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RESEARCH BRIEF

# The Effects of a Universal Preschool Program in California

## Estimates for the Inland Empire Region

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Policymakers and the public are interested in the potential costs and benefits of making high-quality preschool available to all children at some point before kindergarten entry. In a prior study, RAND researchers estimated that a high-quality, one-year, voluntary, universal preschool program in California could generate for California society $2.62 in benefits for every dollar of cost. For each annual cohort of four-year-olds (approximately 550,000 children), the study estimated that California society would receive $2.7 billion in present-value net benefits.[1]

Benefits for each cohort of four-year-olds were also estimated in nonmonetary terms. These benefits include nearly 14,000 fewer children ever retained in grade; 9,100 fewer children ever using special education; 10,000 fewer high-school dropouts; 4,700 fewer children with a substantiated case of abuse or neglect; and 7,300 fewer children with a juvenile petition (i.e., a juvenile arrest that leads to a court filing). These results assume that 70 percent of the four-year-olds, or 385,000 children, participate in the preschool program.

These estimates pertain to the state of California as a whole. We report here a follow-up study in which the statewide analysis was extended to generate estimates at a more localized level. Specifically, the study estimated the effects of a high-quality, one-year, universal preschool program for the largest California counties and for several groups of California counties. Estimated effects included reductions in grade repetition, use of special education, high-school dropout rate, child abuse and neglect, and juvenile crime.

### Key findings:

**If a high-quality, universal preschool program for four-year-olds were implemented in the Inland Empire region, each annual cohort of participants would realize the following benefits, among others, over the course of their childhood and adolescent years:**

- **1,900 fewer children ever retained in grade**
- **8,600 fewer child-years of special education**
- **1,400 fewer high-school dropouts**
- **650 fewer children ever abused or neglected**
- **4,000 fewer juvenile petitions in court.**

**These reductions range from 6 to 21 percent of what would occur without the universal preschool program. The improvements are associated with substantial financial benefits to California taxpayers, preschool participants, and California society at large.**

This research brief focuses on the results for the Inland Empire region, comprised of two counties: Riverside and San Bernardino. Companion research briefs focus on analogous findings for Los Angeles, Orange, and San Diego counties, as well as for four other county groups: Bay Area (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties); Capital Region (El Dorado, Placer, Sacramento, Solano, and Yolo counties); Central Coast (Monterey, San Benito, San Luis Obispo, Santa Barbara, and Ventura counties); and Central Valley (Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties).

[1] An *annual cohort* is the set of all children of the same age. *Present value* is the worth of a projected stream of benefits after discounting those accruing in the future by a certain percentage (e.g., 3 percent per year). Discounting is necessary to reflect people's preference for near-term benefits over long-term benefits.

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## Approach

The county-level estimates of the effects are based on an extension of the methodology employed in RAND's statewide analysis. The approach assumes a high-quality preschool program available to all California four-year-olds on a voluntary basis. Class size, staff-to-child ratio, and teacher qualifications are assumed to be consistent with research-based quality standards. Notably, these standards exceed those required for public preschool programs in California, such as Head Start and the California state preschool program. (If a less expensive program with lower standards were implemented, it is reasonable to suppose that benefits would be smaller than those cited here.)

The disaggregated analysis accounts for population size differences across California counties as well as differences in the size of the at-risk population and in current preschool participation rates. County-level data are drawn from a variety of sources including California Department of Finance population projections; census data on preschool participation rates; and other California data on baseline education, child abuse and neglect, and juvenile crime.

To determine which effects would be realized by a universal preschool program and the magnitude of those effects, RAND drew upon scientific evidence of the effects of high-quality preschool on disadvantaged children. The effects measured in the scientific studies were adjusted downward to account for the broader population of children served and for benefits received by those children already attending quality preschool programs.[2] The adjustment factor varied for each county and county group, depending on county income levels and current preschool participation rates.

## Findings

The Inland Empire region is projected to have an average of nearly 68,000 four-year-olds each year over the next decade. The table shows the improvements in measures of education, abuse and neglect, and juvenile crime that the Inland Empire region can expect for each cohort of four-year-olds that would participate in the program. (Results are also shown for California as a whole.) Each of these outcomes is a cumulative measure, capturing changes for each annual cohort of participants from the end of preschool to age 18. For example, if the 68,000 four-year-olds participate in a high-quality, universal preschool program at a 70-percent rate, about 1,250 fewer children will ever use special education as they work their way through elementary, middle, and high school.

The benefits would be realized at different times in the future. The grade-retention and special-education improvements can occur throughout the K–12 years, while the reduction in dropouts is realized at approximately age 18, i.e., 13 years after the universal preschool program ends. Likewise, most of the juvenile crime improvements will be realized during the adolescent years.

[2] The adjustments are required because the universal program will serve many children who are not disadvantaged and will thus not stand to gain as much as those in the scientific studies. Also, those studies typically compare preschoolers with children not attending preschool, whereas in California, many children are already in preschool, and will thus not gain as much from a new, universal program.

**Effects for the Inland Empire Region Compared with Those for California as a Whole**

| Outcome | Inland Empire Region | California |
|---|---|---|
| Reduction in the number of children ever retained in grade | 1,886 | 13,808 |
| Reduction in the number of children ever using special education | 1,249 | 9,146 |
| Reduction in the number of child-years of special-education use | 8,573 | 62,764 |
| Reduction in the number of high-school dropouts | 1,372 | 10,042 |
| Increase in the number of child-years of education | 4,042 | 29,589 |
| Reduction in the number of children with substantiated reports of child abuse or neglect | 649 | 4,752 |
| Reduction in the number of children with juvenile petitions (court filings) | 1,004 | 7,352 |
| Reduction in the number of children with juvenile petitions (court filings) for violent offenses | 772 | 5,649 |
| Reduction in the number of juvenile petitions (court filings) | 4,042 | 29,589 |

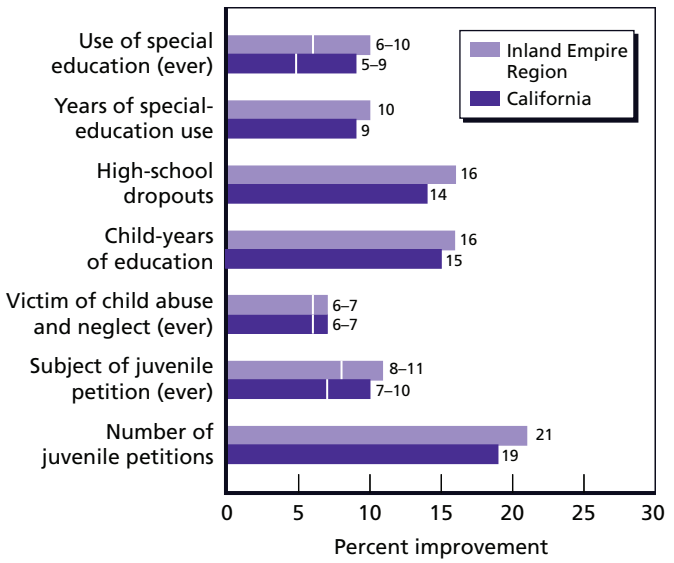
NOTE: Effects are those of a high-quality, one-year, universal, voluntary preschool program.

To put into perspective the size of these effects for the Inland Empire region (and California as a whole), the figure shows the estimated improvements in percentage terms, relative to a baseline that measures what the outcomes would have been in the absence of a universal preschool program. The percentage effects were calculated for seven of the nine measures. (Such estimates were not possible for grade repetition and violent juvenile crime because of data limitations.) For example, the reduction of about 1,250 children who ever use special education represents 6–10 percent of the total number of such cases as projected without the universal preschool program. The range (6–10 percent) reflects different assumptions used to derive the baseline level.

The Inland Empire region has a relatively lower income than the state as a whole, so the effects of a universal preschool program are not as attenuated as the statewide average. The estimated effects are therefore 1 to 2 percentage points larger than they are for the state as a whole. They range from about 6 percent for child abuse and neglect to 21 percent for the number of juvenile petitions.

The report also provides estimates for the two counties in the Inland Empire: Riverside and San Bernardino. As seen in the second table, the results are similar for the two counties for the two measures related to special education, while the effect on child abuse and neglect is larger for San Bernardino than for Riverside. The percentage changes for the dropout and juvenile crime effects are largest for Riverside County. Notably, Riverside's baseline dropout rate and juvenile arrest rate are low relative to those of other counties with similar demographics. This may be due to inconsistencies in measurement of these baseline rates across counties.

**Effects for the Inland Empire Region and California as Percent Improvements Relative to the Baseline**




NOTES: Effects are those of a high-quality, one-year, universal, voluntary preschool program. The baseline refers to the level of each outcome projected without the implementation of such a program. The range of percentage effects for children ever using special education is based on assuming repeat rates of special-education use of 80 and 90 percent. The range for children ever abused or neglected is based on assuming recurrence rates of child maltreatment of 13 and 25 percent. The range for children ever with a juvenile petition is based on assuming recidivism rates of 40 and 60 percent. The percentage change for child-years of education measures the fraction of the gap that would be closed between years of schooling that would be attained with a 100-percent high-school graduation rate and years attained with current dropout patterns.

While some of the improvements may appear to be modest in percentage terms, it is important to note that they are associated with substantial financial benefits that accumulate with the passage of time. The earlier statewide RAND study estimated, for example, that each year of special-education use that is avoided saves California taxpayers $8,421. An average high-school graduate, compared with an average high-school dropout, earns an additional $132,000 (present value) by age 65. The California public sector benefits from the higher lifetime earnings in the form of higher tax revenue of more than $5,000 (present value) for each additional high-school graduate. In addition, a typical case of child maltreatment that is prevented saves $5,174 in California public-sector funds plus an additional $5,079 in tangible costs to victims. Finally, each juvenile petition that is avoided saves California taxpayers an average of $9,204 in costs through the juvenile justice system and $12,873 in tangible victim costs. These figures for child maltreatment and juvenile crime do not account for any intangible victim costs (e.g., pain and suffering). Furthermore, the crime costs do not account for any subsequent lifetime savings to the criminal justice system and crime victims as a result of preventing adult crime.

The estimates presented above for the Inland Empire region and for California are subject to several sources of uncertainty. While the study did not calculate error bands around the estimates, the estimates should be viewed as approximations of the expected size of the effects.

Despite the uncertainty in the estimates, the county-level results presented here can provide relevant local perspective for public and private decisionmakers considering investments in a high-quality, universal preschool program in California. The findings provide a sense of the likely magnitude of the benefits of universal preschool in terms of key measures of the well-being of children, measures that also have favorable economic consequences for the public sector and for private individuals. ■

**Percent Improvements for the Inland Empire Region Compared with Those for Each County Within It**

| | Percent Improvement Relative to the Baseline | | |
|---|---|---|---|
| **Outcome** | **Riverside County** | **San Bernardino County** | **Inland Empire Region** |
| Use of special education (ever) | 6–9 | 6–11 | 6–10 |
| Years of special-education use | 9 | 10 | 10 |
| High-school dropout rate | 20 | 12 | 16 |
| Child-years of education | 21 | 12 | 16 |
| Victim of child abuse and neglect (ever) | 4–5 | 8–9 | 6–7 |
| Subject of juvenile petition (ever) | 11–15 | 6–8 | 8–11 |
| Number of juvenile petitions | 28 | 16 | 21 |

NOTE: Effects are those of a high-quality, one-year, universal, voluntary preschool program. The baseline refers to the level of each outcome projected without the implementation of such a program.

This research brief describes work done for RAND Labor and Population documented in *County-Level Estimates of the Effects of a Universal Preschool Program in California* by Lynn A. Karoly, TR-340-PF, 2005, 110 pages, available online at (www.rand.org/publications/TR/TR340/). Results for California are available in *The Economics of Investing in Universal Preschool Education in California*, by Lynn A. Karoly and James H. Bigelow, MG-349-PF (available at www.rand.org/publications/MG/MG349/), 2005, 236 pages, $28, ISBN: 0-8330-3779-X. MG-349 is also available from RAND Distribution Services (phone: 310-451-7002; toll free: 877-584-8642; or email: order@rand.org). The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. **RAND**® is a registered trademark.

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RB-9164/8-PF (2005)

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