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# From Preschool to Prosperity: The Economic Payoff to Early Childhood Education

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Based in large part on Bartik's 2014 book, *From Preschool to Prosperity*

## From Preschool to Prosperity

In my 20 minutes today, I mainly want to review the evidence for why preschool is an attractive investment for boosting both national and state and local economies. But I will also briefly discuss what this means for preschool in Michigan and Kalamazoo.

Here's the logic by which pre-K has large effects on adult outcomes:

Pre-K at age 4 develops not only a child's COGNITIVE skills (whatever math and reading tests measure), but also a child's SOFT skills (social skills, character skills, self-confidence)

Because a child has higher cognitive and soft skills at kindergarten entrance, he or she learns more in kindergarten. As Nobel-prize-winning economist James Heckman says, "skills beget skills".

This process continues on. Some of the raw IQ types of cognitive skills tend to fade. But soft skills continue to develop, as do the child's ability to translate his or her cognitive skills into higher educational attainment.

As an adult, this former participant has higher educational attainment and applied skills, as well as better soft skills. And both types of skills are very important to employers, and translate into higher employment rates and wage rates.

Furthermore, if we educate many people in this state, more of them stay in this state than some might suppose. Around two-thirds of all Americans spend most of their working career in the state where they were at age 4. Michigan is no exception. (Slower economic growth in states like Michigan affects in-migration much more than out-migration.) Between 40 and 50% stay in the same metro area they were in at age 4.

Having more skilled workers in a state not only helps the former pre-K participants with higher skills. It also has SPILLOVER benefits that increase the wages of other workers. I can be the most skilled worker in the world, but unless most of my fellow workers have good cognitive skills and soft skills, my employer will find it more difficult to introduce new technologies. Therefore, attracting new and expanded businesses depends crucially on as many workers as possible having skills, not just some workers having skills. These spillover benefits more than double the earnings benefits of preschool.

Finally, pre-K does this at a relatively affordable price tag. A child's brain might be even more malleable at age 1 and 2 than at age 4. But at age 1 and 2 you can't run class sizes of 16 to 2, which you can do at age 4. Earlier interventions than age 4 require much smaller class sizes or one-on-one attention. You can get higher benefits, but the costs often up even more, so the benefit-cost ratio tends to decline. Age 4 is somewhat of a "sweet spot" where the child's brain is still malleable enough to have large effects of quite limited interventions, but the child is old enough that the intervention can have larger class sizes.

The bottom line is that for each \$ invested in high-quality pre-K, the present value of future earnings in the economy increases by over \$12. At the state level, due to some outmigration of former child participants, this is reduced to about \$9. Of this amount, a little less than half is due to direct effects on

the earnings of former child participants, and the rest is due to the spillover benefits of higher skills on everyone's wages.

Now, let me return to that point about test score fading. I'm sure that many of you have heard that some experimental evidence on Head Start suggests that most of its effects on test scores fade by third grade.

That is a true statement. For Head Start, the initial effect of Head Start on standardized test scores at the end of the program would predict that adult earnings would increase by about 5 percent, based on studies of how test scores affect adult earnings. But by third grade, the standardized test score effect of Head Start predicts an adult earnings effect of only 1%.

A similar fading occurs for many of the most celebrated preschool programs. We find similar test score fading for such programs as the Perry Preschool program run in Ypsilanti Michigan in the 1960s, for the Abecedarian preschool program run in Chapel Hill, North Carolina in the 1970s, and for the ongoing Chicago Child-Parent Center preschool program, run by Chicago Public Schools since the late 1960s. For all these programs, the test score effects at the end of the program or at kindergarten would have predicted large adult earnings effects. But by third grade, much of these test score effects had faded, such that one would have predicted much lower adult earnings effects based on these test score effects. It might seem logical that by the time that participants in these programs entered the labor market, if not before, all the effects of preschool would have disappeared.

But that's not what we find. When we look at adult earnings effects of high-quality preschool program when we actually observe adult outcomes, we find that these adult earnings effects generally are equal to or even larger than would be predicted based on test scores at the end of the program or in kindergarten. The fading in test scores that occurred by third grade was not a good predictor of these programs' effects.

What is going on here? One way of putting this is that there is more to life than results on standardized test scores. These test scores whose effects fade are not even regular school tests, rather they are more general IQ tests or aptitude tests. What seems to be even more important to long-run success is effects of preschool on so-called soft skills, such as the person's self-confidence, their ability to plan, how they relate to peers, and how they relate to teachers and other authority figures. It is these soft skills that affect whether someone persists in their studies and completes high school and goes on and successfully completes college. It is these soft skills that affect whether a person can be a part of a team in the workplace, get along with supervisors and customers, and take on an effective leadership role.

Now, there are a variety of educational investments that might be considered other than preschool. And I certainly think that we need to do more than expand preschool if we want to boost skills and boost our economy. There is good evidence that there is a good economic return to many other educational investments, including extended school days and school years, small group tutoring, high school career academies, programs to make college more affordable such as the Kalamazoo Promise, and adult job training programs that are focused on high-demand jobs. Boosting skills is so important to the American

economy that we should be pursuing a wide variety of policies to boost skills, in a comprehensive strategy.

However, there are some special features of preschool that make it especially attractive as an educational investment. First, we have more evidence for preschool's effectiveness. Some educational interventions are backed by just a few studies in a few locations, whereas preschool is backed by dozens of studies, at multiple locations and settings, for programs run in a wide variety of ways.

We know that preschool works, not only in a small program run by researchers in Ypsilanti, but on a large scale in programs run by Chicago Public Schools, by public agencies in North Carolina, by Tulsa Public Schools, and Boston Public Schools. We have favorable evidence for Michigan's state pre-K program, the Great Start Readiness Programs, and for some local programs sponsored by the Kalamazoo County Ready 4s program. And various meta-analyses also suggest positive adult earnings effects on average across many studies.

Therefore, apparently preschool can work, not only when run on a small scale by expert researchers, but also run on a large scale by a wide variety of government agencies in very different cultural and political situations. It doesn't require some magic expertise to make preschool successful.

Second, preschool has more universal benefits than is true of some other educational interventions. Summer school and tutoring programs work best for students who are behind, career academies work best for students with strong career interests, and college scholarship programs and adult job training programs require some minimum level of skills for students to take advantage of these opportunities. But preschool seems to payoff for the vast majority of students.

For examples, studies of the universal full-day preschool programs in Tulsa and Boston suggest that these programs have similar test scores boosts and earnings benefits for both low-income children and middle-class children. For both groups, these investments boost the present value of future earnings by about \$50,000, about five times their costs.

Why might that be the case? Well, even for the best parents, it is hard for parents on their own to match the teaching of both hard skills and soft skills that occur in a group setting with a high-quality preschool teacher. And although some parents can afford high-quality preschool on their own, high-quality preschool is hard for many working class, middle-class, and even upper-middle class families to afford on their own dime. High-quality preschool costs around \$10,000 per school year for a full-day program, and around \$5,000 per year for even a half-day program.

Despite the fact that high-quality preschool has very similar earnings benefits and benefit-cost ratios for different income groups, the program is still substantially redistributes income, because it provides a larger relative boost to the economic prospects for children from low-income families, whose baseline predicted future earnings would be lower. The program equalizes not by taking away money from the middle class and giving it to the poor, but rather by boosting everyone's economic prospects equally in dollar terms, which evens out relative incomes of different groups a bit.

How is Michigan doing? The good news is that on access, Michigan has significantly improved over last two years. We've moved from 21% to 33% of all four-year olds in state-funded pre-K, which moves us above the national average.

The bad news is that we're still far behind leading states. Oklahoma, for example, has about three-quarters of all four year olds in state funded pre-K. When we include Head Start, Oklahoma essentially offers universal access to free pre-K. Michigan isn't close to offering universal access to pre-K.

In Kalamazoo, we're doing better than the state of Michigan in expanding access. This is largely because a wide variety of groups, including the intermediate school district (KRESA), the non-profit group Kalamazoo County Ready 4s (which I'll say more about in a minute), and both public and private preschool providers, have worked very hard that to ensure that we can use all the funding the state makes available to expand access, whereas other local areas have in some cases had to turn back state funds for preschool.

The other bad news is that Michigan isn't doing enough to make sure that all those expanded slots are high-quality. For example, during the 1990s, Michigan's state-funded pre-K program, the Great Start Readiness Program, or GSRP, was funded at a level of around \$4,500 per half-day slot, which is close to what you need to be able to pay adequate wages to consistently attract and retain high-quality pre-K teachers. But that amount in nominal dollars was frozen at the beginning of this century, and hasn't gone up much since then. This means that the real value of the state's spending per half-day pre-K slot is about 20% below what it was in the 1990s. At these levels, you're going to have very high teacher turnover, which creates real challenges in ensuring high-quality teacher for all students in preschool.

Now in Kalamazoo, an organization on whose Board I serve, Kalamazoo County Ready 4s is trying to fill some gaps in what the state of Michigan does. Specifically, KC Ready 4s pursues the following policies:

First, KC Ready 4s offer pre-school tuition assistance to some children whose families don't meet the income criteria for Head Start or for GSRP, or who meet the income guidelines, but who aren't served because of a shortage of available slots.

Second, this expanded preschool access to a variety of private and public preschools for a variety of income groups helps to promote income integration in preschool, which research suggests promotes greater quality.

Third, for some preschools funded by GSRP, KC Ready 4s supplements what the state provides per student, so that the preschool can better afford to provide high-quality services.

Fourth, KC Ready 4s tries to improve preschool quality by offering various types of training, including having teacher coaches who work one-on-one with individual preschool teachers.

So, to sum up:

Universal high-quality pre-K has some of the most rigorous evidence for any educational investment of having a high bang for the buck in providing benefits not only for the former participants, but broader benefits for national, state, and local economies.

But to realize these benefits, an investment is required. We need to be willing to provide sufficient resources to provide access for high-quality to all pre-K. This requires funding enough slots, it requires funding these slots at a sufficient level to provide high-quality services, and it requires providing adequate training and mentoring for preschool teachers.

The cost of such an investment is roughly an additional \$25 billion per year nationwide for universal full-day pre-K. That's a lot of money, but it's less than 1% of total government tax revenues, and only about 4% of what we currently spend on K-12 education. And this investment would bring future economic returns to the economy of over 10 times as much, based on many studies. The question is whether we have the political will-power to make an investment whose payoff is mostly long-term.