

# **Testing the Validity of the Ontario Deprivation Index**

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## What is a deprivation index?

Since the late 1800s, many different ways of measuring poverty have been developed. Beginning in the 1960s and continuing until the last decade, Canada generally used the Low Income Cut-Offs (LICOs) to measure poverty based on what an average family spent on food, shelter and clothing. The LICOs have now been supplemented by two additional measures, which are becoming more widely used. One is the Low-Income Measure (LIM) based on a percentage of median income – 40 or 50 percent of median income, called the LIM40 or LIM50 respectively. The other is the Market Basket Measure (MBM) which attempts to reflect the cost of a basket of goods and services deemed necessary in a modern country such as Canada.

All of these ways of measuring poverty have differing advantages and disadvantages, which we will discuss in detail in a future paper, but what they all have in common is the use of *income* to measure poverty. Each implicitly claims that a family below a certain amount of income is likely to be experiencing a poverty-level standard of living. Yet we know from everyday experience that households may require differing amounts of income. Households have not only income but wealth – positively in the form of assets or negatively in the form of debts. Households have many special needs and requirements reflecting their individual circumstances. Some of us have large, close families who have both the means and the will to help each other out: others have to navigate through the world on their own. Some own a house for many years with low or no mortgage payments and some have found an adequate low rent apartment: others are not so lucky.

One of the implications of defining poverty based on to an income level, is that it is not possible to explore the extent to which households above the specified income levels may be experiencing a poverty level standard of living, and equally impossible to explore the possibility that some households below that income level may have an above-poverty standard of living.

The deprivation index is a completely different way to measure poverty that does not equate poverty to an income level. Rather than looking indirectly at the standard of living households may be experiencing through the lens of income, the deprivation index instead looks directly at the standard of living by asking about the types of goods, services and activities that a family can afford. As we explain in our accompanying paper *Developing a Deprivation Index: The Research Process* [Matern, Mendelson and Oliphant 2009]:

A 'deprivation index' is a list of items (or activities) which have two characteristics, given the prevailing social and economic conditions in a time and place. First, the items on the list should be widely seen as necessary for a household to have a standard of living above the poverty level. In other words, these should be items which most households not in poverty are likely to have. Second, these items should be such that households in poverty are likely to find some of them unaffordable and so *not* have all those items. In short, the index, if it is well developed, should contain those items that *distinguish* the poor from the non-poor in the prevailing social and economic conditions.

The items in a deprivation index are not a comprehensive list of basic needs, since in a wealthy society such as Ontario's in 2009 most households, even the poor, are likely to have most of the basic necessities. For example, almost everyone in Ontario has clean running water (except infamously on some First Nations reserves). 'Clean running water' would not be of much use in distinguishing poor from non-poor households in Ontario in 2009. However, being able to afford fresh fruits and vegetables every day *could* distinguish poor from non-poor households even in a wealthy place such as Ontario.

## Testing the validity of Ontario's Deprivation Index

Using an empirical methodology based on a series of surveys and focus groups, Daily Bread Food Bank and the Caledon Institute of Social Policy have developed a deprivation index for Ontario. The methodology is described in the previously noted paper by Matern, Mendelson and Oliphant. Sponsored by the government of Ontario, Statistics Canada conducted the Ontario Material Deprivation Survey as a supplement to its Labour Force Survey in early 2009, surveying approximately 10,000 Ontario households. See Statistics Canada [2009] for a full description of the Labour Force Survey. Although a deprivation index has been widely used in Europe, and especially in Ireland and the UK, so far as we are aware this is the first application of a deprivation index in North America.

The Ontario Material Deprivation Survey has now been completed but the data has only been available as of the day that this paper is being written. We will be undertaking a comprehensive analysis of the survey results to describe the nature and extent of poverty in Ontario – and how this differs from poverty as understood by other measures – but we wanted to undertake an immediate preliminary test of the validity of the core concept. Put simply: is the Ontario Deprivation Index a reasonable way to measure poverty?

There is no 'gold standard' of poverty measurement so we must instead test the Ontario Deprivation Index indirectly. While we may not independently know the exact extent of poverty we do know that it decreases or increases with certain variables. For example, although we have argued above that there are limitations to equating poverty with a set amount of income, this does not contradict the obvious fact that poverty tends to increase as income decreases. This is similar for other variables, such as education. If the Ontario Deprivation Index is a reasonable measure of poverty these variables should perform as expected. In other words, if we found, for example, that according to the Ontario Deprivation Index poverty levels were equal across income groups, we would have strong reason to doubt the reliability of the Index as a measure of poverty. The deprivation index is purely empirical so it is not logically impossible for such contradictory results to be found.

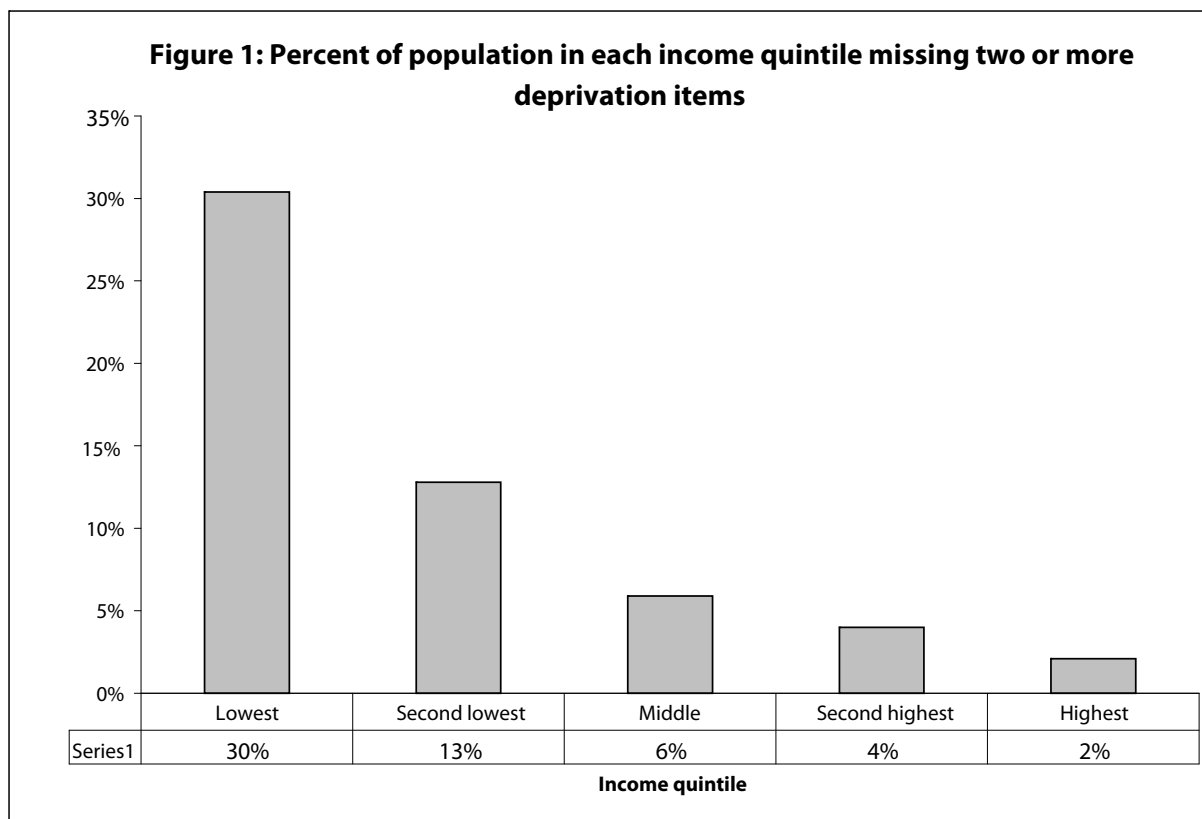
While these tests of 'reasonableness' cannot prove beyond all doubt the validity of the Index, they can at least show that it is a sensible measure and the accumulation of expected results does tend to confirm the validity of the Index. A similar method for testing the validity of the new Irish deprivation index was also used and we have adapted that approach here [Whelan 2007], although in this paper we are presenting only the most basic tests.

In this paper, we test the Ontario Deprivation Index against 6 variables: income, education, employment status, immigration, family type and housing tenure. Since the Ontario Deprivation Index defines a poverty level standard of living as lacking two or more items in the Index, we use that as the basis for the analysis. Based on this early analysis, the Ontario Deprivation Index meets the tests of reasonableness in relation to these variables.

## Income

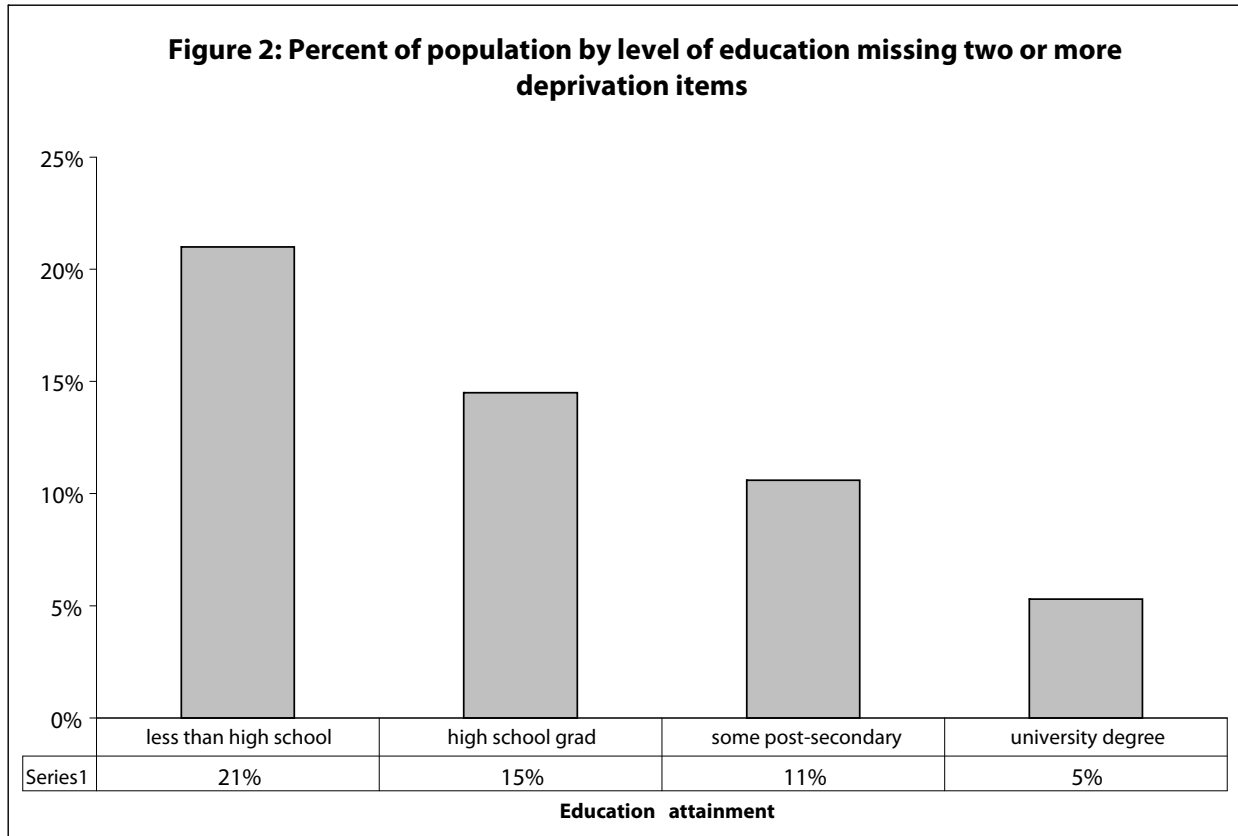
Figure 1 shows the percentage of the population within each income quintile that is missing two or more deprivation items. An 'income quintile' is 20 percent (one-fifth) of the population, so the lowest income quintile is the 20 percent of the population with the least income; the next quintile is the second lowest 20 percent of the population and so on. We can see that as expected deprivation increases as income decreases.

In this and subsequent Figures, the percentage with two or more items missing is within the population group described and not within the population as a whole. So, for example, Figure 1 says that among the population in the first income quintile, 30 percent have two or more items missing. It does not say that 30 percent of the entire population with two or more items missing are in the first income quintile. In this case, because each income quintile has the same number of people in it (by definition) it is easy to calculate that 55 percent of the total population identified as poor according to the Deprivation Index are within the lowest income quintile.



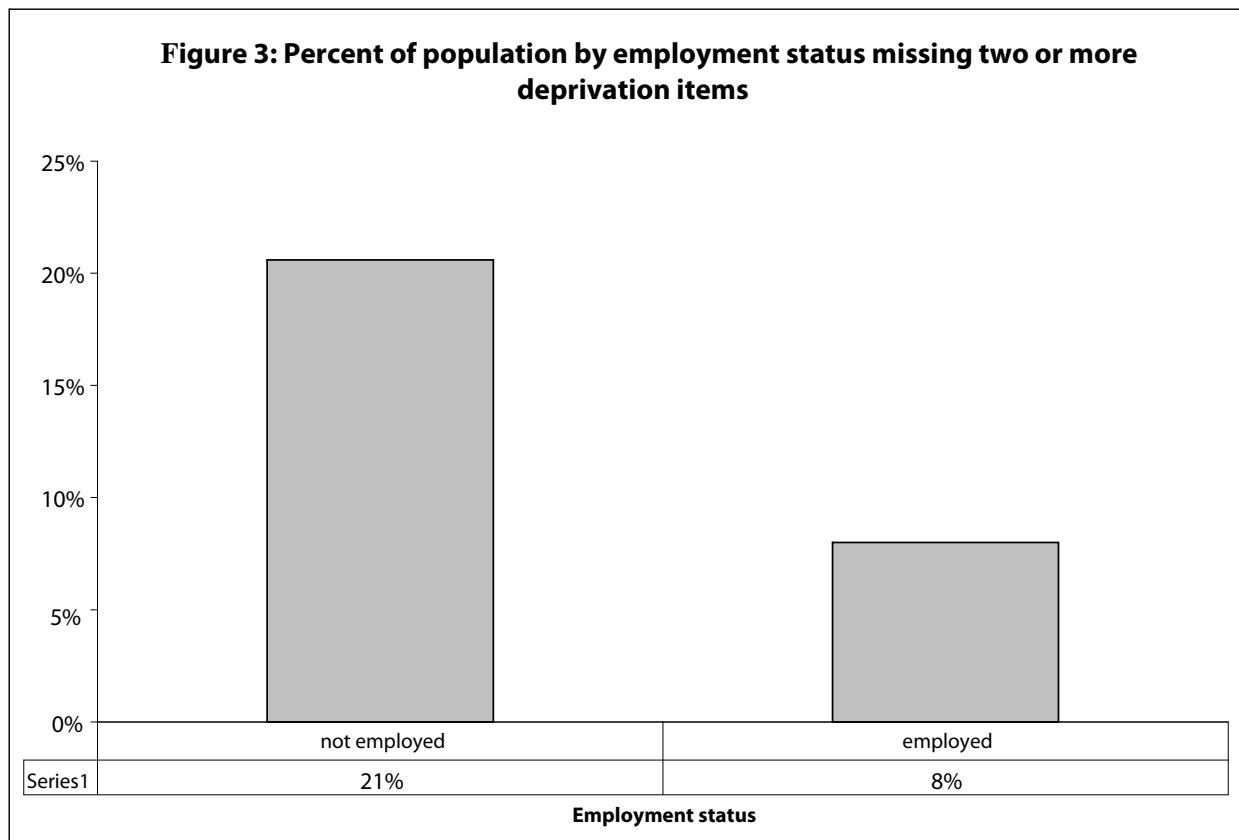
## Education

Figure 2 shows the relationship between deprivation and educational attainment. The higher the educational level, the lower the incidence of missing two or more deprivation items.



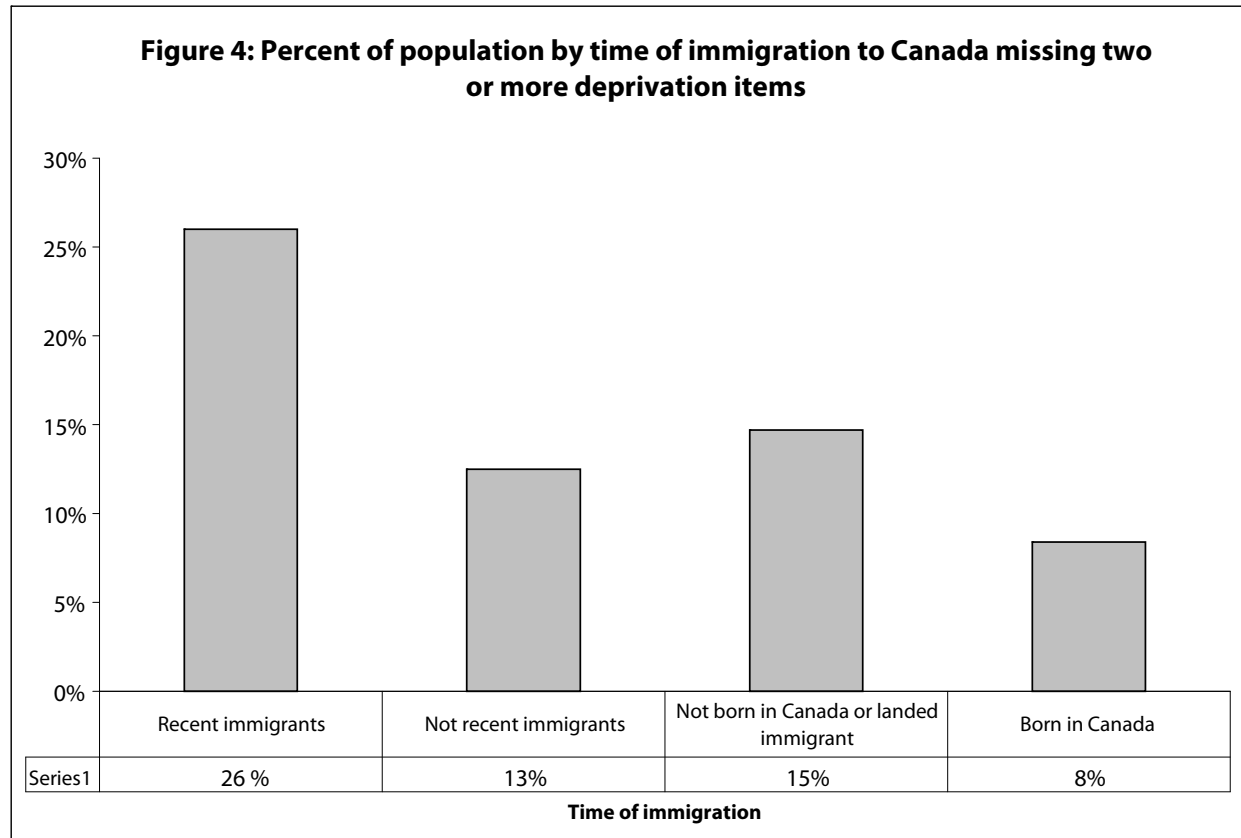
## Employment status

Figure 3 shows the incidence of missing two or more deprivation items among those who are unemployed compared to those who are employed. As employment status is recorded for each adult of working age participating in the labour market, and deprivation is recorded for a whole household, there may be many households where one adult is employed and another is unemployed. Nonetheless, we would anticipate that deprivation would be substantially higher among the unemployed than the employed, as can be seen on Figure 3.



# Immigration

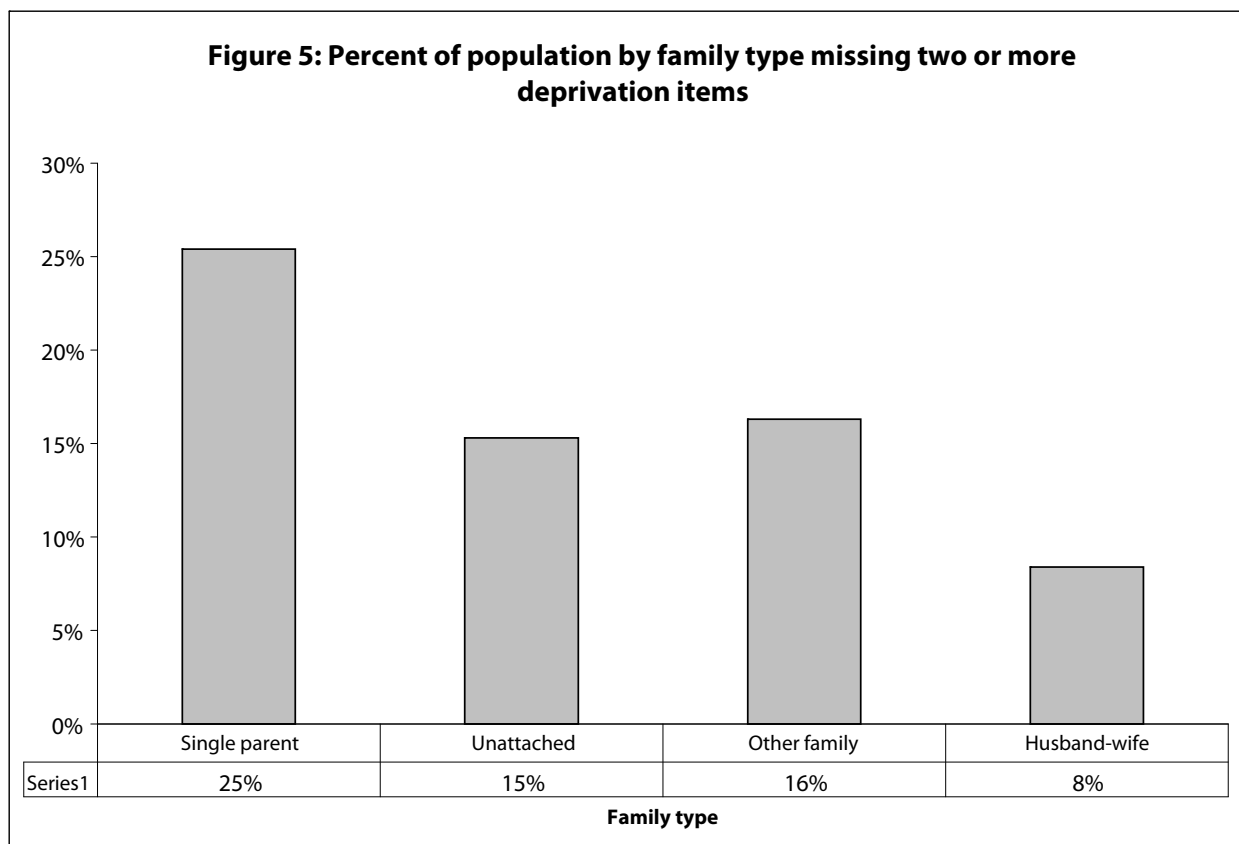
Recent immigrants are more likely to be poor than those who immigrated several years ago. Similarly, persons born outside of Canada or who are landed immigrants (not citizens) are also more likely to be poor than those born in Canada. These expected relationships are found for the Ontario Deprivation Index as is shown on Figure 4.





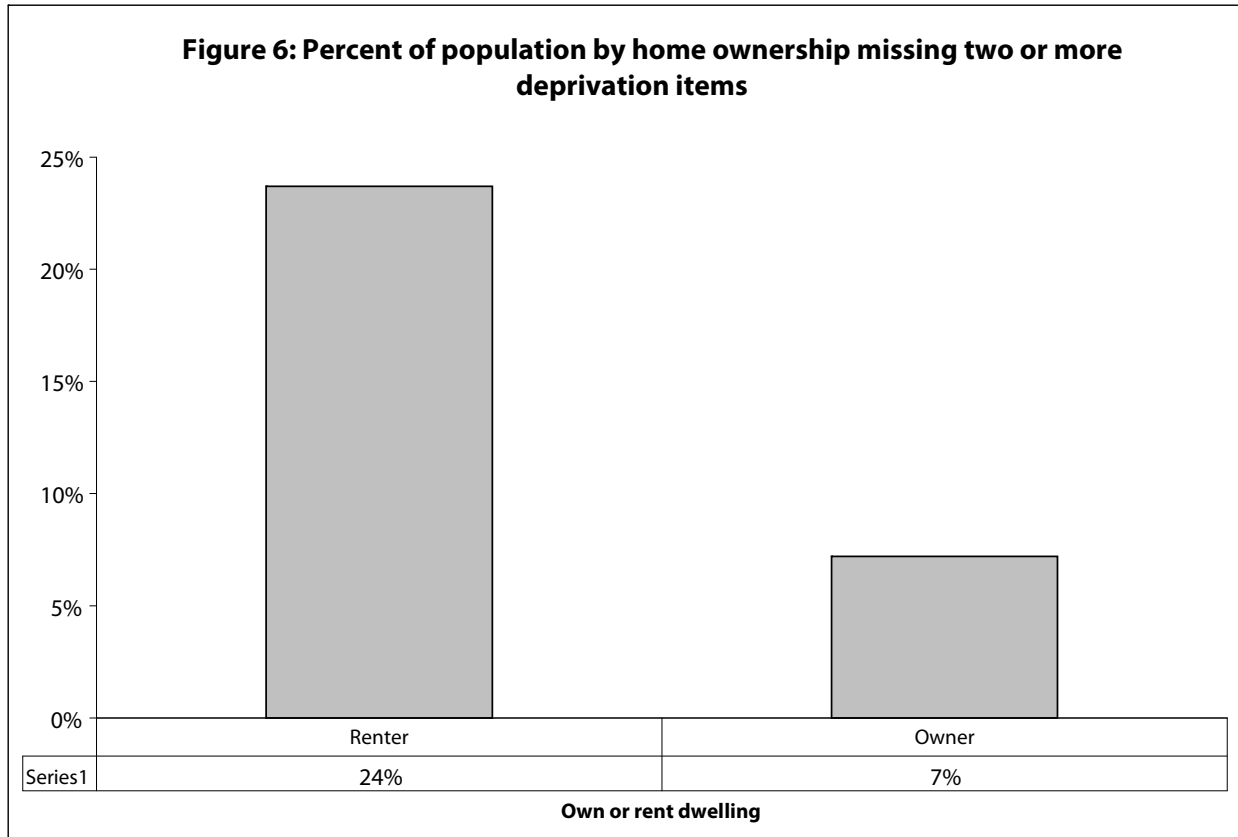
## Family type

Poverty rates are highest among single parents and unattached individuals, and this pattern can be seen on Figure 5 reflected in the Ontario Deprivation Index. 'Other family' consists of families such as grandparents looking after grandchildren, or adult children living with their parents and so on. The incidence of poverty among these sorts of families will bear further investigation. However, since any sort of familial breakdown is one of the major causes of poverty, the high incidence of deprivation among this family type should not be unexpected. 'Husband and wife' refers to both couples with and without children.



## Housing Tenure

Renters are much more likely to be poor than owners. The Ontario Deprivation Index also demonstrates this relationship as can be seen on Figure 6.



## Conclusion

In the above we have reviewed the performance of the Ontario Deprivation Index in relationship to six of the most common correlates with poverty. In every case, the Index performs as expected – tending to confirm it as a valid measure of poverty.

These six indicators were selected by the research team prior to the data being available, so this has not been a process of selecting the affirmative indicators among many others. At present, these are all the indicators we have available. The data is being made public today. Over time, we hope that other researchers will review the data in much more detail.

## References

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