MICC
Learn Skills. Experience Life.

Prospective Social Return on Investment (SROI)

Prepared for Minnesota Independence College and Community (MICC)

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Wilder Research was contracted by Minnesota Independence College and Community, a nonprofit vocational and life skills training program for young adults with autism spectrum disorders and other learning differences, to study the costs and benefits of its programs. MICC curriculum is person-centered and helps students and graduates achieve sustained, independent living; rewarding employment; financial security; personal growth; and responsible citizenship. They do this by supporting social and vocational development among members in a community setting.

Prospective social return on investment (SROI) research compares the estimated economic value of program outcomes with the economic value of the resources used to provide the program from the perspective of the whole society.

By helping parents and children plan for the transition into adulthood, MICC creates economic value by graduating members who are socially engaged, productively employed, connected to their community, and independently thriving.

The focus of this study is to present a benefit-cost analysis of MICC's Community program, a life-long program that provides transition guidance, apartment-living coaching, career support, and structured social engagement while providing families with regular communication and future planning guidance. The data presented in this study should be useful to a number of stakeholders, including individual, foundation, and corporate contributors; families; and government agencies, in planning for future care.

Key findings

- The return on investment for every dollar invested by society is $3.00
- The present value of lifetime benefits to society total $63 million
- The return on investment for every public dollar invested by Minnesota taxpayers is $72

Contents

Figures

SROI overview

Social return on investment (SROI) analysis compares the economic value of the benefits of programs and policies with their associated costs. This approach to measuring value can be used to assess the economic value of all the benefits generated by a particular program and compare the sum to the total costs of the program. A societal perspective was used because of the broad impact that autism and other learning differences have on: the ability to find rewarding employment and live independently, families, employers, taxpayers, and society and because of the considerable public autism funding.

This prospective social return on investment compares the *estimated* economic value of the benefits of the program with its associated costs. This approach uses estimates of the economic value of program outcomes using existing and available program data at the time of the study and, where necessary, supplemental relevant data from literature. Our prospective social return on investment describes the *projected* economic value of the program assuming conditions at the time of the study are fully represented by available data and that those conditions remain largely unchanged over the course of the program intervention.

Benefits

Unemployment and social isolation can have devastating impacts on mental and physical health and can adversely affect the families and social support networks of individuals with autism and other learning differences. Program participants not only avoid the potential costs associated with unemployment and social isolation, but also generate an added value to society as workers, neighbors, and responsible citizens.

Outcomes used by MICC to evaluate progress in the program were used to estimate the economic value of societal benefits. Participants generate economic value for themselves and society by achieving high levels of independence in the following six competencies:

- Activities for daily living
- Medication management
- Personal support
- Healthy living
- Community
- Work readiness and employment

Part of our assessment includes measuring social benefits, which include direct economic benefits such as income tax revenues. Social benefits also include some indirect economic benefits such as the cost savings associated with participants gaining greater independence, career stability, improved health and productivity, and financial self-sufficiency. Therefore, the model assumes society would benefit less in the absence of MICC's person-centered, independent living support because society would incur additional costs derived from adverse outcomes associated with the lack of coordinated program supports for members of the MICC community. These additional social benefits, or *avoided costs,* include reduced health care costs, costs of providing members personal care assistance, and other higher needs care costs like elder care in the future.

Some outcomes are already defined and expressed in monetary values, for example, the earnings of participants from employment. For these outcomes, we focus on estimating the change in the amount of dollars associated with participation in the program. However, outcomes such as savings in health care costs are derived from changes in the number of visits to the emergency room or to the doctor's office, or the number of hospitalizations. These are intermediate outcomes for which we assigned a monetary value based on peer-reviewed research.

We include economic outcomes in the prospective SROI that we can reasonably attribute to the actions of the program, ruling out other causes such as chance, demographics, self-selection, etc. In other words, to show the program is effective, we've followed standard scientific methods that vary depending on the availability of data and resources to conduct the research. Our methods are based on the information provided by MICC and the type and quality of data collected on participants.

Data limitations on indirect social benefits

Not all benefits could be included. The study does not include other indirect economic benefits of MICC. For instance, as MICC Community program members become more economically independent and self-reliant with respect to activities of daily living, their support networks and families are less likely to lose work days or use paid or unpaid leave in order to provide care. Future studies could attempt to collect and analyze this data to provide more complete estimates of social benefits and calculate their net impact on the overall social return on investment.

Costs

The study perspective is societal, so all investments were examined no matter who was making them. Total investments by society include participant and family costs, corporate, foundation, and individual donor supports; opportunity costs of volunteer services; and publically (taxpayer) funded financial supports. Because there is some evidence of reduced life expectancy among the adult population diagnosed with autism spectrum disorder compared to the general population (Fombonne, 2003; Gillberg, 1991; Shavelle, Strauss, & Pickett, 2001), costs were tabulated for program participants from age 19 through age 66.

Research estimating the total societal cost of caring for and treating one person with autism in the United States has shown the additional lifetime costs to society to be about $3.2 million per diagnosis[1]. Because that research describes age-specific lifetime societal costs, it could also show the costs of supporting a young person with autism to achieve independence in adulthood by considering only societal costs for each year after age 18. Those costs totaled $1.7 million.

Similarly, we estimate society's investments in supporting a young person with autism to achieve independence in adulthood, but by way of MICC's Community program. The investment for the 3-year undergraduate program and life-long (47 years, using the average life expectancy of 66 years) participation in the Community program totaled $21 million in present value terms. We based the calculation on 60 members since that was the number enrolled in the program during 2017-2018. By comparison, our results suggest that the total social costs of MICC's lifelong, structured program supporting young people with autism to achieve independence in adulthood in a community setting is just $343K per member.

Lifelong program participation

A number of assumptions needed to be made, some from literature and others based on administrative data, to complete the benefit-cost analysis. In addition to considering the perspective of the whole society, the analysis assumes that participants in MICC's Community program (a.k.a. members) remain actively enrolled for the balance of their natural lives.

[1] The total costs used by Ganz (2007) included direct costs (both medical and nonmedical) and indirect costs to care for an individual diagnosed with autism over each year of their lifetimes. Costs were discounted to 2003 dollars using a discount rate of 3 percent. Life expectancy for men was age 66 years and for women age 65 years.

Variable costs

There is considerable variation in the level of need for individual supports made available on a fee-for-service basis within the program. The SROI analysis uses data collected by MICC program evaluation staff to assign baseline levels of independent living supports and their associated costs to life-long program membership. By applying the variable costs from the receipt of additional individual support based on actual need and use, results reflect the actual distribution of resources and yield more conservative estimates of the social return on investment.

Public costs

Taxpayers make public investments through educational, vocational, and public health based programs. Public funds from state, and local levels provide financial assistance in the form of scholarships, tuition reduction, and vocational program support. Public costs supporting the program during 2017 and 2018 totaled $970K.

Present value discounting

Because participants and the rest of society incur costs in the present and potentially realize the benefits in the future, it is common to discount future flows of costs (and benefits) to present value. Costs and benefits in future years are discounted, or deflated, to reflect the time value of money: a dollar today is worth more than a dollar in the future. Three percent is the standard currently used for a discount rate.

The present value of social benefits reflects future streams of economic activity expressed in terms of today's dollars. The sum of direct benefits, including annual earnings, spending, tax revenue, and savings, were added to the total estimate of indirect benefits. Indirect benefits include the opportunity costs of program participation by accounting for future costs avoided due to program membership.

Social return on investment

The social return on investment in MICC programs is $3.00 for every dollar invested.

The model used to calculate the social return on investment (SROI) reflects a comparison between the monetary value of benefits generated by the program and their associated costs from the perspective of the whole society, including the students, taxpayers, and other private agents such as private donors, family members, and citizens. Because some costs occur in the present and benefits occur in the future, we express future costs and benefits as if they were valued today. Costs and benefits in future years are discounted, or deflated, to 2018 dollars using a standard rate of 3 percent. To evaluate the return on investment we calculate a benefit-cost ratio:

1. Benefit-cost ratio

$$\text{Benefit-cost ratio} = \frac{\text{Present value of all benefits}}{\text{Present value of all costs}}$$

The result can be interpreted as expressing the cost effectiveness of the program from a societal perspective. It shows the expected societal return for one dollar invested. Any ratio greater than 1 indicates a positive return. The full 'lifetime' over which benefits and costs occur in the model is based on 47 years of program membership. In other words, the $3 social return on investment assumes continuous enrollment in the Community program from age 19 to age 66. Results indicate the program generates economic benefits that offset the value of resources invested, while also generating added value to society.

Social benefits

MICC's program activities result in participants generating economic value for themselves and society. We can link the specific program activities to impacts, some of which we can monetize as social benefits. Figure 2 shows key risk factors addressed by MICC program activities and independent living competencies achieved by participants, their associated impacts (measurable dimensions of the risk factor), and social benefits (a measure of the economic impact of the program on the population it serves and society).

2. Logic model

Risk factor	Impact	Competency	Social benefit
Reduced living independence	Increased social service expenditure (e.g., supported accommodation, personal care services, day programs)	Activities for daily living	Reduced social service expenditure
Poor physical health	Increased health care expenditure	Healthy living	Reduced health care expenditure
Poor mental health	Reduced quality of life	Medication management	Increased quality of life; reduced health care expenditure
Reduced living independence	Increased reliance on social service expenditure; increased reliance on informal care	Personal support	Reduced reliance on social service expenditure
Social isolation	Reduced quality of life	Community	Increased quality of life; reduced social service expenditure
Low educational attainment Low employment	Increased reliance on social service expenditure (e.g., employment support, education support, special education); Reduced income for the individual and increased reliance on welfare support; foregone taxation revenue for government	Work readiness & employment	Employment impacts; increased income for the individual and reduced reliance on social service expenditure; increased taxation revenue for government

By expressing outcomes in monetary terms, we recognize that this research is implicitly weighted in a way that reflects the workings of a market economy. It is extremely difficult to calculate a monetary value for outcomes achieved through a single intervention, much less an integrated, lifelong, independent living curriculum based in a community setting. By conducting a cost-benefit analysis from a societal perspective, our analysis avoids some of the potential ambiguities of multidimensional outcomes by measuring the total economic value of the program as a single intervention in terms of improvements in independent living, social engagement, and rewarding employment among adults diagnosed with ASD.

The total social benefits used in this study are estimated using program and survey data drawn from a cohort of participants—the 60 members on campus in fiscal year 2018. Further, the study assumes the value of annual social benefits remains largely unchanged over the next 47 years of Community program membership. Details of the prospective lifetime social benefits for all 60 members on campus during MICC's fiscal year 2018 are shown in Figure 3.

3. Social benefits

	Benefits
Avoided costs of providing personal care assistance services	$1.4 million
Avoided costs of providing higher care needs support	$1.6 million
Expected savings from reduced health care costs	$781K
Expected value of avoided ER visits, hospitalizations, and mental health admissions	$175K
Earnings from wages and salaries	$813K
Spending, saving, value of volunteering, and providing peer supports	$436K
Federal income tax revenue	$94K
State income tax revenue	$46K
Total annual benefit	$5.3 million
Present value total lifetime benefits	$63 million

Benefits primarily derive from the experiences and well-being of MICC Community program participants as evaluated by MICC staff in terms of symptom alleviation, reductions in maladaptive behavioral patterns, better personal and social functioning, and improved quality of life. However, there are also benefits for families such as reduced strain of providing (unpaid) care and support which limits their ability to secure full-time paid employment (Cidav, Marcus, & Mandell, 2012). Lastly, there are some wider implications for society like reductions in social service expenditures, increased tax revenues, less disruption in the classroom, and increased acceptance of neurodiversity in the workplace and the community.

Each of the economic benefits identified in the logic model require a specific computational procedure.

Personal care assistance services

Avoided costs of providing personal care assistance services were estimated based on the average monthly personal care assistance services expenditures forecasted by the Minnesota Department of Human Services. To calculate annual avoided costs of providing personal care assistance services, we multiplied estimated annual expenditures by the number of participants exhibiting demonstrable need for personal care assistance through MICC's evaluation of activities for daily living competencies.

Higher care needs support

Higher care needs support provided by MICC staff includes Community program specialist services, individual support services, roommate services, and other resource-intensive supports relative to those included in baseline program services. Additionally, higher care needs support costs avoided include the costs of obtaining certified financial planning services, professional guardianship or conservatorship, the costs of setting up a special needs trust, retaining a special needs trustee, and the estimated cost of in-home care. Avoided costs of providing MICC-staffed higher care needs supports were calculated by multiplying the number of hours of avoided higher care needs support per month by 12 months by the average hourly wage for higher care needs support-providing staff. Avoided costs of obtaining certified financial planning services, professional guardianship or conservatorship, setting up a special needs trust, retaining a special needs trustee, and hiring in-home care were calculated by multiplying the estimated costs of obtaining each by the number of MICC Community program members requiring total assistance with money management, personal disability awareness, advocating for and accessing supports, maintaining personal relationships, and a personal network of qualified professionals to meet unmet needs.

Reduced health care costs

Expected savings from reduced health care costs were calculated based on estimates of differences in health care costs, number of outpatient visits and hospitalizations, the cost of chronic disease care, and the estimated effect of autism spectrum disorder diagnosis on the health of chronic disease patients. We calculated expected savings from reduced health care costs by multiplying the number of Community program members at risk for chronic health conditions by the estimated difference in health care costs between ASD diagnosed and general population adults, the number of outpatient visits and hospitalizations avoided, the annual cost of chronic disease care for adults diagnosed with ASD, and the estimated effect of ASD diagnosis on the health of chronic disease patients.

The expected value of avoided emergency room visits, hospitalizations, and mental health admissions were estimated by multiplying the estimated cost of an emergency room visit, hospitalization, or mental health admission by the number of avoided emergency room visits, hospitalizations, and mental health admissions resulting from MICC Community program participation.

Employment and wages

Earnings from salaries and wages are based on survey data collected by MICC evaluators on employment and income from 2017 and 2018. Annual earnings were calculated by multiplying the average hourly wage of employed Community program members by the number of hours worked by members per year.

Local economic impacts

Spending was computed based on estimates of spending on public transportation, groceries, utilities, cell phone services, weekend activities, and travel. Savings were computed based on estimates of the number of savings accounts held by Community program members and estimates of annual deposits. The value of volunteering and the value of providing peer supports were computed based on estimates of the number of hours of volunteering done by members per year, the type of work completed while volunteering, and the hourly wage for providing similar types of work in the labor market.

Tax revenues

Federal income tax revenue was computed assuming single-filer status taking the standard deduction using income brackets and federal income tax rates from 2017. Employment and earnings data collected by MICC evaluators was combined with data from the Internal Revenue Service to calculate annual income tax revenues generated from all program participants who reported earnings from work.

State income tax revenue was calculated using the same employment and earnings data collected by MICC evaluators. Tax rates from 2017 were used to compute estimated state income tax revenues from all program participants who reported having taxable income.

Social costs

Social costs include public investments, private costs, and program participation costs for the undergraduate, community, and summer program. Private costs from corporate, individual, and foundation-based donors; support for MICC's annual fundraising gala; and a U.N. disbursement to support international students were also included. Undergraduates, and their parents and guardians during the time of study, paid tuition, room, board, and additional participation costs including health care, medication, and miscellaneous living costs were also included. Community program members and their families had membership fees and fee-for-service costs that were projected and included. Summer program costs and the estimated value of volunteer services donated during the time of the study were also made to enable MICC's delivery of its individual, independent living, career coaching, and social engagement skill-building curriculum. The total investment made by society to support MICC programs for the 36 undergraduates and 60 Community program members present during the time of the study are shown in Figure 4.

4. Social costs

	Costs
Participant costs	
College program	$1.2 million
Community program	$381K
Summer program	$86K
Other costs (e.g. health care, medications, misc. living costs, and volunteers)	$1.1 million
Public costs	$970K
Private costs	$719K
Total annual costs	$4.5 million
Present value lifetime costs	$21 million

The present value of total social costs, or investments, made over the course of a Community program member's lifetime participation show the monetary value of future streams of costs borne by participants, families, taxpayers, and citizens in today's dollars. Community program members and their families incur three years of undergraduate program costs plus the estimated costs of membership in the Community program for the rest of their lifetimes. Using the average life expectancy for an adult diagnosed with autism spectrum disorder or other pervasive developmental disorder, age 65 for women and age 66 for men, this study estimates the current dollar value of lifelong membership in MICC's Community program (including their three years as MICC undergraduates).

The total social costs used in this study assume cost levels will remain fixed at levels seen serving the cohort of 36 undergraduates and 60 Community program members enrolled at the time of the study. Community program members exhibit a variety of independent living competencies and diverse levels of functionality which translate to variable costs associated with lifelong membership. Independent living supports, roommate supports, and one-on-one career coaching and personal counseling are all offered and utilized on a fee-for-service basis. Although estimates of these variable costs were selectively distributed across the cohort of members, the general model assumes these costs remain fixed over time.

Public investments

The return on investment for Minnesota taxpayers is $72 for every dollar invested.

Although participants, their parents, and guardians bear the majority of costs, some costs are underwritten by public funds. Of the $970K in public investment supporting MICC over the course of the study, 90 percent are from sources within Minnesota. Taxpayer-supported funding provided investments to MICC and participants during the time of the study from the programs shown in Figure 5.

5. Public investments

Minnesota	**Investments**
Consumer Directed Community Supports	$105K
Department of Human Services Vocational Program	$71K
Office of Higher Education Need-Based Scholarships	$169K
Office of Higher Education Tuition Reduction Program	$484K
Dakota County Client Driven Supports	$8K
Wayzata Independent School District	$39K
Wisconsin, South Dakota, and Montana	
Department of Health Services Include, Respect, I Self-Direct Program (WI)	$60K
Department of Human Services Vocational Rehabilitation Program (SD)	$19K
Department of Human Services Vocational Rehabilitation Program (MT)	$15K
Total public investment	**$970K**

Literature review

Research investigating the outcomes for young adults with autism spectrum disorders covers a wide range of domains and focuses on several aspects of the lived experiences of these young people, their parents, educators, employers, and health care providers. In developing the methodological approach to estimating the lifetime social return on investment for MICC's Community program, Wilder used findings in the following studies as guidance in interpreting the results of our study.

Economics of autism

As return on investment studies compare the monetary value of benefits with costs, research describing potential competitive advantages of young adults with autism and other learning differences entered the scope of the literature review. In a May-June 2017 Harvard Business Journal article titled *Neurodiversity as a Competitive Advantage*, Robert Austin and Gary Pisano interviewed major employers and working individuals with a breadth of diagnoses (including autism, dyspraxia, dyslexia, ADHD, social anxiety disorders, and other conditions) which could produce challenges for young adults adapting in a workplace setting, but also present potential benefits for employers willing to recognize the extent to which *differently abled* people can contribute to gains with the right accommodations.

The second volume of the Handbook of Autism and Pervasive Developmental Disorders: Assessments, Interventions, and Policy includes a chapter on the economic aspects of autism which played a particularly informative role in guiding this report. Martin Knapp and Ariane Buescher provide theoretical guidelines and methods for conceptualizing, defining and performing economic evaluation relative to young adults with autism diagnoses. Specifically, Knapp and Bueshcher outline approaches to measuring costs, measuring effectiveness, and analyzing evidence of cost-effectiveness of treatments or care arrangements for meeting the needs of adults with autism. The framework for developing our results of analyzing MICC's return on investment adopts similar definitions for cost categories, while the understanding of overall economic impact is different. Knapp and Buescher provide guidance on calculating the economic impact of the disorder, while our study focuses on the economic impact of the intervention. Consequently, our study features administrative and survey data from which an analysis of the specific monetary benefits attributable to MICC Community program participation were made.

Comprehensive studies of the costs associated with autism spectrum disorders were used to help inform the structure of our prospective return on investment model. Michael Ganz authored a seminal work on the subject in 2007 outlining the lifetime incremental societal costs of autism. The study presents estimates of only those additional costs due, in theory, exclusively to autism. The author estimates costs of the diagnosis to society by way of differences in costs arising between those with an autism spectrum disorder diagnosis and the general population. Ganz (2007) estimates societal costs because of the broad impact of autism on families, insurers, taxpayers, and society and due to what the author describes as "considerable public autism funding." The two major contributions of this research to Wilder's analysis of MICC's prospective social return on investment are the further enhancement of conceptualizing relevant cost categories and description of and justification for the societal perspective.

Specific cost domains related to the community MICC serves were explored in the research as well. Jacob, Scott, Falkmer, & Falkmer (2015) analyze the costs and benefits of employing an adult with autism spectrum disorders and other learning differences with a review of scientific studies focused on employment of young adults diagnosed with one of several related conditions. Estimates were compiled of the costs to government, the costs to society, and the benefits experienced by employers across the U.S and the U.K. Several themes emerged. First, the research found a significant decrease in the number of benefits governments had to pay to adults with autism spectrum disorder diagnoses once they were employed. Second, the review found agreement in the research on the notion of providing employment opportunities for adults with autism spectrum disorders to enable this group to contribute valuable services to the society, while requiring less funding for daily activities and community supports. Finally, the study concluded that broad consensus in the literature supports the idea that enhancing opportunities for adults with autism spectrum disorder and other learning differences to join the workforce is beneficial from a societal perspective, not only from an inclusiveness standpoint, but also from a strict economic standpoint. Our findings of the prospective lifetime social return on investment in the case of MICC's Community program strongly support those conclusions.

Another study related to understanding costs and benefits of adults with autism spectrum in the workplace investigated whether sheltered workshops improved competitive employment opportunities. A sheltered workshop is typically a facility-based program offering skill training, special certificate subminimum wage work, prevocational services, group work placements, and social activities with the idea that jobseekers needing additional accommodations could benefit from acquiring certain skills *before* entering a competitive employment opportunity. Cimera and Cowan (2009) estimated the 'value-added' or the additional value realized by adults with autism spectrum disorders and other learning differences who had participated in sheltered workshops. The major contribution this research had in analyzing MICC's prospective lifetime social return on investment was that it provided an analytical framework for determining outcomes, impacts, and deriving monetary values of employment outcomes by comparing competitive work experience outcomes between young adults with autism spectrum disorder who had participated in sheltered workshops and those who had not. Because sheltered workshop program participants were randomly assigned, this research guided our understanding of appropriately casting MICC's counterfactual assumptions, or what our study would consider to be the case for participants in the absence of programs.

Transition to adult independence

The research that focuses on young adults with autism and the transition from postsecondary education to adulthood provided both quantitative and qualitative guidance in producing and interpreting the results of our study.

Evidence from research by Anderson, Sosnowy, Kuo, and Shattuck (2018) aimed at describing the transition experiences of youth and young adults with autism spectrum disorders, corresponded with what Wilder has gathered from MICC staff in relating the need for their program. Specifically, Anderson et al. points to poor transition outcomes in key areas, including postsecondary employment, higher education, health care, social connectedness, and independent living in the absence of strong support networks. In an examination of peer-reviewed studies of the transition experiences of youth and their families, the authors describe stakeholders having emphasized supports needing to be individualized and focused on the changing aspects of the young adult's social and physical environment rather than on behavior change. Generally their findings support the notion that MICC's Community program fills a critical need in helping young adults with autism spectrum disorders successfully transition to independence through person-centered supports that optimize the person-environment fit, add clarity about the roles of parents, and provide comprehensive, integrated services and supports.

Elias, Musket, and White (2017) sought to address the acute challenges present at the very beginning of the transition by focusing on educators of adolescents and emerging adults with autism spectrum disorder. The authors conducted a series of focus groups with secondary and postsecondary educators to understand the challenges faced by their students. Their results suggested that by narrowing interventions to address areas such as competency, autonomy, and independence, these skills and efforts to improve upon them should ideally be implemented prior to and during enrollment in a postsecondary setting to best facilitate the most comprehensive and successful transitions.

Sosnowy, Silverman, and Shattuck (2018) focused on outcomes by interviewing parents and their young adult children diagnosed with autism spectrum disorders about their experiences with the transition to adulthood to better understand what they consider to be desirable outcomes and how they plan to achieve those outcomes. Keywords coming out of the study that parents used in describing outcomes include *complex* and *nuanced,* indicating that there may be limitations in the ways in which concepts around quality of life are measured and accounted for. Sosnowy et al. also found that the parents of the young adults in their study described desirable outcomes in relation to their child's individual abilities, needs, and desires for the future. These findings echo MICC's reasons for providing person-centered program design and further support MICC's rationale for commissioning this study – understanding the overall economic impact of the Community program and articulating why MICC programs are worth investing in.

Conclusions

In today's dollars, the total economic value generated by program participants present during the time of the study over the course of their lifetimes is projected to be $63 million. The total lifetime investment made by society to enable the program for these participants is estimated to be $21 million. The net present value (benefits minus costs) of the total lifetime economic benefits generated by program members is $42 million. Put another way, the 2017-2018 cohort of MICC students and community members will generate $42 million more in economic value than what it costs to support them with career coaching and independent living support in a community setting. A given community member living independently in the Richfield, Minnesota area near the MICC campus will contribute over $1 million in lifetime economic benefit to society. Overall, benefit-cost ratios from this study suggest MICC's Community program generates economic benefits exceeding the value of resources required to deliver person-centered, independent living and vocational support programs to young adults diagnosed with autism or other learning differences.

Appendix

Economic outcomes

Data on impacts for which economic values could be estimated were collected and categorized as direct or indirect impacts. The dollar value of those impacts are social economic benefits. Program outcomes were each mapped to one or more direct or indirect impacts. Impacts result from achieving program outcomes. Sources of data include administrative data from MICC's program evaluations combined with data identified by Wilder through a review of the literature on the economics of autism and other learning differences.

Present value lifetime social benefits

We calculate the present value of the social benefits generated by the program using:

A1. Present value of social benefits

$$\mathrm{PV}_{\mathrm{Benefits}} = \frac{(\mathrm{V}_{\mathrm{PCA}} + \mathrm{V}_{\mathrm{HNC}} + \mathrm{V}_{\mathrm{HC}} + \mathrm{V}_{\mathrm{ER}} + \mathrm{V}_{\mathrm{W}} + \mathrm{V}_{\mathrm{S}} + \mathrm{V}_{\mathrm{FTR}} + \mathrm{V}_{\mathrm{STR}}) \times t}{(1 + \mathrm{r})^{\mathrm{t}}}$$

where the opportunity costs members avoid through lifelong membership are assumed to remain constant and include the value of personal care assistance (VPCA); higher needs care (VHNC); reduced health care costs (VHC); and reduced emergency room visits, hospitalizations, and mental health admissions (VER), combined with more direct benefits such as lifelong earnings from wages and salaries (Vw), federal income tax revenues generated (VFTR), and the state income tax revenues generated (VSTR). The total annual value is then multiplied by the number of years of membership (t), deflated at a discount rate (r) for the number of years of Community program membership (t).

Present value lifetime social costs

We calculate the present value of social costs using:

A2. Present value of social costs

$$\mathrm{PV}_{\mathrm{Costs}} = \frac{3\ years \times (\mathrm{V}_{\mathrm{College}})}{(1 + \mathrm{r})^{3\ \mathrm{years}}} + \frac{47\ years \times (\mathrm{V}_{\mathrm{Community}}) + 0.5(\mathrm{V}_{\mathrm{Public}} + \mathrm{V}_{\mathrm{Private}} + \mathrm{V}_{\mathrm{Summer}})}{(1 + \mathrm{r})^{47\ \mathrm{years}}}$$

Where the present value of social costs (PV_{Costs}) includes 3 years of undergraduate program costs ($V_{College}$), combined with 47 years of community program membership fees ($V_{Community}$), plus half[2] of all public, private, and summer program costs (V_{OC}+V_{PI}+V_{Pvt}), discounted at a rate (r) to show future streams of costs in present value terms.

[2] Since the SROI is focused on the benefit-cost of lifetime membership in the community program alone, the model assumes that over the course of 47 years half of all public, private, and summer program costs would be borne on behalf of (or to achieve outcomes for) community program members alone, while the other half would be borne on behalf of undergraduate students who are not yet enrolled in the community program.

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