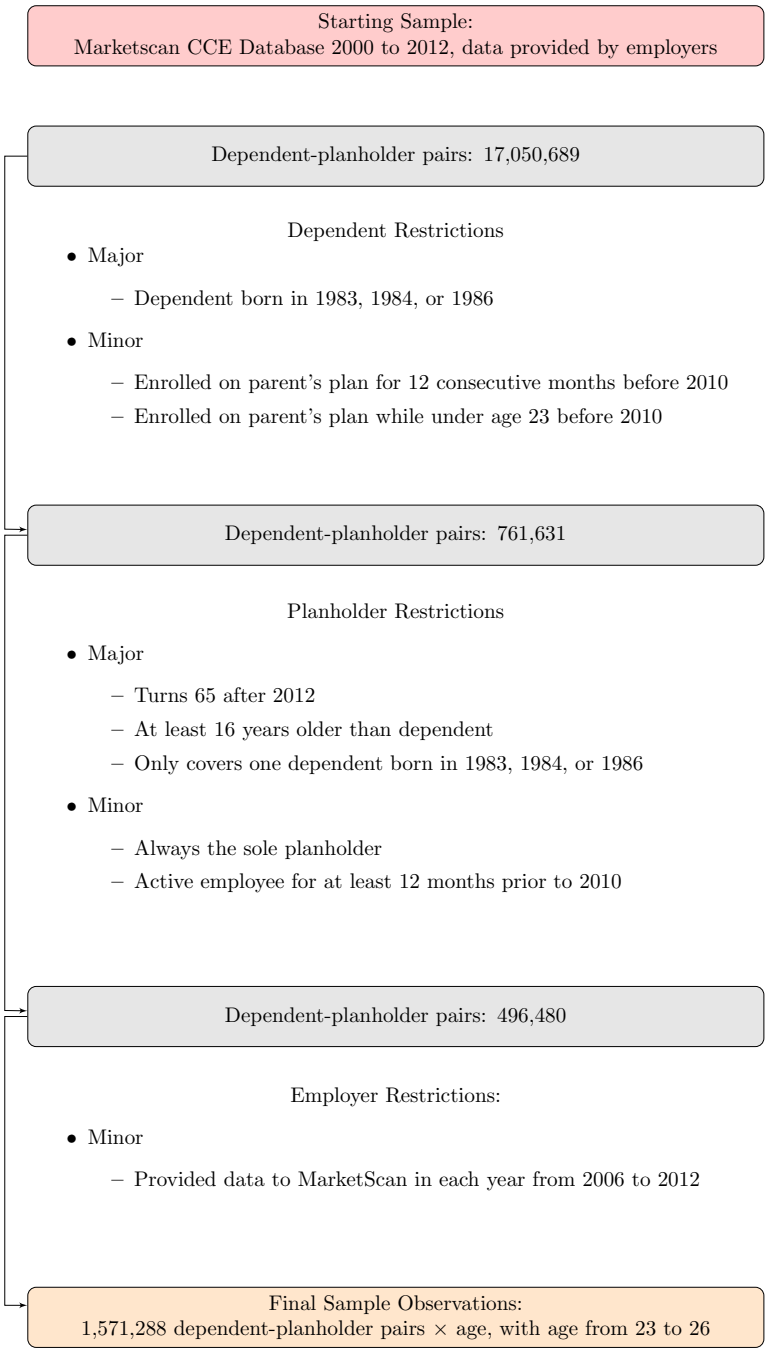


Table A.12: Time Range in Our Sample During which Dependent Cohorts are Under 23

Dependent Birth Date Under 23	In-Sample Dates (Month/Year)
1/1985	1/2000-1/2008
2/1985	1/2000-2/2008
3/1985	1/2000-3/2008
4/1985	1/2000-4/2008
5/1985	1/2000-5/2008
6/1985	1/2000-6/2008
7/1985	1/2000-7/2008
8/1985	1/2000-8/2008
9/1985	1/2000-9/2008
10/1985	1/2000-10/2008
11/1985	1/2000-11/2008
12/1985	1/2000-12/2008
1/1986	1/2000-1/2009
2/1986	1/2000-2/2009
3/1986	1/2000-3/2009
4/1986	1/2000-4/2009
5/1986	1/2000-5/2009
6/1986	1/2000-6/2009
7/1986	1/2000-7/2009
8/1986	1/2000-8/2009
9/1986	1/2000-9/2009
10/1986	1/2000-10/2009
11/1986	1/2000-11/2009
12/1986	1/2000-12/2009

Notes: The table above shows, for each dependent birth month, the range of months during which they could be observed in our sample while under the age of 23. New data contributors are added to the MarketScan sample every January. These annual changes in contributors would result in additional under-23 dependents with January birth months (as compared to December birth months), as illustrated by the above table. To avoid selection into the sample by dependent birth date, we thus restrict our main sample to data contributors that continuously participate in MarketScan from 2008 to 2012.

Table A.13: History of Dependent Coverage Eligibility by Cohort

Birth Cohort	Analysis Sample	Year of 23rd birthday	Eligible in 2011? (ages)	Eligible in 2012? (ages)
1983	DD only	2006	No (27 to 28)	No (28 to 29)
1984	DD only	2007	No (26 to 27)	No (27 to 28)
1985	RD only	2008	Yes (25 to 26)	No (26 to 27)
1986	DD and RD	2009	Yes (24 to 25)	Yes (25 to 26)

Notes: The table above reports the history of dependent eligibility coverage for the birth cohorts in our two analysis samples. "RD" refers to "Regression Discontinuity," our main identification design. "DD" refers to "Difference-in-Differences." "Year of 23rd birthday" indicates the timing of the pre-ACA coverage limit for most dependents. The ACA Mandate extended dependent coverage up to age 26 and was implemented in 2011. The last two columns indicate whether the cohort had any months of eligibility in 2011 or 2012 as well as their ages during those years.

A.2 Appendix: Measures of Employer Plan Offerings

Our data do not directly report the parameters of insurance plans offered by employers. Instead, we create proxies using the enrollment data for the characteristics of plans offered to parents by their pre-mandate employer. First, we construct two different measures of the generosity and flexibility of insurance coverage. Our first measure of insurance generosity is an indicator for whether the parent's pre-period plan is an health maintenance organization (HMO) plan or a fee-for-service (FFS) plan. HMO plans limit coverage to doctors within their network, and typically have limited or no coverage out of network. In contrast, fee-for-service plans such as preferred provider organizations (PPO), which make up nearly all other plans in our data, are less restrictive. In particular, we use the "PLANTYP" variable in the Marketscan data, and assign plan types Comprehensive, EPO, POS, PPO, POS with capitation, CDHP, and HDH as FFS. For the 1.7% of individuals in the sample with a missing value, we assign them as 0 for the indicator for HMO coverage. The findings are robust to whether we classify them as HMO or FFS as the share of planholders with the missing plan type information is smooth around the cutoff. If parents are enrolled in multiple types of plans in the pre-period, we use their earliest plan.

One potential concern with measuring generosity or flexibility through plan characteristics is that plans also differ in their premiums, which we cannot observe. This motivates our second measure: an indicator for employers offering both HMO and FFS plans during the pre-period. In contrast to the previous measure, which was at the individual-level, this measure is constructed at the employer-level. In particular, we calculate the annual number of plan holders who maintained their plans for 12 months by employer between 2000 and 2009. We also count the number of plan holders enrolled in HMOs each year. Using these two numbers, we calculate the average share of annual HMO enrollees in a given employer. Plan holders with missing plan type information in a given year are also included in the denominator when calculating the share of HMO enrollees. Employers with a zero annual share of HMO plans are categorized as not offering any HMO plans during the pre-ACA period.

A.3 Appendix: PSID

The PSID is a longitudinal survey with information on both employment and health insurance. We use survey years 2011 and 2013 because it approximately overlaps with our sample and includes insurance information. The PSID is administered every other year during this time period, so our sample combines 3 waves. Observation counts reflect sampling weights provided by the PSID. We then limit the sample to heads of households that participated in the survey in 2011 and 2013 – doing so allows us to observe their employment and health insurance outcomes in both years. We then require that individuals are born from 1948 to 1970, the range of birth cohorts of primary beneficiaries in our MarketScan sample, and that they are observed to have a dependent in 2011. We keep individuals who are employed at the same employer in both 2011 and 2013 and who served as the planholder of an employer-sponsored plan in the 2011.

Our outcome is an indicator for whether the individual is no longer covered by their

employer by 2013. Specifically, we code this as either: 1) no one in the household is covered by health insurance (H61D3), or 2) the individual is not covered by employer-sponsored insurance (H61E), or 3) the individual is covered by employer-sponsored insurance but they are no longer the planholder (H61F).

A.4 Appendix: Predicted Income Using ACS

This section describes in detail the construction of the predicted income measure discussed in Section 6. We take the industry categories from Appendix Table A.14 and create a crosswalk to NAICS Industry Categories. We then use interactions of parental industry, sex, and age on a sample of full-time, private-sector workers with employer-sponsored health insurance born in 1948-1970 to predict log income using the 2011 ACS. We construct the ACS sample to be similar to the parents in the MarketScan sample. We restrict the ACS 2011 data to include individuals who meet these criteria: 1) born between 1948 and 1970 (birthyr), which corresponds to the birth years of parents in the RD sample; 2) employed (empstat); 3) worked in the private sector as wage/salary workers (classwkrd); 4) covered by insurance through employer/union (hinsemp); 5) worked between 35 and 98 hours per week (uhrswork); and 6) having worked 50 to 52 weeks last year (wkswork2). We use the following variables to run the lasso regression: gender, age category (41-44, 45-49, 50-54, 55-59, 60-64), and industry category, which includes mining (370, 380, 390, 470, 480, 490), construction (770), agriculture/forestry/fishing/hunting (170-290), wholesale trade (4070-4590), transportation/communications/utilities (6070-6780; 570-690), retail trade (4670-5790), finance/insurance/real estate (6870-7190), and services (7270-8690; 8770-9290). The R^2 of the prediction is 0.1003. Notably, the average predicted income in our sample is $76,000—significantly higher than the ACS sample average of $50,000—suggesting that even the lowest-income parents in our sample may still come from a relatively higher-income population.

Table A.14: Industry categories in MarketScan

Industry
1: Oil & Gas Extraction, Mining
2: Manufacturing, Durable Goods
3: Manufacturing, Nondurable Goods
4: Transportation, Communications, Utilities
5: Retail Trade
6: Finance, Insurance, Real Estate
7: Services
A: Agriculture, Forestry, Fishing
C: Construction
W: Wholesale