The effect of grade retention on educational and labor market outcomes

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Abstract

Grade retention is a major issue in the ongoing debate over how to improve primary and secondary education in the United States. This paper examines the retention decision and its empirical effects using an economic framework. Within our model, the retention decision is endogenous with respect to such observables as dropping out of school and labor market earnings and this endogeneity needs to be accounted for in empirical work. In the empirical section of the paper we use the High School and Beyond (HSB) data set to examine the effects of retention on the probability of dropping out of high school and on labor market earnings several years after the student has entered the workforce. We account for the endogeneity of grade retention by using instrumental variables (IV) estimation where the key instrument is based on exogenous variation across states in kindergarten entry dates. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Introduction

Grade retention is a major issue in the ongoing debate over how to improve primary and secondary education in the United States. Also known as 'flunking' or 'being held back', grade retention generally refers to the educational practice of having a child repeat a grade in school. For 1995, the National Center for Education Statistics (NCES) estimated that over 13% of individuals aged 16 to 24 had repeated at least one grade. For blacks, the estimate is nearly one in five (*National Center for Educational Statistics*, 1997a, Table 24).

The NCES estimates are low compared with other studies. The NCES estimates imply that roughly 1% of

students are retained each year.[1] By contrast, a study by Rose, Medway, Cantrell and Marus (1983) using data from the 1980s estimates that 5.5% of all students in grades K–12 are retained each year. With a sample of 15 states, several states had rates that implied over 50% of students would be retained at least once by the tenth grade.

As for more recent evidence, Table 1 gives estimates derived from the October educational supplement of the 1997 Current Population Survey (CPS). The survey asked of each child in a household what grade they were enrolled in during the current year and what grade they were enrolled in during the previous year, and we used this information to calculate retention rates. These esti-

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[1] Thirteen per cent divided by 13 grades. This is only an approximation. Multiple retakes will lower the number somewhat and, as noted previously, retentions are not uniform across grade levels.

Table 1
Estimated retention rates (ages 14 and under)

Grade	All	Whites	Blacks	Males	Females
1	6.69	5.70	14.59	7.81	5.54
2	2.22	2.26	1.86	2.87	1.48
3	1.57	1.20	3.32	1.78	1.37
4	1.62	1.52	2.42	1.68	1.56
5	1.23	0.99	2.07	1.42	1.01
6	1.36	1.03	2.66	1.71	1.03
7	1.80	1.89	1.28	2.49	1.08
8	1.10	0.99	2.02	1.60	0.58
Average	2.24%	1.97%	3.98%	2.71%	1.74%

Source: Current Population Survey, October 1997, authors' computations.

mates show that retention rates are substantially higher in the first grade than in subsequent grades, that blacks tend to be retained at higher rates than whites, and that males are retained more frequently than females.

Although there are no systematic national estimates of either the number of students held back each year or of the cost to the public of this practice, a rough estimate of the direct dollar cost can be made. In 1996, the NCES estimated there were 44.7 million students in grades K–12 in the US and that the average expenditure per child was almost $5800 (*National Center for Educational Statistics*, 1997b). Using a conservative estimate of 1% annual retention rate, the estimated cost for retention is approximately $2.6 billion per year and affects about 450,000 children. Credible estimates of 5% annual retention rates imply an annual cost of approximately $13 billion and over 2 million children affected. By way of comparison, the federal Head Start program (Head Start, 1998) had appropriations of approximately $3.6 billion in fiscal year 1997 and served approximately 800,000 children. The retention cost estimates also obviously ignore the private costs of retention, such as the delay of entry into the labor force or matriculation into post-secondary education, which are likely to be substantial.

Despite its widespread use, retention is a very controversial practice.[2] Opponents of retention contend there is a causal link between retention and negative outcomes such as dropping out of school (Cairns, Cairns & Neckerman, 1989; Fine, 1991; Grissom & Shepard, 1989, Chap. 3; Rumberger, 1987; Wagenaar, 1987), low self-esteem and poor academic performance generally (Kellam, Branch, Agrawal & Ensminger,1975; Royce, Darlington, & Murray, 1983). For example, Grissom and Shepard (1989) estimate that retaining a student increases the probability of not completing high school by 20 to 30%. Holmes (1989) surveyed 47 empirical

studies using a variety of academic achievement measures. He found that retained students tended to score 0.19 to 0.31 standard deviations below comparable students who had not been retained. House (1989, p. 209) summarized the research as follows: "It would be difficult to find another educational practice on which the evidence is so unequivocally negative".

However, there does exist a small body of empirical evidence suggesting there are beneficial effects to retention. Most notable is the recent research by Alexander, Entwisle and Dauber (1994) which documents the educational progress of a cohort of several hundred students in the Baltimore school system over an eight-year period and finds that retention has a positive effect on academic achievement as well as on more subjective measures such as self-esteem. In other work, Kerzner (1982) and Pierson and Connell (1992) also find some positive effects on academic outcomes, although the evidence tends to be mixed.

One key element that is missing in the current debate is a serious discussion about how retention decisions are made and how to account for the decision process in measuring the effects of retention. If retention is based solely upon a student passing a well-defined academic standard, that will likely have a different set of implications than if the decision is based on some guess as to how much a given student would benefit from an additional year in a particular grade. Economists have not contributed much to this lively and important debate although the heart of the problem is a resource allocation decision.[3]

This paper examines the retention decision and its empirical effects within an economic framework. We

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[2] See Holmes (1989) and Karweit (1992) for reviews of the research on retention.

[3] The single exception we are aware of is a paper by Gomes-Neto and Hanushek (1994) which analyzes the causes and consequences of grade retention in Brazil. A few papers by economists have used retention as an outcome variable (e.g., Currie & Thomas, 1995).