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UNDER THE SAME UMBRELLA: PUBLIC HEALTH INSURANCE EXPANSIONS AND THE UNIFORMITY OF INSURANCE FOR FAMILIES

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Under the Same Umbrella: Public Health Insurance Expansions and the Uniformity of Insurance for Families

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ABSTRACT

Evaluating insurance coverage at the individual level abstracts away from the family-level decision making behind healthcare utilization. While traditional private insurance tends to be offered to either adult individuals or whole families, public insurance eligibility is determined person-by-person. Income eligibility thresholds for public coverage can differ for parents and children, and even among children in different age groups. Having different insurance sources, or a mix of insured and uninsured members of a family, may be disruptive to consistent medical care. In this paper we investigate how changes in eligibility thresholds for adults and children are associated with mismatched patterns of insurance coverage. Using the Current Population Survey and the Survey of Income and Program Participation, we document the patterns of insurance mismatch over time and their relationship to Medicaid and State Children's Health Insurance Program income eligibility thresholds. We find that expansions of parent thresholds can promote uniform insurance coverage for families. These results are driven by families led by single mothers, who are more likely to be affected by Medicaid expansions for parents. Treating a family as the main unit of observation provides important insights and details potential unintended consequences of individual-level public insurance policy.

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A data appendix is available at http://www.nber.org/data-appendix/w31491

I. Introduction

Expanding access to health care and increasing insurance coverage have been major policy priorities in the United States for several decades. The public sector has played an increasingly large role in health insurance provision, starting with the Social Security Amendment of 1965 which introduced Medicaid and Medicare. This continued with the State Children's Health Insurance Program initiated in 1997 and the Affordable Care Act of 2010. At their best, such public programs might guarantee accessible health care for all members of a family. However, the combination of private and public health insurance products in the U.S. makes it possible for families to have a variety of combinations of coverage. This stems from a fundamental difference in insurance offerings from disparate sources: employer-provided private coverage is usually available for either the employee or the employee plus family members – but not for children only – while public health insurance eligibility is established at an individual level. Public coverage has historically prioritized the coverage of the youngest children, followed by older children and only recently (and only in some states) adults, creating substantial mismatch in public insurance eligibility *within* families. Because of this context, most of the literature related to insurance coverage and take-up has treated an individual (whether that's a child or an adult) as the main unit of observation.

In this study we re-visit the insurance expansion literature and focus on a family as the main unit of observation. Our paper aims to: (1) document the share of families in the U.S that are uniformly covered by insurance and how has this share change over time? and to answer, (2) How have public health insurance policies for both parents and children exacerbated the gap in or improved the uniformity of insurance coverage for families?

Given our focus on the family as the main unit, a question arises on why is uniformity of coverage important? Using individual's outcomes, the literature has already found mostly positive causal evidence on increased insurance coverage on financial, healthcare and health outcomes. Although mostly positive these gains may be muted by complexity created from managing multiple health insurance plans within a family. For example, a parent may have employer-provided insurance with one set of copays, deductibles, coverage features, and approved providers, while their child may have public coverage with an entirely different set of structures. These two types of coverage may also be associated with differential access to certain kinds of providers or services, such as mental health care. Transaction costs such as differences in application and renewal processes could also play a role in complicating management of health care (Hudson 2009), as could separate administration of Medicaid and state CHIP programs (Sommers 2005b). There is evidence that having different sources of insurance, and potentially gaps within the family (i.e. some without coverage at all), is associated with unmet medical care needs (Shinberg 2008) and reduced health care utilization (Percheski and Bzostek 2013) relative to those with uniform family coverage. Disenrollment from public insurance programs likely plays a role in both gaps in insurance coverage and continued uniform family coverage as well, with previous work finding an association between the likelihood of continuing on Medicaid and the number of family members enrolled in the program (Sommers 2005a; Phillips et al. 2004). We provide our own brief exploration of the differences in health care access and health outcomes between uniformly insured families and fully insured families experiencing mismatched insurance. Using National Health Interview Survey data, we examine two outcomes: "Did not delay care due to cost" and "Self-reported health being good or above". We treat more people reporting these outcomes as a sign of improved access to care and better health. Adjusting for sample composition and demographic characteristics of the families to mitigate potential bias from sample selection, we find that on both outcomes uniformly insured families fare

better than mismatched families. We report the coefficients on uniformly insured on these outcomes in Appendix Figure A3.[2]

We initiate our examination of our primary research questions by determining the prevalence of insurance mismatches using the Current Population Survey (CPS) and illustrating its evolution over time. We also demonstrate considerable variation in Medicaid eligibility both across and within various age groups throughout our sample period. Our descriptive analysis reveals four main patterns, (1) in the late 80s, approximately 84% of families had uniform coverage. However, this figure has since experienced a downward trend of around 10 percentage points. By the end of our sample period (2012), this proportion had dwindled to 74% of all families. (2) Using the panel component of SIPP, we find that uniformity is the most stable category and that most families that are not uniformly covered, are transitioning to other insurance status (i.e. not stable) most commonly towards uniformity. (3) Uniform status has been supplanted by "patchwork with gaps" (some people insured and at least one member uninsured) and "patchwork insured" (all insured, but with different insurance sources). To discern the origin of this decrease in uniformity, we delve into exploring changes in public eligibility, particularly for Medicaid. (4) We show that Medicaid eligibility among children within the same household was not consistent throughout most of the 90s. It was only after the introduction of the State Children's Health Insurance Program (SCHIP) that uniformity in Medicaid eligibility among children became more prevalent. These findings prompt us to develop hypothesis on how the expansion of Medicaid has impacted uniformity in coverage, which we test in the second section of our paper.

In this section, we estimate two-way fixed effects models in which we use variation in Medicaid eligibility for parents by state over time to investigate the effect of Medicaid parental expansions on family insurance uniformity. These analyses show strong evidence of increases in uniformity when parental expansions occur. These results conform to our hypothesis, which states that shrinking the eligibility threshold gaps between parents and children should increase family uniform coverage. Importantly, these increases in uniformity come from reductions in families that are fully insured through patchwork coverage or who have at least partial insurance and partial uninsurance, rather than inducing families that are fully uninsured to gain uniform insurance coverage. The largest decreases occurred among parents who were uninsured, but whose children had Medicaid and parents with private insurance, but whose children had Medicaid, while the largest gains were unsurprisingly among families fully covered by Medicaid. Results were strongest among single mothers and show a decreasing magnitude in stratified analyses focusing on subsamples with increasing resources as measured by the Federal Poverty Level thresholds, adjusted for family size.

We also estimate the effect of children's Medicaid expansions on family insurance uniformity. We hypothesize that these expansions will decrease uniformity, as they increase the gap in Medicaid coverage thresholds between children and parents. The estimates from these models are noisier, and while they show some evidence of increasing uniformity for expansions among the youngest children, these results are not particularly robust within or across data sets. Finally, we document crowd-out of private family coverage following children's Medicaid expansion, but no evidence of similar crowd-out following parental Medicaid expansions.

To establish a starting point for this study, we first provide background on changes in Medicaid eligibility and a conceptual model for how public insurance expansions may affect insurance

[2] We do not delve into this exercise further as this is part of a companion project of this paper.

uniformity in section II. We then review existing findings on public health insurance and family composition of coverage in section III. In section IV, we lay out the features of the CPS and SIPP extracts we use, the sources of policy data we leverage, and our definitions of uniformity and mismatch. We present our methodology and findings in section V, discuss robustness and extensions in section VI, and engage in a concluding discussion in section VII.

II. Background and Conceptual Model

a. A brief background on changes in eligibility for public insurance for parents and children.

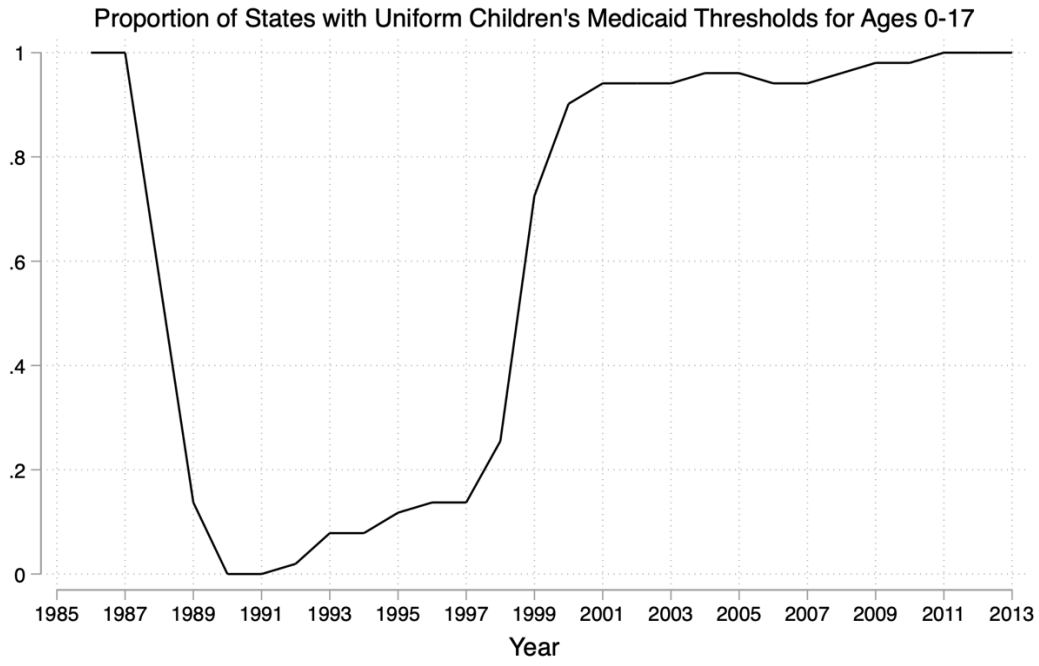
While public health insurance through Medicaid has been available at some level since its inception in 1965, income eligibility for Medicaid was tied to eligibility for cash assistance (Aid to Families with Dependent Children, or AFDC) into the early 1980s. In its original form, eligibility for this program was established at the family level. However, in the mid- to late 1980s, federal legislation began to mandate minimum levels of eligibility for the youngest, poorest children and pregnant women via the Omnibus Budget Reconciliation Acts (OBRA) of 1986, 1987, 1989, and 1990 (Kaiser Family Foundation 2009). The first of these Acts gave states the option of extending Medicaid coverage to pregnant women and infants regardless of their participation in AFDC if their income was below 100 percent of the federal poverty level (FPL). This began the trend of delinking access to Medicaid from the state-level rules for cash assistance, which moved from state options to federal mandates (according to child age) over the late 1980s and early 1990s. It also potentially created different FPL threshold eligibility rules for each individual member of a family based on age. The delinking process was completed in the 1996 welfare reform and was followed soon after by the introduction of the State Children's Health Insurance Program (SCHIP) in 1997. SCHIP further expanded health insurance eligibility to children, often regardless of their age.

It is notable that different age groups of children became eligible at different times, and indeed, these discontinuities are a source of some excellent research on the effects of expanding children's health insurance (e.g. Card and Shore-Sheppard 2004). However, this pattern of stricter eligibility for older children during the early expansions had direct consequences for whether a family had access to uniform public coverage for their children. When coverage was linked to AFDC, the whole family was treated as a unit; the OBRA expansions made it possible for individual (younger) children to be eligible without their (older) siblings. While this expanded coverage, it also changed the unit of coverage in perhaps an unintended way. In order to begin answering the question about uniformity of coverage for families across time, we need to understand how policies have changed over time. Figure 1 uses the data on policy rules for children ages 0-17 by state-year to display the level of uniformity in treatment of children ages 0-17 over time. In this figure we plot the share of states that have uniform policies for public insurance for children 0-17, a value of 1 means that all state in that year had uniform policies across the ages of kids. The pattern is stark: in 1986 and 1987, all states had uniform treatment of children under Medicaid, and by 1990 none did, due to expansions affecting only the youngest children.[3] It is only with the implementation of SCHIP in the late 1990s that uniformity returned to high levels as rules about age were replaced with overall eligibility thresholds

[3] Importantly, the level of uniformity present in families over this time period depends not only on state eligibility thresholds, but also on the age of children and is thus affected by parental decisions such as the number and spacing of children.

for all children. From that time forward, uniformity of coverage for children in a household has been the norm.[4]

Figure 1: Patterns in uniformity of child Medicaid eligibility



Source: Authors' calculation using data from the National Governor's Association and Kaiser Family Foundation (using updated data originally compiled and reported by Cohodes et al. 2016).

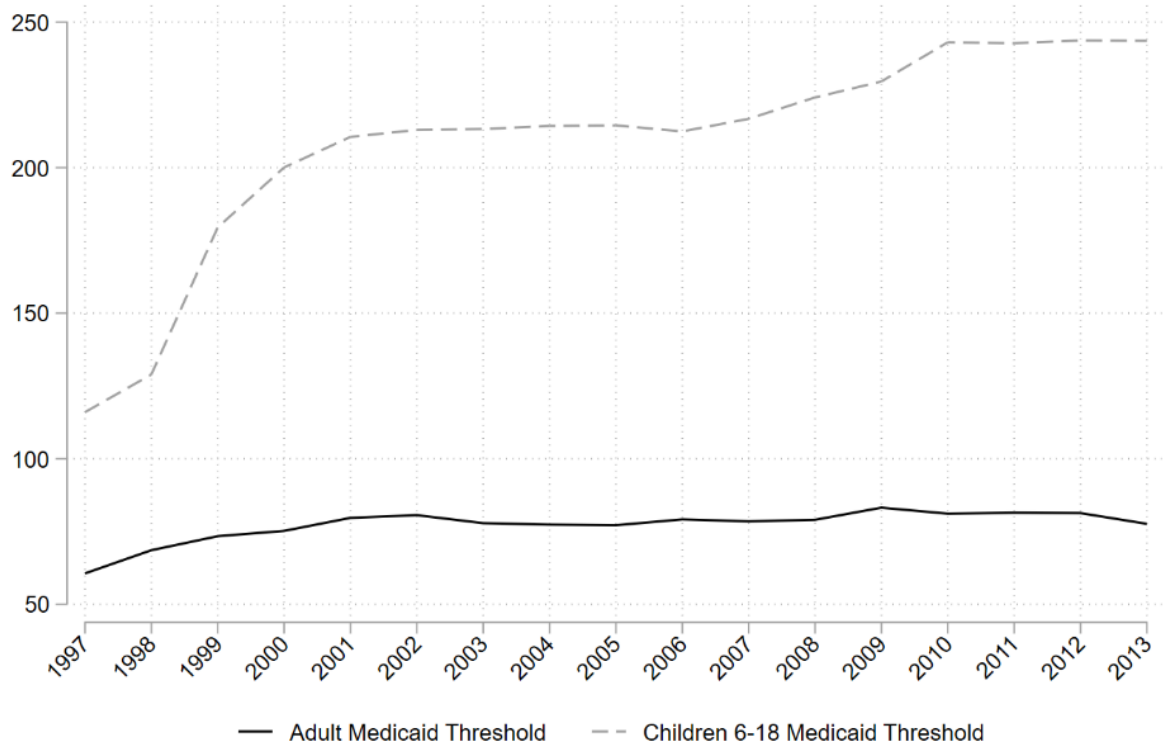
However, despite substantial expansions in children's public insurance access – and its uniformity – over this period, expansion of coverage to adults with children has moved much more slowly. Of key importance is that there are no federal floors on eligibility thresholds except for one wrinkle introduced via The Personal Responsibility and Work Opportunity Reconciliation Act of 1996. At this time, when Medicaid was delinked from cash assistance, states were given one requirement: they were not allowed to reduce their Medicaid eligibility thresholds for parents *nominally* down from where they were at that time. Some states have taken this quite literally, applying the same nominal threshold today as they did in 1996, having rejected the ACA Medicaid expansions and maintained parental eligibility thresholds as low as 16% of today's FPL, *down* from an FPL threshold of 37% in 1996 (Texas).[5] We have assembled parental Medicaid thresholds covering 1997 to 2013 and Figure 2 shows how the average thresholds have been much lower than even those thresholds applied to children 6-18 (for whom Medicaid has historically been least generous among children). These adult

[4] Technically, different Medicaid thresholds by age may have persisted but with overall public insurance thresholds constant due to larger SCHIP coverage for older children, which could especially affect families in states that manage Medicaid and SCHIP separately.

[5] The Kaiser Family Foundation provides annual updates to parental eligibility thresholds in reports archived on their website at: https://www.kff.org/medicaid/report/annual-updates-on-eligibility-rules-enrollment-and-renewal-procedures-and-cost-sharing-practices-in-medicaid-and-chip/. The given statistic is from the 2022 report: https://www.kff.org/report-section/medicaid-and-chip-eligibility-and-enrollment-policies-as-of-january-2022-findings-from-a-50-state-survey-report/#MedicaidandCHIPEligibility .

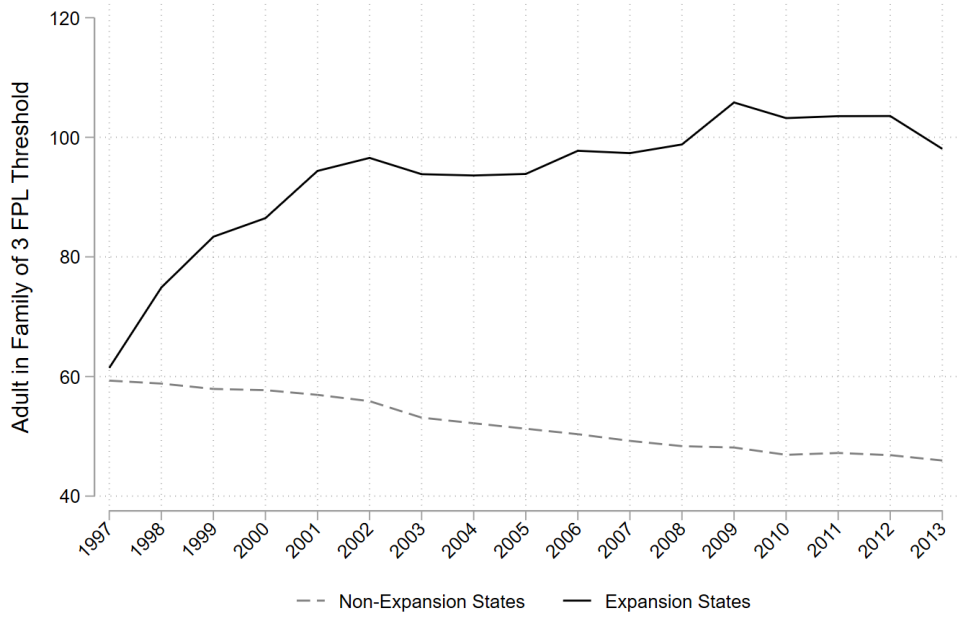
thresholds have risen very slowly on average, partly because their original values in 1997 were in dollars, not a fraction of FPL, so any state that does not raise its threshold in any given year puts downward pressure on the real (FPL-unit) value of average thresholds. This figure elides the fact that many states have expanded adult eligibility, sometimes substantially, over this time period. Figure 3 displays the differing patterns across states that (at some point in this period) expanded eligibility limits by at least 10% of FPL compared to those that did not. Expansion states featured an average threshold of approximately 100% FPL by the end of our sample period. The fraction of states exceeding a 100% FPL income limit rose from about 12% in 1997 to 35% in 2013. Eligibility diverges from an overall mean in 1997 of about 60% of FPL to the expansion states having thresholds approximately twice as large as those that did not expand.

Figure 2: Medicaid thresholds over time for parents and (older) children



Increases in Medicaid thresholds, and expansions of SCHIP, have been shown to increase both insurance coverage and health care utilization (see Buchmueller, Ham, and Shore-Sheppard (2016) for a thorough review). However, beyond that, a growing literature finds that access to Medicaid has long-term positive effects on health and human capital development. While several of these papers focus on Medicaid implementation (Goodman-Bacon 2018; 2021; Boudreaux, Golberstein, and McAlpine 2016), others use the 1980 and 1990s expansions to show improved health at various stages of life (Wherry and Meyer 2016), increased educational attainment (Cohodes et al. 2016; Miller and Wherry 2019), reduced mortality (Goodman-Bacon 2018), increased tax receipts for the next generation (Brown, Kowalski, and Lurie 2020; Goodman-Bacon 2021), and improved intergenerational health (East et al. 2023). Grossman, Tello-Trillo, and Willage (2022) and Guldi and Hamersma (2022) provide a potential mechanism for these long-term and intergenerational effects: improved parental well-being from children's Medicaid coverage.

Figure 3: Parent thresholds over time, for states with and without any expansions



Notes: Expansion is defined as a parent Medicaid threshold increase as a percentage of FPL of 10 percentage points or larger in a given year at some point between 1997 and 2012. This definition yields 31 expansion states (including D.C.) and 20 non-expansion states. To be clear, some "non-expansion" states by this definition may have expanded their nominal threshold, but this expansion did not keep up with inflation in any meaningful way, i.e. the threshold never rose more than 10 percentage points of FPL.

b. Conceptual framework: public health insurance expansions and the composition of family coverage

While eligibility itself creates incentives to participate in Medicaid at an individual level, what incentives are created by these expansions when it comes to composition of family coverage? Here we present a simple conceptual framework of household utility as a function of each member's insurance coverage as well as other household consumption. Our goal is to use the ideas and ambiguities that arise to generate hypotheses to test empirically.

To consider the potential effect of health insurance expansions to change family insurance composition, we first present a simplified matrix of possible family composition options. Table 1 shows a matrix with nine numbered cells representing each parent-child combination of "private insurance," "public insurance," and "no insurance." (The framework abstracts away from mixed coverage among multiple parents or among children, but the same framework can be applied to a focus only on uniformity of one subgroup's coverage). For notational convenience in the text, we label the combinations listing the parent's coverage first, so that "private-public" refers to a family with privately insured parents and a publicly-insured child. The uniform states of insurance are "private-private" and "public-public" and are outlined in bold.

These basic assumptions yield some clear predictions as well as some ambiguities about how expanded public health insurance would affect uniformity of coverage. While being publicly insured

Table 1: A simple illustration of coverage combinations

Kids → / Parents ↓	Uninsured	Publicly insured	Privately insured
Uninsured	1	2	3
Publicly insured	4	5	6
Privately insured	7	8	9

Note: These nine labels simplify discussion of expected effects to be examined in the empirical work. Note that 3 and 6 should be rare based on infeasibility and 4 should be unlikely given eligibility rules, so they are shaded and not examined deeply in the analysis. The bold outlined cells (5 and 9) are the two uniform states.

would be dominant over being uninsured in all cases, the relationship between public and private insurance is more complicated. Several of these ambiguous cases are of particular interest to us. One is the ambiguity of whether a family might prefer uniform public coverage to a mix of private and public – even if private coverage is higher quality and perhaps affordable -- due to the transaction costs, administrative burdens, and inconvenience of being on separate insurance plans. A second is whether families might value child coverage more highly than adult coverage, such that having a publicly insured child while the adult is uninsured is preferable to having uniform (costly) private insurance.

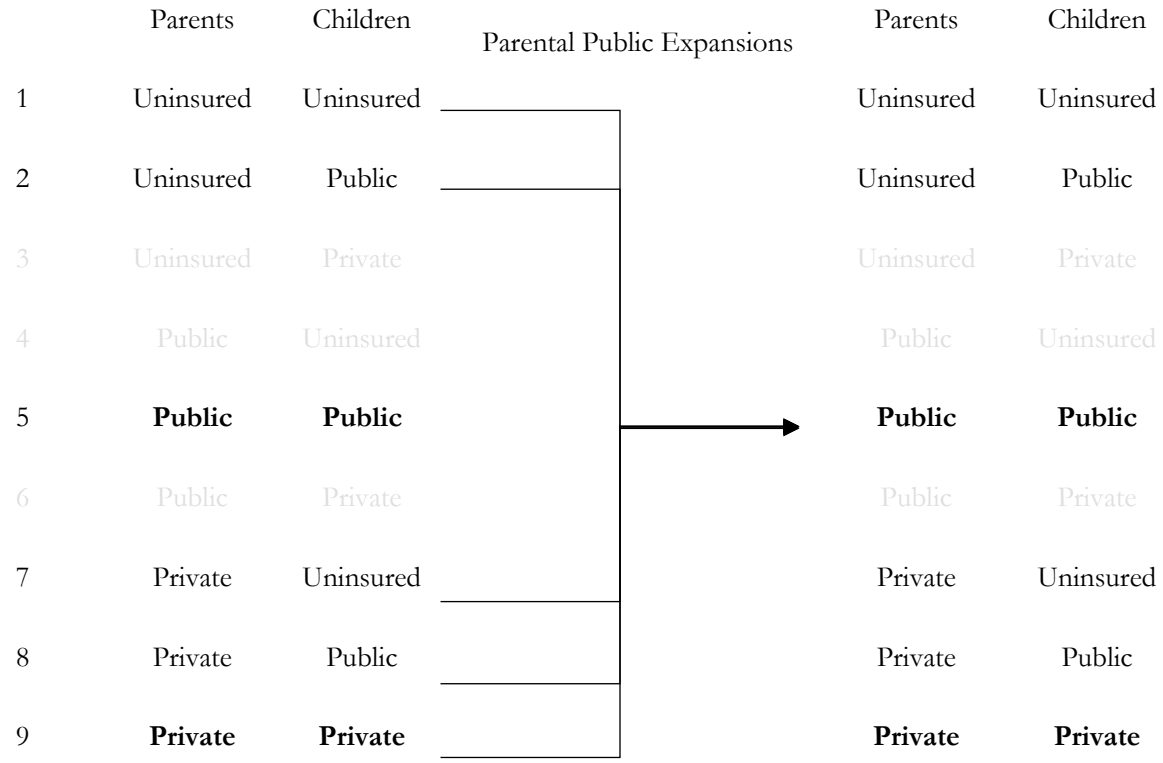
We consider an increase in *parental public insurance eligibility*, illustrated in Figure 4.1, in which the left-hand side shows initial combinations of parent-child insurance pre-expansion while the right-hand side shows post-expansion combinations. We expect movements towards a uniform public insurance state. Since most publicly insured parents are expected to have publicly insured kids (they're surely eligible), these are movements from cells 1, 2, 7, 8, and 9 (as shown in arrows in Figure 4.1) into the uniform option of cell 5. Unless all movement comes from cell 9 (the other uniform category), *uniformity should increase*. While these changes would decrease out of pocket spending for adults (and in the case of cells 1 and 7, provide health insurance coverage for children), whether they would increase utility depends on several factors. First, this should increase health insurance access and use for children (or leave it unaffected in cell 8).[6] For parents, the lower cost should increase demand for healthcare services, but Medicaid tends to have narrower physician networks which would decrease access for patients as supply of physicians tends to be lower, providing an ambiguous prediction. Having a whole family using the same network of physicians may reduce the administrative burden on parents to find physicians that accept multiple types of insurance. Additionally, parents moving from private to public insurance likely will face a greater risk of disenrollment/churn (Ross and Cox 2004). Compared to being uninsured, this would still be a positive outcome, but relative to private insurance where disenrollment is much less common, this is unambiguously worse for parents.[7] Finally, while this exercise abstracts away from differences in type of public insurance, whether a child is eligible for Medicaid or CHIP may be consequential for applying to and remaining in each health insurance program (Hudson 2009), as some states manage

[6] Additionally, increasing access to public insurance for uninsured should reduce the likelihood of medical debt and/or bankruptcy (Gross and Notowidigdo 2011).

[7] However, as Sommers (2006) points out, having more family members on the same insurance substantially increases the marginal benefit of remaining on this insurance, while only slightly raising the marginal cost of any administrative burdens associated with remaining on the insurance. Tello-Trillo (2021) and Argys et al (2020) provide evidence of the financial and health repercussions of Medicaid disenrollment on adults.

these programs partially or fully separately. Movement from fully private (9) to fully public (5) will decrease costs for families, but also reduce access to care to the degree that Medicaid provider networks are narrower than private insurer networks. Whether the family makes this move will depend upon their assessment of the costs of this reduction in access relative to the value of the funds no longer spent on insurance premiums.

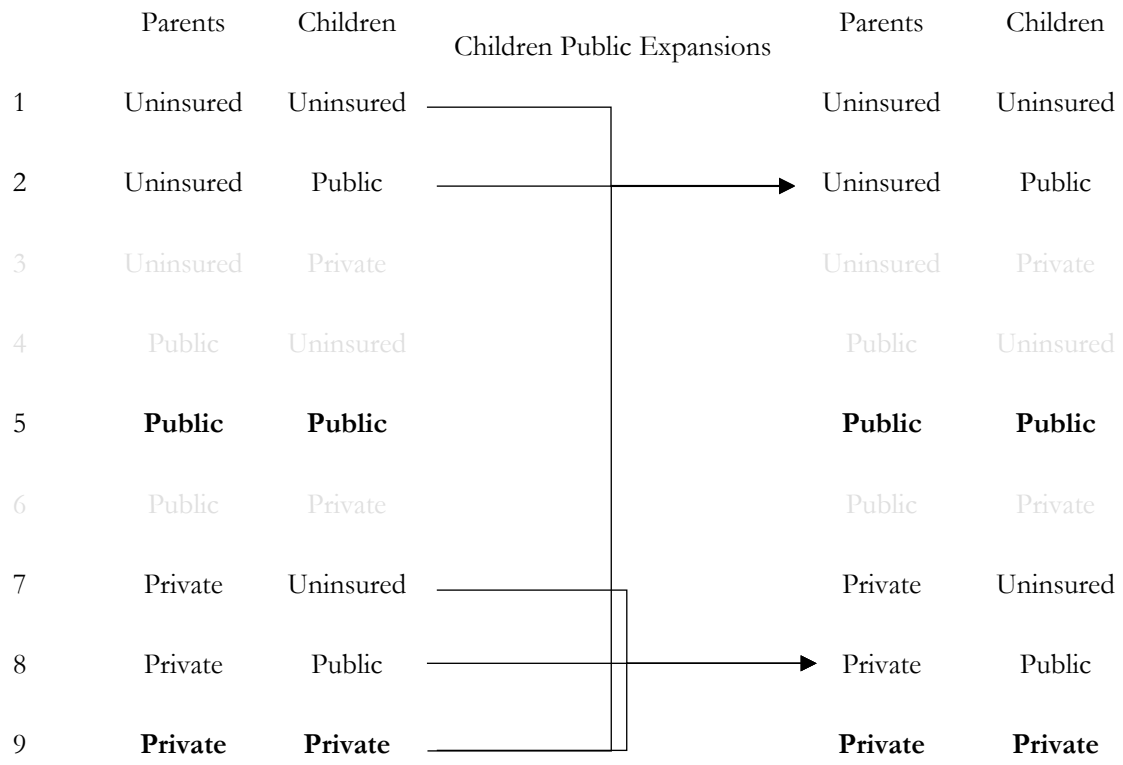
Figure 4.1 Flowchart of family insurance changes when a parental eligibility expansion occurs



Note: The bold outlined cells (5 and 9) are the two uniform states. The arrows indicate the possible changes from one state to another if we consider an increase in parental public insurance eligibility, but we omit arrows that are fully horizontal (no change in the state) which is a possibility.

In figure 4.2, we consider an increase in child public insurance eligibility. If anything, we expect movements away from uniformity. There is no incentive to move into cell 5, though such movements could happen if the publicity around the child expansion brought the program to the family's attention, and it happened to be the case that they *all* qualified already (i.e., a welcome mat effect, though this term is usually used in reference to an adult expansion). If the parents are uninsured, then we expect the children to converge towards being publicly insured without changes in parent's insurance status. If the parents have private insurance, we also mostly expect children's insurance status to change to having public insurance with the parents maintaining their own private insurance. However, it's possible some may move from cell 9 (private, private) to cell 2 (uninsured, public) as suggested in Koch (2015) and Hamersma and Ye (2021). This means that we do not predict an increase in uniformity – and depending on the departures from cell 9 (uniform private) we may see a reduction in uniformity.

Figure 4.2 Flowchart of family insurance changes when a children eligibility expansion occurs



Note: The bold outlined cells (5 and 9) are the two uniform states. The arrows indicate the possible changes from one state to another if we consider an increase in children's public insurance eligibility, but we omit arrows that are fully horizontal (no change in the state) which is a possibility.

This brief analysis provides insights into the distinctions in the expected effect of parent-targeted versus child-targeted public health insurance expansions. To summarize: while any expansion in eligibility is likely to increase coverage for the targeted group, our hypotheses about movement across cells differ for the two types of expansion because of a fundamental difference in the policy context (parent thresholds are always lower than child thresholds) and private insurance options are not person-specific (specifically, child-only coverage is not easily available).

We formalize the hypotheses generated by this framework below. Expanded parental coverage has been associated with increased parent *and child* public coverage, since newly-eligible parents have already-eligible children (see, e.g., Hamersma, Kim, and Timpe (2019)). This suggests expansions would increase not just parent public coverage, but uniformity of coverage via the public-public category.

Hypothesis 1: *Expansion in parental eligibility for Medicaid will be positively associated with uniformity via moves into the public-public category; however, this may be tempered if some of the movement is out of the private-private category.*

In contrast, expanded child coverage does not extend to parents, so may pull children from private coverage but won't likely bring the parents along. We'd expect an increase in children's public coverage and reduction in children's private coverage, but this is likely to generate more mismatch since the parents are ineligible for public insurance. This could also raise the possibility of parents dropping private coverage to save money.

Hypothesis 2: *Expansion in child eligibility for Medicaid or SCHIP will be negatively associated with uniformity via moves out of private-private that do not end up in public-public due to lack of parent eligibility.*

We will test these hypotheses directly using a large, repeated cross-section (Current Population Survey), and further corroborate the results and investigate the patterns of movement across insurance status within households over time with panel data (Survey of Income and Program Participation).

III. Literature on Public Health Insurance and Family Composition of Coverage

At the time of the writing of this paper, the study of insurance mismatch is a relatively sparse, despite its foundations in more extensive research on health insurance. Several studies have examined how expanding public insurance to include more income levels has increased overall insurance coverage (Cutler and Gruber 1996; Ham and Shore-Sheppard 2005; Shore-Sheppard 2008; Hamersma and Kim 2013; Currie and Gruber 1996; Gruber and Simon 2008). Other research has explored how such expansions have affected family choices, often explained through concepts like "welcome mats" and "crowd out" effects. The term "welcome mat" is used when insurance expansions for a particular group highlight existing policies, encouraging even those who were already eligible to start participating. For instance, Hamersma, Kim, and Timpe (2019) revealed that when parents receive more access to Medicaid, more children participate in the program, even if the child's eligibility hasn't changed.[8] While this is a clear improvement over children being uninsured, they find that in some subsamples the children were likely to have left private insurance instead (crowd out).

An interesting variation on crowd-out effects has been identified in two papers. Both Koch (2015) and Hamersma and Ye (2021) find that parents may drop private coverage for themselves when their children become eligible for free public coverage. In this case, the expansion of coverage for children may indeed crowd out children's private coverage, but it also leads to parents becoming uninsured, presumably to save on private insurance premiums. Shaefer et al. (2011) use data from the Survey of Income and Program Participation during 1998-2003 to estimate the family savings in premiums and out-of-pocket expenses when a child moves from private to public coverage. They find savings of approximately $1500 per year and note that part of these savings may reflect parents dropping their own private insurance.

A separate, small literature documents patterns of insurance mismatch within families and the value of uniform coverage. Most papers focus either on documenting mismatch or assessing its consequences, though some touch on both. Across a number of datasets and time frames, as well as a variety of definitions of mismatched coverage, there is evidence that mismatch affects a substantial

[8] Others find an increase in utilization of healthcare services by children following an adult Medicaid expansion (Venkataramani, Pollack, and Roberts 2017).

fraction of families (Blumenthal and O'Hara 2011; Percheski and Bzostek 2013; Hudson 2009; Dubay and Kenney 2003; Ku and Broaddus 2000; Shinberg 2008). Additionally, both parent-child mismatch and within-family child mismatch have negative consequences for these families (Percheski and Bzostek 2013; Guendelman et al. 2006; DeVoe, Tillotson, and Wallace 2009; Davidoff et al. 2001; Institute of Medicine (US) Committee on the Consequences of Uninsurance 2002; Shinberg 2008; Minkovitz et al. 2002; Jewers and Ku 2021).[9]

Several examples from this literature help clarify the approach and concerns. Shinberg (2008) uses the 2004 National Health Interview Survey (NHIS) to classify about 26,000 families into four categories: uniformly insured, patchwork (all insured but different types), gaps (some insured, some uninsured), and all uninsured.[10] Nearly half of families are in the latter 3 categories, and being in these categories is predictive of unmet medical care needs. Blumenthal and O'Hara (2011) use the 2009 American Community Survey to estimate within-family differences in health insurance coverage by discordant coverage status and type. They conclude that states with more family-inclusive Medicaid/CHIP policies have more cohesive intra-family coverage. Interestingly, they find little evidence that this causes child crowd-out but may cause family crowd-out. Percheski and Bzostek (2013) use the 2009-2011 National Health Interview Survey to estimate prevalence of mixed sibling coverage and its predictors. Their focus is on families with mixed immigration status. They also use 2002-2007 Medical Expenditure Panel Survey (MEPS) to connect mixed coverage to reduced healthcare utilization. Finally, Hudson (2009) uses MEPS 1996-2005 to examine the size and nature of mismatched insurance among siblings and between siblings and parents, and considers the roles of child Medicaid and SCHIP in the creation of mixed-eligibility families. This is the closest paper to our work, though our analysis engages with two different datasets, a longer time horizon, distinct hypothesis tests for parent and child expansions, and a panel analysis.

We aim to bridge the Medicaid/SCHIP and uniform coverage literatures by connecting concerns about insurance mismatch to the broader literature on the effects of both parent and child public insurance expansions using quasi-experimental methods.

IV. Data & Descriptive Findings

For the analysis in this paper, we use data from two main sources: the Current Population Survey (CPS) and the Survey of Income and Program Participation (SIPP). Each of these surveys has different strengths that allow us to analyze a particular question from our analysis.

CPS

We use data from the Current Population Survey Annual Social and Economic Supplement (ASEC) for the years 1988-2013 (26 years). We stop the analysis at 2013 due to the changes in the affordable care act that started in 2014. The CPS is a nationally representative survey that contains approximately 50,000 to 60,000 households each year during our sample period. While the CPS is technically a longitudinal study, including certain households in the ASEC for up to 2 time periods, we use only the first observation for each household. The ASEC contains detailed data on all members living in a household, based on interviews with one survey respondent for each household. It provides the relationship of each household member with respect to the respondent, income

[9] Another literature that touches on mismatch coverage is the literature of families with documented and undocumented individuals. See Jewers and Ku 2021.
[10] We follow this nomenclature in our paper.

measures, labor force participation, health insurance type for each family member, and additional demographic characteristics. Insurance types include private insurance, Medicaid, other public insurance, and Medicare, as well as no insurance.[11]

For the analysis of Medicaid expansions on coverage uniformity, we use the full data frame 1988-2013 and restrict our sample to families with at least one child under the age of 18. We count all children, whether biological, adopted or foster. For simplicity, we exclude families in which individual members report multiple types of insurance policies (about 9% of families with at least one kid under 18), that is families that report a specific child or adult having both private and public coverage. We obtained the CPS from IPUMS (Ruggles et al. 2022), and our extract contains 580,634 households.

SIPP

Our analysis continues with data from the 1996, 2001, 2004, and 2008 panels of the Survey of Income and Program Participation (SIPP) covering 1996-2012.[12] The SIPP is a smaller sample but is longitudinal, with interviews 3 times per year for up to 4.5 years. This structure allows us to examine patterns of insurance changes within families as their exposure to public insurance eligibility changes with child and parent expansions. We restrict the sample to families with at least one child under 18 (as in CPS) and keep only those who are uninsured, on Medicaid, or privately insured (no military, Medicare, or other coverage). We then identify the highest earning adult (hereafter "parent") and the youngest child in each family and use their insurance coverage information to classify their family insurance bundle.[13] Our main analysis sample uses 54,520 of these family dyads and follows them for up to 16 interviews each, for a total of 355,312 observations.

Medicaid Eligibility

We use children's Medicaid eligibility thresholds in our analysis which were derived from the Kaiser Family Foundation (KFF) and National Governor's Association files (see e.g., Cohodes et al. 2016). These files provide detailed thresholds as a percentage of the federal poverty line (FPL) for different children's age groups: infants, those aged 1-5, and those more than 6 years of age. We have data on children's eligibility from 1988-2013. For parent's eligibility thresholds, we use a combination of sources including KFF and others.[14] We have data on parent's eligibility from 1997-2013. We use these data to capture state level variation in parents and children's eligibility over time as illustrated earlier in Figures 1-3.

Uniformity Definition

In order to document insurance uniformity, we used the classification system from Shinberg (2008), which defines four main categories: uniformly insured, patchwork insured, patchwork with gaps, and fully uninsured. Our first result is to document the patterns of coverage mismatch, which can be seen

[11] While Medicare is a survey option, based on our focus on children under age 18, Medicare is highly unlikely to be marked as the insurance type for this age group. It is, while still unlikely, sometimes an option for parents of these children.

[12] Some individuals' interviews extend into 2013 at the end of the 2008 panel. However, there is little variation in usual thresholds at that stage, and instead the ACA is beginning to move toward implementation. We leave out the 2013 observations in SIPP throughout the analysis.

[13] More details about this sample construction are available in Hamersma, Kim, and Timpe (2019) who used it to investigate spillovers of parental eligibility expansions to their children's coverage.

[14] Sources are described in more detail in Hamersma, Kim, and Timpe (2019).

in Table 2, this table displays the composition across our analytical samples. About 12% to 18% of our families lie within the patchwork categories, meaning a substantial share of families lack uniform coverage.

Table 2: Composition of Families

Type	Definition	CPS (1988-2013)	CPS (1997-2013) Parent Expansion Sample	SIPP (1996-2012)
Uniformly Insured	All individuals in the family are insured and they have the same type of insurance	78.22	77.10	72.30
Patchwork Insured	All individuals in the family are insured but not all have the same type of insurance	2.36	2.99	4.73
Patchwork with Gaps	Some individuals in the family are uninsured, the rest may or may not have the same type of insurance	12.02	12.75	14.78
Fully uninsured	All individuals in the family are uninsured	7.40	7.16	8.19

Notes: The first column includes the CPS sample of 580,634 households, and the second column includes 415,238 households, the SIPP sample of 355,312 person-interviews.

Note that these two datasets cover different years (with SIPP beginning later) and that the samples differ a bit in construction (ex. SIPP codes these based on a sample containing youngest child in each household attached to highest earner). That said, the overall picture in both samples is that roughly three-quarters of families are uniformly insured, and of those who are not, about one-third are fully uninsured and the others have patchwork insurance status.

Descriptive Findings

Using these categories across 26 years of the CPS data, we construct the patterns over time in the distribution of families across these four groups, shown in Figure 4. We see remarkably stable levels of "fully uninsured" (not on figure) across the entire period from 1988 to 2013, with only a small decrease over time from 7.8% to 6.6%. The overall trend in uniformity is downward, with about a 10 percentage-point decrease, from 84.1% to 73.7% of all families. The decline tracts the major expansions of public health insurance over this period – especially for children – which manifest in the increases in patchwork insurance coverage; this is particularly stark for patchwork coverage with gaps, i.e. with some family members left uncovered, which doubles over the period from 7.5% to 15.6% of all families.

We take a more detailed look at different combinations of coverage within families using both CPS and SIPP data. However, we focus on SIPP here because we can utilize the panel nature of the data to look at transitions in coverage over time. We first pool across years to create Table 3a, which classifies each family into a parent-child health insurance cell as described in our conceptual Table 1. We find uniformity to be the most frequent status (65.16% in the private-private category and 7.15% in the public-public), but several other cells also have substantial density. The three cells with lowest density are those we predicted to be irrelevant in Table 1; over 96% of the observations are in the

remaining cells. Results are similar with the CPS (Table 3b). In particular, these tables confirm that parental public coverage is almost always accompanied by child public coverage, i.e. reflects a uniform outcome.

Figure 4: Time trends in insurance status by family, CPS 1988-2013

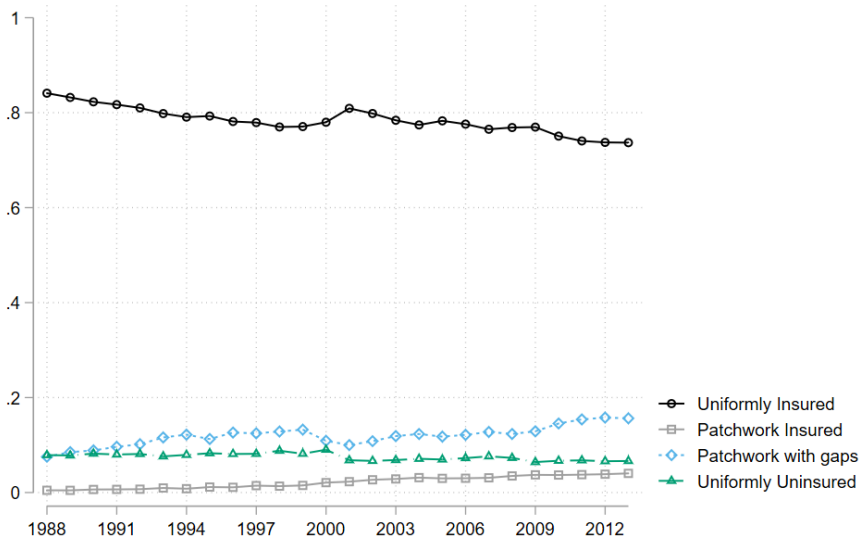


Table 3a: Fraction of child-parent pairs in each category: pooled SIPP data

Parent ↓ || Child →	Uninsured	Public	Private
Uninsured	8.19	7.56	2.11
Public	0.83	7.15	0.62
Private	4.29	4.11	65.16

Notes: This includes the 1996, 2001, 2004, and 2008 SIPP panels, with one observation per person-interview. N = 355,312. Observations are family-waves – i.e. each household is represented by its youngest child, once per wave (last month of the 4 interview months), and attached to household characteristics including the health insurance source of the highest earner in the home (typically a parent).

Table 3b: Fraction of child-parent pairs in each category: pooled CPS data

Parent ↓ || Child →	Uninsured	Public	Private	Mixed
Uninsured	7.85	5.35	1.92	0.84
Public	0.26	9.74	0.15	0.04
Private	1.65	2.01	69.52	0.66

Notes: This includes the 1988-2013 CPS households with families of at least one kid and no double insurance for any member. Parent is the insurance status of head of household.

Because SIPP data is longitudinal, we also observe transitions across coverage categories over time. It is possible that family insurance status, even though it varies based on Table 3, is persistent over time within families. On the other hand, even large cells in Table 3 may be unstable. Since our focus is on uniformity, Table 4 displays transitions across uniformity status (using our four categories) from one wave to the next. For example, the number 91.96 on the first column, first row indicants that between first and last period about 91.96 percent of families remained as uniformly insured.

Table 4 shows substantial movement across insurance situations for families over time. Even among families that are uniformly insured in each period – the top row, and most stable situation – over 8% will be in another category when they are observed again just four months later, usually with one or more people having become uninsured. Among the three categories of families without uniform coverage in a given period (above 27% based on the last column of the table), nearly half will move to another status within 4 months – sometimes reaching uniform coverage, but often just making a step toward it. For example, among the 8% of families with both members uninsured at any given point (bottom category in Table 4), the most common outcome is to both remain uninsured, and the second-most-common is for only one person to become insured. In the next period, that family is in the "patchwork with gaps" category to start, and now has a higher probability of moving to uniformly insured than before.

Table 4: All wave-to-wave transitions of child-parent pairs: SIPP data

t ↓ || t + 1→	Uniformly Insured	Patchwork Insured	Patchwork with Gaps	Fully uninsured	*Total*
Uniformly Insured	91.96	1.42	4.93	1.70	*72.91*
Patchwork Insured	22.84	54.86	19.25	3.06	*4.65*
Patchwork with Gaps	23.61	6.29	57.90	12.19	*14.42*
Fully uninsured	14.20	2.11	21.81	61.88	*8.02*
Total	*72.65*	*4.66*	*14.58*	*8.10*	*100*

Notes: This includes the 1996, 2001, 2004, and 2008 SIPP panels, with one observation per family-wave, indicating the nature of the transition to the next observation in time for that pair. Entries are row proportions: each row adds to 1, with the marginal distribution across initial states provided in the "Total" column. N = 300,792. For example, 72.91 is the share of observations in our sample that had an initial state (in any period but the last) of "Uniformly Insured", whereas 72.65 represents the share of observations in our sample which "last" period (all periods but the first period) was "Uniformly Insured".

This extensive movement across insurance statuses over time is undoubtedly disruptive for families trying to meet health care needs. Identifying the reasons for this movement, and particularly those that may themselves be caused by policy choices, will help us identify ways to improve both overall coverage and consistency of care for these families. Given the patterns found in our descriptive analysis, we move to investigate how the changes in public insurance eligibility affect family insurance mismatch.

V. Analysis and Discussion

We ask two main questions in this section: How is uniformity of family insurance affected by (1) increases in parental Medicaid eligibility and (2) increases in children's Medicaid/SCHIP eligibility? We approach each question by estimating a simple ordinary least squares specification to determine the effect of changes in Medicaid eligibility and family's uniform insurance status. Our estimating equation is:

$$y_{fst} = \alpha + \beta_1 McaidEligibilityFPL_{st} + \delta_t + \theta_s + (X'\gamma) + \varepsilon_{fst} \quad (1)$$

where *f* indexes the family, *s* the state and *t* the survey year. The outcome variables are insurance uniformity measures as described above. $McaidEligibilityFPL_{st}$ is the fraction of the federal poverty line for which the individual is eligible for a family of three.[15] For example, a value of 1.33 corresponds to an income limit of 133% of FPL. Depending on the hypothesis we are testing, we focus on the eligibility limit for parents or for children. β_1 is our main coefficient of interest as it represents the effect of variation in Medicaid eligibility over time and across states on a given outcome. Standard errors are clustered at the state level to account for potential spatial correlation. In some specifications we add a vector of controls X' which include whether the family has two parents or not, number of children fixed effect, and dummies if the family has any kids ages 0-1, 1 to 5 and 6 to 18, respectively. The identifying assumption is that changes in Medicaid eligibility are uncorrelated with the error once we have accounted for any covariates and state and year fixed effects.

We first estimate this equation using CPS data. Then, we corroborate the evidence with the SIPP panels.[16]

Results: Parent Expansions

We begin by estimating how parental Medicaid expansions across time and states affect the likelihood of uniformity. Consider a family whose children have Medicaid and parents have private insurance. When Medicaid expands, parents become eligible for Medicaid and the parents may switch to Medicaid and become a "uniformly insured" family. Since children's eligibility is usually more

[15] The use of a family-of-3 threshold is to avoid the entanglement of Medicaid generosity with family size, which could be endogenous. Since we use eligibility limits in terms of FPL, this does not matter much. States with an explicitly FPL-based limit have the same threshold for all family sizes (as the FPL itself adjusts for family size), and for those states that maintain nominal thresholds, the different dollar values for each family size often align (roughly) to the same approximate multiple of FPL. Family size of 3 is not unusual in our sample, especially when restricted to single-mother families in a subgroup analysis; about 93 percent of our families in our CPS sample have 3 kids or fewer.

[16] While the SIPP is a panel dataset, we do not find enough variation across time in eligibility thresholds given the relatively short panel time period to estimate a family fixed effects model.

generous than parents' eligibility, an expected outcome is that a Medicaid expansion affecting parents would lead to more uniformity through an increased likelihood of the whole family being covered by Medicaid.

Table 5 shows the results of how changes in Medicaid eligibility for parents changes the uniformity of insurance for families. The main explanatory variable is the family-of-3 parental Medicaid eligibility threshold measured as a fraction of the federal poverty line. These thresholds range from 0.18 (18% FPL) to 2.14 (214% FPL) across states and over time; a 1 unit change in this variable represents a 100 percent of FPL increase in eligibility. Estimates in Table 5 come from four separate regressions, with mutually exclusive outcomes, thus an increase in any column must come from a decrease in the other categories. Column 1 of the table suggests an estimated 2.76 percentage-point increase in the probability that a family is uniformly covered when eligibility increases by 100% FPL, though the 95% confidence interval ranges from approximately -0.03 to 5.1 percentage points. We estimate a more precise effect on moving from a patchwork category: both estimates suggest that parental expansions reduce this type of coverage situation. We cannot be sure from the last column whether these expansions also reduce the incidence of family-wide uninsurance (i.e. whether they create a welcome mat that brings eligible-but-uninsured children into coverage along with their newly eligible parents.). The increase in uniformly insured flow about 76% from the patchwork with gaps, 18% from patchwork insured and 6% uniformly insured.

Table 5: Effects of Parent's Medicaid Expansions on Family's Uniformity of Insurance (CPS)

	(1) Uniformly Insured	(2) Patchwork Insured	(3) Patchwork with gaps	(4) Fully Uninsured
Parental Medicaid eligibility threshold as fraction of FPL	0.0276	-0.0051	-0.0209	-0.0016
	(0.0139)	(0.0022)	(0.0076)	(0.0075)
	[0.0525]	[0.0243]	[0.0083]	[0.8356]
N	415,234	415,234	415,234	415,234
R^2	0.03	0.01	0.02	0.01
Mean of Y	0.76	0.03	0.13	0.07
%-of-Y effect of 20%FPL change	0.72	-3.52	-3.16	-0.42

Notes: Clustered standard errors at the state level in parentheses. P-values in brackets. These regressions are done at the family level. We have about 415,234 families in our analytic sample from 1997-2013. A 20pp change in FPL (or 0.20 change in our threshold variable) is the average change in eligibility over 10 years.

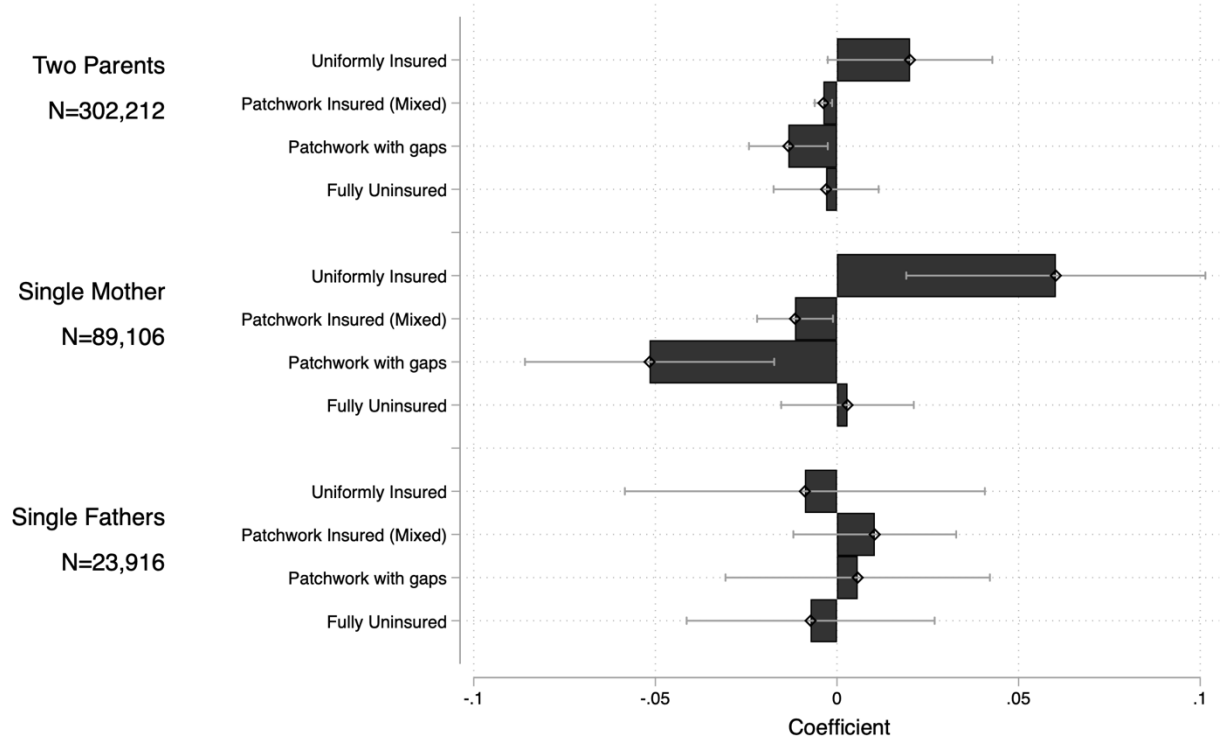
The coefficient estimates in the table reflect a one-unit, or 100% FPL, increase in the parental Medicaid threshold, which is quite large. Over a span of 10 years, we see families experiencing an average of a 20-percentage point increase in parental eligibility (though families in non-expanding states pull this average down; see Figure 3). As a more conservative measure, in the bottom row we calculate what a 20-percentage point increase in FPL eligibility would imply in terms of a percentage change of the outcome variable. For all outcome variables this change is fairly modest (0.6-3.5% of baseline), but consistent with movements out of patchwork insurance to uniform, with some possible departure from fully uninsured as well.

Given that parents' eligibility is a function of family income, we should expect two-parent households to be less affected than single-parent households, since the income of single-parents households will often be smaller than two-parent households (even as a percent of FPL). We separately analyze these groups in Figure 5. Indeed, we find that the effect of Medicaid expansions on uniformity is largest for

single mothers, with movement from a combination of other categories into uniformity. The same pattern, but more muted, emerges for families with two parents. Finally, the patterns are reversed for single-father households, but this sample is much smaller and none of these estimates are statistically significantly different from zero.

Similar analysis can be done with the SIPP sample. We note that utilizing "family fixed effects" would be a natural specification, but within a family overtime there is very little variation of the eligibility metrics due to the small duration of the panel. Table 6 provides estimates for the full sample as well as the single-mother-only sample, and suggests a similar pattern to that shown in CPS: a movement into uniformly insured, with movements away primarily from patchwork with gaps.[17]

Figure 5: Effects of Parent's Medicaid Expansions on Family's Uniformity of Insurance by type of Parental Structure



[17] However, there is more substantial suggestion of an increase in "fully uninsured" in the single mother sample; this is imprecisely estimated but the confidence interval includes large values. (The CPS estimate for this subsample was also positive but very small and statistically insignificant, as shown in Figure 5.) We investigated this further (see Appendix Table 1) and found that with subsamples using up to the first three panels of SIPP used here (starting in 1996, 2001, and 2004) this estimate is negative as expected (and large in the early years). However, the 2008 panel of the SIPP indicates a movement in the other direction. Our expectation is that the other changes occurring in 2008-2012 – including, notably, the Great Recession and the passage of the Affordable Care Act of 2010 – may be compromising our ability to isolate the effects of the (very limited) changes in parental Medicaid thresholds during this time.

Overall, our findings on parental expansions suggest the anticipated movement away from patchwork coverage to full coverage. Uniform coverage increases by about one percentage point for an average increase in the threshold – and likely more for single mothers. Before moving to an examination of heterogeneity – including investigation of more- and less-affected subgroups, movements between coverage types, and crowd-out – we move to our examination of child Medicaid expansions.

Table 6: Effects of Parent's Medicaid Expansions on Family's Uniformity of Insurance (SIPP)

	(1) Uniformly Insured	(2) Patchwork Insured	(3) Patchwork with gaps	(4) Fully Uninsured
Panel A: Full sample				
Parental Medicaid eligibility threshold as fraction of FPL	0.0334	-0.0072	-0.0273	0.0010
	(0.0100)	(0.0042)	(0.0092)	(0.0048)
	[0.0016]	[0.0939]	[0.0049]	[0.8319]
N	355,312	355,312	355,312	355,312
R^2	0.26	0.04	0.14	0.08
Mean of Y	0.71	0.05	0.16	0.08
%-of-Y effect of 20%FPL change	0.94	-2.81	-3.44	0.26
Panel B: Female-headed families only				
Parental Medicaid eligibility threshold as fraction of FPL	0.0436	-0.0071	-0.0492	0.0127
	(0.0202)	(0.0090)	(0.0169)	(0.0118)
	[0.0361]	[0.4359]	[0.0055]	[0.2880]
N				
N	85,527	85,527	85,527	85,527
R^2	0.13	0.03	0.07	0.05
Mean of Y	0.58	0.09	0.24	0.10
%-of-Y effect of 20%FPL change	1.51	-1.66	-4.13	2.55

Notes: Clustered standard errors at the state level in parentheses. P-values in brackets. These regressions are done at the dyad level (highest earner + youngest child). We have 355,312 dyads in our analytic sample from 1996-2012. A 20pp change in FPL (or 0.20 change in our threshold variable) is the average change in eligibility over 10 years. Covariates include indicators for family type, education level, number of children by age group, female, parent age group, number of earners, and income group as well as a continuous measure of the state unemployment rate and fixed effects for state and month-year.

Results: Child Expansions

We next analyze how children's Medicaid expansions affect uniformity of coverage. We follow a similar specification from the baseline and add number of children fixed effects and dummies if the family has any kids aged 0 to 1, 2 to 5, and 6 to 18. Table 7 provides the results from the baseline, with the p-values for the full set of three child eligibility thresholds reported at the bottom.

Overall, we do not find patterns of movement into uniform insurance with child expansions, which is consistent with our hypothesis. There is little that can be said conclusively given wide confidence intervals of our individual estimates, though we do see some evidence of departure from less-preferred states like patchwork with gaps and movement towards more-preferred states like uniform insurance based on the overall p-value of the three threshold variables. The results are particularly noticeable for infant thresholds. We have also re-estimated these models across sub-

samples of type of parents (two parents, single mothers, single fathers) but could not draw strong conclusions. These results do not provide a clear sense of whether Medicaid expansion for children substantially affects uniformity. The size of the estimated effects is also relatively small, consistent with our hypothesis that child expansions may not generate as much movement due to the inability of parents to join children in receiving public insurance.

Table 7: Effects of Children's Medicaid Expansions on Family's Uniformity of Insurance

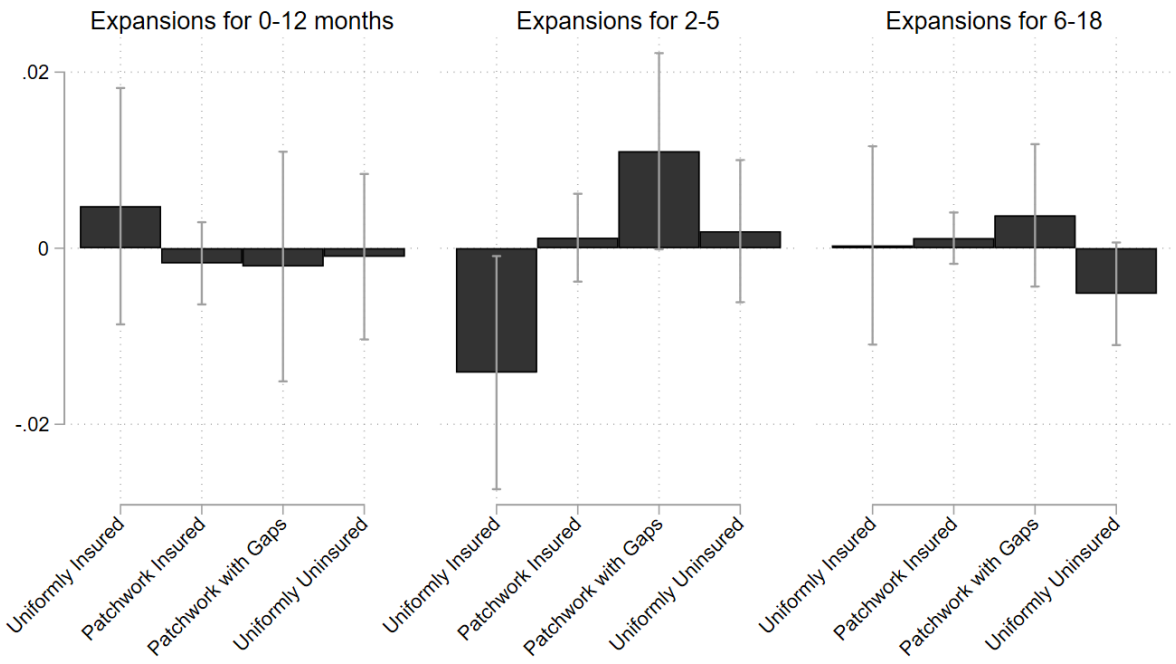
	(1) Uniformly Insured	(2) Patchwork Insured	(3) Patchwork with gaps	(4) Fully Uninsured
Eligibility as fraction of FPL	0.0150	-0.0011	-0.0145	0.0006
for children age 0-1	(0.0057)	(0.0017)	(0.0056)	(0.0032)
	[0.0107]	[0.5206]	[0.0120]	[0.8627]
Eligibility as fraction of FPL	-0.0059	0.0002	0.0018	0.0039
for children age 2-5	(0.0067)	(0.0025)	(0.0055)	(0.0042)
	[0.3807]	[0.9218]	[0.7454]	[0.3573]
Eligibility as fraction of FPL	0.0016	0.0008	0.0027	-0.0050
for children age 6-18	(0.0056)	(0.0014)	(0.0040)	(0.0028)
	[0.7803]	[0.5972]	[0.5141]	[0.0827]
N	394,053	394,053	394,053	394,053
R2	0.07	0.02	0.04	0.02
Mean of Y	0.79	0.02	0.12	0.07
50pp Percent	0.95	-2.80	-5.96	0.40
F-test p-value	0.06	0.83	0.06	0.29

Note: Standard error in parentheses clustered at the state level. P-values in brackets. 50pp change in FPL is the average change in eligibility over 10-year span for children. Specifications include dummies for two parents vs. single parent, number of kids fixed effects, dummies if the family had children between 0 and 1, 1 to 5 and 5 to 18, and state and year fixed effects. The F-test p-value is a test if all three coefficients are jointly significant or not. Sample is families of at least two kids.

Finally, we re-estimate the model from Table 7 but we add interactions with dummies if the family has children in that given age range. For example, if a family has a child aged 2-5 then the dummy will turn on and be interacted with the eligibility fraction variable for children 2-5. We then plot the marginal effects of expansions for children for families who have children in those age-ranges. We present those results in Figure 6. For the groups of infants (0-1) and kids (6-18), we don't find any particular interesting pattern nor size of the effects that are either economically or statistically significant. However, for the group of children ages 2-5 we see that families "exit" the uniformly insured category, and flow into the patchwork with gaps. This is consistent with our predictions of children's expansion. Although this is an interesting pattern, given that this pattern does not repeat for the infant group or the older group we do not present this as a robust result.

Moving to the SIPP data, results are similarly imprecise but easier to interpret as we simply attach the Medicaid threshold based on the age of the child in the dyad (i.e. the youngest child). Table 8 shows the results for both the full sample and single mothers only.[18]

Figure 6: Effects of Children's Medicaid Expansions on Uniformity of Insurance for Families with children in respective age ranges.



The estimated effect of child expansions on uniform insurance in SIPP is smaller than for parent expansions – particularly for the full sample – and while still positive, it is only marginally statistically significant. The movement seems to primarily come from patchwork with gaps, but again with fewer departures than for parental expansions.

[18] We note that the structure of the sample in the CPS is slightly different than from the SIPP, but we've replicated the structure of the SIPP on the CPS and we obtain similar results, hence we don't think this sample structure is a meaningful difference.

Table 8: Effects of Child's Medicaid Expansions on Family's Uniformity of Insurance (SIPP)

	(1) Uniformly Insured	(2) Patchwork Insured	(3) Patchwork with gaps	(4) Fully Uninsured
Panel A: Full Sample				
Child Medicaid eligibility threshold as fraction of FPL	0.0124	0.0015	-0.0122	-0.0018
	(0.0062)	(0.0031)	(0.0049)	(0.0032)
	[0.0521]	[0.6303]	[0.0172]	[0.5756]
N	355,312	355,312	355,312	355,312
R^2	0.26	0.04	0.14	0.08
Mean of Y	0.71	0.05	0.16	0.08
%-of-Y effect of 20%FPL change	0.35	0.60	-1.53	-0.46
Panel B: Female-headed families only				
Child Medicaid eligibility threshold as fraction of FPL	0.0335	-0.0041	-0.0203	-0.0090
	(0.0182)	(0.0091)	(0.0110)	(0.0055)
	[0.0723]	[0.6526]	[0.0721]	[0.1072]
N	85,527	85,527	85,527	85,527
R^2	0.13	0.03	0.07	0.05
Mean of Y	0.58	0.09	0.24	0.10
%-of-Y effect of 20%FPL change	1.16	-0.97	-1.70	-1.81

Notes: Clustered standard errors at the state level in parentheses. P-values in brackets. These regressions are done at the dyad level (highest earner + youngest child). We have 355,312 dyads in our analytic sample from 1996-2012. A 20pp change in FPL (or 0.20 change in our threshold variable) is the average change in eligibility over 10 years.

VI. Digging Deeper on Expansions: Robustness and Heterogeneity Analysis

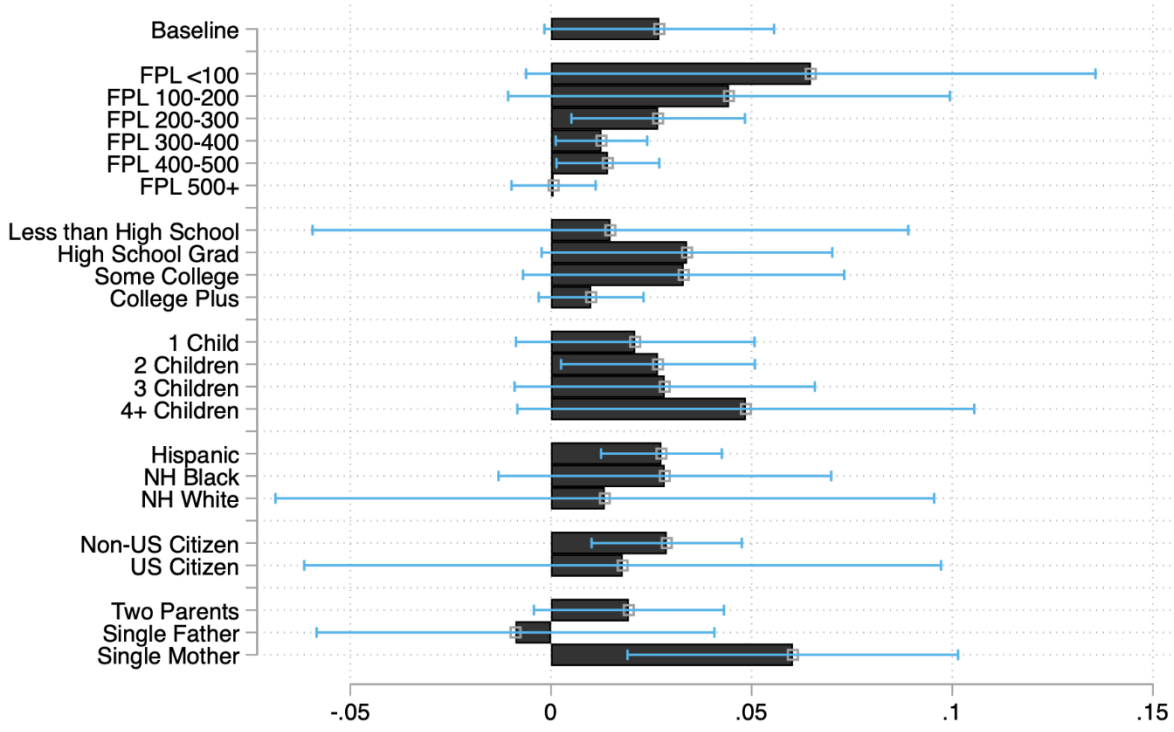
In this section, we extend our analysis to provide robustness of our results and explore possible heterogenous effects of public insurance expansions. First, we examine whether effects of the program with highest impact – parental expansions – seem to be strongest among populations with the highest likely exposure to expansions (recall, our estimates are intent-to-treat), if so, this provides strength to our argument of the effect being about public insurance eligibility. Second, we consider whether movements between specific combinations of coverage correspond to our conceptual model for child expansions, with particular attention to the idea of parents becoming potentially uninsured when children gain public insurance eligibility. Finally, we estimate the level of crowd out for both child and parental expansions by looking at how much increases in uniformity can be decomposed into movements into (or out of) uniform Medicaid vs. uniform private.[19]

[19] We also perform another robustness analysis in which we think of potential covariates that our model would need to account for, but instead of putting them on the right-hand side, we put them as outcomes, following recommendations by Pei, Pischke, and Schwandt (2019) in order to see which of these covariates is related to our policy. The results are in Appendix Figure A4. We find that state ideology and cigarette taxes are the main covariates correlated with our main explanatory variable. We re-estimate our main model with the inclusion of these covariates and find similar results which can be found in Appendix Table 2.

While our earlier analyses examined the whole sample and the highly affected subsample of single mothers, there is likely additional heterogeneity across subgroups in program impact. This could be because a subpopulation is particularly exposed to treatment (i.e. many more of them are eligible) or because a subpopulation is particularly responsive to the opportunity presented by Medicaid expansion. In either case, we expect more vulnerable groups to show a larger response to these expansions. Figure 7 provides treatment effect estimates from CPS for parental expansions on uniform coverage for a number of subgroups.

Compared to the overall finding of about 0.03, those with the lowest incomes are more sensitive to expansions while those with highest incomes are least sensitive. Similarly, the highest educated seem to experience little to no effect of the expansions. Families with more children seem more affected, possibly because a larger family size raises the allowable income by increasing the applicable FPL; larger families may be more likely to find themselves under the threshold after any given expansion; and/or having more family members that qualify for Medicaid may raise the perceived benefit of coverage (Sommers 2006). We do not find racial differences or immigrant-status differences in estimated effects, though standard errors are large so this may mask differences.

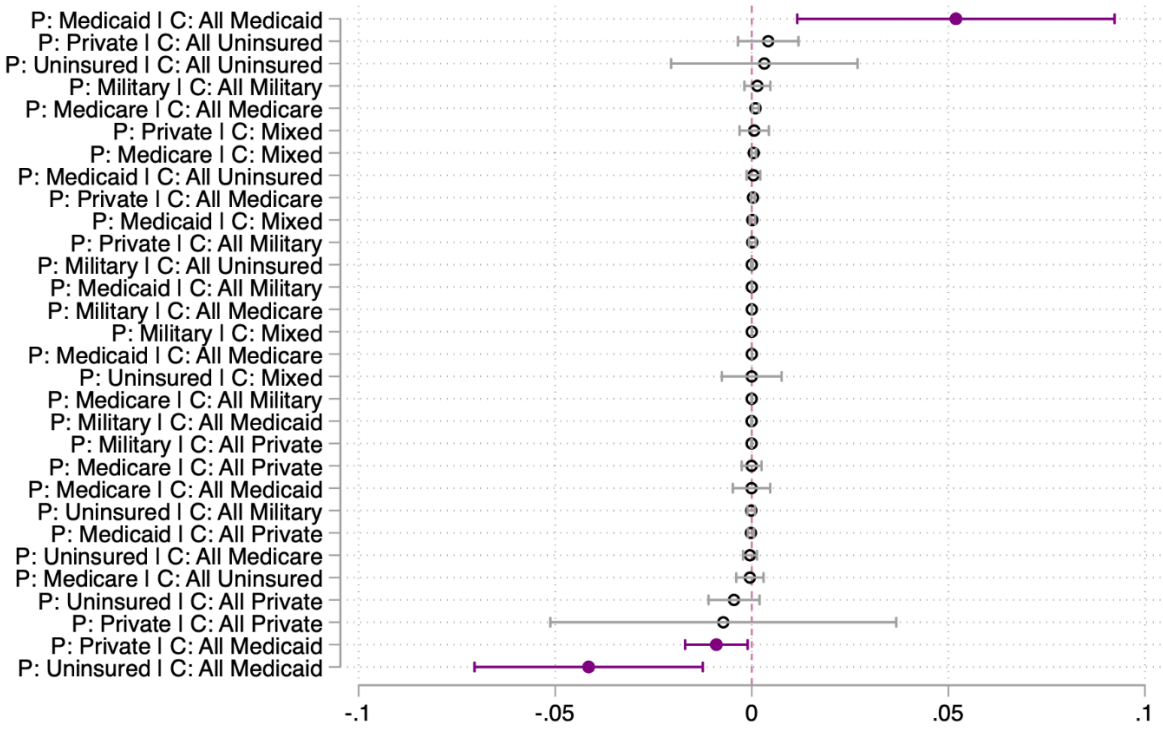
Figure 7: Expansion Effects on Uniformly Insured, by subgroup (CPS)



One area of concern motivating this paper was the possibility that some expansions might drive more uniformity while others may lead to family transitions that sacrifice parental coverage. If both were occurring at the same time, this could hide substantial effects in each direction. More broadly, we sought to better understand both the distribution of families across insurance combinations and how

families specifically move in response to expansions. Figure 8 uses the CPS coded with more fine definitions of coverage (including smaller categories of Medicare, Military, and Mixed) to display the detailed estimated effects of parental expansion on every combination for the highly-affected single mother sample. These are listed in order of the estimate effect size, and we see that the strongest inflows are moves into uniform Medicaid, while the departures are from the categories in which children already have Medicaid but parents have private coverage or are uninsured. This suggests the mechanism for change is what we expected: parents joining their children on public coverage – moving from patchwork coverage (often patchwork with gaps) to uniform public coverage for the family.[20]

Figure 8: Effects of Parent's Medicaid Expansions on Single-Mother Family's Uniformity of Insurance



To address the specific concerns of parents dropping insurance coverage in response to expansions in eligibility for mostly free child public insurance, we use the panel feature of the SIPP to follow families over time who were previously privately insured. Using a sample of those with uniform private coverage at the most recent previous interview, we model the 4 same uniformity categories as in previous analyses as well as the specific category of "parent uninsured and child public". We estimate the model with the usual full sample, and then examine possible differential effects on single mothers through use of an interaction term with the threshold in a second model (since the sample

[20] We repeat this exercise for single-fathers and two-parent households as well, this can be found in Appendix Figure A1 and A2.

of female-headed families with fully private insurance is rather small and thus of low power). Table 9 provides these findings.

Table 9: Effects of Parent's Medicaid Expansions on Family's Uniformity of Insurance (SIPP), Uniform Private Last Period subsample

	(1) Uniformly Insured	(2) Patchwork Insured	(3) Patchwork with gaps	(4) Fully Uninsured	(5) Parent Unins/ Child Public
Panel A: main model					
Child Medicaid eligibility threshold as fraction of FPL	-0.0025 (0.0017) [0.1537]	0.0020 (0.0009) [0.0395]	-0.0004 (0.0014) [0.7691]	0.0009 (0.0008) [0.2551]	0.0004 (0.0005) [0.4397]

N = 198,191 observations who had uniform private coverage in the most recent previous interview. See earlier SIPP tables for list of covariates.

While we find a negative coefficient on child expansions, suggesting loss of uniform private coverage, these are imprecisely estimated. Thus, we have little confidence in this pattern. Moreover, to the extent people leave this category they seem most likely to remain fully – but not uniformly – insured. The last column of the table shows the particular status of concern, and we see no evidence of a meaningful movement from uniformly private coverage to having publicly insured children with uninsured parents. More consistent with these results would be movements of children off their parents' private policies, with parents keeping just their own coverage.

In our final analysis, we estimate the level of crowd out for both child and parental expansions by looking at how much increases in uniformity can be decomposed into movements into (or out of) uniform Medicaid vs. uniform private. Table 10 provides this analysis using the SIPP, with the overall effect in the first column and the two subcategories in columns 2 and 3.

These findings suggest that overall changes in uniformity of insurance can mask the nature of changes in each type of uniform insurance. The larger effect of parental Medicaid expansions on uniform coverage can now be seen to reflect a relative lack of crowd out from private coverage. In fact, child expansions have comparable effects on "uniformly Medicaid" to parental expansions, but are subject to approximately 40% estimated crowd out from private coverage. (Note that not all crowd out necessarily moves from fully private to fully public – as noted in the previous table, there are moves into patchwork categories as well.) These higher child crowd-out estimates are consistent with the larger Medicaid/SCHIP literature, where child expansions are consistently associated with more crowd out. These estimates also suggest that children's expansions can have a welcome mat effect on parental Medicaid enrollment. While crowd out concerns are persistent in the literature, our findings add another layer to this concern in that crowd out reduces the improvement in uniformity, a factor not usually recognized *per se* but which we argue can be a valuable feature of family insurance status.

Table 10: Crowd-Out Analysis (SIPP)

	(1) Uniformly Insured	(2) Uniformly Private	(3) Uniformly Public
Panel A: Full Sample			
Parent Medicaid eligibility threshold as fraction of FPL	0.0334	0.0041	0.0294
	(0.0100)	(0.0123)	(0.0075)
	[0.0016]	[0.7433]	[0.0003]
Child Medicaid eligibility threshold as fraction of FPL	0.0124	-0.0097	0.0222
	(0.0062)	(0.0039)	(0.0070)
	[0.0521]	[0.0167]	[0.0028]
Panel B: Female-Headed Families			
Parent Medicaid eligibility threshold as fraction of FPL	0.0436	-0.0056	0.0492
	(0.0202)	(0.0149)	(0.0184)
	[0.0361]	[0.7078]	[0.0104]
Child Medicaid eligibility threshold as fraction of FPL	0.0335	-0.0208	0.0542
	(0.0182)	(0.0092)	(0.0152)
	[0.0723]	[0.0285]	[0.0009]

Full sample N = 355,312 (Panel A) and female-headed sample N = 85,527 (Panel B). See earlier SIPP tables for list of covariates

VI. Conclusion

Barriers to health care access through both lack of insurance and mismatched insurance within families are a serious impediment to consistent health care for children and their parents. In this paper, we treat the family as the main unit of observation and provide descriptive trends in uniformity of insurance as well as estimate the effect of public health insurance expansions for parents and children on *family* insurance uniformity.

Our descriptive analysis showed that uniformity of insurance in families has decreased by 12% since the 90s, still this is the most "stable" category for families, about 92% of families remain uniformly insured through a span of three years. Families that are patchwork insured, and patchwork with gaps have less stables status, and they are all converging towards uniformity. Finally, we observe changes in Medicaid eligibility for parents and children track changes in uniformity of coverage leading us to explore this relationship further.

We create a conceptual framework to predict in which situations these expansions will contribute to or reduce uniformity of insurance within a family. We find that if eligibility is expanded for parents, which means having "closer" eligibility of parents and children, then this leads to not just more insurance coverage, but more uniformity of coverage. In contrast, if eligibility is expanded for children only, at an income eligibility more generous than that applied to their parents, improvements in overall insurance levels for these children do not necessarily improve uniformity

of coverage and may even reduce it. Consistent with theory, our empirical findings indicate that the real bite in improving insurance access through within-family uniformity of coverage is having parents and kids under the same thresholds, i.e. expanding parental eligibility.

Increases in uniformity remain understudied, but the existing literature suggests strong benefits of having a family on the same coverage. We provide evidence of decreased delay in care and increased health care utilization among uniformly insured in appendix Figure A3. Potential explanations for these results include reduced complexity for parents due to only having to navigate one insurance system, with one set of coverage features. Situations in which not all family members qualify for public insurance creates incentives for insurance mismatch and leads to differences in insurance coverage and healthcare utilization based on sibling eligibility differences (Hudson and Abdus 2015). Administrative burdens in the healthcare system are well documented (see e.g. Moynihan, Herd, and Harvey 2015), and increasing both the choice set and information set necessary to make optimal health decisions for one's family understandably leads to increased psychological and transactional costs. These costs may ultimately affect whether children are reenrolled in Medicaid or end up uninsured as well (Phillips et al. 2004; Sommers 2005a). Our results demonstrate an increase in uniformity which is associated with decreases in unmet medical needs and increased healthcare utilization (Shinberg 2008; Percheski and Bzostek 2013; Hudson and Abdus 2015).

While parental Medicaid expansions may not appear to be a policy directed toward the well-being of children, there are many reasons to consider children as beneficiaries of these policies. First, these expansions can indirectly benefit children through a welcome-mat effect (Sacarny, Baicker, and Finkelstein 2020; Dubay and Kenney 2003). In addition, there are benefits to having parents who have access to their own physical and mental health coverage (Guldi and Hamersma 2022), keeping them healthier for the demands of parenting and potentially spilling over onto children's demands for preventive care (Venkataramani, Pollack, and Roberts 2017). This should also inform recent expansions of Medicaid for up to a year post-birth for women. This policy not only expands coverage, but likely increases uniformity for mother-child dyads. Additionally, work focusing on the ACA finds that adult Medicaid expansions reduce mortality (Miller, Johnson, and Wherry 2021). However, a concern of any expansion would be potential crowd-out. While we do document evidence of crowd-out caused by children's expansions, we do not see evidence of family crowd-out in parental expansions (e.g. no evidence of whole families moving from uniform private insurance to uniform public insurance). While this may hide some amount of crowd-out related to parents moving from private to public insurance to match their children who were already covered by public insurance, this movement still increases uniformity, the strengths of which we discuss above.

We note several limitations of our analyses. First, we are not able to see the exact provider of private health insurance for individuals or families. Thus, if a family had coverage from more than one provider, say a mother had private insurance through work and a father had a separate private insurance plan through work, we are not able to see this, nor can we see whose plan covers the children. This could represent an additional source of non-uniformity within families, but is unobservable to the econometrician. Analyses that investigate single parents are much less likely to suffer from this limitation and show even stronger results for single mother led families following parental Medicaid expansions, as expected. Additionally, we treat children covered by Medicaid and CHIP to be on public insurance and focus on the most generous eligibility threshold for either program in our analysis. Previous work has shown no difference in utilization of services for children covered by either Medicaid or CHIP (Hudson and Abdus 2015). We also perform an additional

analysis focusing on states that manage their CHIP program separately from their Medicaid program and found consistent results. Second, one may worry that mothers are more likely to be making healthcare decisions for children because of gendered-parental roles, especially given the time periods covered by our analyses. If women are making these decisions, considering uniformity across the whole family, including fathers may introduce bias into our estimates and explain why we find larger effects for single mothers. We re-estimate our main analysis focusing only on mothers and find similar estimates to our main analysis, confirming that Medicaid expansions increase uniformity in both two parent and single mother households but that the effects are stronger in single mother households.[21]

In this paper, we emphasize a previously less-noted benefit to children from parental expansions: improvements in uniformity of coverage that contribute to easier health care access for the whole family. In almost all cases of parents obtaining public insurance, that insurance is shared with their children, and so the spillover of uniformity is another positive by-product of expanded parental access to public insurance. Future work should investigate the effects of changes in family health insurance uniformity on longer term healthcare utilization and health outcomes.

[21] Results available upon request.

VII. References

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