



BCG Assessment of Pathways to Education

Executive Summary

February 2011

THE BOSTON CONSULTING GROUP

Overview: Pathways-Boston Consulting Group partnership

Pathways approaching its 10th anniversary of improving high school graduation in 'at-risk' neighborhoods

- Initial cohort began in 2001 at first generation site (Regent Park) with first graduates in '04/'05
- New sites added in 2007, 2009 and 2010 to expand the program's reach, impact

BCG and Pathways To Education have enjoyed a collaborative partnership over last number of years

- Our focus has been assessing and validating the program's impact

Initial pro-bono effort conducted in '06-'07 to evaluate the social return of investment in Pathways

- Confirmed importance of addressing high school drop-out challenge to break the poverty cycle
- Assessed long-term societal value creation: \$50K NPV, >9% IRR, 24X aggregate return on Pathways investment
 - Based on early results for first 2 graduating classes

In 2010-11, BCG invited to reprise and broaden the Pathways program value assessment

- Refresh previous social return on investment value assessment
 - integrate longitudinal information from generation 1 site to integrate subsequent classes
 - increase confidence in societal impact levers
- Confirm portability of program to 2nd generation sites
 - Define success flight path based on predictive metrics
 - Prove subsequent sites
- Scope magnitude of need for Pathways-like investments throughout Canada

Findings from the previous 2006-07 BCG assessment

Both school and non-school factors contribute to high-school dropout, e.g.,

- Non-school factors; low social class, minority status, school-home link, community support
- School factors; ineffective discipline, lack of counseling / support / outreach, disregard for learning style

Comprehensive, community-based programs needed to support youth education

- Programs must include academic, advocacy, mentoring and financial support
- "Key risk factors are present in the community and, as a consequence... protective factors are created in communities" – Hawkins et al (2000)¹

Early results: Pathways to Education is elevating high school outcomes in Regent Park

- Dramatically decreasing dropout rate, increasing post secondary enrolment for early cohorts
- Decreasing violent and property crimes despite increases in neighbouring divisions
- Tackling integration of new immigrants in community with 80% visible minorities; 60% immigrants

Program expected to deliver substantial economic value to government and society

- ~24.5X payback on each charitable dollar invested in Pathways
- ~\$50K return per student when adjusted for time value of money; 9.4% internal rate of return

1. Preventing Adolescent Health-Risk Behaviors by Strengthening Protection During Childhood, Hawkins et al., 2000

Executive summary

2010-11 findings consistent with previous results

The Pathways program...

... is addressing a substantial need

High-school graduation essential to breaking the cycle of poverty in Canada

- Drop-outs: 2X unemployment, lower earnings; 3x more likely from low-income families

>70k high school students live in educationally at-risk communities that could justify Pathways-like program based on return economics

... delivers results

Pathways program consistently reduces drop-out rate by ~70%

Additionally, program improves post-secondary enrolment by 3X

- Program grads enroll in university 10% more than the national average

... creates value

Program delivers 24X payback on every charitable dollar invested

- \$600K cumulative benefit per student enrolled
- \$45-50K NPV / student when adjusted for time value of money; 10% IRR

Program also yields benefits to society aligned to government priorities

- e.g., Life expectancy and health outcomes better for high school graduates: lower incidence of hypertension, cardiovascular disease, diabetes, smoking-related diseases

... is portable

All generation 2 cohorts are on track to meet or exceed Generation 1 site performance

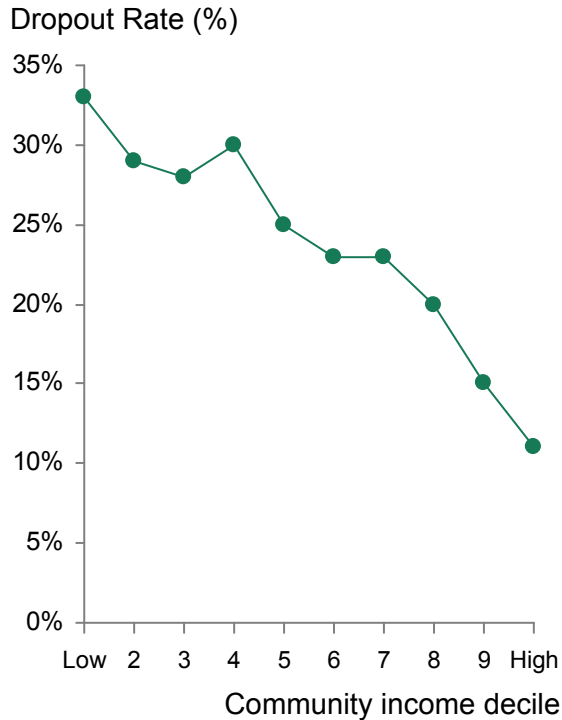
- Credit accumulation, attendance best in-process predictors of graduation outcome

Context for action

High-school graduation essential to breaking the cycle of poverty in Canada

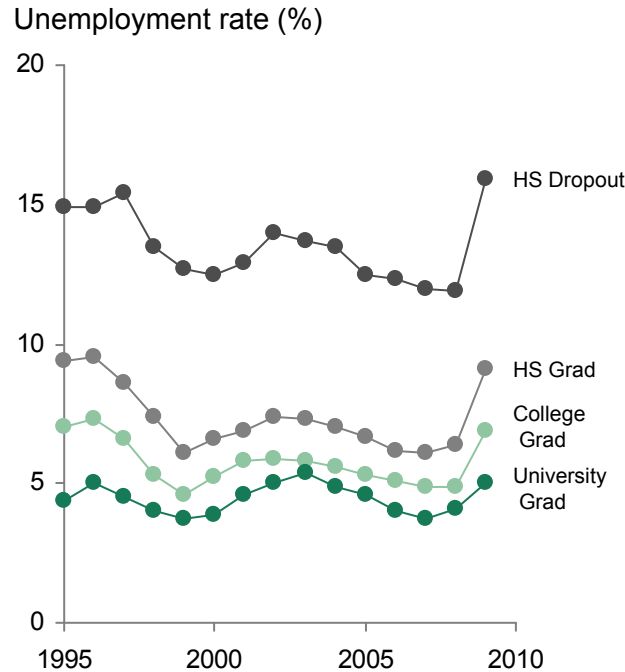
Youth from low income families are 3X more likely to dropout

High-school dropout rate by average community income¹



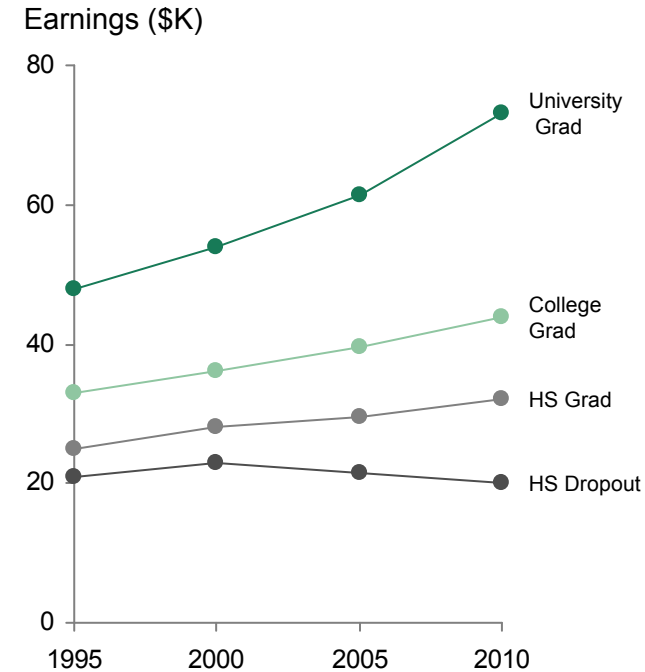
High-school dropouts >2X more likely to face unemployment...

Canadian unemployment rates by educational attainment²



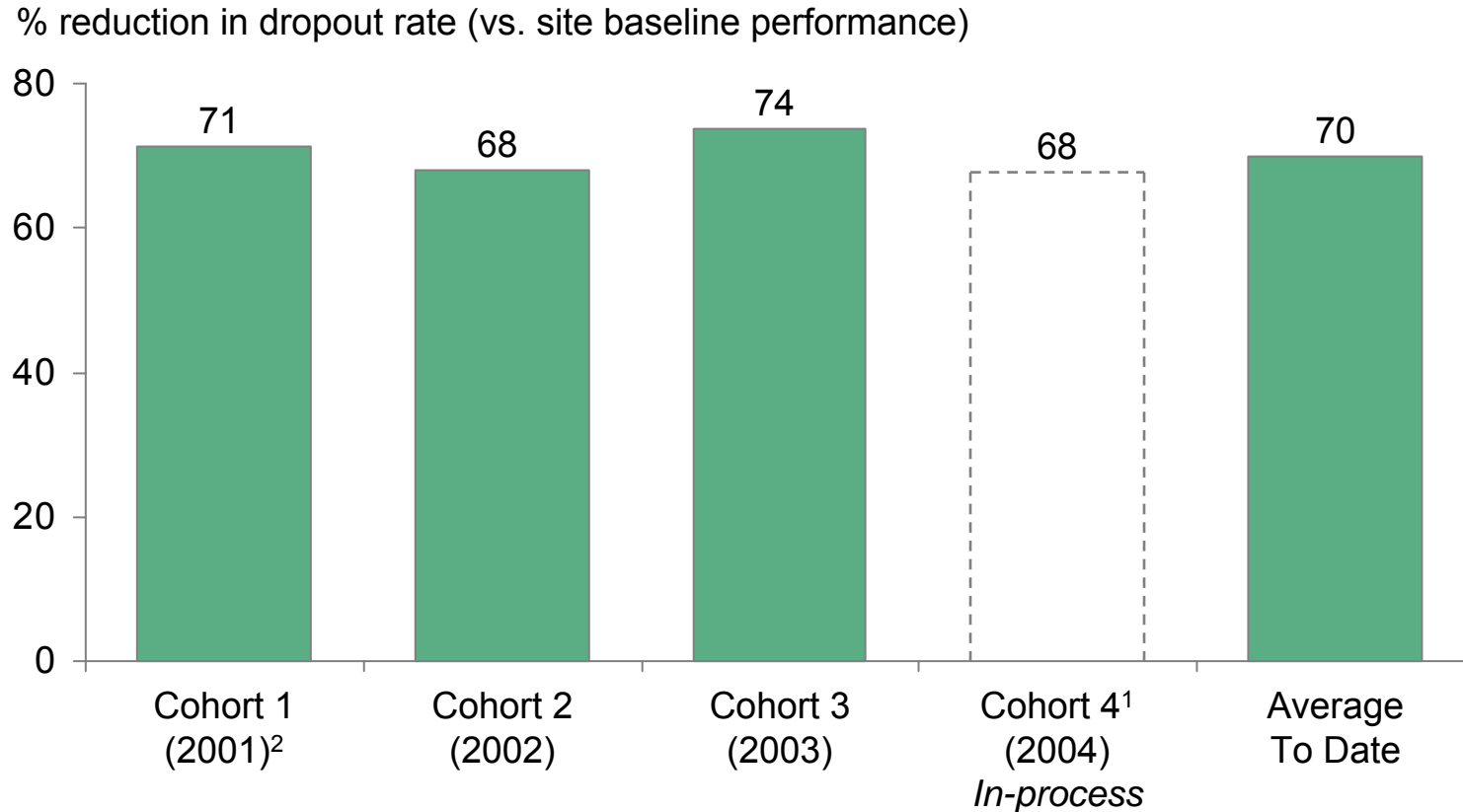
...driving a growing earnings gap between grads and non-grads

Expected annual employment earnings by educational attainment³



1. TDSB. Grade 9 Cohort of Fall 2000. 2. Statistics Canada. Labour force survey estimates by educational attainment, CANSIM database. 3. Statistics Canada, BCG analysis.

Pathways has delivered consistent drop-out reduction



In Regent Park site, drop-out reduction has driven 2x increase in likelihood of student graduation (based on 700 students)

1. 5 years of data available for cohort 4 at time of analysis; 16% of students still in school

2. Date cohort entered Grade 9 Note: Dropout rate reduction computed from baseline Regent Park dropout rate of 58%

A note on the definition of high school 'drop-out'

Multiple definitions exist for key educational outcomes

- *Drop-out rates*: Assess if students remain in school, can vary based on timing of analysis
- *Graduation rates*: Measure proportion of students who graduate from high school – not always the complement of drop-out if some students 'still in school' during analysis
- *Attainment rates*: Demographic measure for a jurisdiction; evaluate portion of population achieving an educational accreditation which may or may not include high school

Definitional differences can drive 10-30 pt variance in the reported results

Pathways' view a targeted measure of drop-out / graduation outcomes

- Assembled with student-specific data provided by partner schools and school boards
- Focused on understanding end-state impact of Pathways program
- Definition: Students who have not graduated by end of 6th year following grade 9 enrolment

Measure provides an end-state view of performance

- i.e., no students 'still in school' when metric assessed
- Means that drop-out rate provides a direct complement to graduation

Back-up: Pathways performance vs. common metrics

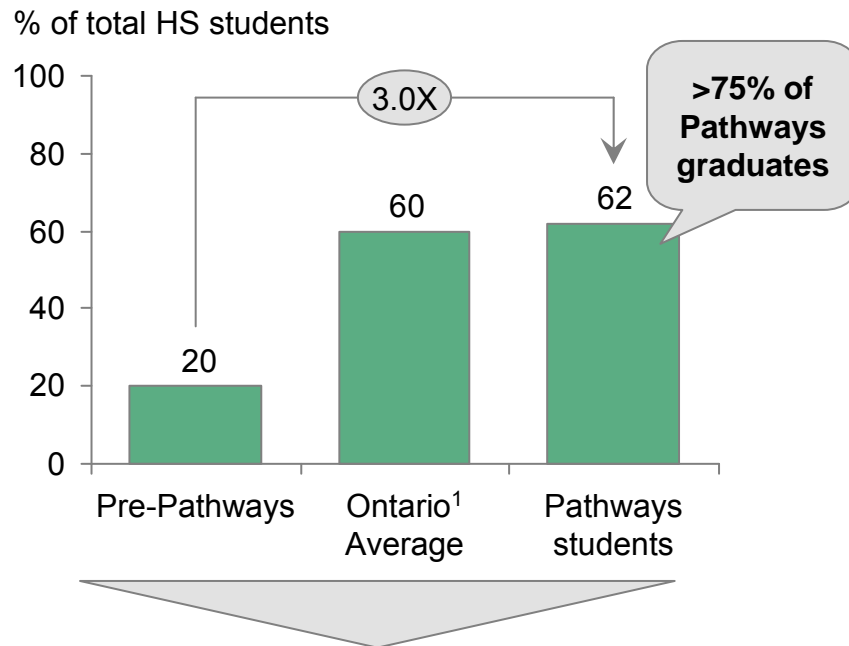
	High-school "dropout" definitions	Reported values	Pathways outcome comparables
Pathways	<p>End-state dropouts: Students who have not graduated by end of 6th year following grade 9 enrolment</p> <ul style="list-style-type: none"> End-state metric; a <u>direct complement</u> to graduation Assembled from data on specific students provided by school boards to track outcomes 	<ul style="list-style-type: none"> TDSB¹: 19-25% Regent Park baseline: 58% 	<p>18%</p> <ul style="list-style-type: none"> Exceeding city average ~70% improvement over baseline
TDSB	<p>Dropouts: students not attending school 5 years after enrolling in grade 9</p> <ul style="list-style-type: none"> Metric is <u>not a complement</u> to graduation because portion of students 'still in school' 	<ul style="list-style-type: none"> TDSB¹: 17-23% 	<p>14%</p> <ul style="list-style-type: none"> Better than city average
ON Min. of Education	<p>Non-completes: sum of declared dropouts and active students after 5 years</p>	<ul style="list-style-type: none"> Ontario²: 21-29% TDSB¹: 24-31% 	<p>29%:</p> <ul style="list-style-type: none"> Meeting provincial and city average ranges
Stats Can (Census)	<p>No attainment: Population in a given age range (i.e., 20-24 yr olds) with no certificate, diploma or degree</p> <ul style="list-style-type: none"> Accreditations not requiring HS completion leads to under-estimation of dropout rate 	<ul style="list-style-type: none"> Ontario: 8% Canada: 9% Regent Park baseline: 23% 	<p>N/A</p> <ul style="list-style-type: none"> Not a relevant comparison Metric not specific to high school graduation

1. 2010 TDSB reports based on cohorts starting from 2000-2004, written by Rob Brown. 2. Ontario's Ministry of Education backgrounder on dropout rates (2010) Note: '07 BCG analysis reference TDSB drop out metric due to data availability at time

Pathways also elevating post-secondary performance

Enrolment results exceeding population averages

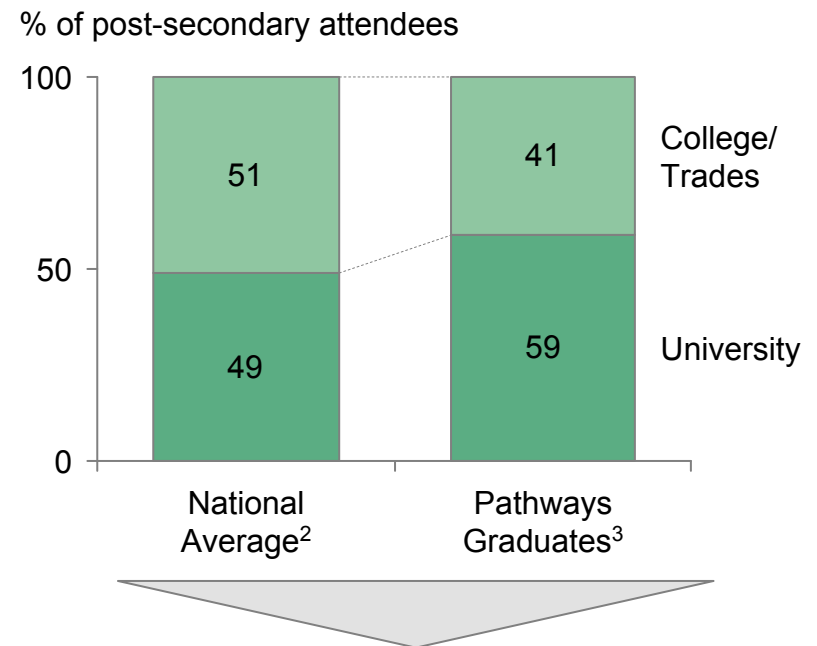
Post-secondary enrolment



Pathways dramatically improves enrolment in PS education

- >3X improvement over pre-Pathways baseline
- Pathways students now attaining provincial averages

Post-secondary Mix



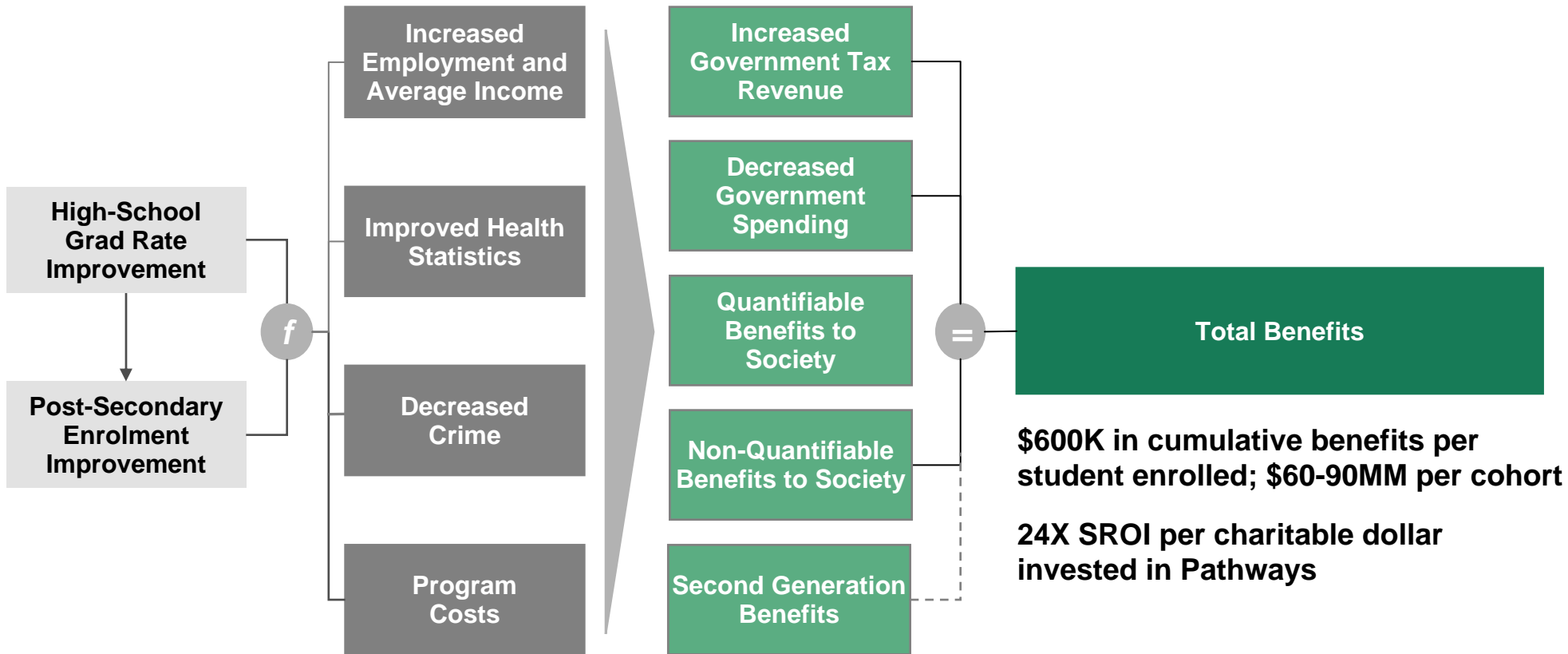
Pathways students more likely to choose university over college / trades

- Pathways grads enroll in University 10% more than the national average

1. Queen's University Faculty of Education cohort study 2. Culture, Tourism and the Centre for Education Statistics Canada 3. Data from Regent Park Cohorts 1 through 4

Outcomes driving several quantifiable benefits

2010 value proof uses similar approach as 2007; includes additional program data, updated sources



Pathways has a full financial payback to society of >10% annually on all costs

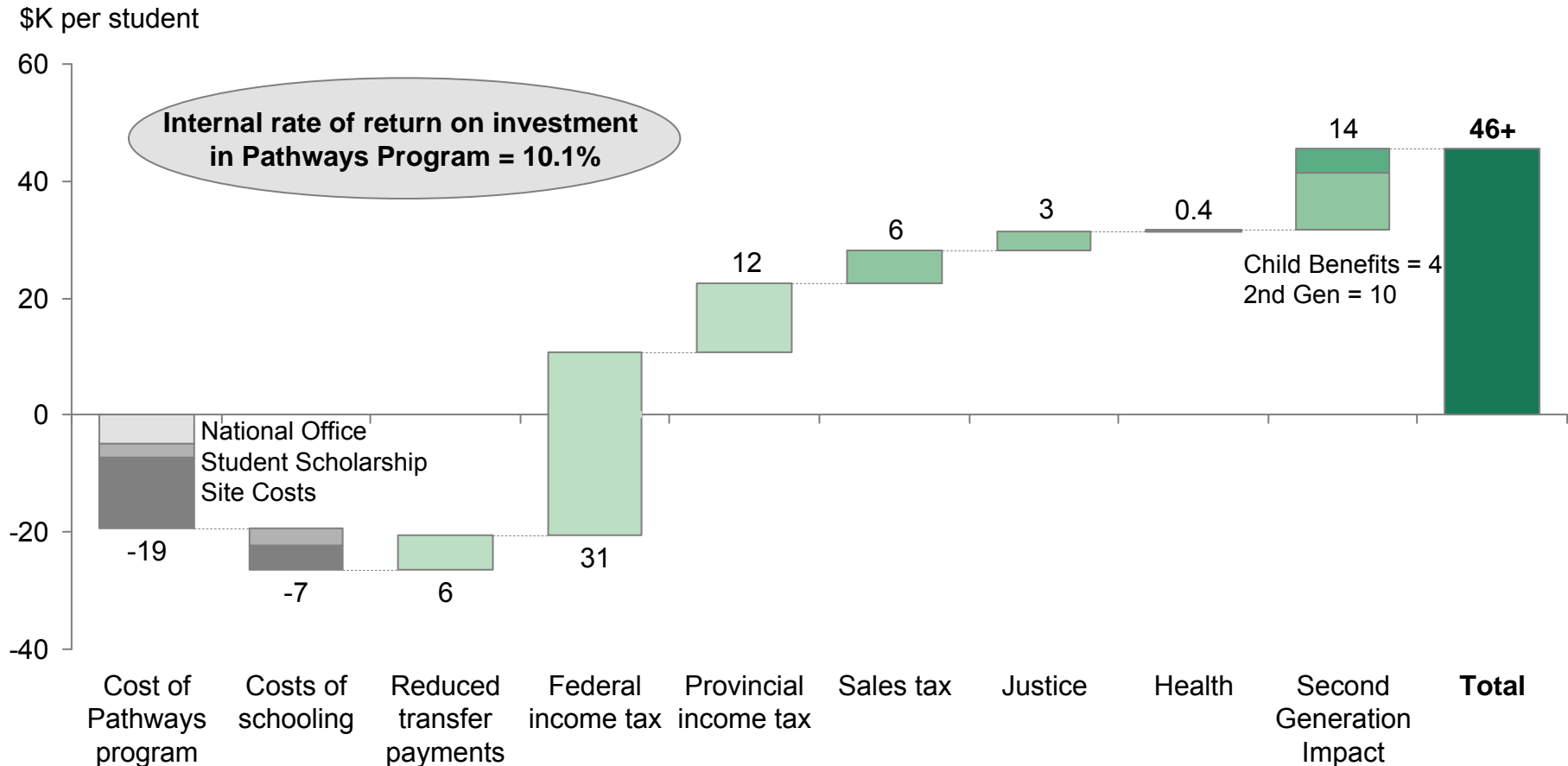
Benefits of educational attainment far exceed program costs

<p>Increased government tax revenue</p>	<p>Higher expected employment income, disposable income</p> <ul style="list-style-type: none"> • Higher income taxes collected • Higher sales taxes generated with increased consumer spending
<p>Decreased government spending</p>	<p>Reduced government transfer payments, social assistance due to reduced need</p> <p>Lower propensity to commit crimes</p> <ul style="list-style-type: none"> • Savings for the justice system and prisons with lower likelihood of incarceration
<p>Quantifiable benefits to society</p>	<p>Better health opportunities; greater access to and investment in personal health</p> <p>Increased general health outcomes, increased life expectancy</p> <ul style="list-style-type: none"> • More preventative health care, less risk taking behaviour • Reduced incidence of smoking, diabetes, hypertension, heart disease
<p>Non-quantifiable benefits to society</p>	<p>Higher economic growth rates due to better educated and more productive labour force</p> <p>Increased civic engagement</p> <ul style="list-style-type: none"> • Increased time spent volunteering; higher likelihood to donate to charity • Better integration of new immigrants; tackling 1st generation education challenges
<p>Second generation benefits</p>	<p>Reduced societal burden from children with better educated parents:</p> <ul style="list-style-type: none"> • Lower child benefit payments due to less need and fewer children • Children with better educational attainment who produce similar benefits to society
<p>Program Costs</p>	<p>Pathways costs: \$5k per year per student including program supports, infrastructure, scholarship</p> <p>Schooling costs: Incremental provincial costs associated with keeping students in school longer</p>

Societal return on investment significantly NPV positive

Pathways driving >\$45K per student enrolled

NPV of societal impact of a student enrolled in Pathways to Education

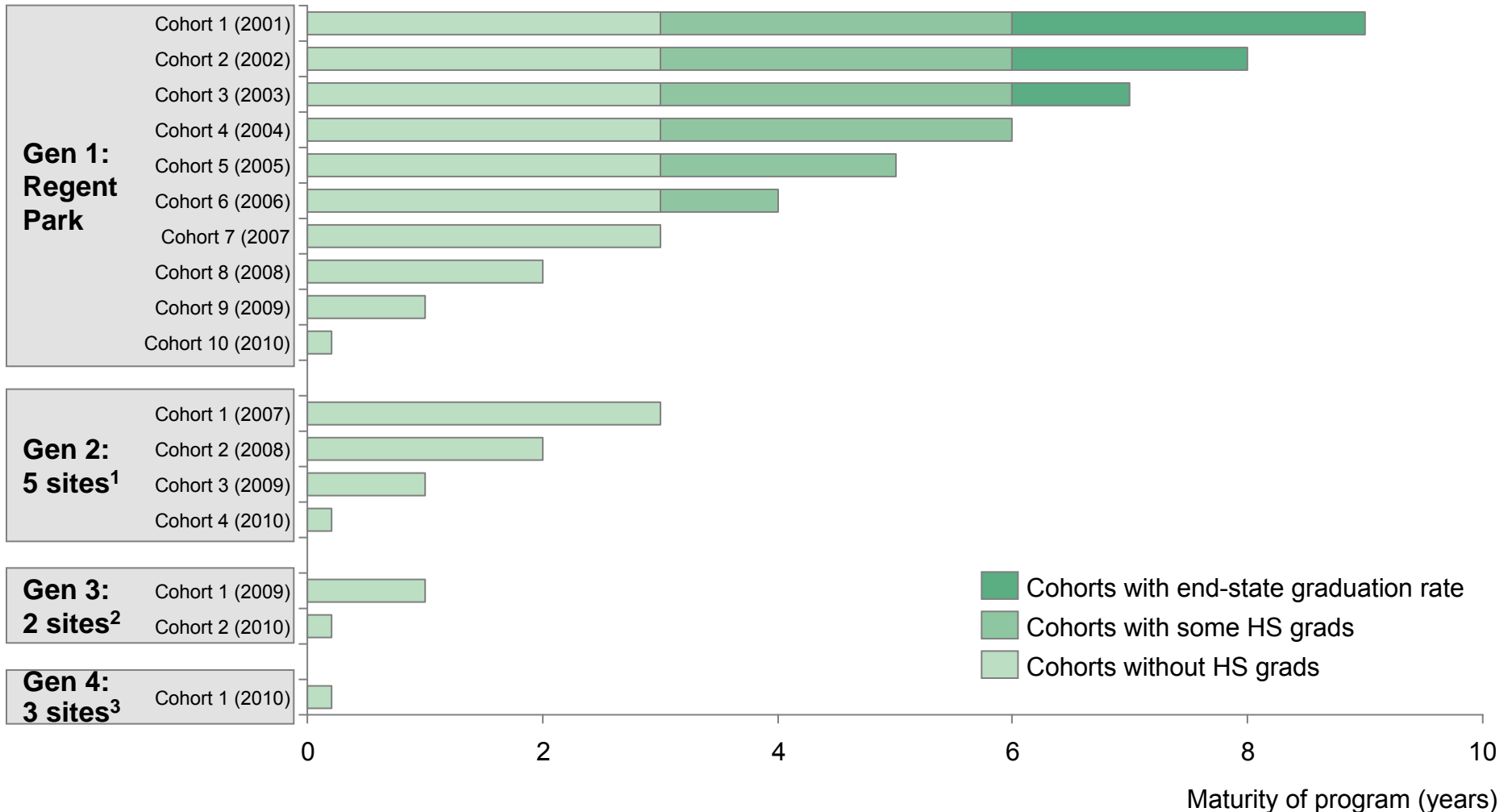


Note: 45 year time horizon (up to age 59)

Sources: Pathways Regent Park student performance data, Toronto District School Board, Ontario student assistance program, Statistics Canada income and educational data, Provincial and Federal government publications, BCG Analysis

Value assessment refresh based on Gen 1 site experience

Generation 2 sites expected to begin producing graduates in 2011



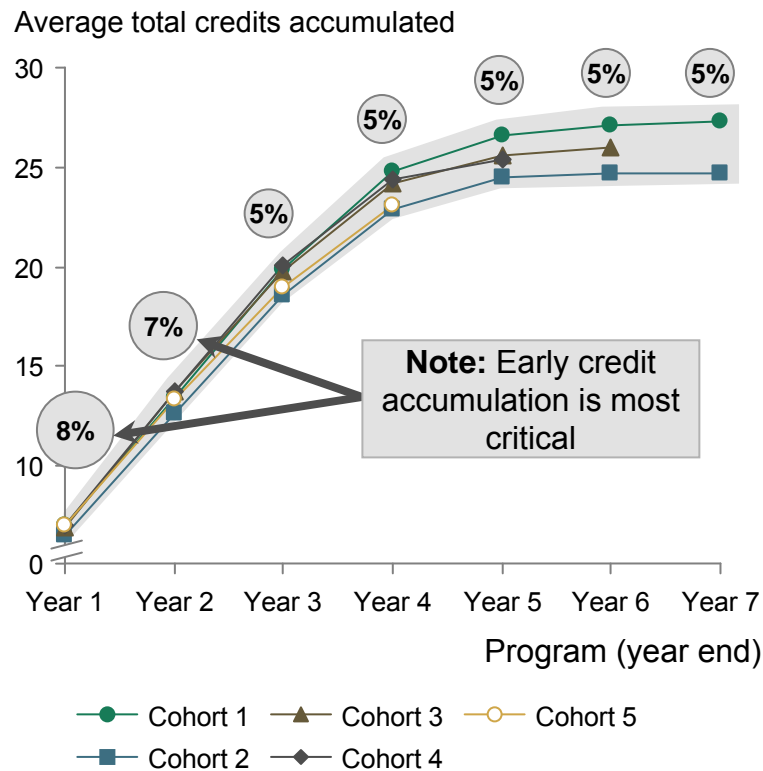
1. Lawrence Heights, Rexdale, Kitchener, Ottawa, Verdun (Montreal), note Verdun on longer time-line to graduation due to Quebec school system

2. Scarborough, Hamilton

3. Halifax, Winnipeg, Kingston

However, early results show Pathways program portable (I)

Regent Park cohorts have followed common trajectory



Two predictive metrics of program outcome success identified

Credit accumulation: Best predictor of graduation

- Credits attained early have greater impact than credits attained later
 - improves likelihood to graduate
 - increases chances of PS enrolment
- All sites outperforming Regent Park trajectory
 - higher yearly avg credit accumulation
 - tighter outcome distribution across all sites

Absenteeism: Correlated to credit accumulation

- Attendance in early years drives credit accumulation
 - poor attendees expected to earn 3 fewer credits per year than strong attendees¹

x% Increase in likelihood to graduate per credit accumulated in year

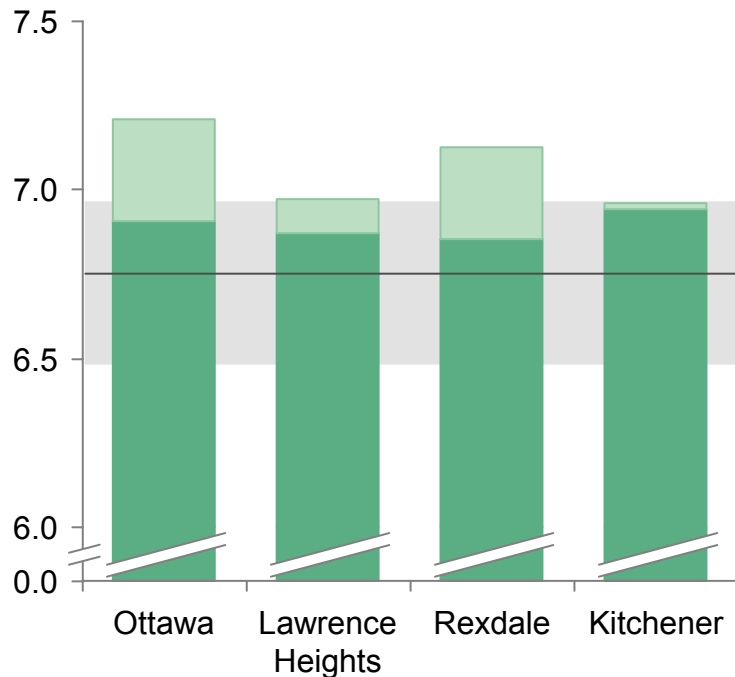
1. Strong attendees represent students with <5% absenteeism. Poor attendees represent students with >15% absenteeism

Pathways program is portable (II)

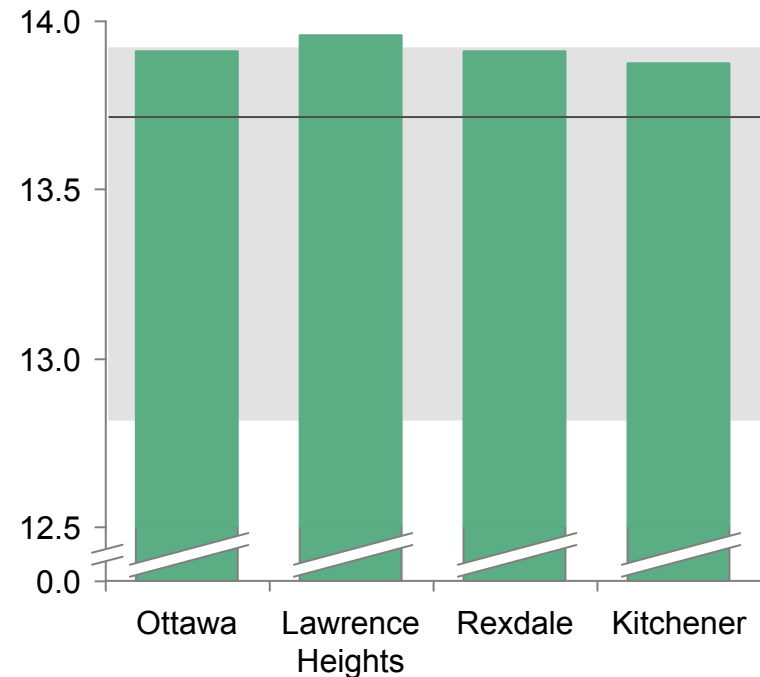
All generation 2 cohorts on track to meet, exceed Regent Park performance

Average credit accumulation at generation two sites

Average credit accumulation, year one



Average credit accumulation, year two



- Observed range at Regent Park
- Average performance observed at Regent Park
- Observed performance range at gen 2 sites

Note: Quebec site excluded from analysis due to different credit structure and timeframe (i.e., initial years in Quebec cover different grades than Ontario-based sites)

Beyond current sites, substantial need remains nationally

Screened population ...

... based on 2 criteria...

...to understand magnitude of challenge

Canada-wide census data screened

- Focused on urban centers

Education:

- Census: no degree, diploma or certificate by age 24
- 25% above Canadian avg.¹

Economic:

- Low Income Cut-Off
- 2X Canadian avg.²

>70k students living in 'educationally at risk' communities with:

- High unemployment
- Low-income families
- Low educational attainment

Traits of these communities similar to current Pathways sites suggesting investment returns could hold

~70% of the 125 identified 'at risk' communities in current Pathways geographies

- 35 in Montreal
- 27 in Toronto
- 11 in Winnipeg
- 8 in Ottawa
- 4 in Hamilton

1. StatsCan "dropout" definition: no educational attainment: no diploma, degree or certificate completed (20-24 year olds): 'educationally at risk' threshold =17% of community with "no attainment"
2. Low Income Cut-Off (LICO): income level requiring individuals to spend 20% more of income on necessities than the average: 'educationally at risk' threshold =25% of community below LICO