Medicaid as an Investment in Children: What is the Long-Term Impact on Tax Receipts?

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November 2014

*The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and do not necessarily represent the views of the US Department of Treasury.
Health Insurance Could Have its Greatest Impact in the Long Term

• The United States has expanded health insurance many times, most recently with the Affordable Care Act (ACA) of 2010

• We will not know the long term impact of current expansions until the long term, but we can study the long term impact of previous expansions now

• Using data from the IRS, we examine the long term impact of expansions in Medicaid and the State Children’s Health Insurance Program (SCHIP) on tax payments, earned income tax credit (EITC) take-up, wages, mortality, and college attendance
Gov’t Recoups Some Investment

- Medicaid eligibility during childhood leads to higher tax payments in adulthood
  - The government recoups 56 cents for each dollar invested by the time individuals reach age 60 (assuming discount factor of 3%)
  - Decreases in EITC payments account for approximately half of the tax increase
  - The other half occurs through increased wages

- Government return on investment ignores other benefits
  - Mortality – decreases for men, suggestive evidence of decreases for women
  - College Attendance – increases for women, suggestive evidence of increases for men
Data Needs Have Limited Previous Long Term Analysis

• We use data from the IRS on all tax returns from 1996 to the present
  o Sample size is huge – over 10 million children born in 1981-1984 cohorts
  o Allows us to follow individuals, as well as their parents, longitudinally for a long time period
  o Longitudinal data especially important for interventions that occur over several years (Medicaid) instead of just a point in time, because data required in all intervening years
  o We can examine outcomes at several different points in time – focus on ages 19 to 28
  o Includes tax outcomes, educational outcomes, and labor market outcomes

• We estimate spending and take-up using other data, but calculate eligibility in tax data
Huge Variation in Medicaid Eligibility by State and Cohort

- 2.24 childhood years in the Jan 1981 cohort
- 5.47 years in the Dec 1984 cohort
Simulated Instrument Empirical Specification

\[ Y_{icst} = \beta M_{ics} + \gamma_c + \gamma_s + X_{ics} + \varepsilon_{icst} \]
\[ M_{ics} = \delta I_{cs} + \mu_c + \mu_s + X_{ics} + \eta_{cs} \]

- \( Y_{icst} \) – outcome for individual \( i \) in cohort \( c \) born in state \( s \) at age \( t \)
- \( M_{ics} \) – Medicaid eligibility, specified as years of eligibility from 0 to 18

Second equation is a simulated instrument specification that isolates variation in state laws from variation in characteristics of people living in that state, calculated by running a national sample through program rules.

Run specifications for each outcome year \( t \) from 19 to 28 and graph coefficients

Also run OLS specifications for comparison.
On a base of $20,663 average cumulative tax payments by age 28, an additional year of Medicaid eligibility between age 0 and age 18 decreases cumulative tax payments by $1,459.
Medicaid Eligibles Make Higher Tax Payments

Cumulative Income & Payroll Tax, coefficient  
Cumulative Income & Payroll Tax, mean

- On a base of $20,663 average cumulative tax payments by age 28, an additional year of Medicaid eligibility between age 0 and age 18 increases cumulative tax payments by $186.

* Coefficient is Significant at 10% Level  
  ■ Coefficient is Significant at 1% Level  
  ▲ Coefficient is Significant at 5% Level  
  95% Confidence Interval (Coefficient)

* Amounts are in $000's
Medicaid Eligibles Receive Fewer EITC Dollars

Unconditional Cumulative EITC Receipts, coefficient

Unconditional Cumulative EITC Receipts, mean

- Coefficient is Significant at 10% Level
- Coefficient is Significant at 1% Level
- Coefficient is Significant at 5% Level
- 95% Confidence Interval (Coefficient)

* Amounts are in $000’s

- At age 28, additional year of eligibility from birth to age 18 increases cumulative tax payment by $186 and reduces cumulative EITC receipts by $75.
- Approximately half of estimated increase in tax payments occurs through reductions in EITC. Other half likely occurs because of increases in wages and income.
Medicaid Eligibles and Higher Cumulative Wages?

Unconditional Cumulative Wages, coefficient

Unconditional Cumulative Wages, mean

- Coefficient is Significant at 10% Level
- Coefficient is Significant at 1% Level
- Coefficient is Significant at 5% Level
- 95% Confidence Interval (Coefficient)

* Amounts are in $000's

- On a base of $149,245 average cumulative wages by age 28, an additional year of Medicaid eligibility between age 0 and age 18 increases cumulative wages by $250; however, this result is not statistically significant at any age.
On a base of $136,591 cumulative wages from age 19 to 28, the female point estimate suggests a $656 increase for each additional year of Medicaid eligibility from birth to age 18.
Medicaid Eligibles Have Lower Mortality Rates

Death by Age X, coefficient

Death by Age X, mean

- At age 28, 0.81% of individuals have died. The point estimate suggests a 0.010% decrease in mortality each additional year of Medicaid eligibility from birth to age 18, a result which is marginally significant. The effect is stronger for males.
Medicaid Eligibles More Likely to Attend College?

At age 20, 63% of individuals have attended some amount of college. The point estimate suggests that college attendance increases by 0.3% for each additional year of Medicaid eligibility from birth to age 18, but this is not statistically significant.
Medicaid Eligibles More Likely to Attend College – Women Only

If we restrict to women only, our point estimate suggests that college attendance increases by 0.40% for each additional year of Medicaid eligibility from birth to age 18 on a base of 68% at age 20. This result is statistically significant, as shown above.
Medicaid Spending, Return on Investment, and Medicaid Take-Up

• Each additional year of Medicaid eligibility from birth to age 18 increases Medicaid spending by $872 on a base of $2,130 in $2011.

• Government recoups spending via higher tax payments and lower EITC receipts:
  o Using estimates at age 28 with 3% discount rate, the government recoups 56 cents on the dollar by age 60.
  o Without discount rate, government earns 550% ROI by age 60.

• Medicaid take-up increases by 0.58 years for each additional year of eligibility from birth to age 18.

• To report impacts on beneficiaries as opposed to eligibles, multiply effect sizes by a factor of (1/0.5804), approximately 1.7:
  o For example, tax results imply that for each additional year of Medicaid enrollment from birth to age 18, cumulative tax payments at age 28 increase by $321.04 (=186.331*1.723).
Conclusion

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Extra Slides
Existing Literature Focuses on Short Term Impacts and Finds Them

- Impacts on coverage, medical care utilization, and mortality
  - Currie and Gruber (1996a,b) – focus on doubling of childhood eligibility between 1984 and 1992 and inclusion of pregnant women in 1985, find that eligibility increased utilization of medical care and reduced childhood and infant mortality
  - Card and Shore-Sheppard (2004) – two federal expansions in 1990, find modest impacts on contemporaneous insurance coverage but do not examine health or other outcomes
  - Several other papers revisit these expansions and later SCHIP expansions, all finding impacts on coverage, generally from 5 to 24 percent (see Blumberg, Dubay, and Norton 2000; Rosenbach et al. 2001; Zuckerman et al. 2001; Cunningham, Hadley, and Reschovsky 2002; Cunningham, Reschovsky, and Hadley 2002; Lo Sasso and Buchmueller 2004; Ham and Shore-Sheppard 2005; Hudson, Selden, and Banthin 2005; Bansak and Raphael 2006; Buchmueller, Lo Sasso, and Wong 2007; Gruber and Simon 2007)

- Impacts on other outcomes that could be potential mechanisms for long term labor market impacts
  - Lurie (2009) finds evidence of increased doctor visits as a result of Medicaid expansions
  - Joyce and Racine (2003) find that evidence of higher vaccination rates in response to the same expansions
  - Gruber and Yelowitz (1999) find that families with access to public health insurance save more, potentially making college more accessible to their children.
Some Short Term Impacts are Based on Short Term Interventions

- Oregon Health Insurance Experiment
  - Finkelstein et al. (2012) – in the first year, increased health insurance coverage, increased medical utilization, lower out-of-pocket medical expenditures, better self-reported health
  - Taubman et al. (2014) – in the first 18 months, increases in ER visits
  - Baicker et al. (2013) – two years later, decreases in depression, increased use of preventive health services, no impact on clinical measures of cholesterol and diabetes
  - Baicker et al. (2013) – one year later, no significant impact on labor force participation or earnings, increase in food stamp receipt
  - Because experiment only lasted two years, long term impacts will only reflect two years of additional coverage
Small Literature Finds Long Term Impacts on Mortality and Test Scores

• Meyer and Wherry (2012) – revisit Card and Shore-Sheppard with Vital Statistics data to examine teen mortality, find decrease in mortality for black teens
• Sommers, Baicker, and Epstein (2012) – impact of expansions in Medicaid since 2000, find reductions in mortality up to 5 years after expansion
• Levine and Schanzenbach (2009) – impact of availability of SCHIP and Medicaid at birth on children’s test scores. They compare 4\textsuperscript{th} graders to 8\textsuperscript{th} graders on the basis of eligibility at birth and find an impact on reading scores but not math scores
No Existing Evidence on Long-Term Labor Market Impacts

- Previous short-term effects focus on adults and find disincentive effects
  - Gruber and Madrian (2004) – review, concludes that when Medicaid was linked to welfare, little impact if any of Medicaid on labor supply
  - Dave et al. (2013) – find decreased labor force participation for pregnant women
  - Garthwaite et al. (2013) – examine Medicaid contractions in Tennessee, find that Medicaid decreases labor force participation for childless adults, largely because of crowd out
  - Borjas (2003) – finds immigrants increased labor supply in response to 1996 Medicaid cuts

- Disincentive effects might not be there for children because children do not generally work
Internal Revenue Service (IRS)

Compliance Data Warehouse (CDW)

• Data on all tax returns from 1997 to the present (some data in 1996)

• Limitations
  o Do not observe earlier years
    • Would ideally want to observe Medicaid eligibility starting at birth, or at least at 1990 expansion, but we can first observe in 1997 at age 14
      o We project eligibility backward, assuming actual Medicaid rules for previous years but same income and family structure as the first observed year
      o Only include tax filers (but most people file in some year)
    • Currently select sample to include only children born in 1981, 1982, 1983, and 1984 whose eligibility we can calculate in every year from age 15 to age 18
      o Must calculate Medicaid eligibility within our data (cannot observe takeup)
        • However, Medicaid eligibility is policy relevant
          o Policy makers can change it
          o Individuals who are eligible can be signed up retroactively
        • Can calculate simulated Medicaid eligibility to isolate variation from state rules (not possible with takeup)
Estimate Spending and Takeup Using Other Data

• We use data from the Medicaid Statistical Information System (MSIS) from 1981 to the present to estimate Medicaid take-up and per-capita spending.

• Allows us to calculate spending on children at the state-year level for each year for our birth cohorts of interest (1981-1984)
  - Spending data are only available at the state-year level.

• MSIS data also enables estimation of impact of Medicaid take-up (as opposed to treatment) on outcomes.