



# Delaying Kindergarten

## Effects on Test Scores and Childcare Costs

**D**riven by the results of a series of studies showing that older entrants to kindergarten perform better than younger ones, there has been a nationwide trend among states toward raising the minimum entrance age for kindergarten.

But how convincing are such studies? For one thing, the results are not causal because the studies fail to account for the fact that parents, in part, choose when their child starts kindergarten based on a host of observable and unobservable factors that may also affect their child's school outcome, an issue that can bias estimates of the entrance age effect. Moreover, the studies relied on small and unrepresentative samples to estimate the effect. And even if the performance effect is real, does it persist beyond kindergarten?

If there is no real entrance age effect (or if such an effect does exist but does not persist), then delaying children's entrance into school may deprive many children who are "ready" of the benefits of schooling. Delays could be especially significant for disadvantaged children, who, if not enrolled in school, may be unable to attend a high-quality preschool or day care instead.

And cognitive effects are not the only effects. Even if there is a persistent cognitive effect, postponing school can place a significant economic burden on families, forcing them to bear an extra year of either the monetary or time costs of childcare.

A study by RAND Corporation researcher Ashlesha Datar addresses these concerns. It uses a nationally representative sample of kindergartners from the Early Childhood Longitudinal Study and instrumental variables—e.g., the child's birth date relative to the school's entry cutoff date—so estimates of the entrance age effect can be interpreted as causal.

The research asks (1) whether older entrants achieve higher test scores compared to younger ones at the beginning of kindergarten; (2) whether older entrants gain more or less over time from schooling than younger ones; (3) whether at-risk children,

### Abstract

Is it beneficial to delay the age at which children begin kindergarten? New research finds that kids who enter at age 6 instead of age 5—especially kids from disadvantaged families—do significantly better on standardized tests and learn more from schooling. But delaying entry also leads to substantial additional childcare costs—especially for poor families. These findings argue that policy-makers may need to view entrance age policies as a package—one that considers both cognitive and noncognitive consequences.

such as the poor, benefit more than others from delaying kindergarten; and (4) what effect entrance-age policy changes have on families' childcare costs.

### Entering Kindergarten Later Significantly Boosts Test Scores at Entry

To understand the cognitive effects of entering kindergarten later, Datar looked at academic achievement as measured by math and reading test scores on standardized tests. The results indicate that delaying kindergarten entrance is associated with a significant increase in math and reading scores at kindergarten entry. A one-year delay in kindergarten entrance increases math and reading scores by 6 points and more than 5 points, respectively. Also, the findings suggest that previous studies that failed to account for the selection bias underestimate the effect of delaying kindergarten age.

### Benefits Do Not Fade and Are Even Greater for Disadvantaged Children

As noted earlier, there is concern that any positive benefits may not persist and that forcing disadvantaged children to wait a year may thus be counterproductive. However, as the figure below shows, these concerns seem unfounded.

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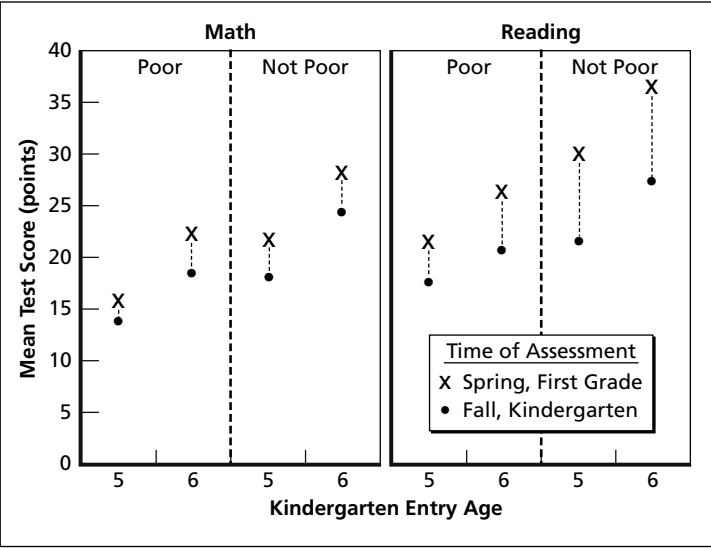
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Scores on standardized tests administered at two time points—once at the start of kindergarten and again at the end of first grade—were examined. The dots reflect the mean score for children entering at either age 5 or 6; as discussed earlier, we see that children entering later do better. The x’s reflect the gain in the test score across the two assessment periods. We find that the initial advantage not only persists but in fact increases by half a point in math and by a point in reading during the first two years in school. This suggests that delaying kindergarten entrance has a positive effect on test score gains in the early school years.



The figure also shows that the benefits of delaying kindergarten are even greater for children from poor families. Delaying kindergarten entrance from age 5 to age 6 increases the math and reading test score gains among poor children—the distance between the dots and the x’s. This is most notable in looking at math score gains—poor children entering at age 5 have almost no gain, while those entering at age 6 have a noticeable gain—but it is also true for reading scores. By contrast, both younger and older entrants from families that are not poor gain the same amount across testing periods.

### Delaying Kindergarten Increases Childcare Costs, Especially for the Disadvantaged

While delaying kindergarten has a positive cognitive effect for all children, it can also have a negative economic effect on families by imposing additional childcare costs for families whose children are forced to stay out of school for another year. To get at this issue, Datar built an economic model of families’ kindergarten entry age decisions and used it to simulate the impact on childcare costs for

three entrance age policies. First, she looked at the impact of a continuation in current trends in state entrance policies (i.e., if the eight states with December/January cutoffs moved their cutoff date to September 1 (which would effectively require children to be older when they start kindergarten). Second, she examined the impact if all states set their minimum entrance age requirement at 5 years, and third, if they reduced it to 4 years, 6 months—currently the earliest entry age. The table shows estimated impacts on childcare costs.

Entrance Age Policy	Expected Number of Children		Expected Net Cost of Continuing Current Paid Childcare Arrangement
	Out of School for a Year	Without Nonmaternal Childcare	
1. Eight states move cutoff up to 9/1, setting requirement at age 6	91,890	17,652	\$115 million
2. All states set requirement at age 5	153,144	29,402	\$184 million
3. All states reduce requirement to 4 years, 6 months	–748,451	–137,607	\$–804 million

Even with small perturbations in the existing policies (policy 1), expected economic costs for parents are large (\$115 million). Policy 2 has even higher costs, and those most affected by these costs turn out to be girls, nonwhites, and those from poor and less educated families. Policy 3, which puts children in school earlier, has dramatic cost savings of over \$800 million.

### Conclusions

Evaluating kindergarten entrance age policies requires a complete cost-benefit analysis, which is beyond the scope of the study. However, the study does examine an important benefit (academic achievement) and an important cost (childcare) of delayed kindergarten entry. The findings suggest that policymakers may need to view entrance age policies and childcare policies as a package. While it seems clear that poor children who delay entrance experience faster gains in test scores over time compared to poor children who enter kindergarten at a younger age, the families of these children are also more likely to bear huge additional childcare costs if minimum entrance age requirements are raised.

Estimates from this work can be used to identify subpopulations that are more likely to be affected by these changes and to help policymakers design better policies that can ease the burden on those affected families. ■

This research brief describes work done within the Pardee RAND Graduate School documented in *The Impact of Changes in Kindergarten Entrance Age Policies on Children’s Academic Achievement and the Child Care Needs of Families* by Ashlesha Datar, RGSD-177, 2003, 159 pp., available at <http://www.rand.org/publications/RGSD/RGSD177/>. It is also available from RAND Distribution Services (phone: 310-451-7002; toll free 877-584-8642; or email: [order@rand.org](mailto:order@rand.org)). The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND’s publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



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