

The fiscal returns to public educational investments in African American males

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Educational status of black males

- *Attainment:* Black male dropout status at age 20 is 24% against 15% for white males
At age 26-30, black males have 0.7 years less education than white males
- *Test scores:* NAEP test scores for blacks (both sexes) lag those of whites:

	<u>Reading 'below basic'</u>		<u>Math 'below basic'</u>	
	<u>White</u>	<u>Black</u>	<u>White</u>	<u>Black</u>
4 th grade	36%	58%	20%	40%
8 th grade	27%	48%	31%	58%
12 th grade	27%	46%	39%	70%

- *Progression:* Compared to all males, black males more often repeat grades [12%-23%], are suspended [15%-25%], and are expelled [3%-7%]
- *Pre-school:* Black children enroll at rates 6%p higher than average
- *College:* Black SAT scores are lower (0.3sd); college enrollment is 42% for whites and 32% for blacks; AA degrees are 25% of all degrees and 30% of all black degrees

Stark black–white disparities in K-12 schooling compared to college and pre-school

Causes of educational failure

- *Family income/status*: Black children twice as likely to live in households with income below the poverty line [30%-16%] and most grow up with one parent:

	<u>All</u>	<u>Black</u>	<u>Hispanic</u>
Two married parents	67%	36%	62%
Single mother	25%	55%	27%
Single father	8%	9%	11%

- *Lifestyle choices*: Teenage blacks drink, smoke and use drugs less than the national average [alcohol 10%-18%; cigarettes 6%-12%; marijuana 6%-8%]
- *Family motivations*: Controls for family values and expectations do little to reduce black-white gaps in education or earnings
- *School funding/quality*: Hard to measure, but might be reflected as:
 - Public funding for high-minority districts is ~8% less than low-minority
 - No state aid formula is sufficient to compensate for at-risk status
 - Input productivity: teacher quality, recruitment/turnover, peer effects

Schooling is most flexible, universal, and politically tolerable public investment

Interventions to raise the graduation rate

- Search for interventions with demonstrated impact on high school graduation and with costs of implementation
- Interventions not selected include:
 - Teacher re-allocation / quality
 - Family engagement or involvement programs
 - Raising family incomes (need to be permanent and for young families)
 - Privatization reforms
 - Neighborhood interventions
 - Small schools
 - Specific programs (e.g., Check & Connect, AVID)
- Alternative search for interventions that raise test scores:
 - 1sd increase in 8th grade scores is associated with ~50% fall in dropout rate
 - Impact of test scores on graduation varies by race, sex, and test subject
 - Elementary school test scores do not strongly determine youth/adult outcomes

Effectiveness

Interventions	Details of the intervention	Extra high school graduates if intervention is given to 100 students
Perry pre-school program	1.8 years of a center-based program for 2.5 hours per weekday, child-teacher ratio of 5:1; home visits; and group meetings of parents.	19
Class size reduction	4 years of schooling (grades K-3) with class size reduced from 25 to 15.	18
First Things First	Comprehensive school reform: small learning communities with dedicated teachers; family advocates; and instructional improvement efforts.	16
Chicago child-parent center program	Center-based public pre-school program: parental involvement, outreach and health/nutrition services.	11
Teacher salary increase	10% increase in teacher salaries for all years K-12.	5

Key issues: Targeting the interventions; the ‘mixing problem’; and fidelity of implementation

Cost-effectiveness

Intervention	Extra high school graduates per 100 students	PV program delivery costs per student	Total PV educational costs per new high school graduate ^a
Perry pre-school program	19	\$12,500	\$90,700
Class size reduction	18	\$13,000	\$97,400
First Things First	16	\$5,500	\$59,100
Chicago child-parent center program	11	\$4,700	\$67,700
Teacher salary increase	5	\$2,900	\$120,200

Notes: Costs are present values at age 20 using a 3.5% discount rate. ^a Calculated as the costs of delivering the intervention to 100 students plus induced costs of extra attainment in high school and college divided by the yield of new graduates.

Effectiveness and cost-effectiveness are not obviously correlated

Present values depend on when the intervention is delivered in relation to adulthood

Calculating the fiscal and social benefits of high school graduation

Method for fiscal benefits:

1. Identify “causal impact” of marginal high school graduation (and college progression probability) per black male
2. Identify fiscal benefits as taxes paid and public expenditures on health and crime
Distinguish federal and state/local fiscal benefits
3. Calculate lifetime benefit of each “causal impact” in present values at age 20
4. Test for sensitivity

Method for social benefits:

Same as above, except:

2. Social benefits = fiscal benefits + net private benefits + externalities

Fiscal and social benefits (and private benefits) address different policy questions

Impacts are driven by earnings:

- Graduation influences earnings (OLS estimates approximate to causality)
- Government Medicaid/Medicare programs for under-65s are income contingent (as are welfare and the opportunity cost of crime)
- Education-earnings premiums do not vary much across years of attainment (or race), but consequences of extra earnings do

Involvement in the criminal justice system is strongly education / race-driven:

- 34% of black male dropouts are institutionalized at age 26-30 [12% for graduates]
- >100% of black male dropouts incarcerated in the 1990s in California at ages 25-44 [16% for graduates]
- 60% probability of being arrested before age 35 for black male dropouts
- Black male arrest probabilities are 6-8 times higher than for white males

Externalities:

- Health valuations; savings to crime victims; first-best productivity gains
- Much weaker consensus on the value of these externalities
- Do not count intra-family externalities, e.g. single-parenthood welfare

Lifetime benefits per marginal black male high school graduate
Present values at age 20

	<u>Federal</u>	<u>State/local</u>	<u>Total</u>
Extra income + property taxes	\$148,700	\$18,900	\$167,600
Lower spending on:			
Health programs	\$18,000	\$15,500	\$33,500
Criminal justice system	<u>\$5,600</u>	<u>\$49,900</u>	<u>\$55,600</u>
Total fiscal benefits	\$172,300	\$84,300	\$256,700

	<u>Total</u>
Total fiscal benefits	\$256,700
Net private benefits (net income)	\$258,000
Externalities:	
Health valuation (1.47 QALYs)	\$182,000
Victim costs of crime	\$138,800
Productivity gains	<u>\$95,400</u>
Total social benefit	\$930,900

Benefit-cost ratios per marginal black male high school graduate

<i>Intervention</i>	<i>PV educational costs C</i>	<i>PV fiscal benefits B_f</i>	<i>B_f/C</i>	<i>PV social benefits B_s</i>	<i>B_s/C</i>
First Things First	\$59,100	\$256,700	4.35	\$930,900	15.75
Chicago child-parent program	\$67,700	\$256,700	3.79	\$930,900	13.75
Perry pre-school program	\$90,700	\$256,700	2.83	\$930,900	10.26
Class size reduction	\$97,400	\$256,700	2.64	\$930,900	9.56
Teacher salary increase	\$120,200	\$256,700	2.13	\$930,900	7.74

Sensitivity issues

Factors that would <u>raise</u> the benefit-cost ratios	Factors that would <u>reduce</u> the benefit-cost ratios
<p>Omitted impacts:</p> <ol style="list-style-type: none"> 1. Juvenile crime 2. Intra-family impacts 3. Teen pregnancy 4. Deadweight loss in collecting taxes 5. Wealth accumulation 6. More intensive education for those who would graduate anyway <p>Understated impacts:</p> <ol style="list-style-type: none"> 7. Interventions can be targeted 8. Undercounting of persons in poverty 	<p>Overstated impacts:</p> <ol style="list-style-type: none"> A. Fall in wages with more graduates in the labor market B. Marginal graduate not the same as the average graduate C. No college progression D. Discount rate too low <p>Increasing average costs:</p> <ol style="list-style-type: none"> E. Upward-sloping Average Cost curve for delivery of interventions

Re 7: 12% of all black students are in 6 school districts

Re A: Rising relative wages of graduates/dropouts since 1980; secular trend of skill-biased technical change swamps substitution effects; annual cohort is 305,000

Conclusions

- Clear disparity in education across black males and white males
- Inadequate education is one plausible explanation
- Investments in effective educational programs would raise economic status of black males
- These investments would likely pay-off for taxpayers (although federal Treasury is the main 'beneficiary')
- These investments would almost certainly pay-off for society
- No efficiency-equity trade-off