From Preschool to Prosperity

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Chapter 6
Spillover Benefits
How Does Early Childhood Education Affect Other Groups Than Those Families Directly Served by These Programs?

So far, this book has focused on how early childhood education benefits child participants or their parents. But what about the rest of society?

If I think my children will be OK without government intervention in early childhood education, why should I be willing to pay increased taxes for early childhood education to help “other people’s children”? Altruism is one reason, but is there also an argument to be made based on enlightened self-interest?

Yes, there is: When some children get more skills, this has large spillover benefits for the rest of society. The most important spillover benefits, in my view, are the productivity benefits for the entire economy. Other spillover benefits include peer effects in education, lower crime, short-term and long-term fiscal benefits, and long-term benefits for the next generation.

SKILL SPILLOVERS

Some people picture the economy as having a fixed number of good jobs. If my children don’t need government help for early childhood education, then I might think that expanding early childhood education harms my children’s prospects.62 It’s more competition for the fixed number of good jobs.

But that’s not how the economy works. The empirical evidence suggests that when skills of one group increase, this enhances overall wages of most workers. The underlying reason is that the number of
good jobs is not fixed. Good jobs will expand in response to the supply of persons with good skills.

For example, studies by Ernesto Moretti and others have shown sizable positive effects of an increase in the college graduation percentage in a metro economy on the metro area’s wages (Diamond 2013; Moretti 2003, 2004, 2012). My wages depend not only on whether I have a college degree, but also on what percentage of others in the local economy have a college degree.

Suppose we use these results to project the wage effects if a metro area has a 1 percent increase in the percentage of workers with a college degree. As shown in Figure 6.1, the direct effect on metro-area average wages would be an increase of 0.8 percent. College graduates on average earn 80 percent more than non–college graduates. Multiplying 80 percent by 1 percent yields a 0.8 percent increase in average wages.

But the estimated spillover effects of the college graduation percentage on others’ wages imply that average wages for others in the economy will go up by 1.1 percent. The total wage increase will be 1.9 percent. The sum of the spillover effects is actually larger than the direct wage effect of increasing college graduates.

For any individual, the spillover effect is small. If I get a college degree, my expected earnings go up by 80 percent, which will add about $1.2 million to my income over an entire career.63 The impact of this on any one individual fellow metro resident is small. But the spillover impact summed over the many other workers in the metro area is $1.7 million, slightly more than the direct effect on my earnings.64

Most workers in a local economy benefit from other workers having better skills. Even if my children would have great skills without early childhood education, their wages would still benefit from other people’s children having more skills.

One reason for skill spillovers is that employers have to make decisions about technology use and job creation based on the overall supply of workers and skills, not on whether any given individual has skills. Even if I have great skills, if my coworkers have lousy skills,
my employer is going to have more trouble introducing new technologies. This will harm the competitiveness of my employer, which will damage my wages.

Even if all the workers at my firm have good skills, the firm will benefit if it can rely on quality products at good prices from local suppliers. This depends upon these local suppliers having a ready supply of skilled workers.

Finally, there are many industries that rely on obtaining ideas and workers from other firms in the same industry. This is part of the productivity advantage of local high-tech economies in Silicon Valley. The productivity of a firm may depend on the skills of workers in other competing firms, which provide a source of ideas for my firm.

The spillovers from competing firms and local suppliers have long been discussed in regional economics. They are called “agglom-
eration economies” and are characterized by productivity advantages from a cluster of an industry in a local economy. These agglomeration economies depend in part on worker skills.

This book’s calculations in prior chapters of earnings gains for former child participants do not rely on spillover benefits. With spillover benefits, the aggregate economic gain from early childhood education might be at least double what was previously stated.

How are these broad worker benefits realized? Employers will decide to expand, locate, or start up in a metro area because of the increased supply of workers with better skills. These employer decisions lead to more jobs and better jobs, and this benefits all the area’s workers.

Realizing such benefits at the local level requires that a significant proportion of children remain in the same local economy in which they participated in early childhood education. The evidence indicates that this occurs. At least half of all Americans spend most of their career in the metropolitan area in which they spent their early childhood (Bartik 2011). Those who leave spread the productivity benefits of better skills to the broader state economy or to the national economy. Those who stay provide sizable spillover benefits for the local economy.

PEER EFFECTS IN EDUCATION

These spillover wage effects provide a long-term argument for why I might want to pay higher taxes to help other people’s children. Are there short-term arguments? One short-term argument is peer effects in education.

We know that there are peer effects in K–12 education. All children in a classroom tend to learn more during a given year if the average skill level in the classroom at the year’s start is higher.

The magnitude of these estimated peer effects is sizable, at least 15 percent per school year (Hanushek et al. 2003; Hoxby 2000). If starting average achievement levels in a class are one grade level
higher, then students in that class would be expected to learn about 0.15 grade levels more that year.

Some research provides direct evidence that pre-K provides peer benefits in K–12. Neidell and Waldfogel (2010) estimate models of kindergarten achievement that control for the percentage of peers enrolled in pre-K. They find that for every additional child who was enrolled in pre-K, the overall increase in test scores in the kindergarten class is from 16 to 50 percent higher than would be predicted based on the individual effect on that child.

If more children have higher skills, then teachers can spend more class time teaching to a higher standard. In addition, the teacher will need to spend less time bringing some individual children up to grade level. This frees up time for working individually with more students to match their learning needs. Also, if children enter the class with better behavior, classroom disruptions will be fewer, which will increase learning for all students.

Therefore, even if I already have the money to enroll my child in high-quality pre-K, or even if I think my child does not need high-quality pre-K, I have an interest in paying higher taxes for pre-K for other people’s children, because it will enhance my child’s learning in K–12.

SPILLOVERS FROM REDUCING CRIME

In addition to spillovers on the legal labor market, early childhood education reduces crime. When we enhance an individual’s legal earnings prospects, we reduce the probability that that individual will become involved in criminal activity. Therefore, one other argument for why I should invest in other people’s children is that it reduces my own and my children’s probability of being a crime victim. This can be a powerful political argument. Furthermore, some evidence suggests that educational investments may be a more cost-effective way of fighting crime than longer prison sentences (Greenwood et al. 1998).
GOVERNMENT/TAXPAYER BENEFITS

Another spillover benefit of early childhood education is fiscal benefits. By “fiscal benefits” we mean either greater tax revenues at unchanged tax rates or less need for government spending. Such fiscal benefits allow governments to help taxpayers, either by lowering tax rates without cutting services, or by improving services without tax rate increases.

In the long run, the increased earnings due to early childhood education will be taxed by federal, state, and local governments. The increased earnings from early childhood education will also lower welfare usage, reducing the need for government spending. The drop in criminal activity will reduce prison costs and criminal justice system spending.

In the short run, early childhood education may reduce remedial education costs. Several studies suggest that early childhood education reduces special education costs. Special education costs can be an extra $10,000 per year per child. Most studies suggest some reduction in special education costs from early childhood education, although the magnitude varies widely, from 23 to 86 percent.\(^67\)

Simulation studies conclude that in the long run, many early childhood education investments are self-financing. Estimates by Lynch (2007) suggest that after 43 years, high-quality universal pre-K’s fiscal benefits will be about eight times program costs. Universal pre-K is estimated to break even from a combined federal and state government perspective after nine years, and for the average state after 23 years.

Other simulation estimates are more conservative, but they agree that in the long run, fiscal benefits exceed direct budget costs. Dickens and Baschnagel (2008) conclude that a universal version of the Perry preschool program, a relatively expensive program, would break even in budget terms after 49 years.

The problem is that policymakers must make decisions in the short run. And in the short run, early childhood education has fiscal
costs. The long-run fiscal benefits accrue to a variety of government revenue and spending accounts, many outside the education system. The fiscal benefits are removed both in time and governmental function from the immediate fiscal costs of pre-K for an education budget.

**PRE-K: THE NEXT GENERATION**

Early childhood education may have important spillover benefits for the next generation. We know that parents’ income has large effects on their child’s future outcomes, especially for children in low-income families. Parent income in early childhood is particularly important.


Of particular interest is the finding that a child’s future adult earnings are more affected by the income of the child’s parents when the child is ages zero to five than by income in later childhood years. Once one controls for family income in early childhood, the family’s income when the child is ages 6 through 15 has little impact on the child’s future adult earnings.

Children at ages five or less are particularly vulnerable to stresses. Poverty produces numerous stresses, such as a family being forced to move, or a parent losing a job.

This raises the possibility that early childhood programs have next-generation benefits. If we invest now in early childhood education, then that raises the earnings of former childhood participants as adults. When these former participants form their own families, their family’s income will be higher. This will lead to better childhood development in the next generation, and better adult outcomes for that generation. This virtuous cycle obviously can continue.
CONCLUDING COMMENTS

There are very large economic spillovers from investing in high-quality early childhood education programs. More speculative projections suggest that these economic spillovers extend into subsequent generations and make these programs self-financing in the long run. But perhaps of more immediate interest, there are huge skill spillovers on most workers’ wages from increasing overall skills. In a modern economy, workers are interdependent. We’re in this economy together.