Exploratory Return-on-Investment Analysis of Local Workforce Investments

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Introduction

Travis County began investing local tax dollars in workforce development services for the disadvantaged in the mid 1990s. These investments include programs which provide both short- and long-term occupational training, adult basic education, and job readiness/job search supports. To better understand the value of these investments, Travis County contracted with the Ray Marshall Center for the Study of Human Resources at the University of Texas' LBJ School of Public Affairs in 2006 to conduct an ongoing evaluation of program outcomes and impacts. There are eight published reports stemming from the evaluation (Smith et al., 2007a&b, 2008a&b, 2010a&b, and 2011a&b); all are available on the Center's website www.raymarshallcenter.org.

In this paper, researchers with the Ray Marshall Center present exploratory findings from a cost-benefit analysis of Travis County's investment in long-term workforce development through Capital IDEA. Benefits were estimated as part of a quasi-experimental impacts analysis (described in more detail in Smith et al., 2011a); cost data were obtained directly from Capital IDEA.

CAPITAL IDEA

Capital IDEA, a nonprofit workforce intermediary based in Austin, Texas, offers occupational skills training and extensive support services to low-income residents, concentrating on long-term engagement to improve education and labor-market outcomes. Capital IDEA takes a sectoral approach, focusing selectively on occupations in high demand typically with starting wages of $16 per hour or more in health care, information and electronic technologies, utilities, and skilled trades. Fully three-quarters of Capital IDEA's training is in nursing and allied health careers. Its training is usually provided through Austin Community College.

Capital IDEA's practice includes an extensive orientation and enrollment process that requires applicants to undergo a series of academic, financial, and other assessments. Through this process, Capital IDEA identifies candidates who have sufficient math and language skills to be successful in college-level coursework; who will be able to handle the financial pressures of longer-term training without resorting to student loans; and who have the drive and determination necessary for success.

A key feature of Capital IDEA's approach is providing wrap-around services to participants to ensure that their participation is successful. Participants meet (or at least talk) weekly in what are called VIP (Vision, Initiative, Perseverance) Sessions that are part counseling and part peer support. Participants also receive no-cost training, childcare and transportation assistance, and other assistance as needed. In turn, participants are expected to give back to the program by supporting others in their cohort, volunteering in the community, and helping to shape the experience of future participants.

Return on Investment Analysis

Individuals who enrolled in Capital IDEA in 2003-2004 and who either completed or dropped out of the program by 2010 were included in the impacts analysis[1]. A matched comparison group was drawn from Travis County residents who registered with *WorkinTexas,* the state's job-matching website, or who received employment services at a local One-Stop Career Center. Participants and comparison group members were matched along 18 dimensions, including demographics and prior employment and earnings; there were no statistically significant differences between the two groups. Impacts were measured seven years following program entry.

Participation in Capital IDEA was associated with a 10.9 percentage point increase in quarterly employment; a 10.8 percentage point gain in monetary eligibility for unemployment insurance benefits (i.e., monetarily eligible based on earnings histories in the event of a job loss); and a $1,223 increase in average quarterly earnings in relation to the comparison group.[2]

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[1] See Smith et al., (2011a) for a full discussion of the quasi-experimental impacts analysis of Capital IDEA. This publication and others related to the local workforce services evaluation are available on the RMC website at www.raymarshallcenter.org.

[2] All impacts were statistically significant at the $p<.01$ level.

The average participant spends 18 months in the Capital IDEA program. While costs associated with participation in Capital IDEA varied widely each year, the average annual cost per participant for 2003-2010 was $4,306. These costs include tuition, books, child care and other support services, as well as staff and administrative expenditures. Approximately two-thirds of Capital IDEA's budget comes from government sources, with the remaining one-third funded by others, including employers, philanthropic organizations, individuals, and alumni.

The return on investment (ROI) analysis builds on a prior framework developed for the Texas Association of Workforce Boards.[3] That work examined returns over both 5-year and 10-year periods as participants were engaged in both short- and long-term workforce services. The analysis presented here looks at 10-year and 20-year periods given the long-term nature of Capital IDEA's occupational skill investments. The analysis provides estimates of the *net* returns to participants, taxpayers and society associated with participation in Capital IDEA. The estimation approach and key assumptions guiding the analysis are as follows:

- ***Opportunity Cost.*** We have factored in the imputed value of participants' time as a measure of their foregone earnings while receiving program services. While Hollenbeck and Huang (2006) used comparison group earnings during the treatment period to estimate foregone earnings, the approach here is somewhat different. By design, Capital IDEA participants typically work at least part-time while in training; therefore, we have used the *difference* between comparison group and treatment group earnings for the treatment group's in-program period as the measure of opportunity cost.
- ***Impact Estimation***. We have estimated *incremental impacts* for participants from Capital IDEA using a quasi-experimental design, comparing key outcomes for participants and comparison groups of similar non-participants who received only low-intensity services such as core services through WIA

[3] See King et al. (2008) for more information on this analysis.

or *WorkinTexas,* a statewide computerized job matching program operated by the Texas Workforce Commission. Actual impacts are presented for years one through seven, while earnings in years eight through ten are calculated based on the exhibited trend of 20 percent annual growth. Taking a conservative approach, in years eleven through twenty, earnings are held constant at the year-ten level.

- ***Fringe Benefits.*** We have imputed an additional 10 percent of earnings impacts to capture the value of associated employee fringe benefits, following Hollenbeck and Huang (2006) who estimated the value of employee benefits at 20 percent based on recent Bureau of Labor Statistics (BLS) and US Chamber of Commerce survey data. We have adjusted this figure downward by half (to 10 percent) to reflect the fact that many workers no longer have access to full employer-provided fringe benefits, relying on recent coverage estimates for health and retirement, annual and sick leave, and other benefits (see BLS 2008, EBRI 2005).
- ***Employer Productivity and Reduced Vacancy Days.*** We imputed employer impacts for increased productivity and the value of reduced vacancy-days. While Barron et al. (1997) have estimated that employers capture 90 percent of the benefits of OJT in the form of increased productivity when they provide employer-designed training, other studies suggest that the value of training and related services that workers themselves choose is of less value to employers (e.g., Bishop 1991). We have constrained our imputed values for employer impacts, setting the estimate of employer benefits conservatively at just 10 percent of the value of participant earnings impacts.
- ***Taxes***. We have also imputed the value of federal, state and local taxes paid on estimated earnings impacts, computing the percentage shares that taxes represent of earnings. We have conservatively estimated taxes for year one at 18 percent of the earnings impact, and taxes for all other years at 13 percent of the earnings impact.
- ***Welfare and Food Stamps.*** Finally, we estimated the value of reduced welfare and food stamp payments based on earnings impacts. Due to welfare reforms in the mid-to-late 1990s, TANF and food stamp benefits

represent only a very small component of cost savings from participation in workforce services. In year one, we estimate the reduction at five percent of the earnings impact, in other years it is estimated at three percent.

- ***Discount Rate***. In recent years, all money rates and rates of inflation have fallen dramatically and are expected to remain relatively low for the foreseeable future. Boardman et al. (2006) recommend using more modest discount rates, as are favored by the Government Accountability Office and the Congressional Budget Office. We have utilized a 2 percent (nominal) social discount rate to render benefits and costs in present value terms.

- ***Sensitivity Analysis***. We have examined the effects of varying some parameters, including earnings in years eight through ten and the discount rate. These sensitivity analysis results are reported in Appendix A.

Results

In this section, the net returns from participation in Capital IDEA are presented from three main perspectives of interest: participants, taxpayers, and society (see Boardman et al. 2006). Participants in workforce services include individuals and employers, both of whom are served by and benefit from workforce services. The participant perspective, thus, reflects net benefits to both sets of "customers." Taxpayers in benefit/cost analysis are those not benefiting directly from workforce services; they are essentially the ones paying for the workforce services through taxes. The taxpayer perspective is often referred to as the "rest of society." The society perspective is the sum of participants and taxpayers. Shifting to the societal perspective results in a number of key benefits being "netted out," in that they are transfers between participants and taxpayers. For example, welfare benefits and tax payments are transfers between these two groups and are not reflected in the computations of net returns to society as a whole.

PARTICIPANT RETURNS

Participants, including individuals and employers, appear to garner considerable net benefits from investments in Capital IDEA over the 10-year and 20-year time periods for which returns are projected. As shown in Table 1, costs are $1,511 per participant, or $1,463 in present value terms, mostly reflecting earnings foregone by participants while receiving services. It should be noted that, by design, most Capital IDEA participants work while completing training and therefore their foregone earnings are lower than might otherwise be expected.

Table 1 presents expenditures, returns, and returns on investments from the perspective of Capital IDEA participants. Total returns for participants over the 10-year period, expressed in present value terms, equaled $64,712, yielding a 4,423 percent total return. Converting to the more standard internal rate of return (IRR), which benefit/cost analysis uses for annualized ROI calculations, yields an annualized ROI for the 10-year period of 73 percent for participants. Most of the returns derive from increased earnings and employer productivity, as well as the lower foregone earnings given Capital IDEA's model encouraging part-time employment while in training. These results suggest that every dollar invested in Capital IDEA returns $44.23 over ten years to participants.

Total returns for participants over the 20-year period, expressed in present value terms, equaled $201,975; yielding a 13,806 percent total return. This represents an annualized ROI for the 20-year period of 74 percent for participants. These results suggest that every dollar invested in Capital IDEA returns $138.06 over twenty years to participants.

Table 1. Returns on Investment from Capital IDEA's 2003-2004 Cohorts – Participant Perspective

	10-Year Period	20-Year Period
Expenditures/Participant		
Administration & Program Services		
Foregone Participant Earnings	$1,511	$1,511
Total Expenditures	$1,511	$1,511
Present Value of Total Expenditures	**$1,463**	**$1,463**
Returns/Participant		
Earnings	$75,895	$255,005
Fringe Benefits	$5,928	$23,839
Employer Output/Vacancy-days	$5,928	$23,839
Welfare and Food Stamps	-$2,266	-$7,639
Taxes	-$9,839	-$33,123
Total Returns	$75,646	$261,921
Present Value of Total Returns	**$64,712**	**$201,975**
Returns on Investment		
Net Present Value of Returns	$63,249	$200,512
% Returns Over Time Period	4,423%	13,806%
ROI (IRR) Over Time Period	**73%**	**74%**

TAXPAYER RETURNS

Because Capital IDEA's program is largely supported by local tax dollars from Travis County and the City of Austin (about two-thirds of its budget), program administration and services costs are included in the computations from the taxpayer perspective. Average costs for the Capital IDEA program are estimated at $4,306 per year. Since the average participant spends 1.5 years in the program, total costs are estimated at $6,459 on average, or $6,290 in present value terms.

Table 2 presents expenditures, returns, and returns on investment from the taxpayer perspective. The stream of taxpayer returns from the investment in Capital IDEA over the 10-year period, expressed in present value terms, is $10,382. This is largely due to the fact that taxpayer returns are limited to reductions in welfare and food stamp payments and increased tax receipts. The total returns are estimated at 165 percent, with an annualized ROI for the 10-year period estimated at 9 percent for taxpayers. Therefore, each dollar invested in Capital IDEA is associated with returns to taxpayers of $1.65 over the 10-year period.

Over the 20-year period the stream of returns to taxpayers is estimated at $31,499, expressed in present value terms. The total returns for taxpayers are estimated at 501 percent, with an annualized ROI for the 20-year period estimated at 17 percent. Therefore, each dollar invested in Capital IDEA is associated with returns to taxpayers of $5.01 over the 20-year period.

Table 2. Returns on Investment from Capital IDEA's 2003-2004 Cohort – Taxpayer Perspective

	10-Year Period	20-Year Period
Expenditures/Participant		
Administration & Program Services	$6,458	$6,458
Foregone Participant Earnings		
Total Expenditures	$6,458	$6,458
Present Value of Total Expenditures	**$6,290**	**$6,290**
Returns/Participant		
Earnings		
Fringe Benefits		
Employer Output/Vacancy-days		
Welfare and Food Stamps	$2,266	$7,639
Taxes	$9,839	$33,123
Total Returns	$12,104	$40,762
Present Value of Total Returns	**$10,382**	**$31,499**
Returns on Investment		
Net Present Value of Returns	$4,092	$25,209
% Returns Over Time Period	165%	501%
ROI (IRR) Over Time Period	**9%**	**17%**

SOCIETAL RETURNS

From the perspective of society as a whole, a number of factors in the computations change. The costs associated with Capital IDEA include foregone earnings as well as program administration and services. Taxes, welfare, and food stamp impacts are "netted out" of the calculations; while they are costs to one group, they are benefits to another. Thus, the returns presented in Table 3 exclude taxes, welfare, and food stamp impacts.

The present value of all costs associated with Capital IDEA is estimated at $7,753. Over the 10-year period, total returns to society rise to a present value of $75,094 or an estimated 969 percent. The annualized ROI for society over the 10-year period is 39 percent. Thus, for every dollar invested in Capital IDEA, net returns to society are $9.69 over ten years.

Over the 20-year period, total returns to society are estimated at a present value of $233,474 or 3,011 percent. The annualized ROI for society over the 20-year period is 43 percent. Thus, for every dollar invested in Capital IDEA, net returns to society are $30.11 over twenty years.

Table 3. Returns on Investment from Capital IDEA's 2003-2004 Cohort – Societal Perspective

	10-Year Period	20-Year Period
Expenditures/Participant		
Administration & Program Services	$6,458	$6,458
Foregone Participant Earnings	$1,511	$1,511
Total Expenditures	$7,969	$7,969
Present Value of Total Expenditures	**$7,753**	**$7,753**
Returns/Participant		
Earnings	$75,895	$255,005
Fringe Benefits	$5,928	$23,839
Employer Output/Vacancy-days	$5,928	$23,839
Welfare and Food Stamps		
Taxes		
Total Returns	$87,751	$302,683
Present Value of Total Returns	**$75,094**	**$233,474**
Returns on Investment		
Net Present Value of Returns	$67,341	$225,721
% Returns Over Time Period	969%	3011%
ROI (IRR) Over Time Period	**39%**	**43%**

Returns from a Broader Cost Perspective

Beyond Capital IDEA's budget-based expenditures and foregone participant earnings, participants themselves (with the assistance of program staff) leveraged additional resources to finance training and support their families while in training. These additional resources are primarily Workforce Investment Act (WIA) and Child Care and Development Fund (CCDF) dollars administered by the local Workforce Solutions – Capital Area Workforce Board. Capital IDEA records from 2004-2010 report an average of $816 annually leveraged by each participant.[4] The following return estimates for taxpayers and society include these additional costs in the calculations. Note that participants are not included in this set of return estimates as their costs did not change as a result of these leveraged resources.

Taxpayer Returns

As before, the average participant experience is used for the calculations, including a time-in-program of 1.5 years. The average total cost to taxpayers for Capital IDEA's 2003-2004 participants, including expenditures from Capital IDEA's budget as well as participant-leveraged resources, was $7,683. Based on a discount rate of 2%, the present value of total expenditures is $7,482.

Table 4 presents the broader-based costs and related returns on investment from the taxpayer perspective. The stream of taxpayer returns from the investment in Capital IDEA and its participants over the 10-year period is $10,382 in present value terms. Total returns to taxpayers are 139%, which translates into an annualized ROI of 6% over the 10-year period. In other words, each dollar invested in Capital IDEA and its participants is associated with returns to taxpayers of $1.39 over 10 years. The broad-based ROI estimate is about one-third lower than ROI estimate based solely on Capital IDEA's budget for the 10-year period (6% versus 9%).

[4] 2003 data were unavailable.

The stream of taxpayer returns over the 20-year period from investments in Capital IDEA and its participants has a present value of $31,499. Total returns to taxpayers over the 20-year period are estimated at 421%, or an annualized ROI of 15%. This translates to $4.21 returned to taxpayers over the 20-year period for every dollar invested in Capital IDEA and its participants. The broad-based ROI estimate is approximately one-eighth lower than the ROI estimate based solely on the Capital IDEA budget over the 20-year period (15% versus 17%).

Table 4. Broad-Based Costs and Returns on Investment from Capital IDEA's 2003-2004 Cohorts – Taxpayer Perspective

	10-Year Period	20-Year Period
Expenditures/Participant		
Administration & Program Services	$6,458	$6,458
Participant Leveraged Resources	$1,224	$1,224
Foregone Participant Earnings		
Total Expenditures	$7,682	$7,682
Present Value of Total Expenditures	**$7,482**	**$7,482**
Returns/Participant		
Earnings		
Fringe Benefits		
Employer Output/Vacancy-days		
Welfare and Food Stamps	$2,266	$7,639
Taxes	$9,839	$33,123
Total Returns	$12,104	$40,762
Present Value of Total Returns	**$10,382**	**$31,499**
Returns on Investment		
Net Present Value of Returns	$2,900	$24,017
% Returns Over Time Period	139%	421%
ROI (IRR) Over Time Period	**6%**	**15%**

Societal Returns

The societal perspective captures both the participant and taxpayer perspectives in estimating returns on investment. Costs include administration and program services paid from the Capital IDEA budget, participant leveraged resources (particularly WIA and CCDF funding), and foregone participant earnings for their time in training. As before, welfare and taxes are excluded from the returns estimates as they are simply transfers between participants and taxpayers.

Table 5 presents the broader expenditures and related returns on investment from the societal perspective. Over the 10-year period, total expenditures for Capital IDEA and its participants are estimated at a present value of $8,945. The stream of returns to society over the period has an estimated present value of $75,094. Total returns to society over ten years are estimated at 839%, or an annualized ROI of 36%. This translates into a net return to society of $8.39 for every dollar invested in Capital IDEA and its participants over the 10-year period. Comparatively, ROI estimates from the broader-based perspective are slightly lower than ROI estimates based solely on Capital IDEA's budget (36% versus 39%).

For the 20-year period, total costs from investments in Capital IDEA and its participants remain the same. The stream of returns to society over 20 years is $233,473. Total returns are estimated at 2,610% over the 20-year period, with an annualized ROI of 40%. In other words, every dollar invested in Capital IDEA and its participants returns $26.10 to society over the 20-year period. Comparatively, the broad-based ROI estimate for the 20-year period is slightly lower than the ROI estimate based solely on the Capital IDEA budget (40% versus 43%).

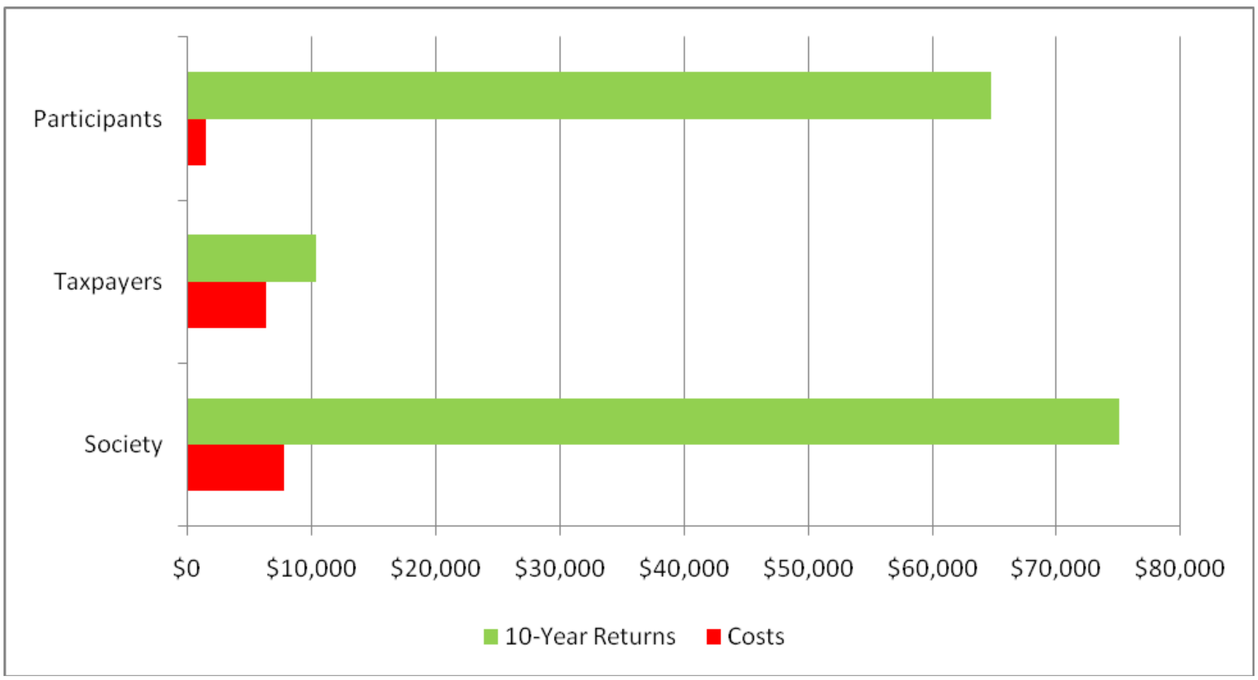
Table 5. Broad-Based Costs and Returns on Investment from Capital IDEA's 2003-2004 Cohorts – Societal Perspective

	10-Year Period	20-Year Period
Expenditures/Participant		
Administration & Program Services	$6,458	$6,458
Participant Leveraged Resources	$1,224	$1,224
Foregone Participant Earnings	$1,511	$1,511
Total Expenditures	$9,193	$9,193
Present Value of Total Expenditures	**$8,945**	**$8,945**
Returns/Participant		
Earnings	$75,895	$255,005
Fringe Benefits	$5,928	$23,839
Employer Output/Vacancy-days	$5,928	$23,839
Welfare and Food Stamps		
Taxes		
Total Returns	$87,751	$302,683
Present Value of Total Returns	**$75,094**	**$233,474**
Returns on Investment		
Net Present Value of Returns	$66,149	$224,529
% Returns Over Time Period	839%	2610%
ROI (IRR) Over Time Period	**36%**	**40%**

Summary

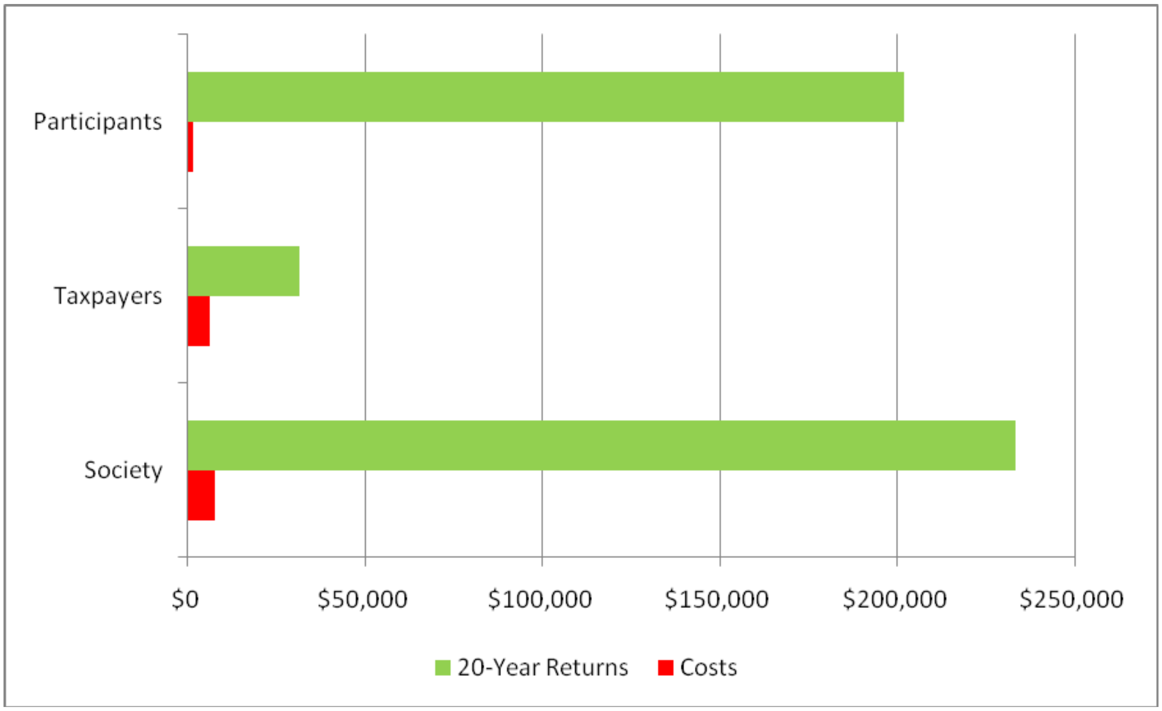
Summing up the return on investment results, we examined investments in Capital IDEA from three perspectives – participants, taxpayers, and society – and examined costs associated with Capital IDEA training as well as resources leveraged by participants. We found that for all perspectives considered, the net returns are both positive and substantial. Figure 1 below presents the 10-year findings in a graphical format, with the returns from investments in Capital IDEA participation depicted in the top bar and costs depicted in the bottom bar. Figure 2 presents the 20-year findings following the same format. All are expressed in present value terms.

Figure 1. Costs and Ten-Year Returns from Capital IDEA's 2003-2004 Cohorts



Using the conventional internal rate of return formulation to produce annualized figures, the 10-Year annualized ROI estimates for investments in Capital IDEA range from a low of 9% for taxpayers to a high of 73% for participants, with society in the middle at 39%.

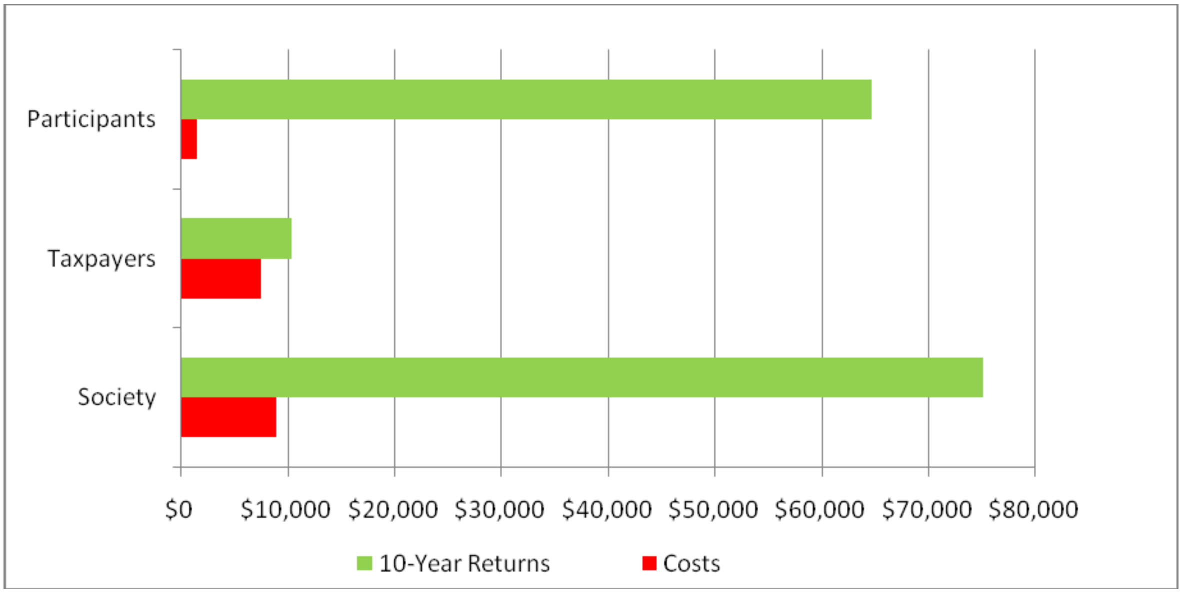
Figure 2. Costs and Twenty-Year Returns from Capital IDEA's 2003-2004 Cohorts



The 20-Year ROI estimates for investments in Capital IDEA range from a low of 17% for taxpayers to a high of 74% for participants, with society in the middle at 43%.

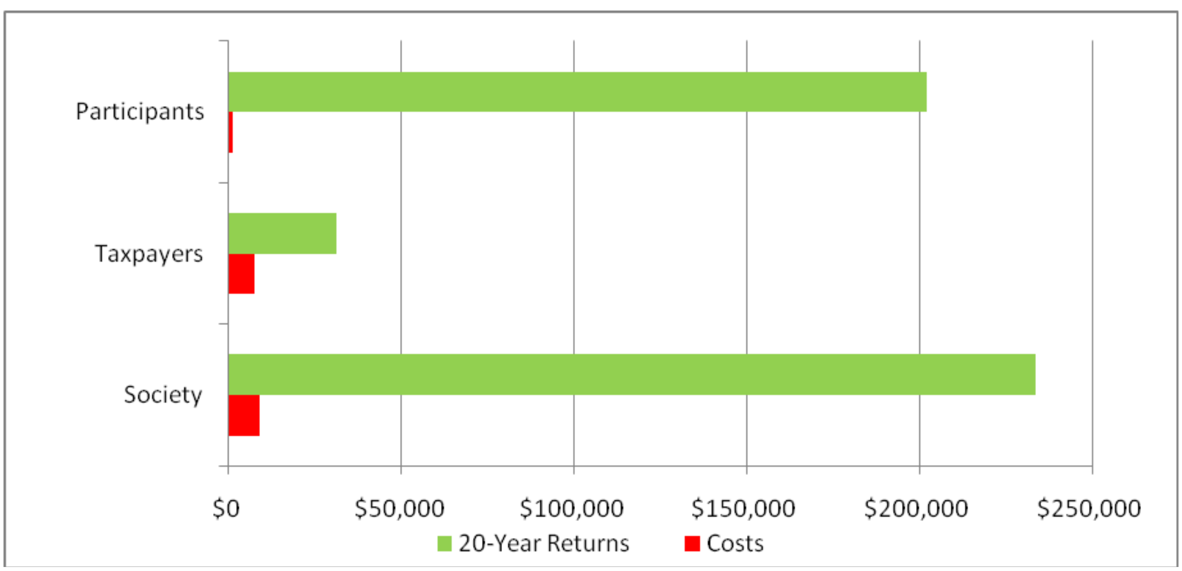
Figures 3 and 4 present the 10- and 20-year findings from the returns on investments in Capital IDEA and its participants, the broader-based cost perspective. All dollar figures are expressed in present value terms. Note that the costs and estimated returns for participants did not change from those presented above.

Figure 3. Broad-Based Costs and Ten-Year Returns from Capital IDEA's 2003-2004 Cohorts



The 10-Year ROI estimates for investments in Capital IDEA and its participants range from 6% for taxpayers to 36% for society to 73% for participants.

Figure 4. Broad-Based Costs and Twenty-Year Returns from Capital IDEA's 2003-2004 Cohorts



The 20-Year ROI estimates for investments in Capital IDEA and its participants range from 15% for taxpayers to 40% for society to 74% for participants.

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Appendix A. Sensitivity Analysis Results

The following table presents the results of varying key analysis parameters on the annualized Capital IDEA ROI 10-year estimates for participants, taxpayers, and society. The "benchmark" estimates, which are presented and discussed in the body of the report, are provided in the first row for the sake of comparison.

PARAMETERS	PARTICIPANTS	TAXPAYERS	SOCIETY
Benchmark Estimates (10-year) • Trend earnings in years 8-10 • Program length 1.5 years • Discount rate 2%	73%	9%	39%
Earnings • Flat earnings in years 8-10	71%	6%	37%
Discount Rate • 0% • 4%	72% 73%	9% 9%	38% 39%

If we assume that participant and comparison group earnings remain flat in years eight to ten equal to the level of earnings in year seven, relative to the "benchmark case", then annualized ROI estimates drop 2-3 percentage points across the board. If we assume that the nominal social discount rate is actually zero, then participants and society experience a 1 percentage point drop in annualized ROI estimates, relative to the "benchmark case". There was no change in the annualized ROI estimates if we assume that the nominal social discount rate increased to 4%.