EXPLORING THE GROWTH OF THE CHILD SSI CASELOAD

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Abstract: The child Supplemental Security Income (SSI) caseload has increased by nearly 40 percent between 2002 and 2012, from just over 900,000 to nearly 1,300,000, and the upward trend shows no signs of reversing. In this descriptive paper, we explore the nature of the caseload growth over this period. Consistent with previous studies, we find that national trends in child SSI participation are driven by growth in cases diagnosed with mental impairments, which more than doubled over this period. Our state-level analysis reveals that the national trends mask significant variation across states. Some states experienced only very small increases, while other states experienced dramatic increases, the largest percentage increase being in Texas, where the mental diagnoses caseload increased by 129 percent over this 10-year period. Our focus on states suggests that the experience is varied and not small set of factors can explain the differential growth across states. In particular, we do not find evidence of an aggregate relationship between changes in state-level diagnoses rates among the general population of children and new SSI cases. We similarly fail to find evidence of a statistical relationship between differential changes in health insurance coverage among and new SSI cases. The data offer some suggestion that rates of growth in special education participation at the state level lead to increases in new child SSI cases. Most of all, the data point to the need for in depth case studies of caseload growth in key states such as Arkansas, the District of Columbia, and Texas.

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I. **INTRODUCTION**

Currently 1.29 million children are enrolled in the SSI program, representing a four-fold increase since 1990. The sharp increase in the rate of growth was precipitated by the February 1990 Supreme Court decision in *Sullivan v. Zebley*, which had the effect of liberalizing the medical eligibility criteria for children to qualify for SSI. In the next six years, the number of children on SSI increased by nearly threefold. This was followed by welfare reform legislation in 1996 which significantly tightened medical eligibility, resulting in nearly 100,000 children being terminated from the rolls. Beginning in 2000, SSI receipt among children started to increase again, a trend that continues to this day. Our descriptive work is focused on understanding the nature of the caseload growth in the most recent decade.\(^1\)

Working together with SSA personnel, we have obtained state-level data on child SSI caseloads for the period 2002-2011 in order to examine both how the caseload composition has changed over time and what the rate of growth looks like by age, gender, family type, diagnosis, and state.\(^2\) We have two main goals. First, we aim to present a rich descriptive picture of the caseload growth, considering both national and sub-national trends. Second, we aim to investigate more directly the role of a defined set of factors in explaining the growth. A 2012 GAO report examined national trends in SSI

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\(^{1}\) An earlier literature focused on the growth in the SSI caseload during the 1990s. A number of studies demonstrated that in the years following the 1990 liberalization, there was substantial shifting of children from the AFDC program to the SSI program (cf. Kubik, 2003; Garrett and Glied, 2000; Schmidt and Sevak, 2004).

\(^{2}\) The data we have obtained are not as comprehensive as we had suggested in our application, nor is the time period as long. Ultimately we were limited by what was deemed feasible by the SSA staff and regrettably, we did not have a sense of what was feasible when we made our initial application.
child caseloads 2000-2011 and suggested five possible explanations for caseload growth: a rising number of children in poverty, rising rates of diagnosis, increased health insurance coverage, rise in special education services, and fewer recipients being reviewed for possible termination from the rolls. We do not have access to data on terminations, and we thus focus our investigation of determinants on the first four of these potential explanatory factors. We conduct this investigation using standard regression techniques.

Our descriptive exploration leads us to the following observations. First, the growth in child SSI caseloads has come from new and continuing mental health cases, in particular, “other mental” disabilities such as ADHD and autism; there was no substantial increase in the number of cases with an intellectual disability or a physical disability. Furthermore, the rate of growth in the mental diagnosis caseload was not driven by any particular age or gender group.

Second, there is significant variation across states in caseload growth over this period, which ranged from a low of 20 percent growth in Wyoming to a high of 129 percent growth in Texas. While SSI is a federal program, state economic conditions and/or policies can potentially affect applications rates and therefore caseloads. State economic conditions can affect the number of children financially eligible for the program, and state policies with respect to public health insurance expansions and special education can affect application rates conditional on eligibility by, for example, affecting the number of children diagnosed with a learning disability or health condition, respectively.
Our regression analyses relate state-year SSI caseloads and initial allowances to state-year level variation in demographic composition, policy measures, economic conditions, and the share of the broader population with mental diagnoses. These analyses lead to the following general conclusions. First, the results are very much sensitive to the inclusion of other controls as well as the state of Texas which, because of its contribution to a population-weighted regression, exhibits considerable influence over the results. Once all controls are included and Texas excluded, the only factor that remains statistically significantly predictive of caseload growth is the prevalence of special education in the state. Child poverty, health insurance, and rates of health diagnoses in the broader population are not predictive of changes in caseloads over this period. Moreover, while special education is predictive of initial allowances, it is not predictive of application rates. It could be that participation in special education contributes to caseload growth via increases the likelihood of application acceptance by, for example, lending greater credibility to the claim of disability.

The remainder of the paper is organized as follows. We begin by describing national trends in child SSI caseloads. Specifically, we examine how the disability, age and gender composition of the caseload has changed over time. Next we examine changes in the stock and flow of the caseload. Finally we turn to variation across states in caseload growth. Not only do we document which states witnessed the largest growth in caseloads, but we explore potential reasons why some states were characterized by above average growth over this period, with a focus on underlying economic conditions and child health as well as state policies regarding public health insurance and special education.
II. National trends in children’s SSI participation

A. Disability, Age, and Gender Composition of the Child SSI Caseload

Figure 1 plots the U.S. child SSI caseload count by broad diagnosis categories, from 2002-2011. The count data indicate that the total SSI child caseload has increased by nearly 40 percent between 2002 and 2012, from just over 900,000 to nearly 1,300,000. SSA categorizes participants by whether their primary diagnosis is intellectual, (other) mental, or physical. Figure 1 shows how the overall growth in children’s SSI participation is driven mainly by an increase in mental SSI cases. In 2002 the mental and physical caseloads were almost identical in size. Over the next decade, they diverged remarkably. From 2002 and 2012, mental caseloads more than doubled, from approximately 340,000 in 2002 to over 700,000 in 2012. Over the same period, the physical caseload increased by only 24 percent from 337,000 to approximately 416,000. Over this period, intellectual disability cases declined by 45 percent, falling from 240,000 in 2002 to 133,000 in 2012.³

Figure 2 plots trends in SSI participation rates, per 1000 children, instead of in caseload counts. To create this “SSI share” measure we scale the caseload count data by population counts from the U.S. Census Bureau available by state and detailed ages as part of the SEER data collection efforts.⁴ It is obvious that population growth does not explain the caseload growth. There was a steady increase in total caseload per 1000

³ Note that if all of this decline in intellectual disability caseload were due to diagnoses rather than underlying prevalence, resulting in shifting from intellectual to mental diagnoses (e.g., due to increased recognition of autism), the decline in the intellectual caseload could not fully explain the increase in the mental caseload.

⁴ U.S. Census Population data by state and age available here: [http://seer.cancer.gov/popdata/]
children of approximately 38 percent between 2002 and 2012. This growth is driven almost entirely by growth in the number of mental cases, from 4.6 cases per 1000 in 2002 to 9.8 cases per 1000 in 2012. The physical caseload increased by just over 20 percent, from 4.6 cases per 1000 to 5.6 cases per 1000 over this same period. Intellectual disability cases declined over the decade from approximately 3.3 cases per 1000 in 2002 to 1.8 cases per 1000 in 2012.

This divergent rate of growth in the number of mental versus physical cases has led to sizable changes in the composition of the SSI child caseload. Figure 3 displays the composition of the U.S. child SSI caseload by broad disability type, separately for 2002 and 2011. Children with a primary diagnosis of a mental disability grew from 36.9 to 57.0 percent of the overall caseload. We again note that this to some extent may reflect shifting of diagnoses practices from intellectual to (other) mental. Physical disabilities, which were likely diagnosed more consistently over this period, fell slightly from 36.8 percent of the caseload in 2002 to 32.6 percent in 2011.

This composition shift is a potentially important factor in terms of describing past caseload growth and projecting future trends. Mental disabilities are harder to verify and are less likely to be “permanent”. For both of these reasons, the role of Continuing Disability Reviews (CDRs) will become increasingly important in maintaining caseload sizes. But in fact, the rate of CDRs over this period declined substantially (GAO, 2012). We will come back to this point, as our reading of the data leads us to the view that the decline in CDRs was potentially an important driver of caseload growth over this period, a point made by the 2012 GAO report.
We now turn our attention specifically to the mental disability diagnosis caseload. Given that boys are disproportionately represented among mental disability SSI cases and mental disability diagnoses in general, we consider whether the caseload growth in this area occurred differentially between boys and girls.\(^5\) In terms of raw counts, the mental SSI caseload per 1000 for girls is less than half the mental caseload per 1000 for boys in all years. However, interestingly, the rate of growth in mental caseloads was similar for girls and boys over this decade. Figure 4 plots the caseload count of mental diagnosis cases, separately for boys and girls, over this period. The caseload for boys increased by 110 percent, from 6.7 cases per 1000 in 2002 to 14.1 cases per 1000 in 2012. The caseload for girls increased by 116 percent, from 2.5 cases per 1000 in 2002 to 5.4 cases per 1000 in 2012.

We next consider how the caseload composition of mental disability cases changed in terms of gender and age. Notably, this composition remained fairly constant. Figure 5 shows that in both 2002 and 2011, just over half of children (51.1 percent in 2002 and 50.5 percent in 2011) on SSI with mental disabilities were ages 6 through 12. 36-39 percent of participants were ages 13 to 17, about 11 percent were ages three to five, and less than two percent were ages zero to two. The age composition among boys is very close to that among girls, and the age composition within each gender is also

\(^5\) In an analysis of SIPP data, Duggan and Kearney (2007) find that family structure, parental education, and race/ethnicity relate to program participation in similar ways between SSI and welfare, but that families with relatively more boys are significantly more likely to participate in the SSI program. They observe that this is consistent with the disproportionate likelihood that boys are diagnosed with mental disabilities and behavioral disorders.
relatively constant over this time period. We conclude from this that no particular age or
gender group drove the growth in the mental diagnosis caseload.

To summarize, national level caseload data exhibits four noteworthy features.
First, the 40 percent increase in the child SSI caseload between 2002 and 2012 was
driven mostly by an increase in cases with mental diagnoses. These cases more than
doubled, while the caseload of physical diagnoses increased by just 24 percent and the
number of intellectual disability cases declined by 45 percent. Second, the divergent rates
of growth across diagnoses categories have led to a sizable shift in the diagnosis
composition of the SSI child caseload. Children with a primary diagnosis of a mental
disability grew from 36.9 to 57.0 percent of the overall caseload. Third, the rate of
growth in the mental diagnosis caseload was not driven by any particular age or gender
group.

B. Understanding the stock and the flow of the caseload

At any point in time, the caseload depends on how many children have been
approved for participation in the past, how many of those children have since been
removed from the rolls, and how many new children are joining the rolls. From a policy
perspective, past additions to the rolls are now set, and the relevant parameters to
understand are how many new children are joining the rolls (initial allowances) and how
many children are exiting the rolls.

Initial allowances – defined to be children who are new SSI participants in that
year – are a function of both application rates and the rate at which applications are
approved. They do not reflect any changes in CDRs over time (or changes in other
determinants of which children exit the caseloads, most notably income eligibility).
Given the established importance of mental disability in recent trends, we particularly focus our attention on initial allowances with mental disabilities. In addition, because some of the increase in the mental disability diagnoses and the coterminous decline in the number of intellectual disabilities might reflect changes in how cases are diagnosed, rather than changes in underlying mental health condition, from here forward we group the intellectual and “other mental” diagnoses together in a combined mental disability diagnosis category.

Figure 6 plots the total SSI caseload count, the caseload count for mental disorders, and the count of initial allowances for mental diagnoses. Initial allowances for mental disability are relatively flat in the national aggregate. There were approximately 104,000 such initial allowances in 2002. Initial allowances began a slow, but steady increase in the later half of the decade, increasing from approximately 106,000 in 2007 to nearly 123,000 in 2009, and nearly 132,000 in 2011. However, it is important to keep in mind that even a flat trend in initial allowances leads to caseload growth so long as the number of children entering the SSI rolls in a given year exceeds the number of children exiting.

In general, the growth in mental diagnosis caseload over this period was not driven by an increase in the acceptance rate. Throughout the period, fewer than half of applicants with a mental disability were deemed eligible for the program. In fact, the acceptance rate decreased slightly over the decade, falling from approximately 49 percent in 2002 to 45 percent in 2011.6

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6 The acceptance rate is the number of initial allowances for mental conditions divided by the number of applications for mental conditions.
Continuing disability reviews (CDRs) by SSA are an important determinant of when children exit the SSI caseloads. Budgetary restrictions have caused significant declines in the number of CDRs conducted on children participating in SSI over the past decade, which is a significant focus of the GAO report (2012). The study identified an 80 percent decrease in CDRs for child SSI participants with mental impairments from 2000 to 2011, leading to a significant backlog—about 435,000 overdue CDRs for this group by August 2011. We do not have data on CDRs nor do we have data on exits, so we are not equipped to do a thorough analysis of the composition of exits or reviewed cases. We consider this an important area for future research.

In summary, the increase in the stock of the child SSI caseload is mechanically driven by the excess of inflows of over exits. The “exits” in this case also include individuals who turn 18 and remain on SSI but are no longer included in counts of the caseload under age 18. Both directions seem to matter over the 2002 to 2012 period. Focusing on mental disability cases, we see that the number of annual initial allowances steadily increased, from 104,000 initial allowances in 2002 to nearly 132,000 in 2011. The rate of acceptance among applications did not appreciably change; the increase in the number of initial allowances tracks an increase in the number of applications. Even if initial allowances had not increased at all and remained stable at their 2002 levels, we would have witnessed an increase in caseloads because that rate exceeded the rate of children leaving the caseloads.

III. Variation across States in Caseload Growth
The period of growth from 2002 to 2012 in the aggregate child SSI caseload is characterized by substantial variability across the states in rates of growth. Figure 7a displays, by state, the 2002 caseload (light grey bar) and the growth (2011-2002) in either physical or mental caseloads per 1000 children (dark blue and purple, respectively). The figure makes clear how much variability there is across states, both in terms of caseload as a share of the child population and caseload growth as a share of baseline caseload size.

Across the 50 states and Washington D.C., the 2002 caseload share average was 12.3 per 1,000 children. There are 21 states with 2002 caseload shares under 10 per 1000 children. But 7 states -- WV, AR, LA, AL, KY, MS, and DC -- have caseload shares in excess of 20 per 1000. The largest caseload share in 2002 was in DC, with a caseload of 32 children per 1,000. By 2011, the average caseload share across the 50 states and D.C. had risen to 16.7 children per 1,000. In Washington D.C., the share had risen to 42.6 per 1,000 children. The top 10 states had shares in excess of 20 per 1,000 children: RI (21.5); WV (23.6); FL (24.3); PA (26.4); AL (26.6); KY (29.3); MS (32.2); LA (32.7); AR (40.5); and DC (42.6).

All 50 states plus Washington D.C. experienced an increase in the number of mental disability cases per 1000 children. All states also saw an increase in the number of physical disability cases, albeit much smaller than the increase in mental disability cases. All states saw a decrease in the number of cases with an intellectual disability diagnoses.

Figure 7b focuses on the 10 states with the greatest increases in the rate of SSI participation with mental diagnoses (measured per 1000 children in the population) over this period. The ten states with the largest growth in SSI caseload are geographically
dispersed throughout the country. Arkansas, the District of Columbia, and Louisiana experienced the largest increases in the share of child population on the mental caseloads, increases of 20, 13.3 and 11 cases per 1000, respectively. Louisiana and the District of Columbia also had two of the largest increases in physical caseload rates, of 2.5 and 2.4 cases per 1000, respectively. While these states witnessed the largest increase in the rates of participation in SSI with mental diagnoses per 1000 children, it is important to note that the six largest states (Texas, California, NY, Pennsylvania, Ohio and Illinois) explain half of the growth in total mental caseloads over this period.

In general, there is not a strong correlation between the rate of caseload growth (defined in percentage terms) and baseline caseload share. Figure 8 presents a scatterplot of states in terms of the percent of caseload growth by the 2002 caseload share. A regression line estimated to describe this two-way relationship yields a slope estimate very close to that of a flat line, suggesting no obvious relationship, either positive or negative.\(^7\) Texas is a notable exception to this general rule. Its rank in terms of caseload share in 2002 was near the bottom of the U.S. distribution, but it experienced the largest increase in caseload relative to its baseline caseload in 2002 – an increase of 129 percent. We will return to the case of Texas below.

We now consider state variation in initial allowances, rather than stock measures of the child SSI caseload. By this measure too, the national upward trend in SSI initial allowances for mental disabilities masks significant variation in initial allowances for mental disabilities across states over this period. A majority of 37 states witnessed increases in initial allowances of greater than 10 percent. States with the largest increases

\(^7\) We have repeated this exercise focusing only on growth in mental disabilities and the pattern tells a similar story.
in initial allowances for mental disabilities per 1000 children include Arkansas (2.9 per 1000, an increase of 116 percent), Texas (1.3 per 1000, an increase of 108 percent), Rhode Island (1.1 per 1000, an increase of 74 percent) and the District of Columbia (1.6 per 1000, an increase of 44 percent). Three states witnessed increases of less than 10 percent. Eleven states witnessed declines in initial allowances for mental disabilities per 1000 children. The largest declines occurred in Alabama (-.53 cases per 1000, representing a decline of 22 percent) and Illinois (-.40 cases per 1000, a decline of 23 percent). Similar to what was observed for total caseload growth in Figure 8 above, there is not a strong correlation between state-level changes in children’s initial mental diagnoses allowances and a state’s 2002 level of initial mental diagnoses allowances.

Figures 9a and 9b plot application and acceptance rates for the five states with the largest growth in mental disability allowances. The data reveal variation in the experience across even these five states. For example, Arkansas and Texas witnessed increases in applications of 119 percent and 170 percent, respectively. Texas saw a steady decrease in acceptance rates over this period, but Arkansas saw a discrete jump up in application rates in the middle of the period.

Over the full set of states, 34 states witnessed declines in the rate at which new applications were granted over this period, with the largest declines in Hawaii, Illinois and Pennsylvania (over thirty percent declines in the rate of acceptance). Of those states that witnessed increases in the acceptance rate, the increases were moderate – less than 15 percent growth with the exception of two states (Montana and South Dakota) that witnessed 19 and 24 percent growth in their acceptance rates, respectively. Even among
these two “outlier” states, the rates of acceptance were still considerably lower than the rates of increase in initial mental allowances.

In summary, there is substantial variation across states in application rates, acceptance rates, and trends in the two series over this time period. Understanding the source of this variation is the subject of the rest of the paper.

IV. Potential Explanations for the Caseload Increase

We now turn to an examination of whether and how specific factors may have influenced SSI caseload growth over the past decade. Wiseman (2010) hypothesizes that poverty is a likely driver of the increase. The GAO (2012) suggests several possible factors, in addition to the decline in CDRs previously discussed: increases in diagnoses, an increasing share of children in poverty, expanded health insurance coverage, and expanded participation in special education programs. In this section we discuss the potential for these factors to influence SSI caseloads and present some descriptive data on how these variables have moved alongside SSI participation at the state/year level. We focus on SSI initial allowances for children with mental diagnoses.

A. Rates of Diagnoses in the Broader Population

Among children with SSI coverage in 2010, a striking 67 percent had a primary diagnosis of a mental disorder. Within the category of mental disorder, the largest type or category of disorder is developmental disorder (19.5 percent), followed by other (19.3 percent), intellectual disability (11.4 percent), autistic disorders (7.6 percent), mood disorders, (3.4 percent), other mental disorder (2.9 percent), organic mental disorders (2.2 percent), schizophrenic and other psychotic disorders (0.3 percent). We documented above that the share of the SSI child population with a mental disorder other than intellectual disability has been steadily
increasing over time. How does this trend compare to the trend in disability diagnosis in the broader low-income target population, as well as children in the U.S. more generally?

To construct measures of diagnoses rates in the US population of children, we generate estimates of the underlying health/disability of children in each state and year from the National Survey of Children’s Health, available for 2003 and 2011. Over 100,000 children ages 0-17 are included in this survey each year, with roughly 2000 drawn from each state. This survey is designed to generate measures of child health that are representative of the nation and each state individually. From the NSCH we generate two measures. This first is a measure of any disabling condition which is derived from the following three questions:

1) Is [S.C.] limited or prevented in any way in [his/her] ability to do the things most children of the same age can do?

2) Is [his/her] limitation in abilities because of ANY medical, behavioral, or other health condition?

3) Is this a condition that has lasted or is expected to last 12 months or longer?

If a child responds affirmatively to all three, he/she is coded as having a disabling condition. To determine whether the source is a mental disability, we generate a measure of underlying mental health/disability, from the following two questions:

1) Does [S.C.] have any kind of emotional, developmental, or behavioral problem for which [he/she] needs treatment or counseling?

2) Has [his/her] emotional, developmental or behavioral problem lasted or is it expected to last 12 months or longer?

If a child answers affirmatively to both questions, (and indicated he/she had a disabling condition as defined above), we consider him/her to have a disabling mental condition.
Based on these measures, we calculate that the share of children with a disabling condition increased from 37 per 1000 to 48 per 1000 between 2003 and 2011. Among those with a disabling condition, the share with a mental condition increased from 42 to 66 percent over this period, roughly similar to trends observed in the SSI caseloads. It is difficult to compare the types of conditions that characterize SSI recipients with the prevalence of those conditions in the broader population of children because the survey data include multiple conditions per child, not just a primary condition. Even still, there appears to be some consistency: among those with a mental disabling condition in 2011, the most prevalent conditions are learning disability and developmental delay and ADD/ADHD, followed by autism, conduct disorders and depression, roughly similar to the composition of the SSI caseload.

Next we examine whether and to what extent state level changes in the number of children with disabling conditions correlate with changes in initial allowances, with a focus on mental conditions. In Figure 10a we present the percent change in rate of mental allowances per 1000 children vs. the percent change in the rate of mental disabling conditions per 1000 children over time and by state. With the exception of Texas and Arkansas, there does not appear to be a strong relationship between the two measures. The bivariate correlation is 0.168 when including all states, but is -0.070 without Texas and Arkansas. This suggests that the rise in initial mental allowances is not

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8 Note that our definitions of physical and mental disabilities are not mutually exclusive. Children with disabling conditions can have both physical and mental conditions.

9 While disabling conditions should “cause” SSI receipt rather than the reverse, it is possible that SSI receipt heightens awareness of disability and changes the reporting behavior of participants in other settings, such as the NSCH. See Kubik 1999 for a related discussion. We therefore emphasize our interest in these relationships descriptively rather than for causal interpretation.
primarily driven by increases in diagnosed mental health conditions. Figure 10b presents the same information but for initial allowances for mental conditions and the conclusion is the same: the positive correlation is driven largely by Texas and Arkansas. We find a similar relationship when we limit the sample of children over whom disabling conditions are measures to the population of children in families with incomes below 200 percent of the FPL (not presented in a figure for the sake of space).

**B. SSI and Health Insurance Coverage**

In order to qualify for SSI, children need to have a qualifying medical disability. Access to health care could facilitate this process. Work by Aizer (2009) on Attention Deficit Disorder (ADD) diagnoses speaks indirectly to this issue. Aizer employs an instrumental variables strategy that predicts ADD diagnosis and treatment as a function of state-level expansions of the Children’s Health Insurance program. Her first-stage results imply that gaining access to health insurance has a sizable impact on the likelihood of a mental disorder diagnosis and treatment. This raises questions about how access to health insurance affects the likelihood that a child will gain access to a qualifying SSI determination. Whereas Duggan and Kearney (2007) consider how SSI participation affects health insurance coverage rates, here we are interested in the reverse direction of program relationship – how does health insurance access affect SSI participation?

The 1997 passage of the federal State Child Health Insurance Program (SCHIP) allowed states to significantly expand public health insurance to low and moderate income children over the past decade. Medicaid and SCHIP programs covered 5.3 million children in 2002, increasing by 45 percent to 7.7 million children by 2011.
However, the corresponding increase in health insurance coverage was much more moderate. Overall, the share of all children without health insurance declined from 11 to 10 percent between 2002 and 2011. This is due to the significant crowd-out of private health insurance coverage documented elsewhere (Gruber and Simon, 2008; Gresenz et al., 2012). The SCHIP expansions effectively shifted many (but not all) children from private to public health insurance, with only moderate increases in any coverage.

Despite the rate of crowd-out with private coverage, the expansion of SCHIP over the past decade may have still had a large impact on the population of children at risk of SSI application and receipt. First, the very small overall decline in the share of children without health insurance masks significant heterogeneity by income: children below 125 percent of the FPL witnessed the biggest decline in lack of coverage – from 19 to 14 percent, children between 125 and 200 percent of the FPL witnessed smaller declines from 16 to 14 percent, with those above 200 percent of the FPL witnessing even smaller declines and for those above 250 percent, no decline at all in the rate of uninsurance. Second, Medicaid/SCHIP mental health benefits are generally more comprehensive than those covered by private health insurance (Howell, 2004). Thus, even though many children might not have gained any coverage, they might have gained more generous mental health coverage by shifting to Medicaid/SCHIP.

The rise in public health insurance coverage and decline in uninsurance may have increased child SSI caseloads by increasing access to medical care. This increase in access to care could have affected SSI caseloads in one of two ways. It could have facilitated diagnosis of disabling conditions, prompting an increase in SSI applications. This could have operated through either children gaining any health insurance coverage,
or children previously covered by private health insurance replacing it with more generous (for mental health services) public insurance. Alternatively, for children already diagnosed, it might have enabled greater medical documentation of the condition thereby improving the quality of the application and the probability of acceptance. Given previous results showing little to no relationship between diagnosis rates and SSI caseload growth, it seems more likely to be operating through another channel.

Figure 11a presents the percent change in SSI caseloads over time against the percent change in Medicaid/SCHIP coverage per 1000 children over time for the 50 states and the District of Columbia. There appears to be small positive relationship between the two: states with bigger increases in Medicaid/SCHIP coverage witness slightly greater increases in SSI caseloads. However, when we focus instead on changes in the number of initial mental allowances (rather than caseload), a much stronger positive relationship between Medicaid/SCHIP and SSI emerges, as seen in Figure 11b.

We next examine the relationship between any health insurance and initial allowances for mental conditions. For this exercise, the data allow us to look separately at those children below and above the poverty line. As shown in Figure 12a, the data

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10 Medicaid and SCHIP caseloads counts per 1000 children in a state and year are calculated based on the Medicaid Statistical Information System (MSIS) state summaries which provide the unique count of Medicaid and separate non-Medicaid SCHIP enrollees less than 19 years old at any time during the year per state and year (numerator) combined with the count of children less than 19 years old from the SEER population data (denominator).

11 The number of children with any health insurance per 1000 children is taken as an annual measure of the share of children below 19 years of age with health insurance coverage at any point during the year for each state. These measures were generated by the Annie E Casey Foundation and derived from the Current Population Survey March Supplements using three year averages. Because these measures are derived from survey data that also include family income, these measures can be defined over the population
indicate virtually no statistical relationship between rates of health insurance coverage for those below the poverty line with initial allowances for mental conditions. In contrast, Figure 12b shows that increases in health insurance for those between 100 and 200 percent of the FPL do seem to be moderately positively related to increases in initial allowances for mental conditions.

In sum, the bivariate correlation suggests a small positive relationship between health insurance coverage rates and new allowances for mental conditions. More specifically, public health insurance expansion seemed to have mattered particularly for the near poor. We speculate that while some of the effect may be operating through gains in any health insurance coverage, it is possible that some of the effect is coming from shifts from private to more generous (for mental health) public coverage. These conclusions, however, are based only on bivariate analyses and may be spurious. The analysis will be followed with multivariate regression analyses that allow us to control for multiple factors.

C. SSI and Special Education

Beginning with the Individuals with Disabilities Education Act (IDEA) in 1975, the federal government has mandated that disabled children have the right to a “free and appropriate public education.” For simplicity, we follow convention and refer to this set of services as “special education”, though the name implies more uniformity of services than exists.\(^\text{12}\) There are two key distinctions between SSI eligibility and special education of children below poverty and between 100 and 200 percent of the FPL. All shares are converted to counts per 1000.

\(^{12}\) The one common factor for all children served through IDEA is the establishment of an Individualized Educational Plan (IEP); some students with IEPs spend all their time in the same educational settings as their typical peers.
eligibility. First, special education is not means-tested. Second, children are eligible for special education at lower levels of disability than required for SSI. Participation in special education is therefore far more common than in SSI, with 13 percent of public school students in the United States served by IDEA in the 2010-11 school year. Still, SSI and special education serve an overlapping population of children. In 2002, 55 percent of children on SSI reported receiving special education services (Aron and Loprest, 2007).

Special education programs may have a direct impact on participation in SSI by establishing professional documentation supportive of disability and raising parental awareness of qualifying childhood disabilities. The GAO (2012) estimated that teacher assessments (questionnaires) were used in 63 percent of SSI determinations, and that school testing was used in 43 percent. Cullen and Schmidt (2011) note that the federal Department of Education has advised state special education coordinators on how to help parents enroll disabled children in SSI. In the longer run, if special education services are effective in reducing children’s functional impairments or improving their human capital and labor market outcomes, they could decrease future SSI eligibility and participation.

We use data from the National Center for Education Statistics (Snyder and Dillow, 2012) as our measure of the share of public school students served in special education. The share of children in special education nationally increased over the period 1980 to 2000, growing from 10.1 percent of public school students to 13.3 percent in 2000. National special education participation peaked in 2004-05 with 13.8 percent of enrollment served, and then has declined in every year since, down to 13.0 percent in 2010-11, the most recent year for which data are available. However, though the national
trends do not accord – with special education rates declining and SSI rates increasing – there is still the possibility of a positive relationship at the state level.

The criteria guiding the special education determination are established at the federal level. However, states exhibit considerable variation in their policies and practices related to special education placement (Hosp and Reschly, 2002; Reschly, 2006). This raises the question of whether state level special education participation rates in part drive state level SSI participation rates. Here we consider only the bivariate relationship in trends, for descriptive motivation. Later we will employ regression techniques to simultaneously control for state level demographics, which is surely related to participation in both programs.

Figure 13a plots the 2002-2010 change in the child SSI caseload per 1,000 children against the 2002-2010 change in the percent of public school students in special education. In over half the states, special education contracted over this period. In fact, the two most notable outlier states with respect to high rates of SSI growth, Texas and Arkansas, both experienced declines in special education.13 Thus it is not surprising that there is not a positive overall correlation between growth in the SSI caseload and special

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13 Texas is in the strange position of having both the greatest increase in its rate of SSI participation for children and the largest drop in the share of public school enrollment served by IDEA among all the states. That drop in special education participation is particularly notable given the state’s already low levels of participation. (Scull and Winkler (2011) discuss Texas’ unusual practices for reporting special education data reporting under IDEA.) The past decade’s SSI increases in Texas therefore must be due to factors besides special education. At the same time, we know that within Texas, expansions in children’s SSI participation in the period from 1990 to 1996 (after Zebley and before PRWORA) were greatest in counties where school districts faced the strongest incentives to classify students as special education (Cullen and Schmidt, 2011). SSI growth in Texas might well have been even higher had special education participation rates not declined by as much as they did. Researchers interested in uncovering the sources of Texas’ unusual patterns should therefore consider a full range of possibilities.
education over this period. A different picture emerges when we examine SSI initial allowances with a mental diagnoses, rather than total SSI caseload. Figure 13b plots the percent change in SSI mental initial allowances per 1,000 children against the percent change in the special education share, from 2002 to 2010, and shows a positive correlation between growth rates in participation in special education and SSI. The bivariate correlation is 0.4, even including Texas. This is an intriguing finding, which we will return to below when we utilize regression techniques to examine multivariate relationships.

D. SSI and Poverty

Children must be eligible for SSI with regards to both having a qualifying medical disability and having sufficiently low family income. Wiseman (2010) and GAO (2012), among others, point to an increase in the rate of child poverty as a potential explanation of the recent increases in the child SSI caseload.

State-level data do not provide evidence that increases in state-level poverty rates correlate with state-level increases in the child SSI caseload as a share of children. Figure 14a shows a negative correlation between percent change in state-level poverty rates between 2002 and 2010 and percent change in SSI caseload over this period. However, it is difficult to interpret this correlation because SSI is a transfer program that should reduce rates of poverty. Using longitudinal SIPP data, Duggan and Kearney (2007) find that for every 100 children who enroll in SSI, 22 children and 37 people are lifted out of poverty and an additional 28 people see their incomes increase to more than twice the poverty line.
It is therefore a more useful comparison to consider how the rate of growth poverty correlates with growth rates in SSI initial allowances. Figure 14b plots this relationship. While both poverty rates and SSI participation have increased nationally, state-level increases in poverty rates do not appear highly correlated with state-level increases in initial allowances. The bivariate relationship is negative, with a slope of -0.36. When we exclude Arkansas, which had a reduction in the poverty rate over this period and a very large increase in the child SSI share, the bivariate relationship is -0.20.

V. REGRESSION ANALYSIS

In this section, we conduct a more formal econometric analysis to investigate the relational between the state level variables considered above and state level SSI child caseload growth. We build on the observation that the growth is coming from new cases with mental diagnoses, and thus the focus of this analysis is on initial allowances, rather than total caseload. We estimate Ordinary Least Squares (OLS) regressions at the state/year level, relating the number of new mental diagnoses initial allowances, scaled by the child population in that state and year, to demographic composition, policy measures, economic conditions, and the share of the broader population with mental diagnoses.

The baseline estimating equation takes the following form:

\[(New \text{ mental cases per population age} 0 - 17)_{sy} = b_0 + b_1 \ast (boys \text{ share}) + b_2 \ast (nonwhite \text{ share}) + b_3 \ast (share \text{ age} 6 - 12) + b_4 \ast (share \text{ age} 13 - 18) + b_5 \ast (welfare \text{ benefit levels}) + b_6 \ast (SSI \text{ benefit levels}) + b_7 \ast (percent \text{ kids < 100\%FPL with health ins}) + b_8 \ast (percent \text{ kids 100 - 200\%FPL with health ins}) + b_9 \ast (percent \text{ kids 200 - 250\%FPL with health ins}) + b_{10} \ast (percent \text{ kids > 250\%FPL with health ins}) + b_{11} \ast (special \text{ education share}) + b_{12} \ast (poverty \text{ rate}) + b_{13} \ast \]
\( \text{(unemployment\_rate)} + b_{14} \ast (\text{share kids} < 200\%\text{FPL mental diagnosis}) + b_{15} \ast (\text{sharekids} > 200\%\text{FPL mental diagnosis}) + \gamma_s + \gamma_y + \epsilon_{sy}. \)

The final two terms in the model are state and year fixed effects. The regression model is weighted by the state/year child population, in order to generate population estimates of the effect of various explanatory variables on SSI caseload growth over this period. Standard errors are adjusted for clustering at the state level.

We additionally estimate this regression with the dependent variable defined as a natural logarithm of initial allowances with a mental diagnoses per child population. When the regression is estimated with the natural logarithm specification, the estimated coefficients are interpretable as the percentage change in the dependent variable associated with a one-unit change in the explanatory variable. This specification facilitates thinking about percent changes across states with very different average rates. In contrast to the levels specification, which models a one percentage point change in the variable “initial allowances with a mental diagnoses per child population”, the natural logarithm specification presumes that the relationship drives rates of growth, regardless of mean rate of initial allowances with a mental diagnoses per child population.

In other words, in the levels regression, the OLS estimation treats a change in the new cases share of .0005 as an equivalent change, regardless of whether that increase occurs in Washington DC, with a mean share of new cases of 0.005, or in New Hampshire, which has a mean new cases share of .001. It is not obvious whether the “true” linear relationship between the rate of initial allowances with a mental diagnoses and the explanatory variables is in levels or in natural logarithms. We thus estimate the regression model both ways. Though the models yield some differences in terms of actual
point estimates, they do not lead to divergent conclusions about the role (or lack thereof) of the policy or economic conditions that we consider.

Table 1 presents the results of the OLS regression model for the dependent variable defined as the number of new child SSI cases with a mental diagnoses, scaled by the child population in a state/year cell. The left panel of the table reports results for the levels specification; the right panel of the table reports results for the natural logarithm specification. For each specification, we report the results of three estimation approaches. First, we estimate the model on the full sample. Second, we exclude Texas from the estimation sample, since, as described above, the Texas experience with SSI and other related policy variables over this period was such an outlier case. Third, we include the rate of mental diagnoses in the broader population. We do not include these variables in the baseline specification because of the concern that the rate of mental diagnoses in the low-income population is endogenously determined with SSI application.\(^{14}\)

In the full sample estimation, the results do not offer any evidence for the potential relationships considered above. Specifically, the data do not show a statistically significant relationship between the rate of new mental diagnoses cases and the share of children with health insurance coverage nor the share of children in special education. We next estimate the model without Texas included in the estimation sample. That specification yields two statistically significant coefficients, associated with the percent of children in the highest income group with health insurance (an unintuitive result) and the share of children in special education. Recall from above that this period in Texas

\(^{14}\) We also estimated regressions of this form, with the mental diagnoses rates on the left side of the equation instead of the right side of the equation. This model did not yield any statistically significant coefficient estimates.
witnessed an unusually large increase in new SSI child cases as well as an unusually large decline in special education rates. It is thus not surprising that that single large negative relationship (weighted in the OLS model by the Texas population count) led to an estimate of the mean effect not statistically distinguishable from zero.

Column (c) reports the results of estimating the model with the share of children above and below 200 percent of the federal poverty line with a mental diagnosis included as explanatory variables in the OLS model. These variables are only available for two years, and hence this specification is estimated on a smaller sample of 101 observations. It is essentially a first-differenced equation, rather than a multiple year fixed effects model. The data yield no evidence of a statistically significant relationship between these measures of mental diagnoses in the broader population and new SSI cases. Caution should be exercised when interpreting this, however, because this might be an issue of statistical power, with only two years of data for each state. The standard errors in this specification are much larger than in the other specifications.

When we turn to the natural logarithm specification in the right-side panel of the table, we see that the regressions suggest a statistically significant role for demographic variables. In particular, the share of the child population that is male and that is non-white is positively related to increases in the share of the child population comprised of new mental diagnoses cases. However, the actual variation in these demographic composition variables over this time period is substantially small, such that movement in these factors cannot account for any sizable share of the overall caseload increase.

When estimated without Texas observations, this specification also suggests a positive relationship between special education share and initial allowances with a mental
diagnoses. This specification also yields the unintuitive result that the rate of health insurance coverage among the highest income group of children is a positive determinant. Finally, both the levels and natural logarithm specifications yield an estimated positive relationship between welfare benefits levels (TANF plus food stamps) and new mental diagnoses cases. This relationship is surprising – and runs counter to the earlier literature on shifting between AFDC and SSI (e.g., Garrett and Glied, 2000). Note that when we directly consider applications below, the sign of this point estimate switches.

We estimate the same set of regressions for the dependent variable defined as new mental diagnosis applications, as opposed to cases. For the sake of space, we only present the results for the natural logarithm specifications. Table 2 presents the results. When the model is estimated for levels of the share of new mental applications, no variables enter the regression at standard levels of statistical significance. As shown in the table, the share of the child population non-white is positively related to the share of children who apply for SSI with a mental diagnosis. In terms of policy variables, in the full sample, we again see that the percent of children between 100-200 percent of the FPL with health insurance appears to be positively related to mental diagnoses application rates, but this is driven by the outlier case of Texas. This is association is not found when Texas is excluded from the estimation sample.

Focusing on the results in column (b) – for the full sample excluding Texas -- - the data indicate a negative relationship between the level of welfare benefits and SSI applications, consistent with the previous literature. The data fail to indicate a relationship between special education share and applications; nor do they indicate a relationship between overall diagnoses rates in the child population and SSI application
rates. Coupled with the result found for special education share above, this would suggest that increased rates of special education participation drive the rate of initial allowances with a mental diagnoses, and not necessarily through the channel of increased mental diagnoses applications. One speculation as to why that might be is that being involved in special education might lead to a more compelling medical eligibility claim.

VI. CONCLUSION

The purpose of this analysis was to better understand both how the child SSI caseloads have changed over time and why. The child SSI caseloads increased significantly over the past decade due largely to growth in (non-intellectual) mental disabilities. While a decline in CDRs over time and its potential role in explaining caseload growth has been documented elsewhere (GAO, 2012), the number of initial allowances over this period is substantial and is clearly an important component of the growth. The initial allowances, in turn, largely reflect trends in new applications, not changes in acceptance rates which have generally declined over this period.

In terms of composition, the child SSI caseload has shifted from physical disability to mental disability, but has not changed much over the past decade in terms of either the age or gender of recipients. Had the decline in CDRs explained most of the caseload growth over this period, we would have expected an aging of the child population of SSI recipients. The fact that the age composition of recipients remains unchanged over this period is consistent with initial allowances playing an important role in caseload growth. While the above documented general trends are universal, the size of the caseload growth witnessed over the past decade varied considerably across states and was not predicted by initial caseloads in 2002. In fact, a state with one of the largest
caseload growth over the past decade (Texas) had one of the lowest caseloads per 1,000 children in the year 2002.

We considered the role of a number of potential factors in explaining the differential caseload growth at the state level: underlying health, poverty, health insurance, and participation in special education. Neither underlying health nor poverty are related to caseload growth (though our measures of underlying health derive from responses to national health surveys in two years only and should not be viewed as definitive but only suggestive). In bivariate analyses, both health insurance expansions and special education policies appear to predict caseload growth. However, these results are very much sensitive to the inclusion of other controls as well as the state of Texas which, because its size, exhibits considerable influence over the results in a population-weighted regression.

Once all controls are included and Texas excluded, the only factor that remains statistically significantly predictive of caseload growth in a regression framework is the prevalence of special education in the state. Moreover, special education is predictive of initial allowances, but not of application rates. We speculate that perhaps special education contributes to caseload growth via increases the likelihood of application acceptance by, for example, lending greater credibility to the claim of disability. Additional research into this link and potential mechanisms is warranted.

Our inability to identify “universal” factors that explain caseload growth across states with coarse data suggests a need for in-depth case studies of states that witnessed extraordinary growth in their mental caseloads over this period, most notably Texas, Arkansas and Washington, DC.
References


TABLE 1: OLS Regression of State-Level Child SSI Initial Allowances with Mental Diagnoses per 1,000 children, 2002-2012

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<th>Ln(initial allowances mental/pop0_17)</th>
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* p<0.10, ** p<0.05
TABLE 2: OLS Regression of State-Level Ln(Child SSI Applications with Mental Diagnoses per 1,000 children), 2002-2012

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*p<0.10, **p<0.05
FIGURES

Figure 1: US child SSI caseload count by broad diagnosis categories, 2002-2011

Figure 2: US child SSI rates per 1000 children by broad diagnosis categories, 2002-2011
Figure 3: Composition of US child SSI caseload by disability type – 2002 and 2011

- 2002:
  - Intellectual: 26.3%
  - Other Mental: 35.9%
  - Physical: 38.8%

- 2011:
  - Intellectual: 16.4%
  - Other Mental: 57.01%
  - Physical: 26.58%
Figure 4: Total mental SSI caseload per 1000 by gender, 2002-2011

[Graph showing the increase in the total mental SSI caseload per 1000 by gender from 2002 to 2012. The graph compares boys 0-17 and girls 0-17, with the caseload for boys increasing at a steeper rate than for girls.]
Figure 5: US child SSI mental caseload by gender and age, 2002 and 2011
Figure 6: US Child SSI Caseload and Applications for Mental Disabilities
Figure 7a: 2002 Caseloads and Caseload Growth 2002-2011, by State

Figure 7b: 2002 Caseloads and Caseload Growth 2002-2011, for 10 largest growth states
Figure 8: Percent change in caseload share, by 2002 caseload share

Note: The slope of a bivariate regression line through this scatter plot has an intercept of 0.398 and a slope of -0.002.
Figure 9a: Trends in child SSI applications for mental disabilities, 2002-2011

Figure 9b: Trends in SSI acceptance rate for mental applications, 2002-2011
Figure 10a: Child SSI Growth in Total Mental Caseload vs. Growth in Children with a Mental Disability, per 1000 children

Figure 10b: Child SSI Growth in Initial Allowances vs Growth in Children with a Mental Disability, per 1000 children
Figure 11a: Percent change in SSI caseload per 1000 children vs. percent change in Medicaid/SCHIP coverage per 1000, 2002-2010

Figure 11b: Percent change in SSI initial mental allowance per 1000 children vs. percent change in Medicaid/SCHIP coverage per 1000, 2002-2010
Figure 12a: Percent change in SSI initial mental allowance per 1000 children vs. percent change in health insurance coverage for children <100% FPL, 2002-2010

Filled line intercept: .29, slope: .043

Figure 12b: Percent change in SSI initial mental allowance per 1000 children vs. percent change in health insurance coverage for children 100% -200% FPL, 2002-2010

Filled line intercept: .263, slope: 1.391
Figure 13a: Percent change in SSI mental caseload per 1,000 children and percent change in special education share of public school students, 2002-2010

Figure 13b: Percent change in SSI mental initial allowances per 1,000 children and percent change in special education share of public school students, 2002-2010
Figure 14a: Percent change in SSI mental caseload per 1,000 children and percent change in poverty rate, 2002-2010

Figure 14b: Percent change in SSI initial mental allowance per 1,000 children and percent change in poverty rate, 2002-2010