Medicaid Generosity and Food Hardship Among Children

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Abstract

At the height of the COVID-19 pandemic in 2020, households with children experienced an increase in rates of food insecurity despite the broader population staying at the same rates found in 2019. If households with children are not seeing the same gains in food security as other households, are current food support programs robust enough to aid in times of increased hardship? We explore the role of the largest non-food support safety net program, Medicaid, on multiple measures of food hardship among households with children. Using data from the 2001-2019 waves of the December Current Population Survey, we identify the effect of having a Medicaid eligible child on food hardship by exploiting between-state, over-time, and between household income eligibility criteria. We find that having an eligible child reduces rates of food insecurity by 16-23%. The effects are stronger for Black and Hispanic households as well as households that have children under 6 years old.

Keywords: Medicaid, Food Insecurity, Childhood Food Hardship

JEL Classification: I13, I31, I38, J13

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Introduction

In 2019, 14.6% of all children were classified as food insecure by the United States Department of Agriculture (USDA), meaning they did not have the resources for dependable access to enough food for an active, healthy lifestyle (Coleman-Jensen et al., 2021). This translates to approximately 10.7 million children who struggled with food hardship, equating to approximately 13.6% of all households with children. Food insecurity among children had been decreasing prior to 2019, down from a high of 23.2% of all children during the height of the Great Recession in 2009. This trend reversed in 2020 with the onset of the COVID-19 pandemic. In 2020, an estimated 16.1% of all children were food insecure. However, this reversal is not found in the wider population, with the percentage of food insecure households staying constant at 10.5% from 2019 to 2020.

This result highlights the extra strain on resources faced by households with children. Though the safety net was expanded in response to the pandemic, households with children still experienced greater rates of food insecurity. If households with children are still vulnerable to food insecurity despite these substantial increases, are current food support programs robust enough to aid families with children during times of extreme hardship and if not, how can other programs in the safety net alleviate food hardship? This paper explores the role of one such non-food-support program, Medicaid, in improving food security among households with children and finds that Medicaid eligibility is associated with declines across multiple measures of food hardship.

Food hardship is associated with significant negative health outcomes, such as increased rates of hospitalization among children, higher rates of metabolic syndrome, and poor cognitive outcomes. While poverty and food hardship are not necessarily co-determined, there is a strong relationship between a lack of economic resources, the determinants contributing to the lack of resources, and food hardship (Gundersen et al., 2011). To combat these negative relationships, the US has established a food support system to provide food and resources for families facing hunger. The Supplemental Nutrition Assistance Program (SNAP, previously

known as the Food Stamp Program) provides in-kind food benefits for eligible families, the National School Breakfast and Lunch Programs (NSBP and NSLP, respectively) provide meals to eligible children while in school, and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program provides in-kind food assistance to eligible pregnant women, mothers, and young children. These programs are instrumental in mitigating food hardship (Gundersen and Ziliak, 2018), and have been modified to address the recent acute distress caused by the COVID-19 pandemic (CBPP, 2021). However, food hardship as a symptom of general material hardship indicates that not only does the traditional food support system have a potential role to play in mitigating food hardship, but so too does the broader social safety net.

A large literature exists examining the relationship between food hardship and the traditional food support system, but our understanding of how non-food safety net programs might influence food hardship and food insecurity has only recently been explored (Schmidt et al., 2015; Moellman, 2020; Corman et al., 2021; Lenhart, 2021). Moreover, while child well-being is often the focus of safety-net programs, we are not aware of any work aside from Lenhart (2021) that examines how the broader safety net might mitigate food hardship in children specifically. In this paper, we attempt to fill this gap in the literature by exploring how Medicaid, a public health insurance program in the US, affects food hardship among children. This paper is unique in many respects. This is the first paper, to our knowledge, that attempts to determine the relationship between Medicaid eligibility and food hardship. Second, this paper is the only paper, to our knowledge, to focus on the relationship between Medicaid and food hardship specifically for children. Finally, this paper is one of only a few works aiming to expand our understanding of how the broader safety net affects food hardship.

Medicaid is one of the largest social safety net programs. The Kaiser Family Foundation reports that $604 billion was spent on Medicaid in Fiscal Year (FY) 2019,[1] with 37.5% of all

[1] https://www.kff.org/medicaid/issue-brief/medicaid-enrollment-spending-growth-fy-2020-2021/

children in the United States receiving Medicaid benefits (28.2 million).[2] In FY2018, median expenditure per child in the Medicaid program was approximately $3,500.[3] In comparison, total costs for SNAP benefits in FY 2019 were $79 billion, with approximately 15.3 million children receiving those benefits. Thus, while traditional food support programs like SNAP are more targeted, the size and scope of Medicaid dwarfs that of SNAP, the country's largest food assistance program. For our analysis, we focus on households less than 380% of the federal poverty line (FPL) because not only are these families more likely to experience material hardship, but the cutoff also corresponds to the maximum income eligibility threshold for Medicaid in our data.

We use data from the 2001-2019 Current Population Survey (CPS) Food Security Supplement (FSS), as well as administrative data on state-level Medicaid income eligibility for children. Because income and health insurance status are poorly documented in the CPS FSS, we estimate Medicaid income eligibility using the age of the child, the income eligibility thresholds which vary at the state-year level, and the midpoint of the income bin provided by the CPS FSS. While this provides for an imprecise measure of eligibility, we are left with substantial variation across family type, state, and year. Moreover, our estimates are robust to using the minimum and maximum of the income bin. We find that having a Medicaid eligible child reduces the probability a household with children less than 380% of the FPL is food insecure by 7 percentage points, with an overall decrease in the incidence of this measure of food hardship between 19 and 25%. We find the effects of eligibility for Hispanic and Black, Non-Hispanic households are much larger relative to White, non-Hispanic households. Households headed by these individuals, which historically have experienced higher rates of food hardship, receive relatively larger gains from Medicaid benefits. Finally, we find the effects of eligibility for children less than 6 years old are significantly larger than those of eligibility for children 6-18 years old.

[2]https://www.kff.org/other/state-indicator/children-0-18

[3]https://www.medicaid.gov/state-overviews/scorecard/how-much-states-spend-per-medicaid-enrollee/index.html

Background

Official food security statistics are reported annually by the USDA and are derived from the CPS FSS which is administered every December by the U.S. Census Bureau. The FSS is a 12 month retrospective survey that asks households to recall any instances of food hardship experienced in the past year. A household's food security status classifies their level of food hardship and is determined by the number of affirmative responses to an 18 item (10 if no children are present in the household) questionnaire. [4] These questions measure a wide range of food hardship indicators, asking questions regarding relatively mild conditions, such as worry that household food would run out, to more severe indicators of food hardship, such as whether children had to skip meals for entire days due to lack of food. Categories of food security reported by the USDA and used in this paper are shown in Table 1 along with a brief description of the kind of food hardship faced by those households.

Food insecurity is an especially harmful condition for children due to the importance of nutrition in both physical and mental development. Physically, childhood food insecurity is associated with lower overall health quality, more hospitalizations, and more chronic health conditions (Alaimo et al., 2001; Weinreb et al., 2002; Cook et al., 2004, 2006; Casey et al., 2005; Hernandez and Jacknowitz, 2009; Kirkpatrick et al., 2010). Cognitively, children who are food insecure have lower cognitive development and worse school performance (Alaimo et al., 2001; Winicki and Jemison, 2003; Jyoti et al., 2005; Rose-Jacobs et al., 2008; Hernandez and Jacknowitz, 2009; Huang et al., 2010; Howard, 2011). Food insecurity can also hinder a child's socio-emotional development in the form of more internalizing behavior, poorer social skills, and more aggressive behavior (Kleinman et al., 1998; Alaimo et al., 2001, 2002; Weinreb et al., 2002; Jyoti et al., 2005; Whitaker et al., 2006). Importantly, these adverse health effects can still be found if the child is growing up in a food insecure household, even if they themselves are not food insecure, due to increased strain on parents (Whitaker et al.,

[4] The full CPS FSS questionnaire can be accessed at: https://www.ers.usda.gov/ data-products/food-security-in-the-united-states/.

2006; Ashiabi and O'Neal, 2007; Zaslow et al., 2009).

Given the persistently high levels of food insecurity among households with children observed in the past decade, the projected increase in food insecurity due to the COVID-19 pandemic, and the adverse effects children in these households experience, it is important to analyze the role of the social safety net in mitigating this condition. The United States has several food assistance programs that have been shown to improve food security: SNAP (Nord and Prell, 2011; Mabli and Worthington, 2014; Gregory et al., 2015), the NSLP & NSBP (Arteaga and Heflin, 2014), and WIC (Kreider et al., 2016; Arteaga et al., 2016). Though safety net programs that provide direct food assistance have obvious pathways to improving food security, the literature has shown that numerous factors besides income, such as health status and healthcare coverage, access to credit, and education can affect whether a household is food insecure (Wight et al., 2010; Gundersen and Ziliak, 2014; Anderson et al., 2016; Tiehen et al., 2020; Moellman, 2020). This implies that safety net programs with aims other than food hardship may lead to improvements in food security as well. Access to safety-net programs may provide resources to low-income, at risk households, allowing these households to re-allocate resources toward food expenditure, thereby reducing food insecurity.

Among the non-food support safety net programs, Medicaid may be able to uniquely reduce food hardship. Medicaid provides health insurance coverage to low-income families with little to no copayment or deductible. Medicaid was established under the Social Security Amendments of 1965, and expanded for children from families with more moderate income in 1997 with the introduction of the State Children's Health Insurance Program (SCHIP or CHIP). Historically, states have been much more generous in Medicaid coverage for children than for adults. In 2013, prior to the 2014 expansions of eligibility under the Patient Protection and Affordable Care Act of 2010 (ACA), only 8 states (AZ, CO, CT, DE, HI, MN, NY, VT) and the District of Columbia allowed non-disabled adults to receive any

Medicaid benefits[5].

Medicaid eligibility criteria for children can vary substantially across states, over time within a given state, and across family composition. Benefits differ based on three age categories for children: children aged 0-1, children aged 1-5, and children aged 6-18. Income eligibility thresholds are typically higher for families with younger children, and have been increasing over time, especially after the ACA. For example, children aged 0-1 were eligible for Medicaid in Wisconsin if their families were less than 185% FPL in 2001, or less than 306% FPL in 2019. However, children aged 6-18 were eligible only if their families were less than 156% FPL in 2019 in Wisconsin. Finally, as an example of cross-state variation, eligibility for children aged 0-1 varied from 146% FPL (Alabama) to 380% FPL (Iowa) in 2019. Thus, utilizing these income eligibility criteria give us substantially more variation with which to identify the effect of Medicaid on food hardship compared with previous studies.

Research on the effect of Medicaid and food security has thus far focused on the expansions that resulted from the Affordable Care Act (ACA) during the mid-2010s rather than considering broader variation in Medicaid program characteristics. Himmelstein (2019) finds the ACA expansions reduced the likelihood of very low food security among non-child and non-elderly households by 2 percentage points. While Moellman (2020) finds that the expansions reduced food insecurity among all households by 6.5 percentage points. Moellman (2020) utilizes a variety of definitions of expansions, but is still limited to a dichotomous measure of Medicaid expansion. Moreover, while Moellman (2020) considers a number of food hardship measures, measures specifically related to children are not considered. Our work builds on this literature by examining overall eligibility for Medicaid, rather than simply whether or not a state has expanded Medicaid. Additionally, we are able to consider a broader time frame, 2001-2019, because changes to income eligibility criteria happen relatively frequently. Finally, because Medicaid benefits are often more generous for households with children, we focus on these households as well as food hardship measures specifically

[5]https://www.kff.org/medicaid/state-indicator/medicaid-income-eligibility-limits-for-other-non-disabled-adults/

related to children, not considered in previous works.

In addition to increased health care coverage (Courtemanche et al., 2017), expanding Medicaid access has been shown to improve self-rated health (Simon et al., 2017) and improve financial well-being (Hu et al., 2018; Gallagher et al., 2019). These improvements to health and financial security can potentially reduce food hardship. Previous reports have noted that individuals may face tradeoffs between purchasing enough food or medication (Doty et al., 2008; Weinfield et al., 2014) and worse parental health is associated with higher levels of child food security (Balistreri, 2012).

Thus, not only does this paper fit into the emerging literature examining the effect of other safety net programs, including Medicaid, on food hardship, it also differs in a number of meaningful ways. We are able exploit the state-time-age variation in Medicaid eligibility to estimate the effect of Medicaid generosity on multiple measures of food security among households with children. Our work builds on the established literature of Medicaid and food security but considers more expansions than just what resulted from the ACA and focuses on households with children, a group that is particularly sensitive to food hardship.

Methodology

The baseline regression model for our paper is:

$$\text{Food Hardship}_{ist} = \beta_1 \text{Medicaid Eligible Child}_{ist} + X'\beta_2 + \delta_s + \delta_t + \varepsilon_{ist} \quad (1)$$

where $\text{Food Hardship}_{ist}$ represents the measure of food hardship for household i in state s at time t, $\text{Medicaid Eligible Child}_{ist}$ is an indicator for whether a household has a Medicaid eligible child, X' is a vector of household and state characteristics described below, δ_s and δ_t are state and year fixed effects, and ε_{ist} is the error term assumed to be uncorrelated with the covariates.

We use a number of measures of food hardship, with descriptions of the measures, and

explanations of how they are derived, listed in Table 1. Food insecurity is the most widely reported measure of food hardship, and our primary measure of interest. We also consider low and very low food security, which are more severe measures of food hardship, as well as the measures food insecurity among children and very low food security among children because our analysis focuses on the Medicaid eligibility of children. The child-centric food hardship measures have lower prevalence in the data, as many families attempt to shelter children from food hardship, leaving these measures as the most severe categories of food hardship we consider.

Because Medicaid eligibility criteria vary substantially, we construct a measure of child eligibility that varies at the state, year, and age level. Using the midpoint of the income bin for the family, we classify a child as eligible for Medicaid if the midpoint is less than the Medicaid income eligibility threshold for a child of that age, in that state, in that year.[6] We classify households as being potentially eligible for benefits if at least one child in the household meets eligibility requirements. This results in an intention to treat estimate, with identification coming from cross-family, cross-state, and over-time variation in Medicaid income eligibility limits. Binned income data leave us with imprecise measures of income, inducing measurement error into our results. While we utilize the midpoint of the income bin for our primary specification, we show that our results are robust to using the minima and maxima of these bins as well.

A number of household and state level of controls are accounted for in X' including income, age and squared age, sex, race, ethnicity, education of the household head, the number of people in the household, the number of children in the household, whether the household receives SNAP benefits (self reported), whether the household resides in a metro area, the maximum potential Earned Income Tax Credit (EITC) for the household, the state level unemployment rate, the prevailing minimum wage, party affiliation of the governor, the number of Medicaid beneficiaries in the state, an index of state level SNAP access policies

[6]Medicaid eligibility criteria include Children's Health Insurance Program (CHIP or SCHIP) criteria.

established by Ganong and Liebman (2018), the state EITC rate, and the employment to population ratio for the state.

We address two potential issues with our set of controls, the first being the endogeneity of SNAP benefits. A number of papers have documented the endogeneity and reverse causality associated with SNAP receipt (see Bitler (2015)) where SNAP use is correlated with individual characteristics not seen in the data, resulting in biased estimates for SNAP. Gundersen et al. (2011) enumerate a number of approaches to address these issues. However, because our goal is to identify the effect of Medicaid eligibility on food hardship, we rely on the results of Moellman (2020), who finds that controlling for endogeneity or treating SNAP as exogenous result in similar estimates for measures of Medicaid generosity. The second concern is the inclusion of income as an independent variable. Some studies exclude income from the controls as measures of interest (Medicaid eligibility, program receipt) are endogenously determined with income (Schmidt et al., 2015), while others include income in the set of covariates (Moffitt and Ribar (2018); Berkowitz et al. (2017)). Because households with the same levels of income could have differing eligibility criteria based on state, year, and compositional characteristics, we control for income to isolate the effect of eligibility while holding income constant. As noted below, our results are generally robust to the exclusion of income.

For all of our analyses, we limit the sample to households with children less than 380% FPL. This corresponds with the highest income eligibility threshold for children's Medicaid during our time period.[7] Many other studies also limit the scope of analysis to certain income thresholds, including Moellman (2020) (185%) and Schmidt et al. (2015) (300%) in order to focus on households most likely to be affected by safety net policies. As noted below, our estimates are robust to a wide range of income thresholds. Thus, our treatment group is low-income households with children eligible for Medicaid benefits, and our comparison group is composed of households with children that have incomes similar to treated households.

[7]The income eligibility threshold for children aged 0-1 is 380% FPL in Iowa from 2014-2019.

This, along with the cross-state, over-time variation of treatment and the inclusion of state and year fixed effects results in a difference-in-differences specification.

Finally, we employ three alternative specifications to equation (1). First, we subset the data based on the race and ethnicity of the head of household, in order to observe any differences in effect across demographic sub-groups. Second, rather than using the midpoint of the income bin, we test whether using the minimum or maximum of the bin results in substantially different estimates. Lastly, rather than including summary measure of household eligibility, we estimate:

$$\begin{aligned}\text{Food Hardship}_{ist} = \gamma_1 &\text{Medicaid Eligible Child (0-1)}_{ist} + \gamma_2 \text{Medicaid Eligible Child (1-5)}_{ist} \\ &+ \gamma_3 \text{Medicaid Eligible Child (6-18)}_{ist} + X^{'}\gamma_4 + \lambda_s + \lambda_t + \epsilon_{ist}\end{aligned} \tag{2}$$

where Medicaid Eligible Child (0-1)$_{ist}$, Medicaid Eligible Child (1-5)$_{ist}$, and Medicaid Eligible Child (6-18)$_{ist}$ are indicators for whether household i in state s at time t has a Medicaid eligible child aged 0-1, 1-5, and 6-10 respectively. All other variables are as defined in equation (1). This specification allows us to test any differences in the effect of eligibility for children of different age groups. It may be the case that children of differing ages require the household to contribute differing levels of resources towards medical care, or older children receive sufficient food support from school meals, or in the case of older teenage children may even be able to contribute to household resources through earnings, thus driving differences in the impact of Medicaid eligibility.

Data

Household demographics and food security information come from the 2001-2019 waves of the CPS FSS, which is fielded in December of each year. The FSS includes the 18 item questionnaire used to determine household food security levels that are reported annually

by the USDA. Data from the University of Kentucky Center for Poverty Research National Welfare Database are used for state level economic and political data. SNAP access data come from the SNAP policy database provided by the USDA. Dependent EITC rates come from the Tax Policy Center, while employment statistics come from the Bureau of Labor Statistics Local Area Unemployment Statistics. Medicaid Income eligibility information comes from Kaiser Family Foundation State Health Facts.

Figure 1 shows trends in these food security levels from 2001 to 2019. Figure 1a shows the trends for all households while Figure 1b displays food insecurity among only those households with children and the two child-focused measures. For each measure, we can see a sizable increase in households experiencing food hardship during the Great Recession. After the Great Recession, food security levels did not return to their prior levels until approximately 2017, despite the economic growth that followed the recession. The two figures also show that food insecurity is more common among households with children compared to the entire population, reflecting the additional resource strain that these households face. Focusing on households with children, Figure 1b shows a sizable gap between the food insecurity rate among households with children and how many households report an actual child that is food insecure, with very low food secure children being quite rare. This suggests that children are relatively sheltered from food hardships.

Table 2 shows the descriptive statistics for the population of households with children and our analysis sample of households with children that are under 380% of the FPL, which we consider our analysis sample. Our analysis sample demonstrates characteristics typically associated with low-income households, such as lower levels of education, less probability of being headed by a White individual, more children, and a lower prevalence of marriage. One quarter of households report being food insecure in our analysis sample. Decomposing food insecure households, 18 of the 25 percent are households with low food security and 7 percent are households with very low food security. Food hardship rates are lower among children themselves. Thirteen percent report being food insecure and only 1 percent indicate

that the children themselves have very low food security. Finally, it is important to note that no significant differences arise between our analysis sample and the overall sample of households with children with respect to Medicaid eligibility thresholds, unemployment rates, minimum wages, employment ratios, governor party affiliation, or other characteristics one might associate with higher levels of Medicaid participation outside of individual household characteristics.

Using the income bins found in the CPS, we construct three different estimates of household poverty ratios using the median of the bin as well as the minimum and maximum. Using the minimum of the bin results in an average income to poverty ratio of 160%, using the midpoint results in ratio of 180%, and using the maximum results in a ratio of 200%. Eligibility is determined by comparing these estimates to the state Medicaid eligibility thresholds. The trends in state Medicaid eligibility thresholds are shown in Figure 2 and are broken out by child age. In general, eligibility limits have increased over the analysis period, with the biggest increases coming from the ACA expansions in 2014 that are actually followed by stricter eligibility limits particularly among infant children. Across the entire time period, Table 2 shows that states are most generous when it comes to the coverage of children aged 0-1, with an average of 200% of the FPL. This eligibility shrinks to an average of 164% for children aged 1-5 and 148% for school-aged children aged 6-18. Among our analysis sample the percentage of households with a Medicaid eligible child, our main variable of interest, varies from 81% if the minimum income is used to 71% if the maximum is used instead, with median being between the two at 76%. Figure 3 shows how this measure evolves over time for each measure of income. Households were more likely to eligible during the Great Recession and again eligibility increased with the passage of the ACA.

Results

All results, unless otherwise specified, are for households with children less than 380% FPL, with standard errors clustered at the state level and are statistically significant at the 1%

level. We include the mean of the food hardship measure for the estimation sample, as well as the calculated percent change for additional context on the estimated effect sizes. Table 3 presents the results of estimating equation (1), characterizing the effect of Medicaid income eligibility for children on food hardship for households with children less than 380% FPL. Here, we include the widely reported measure of "Food Insecurity" in the first column, as well as the more severe measures of food hardship "Low Food Security" and "Very Low Food Secure".

We find that having a child that is eligible for Medicaid reduces the prevalence of food insecurity by 7 percentage points, or by approximately 19%. This represents a substantial decrease in food hardship among low income households. The second and third columns show that Medicaid eligibility decreases the probability of low and very low food security by between 16 and 25%, indicating that the effect of Medicaid eligibility may actually be larger for households experiencing more severe food hardship. Table 4 shows the effect of eligibility for the child focused measures of whether a household has food insecure children or very low food secure children. Again, we show that having a Medicaid eligible child decreases the probability of these serious measures of food hardship by between 18 and 20%, again highlighting the efficacy of Medicaid in reducing severe food hardship.

These results can be difficult to contextualize as the majority of the literature examines a different sample group or differing programs. For example, Moellman (2020) found that the ACA Medicaid expansions reduced the probability a household is food insecure by 19.7%. While Schmidt et al. (2015) consider the overall value of benefits for a household, they find an additional $1,000 in benefits reduces food insecurity by 1.1 percentage points on a basis of 33 percent. Thus, our results would translate to a roughly equivalent impact of increasing benefits by $5,600 dollars. Average per capita Medicaid expenditure on children was approximately $3,500 in 2018[8], indicating the value of benefits to families is 60% higher than average expenditure. Gundersen et al. (2017) find that SNAP reduces food insufficiency

[8] https://www.medicaid.gov/state-overviews/scorecard/how-much-states-spend-per-medicaid-enrollee/index.html

(a different measure than food insecurity) by approximately 75%. Thus, while results are large in magnitude, they are well within the scope of the existing literature.

Concern may also arise due to the construction of our sample. Limiting the incomes of households in our sample to less than 380% FPL may be an arbitrary threshold, resulting in a selected sample and skewed results. In figure A1 in the appendix, we allow this income threshold to vary between 200 and 500% FPL. We show a negative and statistically significant (at the 95% level) point estimate for all income thresholds between 220 and 500% FPL, with a minimum point estimate of approximately -9 percentage points at 280% FPL, and estimates that range from -7 to -6.5 percentage points between 380% and 500% FPL. Thus, our results are robust to a wide range of income cutoffs for the sample.

Because food security rates vary substantially between households of different races, (Coleman-Jensen et al., 2020), we explore if Medicaid eligibility has differential effects by race as well. Tables 5 and 6 subset our sample based on the race of the household head for the aforementioned measures of food hardship.[9] Table 5 shows that Medicaid eligibility reduces rates of food insecurity for households with White, Non-Hispanic heads by 13%, households with Black, Non-Hispanic heads by 21%, and households with Hispanic heads by 41%, indicating that the beneficial effects of Medicaid eligibility are substantially larger for non-white headed households.

The drawback to this type of estimation is the reduced sample size, especially among households with Hispanic household heads. Thus, the exceptionally large magnitudes of these estimates may not be externally valid. However, within our estimation framework, we place more confidence on the internal validity of the ordinality of these estimates, especially when considered in context between Tables 5 and 6. For all presented measures of food hardship, we show that Black and Hispanic headed households experience substantially larger decreases in the prevalence of food hardship due to Medicaid eligibility than White households. Moreover, we are able to discern no statistically significant effect of Medicaid eligibility on rates of very

[9]We include tables parsing results by sex of the household head in the Appendix, but find no discernible differences between female and male headed households.

low food security or very low food secure children for households with White heads, nor for very low food secure children for households with Black heads.

We explore the robustness of our midpoint income assumption in Tables 7 and 8. The tables replicate the results of Tables 3 and 4 using the minimum or maximum of the family income bin to determine eligibility status. Regardless of the food hardship measure or method of determining eligibility, we consistently find that having a child eligible for Medicaid reduces the probability a household with children less than 380% FPL experiences food hardship by between 12 and 29%. Thus, our results remain consistent in sign, magnitude, and significance across all potential specifications, demonstrating the robustness of the relationship between Medicaid and food hardship for households with children.

Finally, we estimate equation (2) in Tables 9 and 10 for the above categories of food hardship determined by the midpoint of the family's income bin. Here, we break out Medicaid eligibility based on the age of the eligible child. We find that the effect of Medicaid eligibility is much stronger for younger children relative to older children. For example, we find no statistically significant effect of eligibility on food insecurity for households with children aged 6-18, but find that eligibility for children aged 0-1 and children aged 1-5 reduces the probability the household is food insecure by 4 percentage points each or 11%.

While the effects are relatively consistent across age categories for low food security, in general we show substantially larger effects for households with younger eligible children. We believe this is due to the nature of resource allocation across children's ages. Young children require that households allocate substantially more resources towards medical expenditure for these children. Young children require more frequent wellness visits, are more susceptible to a number of illnesses, and are generally more vulnerable than older children. Moreover, once children near adulthood, they may actually enter into the workforce and contribute to household resources, in addition to requiring less medical expenditure. While the nature of our data does not allow us to test these hypotheses, we believe these factors may contribute to the patterns displayed in Tables 9 and 10.

Conclusion

A large body of literature examines the impact of the traditional food support system on food hardship. However, the need for a broader scope of analysis has been made clear with the advent of the COVID-19 pandemic. SNAP benefits were expanded, meals were delivered to children in lieu of meals provided at school, and states were given more federal resources to fund public healthcare. These substantial efforts resulted in no increase in food hardship among general households, but were insufficient to stave off increases in food insecurity among households with children. Thus, while the traditional food support system makes great strides at mitigating food hardship, more work needs to be done on how other safety net programs may address food hardship as well.

A small but growing literature has begun to examine how programs outside the food support system influence food hardship, with this paper fitting into that literature. This is the first paper to examine the effect of general Medicaid eligibility on food hardship, rather than specific expansions, as well as the first paper to focus on the relationship between Medicaid and food hardship for children specifically. Here, we show that expanding Medicaid generosity, as measured by income eligibility criteria, can substantially reduce the prevalence of food hardship among low-income households with children. Using data from the 2001-2019 waves of the CPS FSS, we show Medicaid eligibility reduces food insecurity by 19%, and reduces very low food security, a more severe category of food hardship, by as much as 25%.

Moreover, we find that Medicaid eligibility reduces child-specific measures of food hardship substantially, reducing food insecurity among children by 20% and very low food security among children by 18%. We find that the effects of Medicaid eligibility are strongest for households with young children, aged 0-5, and for households headed by Black and Hispanic individuals. Finally, we show that our estimates are robust to a wide range of alternative specifications, including varying measures income relative to eligibility thresholds, income cutoffs for analysis, and measures of food hardship. Overall, we find robust, strong evidence

that increased Medicaid eligibility reduces food hardship for households with children.

This analysis can be of great use for policy makers. COVID-19 has highlighted the policy importance of both the food support system, as well as subsidized medical care in the US. In August of 2021, the Biden administration enacted reforms to SNAP resulting in the largest increase in benefits in the history of the program[10]. While the matching nature of Medicaid provides more federal support to states as gross state product wanes, emergency increases to this matching rate were designed to bolster the program against the strain placed on it with COVID caseloads. Our findings highlight that there are extensive spillovers from Medicaid into the food support system, with subsidized healthcare being yet another tool to address growing rates of food hardship. With policy makers debating the role, formulation, and provision of benefits for Medicaid as recently as 2020, this paper can provide insight into how healthcare policy affects a broad spectrum of health conditions, including food hardship.

These findings imply that some of the health benefits of increased access to medical coverage go beyond the doctor's office. Just as access to healthcare is an important factor in health, so too is access to a stable, nutritious diet. This is especially true in the case of children. For them, improvements as adolescents can lead to a lifetime of benefits for themselves and society.

[10] https://www.nytimes.com/2021/08/15/us/politics/biden-food-stamps.html

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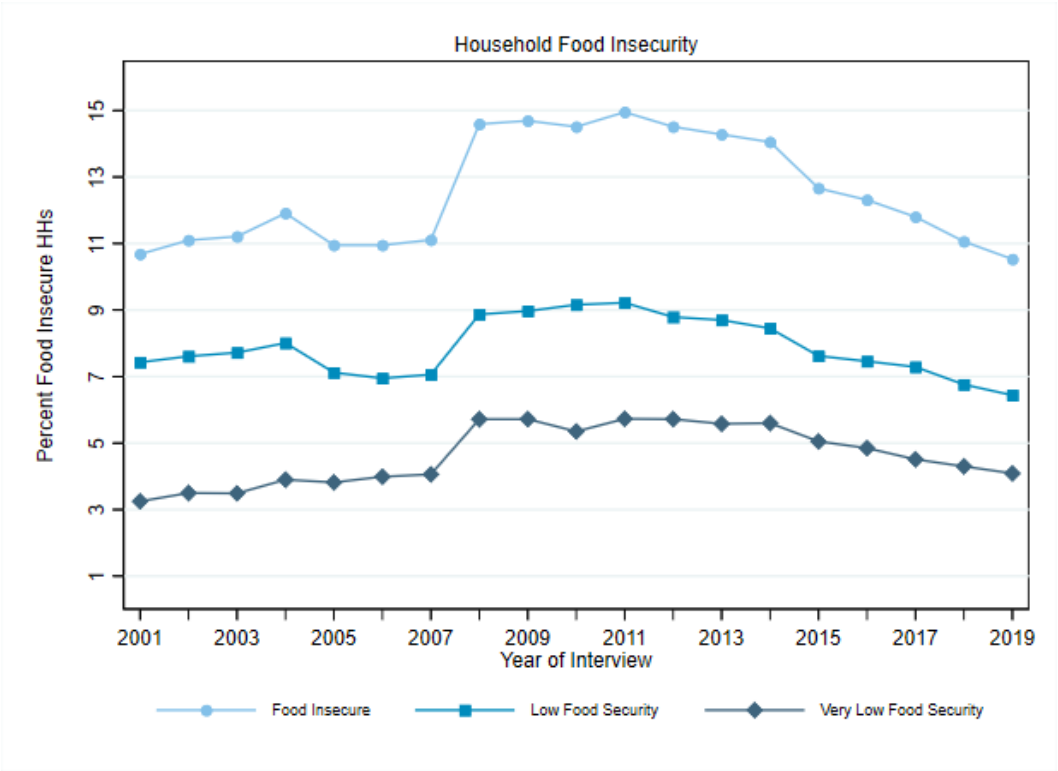
Tables and Figures

Figure 1: Household Food Insecurity Over Time

(a) All Households



(b) Households with Children

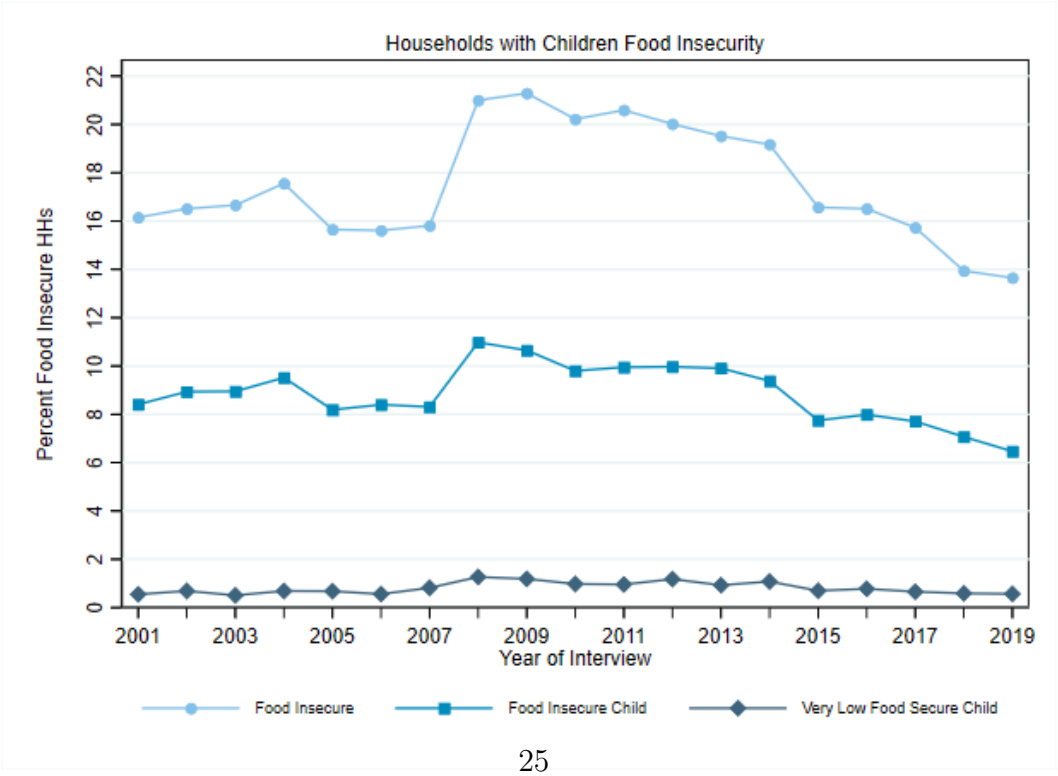


Figure 2: Income Eligibility Thresholds Over Time as % FPL

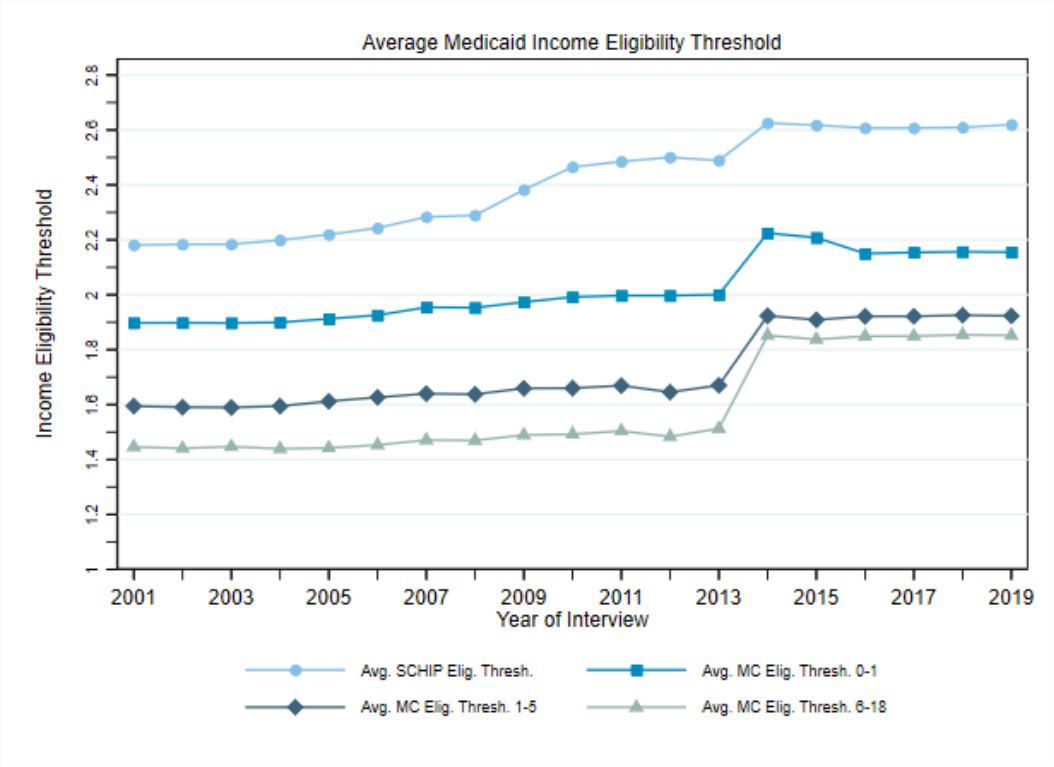


Figure 3: Child Medicaid Eligibility Over Time

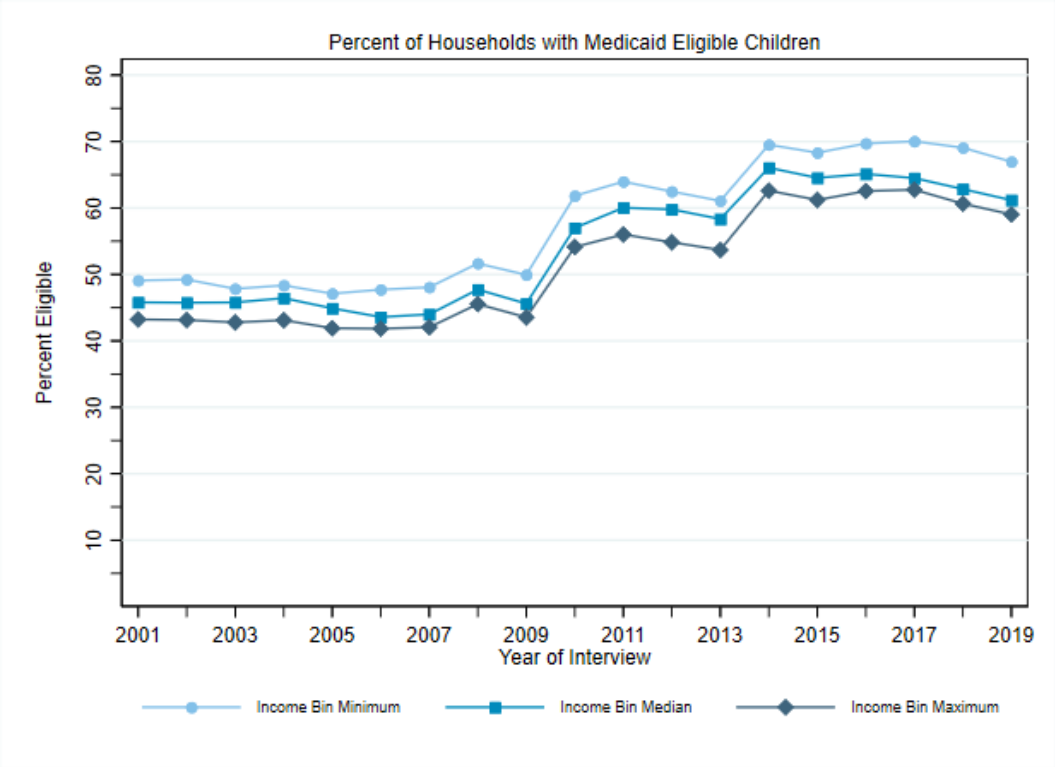


Table 1: Categories of Food Security

USDA Classification	**Number of Affirmative Responses**	**Food Hardship**
Food Secure	0	Had enough food at all times
Food Insecure	3 or more	Low or very low food security
Low Food Security	3-5	Reduced quality, variety, and desirability of diets
Very Low Food Security	6 or more (households without children) 8 or more (households with children)	Eating patterns disrupted and food intake reduced
Food Insecurity Among Children	2 or more child-focused questions	Reduced quality, variety, and desirability of diets or eating patterns disrupted among children
Very Low Food Security Among Children	5 or more child-focused questions	Eating patterns disrupted and food intake reduced among children

Table 2: Summary Statistics

	Households with Children	Households with Children Under 3.8 FPL
Food Hardship		
Food Ins.	0.18	0.25
Low FS	0.13	0.18
Very Low FS	0.05	0.07
FI Children	0.09	0.13
Very Low FS Children	0.01	0.01
Eligibility		
Median Inc/Pov Thresh	3.11	1.80
Minimum Inc/Pov Thresh	2.67	1.60
Maximum Inc/Pov Thresh	3.54	2.00
MC Elig. Thresh 0-1	2.00	2.00
MC Elig. Thresh 1-5	1.64	1.64
MC Elig. Thresh 6-18	1.48	1.48
SCHIP Elig. Thresh	2.44	2.43
Med. % Child MC Elig.	0.54	0.76
Min. % Child MC Elig.	0.58	0.81
Max. % Child MC Elig.	0.51	0.71
Demographics		
Age	40.23	39.15
Female	0.53	0.57
White	0.77	0.75
Black	0.15	0.18
Married	0.68	0.60
Number of Children	1.88	1.98
Less than High School	0.13	0.18
High School	0.27	0.33
Some College	0.29	0.31
College	0.31	0.18
Metro	0.72	0.70
SNAP	0.29	0.31
State Controls		
Unemployment Rate	6.02	6.08
Minimum Wage	8.09	8.08
Governor is Democrat	0.44	0.43
Medicaid Beneficiaries	27.02	27.10
SNAP Access Index	0.65	0.66
Max EITC	4860	4971
State EITC Rate	0.08	0.08
Employment Ratio	60.83	60.57
Obs.	265,672	169,484

Note: Household survey weights used.

Table 3: Medicaid Eligibility on Household Food Hardship

	Food Insecure	Low Food Secure	Very Low Food Secure
Medicaid Eligible Child	-0.07***	-0.04***	-0.03***
	(0.01)	(0.01)	(0.01)
Sample Mean	0.36	0.26	0.10
Percent Change	-19.09	-16.77	-25.12
Obs.	111,508	111,508	111,508

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, race, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 4: Medicaid Eligibility on Child Food Hardship

	Food Insecure Child	Very Low Food Secure Child
Medicaid Eligible Child	-0.039***	-0.004***
	(0.008)	(0.001)
Sample Mean	0.19	0.02
Percent Change	-20.4	-18.09
Obs.	111,497	111,497

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, race, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 5: Medicaid Eligibility on Household Food Hardship By Race

	Food Insecure	Low Food Secure	Very Low Food Secure
White Non-Hispanic			
Medicaid Eligible Child	-0.041***	-0.032***	-0.010
	(0.010)	(0.009)	(0.006)
Sample Mean	0.33	0.23	0.10
Percent Change	-12.58	-13.88	-9.57
Obs.	62,411	62,411	62,411
Black Non-Hispanic			
Medicaid Eligible Child	-0.092***	-0.045**	-0.047***
	(0.017)	(0.019)	(0.013)
Sample Mean	0.43	0.29	0.13
Percent Change	-21.39	-15.39	-36.43
Obs.	16,303	16,303	16,303
Hispanic			
Medicaid Eligible Child	-0.151***	-0.093***	-0.058***
	(0.029)	(0.015)	(0.014)
Sample Mean	0.37	0.27	0.09
Percent Change	-40.87	-34.5	-64.52
Obs.	25,234	25,234	25,234

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 6: Medicaid Eligibility on Child Food Hardship By Race

	Food Insecure Child	Very Low Food Secure Child
White Non-Hispanic		
Medicaid Eligible Child	-0.021***	-0.002
	(0.007)	(0.001)
Sample Mean	0.16	0.01
Percent Change	-13.22	-24.07
Obs.	62,405	62,405
Black Non-Hispanic		
Medicaid Eligible Child	-0.050***	0.006
	(0.016)	(0.005)
Sample Mean	0.23	0.03
Percent Change	-21.52	18.99
Obs.	16,302	16,302
Hispanic		
Medicaid Eligible Child	-0.087***	-0.009***
	(0.015)	(0.002)
Sample Mean	0.21	0.02
Percent Change	-41.52	-45.55
Obs.	25,231	25,231

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 7: Medicaid Eligibility on Household Food Hardship By Income

	Food Insecure	Low Food Secure	Very Low Food Secure
Min. Income			
Medicaid Eligible Child	-0.06***	-0.04***	-0.02***
	(0.02)	(0.01)	(0.00)
Sample Mean	0.36	0.25	0.10
Percent Change	-17.98	-16.26	-24.1
Obs.	114,709	114,709	114,709
Max. Income			
Medicaid Eligible Child	-0.05***	-0.03***	-0.02***
	(0.01)	(0.01)	(0.00)
Sample Mean	0.36	0.26	0.11
Percent Change	-14.39	-12.55	-17.42
Obs.	108,116	108,116	108,116

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, race, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 8: Medicaid Eligibility on Child Food Hardship By Income

	Food Insecure Child	Very Low Food Secure Child
Min. Income		
Medicaid Eligible Child	-0.035***	-0.006***
	(0.010)	(0.002)
Sample Mean	0.18	0.02
Percent Change	-19.67	-29.02
Obs.	114,698	114,698
Max. Income		
Medicaid Eligible Child	-0.027***	-0.004**
	(0.006)	(0.002)
Sample Mean	0.19	0.02
Percent Change	-14.19	-20.04
Obs.	108,105	108,105

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, race, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 9: Medicaid Eligibility on Household Food Hardship By Age

	Food Insecure	Low Food Secure	Very Low Food Secure
Age 0-1 Eligible Child	-0.04***	-0.02**	-0.02***
	(0.01)	(0.01)	(0.00)
Age 1-5 Eligible Child	-0.04***	-0.01***	-0.02***
	(0.01)	(0.00)	(0.00)
Age 6-18 Eligible Child	-0.01	-0.01**	0.00
	(0.01)	(0.01)	(0.00)
Sample Mean	0.36	0.26	0.10
Obs.	111,508	111,508	111,508

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, race, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table 10: Medicaid Eligibility on Child Food Hardship By Age

	Food Insecure Child	Very Low Food Secure Child
Age 0-1 Eligible Child	-0.045***	-0.007***
	(0.005)	(0.002)
Age 1-5 Eligible Child	-0.030***	-0.009***
	(0.004)	(0.001)
Age 6-18 Eligible Child	0.013**	0.002
	(0.005)	(0.001)
Sample Mean	0.19	0.02
Obs.	111,497	111,497

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, gender, household size, number of children, marital status, age, age squared, race, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Appendix A.-Additional Tables and Figures

Figure A1: Effect of Medicaid Income Eligibility for Children on Food Insecurity for Varying Sample Income Cutoffs

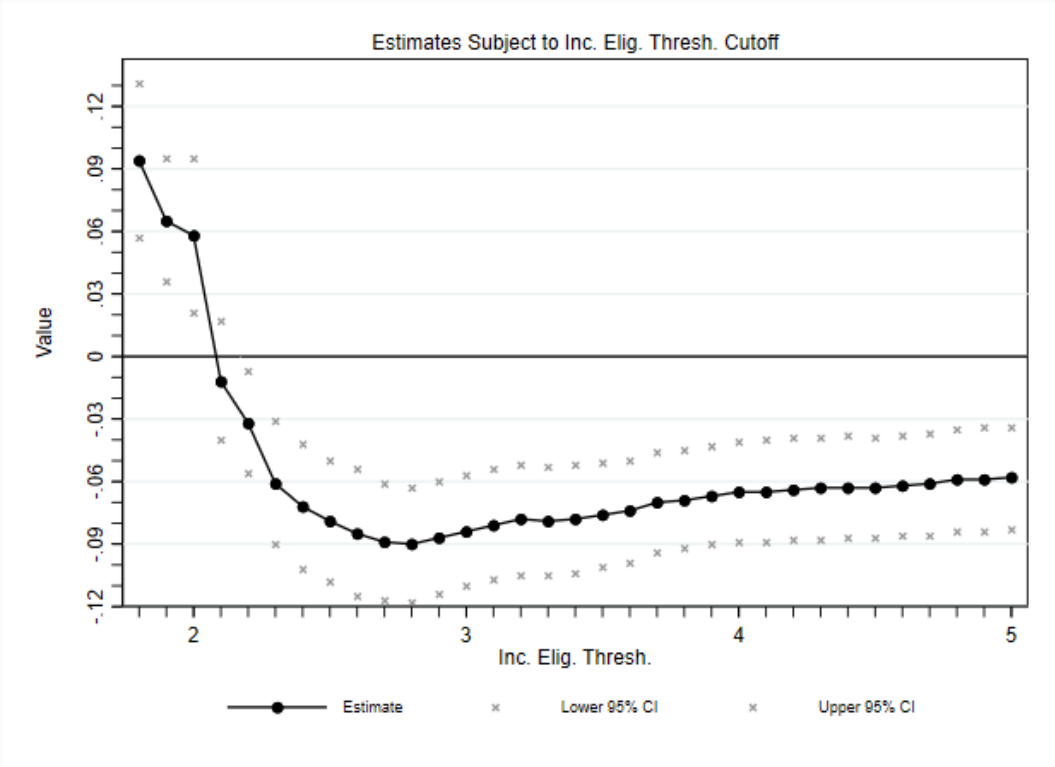


Table A1: Medicaid Eligibility on Household Food Hardship By Sex

	Food Insecure	Low Food Secure	Very Low Food Secure
Male			
Medicaid Eligible Child	-0.07***	-0.04***	-0.03***
	(0.02)	(0.01)	(0.01)
Sample Mean	0.30	0.22	0.08
Percent Change	-23.03	-18.06	-36.71
Obs.	44,253	44,253	44,253
Female			
Medicaid Eligible Child	-0.07***	-0.05***	-0.02***
	(0.01)	(0.01)	(0.01)
Sample Mean	0.40	0.27	0.12
Percent Change	-18.02	-18.17	-19.19
Obs.	67,255	67,255	67,255

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, race, household size, number of children, marital status, age, age squared, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.

Table A2: Medicaid Eligibility on Child Food Hardship By Sex

	Food Insecure Child	Very Low Food Secure Child
Male		
Medicaid Eligible Child	-0.037***	-0.007***
	(0.009)	(0.002)
Sample Mean	0.15	0.01
Percent Change	-24.84	-72.65
Obs.	44,243	44,243
Female		
Medicaid Eligible Child	-0.042***	-0.001
	(0.008)	(0.002)
Sample Mean	0.21	0.02
Percent Change	-19.99	-5.17
Obs.	67,254	67,254

Note: standard errors clustered at the state level, * p <0.10, ** p <0.05, *** p <0.01. Household survey weights used. Income less than 380% FPL. Controls include income, race, household size, number of children, marital status, age, age squared, education, SNAP Participation, urban/rural status, number of Medicaid beneficiaries in the state, state minimum wage, Governor political affiliation, state EITC rate, max federal EITC, employment ratio, SNAP access index, and the unemployment rate.