



How do substitute teachers substitute? An empirical study of substitute-teacher labor supply

Seth Gershenson*

American University, School of Public Affairs, Department of Public Administration and Policy, 4400 Massachusetts Avenue, NW, Washington, DC 20016-8070, United States

ARTICLE INFO

Article history:

Received 13 July 2010
Received in revised form 29 May 2011
Accepted 23 December 2011

JEL classification:
I2, J4

Keywords:

Educational economics
Expenditures
Teacher salaries

ABSTRACT

This paper examines the daily labor supply of a potentially important, but often overlooked, source of instruction in U.S. public schools: substitute teachers. I estimate a sequential binary-choice model of substitute teachers' job-offer acceptance decisions using data on job offers made by a randomized automated calling system. Importantly, this randomization generates exogenous variation in offer quality. I find that determinants of substitutes' offer-acceptance decisions include the offer's arrival time, commute time, day of week, classroom type, school type, and school quality. Interestingly, conditional on school quality student demographics do not significantly influence substitutes' decisions. Longer and higher paying full-day jobs are preferred to half-day jobs, although conditional on daily pay, job length does not significantly impact daily labor-supply decisions. Preferences for several job characteristics are found to vary with substitutes' regular-teacher certification status. Policy implications of these findings are discussed.

© 2011 Elsevier Ltd. All rights reserved.

1. Introduction

The quality of public education in the U.S. is important due to its relationship with economic growth (Hanushek & Woessmann, 2008) and individual labor market outcomes (Card & Krueger, 1992). Instruction is a primary input of the education production function and an extensive literature studies the principal purveyors of instruction: regular teachers (Dolton, 2006; Hanushek & Rivkin, 2006). Regular-teacher absence rates are between 5% and 10% and teacher absences are typically covered by substitute teachers (Roza, 2007). Little is known about this secondary source of instruction, however, and the present paper begins to fill this gap in the education literature by analyzing daily substitute-teacher labor supply.

Understanding the preferences of substitute teachers, particularly those certified as regular teachers, is

potentially important for several reasons. First, many schools have trouble satisfying their demand for substitute teachers (Dorward et al., 2000; Henderson, Protheroe, & Porch, 2002; Rogers, 2001) and this problem may increase as the regular-teacher workforce ages and class size reduction programs are enacted. When a substitute teacher cannot be found, regular teachers and school administrators work overtime to cover their colleague's absence (Rogers, 2001). This increased workload likely decreases the covering teachers' effectiveness throughout the day. Second, recent work documenting the negative effect of teacher absences on student achievement suggests that absences covered by certified substitutes are sometimes less harmful than absences covered by non-certified substitutes (Clotfelter, Ladd, & Vigdor, 2009), suggesting that substitute-teacher quality may influence student achievement. Third, poor and low-achieving schools have higher regular-teacher absence rates (Clotfelter et al., 2009; Miller, Murnane, & Willett, 2008a, 2008b) and are more likely to lose their regular teachers to wealthier and higher achieving schools (Hanushek, Kain, & Rivkin,

* Tel.: +1 202 885 2347; fax: +1 202 885 2347.
E-mail address: gershens@american.edu

2004). If substitute teachers similarly avoid low-achieving schools, the problems associated with the availability and quality of substitute teachers discussed above are concentrated among the schools and students that can least afford them. Finally, understanding the preferences of substitute teachers might allow the design of a pay system that minimizes expenditures on substitutes or that increases efficiency or equity by altering the distribution of substitutes or substitute quality across schools.

I estimate a sequential binary-choice model based on an expected utility-maximizing optimal decision rule that is hypothesized to govern substitutes' job-offer acceptance decisions. The empirics utilize data on the job offers, both accepted and rejected, made by an automated calling system to substitute teachers. The offers are made in a conditionally random order that creates exogenous variation in offer quality across substitute teachers.

Several non-wage offer characteristics are found to play an important role in substitutes' daily labor supply decisions, including commute time, school type, school quality, and time of offer. Friday jobs are significantly less likely to be accepted and certified substitutes are more likely to accept offers than non-certified substitutes. Interestingly, conditional on achievement, a school's demographic composition does not influence substitutes' daily decisions, nor does job length conditional on daily pay. Substitutes do, however, systematically prefer longer and higher paying full-day jobs to half-day jobs.

2. Background and literature

Substitute teachers have recently received attention from both policy makers and the popular media. For example, in 2007 H.R. 3345 (*The Substitute Teacher Improvement Act*) was introduced in Congress and in 2010 a *New York Times* editorial lamented the difficulties of substitute teaching (Bucior, 2010). Despite the apparent interest in substitute teachers, however, they have been neglected by economists and education-policy researchers. A possible explanation for the lack of rigorous research on substitute-teacher labor supply is the dearth of data on substitute teachers in large nationally representative data sets like the National Center for Education Statistics' Schools and Staffing Survey.

Existing studies of the substitute-teacher labor market come mainly from outside of economics. The contingent-labor literature, for instance, contains two case studies of substitute teaching. Rogers (2001) found that substitutes in a Pennsylvania school district felt underpaid and underemployed. A sociological study found that both substitutes and regular teachers preferred arranging jobs personally to using an automated call system (Coverdill & Oulevey, 2007).

Strauss (2003) was primarily interested in the demand for substitute teachers in the Pittsburgh area, but did ask some qualitative questions of Pittsburgh-area substitutes. Over 40% cited daily pay as the most important job characteristic. Overall, 98.4% of surveyed substitutes said that daily pay was either "very important" or "somewhat important." Other commonly mentioned important job characteristics were "advance professional career,"

"discipline in school," "safety of school," and "proximity to residence." Dorward et al. (2000) surveyed a random sample of 500 U.S. school districts on "issues related to substitute teaching." The authors report that 86% of school districts claimed to have a "problem" or "serious problem" with substitute availability and that 7% of districts deemed their substitutes "below average." The average daily pay in their sample was \$65 per 6 h day and ranged from \$35 to \$180.

What, if any, findings from the regular-teacher literature might apply to substitute teachers? Substitute teachers operate on a daily margin, and regular teachers choose daily labor supply by being absent. Roza (2007) finds that regular teachers are absent about ten times per school year, accounting for about 5% of school days, while comparable professionals take only three sick days during an equivalent time period. While this difference may result from teachers being sick more often as a result of their close contact with children, a significant number of teacher absences appear to be discretionary: Ehrenberg, Ehrenberg, Rees, and Ehrenberg (1991) found that annual teacher absences are responsive to district-level policies and Jacobson (1988) found that a small cash bonus for perfect attendance caused a significant drop in absence rates and a large increase in perfect attendance.

In reviewing the literature on teacher quality, Hanushek and Rivkin (2006) generally find that certification standards and advanced degrees have little to no effect on student achievement. Absence rates, however, have been shown to negatively impact student achievement in a variety of settings: Clotfelter et al. (2009) in North Carolina, Miller et al. (2008a, 2008b) in a large urban U.S. school district, and Das, Dercon, Habyarimana, and Krishnan (2007) in Zambia. Miller et al. (2008a) suggest that the negative effect of teacher absences may partially result from the low quality of substitutes. Substitute teachers are subject to significantly less-stringent requirements than regular teachers (Henderson et al., 2002). Clotfelter et al. (2009) provide evidence that substitute quality matters: absences in primary-school reading classes covered by certified substitutes are marginally less harmful than absences covered by non-certified substitutes.

3. Institutional details and data

This paper analyzes the daily labor supply of substitute teachers in a consortium of ten adjacent and autonomous Michigan school districts that contains more than 70 schools. The consortium's members enjoy economies of scale in a variety of administrative duties. For example, districts share the fixed costs of recruiting, training, and maintaining a large pool of substitute teachers and of running an automated calling system used to offer jobs to substitutes. The requirements to substitute teach in the consortium include passing a criminal background check, at least three years of credits from an accredited college or university, completion of a 4-h orientation program, and either a valid Michigan teaching certificate or a Michigan substitute-teaching license. The latter costs \$25 and must be renewed annually.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات