

HOUSING RESEARCH REPORT

Measures for Calculating Social Return on Investment for Affordable Housing





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Compiled and Revised September 2018

CANADIAN CENTRE FOR ECONOMIC ANALYSIS This project was funded by Canada Mortgage and Housing Corporation (CMHC), but views expressed are the views of the author(s) and do not necessarily reflect the views of CMHC. CMHC's financial contribution to this report does not constitute and endorsement of its contents.



Executive Summary

The benefits of affordable housing extend beyond the number of units built or households housed; they can include impacts on residents' health, employment, and access to community amenities. The benefits can contribute to GDP, and have broad social implications for Canada.

Social Return on Investment (SROI) offers a viable way to demonstrate the impact of government spending on housing by attaching a monetary value to the benefits housing brings to residents, housing providers, and the local economy. There is a well-established, internationally accepted methodology for calculating SROI. However, SROI calculations are only as good as the inputs chosen and the valuation of those inputs: that is, the analytic framework.

This research involved a literature review, analysis of existing SROI studies of affordable housing, and construction of a Framework for determining the SROI for investments in affordable housing. For each existing study, this research project looked for the impacts considered, how impacts were being measured, and what financial proxies were used to quantify social returns. The project rated each SROI study of housing investment, based on methodology and the efficacy/appropriateness of variables for Canada. Finally, the project provided recommendations for a framework to measure SROI for affordable housing in Canada.

Studies were evaluated on how easily their methodology could be applied in an SROI calculation in Canada, using two ratings (1) The Literature rating, based on the type of research, methodology, and usefulness of the measures; and (2) the Canadian Efficacy and Appropriateness rating, which considered the replicability, reliability, and appropriateness of the measure and its financial proxy for Canada.

The final stage of this research was construction of an SROI framework for calculating SROI of affordable social housing. The framework includes the impacts to be measured, appropriate financial proxies for each impact, and the source for Canadian data. There are eight categories of impacts, with 23 corresponding financial proxies. Each impact or change is considered at three levels: government and GDP level, community/regional level, and residents. Taken together, these impacts and proxies would allow for a comprehensive, robust and rigorous SROI calculation.



Résumé

Les avantages que procure le logement abordable ne se limitent pas qu'au nombre de logements construits ou de ménages logés. Ils comprennent notamment les incidences sur la santé et l'emploi des résidents, ainsi que sur leur accès aux installations communautaires. Ces avantages, qui peuvent contribuer à la progression du PIB, ont des retombées sociales considérables pour le Canada.

Le rendement social du capital investi (RSCI) est un moyen viable de démontrer les retombées des dépenses du gouvernement dans l'habitation en attribuant une valeur monétaire aux avantages que procure le logement aux résidents, aux fournisseurs de logements et à l'économie locale. Il existe une méthode de calcul du RSCI bien établie et reconnue à l'échelle internationale. Toutefois, la précision des calculs du RSCI dépend de la qualité des données d'entrée choisies et de leur évaluation, c.-à-d. le cadre analytique.

Dans le cadre de ce projet de recherche, on a effectué une revue de la littérature, analysé les études existantes sur le RSCI dans le logement abordable et établi un cadre visant à déterminer le RSCI pour les investissements réalisés dans le logement abordable. Pour chaque étude existante, les chercheurs se sont penchés sur les incidences prises en compte, la façon dont ces incidences étaient mesurées et les indicateurs financiers utilisés pour quantifier le RSCI. Chaque étude sur le RSCI pour les investissements réalisés dans le logement a été évaluée en fonction de la méthodologie utilisée et de l'efficacité ou de la pertinence des variables pour le Canada. Enfin, ce projet a permis de formuler des recommandations quant à l'établissement d'un cadre pour mesurer le RSCI dans le logement abordable au Canada.

Les études ont été évaluées en fonction de la facilité avec laquelle leur méthodologie pouvait s'appliquer au calcul du RSCI au Canada, à l'aide de deux composantes : 1) le contenu, fondé sur le type de recherche, la méthodologie et l'utilité des mesures; 2) l'efficacité et la pertinence au Canada, facteur qui tient compte de la reproductibilité, la fiabilité et la pertinence des mesures et de leurs indicateurs financiers pour le Canada.

L'établissement d'un cadre pour le calcul du RSCI dans le logement social abordable a constitué la dernière étape de ce projet de recherche. Ce cadre tient compte des incidences à mesurer, des indicateurs financiers appropriés associés à chaque incidence et de la source des données canadiennes. Il y a 8 catégories d'incidences et 23 indicateurs financiers correspondants. Chaque incidence ou changement est analysé à trois niveaux : gouvernement et PIB, collectivité ou région, et résidents. Ensemble, ces incidences et indicateurs permettront d'effectuer un calcul exhaustif, solide et rigoureux du RSCI.





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1. Introduction

The benefits of affordable housing extend beyond the number of units built or households housed, and can include impacts on health, employment, GDP, and broader social implications for Canada.

Social return on investment (SROI) is a method for measuring social and environmental value, not currently reflected in conventional financial accounts, relative to the resources invested. SROI offers a viable way to demonstrate the impact of government spending on housing by attaching a monetary value to the benefits housing brings to residents, housing providers, and local and national economies.

There is a well-established, internationally accepted methodology for calculating social return on investments (SROI). However, SROI calculations are only as good as the inputs chosen and the valuation of those inputs. It is important that any framework for SROI analysis of affordable housing be adapted to the Canadian context.

CMHC commissioned this research to summarize the impacts being used in the literature, how they are being measured, and what "financial proxies" are used to quantify social returns. The project began with a literature review of SROI studies of affordable housing. Studies were examined for their methodology, efficacy and appropriateness of proxy variables, and the availability data sources. Finally, the project provided recommendations for a framework to calculate SROI for investments in affordable housing in Canada.



2. Literature Review

Social Return on Investment (SROI) Studies Reviewed

- CHA. 2014. *Social Return on Investment for the Vineburgh Regeneration Initiative*. Cunninghame Housing Association.
- Canadian Centre for Economic Analysis. 2015. Socio-Economic Analysis: Value of Toronto Community Housing's 10-Year Capital Investment Plan and Revitalization. Toronto, ON.
- Frontier Economics Ltd. 2014. "Assessing the social and economic impact of affordable housing investment." Fujiwara, D. 2013. *The social impact of housing providers.* Housing Associations' Charitable Trust.
- Kempton, O., and A.G. Warby. 2011. *Measuring the Social Return on Investment of Stage 3 Adaptions and Very Sheltered Housing in Scotland*. Scotland: Envoy Partnerships.
- Kliger, B., J. Large, A. Martin, and J. Standish. 2011. *How an innovative housing investment scheme can increase social and economic outcomes for the disadvantaged.* Sydney, Australia: State of Australian Cities.
- Kraatz, J., and G. Thomson. 2017. *Valuing Social Housing Final Research Report*. Sustainable Built Environment National Research Centre.
- Kraatz, J., G. Thomson, and H. Shearer. 2017. *Valuing Social Housing Final Research Report Attachment A Domain Tables*. Sustainable Built Environment National Research Centre.
- Fujiwara, D. 2013, The social impact of housing providers. Housing Associations' Charitable Trust
- Miller, A, and J. Ofrim. 2016. Social Return on Investment (SROI) of Affordable Housing Development Supported Through The BC Housing Community Partnership Initiative. Calgary, AB: Constellation Consulting Group.
- Ravi, A., and C. Reinhardt. 2011. The Social Value of Community Housing in Australia. Australia: Net Balance.
- Suttor, G.L.F., and W. Bettencourt-McCarthy. 2015. *Affordable housing as economic development: how housing can spark growth in northern and southwestern Ontario*. Ontario Non-Profit Housing Association.
- Think Impact. 2016. *Visible Changes: A Social Return on Investment evaluation of women's community housing*. Women's Property Initiatives.
- Zon, N., M. Molson, and M. Oschinski. 2014. *Building Blocks: The Case for Federal Investment in Social and Affordable Housing in Ontario.* Mowat Centre.



3. Rating Criteria

A set of criteria were developed to assess the strengths and weaknesses of the methodological approach and findings for each study. The studies were evaluated based on two ratings:

- Literature Rating: This rates the study based on the type of research, methodology, and usefulness. A high literature rating means that the source can be taken and easily applied to an SROI framework. Meanwhile, a low rating may mean that the source is inaccurate or needs to be adjusted to be used for a Canadian SROI.
- Canadian Efficacy and Appropriateness (CEA) Rating: This rates the efficacy and appropriateness for a Canadian SRO,I or the impact measure, and its financial proxy. That is, can it be applied to a Canadian context? (e.g., does the impact occur and can the proxy be measured in Canada?)

Together, these two ratings rate each source on two different dimensions. For example, a low literature rating but high Canadian E/A rating means that a better source is needed but the financial proxy can be applied to a Canadian SROI. Meanwhile, the reverse implies that the source can be easily implemented into a Canadian SROI, but the financial proxy may not apply to Canada context. Table 1 provides a description of the rating criteria and scoring methodology.



	Table 1. Rating Criteria and Scoring Methology for Rating SROI Studies			
Criterion	Description	Scoring		
Research Type (RT)	Is the data from a quality source? Does the study use cohort (Social housing client) based data, specific local or regional data (e.g., StatsCan, or National Statistics data source), or neither? Note, if no data sources were available, it was assumed to get the lowest score	 2 points: Peer reviewed, Cohort based (Social Housing client), or specific local or regional data; 1 points: Grey source; 0 point: Media source or other (or unspecified) 		
Method	What was the methodology used to calculate the financial proxy	 2 points: system analysis 1 points: regression or econometric study or survey 0 point: basic calculation (multiplication) or unspecified 		
Useful	Data density and what number of transformations are required to be made for the Canadian context? Transformations can include temporality (within the last 5 years, within 5-10 years, and more than 10 years); demographic differentiation (study done in the general population, among the elderly, only in women, or among aboriginals); country (Canada, US, European Union, or Australia); and data density (more in depth tables and sources).	 No transformations - 2 points: For example, a Canadian source, within 5 years, of the general population. One transformation - 1 points: For example, a US source (requires a conversion of US\$ to CAD\$), within 5 years, of the general population. Two or more transformations - 0 point: For example, a US source (requires a conversion of US\$ to CAD\$), 5-10 years (requires a conversion of bring data up to present day), of the general population. 		
Replicability/ Reliability	 Is the impact replicable in Canada (e.g., increased social cohesiveness in a community is a global phenomenon (i.e., Australians and Canadians both can exhibit increased cohesiveness through better housing); Can the impact be measured in Canada (e.g., improved health outcomes from housing can be measured through cohort surveys or ex ante analysis using health data); No methodological improvements needed? (e.g., using I/O tables can be improved through system analysis or estimating healthcare costs using average values can be improved upon by risk factor analysis) Does data already exist in Canada (i.e., improved confidence of residents data would need to be collected, whereas some health data is available through Statistics Canada)? 	 High – 3 points: Yes to 3 or more of the criteria, e.g., impact is replicable in Canada, the impact can be measured in Canada, no improvements needed to methodology, and data for measuring the impact is available. Medium – 2 points: Yes to 2 of the criteria, e.g., impact is replicable in Canada, the impact can be measured in Canada, BUT improvements are needed to methodology, AND data for measuring the impact is NOT available. Low – 1 points: Yes to 1 of the criteria, e.g., impact is replicable in Canada, BUT the impact CAN'T be measured in Canada, BUT the impact CAN'T be measured in Canada, improvements ARE needed to methodology, and data for measuring the impact is NOT available. Absent – 0 points: Yes to none of the criteria, e.g., impact is NOT replicable in Canada, the impact CAN'T be measured in Canada, improvements ARE needed to methodology, and data for measuring the impact is NOT replicable in Canada, the impact CAN'T be measured in Canada, improvements ARE needed to methodology, and data for measuring the impact is NOT available. 		





Criterion	Description	Scoring
Efficacy/ Appropriate- ness (EA)	 Is the proxy appropriate and relevant to the framework and is the measure direct or indirect. Is the financial proxy appropriate in valuing the impact? Are the proxies directly related to the impact measure, indirectly, unrelated, or forced to make a connection? 	 High – 3 points: Proxy is directly related to the impact measure (e.g., ER visit D ER visit cost); Medium – 2 points: Proxy is indirectly related to the impact measure (a proxy of the change in disposable income is used by calculating the difference between market rent and new affordable rent); Low – 1 point: Proxy mixes up outcome with input (e.g., cost of an education course to approximate the impact of education); and No connection – 0 points: Proxy is unrelated to the impact (e.g., gym membership for increased confidence).



3.1 Rating Criteria – Working Examples

Impact Measure:	Decreased social assistance payments
Financial proxy:	The cost of one year's worth of social assistance benefits in Ontario in 2006 for a single individual with no dependents (\$6,576.00)
Study:	(Zon, Molson and Oschinski 2014)

Literature Rating		
Criteria	Description	Score
Research Type (RT)	Statistics Canada	2/2
Method	Survey	1/2
Useful	Two transformation needed as the financial proxy is from 2006 (10 years old) and only for single individuals with no dependents	0/2
	Total	3/6

Canadian Efficacy and Appropriateness Rating				
Criteria	Description	Score		
Replicability/Reliability	Yes impact is replicable in Canada, yes impact can be measured in Canada, methodological improved COULD be made as the data is limited to single individual with no dependents, and data does exist.	2/3		
E/A	Direct connection between decreased social assistance given and the cost of one year's worth of social assistance.	3/3		
	Total	5/6		

Impact Measure:	Improved community spirit because of reduced anti-social behavior
Financial proxy:	The average cost of 4 community meditations per year (\pounds 484).
Study:	Cunninghame Housing Association 2014)

Literature Rating		
Criteria	Description	Score
Research Type (RT)	Grey research	2/2
Method	Unspecified	0
Useful	Two or more transformations: Scotland to CAD, 2003 to 2017, and criminal population to general population.	0
	Total	2/6

Canadian Efficacy and Appropriateness Rating					
Criteria	Description	Score			
Replicability/ReliabilityYes improved community spirit from reduced anti-social behaviour would be replicable in Canada. But measuring community spirit and financial proxy would be hard, methodology need to be improved to make connection between meditation, community spirit, and anti-social behavior, and no data does not exist.		1/3			
E/A	Proxy is unrelated to the impact (i.e., crime and meditation).	0/3			
	Total	1/6			



3.2 Literature Ratings for SROI of Affordable Housing

Study	SROI of Affordable Housing Development Supported Through the BC Housing Community Partnership Initiative	SROI of Affordable Housing Development Supported Through the BC Housing Community Partnership Initiative	The Social Impact of Housing Providers
Year	2016	2016	2013
Author	Miller, A. and Ofrim, J.	Miller, A. and Ofrim, J.	Fujiwara, D.
Type of Research	Grey (Constellation Consulting)	Grey (Constellation Consulting)	Grey
Literature Rating	4	5	4
CEA Rating	5	5	4
Stakeholders	Residents	Residents	Residents
Category	Access to Amenities	Access to Amenities	Access to Amenities
Sub- category	Transportation	Local Amenities	Amenities and community space
Impact Measure	Decreased transportation time and costs (work, medical appointments, shopping, services)	Increased local spending due to increased density	Amenities and community space
Quantity Proxy	Tenants who report avoiding car use/cabs and tenants who report shorter commute to work, shorter distances to amenities	Number of jobs created by local spending by tenants	Regeneration of local area, socialization areas, and improve cohesion. Includes the activities that allow people to socialize and improve the quality of the neighbourhood.
Quantity Value	Varies by Housing	Varies by Housing	Not Provided
Quantity Source	Survey of tenants	Not Specified	Not Provided
Financial Proxy	Time and carbon emission costs of car travel saved per year (\$1,222)	Median Income in BC	The value needed to be compensated for a lack of such resources.

Table 2. Rating of Sources, Impact Measures and Financial Proxies

Continued...



Financial Value	\$1,222	Varies by Location	£3,000-6,500 / person / year
Financial Source	BC minimum wage and environment Canada	Statistics Canada	British Household Panel Survey (BHPS)
Country/ Source	CAN	CAN	UK
Notes: (validity, alternatives)	Transportation impacts beyond reduced cost of transportation and the GGH emissions. It can include the ability to access better jobs (disposable income), better schools (future income), and medical appoints (healthcare utilization). Social housing closer to better transportation routes means the asset of social housing is being used more efficiently and returns can be realized elsewhere in the system. Therefore, this proxy seriously underestimates the impact that could be realized.	Good data sources to understand employment values and trends. Statistics Canada data is relatively available for local areas as well allowing a higher resolution evaluation.	Ignores downstream impacts and system impacts of improving social cohesion such as reduced crime (and its associated costs), better family values. However, if social cohesion occurs in a poor quality neighbourhood, this may reduce the benefit.



Study	Valuing Social Housing Final Research Report	Valuing Social Housing Final Research Report	Valuing Social Housing Final Research Report
Year	2017	2017	2017
Author	Kraatz, J. et al.	Kraatz, J. et al.	Kraatz, J. et al.
Type of Research	Academic	Academic	Academic
Literature Rating	4	4	4
CEA Rating	4	4	4
Stakeholders	Residents	Residents	Residents
Category	Access to Amenities	Access to Amenities	Access to Amenities
Sub-category	Culturally rich and vibrant communities	Culturally rich and vibrant communities	Youth and family support programs
Impact Measure	Culturally rich and vibrant communities	Actual participation in art and cultural activities	Youth and family support programs
Quantity Proxy	Increased opportunities to participate in sports and recreation activities	Not Provided	Not Provided
Quantity Value	Not Provided	Not Provided	Not Provided
Quantity Source	State and Territory-based Sports & Rec. Agencies. DPLG community services, state and territory-based support programs, AURIN SA2 OECD Indicators: Volunteering 2011, and AURIN Socio-economic variables by Urban Centres & Localities (UCL) for Australia.	AURIN SA2 OECD Indicators: Volunteering 2011. AURIN Socio-economic variables by Urban Centres & Localities (UCL) for Australia. State-based sport & recreation agencies. State-based local government community services.	Not Provided
Financial Proxy	No SROI was provided, but they did give a well-being value (WV) of 428 points for participating in a sport at least once per month.	No financial proxy provided, but numerous Wellbeing Values given for "participating in a sport at least once a month", "football", "keeping fit", and other exercise domains.	No financial proxy was given but a WV for "going to youth clubs" was provided.
Financial Value	£428 per person per year	£ 428-5,281	€ 2,300

Continued...



Financial Source	Fujiwara, 2013	Fujiwara, 2013 and Trotter, Vine et al. 2014	Trotter, Vine et al. 2014
Country/ Source	UK	UK	UK
Notes: (validity, alternatives)	Australian framework and therefore the equivalent data sets may not be available. Furthermore, only a Well-being Value was available. A better proxy of a "culturally rich and vibrant community" could be the health benefits that accrue from living close to amenities, jobs, or family.	No financial proxy, but multiple Wellbeing Values for various forms of exercise. Multiple ways to determine a financial proxy for being able to participate in sports and recreation for target audiences (i.e., adults or children). Specifically, increased physical activity is associated with increased health and well being. Increased physical activity also decreases the risk of developing many chronic diseases later in life, such as cardiovascular diseases, diabetes, and cancer.	No financial proxy was given, only a Wellbeing Value. Better approach would be understanding the behavioral impacts of support programs and how they impact education, future employment opportunities and health. Investigate increased productivity and reduced health events that occur thanks to better support programs.



4. Introduction to SROI Framework

In addition to a literature review and analysis of the financial proxies of existing SROI studies, CANCEA was asked to provide recommendations regarding an SROI framework for investment in affordable housing in Canada.

4.1 Initial Data

Prior to any analysis, it is necessary to have certain initial data available (or collected) as inputs for the analysis. This data generates the baseline scenario, to which the impacts of investment in affordable housing can be compared. From a social return on investment perspective, information focusing on the well-being of the residents and the neighbourhood should also be taken into consideration. In order to best capture all the social aspects related to the impact of investment in affordable housing, below are examples of the initial data which should be collected:

- Investment, operations, and other services:
 - Investment by building, amenity type: the initial investment in affordable housing that should be broken down by the sector and by the source of the investment (i.e., municipal funding, provincial funding, federal funding, not-for-profit funding, etc...). Such data should be available as an annual average by source and by region;
 - Spending and operational costs by service type: the ongoing maintenance of the asset over time which has impacts through the ongoing operation. Similar to above, such data should be provided by sector and by source or region and be in terms of annual averages; and
 - *Income from assets and operation:* affordable housing tenants would be paying rent which would generate rental income, albeit based on different rental regimes.
- Land use data: It is important to take into consideration the land use opportunity costs of investment in affordable housing. From a systems perspective, there is a difference between creating new affordable housing by demolishing old affordable housing units and rebuilding or building new units on land that is vacant or used by residents of the region that will require purchasing and redevelopment;
- Demographics of the affected population, including age, sex, household size, and cohort population average facility condition index (FCI) of previous housing
- Investment characteristics including location, funders, and number of new units; and
- Average rent paid in the region by unit size
- Evaluation time horizon assumption: Affordable housing has short-term (e.g., stimulus, jobs) and long-term (e.g., health care costs, crime costs) impacts that are due to different factors. The time horizon over which the impacts are to be measured are important as this assumption is then used to either accumulate or average out the impacts for reporting.



4.2 Recommendations for a Social Return on Investment (SROI) Framework

Below are the recommendations for a proposed SROI framework for investments in affordable housing. Table 3 provides an overview of the impacts that have been found in literature, how they are measured, and examples of the types of information that can be used to quantify a financial impact or a financial proxy. It expands each of the impacts into their individual sources. The proxies and their sources were rated based on the methodology explained earlier. The ratings were filtered to identify those proxies and impacts with a rating of 3 or higher in the Literature rank and a 4 or higher in the Canadian Efficacy and Applicability (CEA) rank. This determined which impacts and proxies would produce a comprehensive, thorough, robust and rigorous SROI.



Table 3. Recommended Framework for a SROI of Affordable Housing in Canada			
Impacts	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents
Health care:			
Healthcare Utilization	 Measurement: \$ saved, redirected (opportunity gain), Disease count changes, incidence, prevalence, utilization Financial Proxy: General practitioner, Emergency room, and hospitalization costs Data: Local and regional statistics 		
Housing Quality (FCI)			 Measurement: Change in Facility Condition Index (FCI)¹ Financial Proxy: Quality Adjusted Life Years (QALYs) per change in FCI.
Socio-economic determinants of health (SEDH)			 Measurement: Changes in SEDH, such as income, education.² Financial Proxy: QALYS per change in SEDH Data: Academic literature source, social housing provider
Stress (a) Financial flexibility			 Measurement: Newly housed residents Financial Proxy: Well-being value3for people being lifted out of heavy debt, being able to afford housing, or having financial comfort. Data: Academic literature source
Stress (b) Neighbourhood Quality			 Measurement: Newly housed residents Financial Proxy: Well-being value for people not experiencing anti-social behavior or living in a safe area Data: Academic literature source Rating: 4/4

¹ The FCI is an asset management tool that is used within the industry to measure a constructed asset's condition at a specific point in time (see BC Housing report from 2011 (BC Housing, 2011)). The FCI for a building is obtained by dividing the value of the repairs needed to the asset by the total value of the asset to arrive at a percentage.

² For more information on SEDH, specifically housing, please refer to Section 4.2 Measuring socio-economic determinants of health, following the framework.



Impacts/Changes	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents
Living conditions (e.g., housing quality, overcrowding)			 Measurement: Newly housed residents Financial Proxy: Well-being value for no dampness, better lighting, no condensation or rot Data: Academic literature source Rating: 4/4
Usage of Medical Services			 Measurement: Newly housed residents Financial Proxy: Difference in medical expenditure per household (e.g. between lowest and second lowest quintiles income brackets.) Data: grey literature, local and regional statistics Rating: 4/4
Social services spending	 Measurement: Households on social assistance, \$ annual average per annum Financial Proxy: Annual cost of social assistance benefits Data: Local and regional statistics sources 	 Measurement: Households on social assistance, \$ annual average per annum Financial Proxy: Annual cost of social assistance benefits Data: Local and regional statistics sources 	
Affordable Housing			
Disposable Income			 Measurement: Newly housed residents, \$ annual averages Financial Proxy: Difference between rent in social housing and market rent for similar unit; Data: Social housing provider; Rating: 3.7/4.3
Employment: Low-Income Employment			 Measurement: Newly housed residents, \$ annual averages Financial Proxy: Average part-time employment hours worked at minimum wage over a year Data: Local and regional statistics data; Rating: 4/4

³ Well-being value derives monetary values for different goods and services, like health, housing, and social relationships by estimating the amount of money required to keep individuals just as happy or satisfied with life in absence of the good (Fujiwara, 2013).



Impacts/Changes	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents	
Justice	 Measurement: \$ saved/redirected (opportunity gain), crime counts saved; Financial proxy: the cost of an average stay in a correction facility, crime cost by violation, and justice system resources. Data: Literature, Statistics Canada, 	 Measurement: \$ saved/redirected (opportunity gain), crime counts saved; Financial proxy: the cost of an average stay in a correction facility, crime cost by violation, and justice system resources. Data: Literature, Statistics Canada, 		
Environment				
Utilities	 Measurement: \$ annual average; (if social housing provider is responsible for utilities); Financial Proxy: Difference in energy costs due to energy efficiencies (would vary by specific social housing project); Data: Social housing provider; 		 Measurement: \$ annual average; energy use per annum; Financial Proxy: Difference in energy costs due to energy efficiencies (would vary by specific social housing project) Data: Social housing provider Rating: 4/5 	
GHG	 Measurements: \$ annual average; tonnes average per annum; Financial Proxy: Energy costs by Facility Condition Index (FCI) building condition Data: Social housing provider Rating: 4/6 	 Measurements: \$ annual average; tonnes average per annum; Financial Proxy: Energy costs by FCI building condition Data: Social housing provider Rating: 4/6 	 Measurements: \$ annual average; tonnes average per annum; Financial Proxy: Energy costs by FCI building condition Data: Social housing provider Rating: 4/6 	



Impacts/Changes	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents
Education and Literacy			
Earning Potential from continuing education and retraining			 Measurement: participants in learning courses, residents actively seeking work Financial Proxy: Earnings premium for an individual with a post-secondary education, compared to a high school graduate Data: Social housing provider, Statistics Canada, and grey literature Average Rating: 3.75/4
Access to Resources Internet			 Measurement: Residents with internet access Financial Proxy: Well-being value per person for access to internet Data: Academic literature source Average Rating: 4/4
Education Performance			
a) School leaving age			 Measurement: Resident children who complete high school Financial Proxy: Earning potential difference between high school graduate and no high school diploma Data: Grey literature Average Rating: 4/4
(b) Volunteer placements (for skills development)			 Measurement: Residents participating in learning courses and volunteer positions Financial Proxy: Well-being value for "learning a new course or getting a job" Data: Academic literature source Average Rating: 4/4
(c) Post-secondary degree or finish high school			 Measurement: Resident children level of education completed Financial Proxy: Earnings premium difference between post- secondary and high school graduate Data: Grey literature Average Rating: 4/4



Impacts/Changes	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents
Social Support and Connectedne	ess		
Community – Active Social Network			 Measurement: Residents who report increased social sense of community/social networks, surveys of community inclusion Financial Proxy: Well-being value for "being able to socialize" and "meet most days". Data: Academic literature source
Neighbourhood Satisfaction			
(a) Neighbourhood disorder			 Measurement: Proportion of residents reporting improved neighbourhood appearance (from previous housing) Financial Proxy: Average annual spend on repair and maintenance of a home
(b Regeneration of the local area			 Measurement: Quality of the local area Financial Proxy: Well-being value for a "good neighbourhood and regeneration" Data: Academic literature source Average Rating: 4/4
(a) Housing instability and stress related to housing	 Measurement: Terminations/evictions Financial Proxy: cost of eviction Data: Academic literature source Average Rating: 4/4 		 Measurement: Terminations/evictions Financial Proxy: cost of moving Data: Academic literature source Average Rating: 4/4
(b) Reduced household violence			 Measurement: Perception of household safety Financial Proxy: Average cost of an incidence of domestic violence Data: Academic literature source Average Rating: 4/4
Safety			
Safety and living in a safer area			 Measurement: Self-reported survey Financial Proxy: Well-being value of living in a community with less vandalism and crime Data: Academic literature source
Neighbourhood safety			 Measurement: Self-reported survey Financial Proxy: Well-being value associated with police doing a good job. Data: Academic



Impacts/Changes	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents
Access to amenities (e.g., health ca	re, employment)		
Amenities and community space			 Measurement: Number of parks, clubs, or activities in proximity to housing. Financial Proxy: Well-being value for community space Data: Academic literature Average Rating: 4/4
Culturally rich and vibrant communities			 Measurement: Residents participating in sports Financial Proxy: Well-being value for participating in a sport at least once a month or keeping fit. Data: Academic literature source Average Rating: 4/4
Local amenities			 Measurement: Number of jobs created by increased local spending due to increased density (annual averages) Financial Proxy: Median income Data: Local and regional statistical data
Youth and family support programs			 Measurement: Residents who "know where to get help" Financial Proxy: Well-being value for "going to youth clubs" Data: Academic literature source Average Rating: 4/4
Transportation			 Measurement: Proximity rating using residents reporting reduce/no car/cab use, shorter commutes to work, or shorter distance to amenities. Financial Proxy: Time and carbon emission costs of car travel saved per year Data: Grey literature Average Rating: 4/5



4.3 Measuring Socio-Economic Determinants of Health

Socio-economic determinants of health (SEDH) are social and economic inequities that translate into health inequities. This can include income, employment, and housing. That affordable housing is a determinant of health has long been understood, with literature documenting direct links between housing quality and health (Pomeroy & Marquis-Bissonnette, 2016).

However, one of the difficulties in measuring housing's impact on health is the longitudinal nature of housing's impact (and other SEDH variables like income and education). That is, although there may be short-term impacts on healthcare utilization (e.g., emergency room visits and hospitalizations) through access to resources and better medication compliance), a large portion of the impact of better housing comes in the medium- to long-term (Morgan, et al., 2015; Miller & Ofrim, 2016; CANCEA, 2015). Capturing this longitudinal aspect of health impacts of affordable housing (and other SEDH) is a major limitation in current SROI frameworks (Miller & Ofrim, 2016; Kraatz & Thomson, 2017).

In order to capture this medium- to long-term impact, it is necessary to follow the epidemiological risks associated with poor housing and other SEDH. It is through these risk factors that housing conditions drive disease cases and future healthcare utilization events. For instance, it is well documented that homes in poorer condition are associated with dampness, which in turn leads to an increased risk of illnesses ranging from stress (Hopton & Hunt, 1996) and depression (Shenassa, Daskalakis, Liebhaber, & Braubach, 2007) to asthma (Bornehag, et al., 2001). Depression has been linked to an increased likelihood of stroke (National Institute of Mental Health, 2011), compounding the adverse health effects. Mental and respiratory illnesses are among the many conditions that may arise from living in homes that are not in adequate condition, but these studies also demonstrate that even tenants who live in units that are in good repair may face deteriorating health as a result of the potential exposure to neighbouring units in disrepair. The majority of the illness events avoided are due to the significant reduction in stress-related cases. Each case of such an illness, which is avoided by means of maintaining the good repair of homes, represents a source of healthcare cost savings. Furthermore, other SEDH such as income, food insecurity, and employment have been shown in literature to increase risk of cardiovascular disease, diabetes, mental illness, and mortality (Chandola, 2000; Sturm & Gresenz, 2002; Kushel, Gupta, Gee, & Haas, 2006; Seligman, Laraia, & Kushel, 2010) Literature surrounding SEDH often provide odds ratios (ORs) (and sometimes hazard ratios) as a way to express risk. Although not exactly a measure of risk, it is possible to convert odds ratios into a measure of risk.

However, apart from one study by the Canadian Centre for Economic Analysis (CANCEA), no one has used an epidemiological risk factor perspective for measuring the medium- to long-term impacts of social housing. Using the Facility Conditions Index (FCI), an asset management tool that is used to measure a constructed asset's condition at a specific point in time, and their *Prosperity at Risk* agent-based simulation platform, they were able to operationalize the odds ratios associated with housing and other socio-economic variables and evaluate how affordable housing could impact long-term health outcomes.

5. Limitations and Challenges

Inherent in the nature of SROI studies is the difficulty in measuring social impact. Below we identify some of the limitations and challenges that became clear when evaluating the current literature surrounding SROI (as it relates to affordable housing):

Double Counting:

Certain studies may unintentional double count impacts, thereby increasing the social return. For example, "disposable income" and the ability to "provide basic needs" to one's family have been reported as separate impacts. However, both these impacts used similar financial proxies (e.g., the difference between market rent and social housing rent.

Measuring Changes in Housing Conditions:

Many of the benefits arising from affordable housing come from improvement in housing quality. A Facility Condition Index (FCI) is typically used to determine the quality of housing and is a wellestablished asset management measurement4. Knowing the FCI prior to individuals or households moving to social housing may be a challenge if the previous address of the housed population is unknown prior to living in social housing . Surveying households to determine their perceived change in their dwelling quality may provide an alternative basis.

Cohort Demographics (health, social assistance, and personal safety measure):

A similar issue to measuring the change in housing conditions is measuring the change of the demographic circumstances of people that are yet to be socially housed. Surveys of perceived change in circumstances may remedy this. Short of being able to survey the resident population directly, the health benefits of social housing could be estimated through the change of socio-economic determinants of health risk factors of a commonly agreed upon reference population.

Longitudinal Outcomes:

Except for a study by the Canadian Centre for Economic Analysis on the socio-economic impact of investment in TCHC's portfolio, SROI studies fail to explore the system and longitudinal impacts of social housing (CANCEA, 2015). For example, one of the better SROI studies by BC Housing doesn't capture "the lasting changes experienced by tenants (changes experienced beyond a tenant's stay at an affordable housing development)". For example, ongoing health benefits, future ability to purchase a home due to rent savings, and benefits from increased education (Miller & Ofrim, 2016). Residents who benefit from social housing could see these benefits continue even after they exit social housing.

⁴ Rush, S.C. (1991). *Managing the facilities portfolio: a practical approach to institutional facility renewal and deferred maintenance.* National Association of College and University Business Officers.

Direct Proxies:

Another challenge is identifying direct and meaningful financial proxy data to quantify social outcomes. An optimal example of an impact measure and its financial proxy would be social housing reducing an emergency room visit, which costs \$148 per visit (according to the Canadian Institute for Health Information). On the opposite side of the spectrum, as one moves into more nuanced impacts, such as social housing improving one's confidence, the financial proxies become less direct. For example, numerous SROI studies reported "improved confidence" as an impact and the financial proxy was "the yearly value of a gym membership". Studies also mix up the input and output of an impact. For example, a financial proxy for "improved educational outcomes" is the "cost of an adult course".

6. Future Considerations

In conducting the literature review of SROI studies and the financial proxies and sources used, a couple recommendations and considerations became clear for any future SROI studies:

- Narrow Financial Proxies:
 - <u>Value:</u> Certain financial proxies are very narrow in their definition and applicability to an impact measure. For example, in estimating the cost savings from improved healthcare outcomes from social housing, the only financial proxies used may be the cost of an emergency room visit (\$148) (Zon, N., M. Molson, et. al. 2014). Although one could consider this a conservative approach, this could be too conservative to the point where a large portion of the social return is missed: e.g. not accounting for doctors' appointments or hospital stays.
 - Impacted Population: Along these lines, numerous financial proxies are too specific which can sometimes limit their applicability to the general characteristics of a potential resident cohort. For example, a Canadian SROI database provides incredibly specific information on the various types of social assistance provided and hospitalization costs for different demographics (e.g., income assistance for a single adult with one child living in private housing). This information is of limited utility when the detailed characterises of the potential resident population is not known.
- <u>Longitudinal Analysis:</u> One of the leading SROI research reports by Kraatz et al (2017) emphasizes the importance of data and developing the capabilities to link that data to the people who generated them in order to track them longitudinally. SROI studies in the future should focus on developing the capabilities of linking the data to the people who generated them in order to be able to track outcomes longitudinal and gain a more complete understanding of the SROI (refer to "Longitudinal Outcomes" in the above section).

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