

Value Added:

The costs and benefits of college preparatory programs

Watson Scott Swail

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The Educational Policy Institute

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Value Added:

The Costs and Benefits of College Preparatory Programs

Dr. Watson Scott Swail
Educational Policy Institute

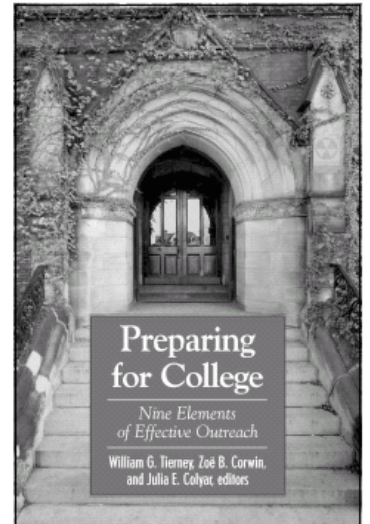
Introduction

A mentoring program in Detroit, Michigan provides services to 300 low-income students each year. A tutoring program in Olympia, Washington serves over 1,200 students across the district. And a mathematics intervention in El Paso, Texas, helps 230 students complete Algebra I by the end of the eighth grade. Each of these programs offers a public good by helping students overcome barriers to educational progress. These programs typify thousands of similar but different efforts across the country, some supported by public funds, others privately. While the prevailing notion is that these programs play an important role in the preparation of at-risk and other underrepresented students for college, there is little empirical evidence related to the actual success of these programs (Gandara and Biel, 1999; Swail and Perna, 2002).

Rarely do stakeholders ask about the effectiveness of outreach programs or whether they are an efficient use of tax dollars and philanthropic funds. But as government budgets continue to be constrained and philanthropic investment gets more competitive, there is a growing acknowledgement of the need to look at the cost/benefit of these programs and whether the investment is worth the outcomes.

This paper is excerpted and updated from a similar chapter written by EPI President Watson Scott Swail for a recently released SUNY Press book, *Preparing for College*, edited by William Tierney, Zoe Corwin, and Julia Colyar of the University of Southern California. *Value Added* considers issues related to the complex proposition that the cost of program delivery is directly and positively tied to the ability of programs to successfully enable students to get into college. Background information on the funding of these programs and the competition for limited fiscal resources are included, and readers are introduced to cost analysis as a method of answering these questions.

Partially because cost analysis can be an extremely complex analytical process, it is seldom used in the education arena. However, when used properly it can be a very powerful tool in defining the true social and economic impacts of programs. To increase the clarity of this discussion, real examples of cost analysis from the literature are provided.

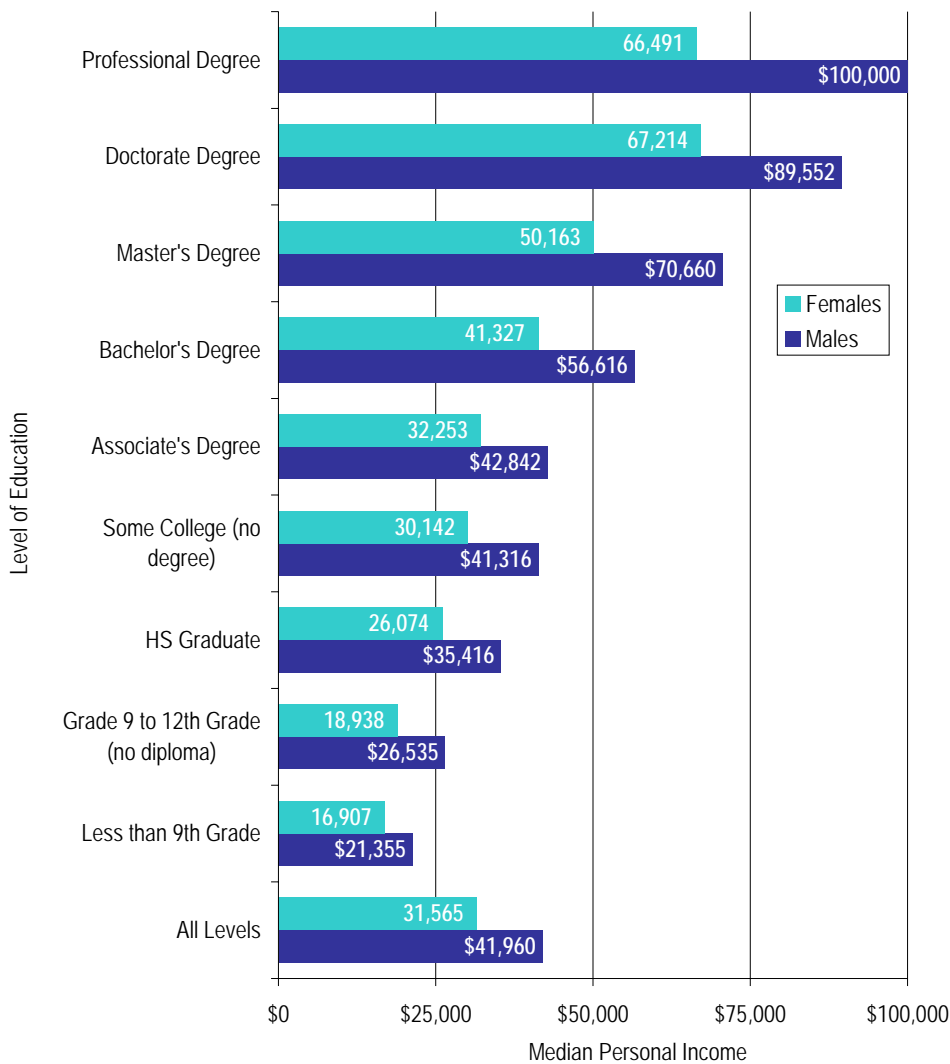


The Returns to Education

This discussion is predicated on the belief that the returns to a college education far outweigh those of not attending a postsecondary institution, and are measured in terms of the development of fiscal and social capital. From a purely financial standpoint, bachelor's degree recipients earn, on average, almost \$20,000 per year more than individuals with only a high school diploma, with males earning about one third more than females (Census, 2004). Over the course of a lifetime, this translates into a net differential of approximately \$770,000, before consideration of investment dividends. Professional students earn about 2.4 times three times that of high school graduates.

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Exhibit 1. Personal Income for Full-Time, Full-year Workers Aged 25-64, by Educational Attainment and Gender, 2003



SOURCE: U.S. Census Bureau, Current Population Survey, 2004 Annual Social and Economic Supplement.

Individuals who attend and graduate from college realize a number of short- and long-term benefits. The short-term consumption benefits of attending college include enjoyment of the learning experience, involvement in extracurricular activities, participation in social and cultural events, and enhancement of social status. Long-term or future benefits include higher lifetime earnings, more fulfilling work environment, better health, longer life, more informed purchases, and lower probability of unemployment (Bowen, 1980; Leslie & Brinkman, 1988; McPherson, 1993).

Over the course of the 1900s, more people enrolled and completed a postsecondary degree than ever before. Today, over 14 million students attend a postsecondary institution in the U.S., due in part to the understanding that a college degree is the key to economic and social success in American society. This growth is not isolated. All groups, regardless of background, are going to college at higher rates than ever before. However, access remains inequitable across these groups. Participation rates for students from low-income backgrounds and students of color significantly lag behind White and Asian students (Gladieux and Swail, 1999).

Public Policy

Public policy has long concerned itself with the plight of individuals from lower socio-economic levels. At the federal level, the 1940s GI bill and the 1960's 'War on Poverty' are landmark examples of government safety net programs to ensure that individuals on the lower rungs of society are given some type of public support. The Higher Education Act of 1965 (HEA) provided student aid and academic support programs targeted to low-income families and students of color. Today, the HEA provides over \$40 billion to students in direct financial aid each year, plus several billion more in special programs for targeted groups. Additionally, state and local governments spend millions of dollars on special programs to facilitate academic preparation and college access for underrepresented students.

The federal government spends over \$1 billion each year on two intervention initiatives to help students overcome social and cultural barriers to higher education. The largest appropriation (\$833 million in FY2004) is through TRIO, which includes the pre-college programs Upward Bound and Talent Search. A second federal initiative and program, GEAR-UP (Gaining Early Awareness and Readiness for Undergraduate Programs), was created during the 1998 reauthorization of the Higher Education Act. GEAR-UP, which was appropriated for \$298 million in FY2004, differs from TRIO by targeting a cohort of students in public schools for services and follow them through to graduation.¹

¹ See Swail and Perna (2002) for a more complete discussion of these and other programs.

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Individual states have also created their own programs, such as Florida's CROP (College Reach-Out Program) and California's CalSOAP (California Student Opportunity and Access Program). The private sector, through a variety of non-for-profit entities, is responsible for programs like the California-based MESA (Mathematics, Engineering, and Science Achievement) and the national "I Have a Dream Foundation." And a few corporate foundations have created their own programs, such as "College Bound," sponsored by the GE Fund.

Each year, programs like these compete for funds in both governmental and philanthropic arenas. Slicing the federal, state, or local budget pie is fraught with difficult choices of competing interests. For instance, only 1 in 6 dollars of federal spending are considered discretionary in nature, meaning only 17 percent of the federal budget beyond the jurisdiction of the main departments of federal authority. Within this discretionary area, health services programs (e.g., NIH), research and evaluation (e.g., NSF), arts and humanities (e.g., NEA), and programming and research through the Department of Education each complete for a slice of the pie. Programs must annually make their case for funding through the appropriations process, but in a shrinking economy, the stakes are greater.

Although the federal government is a primary example, this story is no different at any other level of government. Programs must compete for funds in an environment where the competition can be fierce. Those who do well during an appropriations campaign often do so for two reasons: they effectively motivate their grassroots organizations and stakeholders to pressure the appropriations committee, and second, they effectively illustrate the importance and value of their program. Programs funded by philanthropic organizations also find themselves in a fix during tough times. The recent recession has forced many large philanthropic organizations to reduce funding due to decreases in endowments. Thus, a poor economy invariably affects all programs, regardless of funding source. The policies of choice are difficult at the best of times—much more difficult during economic downturns.

Pre-college programs are not insulated from this reality. Half of all pre-college intervention programs receive federal funding, one quarter receive state funding, and 20 percent receive funding from philanthropic organizations (Swail and Perna, 2000). Therefore, the issues discussed above do impact programs.

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Linking Program Costs with Effectiveness

In an era where budgets are constricted and new sources of funding seem less apparent, the cost effectiveness of public programs is more important than ever. Interestingly enough, this seems to have had little impact on public policy. A number of studies have shown that several large-scale public programs, including *Head Start*, *Upward Bound*, and *Success For All*, have had marginal impact on students from an empirical standpoint. Still, each program has been rewarded with an increasing commitment of federal funds because people ‘understand’ how these programs change lives, even if the research doesn’t necessarily support this conclusion. This is hardly a tried-and-true model for the effective use of public funds.

It must also be considered that the constriction of public funds will become more tenuous as time passes. The aging population will further constrain budgets at all levels of government, and is it plausible that public focus will shift to the elderly. So the competition for program funding is likely to intensify, not decrease, even given a recovered economy. This further underscores the need to look to this chapter’s proposition regarding the impact of funding on program outcomes.

Practice and theory must lead stakeholders to assume that increased program funding is associated with a greater chance of postsecondary access and success for participating students enlisted in these programs. Almost all rely on significant face-to-face contact with students, the most expensive type of intervention. Borrowing from Levine and Nidiffer (1996), at-risk and underrepresented students require “one arm around one child” in order to succeed. At the ConnectED pre-college program conference in 2000, one of the success story participants, a first-generation college student from rural Virginia who graduated with honors from Harvard, commented that it took several pairs of arms to get her through. Thus, interventions to support traditionally underrepresented students are costly and rely heavily on personnel.

On a simplistic level, it is understood that a change in personnel funding or service delivery can have a net impact on student outcomes. Increased funding allows more of everything, while a reduction reduces the flow of services to students. Most practitioners will testify that staffing is critical to their efforts to serve students, and most acknowledge that their ability to impact students relies heavily on services provided through project staffing. However, cost efficiency in the analysis of program funding, staffing, and services on student outcomes must also be considered. In an economic sense, a dollar spent on staffing may not yield one dollar’s worth of impact with regard to student outcomes. Similarly, that same dollar spent on web development, books and supplies, or transportation may not translate efficiently to the program’s primary outcome. Thus, it is not guaranteed that program resources have a direct 1:1 ratio of spending

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versus impacts. In some cases the ratio may be higher (more efficient) or sometimes lower (less efficient).

Efficiency is a paramount concept for consideration. While educators are raised on the notion that program cuts are the antithesis of progress, the corporate world has operated on much different rules mandated by a competitive, global market. The 1990s were a decade of downsizing for corporations and businesses. The business/industry sector found that strategic or surgical workforce cuts may generate a leaner, more efficient system capable of producing greater profits. It is possible that this phenomenon occurs in education as well, but there is little or no evidence substantiating this fact. Approximately 80 percent of public school budgets are spent on personnel. Intervention programs are no different, because they also work in the business of direct services to students and families. Thinking in more pragmatic terms, funding for programs and strategies as discussed in this paper has a direct impact on the following:

- The number of students served;
- The number of teachers or instructors involved in a program;
- The hiring of administrative support, including a director;
- The coordination of volunteers;
- The rental of space for programming;
- The use of transportation (e.g., buses);
- Special programming (e.g., plays, etc.);
- Coaching materials for SAT/ACT test taking; and
- Counseling materials.

Increases in funding allow for more of the above, and a reduction has the opposite effect. Because focus is rarely applied to cost analysis in education, the efficiency argument is also rarely considered. Discussion most often revolves around the impact of programs, usually through test scores or other concrete, tangible measures, but seldom is the extra step taken to look at long-term issues and program accountability. Perhaps stakeholders focus on services and process because they don't have the political longevity, inclination, or resources to focus on outcomes, cost, and effectiveness. Surely all intervention programs could be more efficient. There is no such thing as a truly efficient system, only that which is more or less efficient.

Moving from Belief to Empiricism

To move from the theoretical to the practical world, tangible, empirically-based models to measure program impact and efficiency must be developed. Without models, policymakers will be forced to make prudent policy decisions based on limited information. As well, it can't be assumed that more money allocated to education will have a significant impact on

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student outcomes unless there exists evidence of the linkage between the two (Hummel-Rossi and Ashdown, 2002, p. 1).

Three questions must be answered to produce the information desired. Does the program produce the desired impact that it was designed to produce? Does the benefit of the program outweigh program costs? And third, does the program offer the most cost-effective and appropriate way of reaching the desired goals?

Unfortunately, the ability to answer these questions within the scope of pre-college intervention programs is severely hampered by the lack of data and unsophisticated research methodologies (Gandara, 2002; Gandara and Bial, 1999; Swail and Perna, 2002; Tierney, 2002). According to Gandara, “college interventions suffer from a serious lack of rigorous evaluation, in spite of the millions of dollars that are invested in them annually” (2002, p. 97).

The first question is the foundational question for all analysis. One simply must know how the program impacted students. But that cannot readily be answered because (a) resources are rarely applied to evaluation and analysis, and (b) it isn’t often deemed as a priority. When traveling down the evaluation road, researchers and practitioners typically default to the more simplistic measures of student outcomes, such as test scores, attendance patterns, and retention in school. By doing so, they step away from the more difficult work of addressing other potential benefits of intervention programs, including medium and long-term effects that are often less tangible. Many programs designed to help students get into college do not collect accurate data on student outcomes (Gandara and Bial, 1999; Swail and Perna, 2002), and information about program costs is often not reported or collected from programs, even in large-scale educational evaluations (Karoly et al., 2001).

Cost analysis is rarely used in education, despite significant expenditures within an environment that is significantly more interested in program outcomes and effective use of taxpayer dollars than any previous generation (Hummel-Rossi and Ashdown, 2002). As well, understanding the role of cost is an important factor in program design, population targeting strategies, and implementation (Karoly et al., 2001). Questions of costs and effectiveness are asked of all social programs at one time or another, and society is only beginning to think more of this line of query in education.

Cost Analysis Defined

Cost analyses provide a mechanism to compare program costs to the benefits due to the program, and can be used to promote fiscal accountability, set priorities when resources are limited, and act as an effective

Does the program produce the desired impact that it was designed to produce?

Does the benefit of the program outweigh program costs?

Does the program offer the most cost-effective and appropriate way of reaching the desired goals?

tool to persuade legislators and potential funders of the importance of the program (Sewell and Marczak, 2002). Additionally, cost analysis can help policymakers and program directors estimate a program's costs and benefits before implementation, improve the understanding of program operation and underscore the most cost-effective components, and identify unexpected costs. Disadvantages include the high level of technical skill required, disagreements over the benefit of these types of analyses, and the difficulty in assigning monetary values to qualitative goals. Important to note is that, in the end, cost analyses cannot suggest whether a program or strategy has exhibited a desired impact. It can only describe the costs associated with that impact (Rice, 1996).

Cost-benefit and **cost-effectiveness analyses** are forms of efficiency analysis that attempt to define the benefit of a program or policy versus the cost (Rossi and Freeman, 1993). Although the two forms of analyses are different in scope, the lines between the two often get blurred in the literature. A cost-benefit analysis evaluates the costs and benefits of a program in dollars and then compares the two, and is essentially interesting in answering the question, "is this program worth doing?"

Three analytical steps make up a cost-benefit analysis, although there are many considerations that must be made within each of these steps. The first step is to evaluate the costs of running the program. Second is the evaluation of program benefit. And third is the determination of whether the calculated benefit outweighs the accounted program cost. This is usually done in the form of a cost-benefit ratio, which is nothing more than product of dividing the benefit by the cost. For example, if program cost is accounted at \$10,000 and the determined benefit is \$40,000, then:

$$\text{CB Ratio} = \frac{\$40,000}{\$10,000} = 4.0$$

In the example above, the cost-benefit ratio is 4.0, meaning that the program benefits outweigh program costs by a 4-to-1 ratio. Put another way, the returns to the program are four times that of the investment.

Cost-benefit analysis is generally used to determine the cost versus benefit of a single program, and may be used to determine either the fiscal benefit to the program or institution (e.g., cost savings) or the fiscal/societal benefit to the individual and society (e.g., life-time earnings). With respect to pre-college outreach programs, a cost-benefit analysis can be utilized to determine whether the individual and societal benefits of a community youth mentoring program outweigh the costs of program delivery.

Cost-benefit and cost-effectiveness analyses are forms of efficiency analysis that attempt to define the benefit of a program or policy versus the cost.

A cost-effectiveness analysis differs from a cost-benefit analysis by considering the relative costs and benefits of a number of alternative programs (Rice, 1993). With cost-effective analysis, researchers are generally interested in answering the question, “which of these interventions is more efficient in terms of its use of resources?” Benefits are assumed in a cost-effectiveness analysis, such as when the cost-effectiveness of Program A versus Program B are compared. It is assumed that both programs have about the same impact, but stakeholder interested is in knowing which program does so in a more efficient manner.

Cost analysis is, on a simplistic level, an example of proper use of program budgeting and account practices (Kettner, Moroney, & Martin, 1990). Instead of credits and debits, the work focuses on costs and benefits. The cost side of the equation involves the allocation of dollar values to all program inputs and resources, such as staffing, logistics, and materials. The benefit side is infinitely more complex due to the difficulty in allocating resources to future situations.

Depending on the scope of the study, calculating costs and benefits can be either simple or complex. The further out the benefit to be calculated, the more complex it becomes because social capital must be calculated. For instance, to calculate the costs associated with a pre-college program, one would sum up tangible program costs such as staffing, overhead charges associated with program space, materials, transportation, and perhaps additional costs for special events, such as field trips. One could also add the opportunity costs associated with participating in the program, such as immediate earnings that could be earned during program hours.

On the benefit side, one must then sum up the tangible and less tangible benefits, immediate and future oriented. These may include increased earnings for students who persist and earn a bachelor’s degree, increased tax revenue, and the reduction in incarceration rates and recidivism. Exhibit 2 illustrates the items used in a 1971 cost-benefit analysis of Upward Bound participants.

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Exhibit 2. Description of costs and benefits associated with Upward Bound cost-benefit analysis (1971, Garn).

Costs	Benefits
<ul style="list-style-type: none"> • Additional tuition costs required of Upward Bound students due to higher rates of post-secondary attendance. • Additional expenses of Upward Bound students while in college. • Earnings foregone by Upward Bound students while in college. • Transfer income over the lifetime foregone by Upward Bound students (e.g., unemployment and welfare). 	<ul style="list-style-type: none"> • Increased after-tax lifetime incomes. • Stipends paid to participants during the program. • Scholarships and other grants received by Upward Bound students in college.

SOURCE: (Rossi and Freeman, 1993, p. 385)

Variables such as foregone earnings, unemployment and welfare costs, and after-tax lifetime income involve complex calculations. Because the identification of costing of benefits can be subjective to a certain degree, the outcomes of a cost-benefit analysis are often debated.

Cost analysis takes many forms and is peculiar to the type of program being assessed. Again, many of these analyses are very complex. The scope of this chapter does not allow for an indepth investigation into specific cost analysis treatments. However, to provide a better understanding of how cost analysis works in the real world, it is worth reviewing a few examples from the research literature.

Case Study I. The Supplemental Instruction Experience

The Supplemental Instruction (SI) program, developed at University of Missouri-Kansas City (UMKC) in 1974, provides academic support to students through specific course work. While not labeled as a tutoring program, SI contributes tutoring-like experiences for students on campus. The UMKC SI program, currently in use at over 1,100 institutions nationwide, provides three weekly sessions of academic support for students beginning the first week of class and is open to all students on a voluntary basis.

Participation in SI at UMKC has been equal across all levels of students, with the same number of students from low and high ACT composite score quartiles enrolling. Still, the program targets classes with 30 percent or higher rates of D and F grades. By developing the students' concepts of how to learn with knowing what to learn, the SI program has been known to reduce the number of Ds and Fs in addition to the number of course withdrawals by up to 50 percent.

Following the 1995-96 academic year, SI conducted an internal cost-benefit analysis of their program (UMKC, 1997). Of the 3,655 students enrolled in 41 selected courses at UMKC in 1995, 40 percent (1,454) of the students participated in SI at an average cost per student of \$46.89. According to their analysis, SI students re-enrolled in school and graduated at rates 10 points higher than students who couldn't take SI due to scheduling conflicts. Based on this rate, SI infers that 145 students would have dropped out if not for SI (1,454 students \times 10% = 145). Given that the average undergraduate student spends \$1,750 on tuition, fees, and other expenses each semester, those 145 students provided a revenue increase of \$253,750 to the university (145 \times \$1,750 = \$253,750). This analysis only accounts for one cohort of students. Taking into consideration the full impact of four annual cohorts of freshman students (5,302 students in total), the net retention impact at any one time is argued to be 530 (using the 10 percent retention rate) additional students due to SI. The financial impact resulting from SI is almost \$1 million each year (\$1,750 \times 530 = \$927,500). What is not accounted for here are the costs associated with recruitment and admissions services that must be applied to each admitted student.

Case Study II. The Perry Preschool Program

The cost-benefit analysis of the Perry Preschool program is a benchmark case in the research literature (Karoly et al., 2001; Borman & Hewes, 2001; Schweinhart et al., 1993). Based in Ypsilanti, Michigan, the program served 58 African American children from low socio-economic status backgrounds and with low IQ scores between 1962 and 1967. Program participants began at age three and received two years of services while four-year olds received one year. The Perry Preschool program provided high quality staffing and learning opportunities, with low pupil-teacher ratios. Although the program was small, a good portion of the interest generated by this study stems from the fact that participants from the experimental and control groups were followed through age 27.

Impact of the program was measured through several variables. Program participants realized IQ scores 12 points higher than control participants, and academic achievement was also significantly enhanced through program participation. Although there were no differences in postsecondary participation, the final follow-up (age 27) found lasting differences in employment, welfare, and crime.

In his original cost-benefit analysis of the program, Barnett (1993) found that benefits to society exceeded program costs by a factor of seven-to-one. Karoly et. al (1998), in a re-analysis of the program data, found that the program reduced use of special education, reduced grade retention, increased taxes due to higher employment, lessened reliance on welfare programs and funding, and reduced justice system costs (Karoly et al.,

2001). Exhibit 3 shows Karoly et al.'s cost-benefit comparison of a program cost per child of \$12,148 to a total benefit of \$49,972, for a net benefit of \$37,824. While not reaching Barnett's claim of a seven-to-one benefit, Karoly et al.'s calculation still manages a 4 to 1 cost-benefit ratio.

Exhibit 3. Costs and Benefits: The Perry Preschool Program

	Dollars per Child		
	Due to Mother	Due to Child	Total
Program cost			12,148
Savings to government			25,437
Reduction in education services	*	6,365	
Reduction in health services	*	*	
Taxes from increased employment	*	6,566	
Reduction in welfare cost	*	2,310	
Reduction in criminal justice cost	*	10,195	
Additional monetary benefits			24,535
Increase in participant income net of welfare loss	*	13,846	
Reduction in tangible losses to crime victims	*	10,690	
Total benefits			49,972
Net benefits			37,824

SOURCE: Karoly, Lynn A., Kilburn, M. Rebecca, Bigelow, James H., Caulkins, Jonathan P., Cannon, Jill S., & Chiesa, James (2001). Assessing Costs and Benefits of Early Childhood Interventions. Santa Monica, CA: RAND, p. 57.

*NOTE: * = not measured. All amounts are in 1996 dollars and are the NPV of amounts over time where future values are discounted to the birth of the participating child, using a 4 percent annual real discount rate.*

Case Study III. Success For All

Success for All (SFA) is an early childhood reading program implemented in more than 1,500 schools throughout the United States (Matthews, 2002, p.33). A recent cost-effectiveness analysis of the program (Borman and Hewes, 2001) focused on answering two research questions: what is the relative impact of the program on student success, and what is the cost of program delivery?

With regard to the former, Borman and Hewes tracked the educational outcomes of entering students (grades 1 through 5) through the eighth grade, using program data plus data from two norm-referenced standardized tests: the California Achievement Test (CAT) and the Comprehensive Test of Basic Skills (CTBS). Using a quasi-experimental approach, the researchers were able to discern the academic impact of SFA to students in a control group (thus making it a cost-effectiveness analysis).

For program delivery, the researchers collected several cost estimates. Basing their analysis on Levin & McEwan's Ingredients Model (2001), the analysis summarized the total and marginal costs for program delivery. Marginal costs were limited to training, materials, and professional development. Costs associated with personnel costs within the Baltimore school system were also estimated.

The researchers acknowledged that SFA is an expensive reform model to implement. However, the purpose of the analysis was to determine whether SFA was any more expensive than the alternatives of having students repeat grades or enrolling in special education. The researchers concluded that the mean cost of reaching the eighth grade for SFA students was \$70,428, compared to \$68,850 for control students. This difference is not statistically different.

Based on further adjustments and calculations, the authors found that SFA had a larger impact based on the cost of the program than published studies of other programs. However, a recent re-analysis found that the average SFA student failed to reach grade-level performance by the end of the third grade, and students continued to fall further behind national norms through SFA. "By the end of the fifth grade, they were almost 2.4 years behind" (Matthews, 2002, p. 35). Given that the original Borman and Hewes analysis found the program to be cost effective AND have desirable results, these new findings suggest a different conclusion, and also illustrate how findings from alternative cost analyses can be debated and contradictory.

Exhibit 4. Per-Pupil Expenditures and Sustained Effect Sizes for Four Educational Interventions.

	Annual PPE (in 2000 dollars)	Years of Inter- vention	Total PPE (in 2000 dollars)	Sustained Effect Size	Effect per \$1,000
Success for All	\$603	4.56	\$2,749.68	0.27	0.1
Class Size Reduction to 15					
Nye et al.	\$998	4	\$3,992.00	0.32	0.08
Finn et al.	\$998	4	\$3,992.00	0.22	0.06
Perry Preschool	\$8,929	2	\$17,858.00	0.51	0.03
Abecedarian, Preschool Only	\$10,496	4.5	\$47,232.00	0.53	0.01
<i>Source: Borman and Hewes (200X), p. 34.</i>					

Cost Analysis and Public Policy

Focusing exclusively on cost can also have negative ramifications. According to Rice (1996), while cost analysis can help determine feasibility within a limited resource pool, it provides no information on the effectiveness of the program in meeting the desired needs. “To the degree that an intervention is ineffective, adopting it exclusively on the basis of its relative cost may be a waste of valuable resources, potentially translating into exceedingly high long-term costs” (Rice, 1996, p. 34).

Policymakers often look at per pupil expenditures as a simple default for cost analysis. As understood, there are great disparities in per pupil expenditures (PPE) across counties, states, and regions. For example, the median average PPE for U.S. public schools in 2002 was \$6,657 (NEA, 2002). North Dakota, on one other hand, spent \$4,426 per student, compared to a whopping \$12,345 in the District of Columbia. Valuing Rice’s (1996) statement of the break between feasibility and effectiveness, it is clear that, although the District of Columbia spends almost three times the PPE than North Dakota, per-pupil expenditures do nothing to explain why the latter scores significantly higher on NAEP tests, on average, than DC students (NAEP, 2001). Nor can it be assumed that DC spends three times North Dakota on student learning. Therefore, care must be taken when using a single number, such as a PPE, in a costing model without taking other factors into consideration.

Much damage can be done when cost analysis data are misused. For instance, to suggest that a program is inefficient or too costly to maintain based solely on the number of individuals who meet the final program criteria, without consideration of those who benefit from the program but do not reach the final stated goals, is a careless use of data. One must always attempt to build in to the analysis all unintended positive impacts—or positive externalities—of program. A simple example is the analysis of postsecondary outcomes. Consider the example of a participant in a college intervention program who fails to complete a bachelor’s degree but does manage to complete an associate’s degree. It is quite likely that this individual will lead a productive, tax-paying, community-serving life. Failure to include this individual as a positive benefit of the program in a cost-benefit analysis negatively skews the cost-benefit ratio.

One must also be mindful of misinterpreting a positive cost-benefit analysis as an implication of program feasibility or effectiveness, or the opposite, that a positive impact suggests that the program is cost effective. These misconceptions are common in the literature, where research articles point to the “cost effectiveness” of a program, with no evidence of evaluating program inputs as they relate to outputs. Just because a program has a positive impact does not infer that it is cost effective or efficient. It only implies a positive impact.

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And finally, cost and impact analyses may be largely ignored in the public policy arena (Anderson, 1993). When an evaluation has a negative finding on a program, it is common for organizations and individuals to critique the evaluation on methodological grounds and attempt to negate the evaluation. This was illustrated recently when a 1999 study of Upward Bound was released with findings that didn't paint an overall positive picture of the large-scale federal program (Myers and Schirm, 1999). Critics quickly pointed to methodological problems associated with the choice of control group participants, putting the evaluation into question. Another federal program, Head Start, has traditionally battled poor research findings. As with Upward Bound, critics quickly lambasted these evaluations. Head Start remains a viable and important program for pre-school youth that enjoys bipartisan support in Congress.

Thus, even thoroughly and appropriately conducted evaluations and assessments rarely determine the final outcome for a program. Anderson (1993) suggests that he is unable to think of a governmental program that was terminated "solely as a consequence of an unfavorable systematic evaluation" (Anderson, 1993, p. 292).

Suggestions for Improving the Quality of Inquiry

For those who are deeply interested in cost analysis as a tool to better understand their program and to provide evidence of their program's social impact, strongly recommended reading includes Barnett's (1993) nine-step process for cost-benefit analysis and Rice's (1997) template-driven model for unpacking costs and weighting benefits. It is worth reminding readers that these can become very complex, and outside expertise may be required.

Whether one actively pursues a cost analysis, or whether one is reviewing information from a cost analysis, four issues are worthy of consideration:

Quality of information. An analysis is only as good as the data. For the cost side, taking numbers directly from budget information may not be accurate. Researchers may have to determine actual costs associated with program operation from a variety of sources. On the benefit side, the further out one gets from the program (in terms of time), the more difficult it is to predict data that accurately depicts program benefits. The benefit portion of the analysis can require subjective decisions about the weighting or valuing of data, thus must be considered carefully.

Short vs. long-term impact. Do stakeholders know what happens to students well after the intervention is complete? Given that a number of studies find that the effect of interventions often fade over time (Borman and Hewes, 2001; Currie and Thomas, 2000), it is important to understand this phenomena, as it could impact the design and delivery of program

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services. Unfortunately, long-term analysis often requires longitudinal analysis of participants, which is tremendously costly. Additionally, defining the scope of the study at the outset will determine whether this is a short-term look or a long-term perspective.

Tangible vs. intangibles. Counting who completes, who graduates, or who scores well is generally not difficult work in itself. Calculating the impacts or defining the costs on seemingly intangible items, such as the “cost” of volunteers, or the societal benefit of an intervention, is much more complex. “Although it is often difficult to assign a value to many of the inputs and outputs of educational interventions, their inclusion in the total cost and effectiveness estimates is essential. This gives policymakers a realistic sense of the overall cost of the intervention, not just to the budget but to the community” (Rice, 1996, p. 37).

Micro vs. Macroeconomics. Researchers are generally inward rather than outward looking. Sometimes limited research budgets are responsible, but other, external factors in the analysis must be considered. Otherwise, the research is encapsulated by the researcher’s protected notion of ‘what is,’ with little regard for the impact of the program on other parts of society. Thus, the researcher must first define whether the interest is in determining the immediate, internal program effectiveness and benefits, or whether the long-term impact on the individual and society must be brought into the analysis.

Final Comments

With accountability the catch-phrase of the day, knowledge of program effectiveness and impact is becoming more critical, especially in light of recent budget crunches at all levels of government. The need to produce evidence of program impact is important for sustained fiscal support.

Pre-college programs often provide meaningful, individualized contact between a youth and an adult that is not typically available in the communities or schools from which they hail. For public policy, this is the most difficult type of policy to craft. As Levine and Nidiffer (1996) state, getting poor people into college “is retail, not wholesale, work in the sense that it requires intensive involvement with individuals.” This type of effort requires personnel-driven budgets, which, as discussed, are typically the most expensive line item in the program budget. Therefore, increases in funding almost assuredly impacts the level or scope of service provided.

In the final analysis, costs matter. Interventions that expend \$4,500 per student undoubtedly offer more robust services than those that average \$300. All programs could stand a little efficiency testing, and perhaps there are more efficient ways to help needy students prepare for and access college than now exist. For now, stakeholders must redouble their effort to uncover the findings from current programs and promote continuous improvement of these efforts. For this to be realized, governmental agencies and policymakers must demand more information about how these programs operate and back it up with the necessary funding to make that happen. Unfunded mandates won't cut it. Philanthropic organizations, too, must demand a higher level of empirical evidence and support the needs of programs to that end, and also provide the financial support to make it happen. And program practitioners must push beyond current knowledge and practice and begin thinking and practicing high-level analysis and program management well before it comes to them in stated policy.

Of course, cautious must continue to be exercised about the use of numbers and statistics in defining social interventions. Einstein once said that not everything that can be counted counts, and not everything that counts can be counted. The use of cost analysis to explore the effectiveness of programs is an important tool, but results used out of context or in a truncated fashion can be more dangerous to the development of prudent public policy.

All programs could stand a little efficiency testing, and perhaps there are more efficient ways to help needy students prepare for and access college than now exist.

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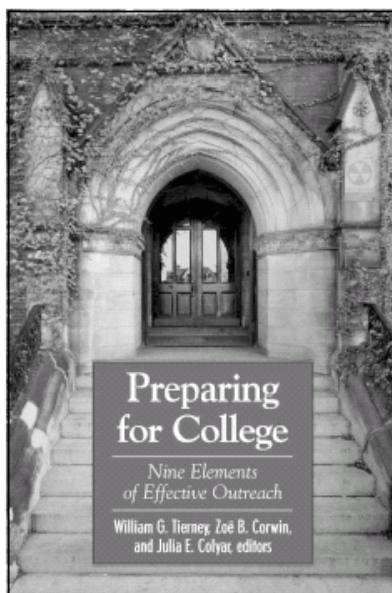
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