FREQUENTLY ASKED QUESTIONS

2016 Ontario Marginalization Index

1st Revision: March 2022

Introduction

The purpose of this document is to answer the most commonly asked questions about the Ontario Marginalization Index (ON-Marg).

Contents

About ON-Marg

Q1. What is the Ontario Marginalization Index?

The Ontario Marginalization Index (ON-Marg) uses data from 2001, 2006, 2011 and 2016 to illustrate levels of marginalization across the province. ON-Marg focuses on four dimensions that contribute to the process of marginalization: residential instability, material deprivation, dependency and ethnic concentration. ON-Marg makes this information available for various geographic units (like census tracts and dissemination areas), allowing you to examine levels of marginalization in specific areas. For example, you could use ON-Marg to look at the level of residential instability for a particular census tract.

Q2. Who created ON-Marg?

The Canadian Marginalization Index (CAN-Marg) was developed in 2006 by researchers at MAP Centre for Urban Health Solutions at St. Michael's Hospital in Toronto and McMaster University in Hamilton. ON-Marg is an Ontario-specific cut of the CAN-Marg data. The 2011 and 2016 versions of ON-Marg were created through a collaboration between MAP Centre for Urban Health Solutions and Public Health Ontario.

Q3. What is marginalization?

Marginalization is the process by which individuals and groups are prevented from fully participating in society. Marginalized populations can experience barriers to accessing meaningful employment, adequate housing, education, recreation, clean water, health services and other social determinants of health. Both community and individual health are deeply impacted by marginalization.

Q4. Where can I get the data and more information?

To access the data and ON-Marg User Guide, please visit the Ontario Community Health Profiles Partnership or Public Health Ontario websites.

Small-Area Indices of Inequity

Q5. What is an index?

The goal of an index is to combine discrete, yet related, variables into a single, broader measure that can be used for applications including research, advocacy, policy design and program implementation. For example, in order to provide a measure of residential instability, ON-Marg uses seven separate census variables including the proportion of people living alone and the proportion of multi-unit housing.

Q6. What is a deprivation-based index?

A deprivation-based index focuses on factors that undermine individual and area health. Prominent examples of deprivation indexes include the Townsend Index of Material Deprivation (Scotland) and the New Zealand Deprivation Index. In Canada, we have seen the adoption of the Socio-Economic Risk Index, the Socio-Economic Factor Index, the INSPQ Deprivation Index for Health and the Vancouver Area Neighbourhood Deprivation Index (VANDIX). While all of these indexes contain valuable information, ON-Marg is unique in that it includes the four distinct dimensions of marginalization, which can be explored at various local levels of geography.

Q7. How did you choose the four dimensions of marginalization used in ON-Marg?

We pulled together 42 different census variables based on historical and contemporary theoretical perspectives on inequality and marginalization in Canada. Some of these variables are also used in other deprivation-based indexes. We then used a statistical method called 'factor analysis' to reduce the number of variables from 42 to 18. The analysis pointed to four themes of marginalization, each associated with some of these variables. Finally, we named these themes and they became the four dimensions that make up ON-Marg: residential instability, material deprivation, dependency and ethnic concentration.

Q8. Why is ethnic concentration a domain of ON-Marg?

'Ethnic concentration' was the label that was given to a group of two indicators that emerged as relevant to area-level marginalization: proportion of recent immigrants and proportion of people identifying as ‘visible minorities.’ Areas that score highly on this dimension may contain a high proportion of recent immigrants or people (who may or may not be recent immigrants) identifying as ‘visible minorities’ or both. Generally speaking, this dimension is measuring populations who may experience marginalization related to racism and discrimination.

This domain has varying — and often positive — impacts on health outcomes. Research on immigration in Ontario shows that newcomers to Canada often have better overall health outcomes, a phenomenon commonly known as the “healthy immigrant effect.” At the same time, research is clear that both structural racism and anti-immigrant discrimination have profound negative impacts on individual, community and population health.

ON-Marg was created to measure marginalized populations and not necessarily to understand how health varies across population groups. By using broadly defined indicators of ethnicity and immigration status, it is possible that certain sub-groups are combined in a way that may distort their association with health status. For example, association between ethnicity and a given health outcome might be

different for people of Chinese or Black ethnicity or for recent immigrants from wealthy or developing countries. For the most part, the 'ethnic concentration' dimension can provide useful insight into differences in health status related to immigration and ethnicity measured at the area-level. Further investigation may be required to more completely understand the complex relationship between immigration, ethnicity and population health.

Q9. Why isn't there a census indicator of Aboriginal status included in ON-Marg?

Aboriginal status refers to a set of Canada Census variables including Aboriginal Ancestry and Aboriginal Identity. It refers to persons from North American Indian, Métis or Inuit groups. The Canada Census incompletely enumerates people living on First Nations reserves and in Aboriginal settlements. This means that Aboriginal people are undercounted in the Canada Census. Undercounting is most problematic in Northern areas, but can potentially be problematic in Southern Ontario as well. For example, in the context of the 2006 census, 18 reserves and Aboriginal settlements declined enumeration entirely. In addition, when numbers are very small for a particular area, Census Canada will suppress the data in the public use files, meaning that many census variables for Northern populations and especially undercounted Aboriginal populations will not be populated. As a result of the above, while 'Aboriginal status' was included as one of the original census variables fed into factor analysis, it did not emerge as a separate factor related to marginalization.

The potential impact of area marginalization will be underestimated by any of the deprivation/marginalization indexes that do not account for Aboriginal populations. We recommend that those who wish to use the Index also include one of the census indicators of Aboriginal status as an additional variable when questions arise that are specific to marginalization and Aboriginal populations.

Q10. Does the Index show area or individual characteristics?

ON-Marg values (factor scores and quintiles) are assumed to be capturing the general characteristics of a given area. Some research uses area-based measures as a proxy for individual-level data when none is otherwise available; however, this can produce an 'ecological fallacy' — a situation where general information about a group or area is used to incorrectly characterize the characteristics of an individual. For example, some people living in areas with high overall rates of residential instability might own their homes. Using the smallest areal unit possible (dissemination area) diminishes this measurement error.

Q11. What are the factor scores and quintiles shown in the data files for each dimension of marginalization?

Please note: Factor scores and quintiles are dimension-specific and cannot be used to obtain a summary score for all four dimensions.

Each domain of marginalization represented in the Index is broken into quintiles. Quintiles represent different degrees of marginalization within a specific domain starting with one (least marginalized) and up to five (most marginalized). Each group contains a fifth of the geographic units in question. Quintiles allow for comparisons of marginalization levels in a given dimension across Ontario.

Those wishing to identify more detailed differences in marginalization across the study area should use the factor scores. Factor scores define level of marginalization for each dimension in each single geographic unit. They do not represent absolute measures of marginalization, but are relative to each other. A higher factor score represents a higher degree of marginalization.

2011 Version of ON-Marg

Q12. What are the data sources used in the 2011 version of ON-Marg?

The 2001 and 2006 versions of ON-Marg were created using data from the Canadian census. In 2011, the federal government replaced the long-form census with the National Household Survey. Due to the voluntary nature of the NHS, it was found to be inappropriate for studying marginalized populations. The 2011 version of ON-Marg uses short form census data, as well as data from alternative administrative data sources to replace indicators previously derived from the long-form census, including Statistics Canada T1 Family File, Municipal Property Assessment Corporation data, Registered Persons Database and the Immigration Refugees, Citizenship Canada (IRCC) Permanent Resident Database.

Q13. How is the 2011 version different from previous iterations of ON-Marg?

The use of alternative data sources to replace indicators previously based on the long-form census has introduced slight differences in how some variables have been calculated. For example, the 2006 Index included the indicator "Proportion of the population earning less than the low income using the low income cut-off (LICO), while the 2011 Index includes "Proportion of the population earning less than the Low Income Measure (LIM)." These small differences are expected to have a minor impact on the Index.

Some indicators could not be defined using alternative data. Alternative data for "% aged 25+ without certificate, degree, diploma" and "% unemployed aged 15+" were not available. Although these indicators could not be included in the 2011 version, our analysis shows only a minimal impact on the Index (see 2011 Ontario Marginalization Index: Technical document for more details).

Q14. Is the 2011 ON-Marg comparable to the 2001 and 2006 versions?

The use of the alternative data sources and indicator definitions was validated by comparing 2006 census data with 2006 data from these alternative data sources. Full details are available in the 2011 Ontario Marginalization Index: Technical Document. Overall, the validation analysis showed that there is a minimal impact in using alternative data sources to construct ON-Marg. It is possible though that some of the changes in the distribution of marginalization measured by ON-Marg between 2006 and 2011 reflect possible differences in the way the Index was conducted. Caution is advised when interpreting changes over time.

Q15. How has the "% visible minority" indicator changed between 2006 and 2011?

The 2006 Index used the "% population self-identifying as a visible minority" variable derived from the long-form census. The 2011 alternative data source for this indicator is the Immigration, Refugees and Citizenship Canada (IRCC) Permanent Resident Database, which contains administrative records on all immigrants to Canada between 1985 and 2012, but does not include information on individuals who were born in Canada or immigrated before 1985. The IRCC database also does not provide any direct measures of ethnicity. To derive this information, algorithms developed by researchers at the Institute for Clinical Evaluative Sciences (ICES) were used to estimate visible minority status based on surnames, mother tongue and country of birth.

Despite the differences in the way visible minority status was estimated in 2011, the validation analysis shows that these differences do not have a meaningful impact on how the ethnic concentration dimension performs.

Q16. Does the 2016 version continue to use the same alternative data sources as 2011?

With the return of long-form census data in the 2016 census, there is no longer a need to acquire the alternative data sources used in the 2011 update. The 2016 version of ON-Marg was created using exclusively data from the 2016 short and long form census.

Using ON-Marg

Q17. What are some applications for the Ontario Marginalization Index?

ON-Marg allows users to explore the relationship between specific outcomes and marginalization rates at the area level. Potential uses include:

- Predicting the kinds of health or social services that may be needed in a specific area;
- Monitoring inequities in an area over time and evaluating interventions;
- Researching the relationship between marginalization, health and/or other outcomes for local residents.

Q18. How can I choose the right dimensions for my study?

Your choice of dimensions will be informed by your working hypothesis, theoretical framework and/or knowledge of the population and issues in your study area. It is also important to consider potential applications. For example, if you are interested in using ON-Marg to design a program or service, this might inform your choice of dimensions. In general, we recommend using as many relevant dimensions as possible to explore the relationship between health outcomes and the different aspects of marginalization.

Q19. How do I explore the relationship between outcomes and area-level marginalization?

ON-Marg can be used to measure associations between area-level marginalization (e.g., geographic units) and various types of outcomes. Some commonly studied outcomes include rates of particular diseases, mortality, health-related behaviours and levels of health care provision and uptake. The process often involves transferring outcome measures from points data (for example postal codes) to dissemination areas (DA) or census tracts (CT) with the use of such tools as Postal Code Conversion File (Statistics Canada) or other methods of geographic conversion. Once the dimensions of the index and outcome measures are defined for the geographic unit, they can then be linked and analyzed.

Q20. Does ON-Marg work equally well in urban and rural settings?

While individual census variables that fall under the four domains such as “proportion of multi-unit housing” or “proportion of five-year recent immigrants” may be considered more relevant for urban settings, as a whole, the four dimensions are designed to reflect various aspects of marginalization in both urban and rural settings. Please note: census data is suppressed for some sparsely populated areas (see below).

Q21. Can I calculate quintiles for my own study area?

Yes. To do this, gather the original ON-Marg factor scores by census tract or dissemination area. Include all the census tracts or dissemination areas that make up the custom study area. Order the census tracts or dissemination areas by factor scores; then divide them into five equal groups. The group with the lowest factor score would be assigned 'Q1,' representing the lowest level of marginalization, while the group with the highest factor scores would be assigned 'Q5,' representing the highest level of marginalization.

Q22. Can I aggregate the index to larger geographic units?

Yes. To calculate the index value for a larger unit such as an urban area, factor score values from DAs or CTs within that unit need to be multiplied by the corresponding populations in those DAs or CTs and then added together. This sum needs to be divided by the total population from all included DAs/CTs. This procedure is described in detail in the 2011 Ontario Marginalization Index: User Guide.

Caution: Weighted averages can disguise heterogeneity within large geographic areas.

Q23. What are the common geographic units suitable for ON-Marg?

ON-Marg is most accurate in illustrating marginalization using small geographic units (e.g., dissemination areas and census tracts). Users of the index should apply their own judgment when aggregating index dimensions to larger areas as described in the previous section. Some larger areal units commonly used in Ontario in the health context include:

- LHIN sub-regions (n=76)
- LHINs (n=14)
- Public health units (n=36)
- Census subdivisions (n=575)
- Census divisions (n=49)
- Aggregate dissemination area (n=1685)

Q23. Why is there no data for some dissemination areas and census tracts?

To ensure data quality and privacy, Census Canada does not release census information for areas with low response rates or with low population or household counts. For more information on (2016) census data quality and confidentiality standards, please visit the 2016 Guide to the Census of Population: Data Quality Assessment.

Q24. What does it mean when some individual census variables within a given dimension are 'reverse coded?'

Sometimes, the data that is most relevant to ON-Marg is framed opposite the census data. For example, residential instability tends to be higher in areas with a higher percentage of dwellings that are rented. The original census variable records the percentage of dwellings that are owned. As a result, in order to have this variable correlate positively with the domain of residential instability, it needs to be reverse-coded prior to factor analysis.

How to Cite this Document

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Disclaimers

St. Michael's Hospital

This document was developed by MAP Centre for Urban Health Solutions at St. Michael's Hospital (Unity Health Toronto).

Public Health Ontario

This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario's government, public health organizations and health care providers. PHO's work is guided by the current best available evidence at the time of publication.

The application and use of this document is the responsibility of the user. PHO assumes no liability resulting from any such application or use.

Ethical Approval

This study was approved by the institutional review board at Sunnybrook Health Sciences Centre, Toronto, Canada, the St. Michael's Hospital Research Ethics Board, and the Ethics Review Board of the Ontario Agency for Health Protection and Promotion (Public Health Ontario).

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About the Author Organizations

MAP Centre for Urban Health Solutions – St. Michael's Hospital

MAP Centre for Urban Health Solutions is a world-leading research centre dedicated to creating a healthier future for all. Through big-picture research and street-level solutions, MAP scientists tackle complex community health issues — many at the intersection of health and inequity. The Centre seeks to improve health in cities, especially for those experiencing marginalization, and to reduce barriers to accessing factors essential to health, such as appropriate health care and quality housing. We are committed to developing and implementing concrete responses within health care and social service systems and at the level of public policy.

St. Michael's Hospital (Unity Health Toronto) provides compassionate care to all who enter its doors. The hospital also provides outstanding medical education to future health care professionals in more than 29 academic disciplines. Critical care and trauma, heart disease, neurosurgery, diabetes, cancer care, care of the homeless, and global health are among the Hospital's recognized areas of expertise. Through the Keenan Research Centre and the Li Ka Shing International Healthcare Education Center, which make up the Li Ka Shing Knowledge Institute, research and education at St. Michael's Hospital are recognized and make an impact around the world. Founded in 1892, the hospital is fully affiliated with the University of Toronto. Toronto, ON: Queen's Printer for Ontario; 2022.

For more information, visit MAP Centre for Urban Health Solutions and St. Michael's Hospital websites.

Public Health Ontario

Public Health Ontario is an agency of the Government of Ontario dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world. Public Health Ontario's work also includes surveillance, epidemiology, research, professional development and knowledge services.

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