



The impact of short-term economic fluctuations on kindergarten enrollment[☆]

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ABSTRACT

For some 5-year-olds, delayed kindergarten enrollment may result in long-term academic benefits. Although waiting an additional year allows for further development prior to the start of formal education, the economic costs of the next best alternatives can be significant. This study examines the impact of short-term economic fluctuations on a household's kindergarten enrollment decision. I find that during economic downturns kindergarten enrollment increases. To explore a potential mechanism through which this effect may arise, I propose an instrumental variables approach to identify the causal effect of fluctuations in household resources due to the business cycle on the timing of kindergarten enrollment.

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1. Introduction

Recent economic research has revealed a link between a child's age at the time of kindergarten enrollment and future educational outcomes.¹ For example, among OECD countries, children who are relatively older than their classmates upon starting kindergarten tend to perform substantially better on nationally standardized tests taken in the fourth and eighth grades (Bedard & Dhuey, 2006). This suggests that parents can potentially have a positive impact on the educational outcomes of their children by waiting an extra year to enroll them, so that they are among the oldest in their class. In contrast, there is a lack of good empirical evidence on the impact of "premature" enroll-

ment. Some descriptive studies suggest that enrolling a child before he is intellectually or socially mature enough for formal education – as measured by "readiness" tests – may increase the likelihood that he will fall behind his classmates,² which may lead to grade retention and an increased probability of dropping out.³

Given the possibility that the timing of kindergarten enrollment may impact future outcomes, one is left wondering what mechanisms drive a parent's decision on when to enroll their child. This study analyzes one such factor: how the external economic circumstances confronting a household impacts decisions regarding the timing of enrollment. Specifically, what role do short-term economic fluctuations play in kindergarten enrollment decisions?

Exploring the link between kindergarten enrollment and the business cycle is important for at least two reasons.

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¹ See Bedard and Dhuey (2006), Datar (2006), Dhuey and Lipscomb (2008), and Fredriksson and Ockert (2005).

² See Holloway (2003), Porch (2002), Kurdek and Sinclair (2001), NCES (2000), Zill, Loomis, and West (1997), de Cos (1997), and McArthur and Bianchi (1993).

³ See Eide and Showalter (2001), Jacob and Lefgren (2004), Jimerson (1999), Roderick (1994), Fine (1991), and Shepard and Smith (1989).

First, if periods of economic downturns induce kindergarten enrollment at younger ages, we may observe lower educational achievement in future years. Second, educators must be mindful of the broader economic climate if fluctuations in early education enrollment are tied to current economic conditions. Ultimately, this may have an affect on resource allocation, classroom planning, cohort composition, and enrollment forecasts.

There is a well established literature on the timing of kindergarten enrollment.⁴ Although most children enroll when eligible, it is not uncommon for some parents to delay entry to take advantage of an additional year of development.⁵ While these studies describe the individual and parental characteristics of those who experience advanced or delayed entry, they fail to address an important endogeneity issue: family income may be correlated with a child's enrollment status, but may also be correlated with the unobserved factors influencing the timing decision—a child's ability, knowledge about the impact of delayed entry on educational outcomes, or access to alternative forms of daytime care. As such, to make progress identifying the mechanisms driving the timing decision it is essential to have a valid instrument.

Once a child becomes legally eligible to enroll in kindergarten,⁶ parents can choose between various daytime care alternatives. While publicly subsidized kindergarten provides a well structured environment requiring little to no direct financial expenditure,⁷ delayed entry may potentially have important academic benefits. Moreover, “on-time” enrollment is not required in all states,⁸ permitting parents to voluntarily withhold their child from enrolling. According to the *Education Commission of the States* (2005a, 2005b), daycare, enriched educational environments at home, and other childcare facilities, which foster growth and development, are often viewed as effective replacements or alternatives for kindergarten at age 5. Although there are potential benefits from these alternatives, they require both financial and time expenditures.⁹ In 2001, households below (above) the poverty line spent 25.1 percent (7.0 percent) of monthly household income

on childcare (Johnson, 2005). Other options such as home care require time resources, which translates into foregone market opportunities.

During economic downturns, some households face decreased wages or hours, unemployment, or the perception that wages/hours will decrease or unemployment might ensue in the near future.¹⁰ This may cause wage earners to seek a second job or increase hours at work, stay at home parents might be forced to seek employment, or there may be an increased reliance on government aid. These shocks to budget and time constraints can result in a reshuffling of limited resources. For those households that are affected and have children around the eligibility age, publicly funded kindergarten may become more attractive than other alternatives. This is particularly relevant for households who might have delayed entry because their child is on the margin of being ready to enroll, or is born later in the year. Even beyond subsidized tuition, the public school system offers other financial incentives, such as discounted or free breakfast, lunch, and snacks to families in financial need.¹¹

With the unemployment rate as a proxy for the business cycle, this study uses over time variation in a given state's unemployment rate to identify one of the mechanisms driving the enrollment decision. Using pooled cross-sectional data on 5-year-olds from the 1977 to 2003 October Supplements to the Current Population Survey and state unemployment rates from the Bureau of Labor Statistics, I find that kindergarten enrollment is countercyclical to the business cycle. A two-percentage point (i.e. one-standard deviation) increase in the state unemployment rate increases the probability of enrollment by one-percentage point. To explore one of the mechanisms through which this effect arises, I propose an instrumental variables approach to identify the causal effect of fluctuations in household resources due to the business cycle on the timing of enrollment. With the state unemployment rate as an instrument for household income, a \$962 decrease in household income due to a two-percentage point increase in the state unemployment rate increases kindergarten enrollment by 1.0 percent.

The remainder of the paper is as follows. Section 2 describes the data. Section 3 details the empirical framework and the estimation results for the reduced-form relationship between the business cycle and enrollment. Section 4 explores potential mechanisms through which the business cycle may impact enrollment. Section 5 concludes.

2. Data

The data used in this analysis are drawn from the October Supplements to the Current Population Survey (CPS) combined with state unemployment rates from the

⁴ See for example NCES (2000), Zill et al. (1997), McArthur and Bianchi (1993), Cosden, Zimmer, and Tuss (1993), Meisel (1992), and Shepard and Smith (1989).

⁵ NCES (2000) reports that 9 percent of 1st and 2nd graders did not enroll when eligible; boys, whites, those born between July and December, and children from families with high socioeconomic status are more likely to delay entry.

⁶ Entrance age cut-off dates vary by state and range from June 1st prior to the start of the school year through Feb. 1st. In most states, the minimum legal cut-off age for enrollment is five. In California, for example, during the 2005–2006 school year a child had to turn five by December 2, 2005 to be eligible to enroll in kindergarten in September 2005.

⁷ It is important to note that quality differences are often capitalized into home prices, and reflected in housing rents. According to Howell and Miller (1997) public school funding is drawn from sources such as local property taxes, state income taxes, state sales tax, federal government contributions, and state-sponsored lotteries.

⁸ As of 2005 kindergarten was mandatory in fourteen states and the District of Columbia; however all states except Tennessee allow exemptions from kindergarten attendance (*Education Commission of the States*, 2005a, 2005b).

⁹ See Blau and Currie (2006) and Blau (2003) for details on the supply and demand for childcare alternatives.

¹⁰ Hoynes (2000), Blank (1989), and Keane, Moffit, and Runkle (1988) explore how low-skilled individuals and households experience relatively more variation in labor market outcomes during recessionary periods.

¹¹ See Currie (2003) for an overview of federally subsidized Food and Nutrition Programs (FANPs).

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