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Medicaid reimbursement, prenatal care and infant health☆

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ABSTRACT

This paper evaluates the impact of state-level Medicaid reimbursement rates for obstetric care on prenatal care utilization across demographic groups. It also uses these rates as an instrumental variable to assess the importance of prenatal care on birth weight. The analysis is conducted using a unique dataset of Medicaid reimbursement rates and 2001–2010 Vital Statistics Natality data. Conditional on county fixed effects, the study finds a modest, but statistically significant positive relationship between Medicaid reimbursement rates and the number of prenatal visits obtained by pregnant women. Additionally, higher rates are associated with an increase in the probability of obtaining adequate care, as well as a reduction in the incidence of going without any prenatal care. However, the effect of an additional prenatal visit on birth weight is virtually zero for black disadvantaged mothers, while an additional visit yields a substantial increase in birth weight of over 20 g for white disadvantaged mothers.

1. Introduction

Poor health at birth is associated with significant medical costs, long-lasting health issues and decreased labor market prospects later in life. For instance, economic studies provide evidence that low birth weight children are more likely to have lower educational attainment, lower wages and worse employment prospects as compared to children with normal birth weights (Berhman and Rosenzweig, 2004; Currie and Hyson, 1999; Black et al., 2007). Given the importance of early health on a child's future well-being, Medicaid, a means-tested public assistance program, has focused on policies aimed at improving infant health through prenatal care utilization. Previous economic literature has mainly focused on Medicaid eligibility expansions over the last decades and their link to better access to care among pregnant women, while policies aimed at stimulating the physicians' willingness to treat these Medicaid women have been primarily overlooked.

This paper analyzes how changes in payment to physicians for treating Medicaid patients impact prenatal care utilization, and whether prenatal care leads to better health outcomes. More specifically, in this study, using restricted data from the 2001–2010 Vital Statistics and an assembled Medicaid reimbursement rates dataset, I examine the effect of Medicaid reimbursement for obstetric procedures on prenatal care utilization. Variation across states and over time in Medicaid reimbursement rates provides a basis for identification. Additionally, this study asks the question of what is the effect of prenatal care on birth weight using an instrumental variable approach with Medicaid reimbursement rates as an instrument.

The access to care issues faced by Medicaid pregnant women are of particular importance, as currently the costs for more than 40% of all births are covered by Medicaid. While Medicaid eligibility expansions have increased the demand for medical services, Medicaid eligibility does not guarantee access to care. Traditionally, low Medicaid reimbursement rates have discouraged physicians to accept Medicaid recipients. According to a recent Medicaid Physician Fee survey, Medicaid physician payments have averaged 66% of Medicare payments (Zuckerman and Goin, 2012). Since federal agencies do not oversee Medicaid rate settings, states have considerable leeway when deciding how much to reimburse physicians for treating Medicaid patients. In an effort to increase physician participation in Medicaid, the federal government has agreed to fund an increase in Medicaid payments for 2013 and 2014 for primary care procedures.

This work contributes to the existing literature in several ways. First, I depart from studies that have established a link between increases in payment to physicians for obstetric care and child health (Currie et al., 1995; Gray, 2001), by providing a thorough

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evaluation of the mechanism behind this link: changes in access to care. Also, unlike previous literature and survey studies that document a relationship between an increase in Medicaid payments and physicians' willingness to serve Medicaid patients, I provide an empirical examination between these payments and such important measures of prenatal care utilization as the number of prenatal care visits, the adequacy of prenatal care and the probability of failing to obtain any care. I rely on the most comprehensive national-level data covering a recent ten year span, and incorporating every birth in the US. Given the most recent increases to reimbursement rates, it is important to understand how changes intended to stimulate the supply side of medical services lead to improved access to care among pregnant women. Since the responses to changes in Medicaid reimbursement rates may not be uniform, I explore the heterogeneity of the effects across various demographic groups of mothers, while focusing special attention on disadvantaged mothers, as they are primary targets of the Medicaid program.

A second contribution of this paper is the reexamination of the impact of prenatal care on birth weight using a novel instrument, Medicaid reimbursement rates. Despite the fact that prenatal care has been commonly thought of as one of the major determinants of infant health, the evidence on the causal effect of prenatal care is mixed. The difficulty associated with obtaining a causal effect is due to the fact that unobservable maternal health endowments may have an effect on a child's birth weight, and also may determine whether or not pregnant women seek prenatal care. Numerous medical publications find a positive association between prenatal care and birth weight, for the most part ignoring the endogeneity of prenatal care. Economic research, on the other hand, finds less convincing results as to the positive effects of prenatal care. Studies can be classified by those that find positive effects (Rosenzweig and Schultz, 1982, 1983, 1988; Liu et al., 2009; Liu, 1998) and studies that find no, or weak, effects (Currie and Grogger, 2002; Evans and Lien, 2005; Warner, 1995).

The results indicate that an increase in Medicaid reimbursement rates to a physician for obstetric care has a modest, but positive and statistically significant effect on the number of prenatal care visits that a woman receives. More specifically, a 10% increase in reimbursement rates is associated with an increase in prenatal care by approximately 0.11 visits for black disadvantaged mothers (e.g. high school dropouts and teens) and 0.07 visits for white disadvantaged mothers. Interestingly, point estimates adjusted for Medicaid participation rates indicate that more educated mothers take a better advantage of higher reimbursement generosity by exhibiting a much larger response to variation in Medicaid rates. The results also suggest that increases in reimbursement rates raise the probability of obtaining adequate prenatal care among black and white mothers with a high school education. Also, higher rates are associated with a decrease in the probability of obtaining no prenatal care among white high school dropouts. Finally, the IV estimation of the effect of prenatal care on birth weight provides evidence of a positive effect of additional prenatal care visits on birth weight for white disadvantaged mothers. An additional prenatal visit yields an increase in birth weight of above 20 g for these mothers. Interestingly, I do not find evidence of a positive effect of prenatal care in the subsample of black mothers.

This paper is organized as follows. Section 2 describes previous literature on the generosity of Medicaid reimbursement rates and child's health, as well as provides a brief overview of the extant literature on the effect of prenatal care on birth weight. Section 3 provides background on Medicaid reimbursement rates. Sections 4 and 5 present a theoretical framework and empirical approach. Section 6 describes data sources and data collection procedures. Section 7 presents the results, Section 8 provides robusness checks and Section 9 concludes.

2. Literature review

This study relates to two strands of health economics literature: research that focuses on the effect of Medicaid reimbursement generosity on infant health and health care utilization; and the vast body of literature on the effect of prenatal care on infant health.

To my knowledge, only Currie et al. (1995) and Gray (2001) have directly examined the effect of Medicaid reimbursement rates for obstetric care on infant health. Currie et al. (1995) focus on the relationship between infant mortality and the ratio of Medicaid reimbursement to private fees for obstetric care. Using state-level Vital Statistics data and a state and year specific fee ratio for 1979–1992, they find that raising the fee ratio by 10 percentage points lowers infant mortality by 0.5–0.9%. Similarly, Gray (2001) studies the relationship between Medicaid reimbursement fees for obstetric care on the incidence of low and very low birth weight. Using data from the 1988 National Maternal and Infant Health Survey (NMIHS), and applying a cohort difference-in-difference model, he finds a significant negative association between Medicaid rates and the risk of low and very low birth weight. The results also suggest that a 10% increase in Medicaid fees results in more than a 1% increase in the use of prenatal care during the first trimester, however this effect disappears in the subsample of low-income women. Unlike the above studies that establish a connection between Medicaid rates and better outcomes, this paper provides and empirical investigation between Medicaid generosity and access to care. While Gray (2001) documents a link between rates and first trimester prenatal care utilization, a single year of the 1988 NMIHS data does not allow for the possibility to account for bias associated with fee-setting mechanisms, hence a panel of states is more appropriate. Building on the previous literature, this study provides a link between such measures of access to care as the number of prenatal visits, the adequacy of care, and obtaining no prenatal care. These important measures of prenatal care utilization have not been examined by previous studies.

More recently, Buchmueller et al. (2013) examine the effect of changes in Medicaid reimbursement rates for dental procedures on access to dental care for publicly insured children, using the 2001–2010 Survey of Income and Program Participation (SIPP). The study finds a positive relationship between Medicaid dental rates and the number of dental visits, and the probability that a child received dental sealants. Estimates indicate that a ten dollar increase in reimbursement fee raises the probability of an annual dental visit by 1.3 percentage points. The study also finds that higher Medicaid reimbursement fees increase the percentage of patients with public health insurance who are treated by a dentist.

The literature on the effect of prenatal care and infant health is voluminous. Economists have been interested in estimating health production function for the last 40 years. Rosenzweig and Schultz (1982) were among the first to formulate and estimate infant health production function. In later years, Corman et al. (1987), Grossman and Joyce (1990), and Warner (1995) built on Rosenzweig and Schultz. To identify the effect of prenatal care, these studies relied primarily on Two Stage Least Squares (2SLS), using the availability of healthcare on a state level and local labor market conditions as the exclusion restriction.

More recent literature has focused on Medicaid and welfare changes throughout the 1990s. For instance, Currie and Grogger (2002) evaluate the effect of changes to the Medicaid program on prenatal care utilization and infant health. The three types of policies under consideration are: changes in income eligibility, administrative reform, and changes in welfare caseloads. The researchers find that increases in income cutoffs increased prenatal care use, while decreases in welfare caseloads reduced the use of prenatal care. Using 2SLS, with policy variables as instruments, they find that an increase in prenatal care induced by policy changes