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ISSUE BRIEF: FAMILIES

A cost-benefit analysis of The American Families Plan's proposed investment in a nationwide public preschool program

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Fast facts

President Joe Biden asked the U.S. Congress to consider investing $200 billion over 10 years in "a national partnership with states to offer free, high-quality, accessible, and inclusive preschool to all three- and four-year-olds, benefitting five million children."[1] This report calculates the 10-year costs and benefits of such a program. To understand the long-run implications of such a program, the analysis is then extended to a 35-year period. The key findings are:

Total costs and benefits over the first 10 years of the preschool program

- A high-quality, publicly funded preschool education program will generate growing annual benefits that will surpass the more-slowly growing annual costs of the program within 8 years. Over the entire 10-year period, the present-value benefit-to-cost ratio is 1.01, which

means that every tax dollar invested in the preschool program will generate $1.01 in total benefits over the first 10 years.

- The benefits take the form of government budget benefits, increased wages and earnings of workers, and reduced costs to individuals from better health, less crime, and fewer incidences of child abuse and neglect.

- Because the annual benefits grow more rapidly than the annual costs, in the 10th year itself, as opposed to over the course of the entire 10-year period, the present-value benefits exceed the present value costs of the program by a ratio of 1.68-to-1.

- A high-quality universal preschool program will cost $6,600 per participant and could be expected to enroll about 64 percent of 3- and 4-year-olds, or just less than 5.2 million children, when it is fully phased in after 2 years.

- The federal investment in the preschool program will also have a short-run stimulus effect that will boost Gross Domestic Product by $28.6 billion and create 210,200 additional new jobs during the first 2 years to help the U.S. economy recover more equitably and more sustainably from the coronavirus recession of 2020.

Government costs and benefits over the first 10 years

- The present-value government benefit-to-cost ratio over the first 10 years of the preschool program is 0.47, which means that every tax dollar invested in the program will generate $0.47 in budgetary savings over the first 10 years. This means the budgetary savings of the preschool program, in the form of higher tax revenues and lower public expenditures on several public programs, will pay for almost half the total taxpayer cost of the preschool program during the first 10 years.

- The margin by which taxpayer costs will exceed offsetting budget benefits declines progressively over each of the first 10 years of the preschool program. Thus, in the 10th year itself of the program, the tax-revenue increases and expenditure savings due to the preschool program pay for 68 percent of the program.

Total cost and benefits over 35 years

- Over the first 35 years of the preschool program, the present-value total benefit-to-cost ratio is 4.93, which means that every tax dollar invested in the preschool program will generate $4.93 in benefits.

- The annual benefits continue to grow faster than the costs. Thus, the benefit cost ratio improves with each subsequent year. In the 35th year, the final year of this analysis, the present value of the total benefits from government budgetary savings, increased compensation of workers, and reduced costs to individuals from better health, less crime, and reduced incidences of child abuse and neglect exceed the present value costs of the program by a ratio of 10.20-to-1.

- By the 35th year, the long-run productivity effects of the preschool investment boost Gross Domestic Product by 0.5 percent and may generate as many as 787,000 new jobs.

Government costs and benefits over 35 years

- Over the entire 35-year period, the present-value government benefit-to-cost ratio is 1.51, which means that every tax dollar invested in the preschool program will generate $1.51 in budgetary benefits over the first 35 years. This means the program more than pays for itself in budgetary terms.

- Taxpayer costs initially exceed offsetting budget benefits, but by a steadily declining margin for the first 14 years. By the 15th year of the program, budgetary benefits exceed the taxpayer costs, and the program generates a budget surplus that grows every year thereafter.

- In the 35th year of the program, the present-value government budget surplus amounts to $36.2 billion, with present-value government budget benefits that exceed the present-value government costs by a ratio of 2.84-to-1. This means that every tax dollar invested in the preschool program in the 35th year will generate $2.84 in budget savings, nearly triple the annual cost of the program.

Overview

The policy of investing in high-quality preschool in the United States provides a wide array of benefits to children, families, and society as a whole. Empirical research shows that all children, regardless of where their families are on the income ladder, benefit from preschool programs. In addition, the research confirms that higher-quality preschool programs provide greater benefits than lower-quality preschool programs.

Children ages 3 and 4 who participate in high-quality preschool programs require less special education and are less likely to repeat a grade. They and their families are involved in fewer incidents of child abuse and neglect, which reduces public child-welfare expenditures. And once these children enter the U.S. labor force, their incomes are higher, along with the taxes they pay back to society.

Both as juveniles and as adults, these children are less likely to interact with the criminal justice system, thereby reducing incarceration and criminal justice costs. As adults, preschool participants suffer less from depression and have lower rates of smoking, generating better health, steadier employment and income, and lower public health expenditures. And guardians of public preschool participants take advantage of the child care that, in effect, the programs provide to get a job or work longer hours and earn higher wages—and pay more in taxes.

Additionally, high-quality preschool programs provide budget benefits. High-quality preschool delivers government savings on Kindergarten through 12th grade spending, child welfare, the criminal justice system, and healthcare. High-quality preschool also increases government tax revenues. Thus, investment in high-quality preschool results in significant benefits for future government budgets, for the economy, and for society.

The economic and social benefits from preschool investment amount to more than just improvements in public balance sheets. A myriad of benefits accrue to the affected children, their families, and society as a whole. Children who participate in high-quality preschool programs fare better in school, have better home lives, and are less likely to engage in criminal activity than their peers who do not attend such programs.

The data show that participating children go on to higher achievement later in life, graduating from high school and attending college at a higher rate, and earning more once they enter the labor force. And the parents or guardians of children participating in preschool programs benefit both directly and indirectly from the services offered in high-quality programs.

Investment in young children not only has positive effects on the U.S. economy by raising incomes, improving the skills of the workforce, reducing poverty, strengthening U.S. global competitiveness, improving health outcomes, and reducing crime and incarceration rates. Given that the positive impacts of preschool are larger for at-risk than for more advantaged children, a universal preschool program will also help to reduce achievement gaps between poor and nonpoor children, ultimately reducing income inequality nationwide.

A nationwide commitment to high-quality early childhood education would cost a significant amount of money up front. But over time, government budget benefits outweigh the costs of high-quality preschool education investment—over time, high-quality preschool pays for itself. Yet our political system, with its 2- and 4-year election cycles, tends to underinvest in programs with lags between when investment costs are incurred and when benefits are enjoyed. The fact that governments cannot capture all the benefits of preschool investment may also discourage governments from assuming all the costs of preschool programs.

Although governments do not capture all the benefits of preschool investment, the economic case for making long-term public investment in preschool is compelling. Most government expenditures do not create offsetting receipts to the extent that early childhood education does. Indeed, it may be rare to find public programs that pay for themselves at the budgetary level. It is striking that a preschool program will have significant positive effects on the long-term government budget outlooks. This is why policymakers should consider a national preschool initiative as a sound investment on the part of government that generates substantial long-term benefits and not simply as a program requiring expenditures.

The evidence for long-term public investment in a nationwide public preschool program

Studies of high-quality preschool programs and their participants find that investing in the education of young children delivers a number of lasting benefits for the children, their families, and society at large, including taxpayers. Over time, these investments boost productivity, earnings, and taxes—and pay for themselves. This section of the report details the benefits to children, to families, to society, and to a more equitable economy.

Benefits for children

Assessments of well-designed and well-executed preschool programs find they provide a large variety of benefits to participating children. Preschool education enables young children to be more successful in Kindergarten and primary and secondary school, and in life after these school years, than children who are not enrolled in high-quality programs. In general, children who participate in high-quality preschool programs tend to have greater math, reading, and language abilities.[2]

More specifically, these children are better prepared to enter elementary school, experience less grade retention, and have less need for special education and other remedial coursework.[3] They also have lower dropout rates, higher high school graduation rates, and higher levels of educational attainment.[4] They also experience less child abuse and neglect, and are less likely to be teenage parents.[5] Additionally, with the services offered in high-quality programs, they are better fed, gain improved access to healthcare services, have higher rates of immunization, and experience better health as children.[6]

As adults, high-quality preschool recipients boast higher employment rates, higher earnings, and lower rates of turning to public-assistance programs such as the Supplemental Nutrition Assistance Program and the Temporary Assistance for Needy Families program. Working and earning more, they pay more in taxes over their lifetimes. They exhibit lower rates of drug use and less frequent and less severe criminal behavior, engaging in fewer criminal acts both as juveniles and as adults and having fewer interactions with the criminal justice system, as well as lower incarceration rates. They also experience better health outcomes in adulthood, such as fewer episodes of depression and less tobacco use.[7]

In short, the benefits of high-quality preschool programs to participating children enable them to enter school "ready to learn" and help them achieve better outcomes in school and throughout their entire lives.[8]

Benefits for families

Parents and the families of children who participate in public, high-quality preschool programs also benefit. They benefit both directly from the services they receive in high-quality programs and indirectly from the child care provided by publicly funded preschool. In general, parents take advantage of the child care these programs provide by increasing their employment and earnings, and by investing in their own health and education.[9]

Mothers in particular benefit from preschool for their children. These mothers have better nutrition and smoke less during pregnancy.[10] Parents with kids in preschool complete more years of schooling, have higher high school graduation rates, are more likely to be employed, have higher earnings, pay more in taxes, engage in fewer criminal acts, have lower rates of drug and alcohol abuse, are less likely to turn to public assistance programs, and are less likely to abuse or neglect their children.[11]

Benefits for society

Investments in high-quality preschool programs pay for themselves over time by generating benefits for participants, the nonparticipating public, and government itself. Studies of high-quality preschool programs find that they produce $2.63 or more in present-value benefits for every dollar of investment, with the programs whose subsequent benefits were studied over the longest periods generating well in excess of $7 in benefits per dollar of investment.[12]

The participants and their families get part of these total benefits, but the benefits to the rest of the public and government are large, too. On their own, these benefits outweigh the costs of these programs. Taxpayers benefit because preschool participants are less likely to repeat a grade or require expensive special education services or engage in crime or be incarcerated. They and their families also have less need for child welfare and public health services throughout their lifetimes. All of these are outcomes that reduce the cost of taxpayer-funded public services.

In addition, the increased lifetime earnings of the adults who receive a preschool education as children and of their parents enlarge the tax payments they make, pay for the preschool programs, and help fund other public services for society. Thus, it is advantageous even for nonparticipating taxpayers to help pay for these programs.

Benefits for a more equitable economy

Although children across the income distribution benefit from high-quality preschool education, the largest positive effects are on disadvantaged children from lower socioeconomic backgrounds.[13] For mothers of preschool participants, the largest employment increases occurred among mothers without a high school degree.[14] Thus, public investments in preschool reduce economic inequality.

Prior research on benefit-to-cost ratios of preschool investment

Economist Lynn Karoly and public policy researcher Anamarie Whitaker at the RAND Corporation reviewed the findings from 16 high-quality preschool programs and reported estimates of the economic returns for four of these publicly funded programs.[15] They reported benefit-to-cost ratios that vary from a minimum of $2.63 to a high of $17.07 for every tax dollar spent on the high-quality preschool programs. They observed that the largest benefits were measured for programs that were able to follow the progress of the children for many years.

One program, measured to age 28, was the public Chicago Child Parent program. This program generated $10.83 in present-value benefits for every dollar invested in the program. Another program, measured to age 40—the Perry Preschool program—netted $17.07 in benefits for each dollar of investment. The long-term follow-up enabled researchers to quantify the benefits of preschool that manifest only in adulthood. Karoly and Whitaker note that the benefit-cost ratios for the programs that followed children only through Kindergarten, or at most third grade, might have been equally high had they been able to follow the children for more years and then quantify the long-term impacts of the programs.

Karoly and Whitaker did not include the high-quality Abecedarian program or the nearly identical Carolina Approach to Responsive Education program in their review of preschool programs because they began serving children at 8 weeks and, therefore, their effects could not be attributed solely to their preschool educational component. Yet a large part of the effects of these two other programs are likely attributable to the preschool portions of the programs, and the programs have measurable long-term follow-up of participants into their mid-30s. Data-based research by economists Jorge Liss Garcia at Clemson University, 2000 Nobel Laureate James Heckman at the University of Chicago, and Duncan Ermini Leaf and María José Prados at the University of Southern California estimates that the costs and benefits of the two programs yielded a statistically significant aggregate present-value benefit-cost ratio of $7.33 for every dollar of public investment.[16]

In short, research shows that investments in high-quality preschool can have a positive impact on behavior, academic achievement, and educational attainment, which are key determinants of productivity that drives economic growth and earnings. Most of the economic impacts of preschool educational programs are derived from their long-run enhancement of productivity, but during economic downturns, when unemployment is high and interest rates are low, these investments also have short-run macroeconomic stimulus effects that complement and augment the productivity effects.

A cost-benefits analysis of the American Families Plan's proposal for a nationwide public preschool program

The 10-year, $200 billion American Families Plan's investment in a nationwide preschool education program envisions a preschool program that is similar in its characteristics to the high-quality, public Chicago Child Parent preschool program. The Biden administration's preschool proposal, for example, calls for a publicly funded preschool that will have "low student-to-teacher ratios, high-quality and developmentally appropriate curriculum, and supportive classroom environments that are inclusive for all students."[17]

In addition, "educators will receive job-embedded coaching, professional development, and wages that reflect the importance of their work." All employees participating in the preschool program "will earn at least $15 per hour, and those with comparable qualifications will receive compensation commensurate with that of kindergarten teachers."[18]

So, what would be the effects of a 10-year, $200 billion public investment in a voluntary, high-quality, universal preschool program made available to 5 million 3- and 4-year-olds in the United States? To be consistent with the administration's proposal, this analysis assumes a preschool program that is modeled on the Chicago Child Parent program. The program would operate 3 hours per day, 5 days a week, for 35 weeks a year (the school year), or a total of 525 hours.[19] The program would be voluntary and available to all 3- and 4-year-old children.

The lead classroom teachers would all have bachelor's degrees or higher, with certification in early childhood education, and would be required to pursue professional development. The teaching assistant in each class would have at least an associate's degree. Teacher and staff pay would be high relative to most existing preschool programs, as compensation would follow the salary schedules of public schools.

For the children, the preschool program would provide health screenings, speech-therapy services, and home visitations. Parental involvement would be encouraged. The student-teacher ratio (including the assistant teacher) would be no higher than 17-to-2, and maximum class size would be 17 children. The curriculum would be comprehensive, with a focus that includes language and pre-reading skills, mathematics skills such as counting and number recognition, science, social studies, health and physical development, and social/emotional skill development.

This analysis assumes that the preschool education program would be largely housed within the existing or newly built public school infrastructure. But its services could be delivered in private care centers as well, if they meet quality standards.

A 2011 study of the Chicago Child Parent program that did not consider any short-run macroeconomic stimulus effects calculated a benefit-cost ratio of $10.83 by age 28.[20] A 2015 study of the Chicago Child Parent program by the author of this report and Kavya Vaghul, then a research assistant at Equitable Growth, which focused only on the long-run productivity and behavioral impacts of the investments over 35 years, calculated that a voluntary, high-quality, public, universal preschool program modelled on that program would generate annual budgetary, health, and decreased crime benefits that would surpass the annual costs of the program within 8 years.

The 2015 study further found that within 35 years, when the first cohort of children would be in their late 30s, the annual benefits of the program would exceed the costs by a ratio of 8.85-to-1. Within 16 years, the budgetary benefits to governments alone—in the form of lower budget outlays for various programs and higher tax revenues—would surpass the costs of that program, and within 35 years, these budget benefits alone would exceed the costs by 2.37-to-1, or more than double the cost of the program.[21] And these benefits would exceed the costs by a growing margin each subsequent year.

In this study, the costs and benefits of public investment in preschool, modeled on the Biden administration's proposal, are calculated to analyze the effects of a $200 billion public investment over 10 years in high-quality preschool. Although the Biden administration's proposal is for a 10-year program, this report assumes that the program will be renewed and become permanent. The analysis is then extended to consider the costs and benefits over a 35-year timeframe. These analyses take into account both the long-run productivity effects of preschool, as well as the immediate macroeconomic stimulus effects.

This study assumes that the program will be phased in over 2 years. The analysis considers budget effects on the federal government and the combination of state and local governments. Although responsibilities have shifted in the past and will continue to do so in the future over the 10- and 35-year timeframes used in this study, it is assumed that all levels of government will share in the costs of education, child welfare, criminal justice, and healthcare in the future in the same proportions as they do today.

Likewise, it is assumed that federal, state, and local tax rates will remain constant over the period analyzed in this study. It is assumed that federal, state, and local

governments will maintain their efforts in Head Start, special education, and state preschool programs, but all additional costs attributable to the new preschool program will be paid by the federal government. However, regardless of which level of government pays the cost of the preschool program, the total budgetary benefits to all levels of government remain unchanged—only the cost burden shifts. In the case of a federally funded program, states and localities receive budget benefits without paying the additional costs of the program. And in a state-funded program, the federal government receives budget benefits without incurring the program's additional costs.

Although the granular details of the plan are not yet all worked out, the preschool proposal currently being drafted and debated in the U.S. House of Representatives mimics the Biden proposal in many ways.[22] The current House proposal seems to be designed to invest the same $200 billion in federal government money for universal preschool and enroll more children, though there is a greater expectation of the states and the District of Columbia sharing the costs and for the spending to sunset after 7 years. Assuming the program does not end after 7 years, these differences in cost sharing and enrollment do not significantly change the cost-benefit analysis provided here, although they would increase the number of children enrolled and reduce somewhat the ratio of benefits-to-costs calculated in this report.

An investment in a high-quality, publicly funded preschool program will generate annual costs and benefits that will vary from year to year. To evaluate the worthiness of the investment, we compare these annually varying costs and benefits, and calculate a benefit-to-cost ratio by using the standard economic and financial method of present value with a discount rate of 3 percent.[23] Present value calculates the value in today's dollars of future costs and benefits. If the ratio of present-value benefits-to-present-value costs is greater than 1, then the benefits of the investment exceed the costs, and it makes economic sense to undertake the investment.

Total costs and benefits over the first 10 years of the preschool program

A high-quality, publicly funded preschool education program will have both long-run productivity effects and a short-run stimulus effect on the U.S. economy that will generate growing annual benefits that will surpass the more-slowly growing annual costs of the program within 8 years. That is, over the first 7 years, the present-value costs will exceed the present-value benefits, but in the last 3 years, the benefits will be greater than the costs. Over the entire 10-year period, the present-value benefit-to-cost ratio is 1.01, which means that every tax dollar invested in the preschool program will generate $1.01 in total benefits over the first 10 years.

As noted above, the annual benefits grow more rapidly than the annual costs. Thus, in the 10th year alone, the present-value benefits—in the form of government budget benefits, increased wages and earnings of workers, and reduced costs to individuals from better health, less crime, and fewer incidences of child abuse and neglect—exceed the present value costs of the program by a ratio of 1.68-to-1.

The high-quality universal preschool program would cost $6,600 per participant and could be expected to enroll about 64 percent of 3- and 4-year-olds, or just less than 5.2 million children, when it is fully phased in after 2 years. As a result, the program would have a "gross" cost of about $34.3 billion annually when it is fully phased in. Some of this money, however, is already being spent on existing public preschool programs of mixed quality.[24]

A fraction of the funds used to finance these existing programs—equal to the ratio of children who would attend the new, high-quality preschool instead of the existing programs—would be used to fund the new preschool program. To avoid double-counting these expenditures, they are subtracted from the costs of the new program.

The bottom line is that the proposed high-quality universal preschool program would require approximately $19.1 billion in additional annual government outlays once it is fully phased in. The annual outlays for the program will then grow with inflation and the slowly growing population of children that it serves.

The federal investment in the preschool program during the first 2 years will also have a short-run stimulus effect that will boost Gross Domestic Product by $28.6 billion and create 210,200 additional new jobs to help the economy recover from the current recession.[25]

Government costs and benefits over the first 10 years

The present-value government benefit-to-cost ratio is 0.47, which means that every tax dollar invested in the preschool program will generate $0.47 in budgetary savings over the first 10 years. In other words, the budgetary savings of the pre-school program, in the form of higher tax revenues and lower public expenditures on several public programs, will pay for almost half the total taxpayer cost of the program during the first 10 years.

For each of the first 10 years of the universal preschool program, taxpayer costs will exceed offsetting budget benefits but by a progressively declining margin. Thus, in the 10th year of the program, the tax revenue increases and expenditure

savings due to the preschool program pay for 68 percent of the program.

The offsetting government budget savings begin small but grow over time. Budget savings in the first two years of the program will manifest themselves as reductions in child welfare expenditures as fewer children will be the victims of child abuse and neglect. In addition, some parents will take advantage of the universal pre-Kindergarten program for some of their child care needs, allowing them to work more and, thus, pay more in taxes.[26]

When the preschool participants enter the K-12 public school system, additional government budget savings will begin to appear, as these children will be less likely to repeat a grade or need expensive special education services. When the first cohort of children turns 10, further budget savings will begin to be realized as lower juvenile crime rates will require less public expenditure on the juvenile justice system.

The government budget deficit in the 10th year is based on a cash analysis that compares the impact of net government expenditures on the program to the additional taxpayer costs engendered by the program. Thus, the estimate that the government budget benefits pay for 68 percent of the cost of the preschool program considers all the additional costs due to the program but only the additional government budgetary benefits of the program—thereby ignoring the compensation, health, crime, and other social benefits of the program that accrue to the general public.

Once these other benefits of the program are taken into account, the universal preschool program, as noted in the previous section, pays for itself. In fact, the nonbudgetary benefits in the 10th year of the preschool program are, by themselves, equal to the costs of the program. Consequently, the budget benefits could be seen as bonuses that are in addition to the other nonbudgetary benefits that justify the investment.

It would similarly be unwise to judge the merits of investments in preschool solely in terms of their 10-year effects because many costs and benefits (both to the government and the public) manifest themselves only after 10 years and are a function of the long-run productivity effects of high-quality preschool.[27] Among the other quantifiable costs and benefits of preschool investment are its impact on the future costs of K-12 education, the earnings of, and taxes paid by, preschool participants, their improved health, and their fewer interactions with the criminal justice system.

To capture these longer-term effects, we extend the analysis of costs and benefits to a 35-year framework, assuming that investment in preschool continues to grow with inflation and the population of 3- and 4-year-olds grows to maintain a 64 percent enrollment rate.

Total cost and benefits over 35 years

The present-value total benefit-to-cost ratio is 4.93, which means that every tax dollar invested in the preschool program will generate $4.93 in total benefits over the first 35 years.

The annual benefits grow faster than the costs. Thus, the benefit-cost ratio improves with each subsequent year. In the 35th year, the final year of this analysis, the present value of the total benefits from government budgetary savings, increased compensation of workers, and reduced costs to individuals from better health, less crime, and reduced incidences of child abuse and neglect exceed the present-value costs of the program by a ratio of 10.20-to-1. Thus, by making this investment, we will be leaving our children and grandchildren an enormous inheritance.

By the 35th year, the long-run productivity effects of the preschool investment boost Gross Domestic Product by 0.5 percent and may generate as many as 787,000 new jobs.[28]

Government costs and benefits over the first 35 years

Over the entire 35-year period, the present-value government benefit-to-cost ratio is 1.51, which means that every tax dollar invested in the preschool program will generate $1.51 in budgetary benefits over the first 35 years.

Taxpayer costs exceed offsetting budget benefits but by a steadily declining margin for the first 14 years. By the 15th year of the program, budgetary benefits exceed the taxpayer costs, and the program generates a budget surplus that grows every year thereafter. In the 35th year of the program, the present-value government budget surplus amounts to $36.2 billion, with total present-value government budget benefits that exceed the present-value government costs by a ratio of 2.84-to-1.

What explains this pattern of slowly growing budgetary costs and more rapidly growing budgetary benefits? On the cost side, after the first 10 years, the costs of the preschool program continue to grow as a result of inflation and the modestly increasing population of 3- and 4-year-olds that it serves. In addition, there are increases in government expenditures due to the increased educational attainment of preschool participants who drop out of high school at lower rates and complete more years of high school and go on to public colleges and universities at higher rates.

On the benefits side, the benefits identified during the first 10 years continue to manifest themselves. There are reductions in child welfare spending due to lower

rates of child maltreatment. There are increased tax revenues generated from the earnings of parents who can now work due to the newly available child care. Public education expenditures diminish due to less grade retention and less need for expensive special education. And governments experience lower judicial system costs due to less juvenile crime, starting when the first cohort of pre-Kindergarten participants reaches age 10.

What's more, there are significant additional budgetary benefits that manifest themselves after the first decade of the program. After a decade and a half, the first cohort of children begins entering the workforce, resulting in sharp increases in earnings and tax revenues because participants in high-quality preschool earn significantly more than nonparticipants. In addition, when the first cohort turns 18, governments experience lower judicial system costs due to less adult crime and lower public healthcare costs because preschool participants have fewer episodes of depression and lower tobacco usage.

Timing of phase-in

This analysis assumes a 2-year phase-in of the proposed preschool program. For political purposes, however, such as the need to secure enough votes to enact the program, it may be necessary to have a longer phase-in period. In addition, for practical reasons, such as the recruitment and training of teachers and staff and the establishment of appropriate locations, the preschool program may have to be phased in over a longer period. A longer phase-in would push back both the costs and benefits of the program and would reduce the 10- and 35-year benefit-to-cost ratios.

Omitted benefits of universal preschool

The various benefit-to-cost ratios of preschool investment are understated in our estimates because the analysis is limited to considering only benefits for which it was possible to obtain monetary estimates. Perhaps most important in terms of omitted benefits is the potentially positive effects on the children born to preschool participants who, as parents, will have higher earnings and employment, lower incarceration rates, and better health outcomes, which were not calculated.

Preschool is an investment in the parents of the future, who, as a result of that early childhood education, will be able to provide better lives and better educational opportunities to their own children. Hence, the children of preschool participants may be able to earn more and lead better lives. If this intergenerational effect were properly accounted for, then the benefits of preschool education may be substan-

tially larger than those estimated in this analysis.

Other benefits that could not be monetized—such as the financial savings to families who would place their children in the publicly funded program but who, in its absence, would have paid the costs of private preschool—were left out.[29] Since about one-quarter of all families with 3- and 4-year-old children place their children in private preschool programs, the savings to families from the use of publicly funded preschool are potentially very large.

Other examples of omitted benefits include the value of lower drug use and fewer teenage parents, the intrinsic value of the increase in the knowledge, skills, and literacy of participants, and the potentially greater levels of happiness and job satisfaction that preschool participants will experience as adults.

Conclusion

If the ultimate aim of public policy is to promote the well-being of individuals, families, communities, and the nation, then investment in high-quality preschool is an effective strategy. Investing in high-quality preschool can help us achieve a multitude of social and economic objectives, including:

- Strengthening economic growth
- Increasing incomes
- Creating jobs
- Reducing poverty
- Tempering inequality
- Improving education
- Reducing crime
- Ameliorating health problems
- Improving public balance sheets

Moreover, high-quality preschool helps to create the conditions that enable people to achieve their potential, live lives of dignity, and maximize their well-being.

A high-quality, nationwide commitment to universal preschool would cost a significant amount of money up front, but it would have a substantial payoff in the future. Our political system, with its 2- and 4-year election cycles, tends to underinvest in programs with lags between when investment costs are incurred and when benefits are enjoyed. The fact that governments cannot capture all the benefits of preschool investment may also discourage them from assuming all the costs of preschool programs. Yet the economic case for public investment in preschool is compelling.

The economic and social benefits from preschool investment amount to more than just improvements in public balance sheets. Investing in young children has positive implications for the current generation of children, for future generations of children, and for earlier generations of children. The current generation of children will benefit from higher earnings, higher material standards of living, and an enhanced quality of life. Future generations will benefit because they will be less likely to grow up in families living in poverty. And earlier generations of children, who are now working or in retirement, will benefit by being supported by higher-earning workers who will be better able to financially sustain our public health and retirement benefit programs such as Medicaid, Medicare, and Social Security.

In short, strengthening the economic and social conditions of our youth will simultaneously help provide lasting economic security to future generations, as well as to all of us, including our elderly.

Investing in young children has positive effects on the U.S. economy by increasing economic growth, improving the skills of the workforce, reducing poverty, and strengthening U.S. global competitiveness. Crime rates and the heavy costs of incarceration to society will be reduced. Health outcomes improve as well. Additionally, given that the positive impacts of preschool may be larger for at-risk than for more advantaged children, a universal preschool program will help to reduce achievement gaps between poor and nonpoor children, ultimately reducing income inequality nationwide. In other words, investment in high-quality preschool promotes equal opportunity and widely shared economic growth.

The long-term nature of the benefits of preschool investment suggests that policymakers should not impose the costs of the investment (through lower public services or higher taxes) only on the current generation of beneficiaries. Instead, they should spread them over the lives of the current and future generations of beneficiaries of the programs.

Public investments in the quality and quantity of education are important determinants of productivity, growth, and international economic competitiveness. They are also central to human well-being. Investing in the education and skills of our people—our most valuable resource—can immediately boost the economy, create jobs, and help lift us out of our current economic malaise, while simultaneously laying the groundwork for future growth. Investments in the cognitive skills of our people help create pathways for more rapid future growth by enhancing long-run productivity, and they reduce economic disparities by providing ladders of opportunity for all.[30]

The evidence is clear that one of the most effective ways to promote faster and more widely shared economic growth is to raise academic achievement and narrow socioeconomic-based achievement gaps. Investment in universal high-quality preschool does both. By raising academic achievement, it will improve well-being now and for future generations of Americans, and it will encourage long-term economic growth.

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Endnotes

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19 For the sake of efficiency, the program could run two sessions per day (a morning and an afternoon session). In addition, to meet the needs of parents, it could provide wraparound child care services from early morning to late evening, paid for by funds not included in this analysis from existing or new public child care subsidies or from families themselves.

20 Reynolds and others, "School-Based Early Childhood Education and Age-28 Well-Being: Effects by Timing, Dosage, and Subgroups."

21 Robert Lynch and Kavya Vaghul, "The Benefits and Costs of Investing in Early Childhood Education" (Washington: Washington Center for Equitable Growth, 2015), available at https://equitablegrowth.org/research-paper/the-benefits-and-costs-of-investing-in-early-childhood-education/.

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23 Discounted present value is a concept in economics and finance that refers to a standard method of measuring the value in current dollars of benefits and costs that will be received in the future. Due to a variety of factors, such as inflation, a given amount of money earned in the future has less value than the same amount earned today. Likewise, a given amount of cost incurred in the future is less of a burden than the same cost incurred today. Thus, to measure the value in current dollars (the present value) of benefits and costs received in the future, those future benefits and costs must be discounted by an appropriate interest rate. The appropriate interest rate to discount future benefits and costs should reflect the rate of return the investor could have earned on an alternative project, and the appropriate interest rate to discount future costs should reflect the borrowing costs. A relatively risk-free investment can be made in long-term government bonds, and the government can borrow at the interest rate prevailing on those bonds. Long-term government bonds are currently yielding less than 2 percent, but the rates are expected to rise somewhat in the coming year. Hence, for the purposes of this study, a 3 percent discount rate is used.

24 Forty states and the District of Columbia have publicly financed preschool programs for children, some of whom would enroll in the proposed program. Similarly, states and the federal government pay for special education and Head Start services for young children, some of whom would attend the proposed new program instead. Thus, a fraction of the funds used to finance these existing programs, equal to the ratio of children who would attend the new preschool instead of the existing programs, would be used to fund the new preschool program.

25 The short-run fiscal stimulus assumes a multiplier effect of 1.5 that is phased in over the first 2 years. The fiscal multiplier measures the effect that changes in government spending will have on a nation's economic output or Gross Domestic Product in the future, usually over a 2-year time frame. The estimated increase in jobs of 210,200 is based on the ratio of GDP-to-employment that prevailed in 2019, which indicates that every $136,000 in additional economic output creates one job. A multiplier of 1.5 may be a conservative estimate of the multiplier effect because most empirical estimates of government spending multipliers during periods of high unemployment and low interest rates with accommodating monetary policy, such as at present, calculate multipliers in the 1.5 to 2 range. See, for example, Nicoletta Batini and others, *Fiscal Multipliers: Size, Determinants, and Use in Macroeconomic Projections* (Washington: International Monetary Fund, 2014); Congressional Budget Office, "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2011 through December 2011" (2012); Council of Economic Advisers, "The Economic Impact of the American Recovery and Reinvestment Act of 2009: Fourth Quarterly Report" (2010); Mark Zandi, "An Analysis of the Obama Jobs Plan," Moody's Analytics, September 9, 2011, available at https://www.economy.com/economicview/analysis/224641. Larger multipliers generate more economic growth and jobs. A multiplier of 2 from public preschool investment would generate 280,300 jobs. On top of the short-run increase in GDP from the fiscal stimulus, a long-run, productivity-induced increase in GDP will likely produce some additional permanent jobs, but the precise number is uncertain. Lynch and Vaghul, for example, estimate a long-run productivity-induced increase in real GDP from universal preschool investment that was enough to support potentially as many as 2.5 million jobs at then-current levels of productivity. However, this is an upper bound for the productivity-induced jobs impact because the preschool investment increases productivity and output per worker, thereby lowering the average number of jobs created by every dollar increase in GDP. See Lynch and Vaghul, "The Benefits and Costs of Investing in Early Childhood Education."

26 The increased compensation for guardians estimated here is likely to be conservative, as we assume that guardians gain only during the 2 years in which their child is enrolled. In reality, 2 additional years of labor force participation early in a career are likely to generate beneficial earnings effects for the rest of a worker's life. These increased earnings are not captured in the above estimates.

27 To be clear, government investments can affect the quality of life of citizens, justifying their expense even if their net costs are large. Our national defense program, for example, imposes hundreds of billions of dollars annually in budget deficits that may be justified by the collective national security those fiscal outlays provide. The benefits of high-quality preschool include the health and well-being of citizens, the earnings of workers, lower crime rates, global competitiveness, and numerous other factors. Many of these other benefits may not be easily defined or measured in financial terms, just as the value of collective national security may be difficult to monetize. But these other benefits still exist and may justify the costs of high-quality preschool.

28 The estimated increase in jobs is based on the ratio of GDP-to-employment that prevailed in

2019, which indicates that every $136,000 in additional economic output creates one job. Athough the long-run, productivity-induced increase in GDP will likely create jobs, the precise number of jobs is uncertain because the preschool investment increases productivity and output per worker, thereby lowering the average number of jobs created by every dollar increase in GDP. Thus, the job creation estimate provided here is an upper bound for the productivity-induced jobs impact.

29 If some private child care providers do not participate in the proposed universal program, then some of the benefits to families who place their children in alternative publicly funded centers may be offset by losses at the private centers. But losses at nonparticipating child care centers may, in turn, be offset by gains experienced by participating centers.

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