

Economics of Early Education

Benefits and Costs of Quality Early Childhood Education

**Presentation to the
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Impacts of Quality Early Education

Increases Educational Success and Adult Productivity

- Increases cognitive abilities and achievement
- Improves social behavior
- Increases educational attainment
- Increases employment, earnings, and tax revenue

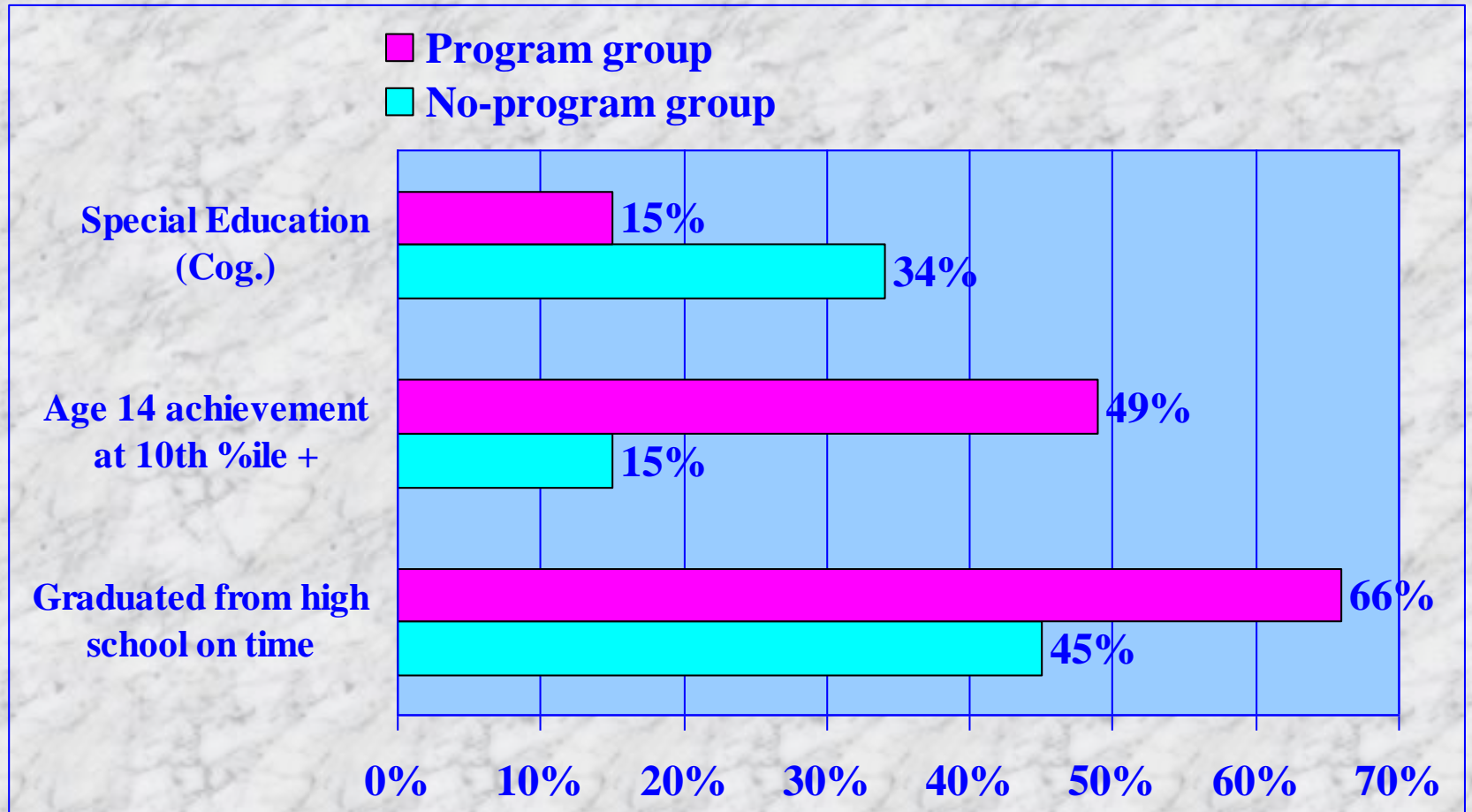
Decreases Costs of Government

- Lower schooling costs
- Lower social services costs
- Lower crime costs
- Lower health care costs

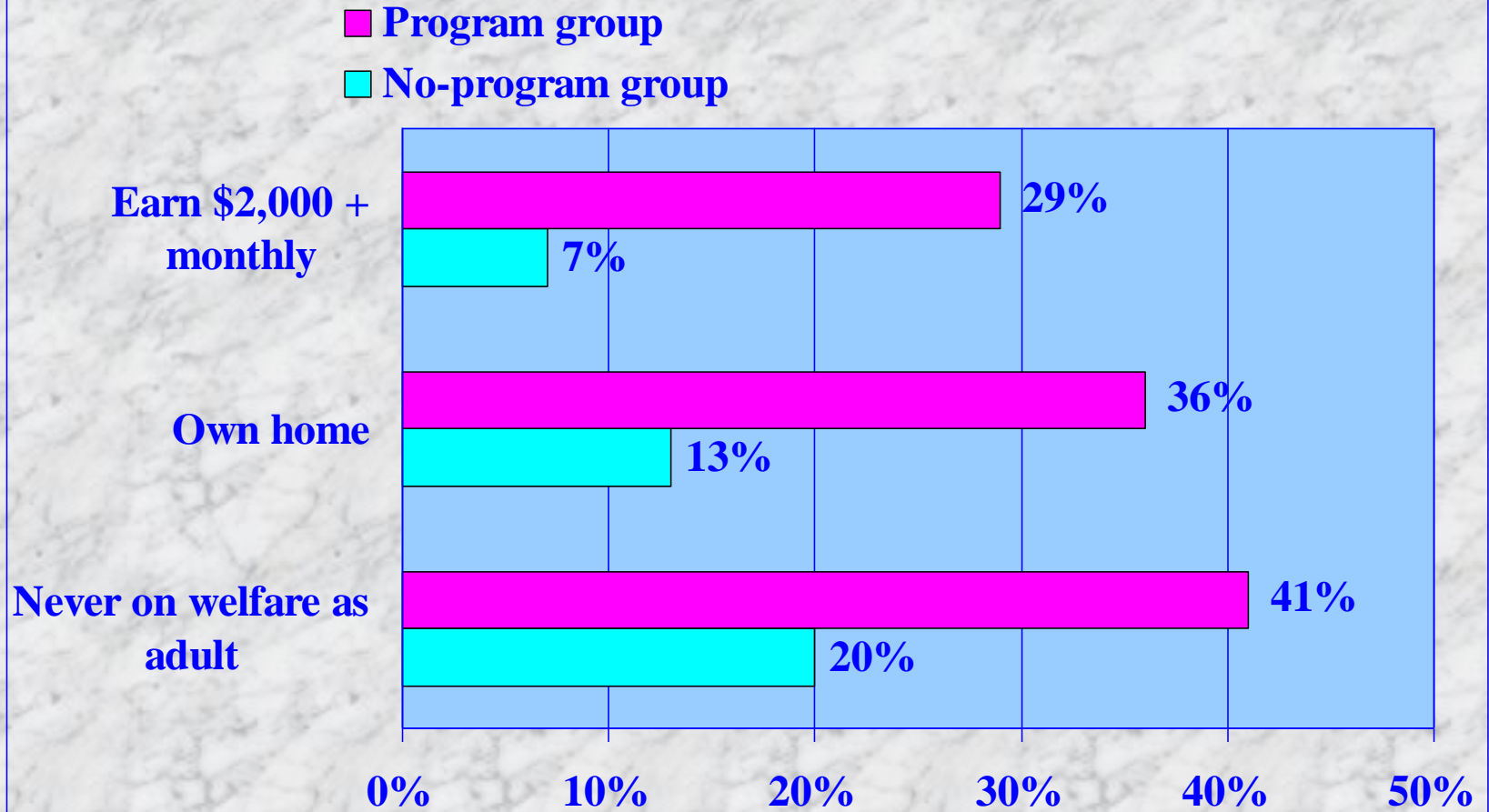
Three Benefit-Cost Analyses with Disadvantaged Children

	Abecedarian	Chicago	High/Scope
Year began	1972	1985	1962
Location	Chapel Hill, NC	Chicago, IL	Ypsilanti, MI
Sample size	111	1,539	123
Design	RCT	Matched neighborhood	RCT
Ages	6 wks-age 5	Ages 3-4	Ages 3-4
Program schedule	Full-day, year round	Half-day, school year	Half-day, school year

High/Scope Perry Preschool: Educational Effects

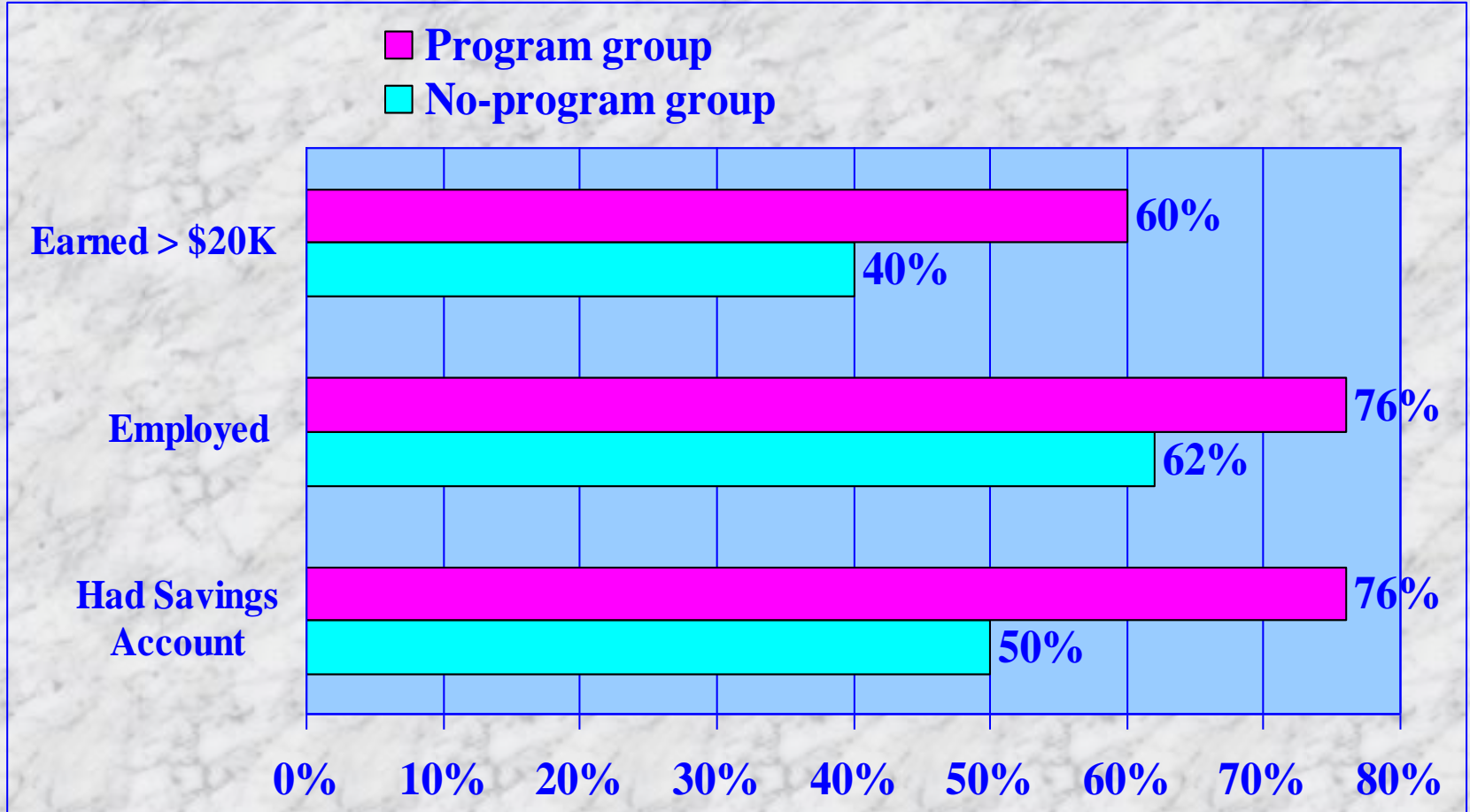


High/Scope Perry Preschool: Economic Effects at Age 27

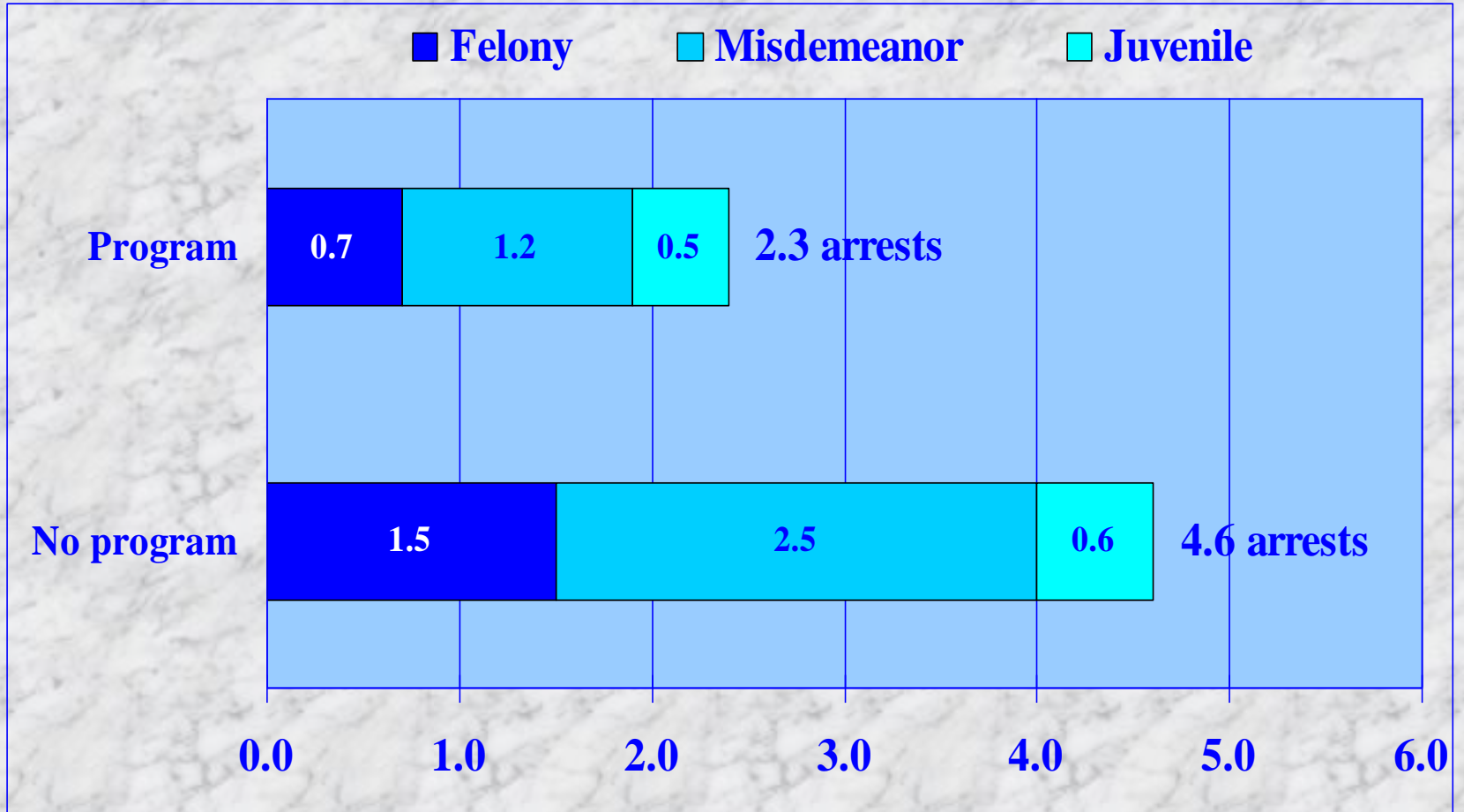


High/Scope Perry Preschool: Economic Effects at 40

Source: Schweinhart et al., 2005

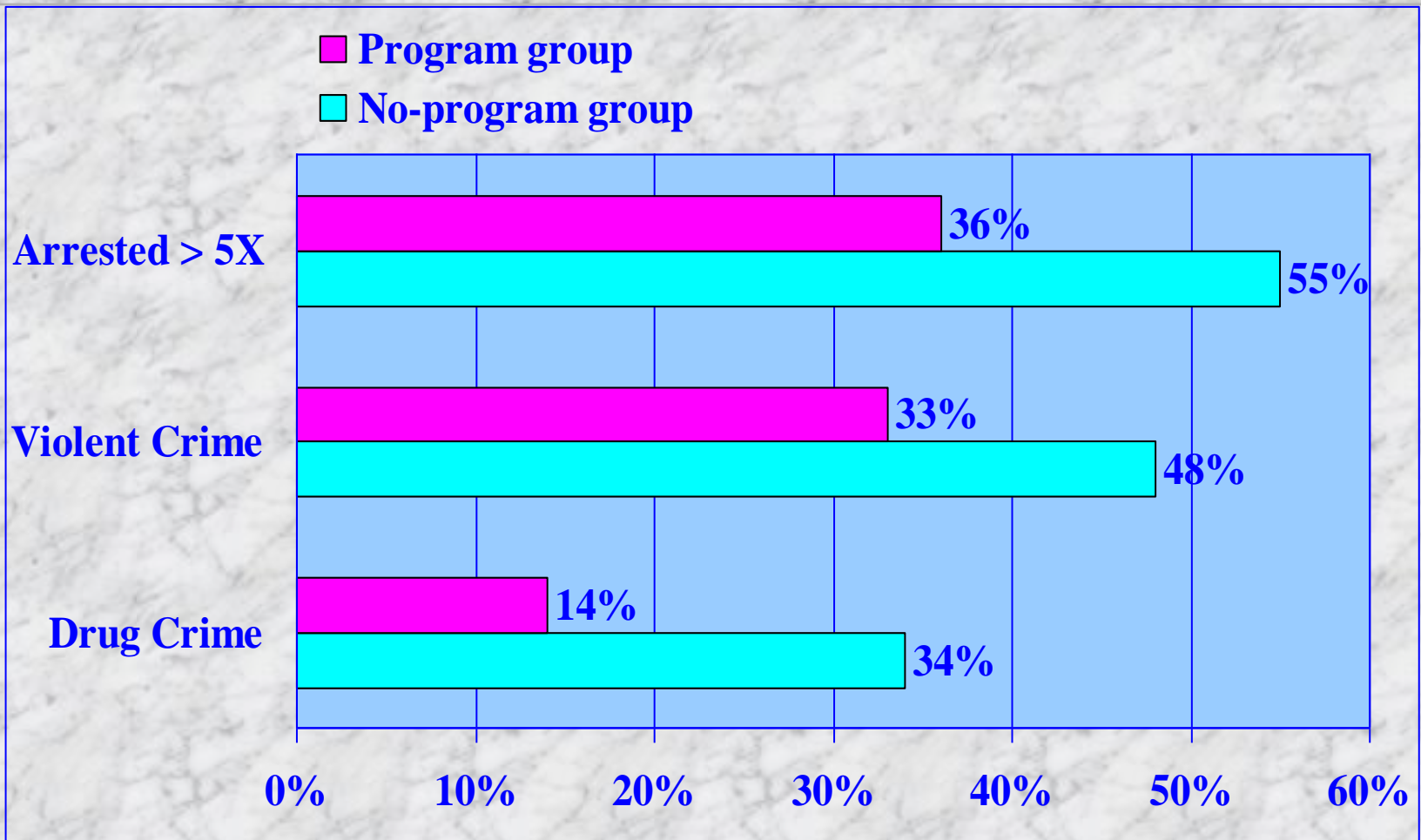


High/Scope Perry Preschool: Arrests per person by age 27

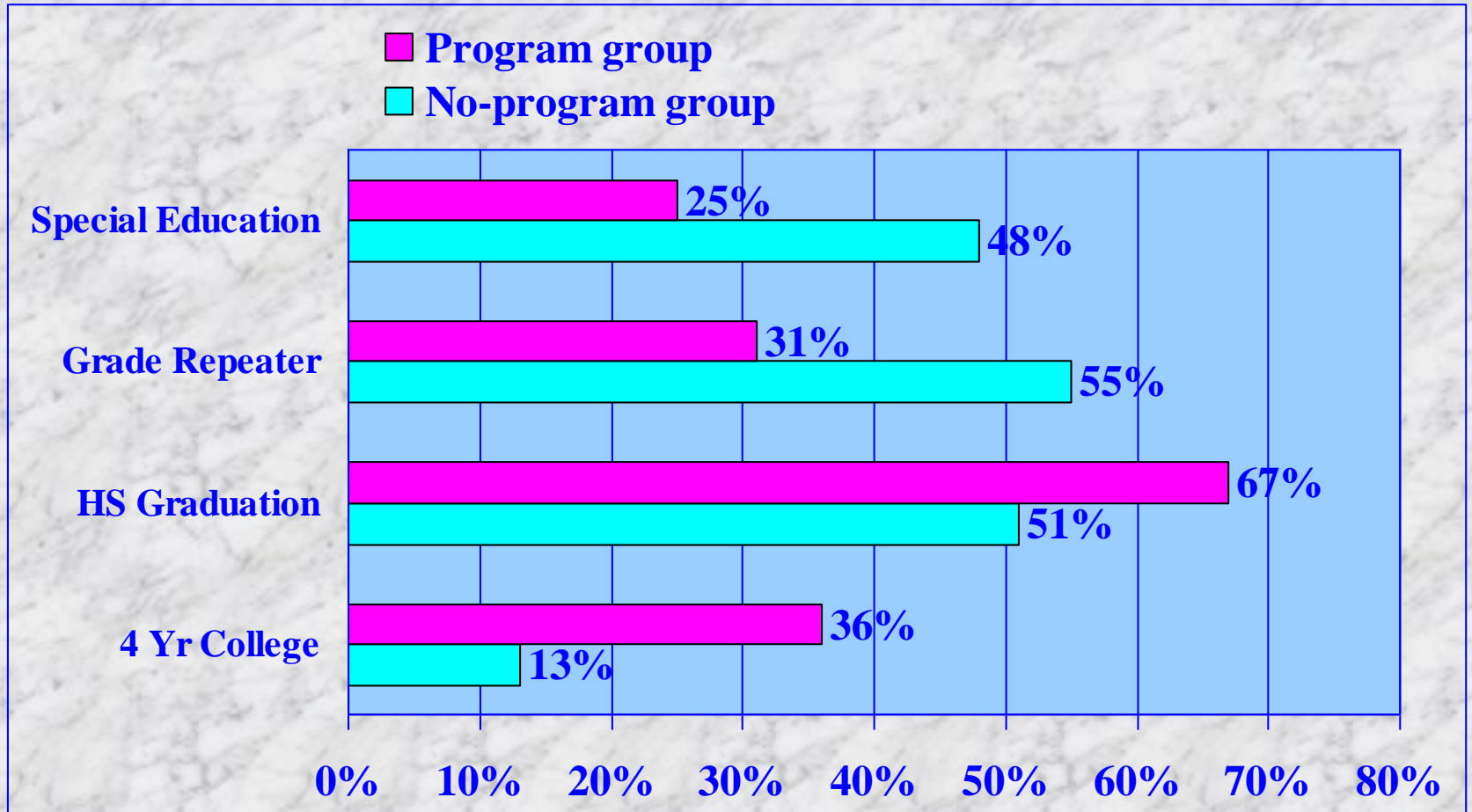


Perry Preschool: Crime Effects at 40

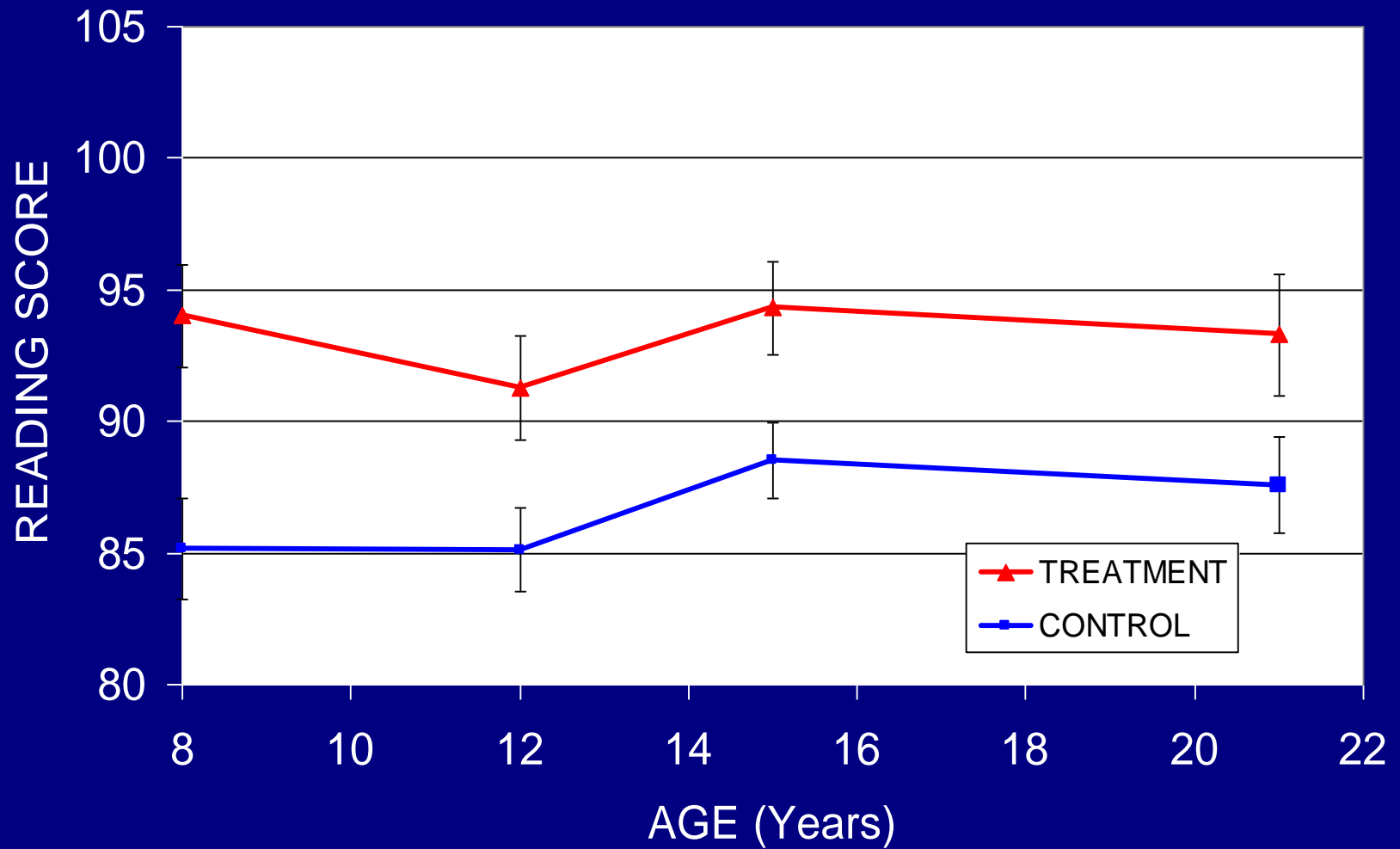
Source: Schweinhart et al. 2005



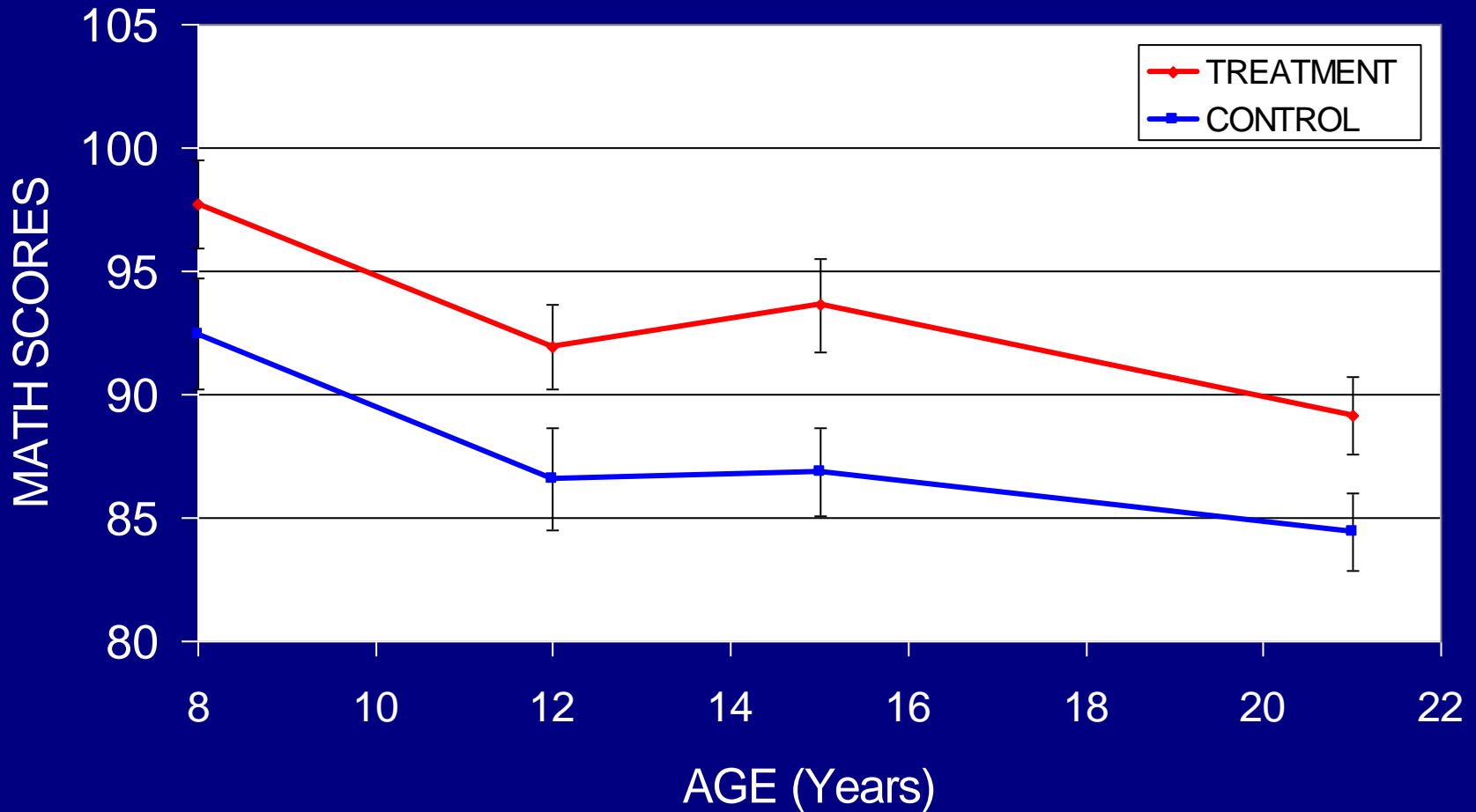
Abecedarian : Academic Benefits



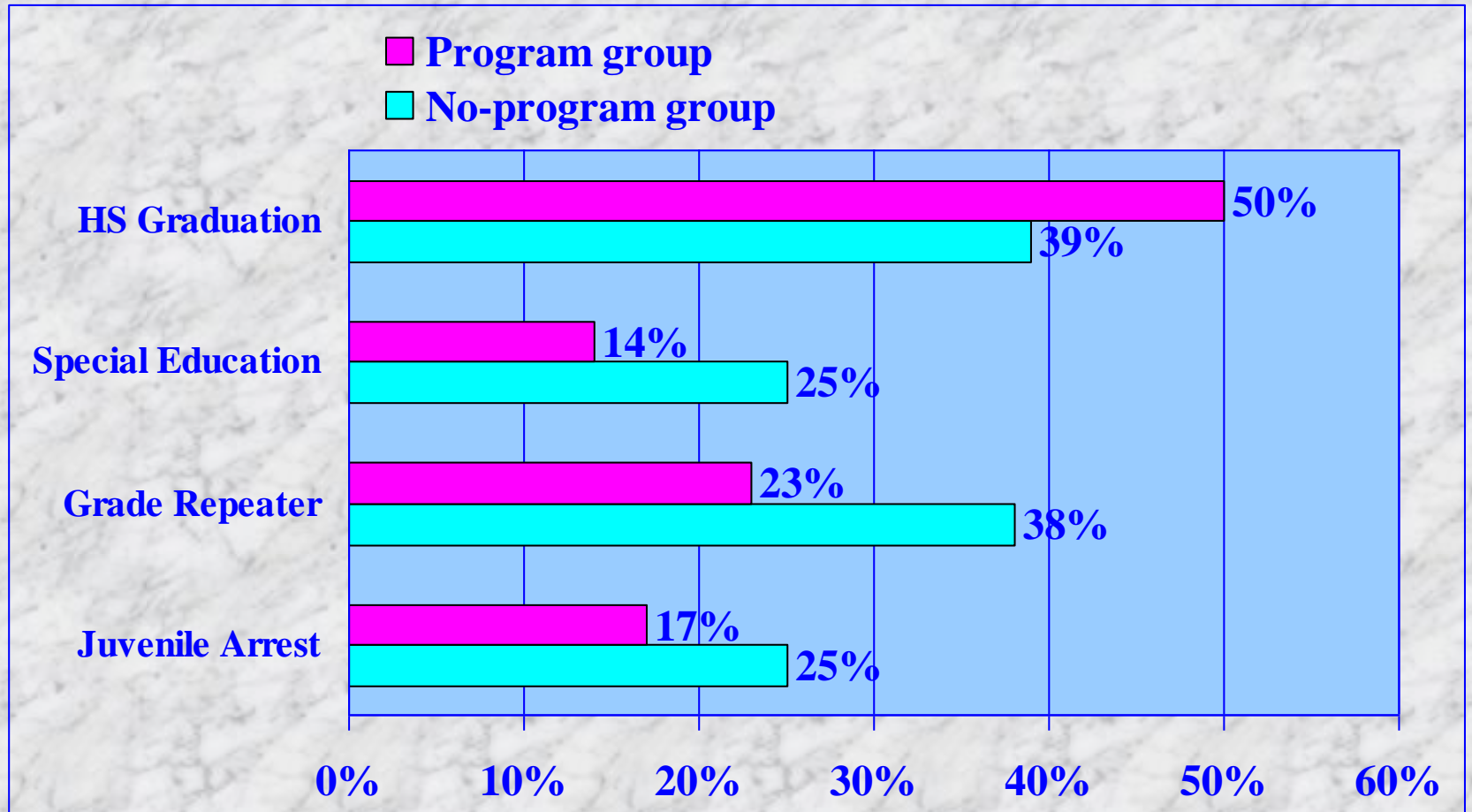
Abecedarian Reading Ach. Over Time



Abecedarian Math Achievement Over Time



Chicago CPC: Academic and Social Benefits at School Exit



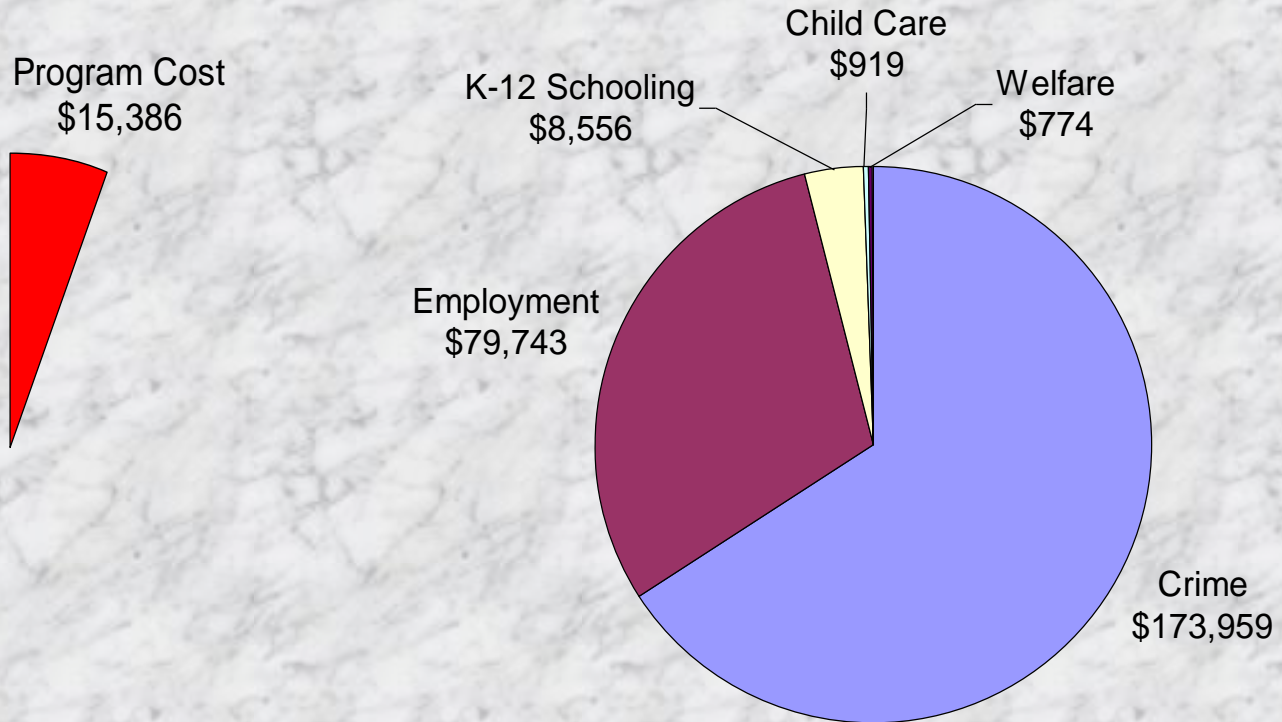
Economic Returns to Pre-K for Disadvantaged Children

	Cost	Benefits	B/C
▪ Perry Pre-K	\$16,264	\$277,631	17.07
▪ Abecedarian	\$36,929	\$139,571	3.78
▪ Chicago	\$ 7,417	\$ 52,936	7.14

Perry Preschool

Costs

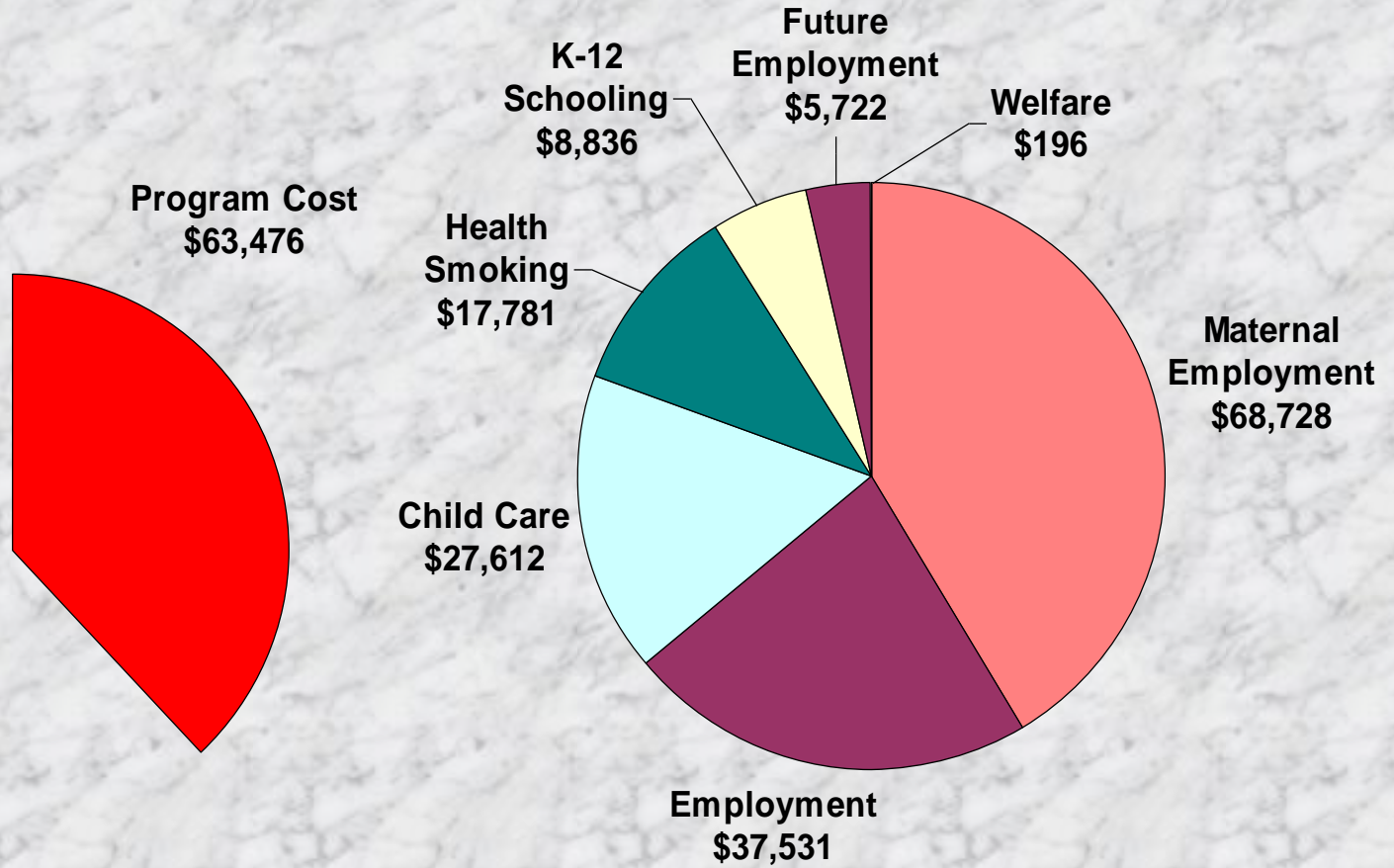
Benefits



Abecedarian

Costs

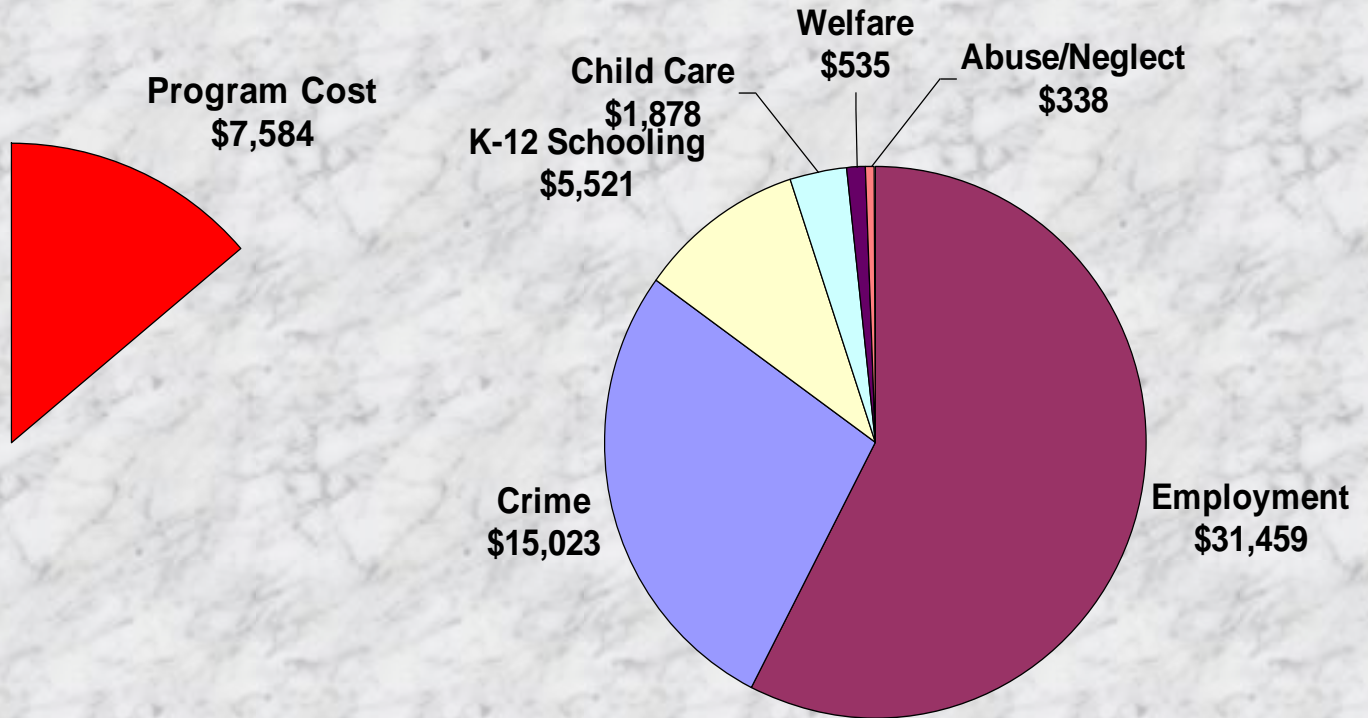
Benefits



Chicago CPC

Costs

Benefits



Could Universal Pre-K Produce Similar Benefits for the Middle Class?

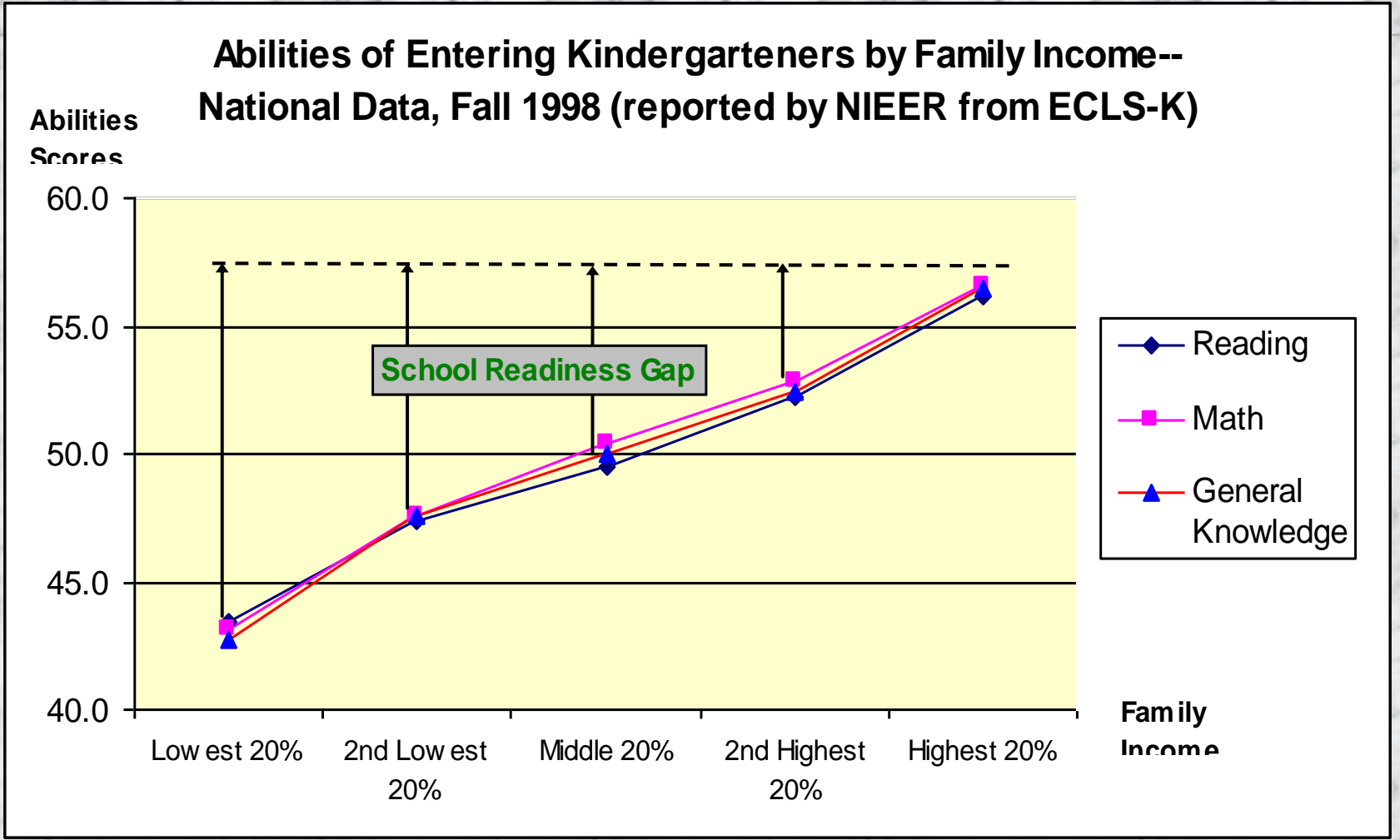
Middle class children have fairly high rates of the problems that preschool reduces for low-income children.

Reducing these problems could generate large benefits.

<u>Income</u>	<u>Retention</u>	<u>Dropout</u>
Lowest 20%	17%	23%
20-80%	12%	11%
Highest 20%	8%	3%

Source: US Department of Education, NCES (1997). Dropout rates in the United States: 1995. Figures are multi-year averages.

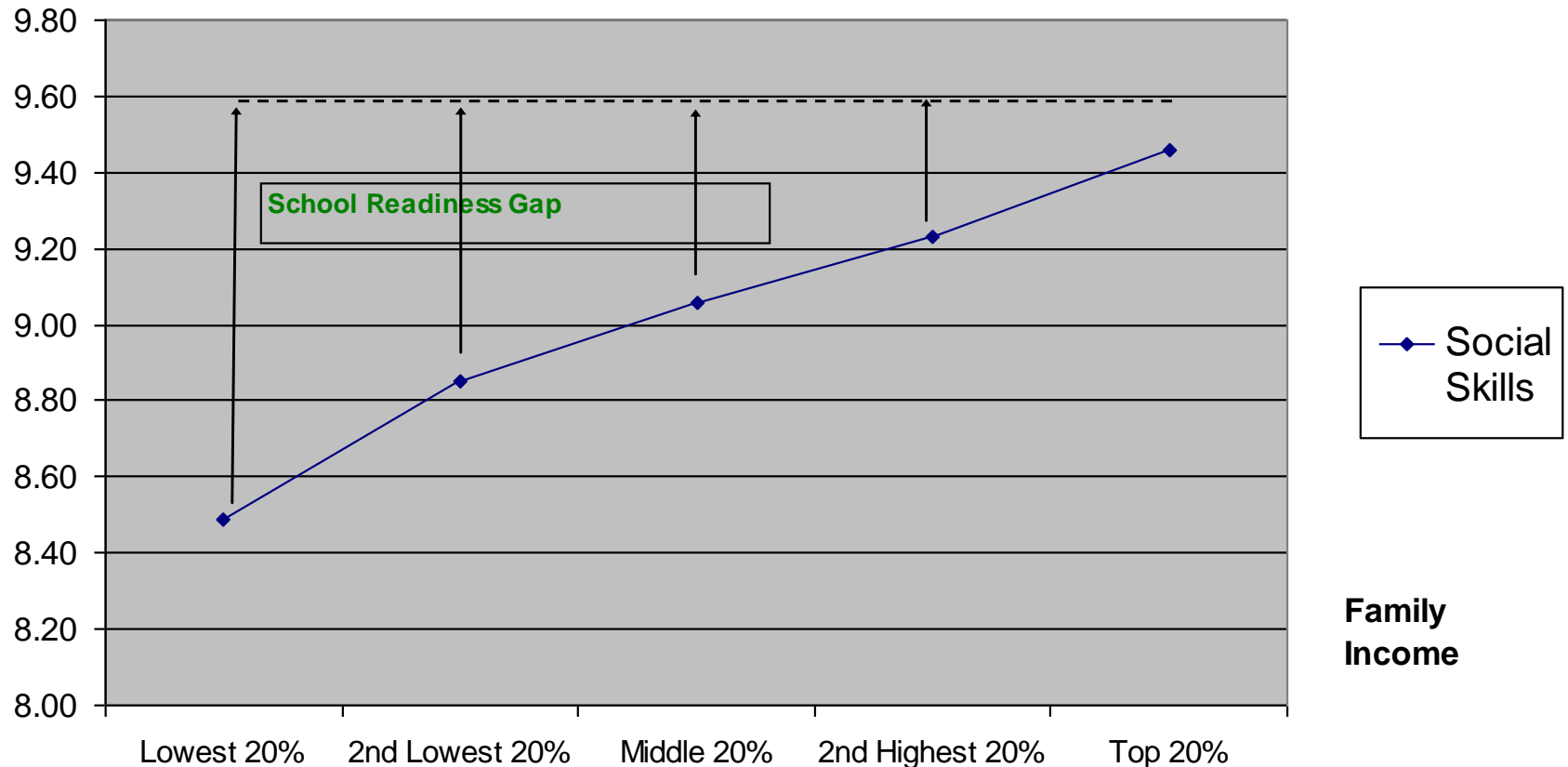
Cognitive Readiness Gap—Half as Big at Median as for the Poor (bottom 20%)



Social Readiness Gap—Half as Big at the Median as for the Poor (bottom 20%)

Social Scores

Social Skills of Entering Kindergarteners by Family Income (NIEER Analysis of ECLS-K)



Effects of Today's Programs

- Two new rigorous studies
- Large scale (state) public programs
- One year of quality public Pre-K at 4
- Effects of *policy* at entry to Kindergarten
- Universal and targeted programs
- Standardized tests
- Estimate effects by income and ethnicity

Oklahoma's Universal Pre-K

- 3,028 children in Tulsa public schools
- Rigorous RD design
- Gains for all SES & ethnic groups
- Literacy and Math gains
 - Smaller than Perry and Abecedarian
 - Similar to CPC
- Larger gains for minority and poor children

Source: Gormley et al. (2004). CROCUS/Georgetown University

NIEER Evaluation of 5 State Pre-K Programs

- 5,071 children in 5 States
- OK and WV are universal
- MI, NJ, & SC targeted
- Gains from Pre-K in all 5 states
- Gains in language, literacy & math
- All children gain, low-income gain more

Source: Barnett et al. (2005). NIEER/Rutgers University

Oklahoma 4th Grade NAEP Scores

Before and After UPK

YEAR	White	Black	Hisp.	Indian
2002 Read	220	188	197	209
2003 Read	220	195	200	206
2005 Read	219	196	204	211
2000 Math	229	205	207	221
2003 Math	235	211	220	225
2005 Math	240	217	226	229

Reading gains are not statistically significant; math gains are statistically significant for Whites and Hispanics (2000-05). 23

Georgia 4th Grade Math NAEP Scores **Before** and After UPK

YEAR	White	Black	Hispanic
1996	224	201	205
2000	230	204	217
2003	241	217	219
2005	243	221	229

Gains from before to after UPK are statistically significant.

Georgia 4th Grade Reading NAEP Scores **Before** and After UPK

YEAR	White	Black	Hispanic
1998	221	191	Not Avail.
2002	226	200	200
2003	226	199	201
2005	226	199	203

Gains from 1998 to 2005 are statistically significant.

Is Targeting More Cost-Effective?

Targeting is costly and imperfect

- Poverty is a moving target
- Need is not defined by targeting alone
- Targeting is not perfect

Benefits do not stop at the poverty line

- Middle class has similar problems
- Benefits decrease gradually with income

Economic Comparison of Targeted and Universal Pre-K

Targeted Programs Have Lower Total Cost

Universal Programs Have Higher Benefits

--they can reach more of the target children

--greater diversity in the classroom increases gains for disadvantaged children

--some benefits gained for all or most children

Under Plausible Assumptions Universal is Better Investment

Source: Barnett (2004). Maximizing returns from pre-kindergarten education. Federal Reserve Bank of Cleveland Research Conference.

High Quality Preschool Programs Needed to Produce Benefits

- Well-educated preschool teachers
- Adequate teacher compensation
- Small classes and reasonable teacher:child ratios
- Strong supervision
- High standards and accountability

Conclusions

- Preschool can be a sound investment
- Returns depend on who is served
- Returns depend on effective education
- Context matters also
- Universal can be more cost-effective