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Money illusion among health care providers: should we adjust for inflation in analyses of provider behavior?☆

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Abstract

This analysis questions the appropriateness of inflation adjustment in analyses of provider behavior by comparing results from estimations using adjusted financial variables with those from estimations using unadjusted financial variables. Using Medicaid claims from 1984–1991, we explored the effects of Medicaid reimbursement increases on dentists' participation. Using results from inflation adjusted analyses, we would conclude that a 23% nominal increase in Medicaid reimbursement rates yields no increase in the number of Medicaid children seen by dentists. In contrast, estimations based on unadjusted reimbursement rates suggest that this same 23% nominal increase in reimbursement leads to an expected 16-person (15.4%) increase in the number of Medicaid patients seen per provider per year. These analyses demonstrate that results are sensitive to adjustment for inflation. While adjusting for inflation is a generally accepted practice in health services research, doing so without evidence that providers respond to adjusted reimbursement may be unjustified. More research is needed to determine the appropriateness of inflation adjustment in analyses of provider behavior, and the circumstances under which it should or should not be done. © 2000 Elsevier Science Ltd. All rights reserved.

Keywords: Provider behavior; Dentistry; Inflation; Money illusion; Medicaid

Introduction

When constructing theoretical models of provider behavior, we often make certain assumptions about the factors that influence their decision-making processes. Models that attempt to understand the economic decisions of health care providers, such as physicians and dentists, usually employ assumptions common to general economic theory. One assumption frequently employed in health care applications of economic theory is the assumption that economic agents respond to changes in "real" prices, i.e., those prices that have been purged of their inflation component using an inflation index, such as the Consumer Price Index (CPI). This economic assumption extends from theoretical proofs that an individual's utility is unaffected by changes in prices provided that they experience a commensurate increase in their income.

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Money illusion

On the surface, the assumption that individuals respond to "real" prices seems both reasonable and obvious. Over relatively short time periods (i.e., the "short run" in economic jargon), however, this assumption may not hold for a variety of reasons. For example, changes in prices and income may not occur in the same time period. Individuals also may lack sufficient information about prevailing inflation levels and/or experience lags in processing this information and adjusting their behavior accordingly. These factors may result in a tendency for individuals to base their economic transactions on nominal (i.e., unadjusted) prices. Economists describe persons exhibiting this tendency as suffering from "money illusion" (Branson & Klevorick, 1969).

The existing literature does not add a great deal to this debate. Aside from a small number of articles centered on mathematical proofs of the existence of money illusion (Dusansky, 1980; Dusansky & Kalman, 1974; Howitt & Patinkin, 1980a,b), only a few studies have attempted to determine the price to which individuals respond. Using multiple regression analyses of aggregate data, several authors have attempted to measure the extent to which money illusion influences labor force participation decisions. While many of these authors conclude that their results are not consistent with the existence of money illusion (Fair, 1971; Gustafson & Hadley, 1989; Hadley, 1982), others cite their findings as support for the existence of this phenomenon (Koskelar & Sullstrom, 1979; Niemi & Lloyd, 1981; Wachter, 1972).

Two survey-based studies that investigated perceptions of fairness in market transactions found evidence of money illusion (Blinder & Choi, 1990; Kahneman, Kentsch, & Thaler, 1986). In one of these studies, managers surveyed felt that employees would perceive a cut in wages in a zero inflation period as more unfair than an increase in nominal wages that does not outpace inflation (Blinder & Choi, 1990). Likewise, a public opinion survey revealed that 62% of individuals deemed a decrease in wages of 7% during zero inflation to be "unfair" while only 22% considered a 5% increase during a period of 12% inflation "unfair" (Kahneman et al., 1986).

New contributions

The existing literature provides no definitive evidence for or against the existence of money illusion. Furthermore, no studies have explored the presence of money illusion among health care providers. While most analyses use "real" prices to model the behavior of providers such as physicians and dentists, there is no evidence that these providers base their decisions on these adjusted prices. The continued acceptance and application of the economic assumption that health care providers respond to "real" prices could be quite problematic if providers actually respond to nominal prices and policy evaluations are sensitive to inflation adjustment. The analysis in this paper provides evidence that regression results and, consequently, policy recommendations can differ between models that use "real" prices and those that use nominal prices. The purpose of this paper is not to prove the price to which providers respond but, through a demonstration that the price used can affect the findings and conclusions of the study, to create an awareness of the potential existence of money illusion among health care providers and to underscore the need for research that determines the price to which providers respond.

Methods

Background

This paper grew out of a study that examined the relationship between Medicaid reimbursement rate increases and dentists' Medicaid participation. Low levels of Medicaid participation, both in terms of the number of providers seeing any Medicaid enrollees (likelihood of participation) and the number of Medicaid enrollees seen by participating providers (extent of participation), remain an important issue in health care policy. In several studies, providers cited low reimbursement rates as the primary deterrent to participating in Medicaid (Damiano, Brown, Johnson, & Scheetz, 1990; Margolis, Cook, Earp, et al., 1991). Because of the reported importance of fee levels in provider participation in public programs, any increases should result in some improvement in their participation. Both state and national analyses of Medicaid claims and physician surveys find that low reimbursement rates related significantly to lower likelihood and extent of self-reported Medicaid participation (Fox & Phua, 1994; Hadley, 1979; Held & Holahan, 1985; Mitchell, 1983, 1991; Mitchell & Schurman, 1984; Perloff, Kletke, & Neckerman, 1987a,b; Perloff, Kletke, & Fossett, 1995; Sloan, Cromwell, & Mitchell, 1987a; Sloan, Mitchell, & Cromwell, 1987b; Yudkowsky, Cartland, & Flint, 1990). Similarly, analyses of dentists' participation in Medicaid find that low reimbursement rates negatively affect dentist participation (Kushman, 1978; US Department of Health and Human Services, 1996; Venezie & Vann, 1993). Because most of these studies are cross-sectional in nature, the analyses did not require adjustment for inflation. The longitudinal studies that explicitly quantify the relationship between reimbursement increases and participation do not reveal whether their analyses

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