




The Economic Case for Investing in Young Children

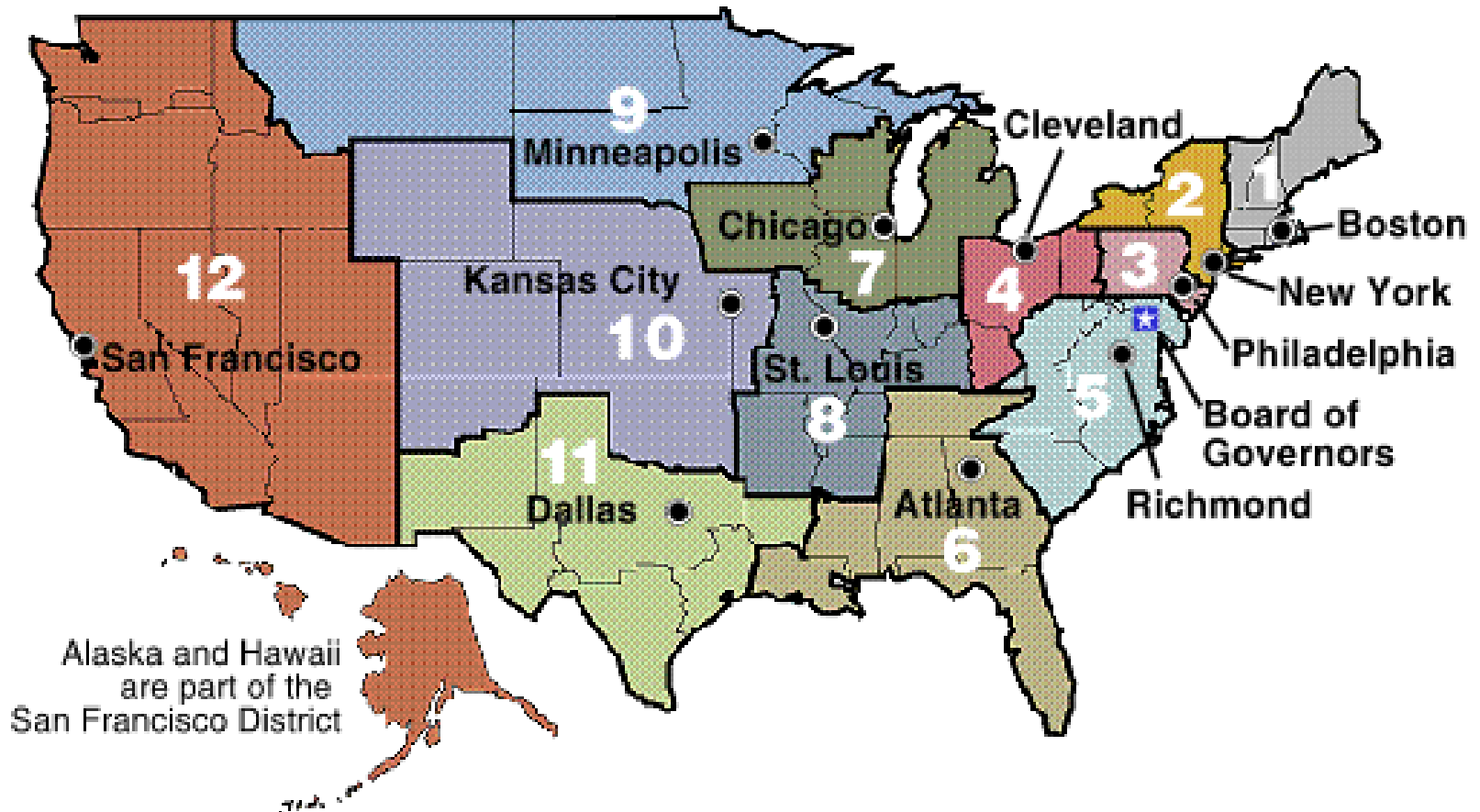


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**The views expressed here are those of the author and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.*

Federal Reserve System

Overview



Federal Reserve

Community Development



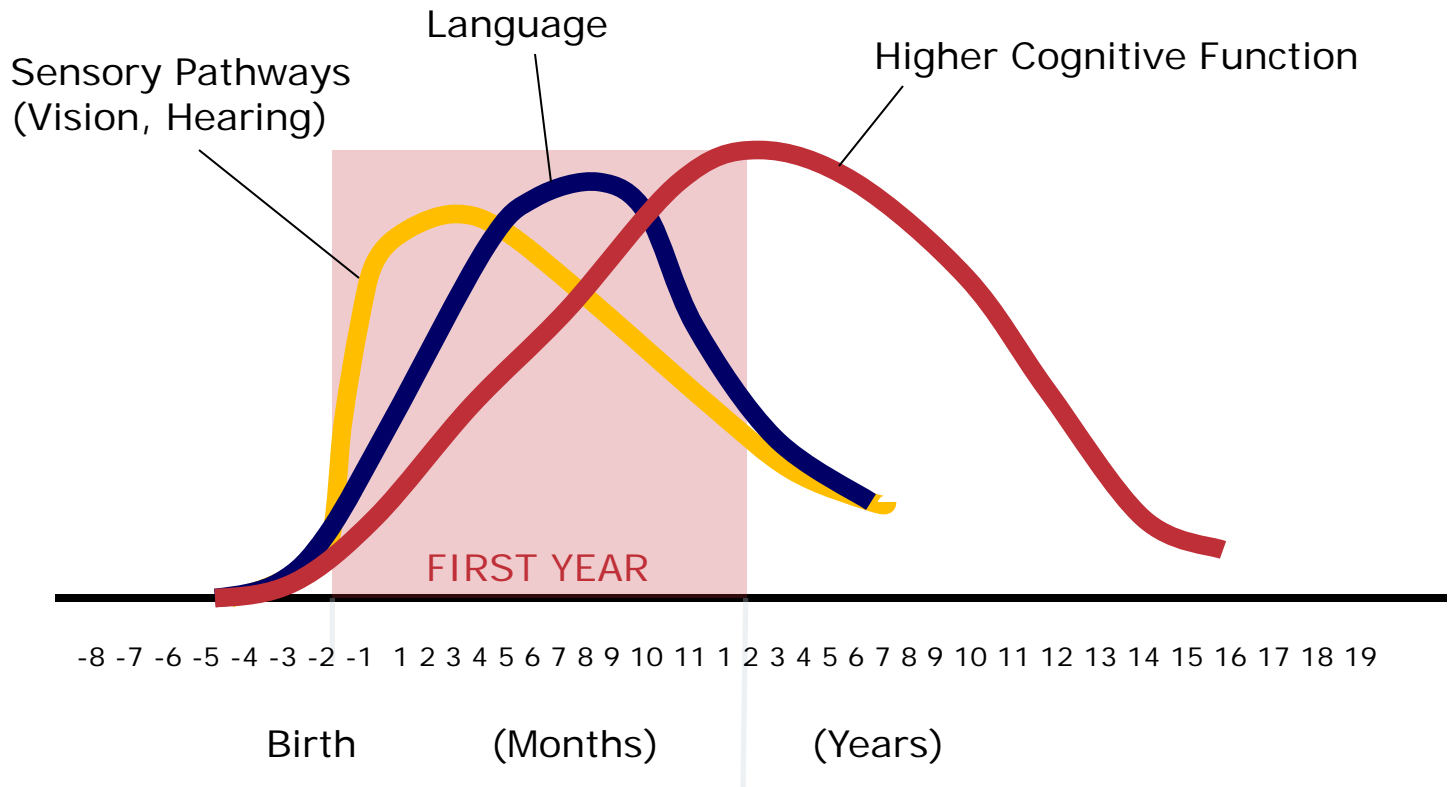
- **Function within the Federal Reserve System.**
- **Promote fair access to credit and economic growth in LMI communities.**
- **Research. Information Sharing. Training. Convening.**



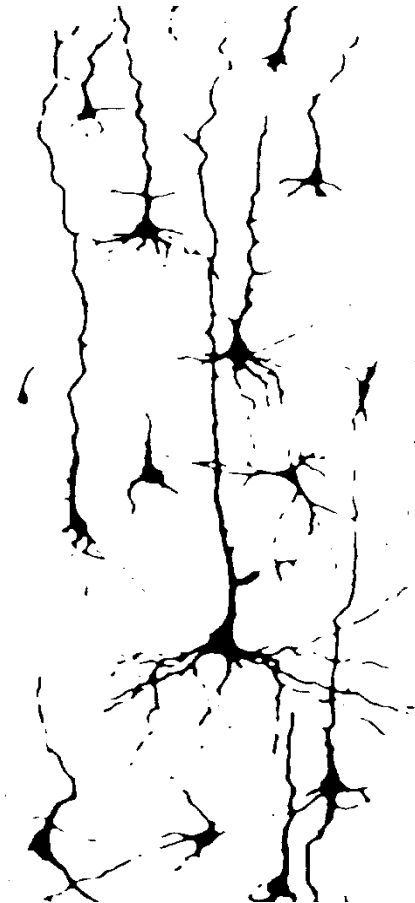


Human Brain Development

Synapse Formation Dependent on Early Experiences



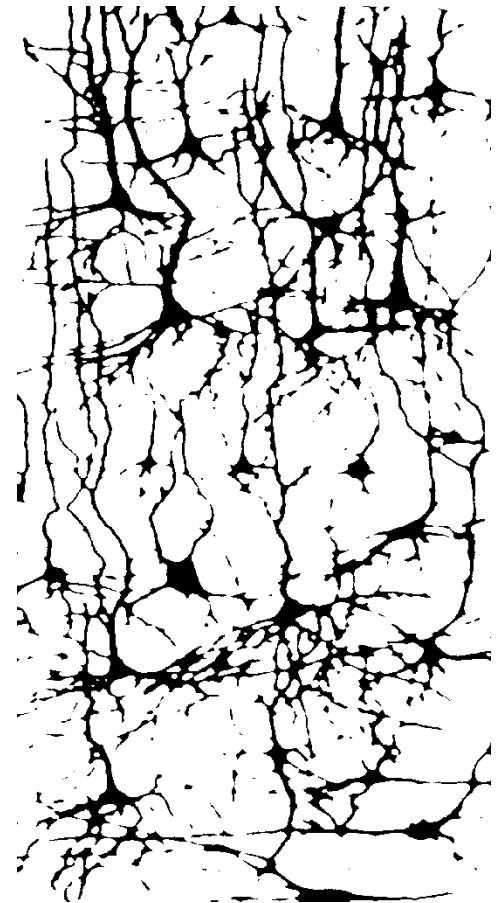
Human
Brain
at Birth



6 Years Old

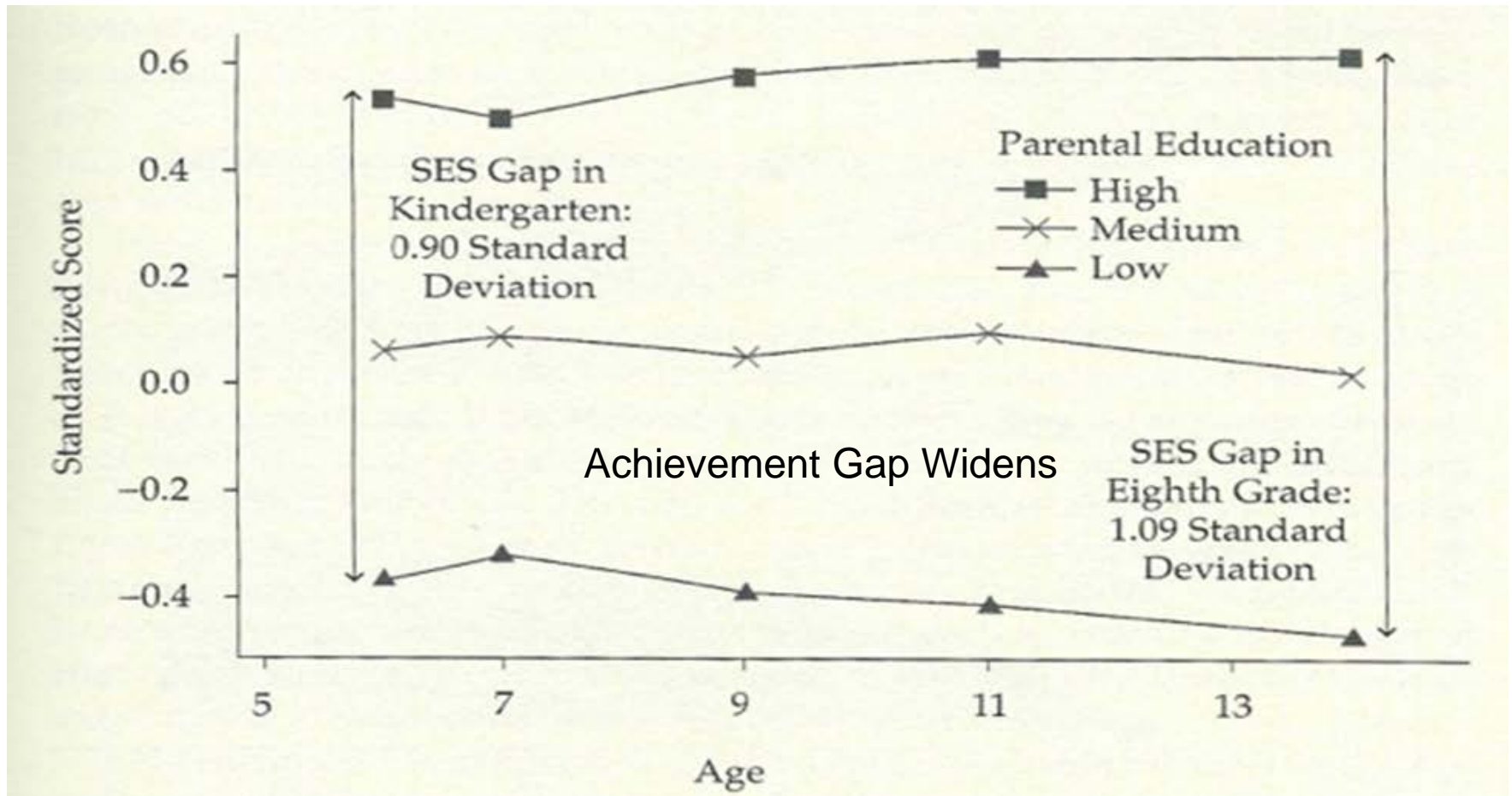


14 Years Old



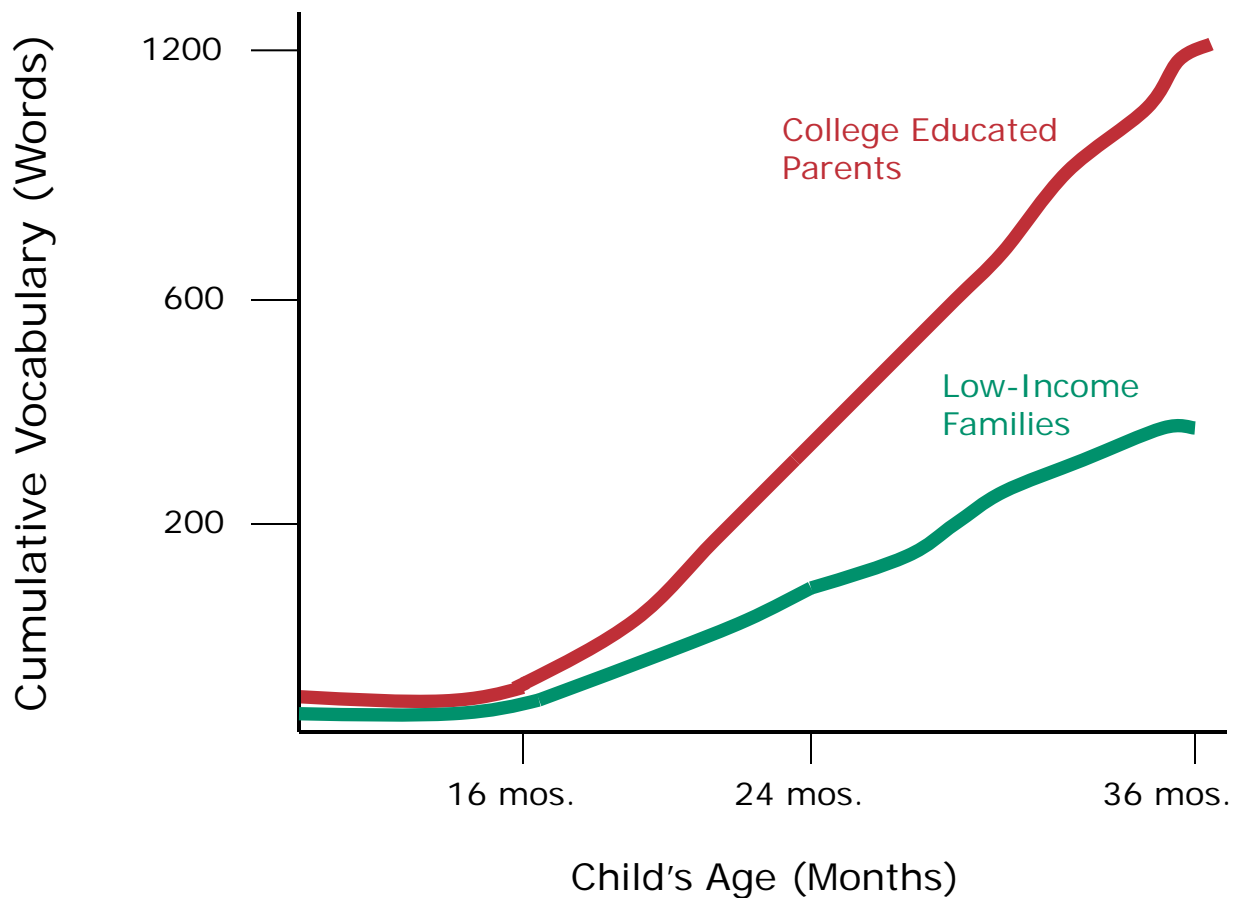
Source: Chugani, Phelps & Mazziotta (1987)

Average reading scores of U.S. children by socio-economic status group (parent education)





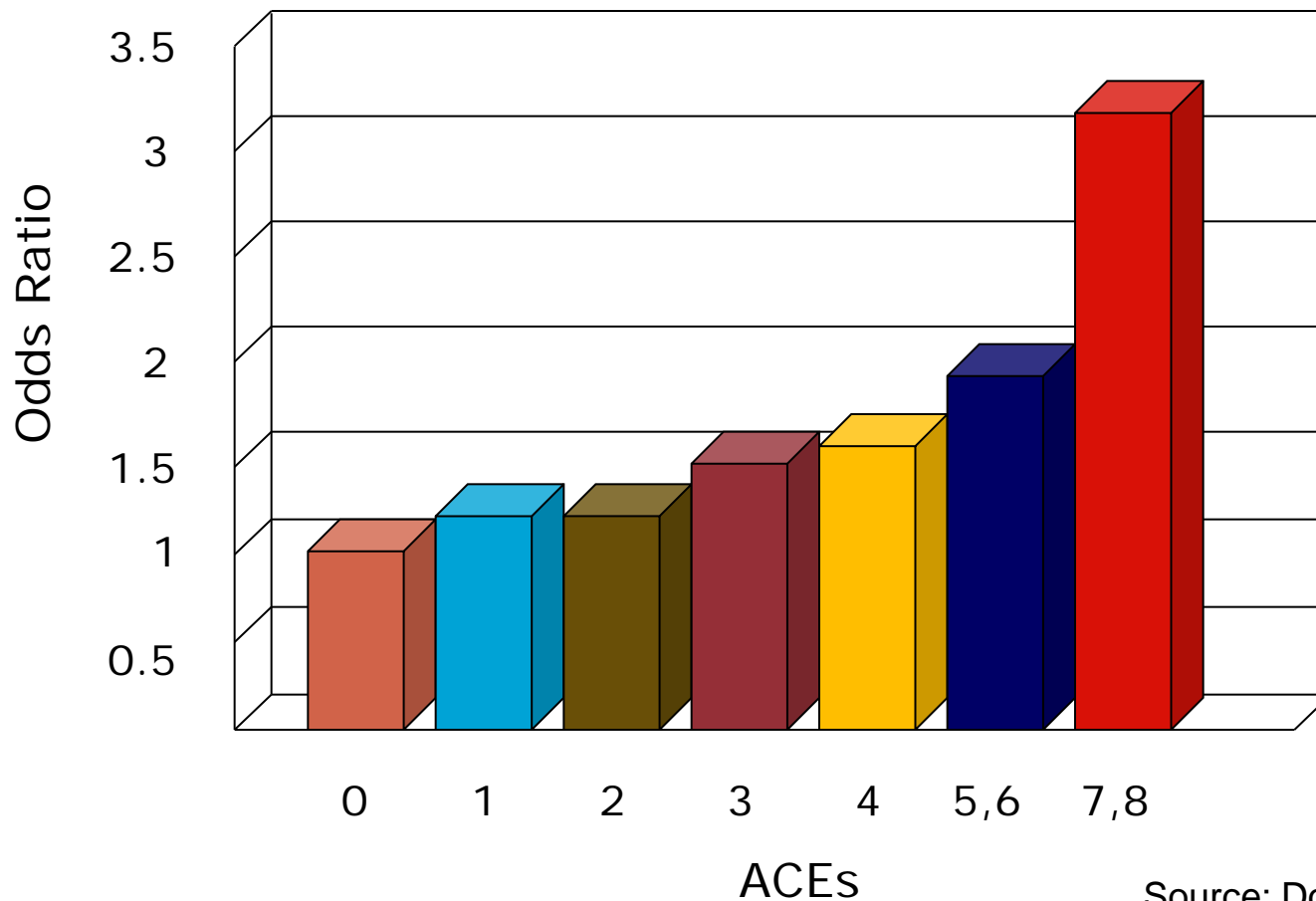
Barriers to Social Mobility Emerge at a Very Young Age



Source: Hart & Risley (1995)



Risk Factors for Adult Heart Disease are Embedded in Adverse Childhood Experiences



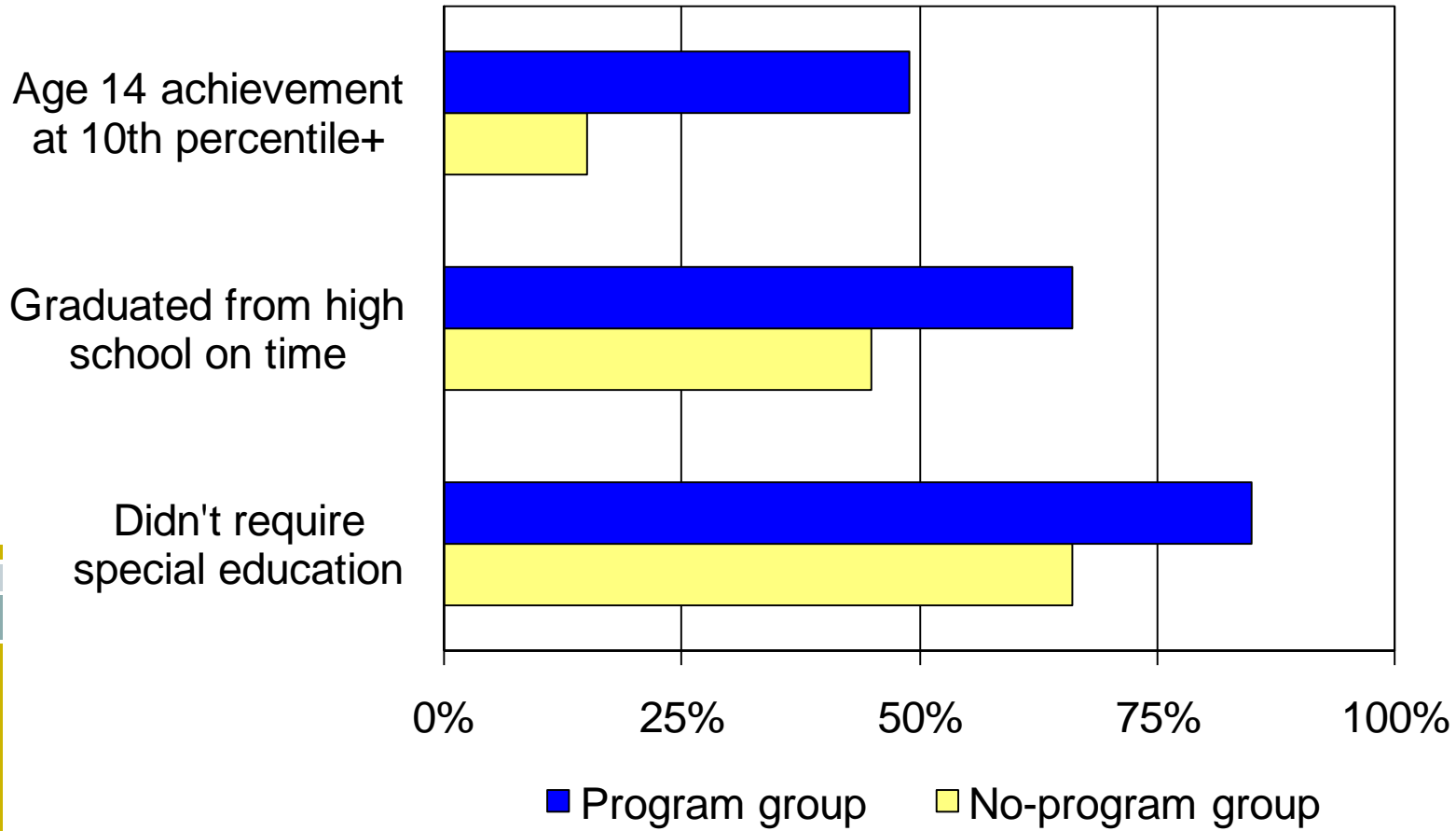
Source: Dong et al, 2004



High/Scope Study of Perry Preschool

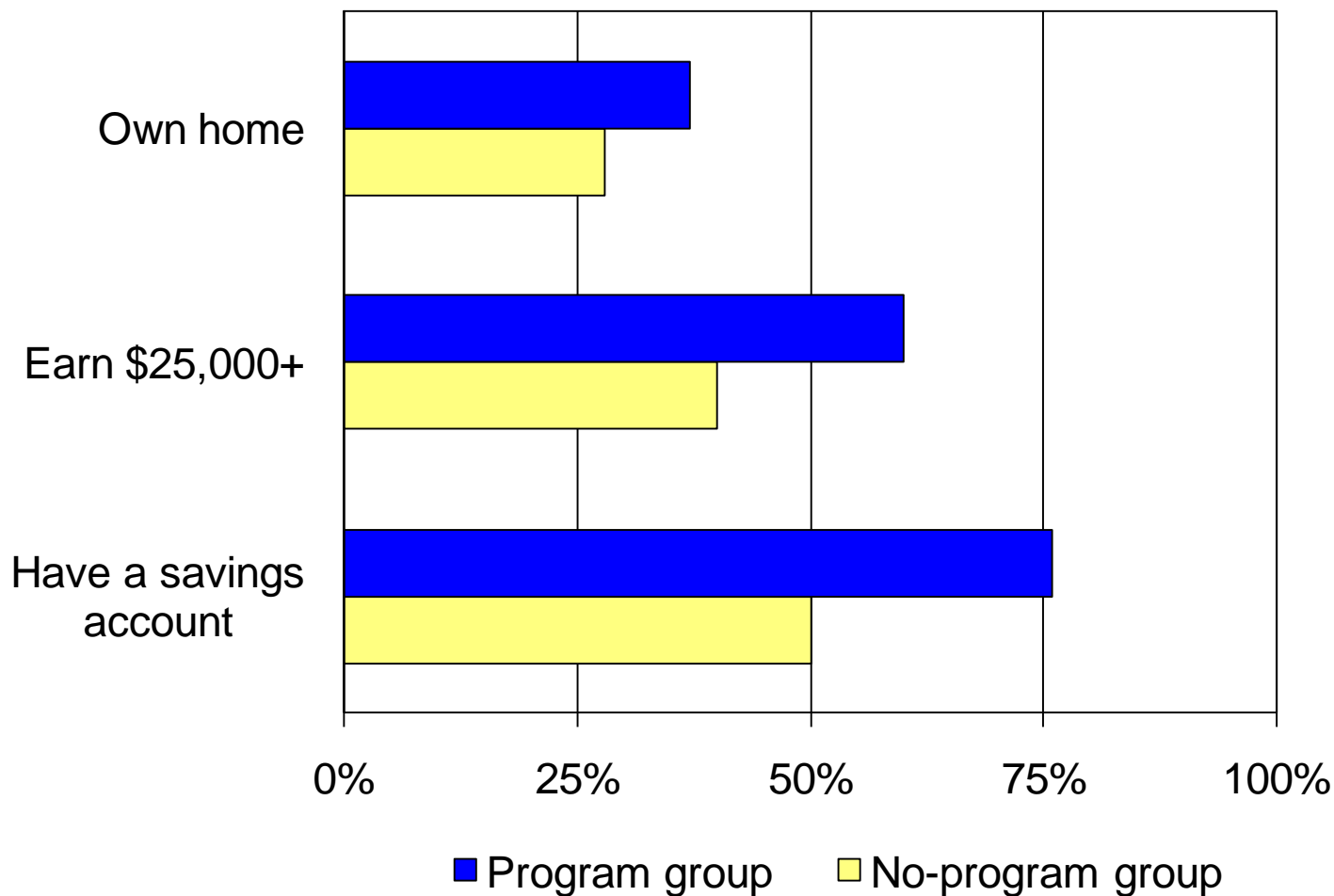
- In early 1960s, 123 children from low-income families in Ypsilanti, Mich.
- Children randomly selected to attend Perry or control group.
- High-quality program with well-trained teachers, daily classroom sessions and weekly home visits.
- Tracked participants and control group through age 40.

Perry: Educational Effects



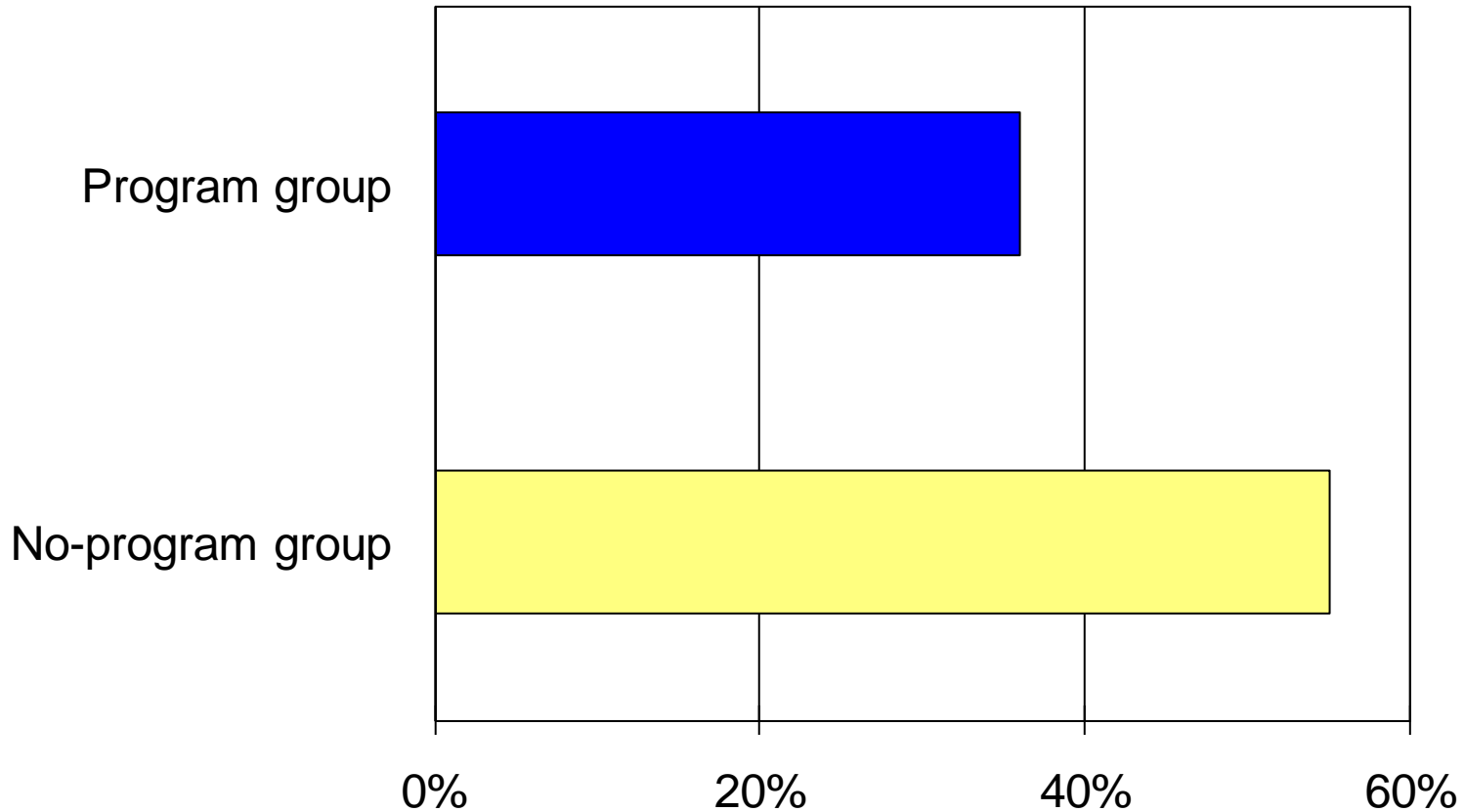
Source: Schweinhart, et al. (2005)

Perry: Economic Effects at Age 40



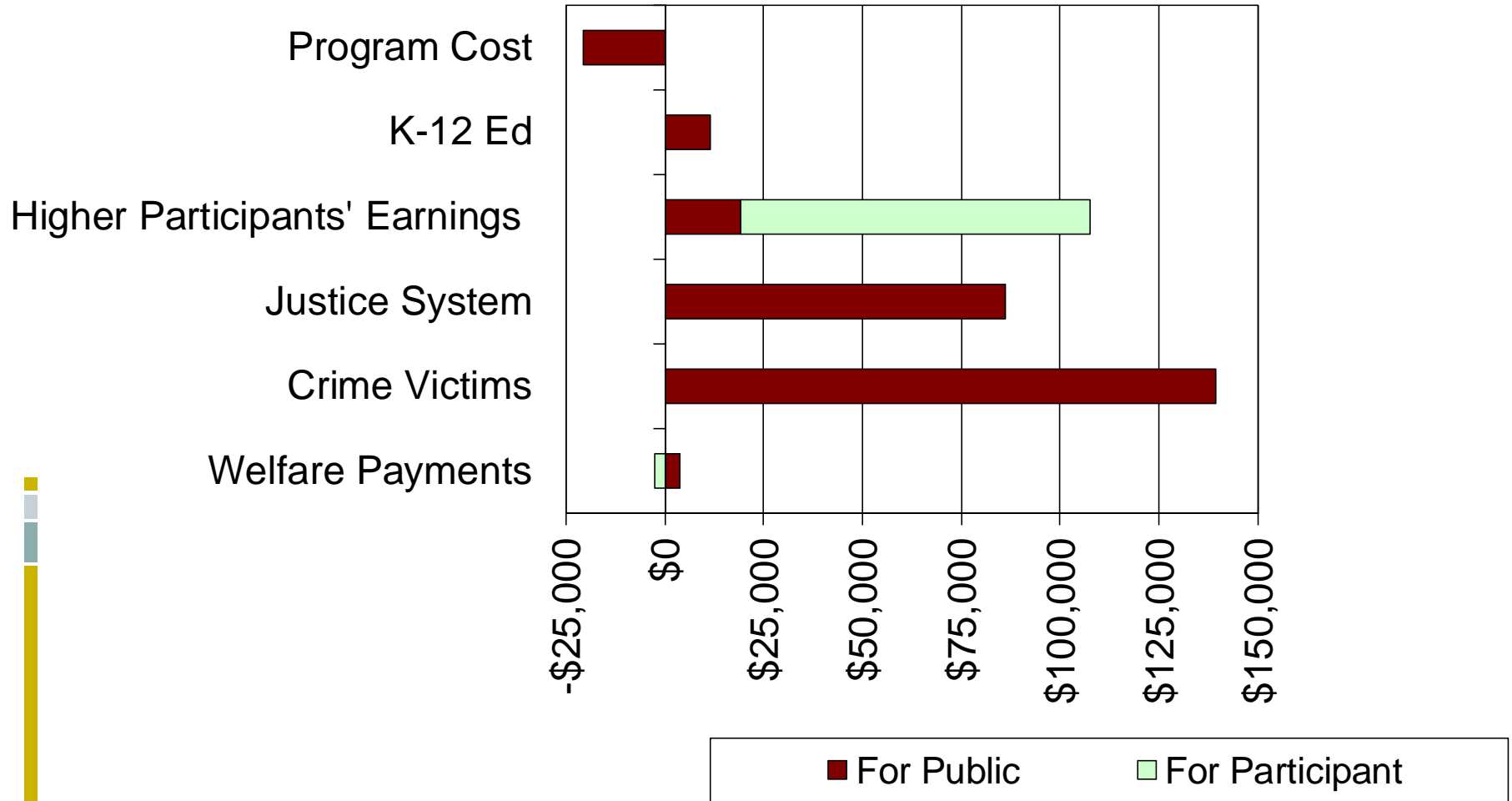
Source: Schweinhart, et al. (2005)

Perry: Arrested 5 or More Times Before Age 40



Source: Schweinhart, et al. (2005)


Perry Preschool Costs and Benefits Over 62 Years



Source: Schweinhart, et al. (2005)



Perry Preschool — Estimated Return on Investment

- Benefit-Cost Ratio = \$16 to \$1
 - Annual Rate of Return = 18%
 - Public Rate of Return = 16%
 - Heckman Reanalysis = 10%
- 

Sources: Schweinhart, et al. (2005); Author's calculations; Heckman, Moon, Pinto, Savelyez, & Yavitz (2010)



Benefit-Cost Ratios for Other Longitudinal Studies

- Abecedarian Educational Child Care
 - \$7 to \$1

- Chicago-Child Parent
 - \$10 to \$1

- Elmira Prenatal/Early Infancy Project
 - \$5 to \$1



Sources: Garcia, Heckman, Leaf, & Prados (2016); Reynolds, Temple, White, Ou, & Robertson (2011); Karoly, et al (1998)



Recent Research Findings

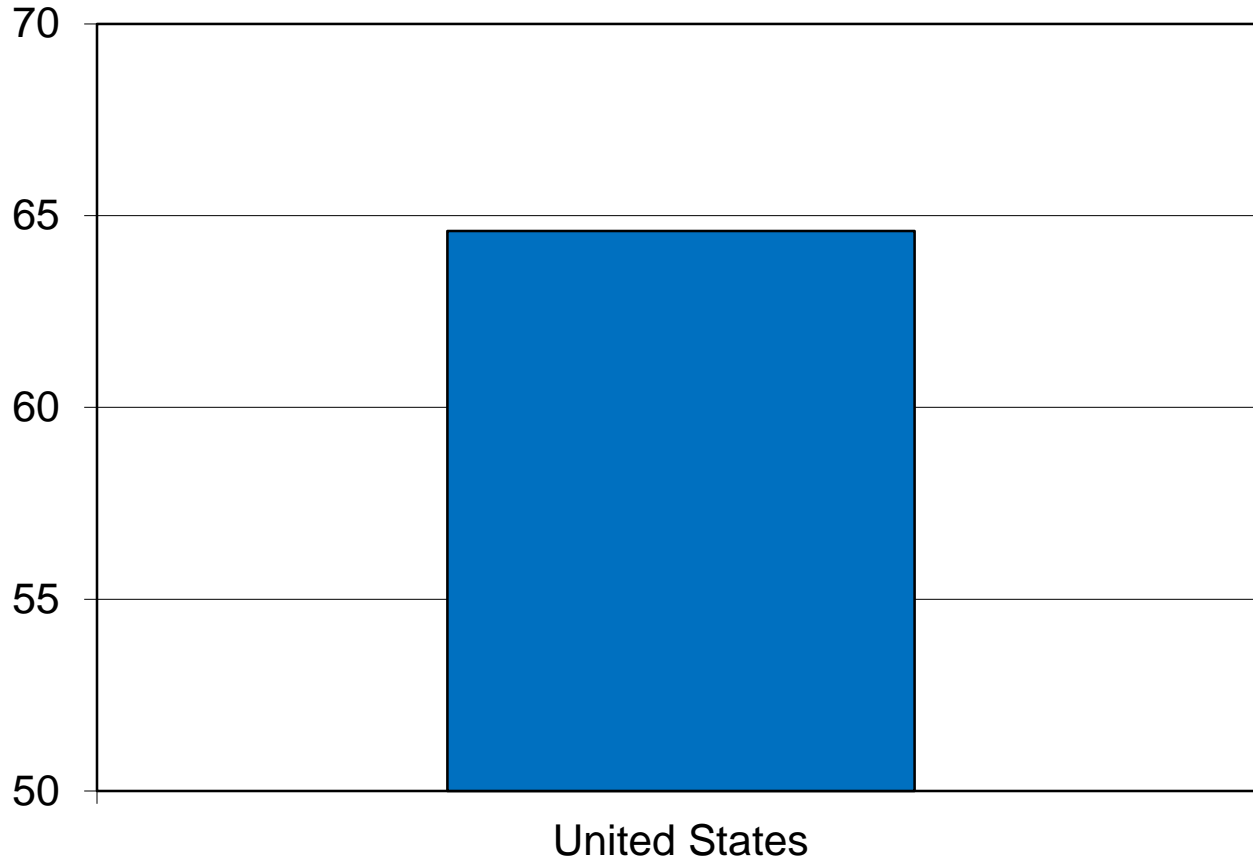
- State preschool program studies show positive gains in vocabulary and emerging math and literacy skills
- Evaluations of Head Start and Early Head Start show positive impact on development with mixed findings regarding persistence
- Analysis of Infant Health and Development Program for children ages 1 to 3 shows reduction in achievement gap
- Michigan's state preschool program associated with stronger graduation rates



Short-Run Benefits

- Fewer low-weight and pre-term births
- Fewer emergency room visits
- Reduced child abuse and neglect
- Reduced grade retention and special education
- Reduced employee absenteeism and turnover

Percent of Children Under 6 Years Old With All Parents in the Labor Force, 2015



Source: American Community Survey



Lessons Learned from Research

- Invest in quality
- Involve parents
- Start early
- Reach vulnerable children and families
- Bring to scale



Key Investments

- Home visiting
- Preschool
- Quality child care
- Parent education
- Child welfare system
- Health care

Sources

Bradbury, B., Corak, M., Waldfogel, J., & Washbrook, E. (2015). *Too Many Children Left Behind: The U.S. Achievement Gap in Comparative Perspective*. Russell Sage Foundation.

Chugani, H.T., Phelps, M.E., & Mazziotta, J.C. (1987). "Positron emission tomography study of human brain functional development." *Annals of Neurology* 22, 487-497.

Dong, M., Giles, W., Felitti, V.J., Dube, S.R., Williams, J.E., Chapman, D.P., & Anda, R.F. (2004). "Insights into causal pathways for ischemic heart disease: Adverse Childhood Experiences Study." *Circulation* 110, 1761–1766.

Garcia, J.L., Heckman, J.J., Leaf, D.E., & Prados, M.J. (2016). "The Life-cycle Benefits of an Influential Early Childhood Program." Human Capital and Economic Opportunity Working Paper Series. The University of Chicago.

Hart, B., & Risley, T.R. (1995). *Meaningful Differences in the Everyday Experience of Young American Children*. Baltimore: Paul H. Brooks Publishing Co.

Heckman, J. J., Moon, S.H., Pinto, R., Savelyez, P., & Yavitz, A. (2010). "The Rate of Return to the HighScope Perry Preschool Program." *Journal of Public Economics* 94(1-2), 114-28.

Karoly, L.A., Greenwood, P.W., Everingham, S.S., Hoube, J., Kilburn, M.R., Rydell et al. (1998). *Investing in Our Children: What We Know and Don't Know About the Costs and Benefits of Early Childhood Interventions*. Santa Monica, Cal.: RAND Corporation.

Nelson, C.A. (2000). Neural Plasticity and Human Development: The Role of Early Experience in Sculpting Memory Systems. *Developmental Science* 3, 115-130.

Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002). "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers." *Educational Evaluation and Policy Analysis* 4(24), 267-303.

Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40*. Ypsilanti, Mich.: High-Scope Press.



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