

Joint Economic Committee | Democrats
Senator Amy Klobuchar, Vice Chair

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A photograph of a female teacher with blonde hair, wearing a green vest over a white shirt, leaning over a group of diverse young children in a classroom. The children are gathered around a small nest-like object on the floor, looking at it with interest. The background shows bookshelves filled with books.

Early Childhood Education:

A Smart Investment in Children
and the Economy



EARLY CHILDHOOD EDUCATION: A SMART INVESTMENT IN CHILDREN AND THE ECONOMY

The education children receive before the age of five affects their long-term academic prospects and earnings potential. In addition, early education benefits the entire economy by helping workers develop the skills needed for the jobs of tomorrow. As the country looks for ways to improve economic mobility and strengthen the middle class, increasing access to early learning should be a key part of the solution.

Despite evidence demonstrating that high-quality early childhood education improves outcomes for children and bolsters the caliber of the workforce, the United States invests less in early education as a share of gross domestic product (GDP) than most advanced economies.¹ Nearly 60 percent of three-year-olds and more than one-third of four-year-olds are not enrolled in early education programs.² Marked disparities exist in enrollment rates for children from low- and moderate-income families, placing them behind the learning curve before they have even started kindergarten.³

This report discusses the economic benefits of early childhood education. It examines trends in early education enrollment, including disparities across income groups that may inhibit economic mobility. It concludes by describing policies to improve access to high-quality early education and help prepare children for success as they move into the K-12 education system and beyond.

Economic Benefits of Early Childhood Education

The economic benefits of high-quality early education programs are significant, both in the short and long term.⁴ Art Rolnick, former Director of

Research for the Federal Reserve Bank of Minneapolis, has said, "The best investment in economic development that government and the private sector can make is in the healthy development of children."⁵ Former Federal Reserve Chairman Ben Bernanke has made similar remarks, citing evidence showing that children's participation in preschool programs increases high school graduation rates, which in turn boosts expected lifetime earnings.⁶

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Overall, the annual rate of return on investment in high-quality early education exceeds the return on most other investments, public or private. The rate of return has been found to be as high as 16 percent per year for intensive programs targeted to at-risk children.⁷ The high return is a result of higher lifetime earnings, increased tax revenues and reduced demand for public services.⁸

Children who attend high-quality preschools are more likely than their peers to graduate from high school, enroll in college and have higher lifetime earnings. In addition to these tangible benefits, early education also helps children further develop a number of critical non-cognitive skills, such as perseverance and motivation.⁹ While not as easily measured through test scores and academic

performance, those skills play a vital role in contributing to a young person's future success.¹⁰

Young people who attend high-quality early education programs are less likely to be in remedial education classes, become pregnant at a young age or be juvenile offenders.¹¹ The improved outcomes compared to their peers extend into adulthood, with higher employment rates, lower crime rates and lower rates of reliance on public assistance.¹²

Early education not only provides benefits to individual children but also reduces the strain on federal, state and local budgets, as a result of higher taxable incomes and decreased expenditures on social services.¹³ The benefits are especially significant when it comes to reduced spending on incarceration, which is a substantial expense for governments.¹⁴ The average cost of incarceration for a federal inmate is nearly \$30,000 per year.¹⁵ One study found that participants in high-quality early learning programs are 25 percent less likely to have spent time in prison or jail by age 24.¹⁶ Another found that participants are 46 percent less likely to have been sentenced to prison or jail by age 40.¹⁷

Building a Stronger Workforce

Investing in early childhood education supports economic growth by bolstering the caliber of the workforce. Many businesses today say they are struggling to find workers with the right skills, and technological changes in the future will increase the importance of having a well-educated workforce capable of lifelong learning.¹⁸

Economists and business leaders have emphasized the role of early education in developing strong local and regional workforces.¹⁹ Recognizing this, many governors have worked to enact or expand state-funded preschool programs in recent years.²⁰

Early evidence suggests these state-level programs help prepare children not just for kindergarten but for all of primary school, boosting test scores as far down the road as eighth grade.²¹ One analysis projects that the longer-term earnings gains for

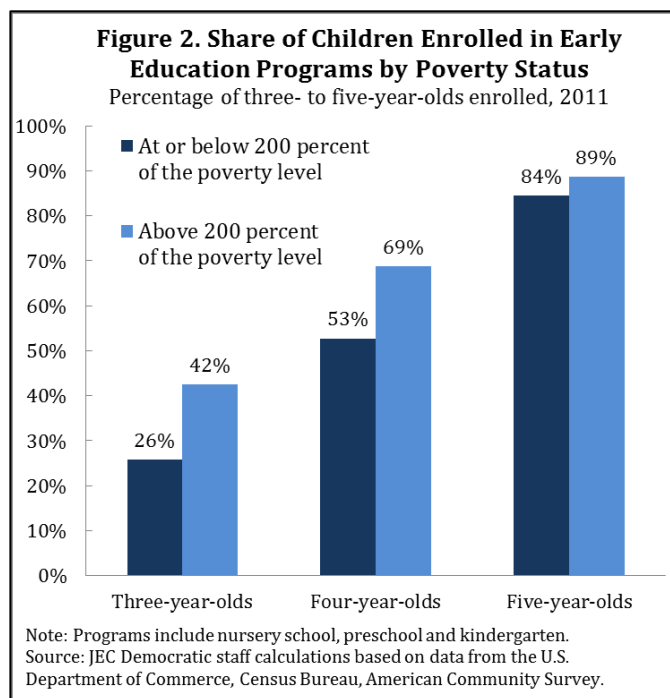
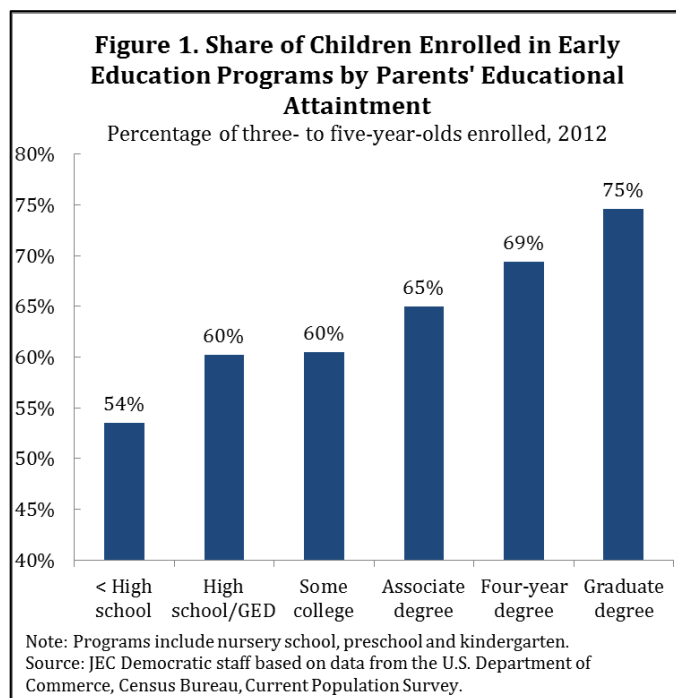
participants in a universal pre-kindergarten program currently underway in Oklahoma will yield between \$3 and \$4 for every dollar spent.²²

Early Education and Economic Mobility

Economic mobility—the likelihood that a child raised in one income group will move to a different group as an adult—is lower in the United States than in most advanced economies.²³ Among Organisation for Economic Co-operation and Development (OECD) countries, only the United Kingdom, Italy, Chile and Slovenia have higher correlations between the earnings of fathers and sons.²⁴ Children of very low-income or very high-income parents are particularly likely to end up with a similar economic status as their parents. Over 40 percent of American children born into poverty never escape it.²⁵

Education is one of the most direct paths to economic mobility, and investing in early education can be particularly effective in increasing opportunity.²⁶ Research shows that differences in investment in education—with higher-income families investing more and lower-income families investing less—account for approximately one-half of the lack of economic mobility across generations.²⁷ Early education investments can make a greater contribution to economic mobility than investments in college.²⁸ It has been estimated that children who attend just one year of high-quality pre-kindergarten earn more as adults than their peers who do not (as much as 10 percent more for disadvantaged children attending full-day programs according to one study), which can help them move out of poverty or into the middle class.²⁹

In 2012, 70 percent of three- to five-year-olds with a parent with a bachelor's degree—and 75 percent of children with a parent with a graduate or professional degree—were enrolled in early education programs. At the same time, only 60 percent of children whose parents had only a high school diploma and only 54 percent of children whose parents had not graduated from high school were enrolled in such programs (**Figure 1**).³⁰



In addition to the educational attainment level of the parents, family income is often a major indicator of whether or not a child is enrolled in an early education program. In 2011, the most recent year for which there are data by income level, only 26 percent of three-year-olds in households at or below 200 percent of the poverty line (currently \$47,700 for a family of four) were enrolled in an early education program. By comparison, 42 percent of children in higher-income families were enrolled. For four-year-olds, the shares increase but the disparity remains. The gap narrows considerably for five-year-olds, since many begin to attend public kindergarten (**Figure 2**).³¹

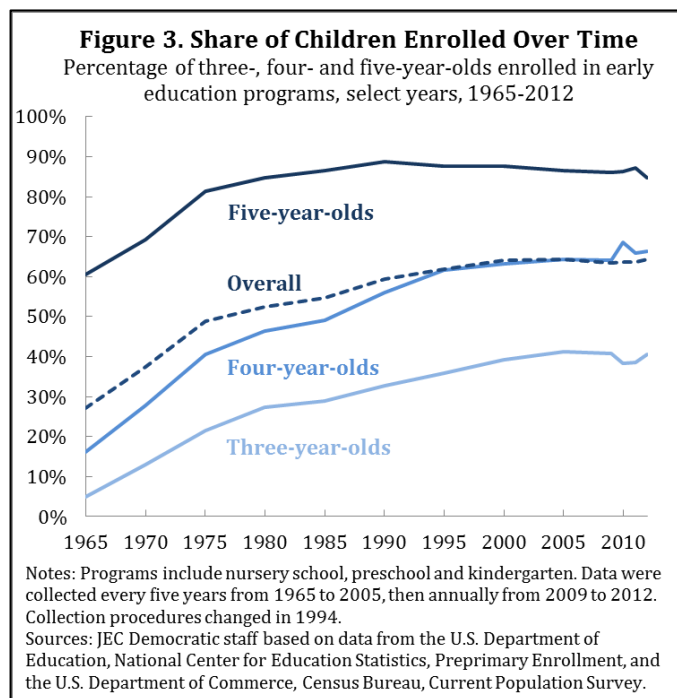
By the time they enter kindergarten, many children from low- and moderate-income families are already struggling to keep up. According to one study, children in families at or above 200 percent of the poverty level—who are more likely to attend pre-kindergarten programs—score 38 percent higher on math exams and 30 percent higher on reading exams than children who live in poverty.³² These children also score 19 percent and 16 percent higher than children in families with income between 100 and 199 percent of the poverty level on math and reading exams, respectively.³³

Enrollment Trends Overall

The share of young children enrolled in early education programs increased steadily during the last few decades of the 20th century—rising from just 27 percent of three- to five-year-olds in 1965 to 64 percent in 2000 (**Figure 3**).³⁴ But little progress has been made since then, as enrollment rates have held relatively constant.

In 2012, almost 60 percent of three-year-olds and more than 30 percent of four-year-olds were not enrolled in kindergarten, preschool or nursery school.³⁵ This corresponds to about 2.4 million three-year-olds and 1.4 million four-year-olds not enrolled in early learning programs.³⁶

These enrollment rates vary by state and type of program (**Table 1**). For example, while only four percent of three-year-olds nationally were enrolled in state-funded pre-kindergarten programs, 80 percent of three-year-olds in the District of Columbia were enrolled in such a program. States with a majority of four-year-olds enrolled in state-funded pre-kindergarten include the District of Columbia (94 percent), Florida (78 percent), Georgia (58 percent), Iowa (60 percent), Oklahoma (74 percent), Texas (52 percent), Vermont (71 percent), West Virginia (62 percent) and Wisconsin (64 percent).



On a variety of measures of early education, the United States lags behind international competitors. The enrollment rates for American three-, four- and five-year-olds are all less than the average rates for OECD countries.³⁷ Three-year-olds in the European Union are about twice as likely as American three-year-olds to be enrolled in an early education program, and enrollment rates for American four-year-olds are lower than those of 27 of the 33 OECD countries for which there are data.³⁸

In 2011, the United States invested 0.5 percent of GDP in early education (including public and private spending), less than the OECD average.³⁹ U.S. public expenditures on early education as share of GDP were lower than those in all but four of the 27 OECD countries for which there are data.⁴⁰

Policy Proposals

Both the federal government and state governments can support early learning and help families and the economy reap the many benefits that stem from having a well-educated workforce.

Supporting state-funded early education programs

The federal government can play a key role in supporting state programs. The Consolidated Appropriations Act, 2014 (P.L. 113-76) includes significant funding to strengthen early education. The law appropriates \$250 million for competitive grants to states to help them develop, enhance or expand high-quality preschool programs for children ages four and over from families at or below 200 percent of the poverty line.

State-funded pre-kindergarten can help close the gaps in access to early education, allowing children from all backgrounds to have a strong start in life. It can be particularly important given the costs associated with private programs and the persistent underfunding of Head Start, which serves less than half of eligible children.⁴¹ Forty states and the District of Columbia have established preschool programs for young children.⁴²

Despite the positive role it can play, only 28 percent of four-year-olds and a mere four percent of three-year-olds are enrolled in state-funded pre-kindergarten.⁴³ Moreover, recent state budget cuts have led to reduced funding—\$561 less per child was spent in 2012-13 than in 2009-10 (in 2013 dollars), and per-child spending declined by more than \$1,000 over the course of the last decade.⁴⁴

Supporting universal, voluntary pre-kindergarten programs

The Strong Start for America's Children Act (S. 2452) would establish a formula grant program for states to provide universal, voluntary pre-kindergarten. Grant amounts would be based on the share of four-year-olds in a state living at or below 200 percent of the poverty line. States would have to meet certain quality benchmarks to be eligible; for example, programs receiving funding would have to be full-day programs and have class sizes of no more than 20 children. States would be required to match a certain percentage of the federal funding.

States that offer universal access for low- and moderate-income four-year-olds could use the funds

to enroll three-year-olds. States not currently eligible to receive these formula grants would be able to compete for preschool development grants to increase their early childhood education capacity and improve their chances of future eligibility.

Other policies, including promoting prenatal health and infant nutrition

To maximize the gains from improving access to high-quality early education, policymakers should also strengthen programs across the spectrum of child development and education. This includes prenatal programs for expecting mothers, infant nutrition programs, child care programs, Head Start and Early Head Start. It also includes making improvements to the K-12 education system.

The Strong Start for America's Children Act includes additional provisions to create partnerships between Early Head Start providers and child care centers. The Child Care and Development Block Grant Act of 2014 (P.L. 113-186), enacted in November, reauthorizes the CCDBG program, institutes stronger standards for child care centers that receive federal funding and requires the Departments of Education and Health and Human Services to issue a report on how to streamline and coordinate federal early childhood education and care programs.

Conclusion

Early education is critical to giving all children a fair shot in life. Without access to early learning opportunities, children from low- and moderate-income families will tend to lag behind throughout their academic and professional lives. In addition, the caliber of the workforce will not be as strong as it could be, and spending on remedial education and social support services will be higher. Expanding access to high-quality early education would help level the playing field for all children and improve economic mobility in the United States.

Table 1. Preprimary Enrollment by State

State	Number of three- and four-year-olds not enrolled in preprimary programs (2012)*	Share of three- and four-year-olds at or above 200 percent of poverty line enrolled (2012)*	Share of three- and four-year-olds below 200 percent of poverty line enrolled (2012)*	Share of four-year-olds enrolled in state-funded pre-kindergarten (2012-13)	Share of three-year-olds enrolled in state-funded pre-kindergarten (2012-13)
United States	4,307,000	55%	37%	28%	4%
Alabama	71,000	52%	32%	6%	0%
Alaska	13,000	39%	N/A	3%	0%
Arizona	120,000	43%	25%	3%	2%
Arkansas	42,000	51%	44%	33%	14%
California	530,000	57%	37%	15%	10%
Colorado	71,000	57%	38%	21%	7%
Connecticut	30,000	67%	54%	13%	6%
Delaware	11,000	60%	N/A	7%	0%
District of Columbia	3,000	N/A	N/A	94%	80%
Florida	220,000	58%	41%	78%	0%
Georgia	141,000	59%	39%	58%	0%
Hawaii	17,000	56%	N/A	-	-
Idaho	31,000	43%	29%	-	-
Illinois	155,000	60%	44%	27%	18%
Indiana	105,000	50%	30%	-	-
Iowa	42,000	52%	41%	60%	4%
Kansas	44,000	51%	40%	21%	0%
Kentucky	67,000	50%	35%	29%	8%
Louisiana	63,000	55%	46%	31%	0%
Maine	16,000	50%	37%	34%	0%
Maryland	73,000	57%	37%	35%	4%
Massachusetts	62,000	65%	44%	14%	4%
Michigan	124,000	52%	40%	21%	0%
Minnesota	76,000	51%	38%	1%	1%
Mississippi	42,000	55%	47%	-	-
Missouri	86,000	53%	36%	3%	1%
Montana	15,000	43%	37%	-	-
Nebraska	27,000	55%	39%	26%	11%
Nevada	53,000	40%	21%	3%	0%
New Hampshire	13,000	59%	N/A	-	-
New Jersey	82,000	66%	53%	28%	20%
New Mexico	36,000	44%	33%	18%	0%
New York	195,000	63%	47%	45%	0%
North Carolina	147,000	54%	30%	23%	0%
North Dakota	11,000	38%	N/A	-	-
Ohio	161,000	52%	37%	2%	1%
Oklahoma	59,000	48%	38%	74%	0%
Oregon	57,000	51%	29%	10%	5%
Pennsylvania	150,000	57%	39%	12%	5%
Rhode Island	12,000	54%	N/A	1%	0%
South Carolina	67,000	56%	33%	40%	4%
South Dakota	15,000	38%	37%	-	-
Tennessee	99,000	49%	32%	21%	1%
Texas	458,000	50%	33%	52%	6%
Utah	63,000	47%	31%	-	-
Vermont	7,000	N/A	N/A	71%	21%
Virginia	106,000	55%	34%	17%	0%
Washington	103,000	50%	29%	8%	1%
West Virginia	27,000	39%	31%	62%	9%
Wisconsin	81,000	46%	34%	64%	1%
Wyoming	9,000	46%	N/A	-	-

Notes: Children enrolled in kindergarten are excluded. "N/A" indicates estimates were suppressed because the confidence interval around the percentage is greater than or equal to 10 percentage points; "-" indicates that a state-funded program does not exist; "*" indicates data are from 2010-2012 three-year estimates.
Source: JEC Democratic staff based on data from the U.S. Department of Commerce, Census Bureau, American Community Survey, as calculated by the Annie E. Casey Foundation, and the National Institute for Early Education Research.

Sources:

¹ JEC Democratic staff calculations based on data from the Organisation for Economic Co-operation and Development, “Education at a Glance 2014, Chart C2.2: Characteristics of early childhood education programmes (2011, 2012)” (September 2014), <http://dx.doi.org/10.1787/888933118371>.

² JEC Democratic staff calculations based on data from the U.S. Department of Education, National Center for Education Statistics, “Preprimary Enrollment,” Table 202.10 (Digest 2013): Enrollment of 3-, 4-, and 5-year-old children in preprimary programs, by level of program, control of program, and attendance status: Selected years, 1965 through 2012, (February 2014), http://nces.ed.gov/programs/coe/indicator_cfa.asp.

³ JEC Democratic staff calculations based on data from the U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, 2012 Tables and Figures, Table 57.5. Estimated number and percentage of 3-through 5-year-old children, by enrollment status, poverty status, race/ethnicity, and age: 2011, (July 2013), http://nces.ed.gov/programs/digest/d12/tables/dt12_00a.asp.

⁴ Hirokazu Yoshikawa and others, *Investing in Our Future: The Evidence Base on Preschool Education* (Society for Research in Child Development, October 2013), http://www.srcd.org/sites/default/files/documents/washington/mb_2013_10_16_investing_in_children.pdf; Douglas Arnold and Janet Currie, *Human Capital Development Before Age Five Working Paper 15827* (National Bureau of Economic Research, March 2010), <http://www.nber.org/papers/w15827>.

⁵ Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return* (FedGazette: Federal Reserve Bank of Minneapolis, March 2003), http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf.

⁶ Ben S. Bernanke, “Early Childhood Education,” Speech by Chairman Ben S. Bernanke at the Children’s Defense Fund National Conference, Cincinnati, Ohio (via prerecorded video), July 24, 2012. <http://www.federalreserve.gov/newsevents/speech/bernanke20120724a.htm>.

⁷ Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return* (FedGazette: Federal Reserve Bank of Minneapolis, March 2003), http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf; A study finding a lower but still high rate of return of between seven and ten percent is James Heckman, and others, “The Rate of Return to the High/Scope Perry Preschool Program,” *Journal of Public Economics*, vol. 94, (2010),

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3145373/pdf/nihms203021.pdf>.

⁸ Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return* (FedGazette: Federal Reserve Bank of Minneapolis, March 2003), http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf; Lawrence J. Schweinhart and others, “The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions” (February 2011), http://www.highscope.org/file/Research/PerryProject/specialsummary_rev2011_02_2.pdf; National Institutes of Health, “High-Quality Preschool Program Produces Long-Term Economic Payoff” (press release, February 4, 2011), <http://www.nih.gov/news/health/feb2011/nichd-04.htm>.

⁹ James J. Heckman, Roderigo Pinto, and Peter Savelyev, “Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes,” *American Economic Review*, vol. 103, no. 6 (2013), <http://heckmanequation.org/content/resource/understanding-mechanisms-through-which-influential-early-childhood-program-boosted->; James J. Heckman, “The Economics of Inequality: The Value of Early Childhood Education,” *American Educator* (Spring 2011), <https://www.aft.org/pdfs/americaneducator/spring2011/Heckman.pdf>.

¹⁰ James J. Heckman, Roderigo Pinto, and Peter Savelyev, “Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes,” *American Economic Review*, vol. 103, no. 6 (2013), <http://heckmanequation.org/content/resource/understanding-mechanisms-through-which-influential-early-childhood-program-boosted->; James J. Heckman, “The Economics of Inequality: The Value of Early Childhood Education,” *American Educator* (Spring 2011), <https://www.aft.org/pdfs/americaneducator/spring2011/Heckman.pdf>.

¹¹ Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return* (FedGazette: Federal Reserve Bank of Minneapolis, March 2003), http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf; Lawrence J. Schweinhart and others, “The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions” (February 2011), http://www.highscope.org/file/Research/PerryProject/specialsummary_rev2011_02_2.pdf; Hirokazu Yoshikawa and others, *Investing in Our Future: The Evidence Base on Preschool Education* (Society for Research in Child Development, October 2013), http://www.srcd.org/sites/default/files/documents/washington/mb_2013_10_16_investing_in_children.pdf; National Institutes

of Health, “High-Quality Preschool Program Produces Long-Term Economic Payoff” (press release, February 4, 2011), <http://www.nih.gov/news/health/feb2011/nichd-04.htm>; Douglas Arnold and Janet Currie, *Human Capital Development Before Age Five* Working Paper 15827 (National Bureau of Economic Research, March 2010), <http://www.nber.org/papers/w15827>.

¹² Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return* (FedGazette: Federal Reserve Bank of Minneapolis, March 2003), http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf; Lawrence J. Schweinhart and others, “The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions” (February 2011), http://www.highscope.org/file/Research/PerryProject/specialsu mmmary_rev2011_02_2.pdf; National Institutes of Health, “High-Quality Preschool Program Produces Long-Term Economic Payoff” (press release, February 4, 2011), <http://www.nih.gov/news/health/feb2011/nichd-04.htm>; Hirokazu Yoshikawa and others, *Investing in Our Future: The Evidence Base on Preschool Education* (Society for Research in Child Development, October 2013), http://www.srcd.org/sites/default/files/documents/washington/mb_2013_10_16_investing_in_children.pdf; Douglas Arnold and Janet Currie, *Human Capital Development Before Age Five* Working Paper 15827 (National Bureau of Economic Research, March 2010), <http://www.nber.org/papers/w15827>.

¹³ Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return* (FedGazette: Federal Reserve Bank of Minneapolis, March 2003), http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf; Lawrence J. Schweinhart and others, “The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions” (February 2011), http://www.highscope.org/file/Research/PerryProject/specialsu mmmary_rev2011_02_2.pdf.

¹⁴ Fight Crime: Invest in Kids, *I’m the Guy You Pay Later*, (2013), http://cdn.fightcrime.org/wp-content/uploads/1%27m_The_Guy_Report.pdf.

¹⁵ Federal Register: Prisons Bureau, “Annual Determination of Average Cost of Incarceration” (May 12, 2014), <https://www.federalregister.gov/articles/2014/05/12/2014-10859/annual-determination-of-average-cost-of-incarceration>.

¹⁶ Arthur J. Reynolds and Suh-Ruu Ou, “Paths of Effects from Preschool to Adult Well-Being; A Confirmatory Analysis of the Child-Parent Center Program,” *Child Development*, vol. 82, no. 2 (2011), <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3793348/pdf/nihms506018.pdf>.

¹⁷ Lawrence J. Schweinhart and others, “The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions” (February 2011), http://www.highscope.org/file/Research/PerryProject/specialsu mmmary_rev2011_02_2.pdf.

¹⁸ Enterprise Minnesota, “The State of Manufacturing” (accessed September 4, 2014), <http://www.enterpriseminnesota.org/state-of-manufacturing/>.

¹⁹ Benefits occur both because children attending these programs tend to obtain more education throughout their lives and because they may have better-developed intangible skills that make them valuable to employers. Timothy J. Bartik, “The Economic Development Effects of Early Childhood Programs,” *W.E. Upjohn Institute for Employment Research* (January 25, 2008), <http://research.upjohn.org/cgi/viewcontent.cgi?article=1031&context=reports>; Institute for a Competitive Workforce, U.S. Chamber of Commerce, “Why Business Should Support Early Childhood Education” (2010) http://education.uschamber.com/sites/default/files/ICW_EarlyChildhoodReport_2010.pdf; Testimony of Eva Tansky Blum, Senior Vice President, Director of Community Affairs Chair and President of PNC Foundation, The PNC Financial Services Group, before the United States Senate Health, Education, Labor, and Pensions Committee, Subcommittee on Children and Families, *Getting the Most Bang for the Buck: Quality Early Education and Care* (June 9, 2011), <http://www.help.senate.gov/imo/media/doc/Blum4.pdf>.

²⁰ Richard Pérez-Peña and Motoko Rich, “Preschool Push Moving Ahead in Many States,” *The New York Times* (February 3, 2014), http://www.nytimes.com/2014/02/04/us/push-for-preschool-becomes-a-bipartisan-cause-outside-washington.html?_r=0.

²¹ Elizabeth U. Cascio and Diane Whitmore Schanzenbach, “The Impacts of Expanding Access to High-Quality Preschool Education,” *Brookings Papers on Economic Activity*, (Fall 2013), http://www.brookings.edu/~media/Projects/BPEA/Fall%202013/2013b_cascio_preschool_education.pdf.

²² Timothy J. Bartik, William Gormley and Shirley Adelstein, “Earnings Benefits of Tulsa’s Pre-K Program for Different Income Groups,” *Economics of Education Review*, vol. 31, no. 6 (December 2012), <http://www.sciencedirect.com/science/article/pii/S0272775712001021>.

²³ Elise Gould, “U.S. Lags Behind Peer Countries in Mobility,” *Economic Policy Institute* (October 10, 2012), <http://www.epi.org/publication/usa-lags-peer-countries-mobility>.

²⁴ Ibid.

²⁵ Erik Sherman, “Reich: Inequality Approaching a Tipping Point,” *CBS News: Moneywatch* (September 13, 2013),

<http://www.cbsnews.com/news/reich-inequality-approaching-a-tipping-point>.

²⁶ Ben S. Bernanke, “Early Childhood Education,” Speech by Chairman Ben S. Bernanke at the Children’s Defense Fund National Conference, Cincinnati, Ohio (via prerecorded video), July 24, 2012.

<http://www.federalreserve.gov/newsevents/speech/bernanke20120724a.htm>; Diego Restuccia and Carlos Urrutia,

“Intergenerational Persistence of Earnings: The Role of Early and College Education,” *The American Economic Review*, vol. 94, no. 5, (December 2014),

<http://www.jstor.org/stable/3592826?origin=JSTOR-pdf>; Kartik Athreya and Jessie Romero, *Land of Opportunity? Economic Mobility in the United State: 2012 Annual Report* (Federal Reserve Bank of Richmond, 2012),

http://www.richmondfed.org/publications/research/annual_report/2012/pdf/article.pdf.

²⁷ Diego Restuccia and Carlos Urrutia, “Intergenerational Persistence of Earnings: The Role of Early and College Education,” *The American Economic Review*, vol. 94, no. 5, (December 2014),

<http://www.jstor.org/stable/3592826?origin=JSTOR-pdf>.

²⁸ Ibid.

²⁹ Testimony of Hirokazu, Cortney Sale Ross University Professor of Globalization and Education, Steinhardt School of Culture, Education and Human Development, New York University, before the Senate HELP Committee, *Supporting Children and Families through Investments in High-Quality Early Education* (February 6, 2014),

<http://www.help.senate.gov/imo/media/doc/Yoshikawa.pdf>;

Timothy J. Bartik, William Gormley and Shirley Adelstein, “Earnings Benefits of Tulsa’s Pre-K Program for Different Income Groups,” *Economics of Education Review*, vol. 31, no. 6 (December 2012),

<http://www.sciencedirect.com/science/article/pii/S0272775712001021>.

³⁰ JEC Democratic staff calculations based on data from the U.S. Department of Education, National Center for Education Statistics, “Preprimary Enrollment Table 202.20 (Digest 2013): Percentage of 3-, 4-, and 5-year-old children enrolled in preprimary programs, by attendance status, level of program, and selected child and family characteristics: 2012” (February 2014), http://nces.ed.gov/programs/coe/indicator_cfa.asp.

³¹ JEC Democratic staff calculations based on data from the U.S. Department of Education, National Center for Education Statistics, “Digest of Education Statistics 2012 Tables and Figures, Table 57.5. Estimated number and percentage of 3-through 5-year-old children, by enrollment status, poverty status, race/ethnicity, and age: 2011” (July 2013), http://nces.ed.gov/programs/digest/d12/tables/dt12_00a.asp.

³² U.S. Department of Education National Center for Education Studies, “First-Time Kindergartners in 2010-11: First Findings

From the Kindergarten Rounds of the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011) NCES 2012-049” (July 2012), <http://nces.ed.gov/pubs2012/2012049.pdf>.

³³ Ibid.

³⁴ JEC Democratic staff calculations based on data from the U.S. Department of Education, National Center for Education Statistics, “Preprimary Enrollment: Table 202.10 (Digest 2013): Enrollment of 3-, 4-, and 5-year-old children in preprimary programs, by level of program, control of program, and attendance status: Selected years, 1965 through 2012” (February 2014),

http://nces.ed.gov/programs/coe/indicator_cfa.asp.

³⁵ In addition, more than 15 percent of five-year-olds (about 650,000 children) were not enrolled in kindergarten, preschool or nursery school. JEC Democratic staff calculations based on data from the U.S. Department of Education, National Center for Education Statistics, “Preprimary Enrollment: Table 202.10 (Digest 2013): Enrollment of 3-, 4-, and 5-year-old children in preprimary programs, by level of program, control of program, and attendance status: Selected years, 1965 through 2012” (February 2014),

http://nces.ed.gov/programs/coe/indicator_cfa.asp.

³⁶ Ibid.

³⁷ JEC Democratic staff calculations based on data from the Organisation for Economic Co-operation and Development, “Education at a Glance 2014, Chart C2.1: Enrollment Rates in Early Childhood Education and Primary Education, by Age (2012, 2005)” (September 2014), <http://dx.doi.org/10.1787/888933118352>.

³⁸ Ibid.

³⁹ JEC Democratic staff calculations based on data from the Organisation for Economic Co-operation and Development, “Education at a Glance 2014, Chart C2.2: Characteristics of early childhood education programmes (2011, 2012)” (September 2014), <http://dx.doi.org/10.1787/888933118371>.

⁴⁰ Ibid.

⁴¹ Senator Tom Harkin, “Statement of Senator Tom Harkin (D-IA) At the HELP Committee Hearing: ‘Supporting Children and Families through High Quality Early Education’” (press release, February 6, 2014), <http://www.help.senate.gov/newsroom/press/release/?id=f0f2fba9-6be3-4626-b3a4-29cdf77a4303&groups=Chair>.

⁴² National Institute for Early Education Research, “The State of Preschool 2013” (May 2014), <http://nieer.org/sites/nieer/files/yearbook2013.pdf>.

⁴³ Ibid.

⁴⁴ Ibid.