Confederation COLLEGE

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50 Years of Progress: Measuring Confederation College's Impact on Social Progress in Northwestern Ontario

By: Anthony Noga
In Partnership with Confederation College

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This project as conceived was fairly straightforward: let's measure the impact that Confederation College has on social progress in Northwestern Ontario. This process would identify metrics that the college can draw upon to build on its strengths and achieve its vision under the Strategic Mandate Agreement. At the same time, it would contribute to the burgeoning literature on social progress, and grant a better sense of how people in Northwestern Ontario are truly doing. Being so deeply rooted within the fabric of Northwestern Ontario's communities, Confederation College is well positioned to enhance the everyday lives of northerners in a number of ways, not least through its education programs. It quickly became clear that this seemingly simple idea belied a challenging and elaborate research process that would have been wholly impossible to navigate alone.

I owe a great many thanks to those who helped turn this project from an idea into a reality. First, thank you to the Ontario Ministry of Training, Colleges, and Universities, whose generous funding was absolutely crucial in turning this idea into a reality. Next, thank you to Confederation College and Northern Policy Institute for making it possible to do this research right where I grew up. Collaborating and brainstorming with Max Bernosky at the college's Office of Institutional Research and Strategic Planning was an exciting dynamic, and hopefully leads to further opportunities in the near future. We now have much deeper knowledge of the role that Confederation College plays in improving the lives of ourselves, and our families, friends, neighbours and fellow northerners, and it is thanks to this partnership that the MTCU enabled.

Seeing my name alone on this report feels a touch disingenuous, as a slew of gifted NPI analysts brought their considerable skills to bear. Tosin Ajogbeje, Kathleen Baker, Rachel Beals, Fenfang Li, Alex Ross, Christina Zefi and Allan Zhang all lent their expertise in some fashion, and I owe them each a debt of gratitude. I owe another to the communications and translation team for making this report shine in both of our official languages.

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About Confederation College

Confederation College has been serving the citizens of Northwestern Ontario since 1967 meeting the educational needs of students in a catchment area of some 550,000 square kilometres. Along with its main campus in Thunder Bay, Confederation College has eight regional sites located in Dryden, Fort Frances, Geraldton, Kenora, Marathon, Sioux Lookout, Red Lake and Wawa.

Confederation College delivers exceptional education and training to an average of 7,200 combined full- and part-time students per year and currently has a total of 850 full- and part-time employees. Confederation's regional economic impact and contribution is valued at $643.4 million annually.

About Northern Policy Institute

Northern Policy Institute is Northern Ontario's independent think tank. We perform research, collect and disseminate evidence, and identify policy opportunities to support the growth of sustainable Northern Communities. Our operations are located in Thunder Bay and Sudbury. We seek to enhance Northern Ontario's capacity to take the lead position on socio-economic policy that impacts Northern Ontario, Ontario, and Canada as a whole.

Contents

8 Executive Summary
9 1. Introduction
10 2. Methodology
10 2.1 Independent Variable
10 2.2 Dependent Variable
10 2.3 Data Gathering
11 2.4 Research Approach
12 2.5 Comparing to Census Divisions
13 2.6 Data Challenges
14 3. Literature Review
14 3.1 Income and Inequality
14 3.2 Health Outcomes
14 3.3 Social Engagement
15 3.4 Community Safety
15 3.5 Economy
15 3.6 Summary
16 4. Confederation College's Community Presence
16 4.1 Student Body
16 4.2 Distance Education
16 4.3 Proximity to Campus
17 4.4 Non-Postsecondary Education
18 4.5 Indigenous Learning
18 4.6 Summary
19 5. Social Progress in Northwestern Ontario
19 5.1 Human Capital
20 5.1.1 Education Achievement
20 5.1.2 Labour Force

22 5.1.3 Dimension Summary
22 5.2 Economy
23 5.2.1 Productivity
24 5.2.2 Diversity
24 5.2.3 Dimension Summary
24 5.3 Individual Prosperity
25 5.3.1 Income and Inequality
26 5.3.2 Housing Conditions
27 5.3.3 Health and Well-Being
28 5.3.4 Dimension Summary
28 5.4 Community Vitality
28 5.4.1 Demographics
29 5.4.2 Civic Engagement
30 5.4.3 Community Safety
31 5.4.4 Dimension Summary
32 6. Conclusion and Future Research
32 6.1 Conclusion
32 6.2 Future Research
34 Bibliography
36 Appendix A
37 Appendix B
40 Appendix C
55 Appendix D
66 Related Research

Executive Summary

Confederation College has an observable positive impact on social progress in Northwestern Ontario. This project identified 26 commonly used indicators of social progress that a) can be linked to higher education institutions (HEIs) through existing scholarly literature, and b) have data available at the local level in Northwestern Ontario. These indicators were measured over a twenty year period in the eight communities in the region that host a campus, as well as three counterfactual communities – one from each census division – that could ostensibly have hosted a campus, but did not. These results were tested against two more locations in Northwestern Ontario that do not host a campus, as well as a pair of test cases in the Northeast.

A variety of statistical tools helped determine that Confederation College, rather than other possible factors, was responsible for the observed progress. Red Lake and Wawa both opened new campuses in 2011, a clear and critical juncture in which both saw their relationship to the college grew substantially. Measuring their before and after results in the indicators, and comparing those to the six other locations that did not open a campus, helped distill the role that the college does have and is having on social progress.

The results indicate that those communities that have a stronger relationship to the college tend to have more human capital, as evidenced through their better education and employment statistics, they have more diverse and resilient economies, they enjoy more individual prosperity as evidenced by better income, poverty and housing affordability statistics, and the communities have greater vitality through more stable population sizes, better voter turnout in federal elections, and crime statistics. The latter two findings are particularly compelling as Red Lake and Wawa, having virtually nothing else in common in 2011 save for opening their campuses, saw marked and similar improvement, results not seen in locations that did not open a campus.

A number of pronounced data gaps limited the scope of the research, particularly in tracking health, well-being and civic engagement at the local level. Rectifying these gaps should be a top priority for further research on this important topic.

I. Introduction

Higher Education Institutions (HEI) have an impact well beyond their walls. Canadian colleges are community members, economic engines and drivers of progress in the cities and towns that they inhabit. This latter role has sparked a great deal of interest, both among scholars and post-secondary institutions themselves. This 'Third Mission' describes how, beginning especially in the 1970s, HEIs started "becoming more engaged with society and increasing their economic contributions" (Zomer and Benneworth, 2011, 82). It was part of a concerted and enduring effort to increase the networks and partnerships between HEIs, society, industry and government. In short, to grow and expand the relationship colloquially referred to as 'town and gown'.

Social progress is another emerging concept, albeit a much more recent one. It came onto the scene as a way to judge the progress a society makes in areas aside from the deeply scrutinized measures of economic growth. It eschews macroeconomic indicators in favour of measures that are more tangible and important to people living in those societies. It asks whether people feel they have enough high-quality food, shelter, access to education and other metrics that are more immediate in the daily lives of citizens than measures of Gross Domestic Product growth (SPI 2018). In short, it gauges whether or not quality of life is improving.

These two concepts have a very potent synergy, and are important in the everyday lives of Northwestern Ontarians. Confederation College, entering their sixth decade in Northwestern Ontario, is expanding their presence in the region, and establishing themselves as a large and growing player in communities across the Northwest. This begs a natural question: what impact does Confederation College have on social progress in Northwestern Ontario? In other words, is Confederation College influencing the quality of life for Northwestern Ontarians in a measurable way? A bevy of literature espouses the benefits of higher education and the value of HEIs, but what is the impact on the ground for people in the communities where Confederation College has a presence? How does it compare to places where the College is less active?

The answer is that Confederation College does in fact have a measureable positive impact on social progress in Northwestern Ontario. An extensive examination of data points relevant to social progress in communities across the Northwest showed that communities where Confederation has a campus show more progress than those that do not. Further, those communities with more students enrolled, that send more applications to Confederation and generally have a greater connection to the college see greater results in their social progress metrics. The same is true whether the community does or does not have a physical campus. Communities without a campus that enjoy a stronger connection to the college see better results than those with lesser engagement. Those observations of course could be spurious correlations, but most withstood tests for their rigour, even when accounting for confounding variables that could influence the results. Causality is always difficult to prove definitively outside of a laboratory setting, but a combination of qualitative and quantitative methods show with a high level of confidence that Confederation College's presence was, in fact, a causal mechanism behind the observed progress.

The findings indicate first, that Confederation's presence in Northwestern Ontario is a driver of social progress. Second, that stronger Confederation presence tends to yield stronger results. Third, there is a need for more local level data for many indicators. Fourth, that the results should continue to be tested going forward, and measures of both social progress and HEI engagement should be refined and enhanced to bolster further studies. Fifth, it identifies areas the college could focus on to drive social progress forward even further.

II. Methodology

This was a multi-dimensional project. It would have been simple to compare data on Confederation College's presence across the Northwest against data on social progress, if only those datasets existed. Instead, they needed to be built largely from scratch for this study. As such, the project investigated best practices and attempted to mimic them as closely as possible, by using a blend of public and private data from Statistics Canada, Elections Canada, the Community Data Program and Confederation College itself.

2.1 Independent Variable

The independent variable, community presence, is defined as the extent to which Confederation College has a connection to a given community. A very important note is that this study did not only measure the links between postsecondary education and social progress. Confederation College has a number of programs and partnerships that extend beyond traditional PSE, including dual credits such as courses on offer in high-schools. Community presence, therefore, is not analogous to postsecondary education, though there is some natural overlap. The terms presence, engagement and connection are used interchangeably throughout, but mean the same thing: how much Confederation College related activity is taking place in a specific location. This is measured through a combination of the presence of a campus, the existence of other Confederation programs or partnerships with high-schools or other community centres, the size of the student body, and the number of applicants from a given community. While there are established metrics for measuring HEI's engagement with the community, notably the Carnegie Community Engagement Classification, time constraints and data availability prevented them from being adopted for this particular project. Future research on the topic could benefit greatly from utilizing these, or similar, metrics.

Confederation College has eight campuses in Northwestern Ontario. This group, collectively referred to here as campus communities, includes: Thunder Bay; Marathon; Greenstone; Fort Frances; Kenora; Dryden; Sioux Lookout; and Red Lake. There is a ninth campus in Wawa, though its being in the Northeastern region relegated it to the role of a test case to verify findings from the Northwest. The metrics above were used to evaluate the strength of Confederation's engagement with each campus community. There are more than 100 other communities in the region that do not host a campus, nearly all of them much smaller and/or more remote than the campus communities. Data to measure the college's presence was provided by Confederation College explicitly for this study and used to measure what impact the college has in non-campus communities.

2.2 Dependent Variable

The dependent variable, social progress, is operationalized as the increasing capacity of a society to meet the basic human needs of its citizens, by establishing the building blocks that allow citizens and communities to enhance and sustain the quality of their lives and create the conditions for all individuals to reach their full potential. It is measured through 26 indicators that a far-reaching literature scan determined were important metrics of social progress. The scan included a review of 17 indices[1] that measure social progress, as well as scholarly writings on the topic measuring the concept and/or linking it to the presence or absence of higher education, or HEIs. The Social Progress Imperative (SPI) and Canadian Index of Well-Being (CIW) had the greatest influence on the study's methodology. Facets from both were incorporated throughout the research design and analysis. This review generated a list of more than 330 indicators that track social progress.

2.3 Data Gathering

A three-stage process distilled the metric list to the ones that this study focuses on.

Phase 1:

The first phase counted the number of times that an indicator appeared in the indices. A greater prevalence suggested greater importance. For example, every index measured educational attainment, an emphatic suggestion that it was important to track, as well as affirmation that the link between HEIs and social progress is robust and relevant.

[1]*The list of indices consulted is included in Appendix A*

Phase 2:

The second phase involved determining whether data was available at the necessary geographies to actually make the calculations. Indicators related to time and money devoted to cultural activities appeared in five indices, but data was not available at the local level, so they were removed.

Phase 3:

Finally, a review of academic literature removed those indicators that could not reasonably be linked to HEIs. Phases one and two left a group of indicators that were important to social progress, and could be tracked at the local level, but may have had nothing to do with a college's presence. The extensive literature on HEIs, higher education and social progress outcomes was consulted to see if there was evidence of a connection between the two. If there was no evidence of a relationship, the indicator was discarded. Indicators related to housing in need of repair was found in three indices, but the literature consulted offered no causal relationship between HEIs and this measure.

Final Output – Metric categories:

The result is a chimera index[2] that highlights the 26 most commonly used indicators that have available data for communities in Northwestern Ontario and can be linked to HEIs. The exact indicator was often not available, so a proxy was deployed. Borrowing terminology from SPI, related indicators are grouped together into components and related components are then grouped into dimensions. There are four dimensions of social progress: Human Capital; Economy; Individual Prosperity; and Community Vitality. There are 10 components spread across these dimensions, each of which will be expanded upon in the relevant section.

2.4 Research Approach

This study adopted a mixed methods research approach, utilizing both quantitative and qualitative methods. Most of the social progress indicators are tracked through the quinquennial census, and have data ranging back to 1996. On the other hand, the indicators measuring Confederation College's community presence are reported annually, and only available for this study dating back to 2010. This would only allow for two census data points. A workaround was implemented, where the result is a 20 year analysis of social progress in Northwestern Ontario, with a snapshot of Confederation College's impact in the last quarter of that timeframe. This ensures that observed changes in social progress are not due to random variation, and it generates a baseline of trends that can inform further study on the links between the variables.

A comparative approach, involving a number of statistical analysis tools, was used to measure the college's impact on social progress. The main tool was the Most Similar System Design (MSSD), a form of comparison used for "discovering empirical relationships among variables" (Ljiphart 1971, 682). In essence, MSSD compares two groups that are as similar as possible, except for the factor being tested. In this case, the campus communities were compared against a counterfactual group of three communities that could have opened a campus, but did not.

Manitouwadge, Atikokan and Ignace, like the campus communities, are all service and employment hubs in their respective areas, and had a population similar to those communities that opened a regional campus. They are remote, but not any more so than Red Lake or Sioux Lookout. In short, they are places that have many of the same criteria of the regional campuses in Northwestern Ontario, and very easily could have hosted a campus, but for a variety of reasons, did not. This group is convenient, as the college had stronger connections with some than others, which allowed for a more nuanced examination than a simple with or without comparison. The counterfactual group was tested against other non-campus communities to verify the robustness of the observed correlations. Nipigon and Red Rock were paired together to form one community, and the same was done for Terrace Bay and Schreiber. Each pair consists of adjacent municipalities that share the same characteristics of the counterfactual group. These five cases allowed for an empirical test of the counterfactual through the following questions:

- **Are there trends common to campus communities that are absent, or different in locations where a campus could have opened, but did not?**

- **What might have happened had Ignace opened a campus when its population was 2,500?**

- **What about Manitouwadge and Atikokan, which were both once over 4,000?**

This comparison is supplemented by a rudimentary Interrupted Time Series Analysis, in which Red Lake was the focus. Confederation College opened a campus in Red Lake in 2011, marking a clear and critical juncture where the town and gown relationship grew immensely. Comparing their performance before and after this critical juncture offered an opportunity to illuminate the influence that the college has on social progress. Wawa also opened a campus in 2011, and was used to test the differences found in Red Lake and the non-campus communities. A qualitative examination determined that these two communities had very little in common in 2011, save for opening a Confederation College campus. As such, they offered a complementary Most Different System Design to round out the analysis. To ensure the findings were robust, Blind River was brought in as a test case for Northeastern Ontario. Blind River is reasonably

[2]*The final index used is attached in Appendix B*

similar to Wawa, but did not open a campus in 2011, thus offering more insight into the impact an HEI has. This segment of the research approach was designed to answer questions such as:

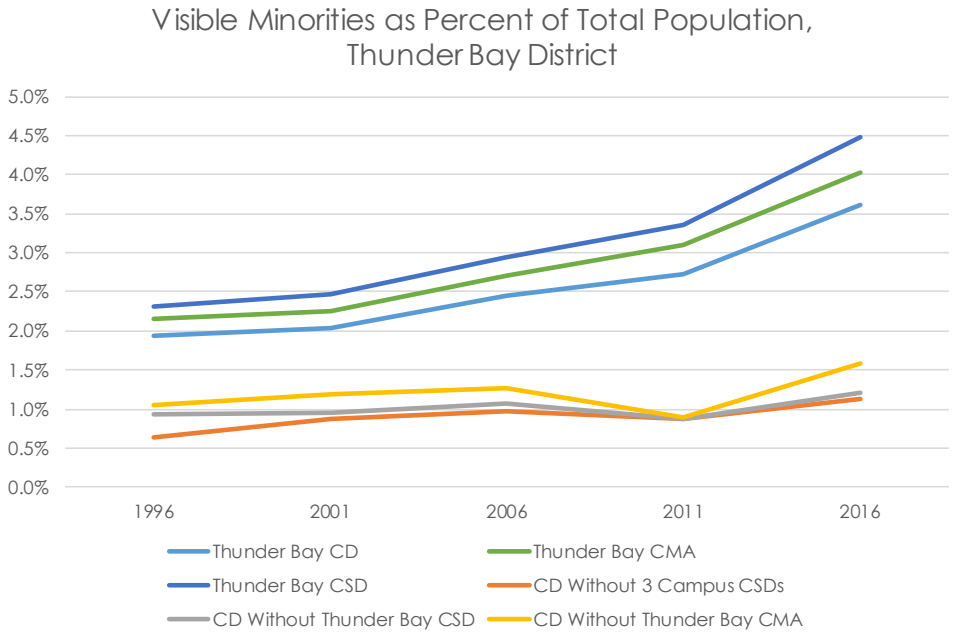
Are there any visible changes to social progress metrics after a community opens a campus?

Do Red Lake and Wawa see improvements that non-campus communities do not?

2.5 Comparing to Census Divisions

In addition to a direct comparison at the community level, the campus communities were compared to the Census Divisions (CD) they are located in. It was quickly apparent that the campus communities, especially the city of Thunder Bay, were distorting the CD totals with their often overwhelming share of the population and economic activity. Removing them from the CD totals yielded much different results. This is an important piece of information for other studies of Northwestern Ontario. Thunder Bay in particular has a major distortionary effect on both the CD and the region as a whole. Put simply, data for Thunder Bay CD is often just the data for the City of Thunder Bay, with a little bit of statistical noise.

Figure 1: Example of the impact the city of Thunder Bay has on district totals



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey. Statistics Canada defines Visible Minorities as those who are not Caucasian or Indigenous in ancestry

Unless otherwise stated, the CD total in the below data refers to the calculated amount once the campus communities are removed. The result is a comparison between the individual communities that do have a campus, and an aggregate of those that do not. In a sense, the CD acts as a baseline of expected social progress should Confederation College be removed. Of course, there are many potential confounding variables that could be influencing the results, primarily the strength of the local economy and the size of the non-campus communities.

Thunder Bay CD minus the campus communities still has some large centres. The municipalities, First Nation and unincorporated districts surrounding the city of Thunder Bay had an aggregate 2016 population of nearly 20,000. Manitouwadge, Nipigon, Red Rock, Terrace Bay and Schreiber had another 7,000 combined, and each are more than an hour's drive from the nearest campus. The CD is thus a blend of large rural swathes surrounding some fairly isolated urban pockets. As such, it acts as a reasonable comparator for the smaller campus communities.

Kenora CD, on the other hand, does not have those other centres. Only a single municipality that did not host a campus had more than 1,000 people in 2016 – Ignace. Six First Nations do surpass that threshold, but many lack year-round connection to the highway system and have the unique characteristics that come along with such communities. Nearly half the district's population lives in these smaller communities that lack the critical mass of people and infrastructure to actually host a campus. For this reason, and because most of the non-campus communities are First Nations, the comparison is more geared to the counterfactual than the CD.

Rainy River CD is something of a Goldilocks, falling between the dispersed urbanity of Thunder Bay and near total rurality of Kenora. Roughly one-third of the populace, or 6,400 people, lives in the 13 communities within an hour's drive of the campus, and another 7,800 – 40 per cent of the total – are in Fort Frances itself. Atikokan is the only other community with more than 1,500 people. In short, the district is one urban centre with a large, mostly rural fringe, and another, smaller urban centre. It acts as an intriguing foil, as the size of the fringe suggests benefits from the college are liable to be diffused over a large number of small communities.

The emphasis in all cases, however, remains on the campus communities compared to the counterfactuals. The community to district comparison is secondary. The counterfactual communities were carefully selected as being as similar as possible to the campus communities, save for the presence of a campus, in an effort to control for other factors. It is an imperfect solution, but such is the case in an uncontrolled environment. This difficulty was among the least challenging limitations that this study encountered.

2.6 Data Challenges

Accessing reliable data for Northern Ontario continues to be a challenge. Many important indicators were not available at local geographies, making it extremely difficult to say with any certainty whether Confederation College's presence was making a discernable impact. Those indicators that were most difficult to measure were unfortunately among the most important in relation to social progress. Having data on perceptions on health and satisfaction with quality of life available at the community level will be a major improvement to future study, and will be an even bigger boon to policymakers.

Even more troublesome was data from the year 2011, which was often of suspect quality. The National Household Survey (NHS) produced less reliable data than the censuses, and Statistics Canada felt the need to suppress responses for privacy and/or reliability issues in a number of places, notably Marathon, Nipigon and Manitouwadge. As such, there is very limited data available for these locations in 2011. Worse still, a series of wild fires prevented 13 First Nations in Kenora CD from being enumerated at census time. A special collection later that year found there were 8,520 people in these communities, though these totals are not included in the census figures for 2011. This is important not only for this study, but any examination into Kenora CD or Northwestern Ontario more generally. The region's population growth looks much different when these 8,520 individuals are properly accounted for.[3] This study incorporated these communities into the CD totals where possible. Researchers, observers and policymakers should be aware of this gap when studying and making decisions for the district.

[3]Pikangikum, one of the largest First Nations in the region, was not enumerated in 2016 due to 'other' reasons. Their 2011 population count of 2,280 was added to the 2016 totals. If they experienced the same growth rate from 2011 to 2016 as 2006 to 2011, their population would be closer to 2,500

III. Literature Review

The links between social progress and HEIs have a robust theoretical foundation, and they all hinge around the notion that HEIs provide both monetary and non-monetary impacts in a community and region. The market benefits have been well and thoroughly documented. These include things such as the increased earning potential and productivity gains stemming from higher education, but they only tell part of the story. Less than half, according to Walter McMahon. He found that non-market benefits to the individual and society account for roughly two-thirds of the entire benefits of higher education (McMahon 2004). These benefits overlap to a great degree with concepts integral to social progress. Crime rates, health outcomes, income inequality, and more are all improved through HEIs.

Spiel et al (2018), Kromydas (2017), Zimmerman, Woolf and Haley (2017), Shapiro (2005), and Mokyr (2002) all explore the nature of these benefits. Spiel et al (2018), contributing to the International Panel on Social Progress (IPSP), elaborate that education drives social progress in four ways. First, it develops productive skills, which benefit the individual in the workforce and in turn contribute to societal prosperity. Second, it grows individual civic skills, which enable a more informed and engaged polity. Third, it enhances individual talents and interests, allowing society to reap the benefits of human achievement. Fourth, education can act as a springboard to greater equity and social inclusion. The World Bank (2018) uses nearly identical language to outline the positives of education, and find that many benefits accrue "especially after high-school" (40). Cleary, education – including higher education – drives social progress, and it does so by enhancing the four dimensions that this study focuses on.

3.1 Income and Inequality

One important area that education plays a major role in is income and inequality. Kenyon, Mateshaytis and Caulfield (2012) find that education is a key to lowering income inequality, especially over the long term, a finding that is reiterated by the World Bank (2018). Ostrovsky and Frenette (2014) and Ma, Pender and Welch (2016) emphasize the greater earning potential for those with post-secondary education. Cuddy and Mozzami (2016) calculate that a college degree increases a Canadian's earnings by 44 per cent compared to a high-school diploma. Lastly, Ma, Pender and Welch (2016) find that PSE graduates in the US pay an average of 91 per cent more total tax than those with a high-school diploma, while still taking home more net income. Clearly, the individual and society both benefit from the greater earning potential leveraged through HEIs. Furthermore, the pocketbook is not the only place HEIs make their presence felt.

3.2 Health Outcomes

The World Bank (2018) examines how mortality rates plummet with higher education, concluding that it "leads to longer lives and better choices" (40). Cress (2012) also finds that higher education leads to better health, while Zimmerman, Woolf and Haley (2015) find that education level is a key predictor of health outcomes. The defining logic is always the same; better educated individuals are in a better position to make decisions that are good for their health, and possess the agency to better advocate for themselves. Ross (2002) bolsters the finding by showing a relationship between higher levels of education and perceptions of health. Healthier individuals have more opportunity to be productive in the economy, and inherently require fewer healthcare resources. In other words, higher education allows people to contribute more to the communal wealth while using less of it. However, just because people can be more active in the community, does not always mean that they are.

3.3 Social Engagement

The evidence suggests an unclear relationship between higher education and social engagement. A literature review on community belonging conducted by Valle Painter (2013) for Citizenship and Immigration Canada found minimal and inconsistent relationships between education and community belonging. On the other hand, Helliwell and Putnam (1999) argue that education level is the single most important predictor of social engagement. Cress (2012) and Savage and Norton (2012) found a statistically significant relationship between academic engagement and civic participation, one that appeared to be reciprocal. They found that stronger community engagement lead to more learning opportunities and higher graduation rates (Cress 2012). Ross (2002) suggests these discrepancies may be the

result of different methods to conceptualize and/or measure community belonging. Whether or not education boosts community involvement, it certainly does impact community safety.

3.4 Community Safety

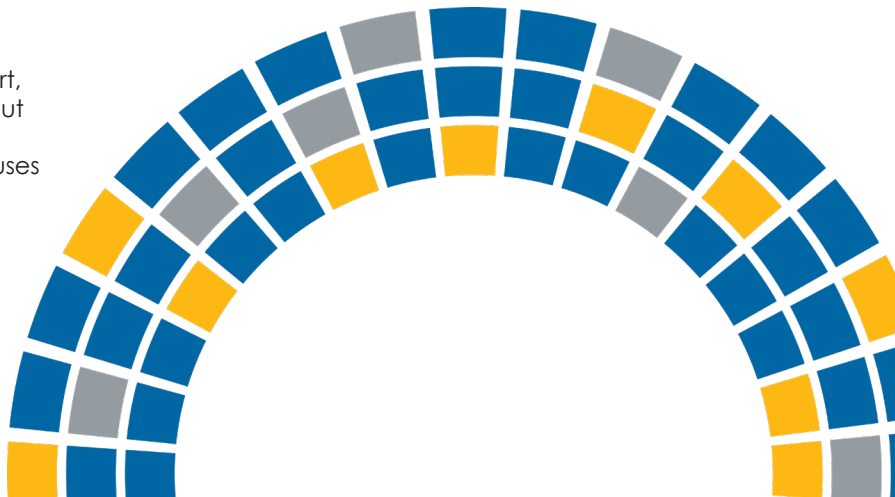
The links between increased educational attainment and crime are well documented. Savage and Norton (2012) cite Gary Becker's Economic Theory of Crime to state that the better labour-market potential stemming from PSE graduation would de-incentivize criminal behaviour. Hjalmarsson and Lochner (2012) also touch on the labour market outcomes, and add that formal education makes people more patient and better able to make long-term decisions. They find in the United States that a one year increase in a state's average education levels reduced arrest rates by 11 per cent or more, including 30 per cent reductions in murder and assaults. Hermannsson and Swales (2010) also find that HEIs reduce crime. The World Bank (2018), meanwhile cites the "incapacitation effect" of formal education on crime rates. In effect, if students – particularly young males – are receiving an education, they have less time to commit crimes. This is where it is important to recognize that an HEI's impact is not solely in producing PSE graduates. Programs in high-schools or community centres that are not traditional PSE can also build the human and social capital that propels social progress forward.

3.5 Economy

While social progress measures tend to steer away from economic indicators, they remain extremely important metrics of prosperity, and HEIs play a major role in driving local economies. Andersson et al. (2004) performed an econometric study on HEIs in Sweden using 14 years of panel data and found a statistically significant relationship between HEI activity and regional economic productivity. In short, an increase in students and researchers were both found to improve productivity in regional economies. Furthermore, they found that regional economies were very dependent on their neighbours, and there were highly significant positive economic externalities of HEIs for nearby regions. In short, HEIs improve productivity not only in their own region, but in neighbouring ones as well. While there is assuredly a point of diminishing returns, a proliferation of HEI campuses in neighbouring regions appears to have potential to unleash significant economic growth.

3.6 Summary

Ultimately, HEIs improve the human capital, economy, individual prosperity, and the vitality of the communities that they are in. McMahon gives perhaps the best summation: in addition to the increased earning potential, education provides "direct benefits to longevity, reduced poverty, lower crime rates, lower public welfare and prison costs, environmental sustainability, contributions to happiness and social capital, and effects from the dissemination and capacities to use new R&D" (McMahon 2010, 263). He found that in the US, a completed bachelor's degree yielded marginal benefits to the tune of $69,816 (2007 USD) per year. 46 per cent of this total, or $32,331, are benefits that spill over to society as a whole, including future generations.



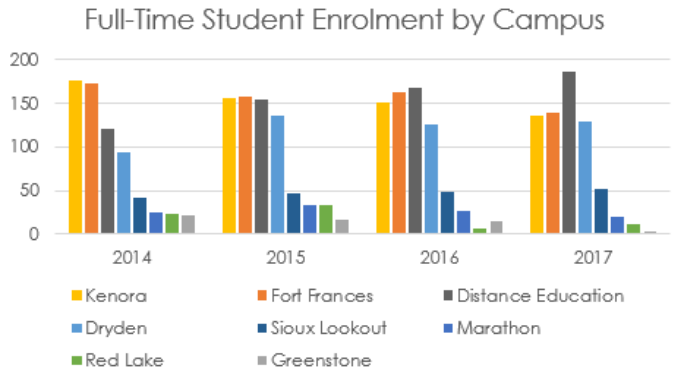
IV. Confederation College's Community Presence

Where and how does Confederation College have a presence in Northwestern Ontario? The obvious answer is that it provides higher education at the eight campus communities, but this only tells part of the story. As mentioned, there are a range of partnerships, programs and other initiatives that hint at the larger network in which Confederation College operates. This network includes Distance Education opportunities, the School College Work Initiative (SCWI) situated in a number of high-schools, partnerships with First Nations education providers, and a range of other non-PSE programs and activities that community members can access to upgrade and/or enhance their knowledge and skills. These other avenues notwithstanding, the most logical place to begin measuring the college's community presence is through the size of the student body in each regional campus.

4.1 Student Body

The number of students enrolled in at each campus is a good way to differentiate the college's presence among the campus communities.

Figure 2: Number of Full-Time PSE Students Enrolled at Each Regional Campus, Excluding Thunder Bay



Source: Confederation College, 2018

Figure 2 shows the number of students enrolled full-time in PSE courses at each campus aside from Thunder Bay. The main campus' numbers are so much higher that it would be impossible to get an accurate picture of the college's presence in the smaller communities if it was included. This illustrates the difference in the college's presence among the campus communities. Kenora, Fort Frances and Dryden typically host the largest student bodies, while Greenstone is usually the smallest. The 2017 numbers were affected by a labour dispute, and while overall enrolment appears to be declining, there were actually eight more full-time students in 2017 than 2014, despite the faculty strike. The growth in Distance Education enrolment is among the biggest reasons Confederation College has expanded its presence.

4.2 Distance Education

The Distance Education component allows students to access 27 different programs remotely via web conferencing and/or video conferencing. These programs range from Business, Office Administration and General Arts and Science to more specialized programming, including Diabetes Education, Early Childhood Education, Native Child and Family Services, and Personal Support Worker. They can be accessed from any home, campus or Contact North site with suitable equipment. Contact North sites are online learning centres run by the province that students can access free of charge to partake in their distance education. There are 27 sites located in Northwestern Ontario, including at least one in each of the campus communities, the counterfactuals, and the test cases. In addition, there are six situated in remote First Nations in the Far North. Online learning and distance education have opened new pathways to education in Northwestern Ontario, especially given that physical proximity to a campus has historically been a major determinant in whether or not a person pursues higher education (Frenette, 2002).

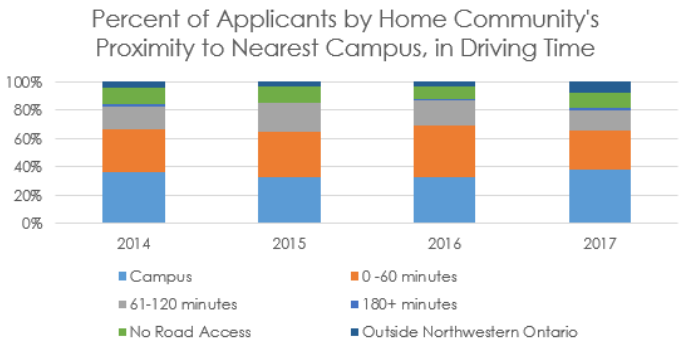
4.3 Proximity to Campus

Where the campuses are located plays a key role in determining who is able to access the college's services. For this project, each community in Northwestern Ontario was categorized based on their driving distance to the nearest campus, according to Google Maps.

The size of Northwestern Ontario makes the proximity barrier a difficult one to overcome. However, Confederation College has been very strategic in locating their campuses, to the point that only six out of 76 communities with year-round road access are more than

a two hour drive from the nearest campus.[4] This is rather impressive, given that Northwestern Ontario has a larger landmass than all but 48 countries (World Bank 2018a). There are, of course, another 30+ communities that do not have year round road access and so cannot access the college so easily, however that has not been a total deterrent, as Figure 3 demonstrates.

Figure 3: Driving Time from an Applicant's Home Community to the Nearest Campus, Excluding Applicants from Thunder Bay



Source: Authors calculations from Confederation College, 2018 and Google Maps

Figure 3 shows which categories produce the most applications to the college. Tracking applicants is interesting, as it hints at both educational attainment and aspirations of a population. The number of applicants that either do not have the prerequisite education or the desire to attend college is almost certainly negligible. Thus, the above graph offers a window into where the college can target its recruitment efforts. Applicants from Thunder Bay are omitted again, in order to better detail the picture in smaller centres.

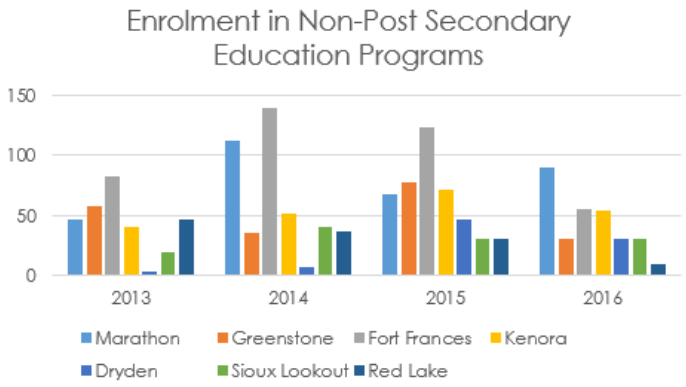
Across the board, more than three of five applicants are from either a campus community, or somewhere that is less than an hour's drive to the nearest campus. Is this a case of proximity to campus holding sway as a key determinant, or simply a natural by-product of the fact that these communities have the largest populations? At the very least, it shows that the proliferation of regional campuses has eliminated barriers that applicants in these places would have faced had there been no campus. It also demonstrates that the college's impact extends beyond those eight campus communities, and its reach is not constrained to the areas immediately adjacent.

First Nations without year-round road access typically produced around 10 per cent of applications to the college (City of Thunder Bay excluded) between 2014 and 2017, and that is likely a conservative estimate. The above data was calculated from the postal codes attached to applications submitted to the college. Any code that generated fewer than five applicants in a given year was suppressed for confidentiality. Even more interesting, the applications are not contained to those six communities that host a Contact North site. Sachigo Lake, Pikangikum and Deer Lake, for example, all tended to produce relatively high numbers of applications, despite not hosting a Contact North site. Confederation College is clearly having an impact in these locations, by providing PSE opportunities to those who have an interest in pursuing them.

4.4 Non-Postsecondary Education

The post-secondary courses are the most visible manifestation of Confederation College's presence in a community, but they are not the only one. The college also has a number of programs aimed at upgrading education and smoothing the transition to PSE. The School College Work Initiative (SCWI) is one notable example of such programs.

Figure 4: Enrolment in School College Work Initiative and Education Upgrading, by Campus



Source: Confederation College, 2018

The SCWI targets students facing barriers to high-school graduation and tailors learning opportunities to them (Confederation College, nd). Figure 4 shows the enrolment in SCWI by campus. Greenstone's data also includes those taking part in other programs to upgrade their literacy or other basic skills. This example shows plainly how the college is engaged with Northwestern Ontario communities beyond simply providing PSE courses. There were generally more people enrolled in non-PSE courses in Greenstone than in actual college course during the observed time-frame. An average of 366 people accessed these programs each year across the region, demonstrating Confederation College's presence beyond traditional PSE.

[4] *NPI calculations using Google Maps*

4.5 Indigenous Learning[5]

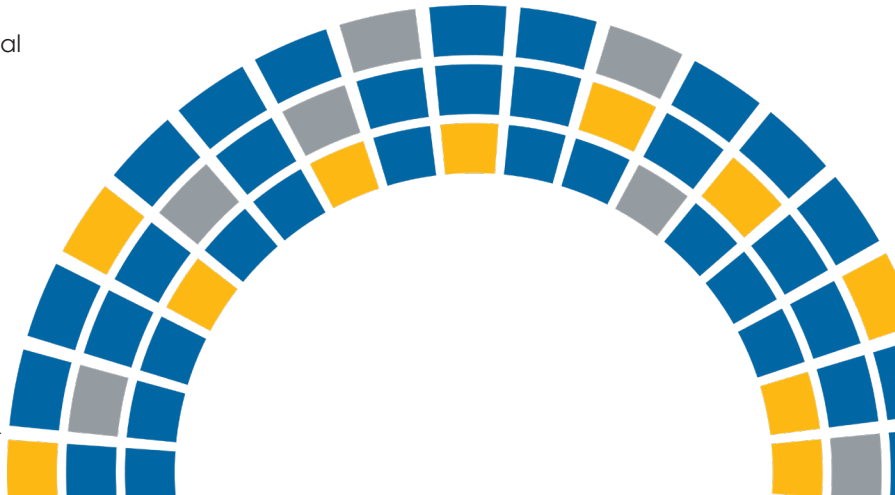
Programs for, and inspired by, the region's Indigenous population warrant special consideration. The college lists Indigenous learning as one of their institutional strengths in their 2017-2020 Strategic Mandate Agreement and there are a number of programs in effect that contribute to this end.

One such program involves partnerships with First Nations high schools to provide dual credit learning opportunities. Others revolve around collaboration with individual First Nations, Indigenous education and healthcare agencies and political organizations such as the Metis Nation of Ontario. The partnerships help improve pathways to Indigenous participation in higher education, and address skills gaps, particularly in the Far North. The college also employs Indigenous Student Navigators, which provide targeted supports to Indigenous learners in the region.

Educational programming is only one part of the learning experience, and Confederation's engagement with Indigenous learning outcomes extends beyond program delivery. In partnership with the Student Union of Confederation College Inc. (SUCCI), the Thunder Bay campus opened a wellness centre called Minowaadiziiwin, meaning "to lead a good life", which incorporates Indigenous architecture and design elements. The partnership with SUCCI extends to hosting a number of cultural events highlighting traditions of Indigenous peoples in the region, including smudging ceremonies and powwows.

4.6 Summary

Confederation College's presence is not limited to the campus communities, any more than it is constrained to provision of PSE. Certainly those are the most prominent elements of the college's engagement with local communities, but it is not the extent of it. Many communities without a campus feel the presence of the college, through sending applicants and/or accessing programs remotely. The size of the student body at each campus shows that the college has differing levels of activity among the campus communities, while the presence of programs and events beyond the traditional domain of PSE illuminates the larger network that Confederation College is a part of.



[5]*This section draws heavily from Confederation College's 2017-2020 Strategic Mandate Agreement with the province*

V. Social Progress in Northwestern Ontario

What actually constitutes progress? How is it measured? These simple questions have profound implications for the overall study. The analysis is based on the Canadian Index of Well-Being's (CIW) approach, namely to measure the percentage change from a baseline year. This method quickly painted two pictures in stark opposition. Northwestern Ontario was generally much better off in 2016 compared to 1996, but often worse off than in 2006. 2011 was the first choice to measure short-term progress against, but the data gaps outlined above made 2006 the better option. As such, there are two baselines, a long-term one, and one based on the most recent data prior to Confederation opening its newest campus. Tracking the absolute changes is important, but context reigns. Thus, judging progress became an exercise in relativity, especially when measured from the 2006 baseline. In many cases, it was more a matter of who is not doing as poorly, rather than who is progressing the most.

This relative comparison method has theoretical backing in the Social Progress Imperative, which constructs peer groups to measure against for a more nuanced analysis. A country may be experiencing progress, but is it more or less than similar countries? This method provided simultaneous answers to the two driving questions behind this study: Has there been social progress, and is Confederation College contributing to it?

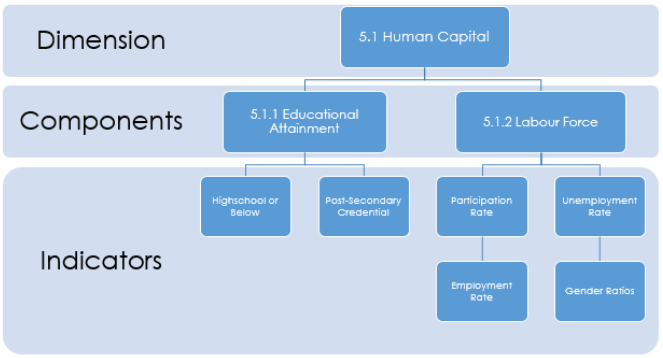
While there is an argument that some indicators are more important than others, this study followed the path set by the CIW, which found there was no "good reason for assigning any particular indicator a weighting greater or less than that of some or all other indicators. The absence of such a reason justifies the equal treatment of all indicators at this time" (CIW 2016, 87). As such, every indicator is assigned equal weight. Further research could explore the potential of weighing certain indicators more heavily than others.

The graphs below are examples to illustrate the observed trends. An effort was made to have each census district well represented, though the distribution may not be perfectly equal. The counterfactual group is always shown in black, in order to remain consistent. To keep the report to a manageable length, the majority of the graphs have be moved to Appendix C.

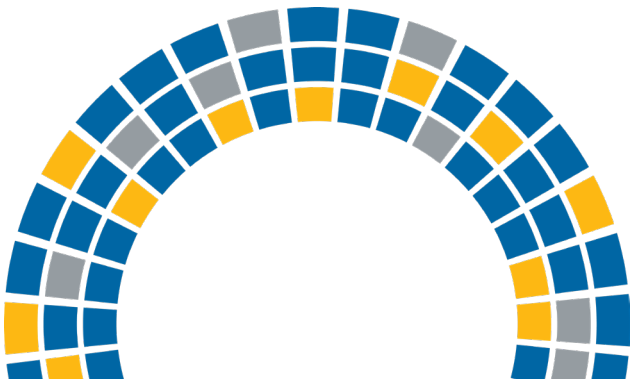
5.1 Human Capital

Human Capital is the first, and arguably, foundational element of social progress. Each of the other dimensions hinges on the skills, knowledge, abilities and potential of the population. As such, it is the logical place to begin. Figure 5 lays outs the components and the indicators that measure human capital.

Figure 5: Dimension, Components and Indicators of Human Capital

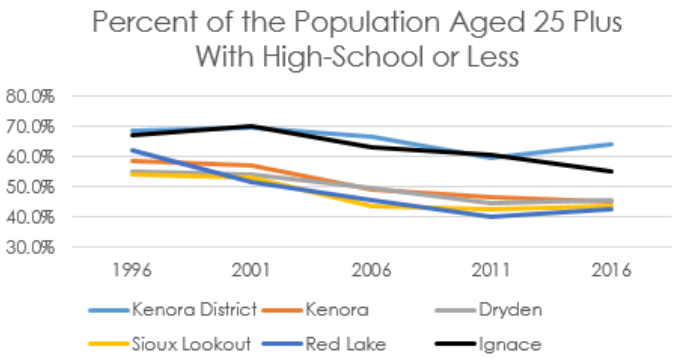


The first dimension measures the abilities and potential of the population, a fundamental facet of social progress. This dimension asks: what skills and knowledge does the population possess, and how effectively are they being put to use? While there are a great many indicators that can and do apply under this dimension, educational achievement and labour force statistics were the only ones that both had data at the relevant geography, and could be linked back to Confederation College.



5.1.1 Educational Achievement:

Figure 6: Percent of the population that has earned a high-school or equivalent diploma or has not completed high-school, Kenora Census Division

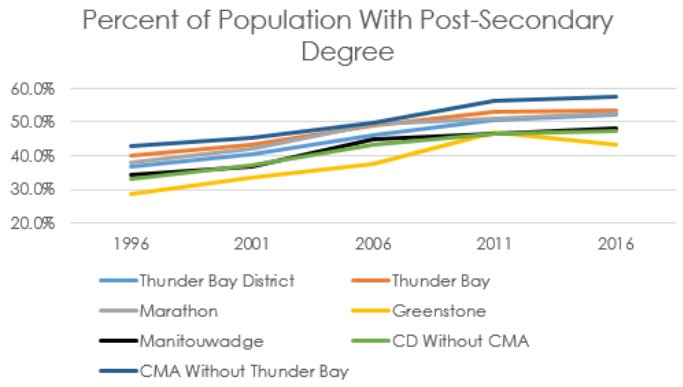


Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey

The benefits of post-secondary education are outlined in detail above, but suffice it to say that a better educated workforce is generally a more productive workforce. Figure 6, examining those with a high-school degree or less as their highest educational achievement, shows very clearly the impact that an HEI has on education levels. The four communities in Kenora district with a campus have all dropped to 45 per cent or less in 2016. The counterfactual, meanwhile, remains at 55 per cent, while the district in general is nearly 65 per cent. Comparing the large urban centres to the aggregate total of small and/or remote communities is not entirely fair, as the latter group may naturally lack many of the drivers of social progress. However, it is interesting to note that the counterfactual, which is reasonably large and on the Trans-Canada Highway, is usually closer to the CD than the campus communities.

The campus communities saw their rates improve by 23.6 per cent over the 20 years, compared to 16.1 per cent in the counterfactuals. When the test cases are brought in, it is a much closer 20.5 per cent change. Since 2006, the counterfactuals have had a better percentage change, though their actual rates remain nearly eight points worse than the campus communities, at 50.7 per cent compared to 42.9. Red Lake was nearly in line with Ignace in 1996 and now has the best rate in the CD, while Ignace's remains the worst.

Figure 7: Percent of the population that has completed a post-secondary credential, Thunder Bay Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

Figure 7 is the inverse of Figure 6, and shows those with a credential above high-school. It also has an added wrinkle in that the Thunder Bay Census Metropolitan Area (CMA)[6] was removed from the CD and graphed separately, as were the aggregate totals of the CMA's outlying communities. It is interesting to note that the latter group consistently performs the best. Even more fascinating, in this group the percentage of PSE graduates with college as their highest degree rose from 37 per cent in 1996 to 47 per cent in 2016. This is a strong indication of the spillover benefits alluded to above, especially as the outlying communities of the CMA tend to produce the second most applicants to Confederation College, behind only the city of Thunder Bay.

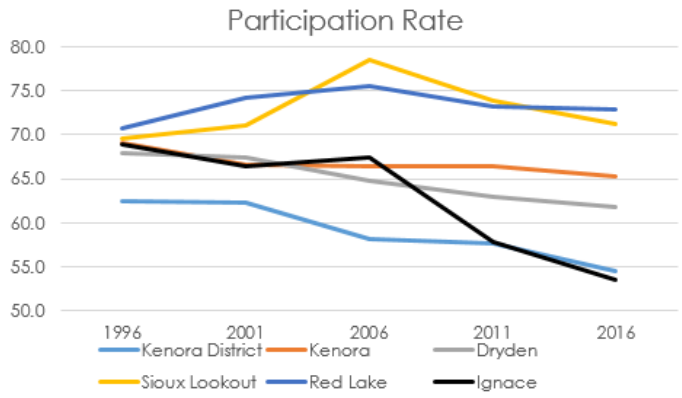
The campus communities are, unsurprisingly, producing a better educated labour force than the counterfactuals. This is true for all communities except Greenstone. Even so, less than 10 per cent of Greenstone's population had a college degree in 1996, a clear laggard. Over the next two decades, that number climbed to 22 per cent, passing Manitouwadge along the way. Overall, the campus communities have seen their rates climb by 33.8 per cent, slightly higher than the counterfactuals rate of 31 per cent. The per cent change only tells part of the story, however. The campus communities' combined rate is 52.2 per cent, compared to 45.5 in the counterfactuals. Adding in the test case again narrows the gap from 52.2 to 48.4. A fascinating finding is that the five non-campus locations gained a total of 25 PSE graduates in 20 years. Put another way, the net change was one additional PSE graduate in each location every four years. By way of comparison, the campus communities aside from Thunder Bay added 4,730, or 135 net new PSE graduates in each community every four years.

[6]The CMA includes Thunder Bay, Oliver-Paipoonge, Shuniah, Neebing, Fort William First Nation, Conmee, O'Connor and Gillies

While the percentage changes are fairly close, the underlying causes appear to be very different. The campus communities' numerator – PSE graduates – is climbing, whereas in the non-campus communities, the numerator is staying flat while the denominator shrinks rapidly. The strong percentage change in non-campus location thus appears to be due more to the exodus of people with lower education, rather than better education outcomes. Is it that those with PSE credentials have jobs that allow them to stay in these shrinking communities? That is an intriguing question, with major ramifications for sustainable communities in Northwestern Ontario. A well-educated population is a key component of social progress, and there is ample evidence that Confederation College is a driving force in this regard. The benefits of HEIs are very visible in the labour force.

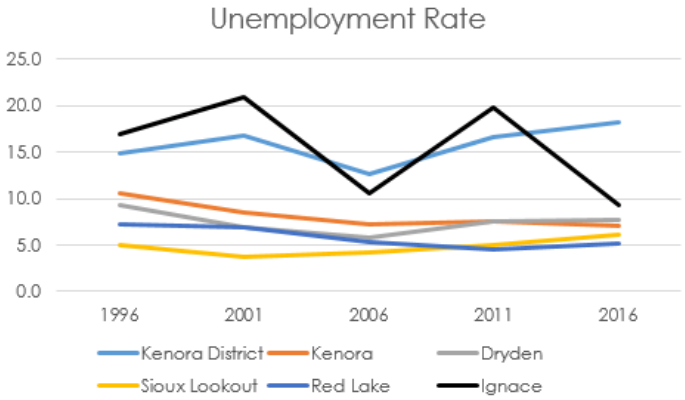
5.1.2 Labour Force:

Figure 8: Percent of the population participating in the labour force, Kenora Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

Figure 9: Percentage of the labour force without work and who are actively seeking employment, Kenora Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

Figures 8 and 9 demonstrate some of the benefits alluded to above. Ostrovsky and Frenette (2014) show that Canadians with a PSE credential are more likely to be employed, and spend less time between jobs. While Ignace's unemployment rate in 2016 looks rather respectable, it loses some lustre when placed in the proper context of Figure 8. The number of people actually taking part in the labour force – either by working or actively seeking work – has plummeted over 20 years. By 2016, just over half the working-age population participated in the labour force, either as a worker or a job seeker. To contrast, Wawa's 2006 participation rate was 64 per cent, three points lower than Ignace's; by 2016, it held fairly stable at 61 per cent, eight points higher than Ignace. Red Lake's rate also held firm, while the counterfactual group all collapsed.

All told, the campus communities saw their participation rate drop a rather alarming 5.7 per cent over 20 years, including a 3.6 per cent decline in the last decade. The counterfactuals, however, watched their own participation rate drop by an average of 20.7 percent, including 18.9 per cent since 2006. Cleary, those communities with a stronger connection to Confederation College have been better able to maintain their labour force. 'Progress' might be too strong a word to describe the phenomenon, but they certainly fare better, and the same goes for other indicators in the labour force component.

From 1996 to 2016, the counterfactual group actually saw the largest average improvement in unemployment rate at 22 per cent. That said, they possessed three of the four highest rates in 1996, and that did not change in 2016. Greenstone, boasting the smallest student enrolment, held the other spot. Over the ten year period, however, the counterfactual group saw a 32 per cent change in their unemployment rate, nearly three times the change in the campus communities. Once again, it would be difficult to categorize only seeing unemployment rates go up an average of 11 per cent as progress, but viewed in context, it remains an impressive feat, especially compared to the very real alternative many other communities face.

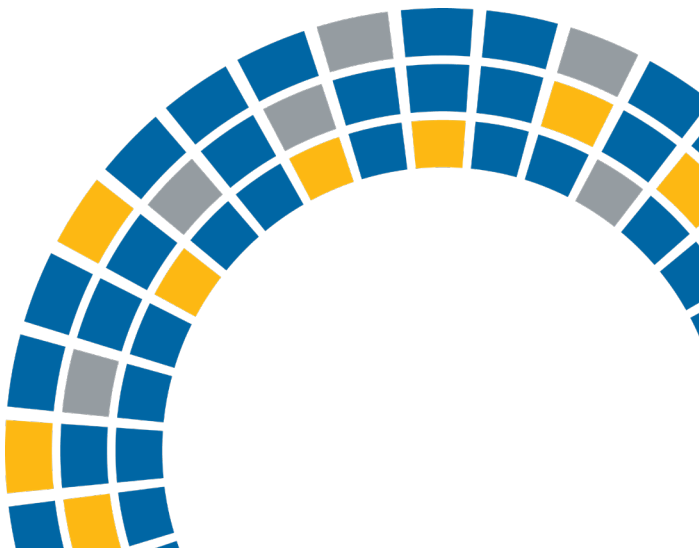
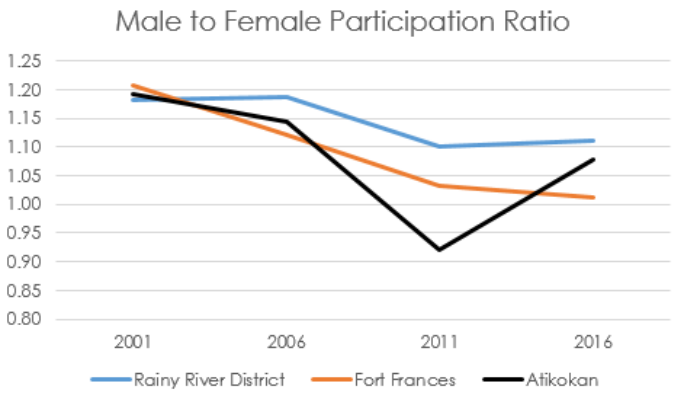
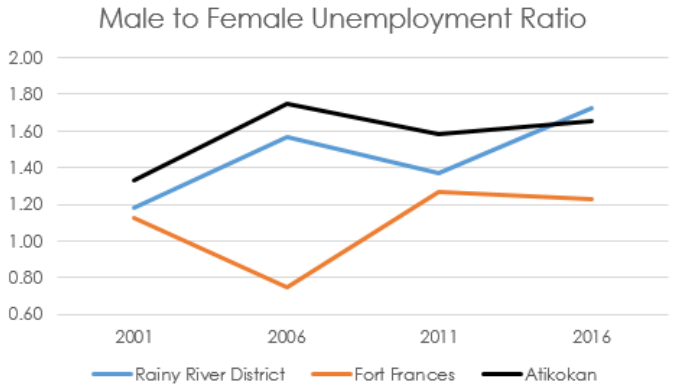


Figure 10: Participation rate of males compared to females, Rainy River Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

Figure 11: Unemployment rate of males compared to females, Rainy River Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

Figures 10 and 11 also look at participation and unemployment rates, but they compare the rates for males and females. A score of one indicates a perfectly equal rate for both genders. A score above one means the male rate is higher, while anything below one means the female rate is higher. While Fort Frances has steadily moved toward nearly equal participation rates, the male participation rates for Atikokan and Rainy River district were eight to 11 per cent higher than they were for females. By way of comparison, Wawa and Red Lake saw their participation rates in particular reach much closer to equal than at any point prior. Meanwhile, Ignace and Manitouwadge continue to see male participation rates 24 to 28 per cent higher than female rates in 2016.

Overall, campus communities are dramatically better when it comes to equality of labour opportunity. Perfectly balanced scores are likely unreasonable in most cases, but those communities with stronger connection to Confederation consistently see their rates inch closer to one, while the others do not. All told, these data show that campus communities have more people participating in the labour force, have lower, and more predictable unemployment, and tend to be closer to gender equality in their labour force statistics.

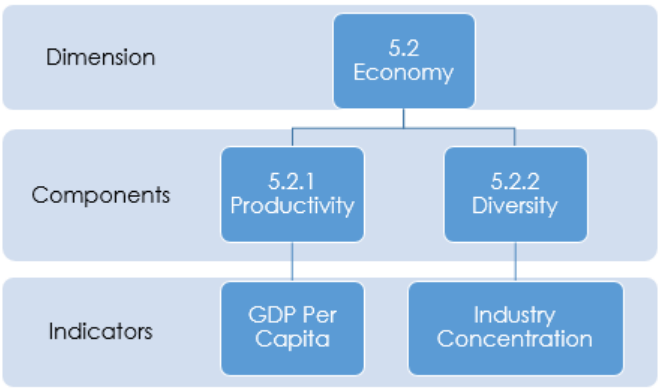
5.1.3 Dimension Summary:

Campus communities have more human capital. The population is better educated, more willing and able to take part in the labour force and enjoys more total opportunities, including more equitable distribution between genders. There is ample evidence that Confederation College is contributing to the development of this capital, notably through the growing rates of college-educated people in the campus communities, as well as the surrounding areas. The growth of the human capital in these regions strongly hints at potential for even further social progress in the other dimensions. By contributing to the elevating education levels of the labour force, Confederation College is helping to drive social progress forward in Northwestern Ontario.

5.2 Economy

The second dimension examines the economy, albeit in a different light from the traditional macroeconomic indicators. It looks at how much wealth is generated for every individual in a community, as well as the composition of the local economy. Figure 12 outlines the components and their respective indicators.

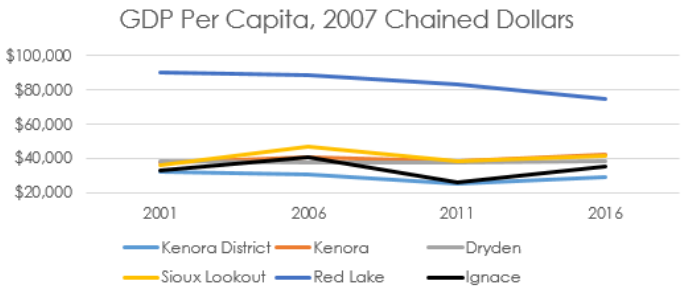
Figure 12: Dimension, Components and Indicators of Economy



While Social Progress Imperative and the Canadian Index of Well-Being steer away from economic indicators, they do remain an important facet of people's lives. This is why the Human Development Index, the Sustainable Society Index and others track indicators tied to Gross Domestic Product. This dimension focuses on two things: how does the region's economic productivity affect people, and how diversified are local economies? The latter is essentially another way of investigating how reliant communities are on primary industries. This is important since a diverse economy is more resilient, and offers more opportunity to a wider array of people.

5.2.1 Productivity:

Figure 13: Amount of wealth generated for each person in a community, Kenora Census Division



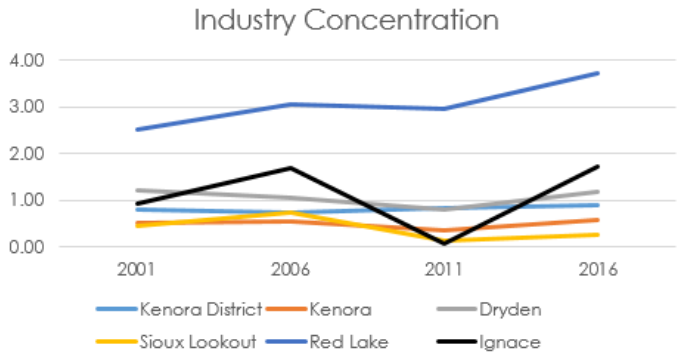
Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

There are no official Gross Domestic Product (GDP) figures for Northern Ontario, let alone individual communities. However, the Conference Board of Canada devised a method to estimate local and regional GDP based on the locality's share of total provincial employment in each industry (Conference Board of Canada 2016; Zhang forthcoming). Figure 13 offers a good illustration of trends throughout Northwestern Ontario. Red Lake's GDP per capita is clearly in a league of its own in the Kenora district. However, it is also the only community in the group that has seen a steady decline in this metric. It is also worth noting that Marathon and Manitouwadge were head and shoulders above the other communities in Thunder Bay district prior to 2006. Both are experiencing a declining GDP per capita as well. Every other campus community is either fairly flat, or else increasing. At the same time, each district – minus the campus communities – has seen their numbers drop.

The college's relationship to this metric is uncertain. Half the campus communities saw their GDP per capita increase over 20 years, the other half shrunk. Atikokan and Ignace grew, and Manitouwadge shrunk. About the only clear trend is that campus communities generally did better than the aggregate total of all non-campus communities in their district. Since 1996, the campus communities saw an average drop of three per cent in their GDP per capita, driven mainly by Marathon and Red Lake. Compare this to the 17 per cent average drop of the counterfactuals, driven entirely by Manitouwadge. Since 2006, the campus communities shrunk 7.4 per cent, with Thunder Bay, Kenora and Dryden the only ones to post growth. The Northwest test cases also grew by a similar amount, mainly in Terrace Bay and Schreiber. That is little surprise, given the mill in Terrace Bay re-opened in 2011. That an HEI contributes less to a community's GDP per capita than the major industry stands to reason. Meanwhile, all three counterfactuals shrunk, at an average of 19.6 per cent. In short, the campus communities tend to do better, but the results are too varied to confidently determine any specific relationship.

5.2.2 Diversity:

Figure 14: Location quotients of NAICS codes 11, 21, and 31-33, Kenora Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

A diverse economy is more resilient, and offers better opportunities to a wider range of people. Relying too heavily on one sector, particularly primary sectors, leaves communities vulnerable to boom and bust cycles. Brown and Greenbaum (2016), offer compelling evidence of this phenomenon. They compared regional industry concentration to unemployment stability in the US from 1977 to 2011. They found that highly concentrated regions often had better unemployment figures during good economic periods, but were less able to absorb economic shocks, leading them to recommend that highly concentrated regions diversify to buffer against downturns.

Figure 14 shows the location quotients (LQ) of income derived from primary industries as well as manufacturing for communities in the Kenora District. LQs are used to measure the concentration of income and labour in specific sectors compared to a benchmark, which, in this case, is Northwestern Ontario. Anything above one indicates a location relies more heavily than the benchmark on that particular sector.

The LQs are calculated using the combined income generated by forestry, agriculture, fishing, hunting, mining and manufacturing. The latter sector in Northwestern Ontario typically refers to pulp and paper mills, which are, of course, inextricably linked to the forestry sector. Generally, a community tends to be a mining town or a mill town, few are both. In essence, these LQs compare each community to the region, based on how heavily their economy depends on three of the 19 sectors as defined by the North American Industrial Classification System (NAICS).

Figure 14 shows that Red Lake has an incredible concentration in these industries, which is almost entirely in mining. In fact, in every census since 2001, more 60 per cent of all income generated was in mining. It is declining though, from 69.1 per cent in 2001 to 62.4 per cent in 2016, a -9.7 per cent change. Red Lake is, however, the only campus community in the district with a higher reliance on these industries than the counterfactual. Aside from a blip in 2011, Ignace has steadily seen a greater concentration in these three sectors. In fact, their 2016 LQ was 87 per cent higher than in 2001, the biggest jump of any community in the region. In addition, 13 other NAICS sectors either shrunk or saw no change in their share of the economy in 15 years. Red Lake saw 13 sectors grow, if some only marginally.

The trend is the same across the region. Marathon was the only other campus community with an LQ above 1.2 in 2016. Nipigon and Red Rock combined are the only non-campus location with an LQ below 1.5. Keep in mind that these numbers are benchmarked against Northwestern Ontario, which already has a high reliance on these sectors. Every other non-campus community is becoming more dependent on these three pillars, while the campus group, except Red Lake and Marathon, have a relatively low and/or decreasing concentration in these industries. In short, the campus communities tend to have more diverse and resilient economies, though the data is lacking on how that relates to GDP per capita. Evidence from elsewhere, however, can offer a glimpse into the role that Confederation does and could play in boosting productivity.

Andersson et al (2004) found that an increase of 100 students in Swedish regional campuses led to a 0.25 per cent increase in local labour productivity. These numbers, if applied to Fort Frances, would mean a 2016 GDP that was $733,940 (2007 chained dollars) higher than what was actually registered. That would equate to an extra $94 of GDP per capita in Fort Frances alone. This would be just enough to push Fort Frances' 2016 GDP per capita ahead of its 2006 value, which is currently higher. In other words, using the numbers Andersson et al found, an additional 100 students would have helped Fort Frances' economy grow, rather than shrink over the ten year period. However, the Swedish researchers also found statistically significant benefits to productivity in nearby communities. There are 13 such communities in the affected radius that would likely benefit from increased HEI activity in Fort Frances.

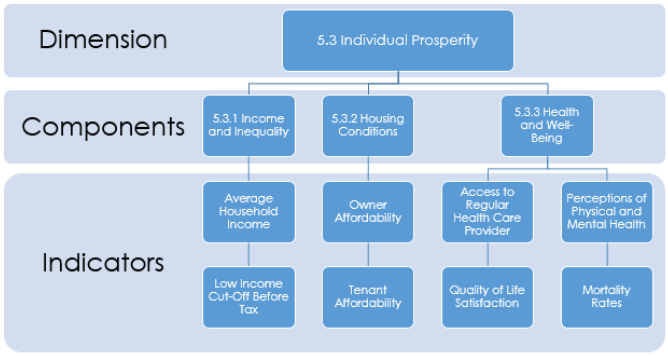
5.2.3 Dimension Summary:

Confederation College's role in increasing GDP per capita is unclear. At best, it can be postulated that the college is not the deciding factor in determining GDP per capita. However, given that Confederation College and its students produce an annual economic impact of $411.2 million (EMSI 2013), it obviously does contribute a great deal to the economy. The college's role in promoting more diverse and robust economies is more apparent. The campus communities tend to have much lower LQs, implying that their reliance on those three primary resource sectors is generally less. It will be interesting to see if Red Lake's LQ drops as the college has more time to establish itself. This diversification has helped the communities better weather the storm, since, as Figure 14 attests, natural resources can be fickle, and subject to great fluctuation.

5.3 Individual Prosperity

The previous two dimensions showed that campus communities tend to have more human capital and perform better in measures of the economy, but how does that translate to everyday life for people living in Northwestern Ontario? The Individual Prosperity dimension blends some quantitative and qualitative measures to get a sense of how individuals and households are faring, with Figure 15 outlining the indicators and components that compose the dimension.

Figure 15: Dimension, Components and Indicators of Individual Prosperity

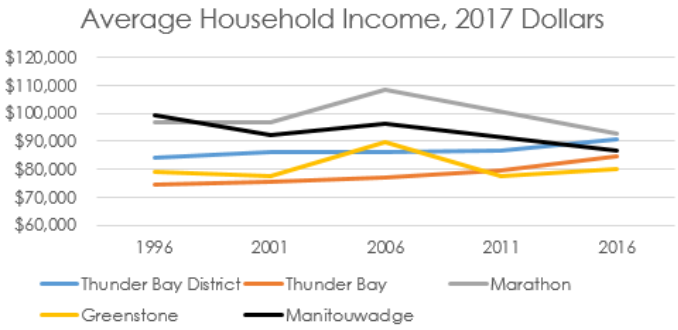


The individual prosperity dimension focuses on a simple question: how well are Northwestern Ontarians doing? More specifically, are they healthy, do they have adequate and affordable housing, and are they satisfied with their quality of life? This dimension contains a number of highly important indicators, unfortunately, many of them are at geographies that are incompatible with this study, or had data reliability issues. Statistics Canada's General Social Survey provides the best source for data on health and well-being indicators, but health units are the lowest geography available. So, while it is possible to track whether or not the region is progressing, confidently linking it to Confederation College's influence is not possible within these data constraints. In addition, income inequality data is available for only six years, but thanks to a change in the methodological process halfway through, the two halves cannot be compared. Even if it was comparable, the data is of suspect quality at the community level.

5.3.1 Income and Inequality:

The indicators related to income and poverty reinforce the pattern of campus communities seeing better results than the counterfactuals, and that the counterfactual communities with stronger college connection perform better than the others.

Figure 16: Average Household Income, Thunder Bay Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey.

Figure 16 shows that families in Thunder Bay district generally took home more money in 2016 than they did in 1996, with the exception of Marathon and Manitouwadge. These two communities, along with Greenstone, were hit with a series of mine and mill closures beginning in 2006. The two places with a stronger connection to Confederation College have absorbed the blow better than the one without, and the college seems to have played a role. Wawa and Red Lake both saw their average household income increase since opening a Confederation College campus in 2011. Wawa's had even been trending downward until the college's intervention. Ignace, meanwhile, had roughly the same average income as the campus communities in Kenora CD in 1996, but has since fallen well behind. Atikokan, the non-campus community with the most connection to Confederation College, is the lone counterfactual representative to see an increase in average income over the 20 year span. Still, Atikokan households had an average of $5,000 less per year in 2016 than those in Fort Frances.

Between 2006 and 2016, the campus communities saw an average increase of 2.4 per cent. The counterfactuals, meanwhile, decreased an average of 4.6 per cent. The three CDs grew at an average rate of 12.1 per cent, with most outlying communities in Thunder Bay CMA posting double digit increases. Most heartening, some of the largest percentage increases occurred in remote First Nations, including those that typically generate the most applicants to Confederation College. The five remote First Nations that sent the most combined applicants in 2014 and 15 averaged a 12.6 per cent increase in average household income from 2006 to 2016.

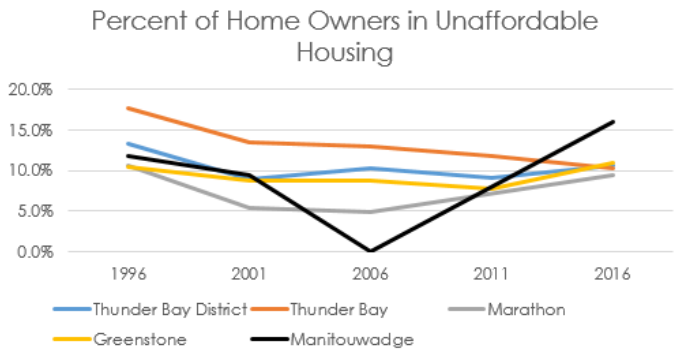
At the same time, the prevalence of people living in low-income has improved over the 20 years everywhere except Manitouwadge and Ignace. The story since 2006 is,

once again, very different, with most places registering an increase. Greenstone witnessed a 79 per cent increase in the number of people living below the low-income cutoff, 14 points worse than Manitouwadge. In general however, the campus communities did better, with an average increase of 5.3 per cent, compared to 23.9 per cent in the counterfactuals.

There are, of course, numerous factors at play, but the evidence strongly points to the college contributing a key role in sustaining and increasing household incomes, as well as alleviating poverty rates. While progress for these indicators is fairly modest overall, the places with a strong connection to Confederation College see the best results.

5.3.2 Housing Conditions:

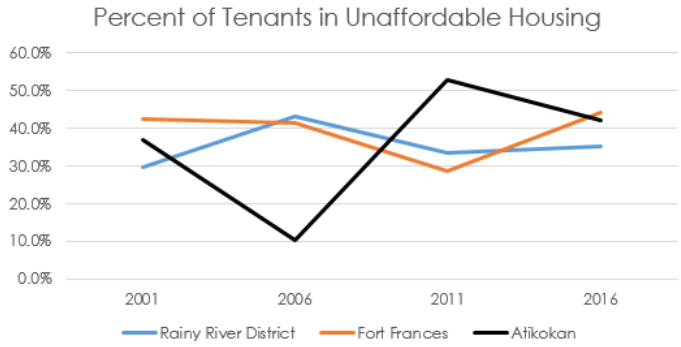
Figure 17: Homeowners spending 30 percent or more of their after-tax income on shelter costs, Thunder Bay Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey. Shelter costs refers to all mortgage, utilities and property tax payments

Ma, Pender and Welch (2016) found that PSE graduates in the US were much less likely to require government assistance paying for their homes. While this is likely a by-product of the higher incomes associated with higher education, it remains a net benefit to society. Figure 17 illustrates this relationship. Again, the region improves over 20 years, but sees most of the gains erased since 2006. The campus communities were 22 per cent better in the long run, but got 2.5 per cent worse since 2006. The counterfactuals actually got 10.3 per cent worse since 1996, with most of the impact coming since 2006. Manitouwadge had a value of 0 in 2006, making a per cent increase impossible to calculate. The 2016 rate was a 67 per cent increase over 2001, however. Ignace, meanwhile, saw their rate jump 185 per cent since 2006. On the other hand, Red Lake's results improved 13 per cent. Home owners are clearly better able to afford their homes in the campus communities.

Figure 18: Renters spending 30 percent or more of their after-tax income on shelter costs, Rainy River Census Division



Source: Statistics Canada 1996, 2001, 2006 and 2016 censuses; 2011 National Household Survey. Shelter costs refers to all rent, utilities and property tax payments

Figure 18 shows how volatile Atikokan's unaffordable rate for rented dwellings is. They are by far the best in 2006, and the worst by nearly 20 points five years later. This is not a singular occurrence, in fact, the counterfactuals and the test cases see much greater fluctuation in many of their indicators. Their smaller current populations do not completely account for the variance, as Manitouwadge and Atikokan especially were once roughly the same size or even larger than some campus communities currently are. As noted above, the college's role in diversifying the economy helps make small communities less vulnerable to boom and bust cycles.

Northwestern Ontario sees clear and consistent regression in this metric. Everywhere has gotten worse since 2001, the earliest year these data can be compared to. 2006 was an aberrantly low year for the counterfactuals, where each registered values roughly one-third what they were in other years. As such, tracking the change from 2006 would unfairly distort the picture. The 404 per cent average increase is eye-popping, but it is mostly a regression to the norm. Since 2001, the counterfactuals have worsened 31 per cent, compared to 12 per cent in the campus communities. Now, the counterfactuals see some of the worst values, where they were once among the best.

Affordable housing is incredibly important to both the individual and society. Regardless of the reasons behind it, PSE graduates are generally in a better position to afford their home, which means less reliance on government assistance. Confederation College can

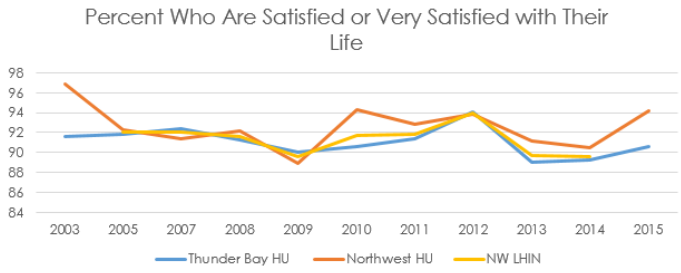
play a role in this regard, and there is evidence that it does. Those communities with a stronger connection to the college have better results in both income and housing metrics, two foundations of individual prosperity. Adequate housing – shelters that do not require major repairs – is another important indicator of social progress, but it is not causally linked to HEIs in any observable manner.

5.3.3 Health and Well-Being

In 2006, the Organization for Economic Co-operation and Development (OECD) released a report titled: Measuring the Effects of Education on Health and Civic Engagement. The authors, Feinsten et al (2006) summarize a host of studies concluding that increased education rates cause better health outcomes. They find substantial and robust evidence showing that more education leads to better outcomes in mortality, physical health, adult depression, self-rated health, child health, health behaviours and more.

Unfortunately, the indicators that may well be the most important in measuring social progress are not available at the local level. Statistics Canada stated in correspondence that data from the General Social Survey is too unreliable to use at the community level, and the same goes for the Canadian Community Health Survey. The nearest geography is the local health units, which are still too broad to link conclusively to Confederation College's impact. To make matters worse, these geographies are only available from 2003 onwards. Still, they are crucial indicators, so it is worth examining the region's performance.

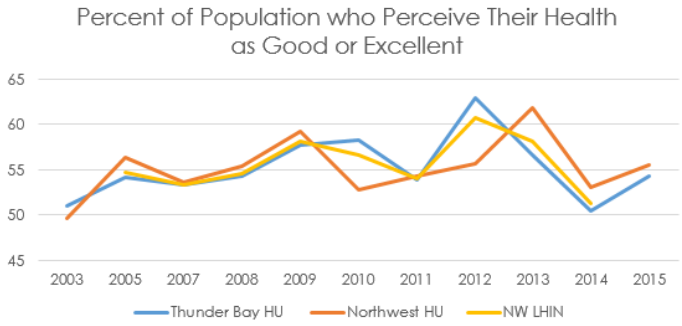
Figure 19: Satisfaction with quality of life, Northwestern Ontario[7]



Source: Statistics Canada Canadian Community Health Surveys 2003-2015

Figure 19 shows that Northwestern Ontarians have been extremely satisfied with their life, if a little less so in recent years. Nevertheless, rates remain very high. Only once did anywhere in the region dip below 89 per cent, in the year following the worst of the Great Recession. The rate dropped 2.6 per cent across the North West Local Health Integration Network (NWLHIN) from 2005 to 2014. Feinstein et al (2006) find some evidence to show that education does in fact contribute to increased life satisfaction, though they caution that the causal link has not been well established. Unfortunately, there is no way to differentiate between locations where Confederation College does and does not have an active presence, so the conclusion cannot be tested in this context. The situation is the same for other important metrics relating to perceptions of health, mental health, safety and community belonging.

Figure 20: Perceptions of physical health, Northwestern Ontario[8]



Source: Statistics Canada Canadian Community Health Surveys 2003-2015

Figure 20 is an important one in light of Ross' (2002) finding that higher educated Canadians have better perceptions of their health. Feinstein et al (2006) find substantial empirical evidence that HEIs are a driving force in this regard. They cite a Denmark study that found those with 18 years of education (equivalent to completing a four year PSE program), were up to eight times more likely to self-report good or excellent health than those with only seven years of schooling. Referring to Figure 20, it is unclear what is responsible for the surge in 2012-13, nor the drop in the years after, but the trend is repeated in other indicators from the General Social Survey. Overall rates in the NWLHIN have seen a -6.2 per cent change in ten years. Note that each district only reached above 60 per cent once. In other words, at least two out of every five Northwestern Ontarians viewed their own health as less than good more than 90 per cent of the time. That the region lags drastically behind the rest of the province in important health metrics has been well established (Health Quality Ontario 2018). Given the equally well-established literature linking HEIs to improved health outcomes, this is a ripe area for further study, as well as

[7] *"HU" refers to Health Unit, "NW LHIN" refers to North West Local Health Integration Unit.*

[8] *"HU" refers to Health Unit, "NW LHIN" refers to North West Local Health Integration Unit.*

an issue where Confederation College can have a major positive impact. Mortality rates are inordinately high, and climbing, while life expectancy is growing at a snail's pace compared to other parts of the province. Getting better data at the community level will be vital to advancing the study on the relationship between Confederation College and social progress in Northwestern Ontario.

5.3.4 Dimension Summary:

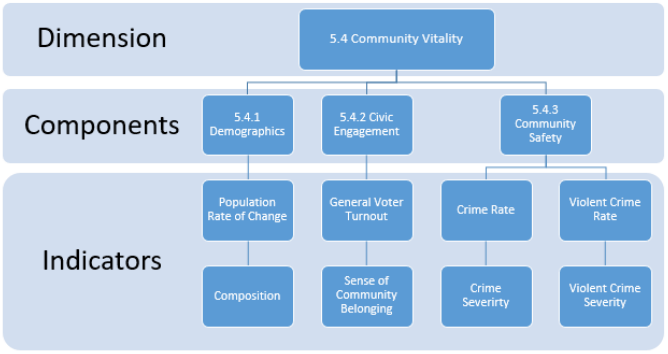
Progress for this dimension in Northwestern Ontario has generally been more a case of not getting worse than actually getting better. This is due in large part to the difficulties that wracked those natural resource industries that were and are key pillars of local and regional economies. It will be interesting to see if and how these patterns change as mining and forestry in particular have undergone something of a resurgence recently. While actual progress has been modest, there is a clear correlation between a community's engagement with Confederation College and its ability to weather the difficulties, stabilize their economies and position themselves to begin making more visible progress. Those communities with little connection to the college have had a much more difficult time.

There is ample evidence to show that HEIs boost incomes, improve health outcomes and perceptions of health. The evidence for Northwestern Ontario mirrors those findings, at least where the relationship can be tested. The region desperately needs to improve the health of its residents, and HEIs have been shown to be an effective tool in that regard.

5.4 Community Vitality

The fourth dimension links the previous three together in order to lay out the impact on communities themselves. Community Vitality looks at the strength and robustness of a community and its institutions. Figure 21 outlines the components and indicators for this final dimension of social progress.

Figure 21: Dimension, Components and Indicators for Community Vitality



Specifically, this dimension asks: is the population growing, what is the demographic make-up, is a community safe, and how engaged are its citizens? The civic engagement component is disappointingly sparse, due to data issues that are now very familiar. Data at the relevant geography does not match the time range of the study, while data that matches the time range is not available at the relevant geography. Long-term Information on volunteering, strength of social relationships, leisure time, and activity in organized clubs is all lacking at the community level. There is also a great need to fill gaps in measuring the social capital of Northwestern Ontario communities, as well as topics related to the environment. All in all, this is the dimension with the most pronounced data gaps.

5.4.1 Demographics:

Figure 22: Five year population growth rates, Thunder Bay Census Division

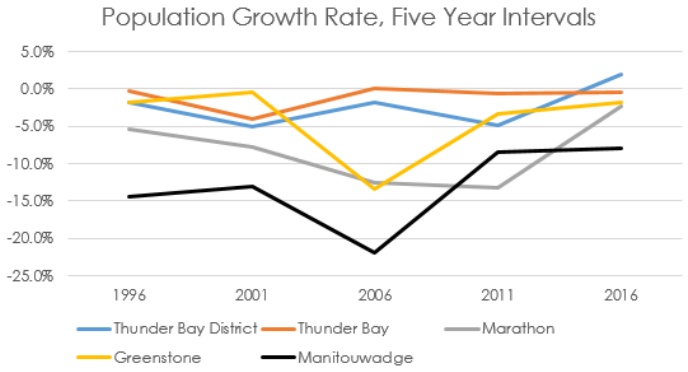


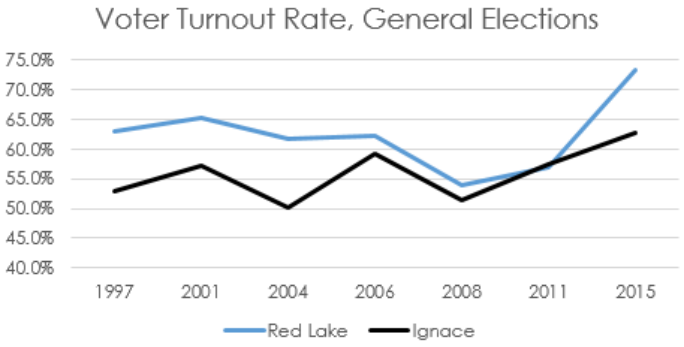
Figure 22 showcases the percentage growth in each community between censuses. The values for 1996 represent how much larger or smaller the population was that year compared to 1991, and so on. Very rarely did anywhere in the Thunder Bay district experience population growth at any point over the 20 year period. While virtually everywhere has shrunk between censuses, Manitouwadge has by far the most extreme values. Even prior to the mining downturn, Manitouwadge was losing more than 13 per cent of its population every five years. The community actually had 1,095 fewer people in 2006 than in 1996, a 32 per cent decrease. While the percentage decline slowed dramatically between 2006 and 2016, it still represents a net loss of 363 people. All told, Manitouwadge's 2016 population of 1,937 was 43 per cent lower than its 1996 level of 3,395.

Manitouwadge is anything but alone in this regard. The seven campus communities aside from Thunder Bay shrunk a combined 7.8 per cent over twenty years, with Sioux Lookout's 52 per cent growth preventing that change from being even larger. Every other community in both groups has shrunk by at least five per cent over 20 years. However, the results are much more dramatic in the non-campus group, where each location was at least 26 per cent smaller in 2016 than in 1996. Marathon is the lone campus community to decline by more than 19 per cent. Since 2006, the non-campus locations have shrunk 10.2 per cent, compared to 2.1 per cent decline in the campus communities. All told, the campus communities were much better able to sustain their population levels compared to those locations without a campus. Given that the non-campus communities saw their population with PSE credentials remain relatively stable, it would be worth investigating whether those people who remained tended to be more educated.

While the ethnic composition of the population is also an important metric of social progress, it is de-emphasized here for a few reasons. Firstly, the link to HEIs is at times tenuous. For example, a growing Indigenous population in a campus community is difficult to tie to Confederation College, especially as that segment of the population is growing across Northern Ontario. Secondly, Statistics Canada's data related to immigrant, migrant and visible minority populations does not reconcile with Confederation College's. The census is conducted in May, after the college year ends, so Confederation's international students would not be counted if they left. Further, the census tracks people in their primary residence, which would not capture college students whose primary residence is outside the campus community. Thus, the correlations could not be adequately tested to determine if and how Confederation is contributing to progress in these particular metrics.

5.4.2 Civic Engagement:

Figure 23: Participation rates in federal elections, Kenora Riding



Source: Author's calculations from Elections Canada Official Reports

Surprisingly, campus communities tend to have lower voter turnout rates than the riding that they are in, though they are often better than the counterfactual. However, as Figure 23 demonstrates, the college likely has a strong impact on this metric. Red Lake and Ignace trend very similarly from 1997 to 2011, then an intervention happens in Red Lake that does not in Ignace. Four years after opening the campus, Red Lake sees a dramatic spike in their voter turnout that Ignace does not. This finding is corroborated in the Northeast, where Blind River and Wawa had virtually identical values in the five elections prior to Wawa opening a campus. Three times their rates were within half a percentage point, and never more than 2.3 points apart. In the two elections since Wawa's campus opened, however, Wawa's rates have been at least four points higher. This Difference in Differences analysis suggests very strongly that the college does, in fact, elevate civic engagement. More data points going forward will be useful to establish if this change becomes permanent.

While voter turnout is by no means the be-all, end-all indicator of civic engagement, it was the only one that could be measured at the community level across the time frame of the study. The same problems afflicting other indicators struck here again, namely that the best data source, the General Social Survey, does not track these important metrics at the community level.

5.4.3 Community Safety:

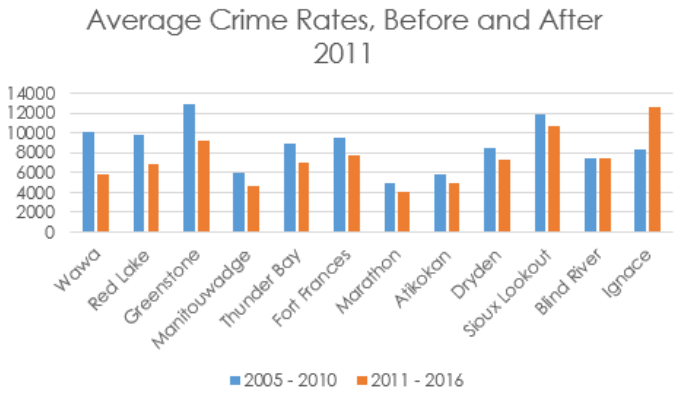
Figure 24: Incidents of crime per 100,000 people, Kenora Census Division plus Manitouwadge

Source: Statistics Canada Incident-based crime statistics, by detailed violations, police services in Ontario, table 35-10-0180-01

Figure 24 shows the crime rates of the communities in the Kenora District, as well as Manitouwadge. Note, the city of Kenora is excluded because shifting and overlapping responsibilities between multiple police departments make tracking suspect. In essence, the municipal amalgamation in 2000 left four departments – three municipal and one Ontario Provincial Police – with responsibility over certain police functions within certain locations. Neither adding nor averaging the rates among the four would give an accurate representation, and neither would arbitrarily selecting one department, since an increase in rates could easily be due to expanded responsibilities. As such, Kenora was omitted.

The most interesting note for this study is Red Lake. Firstly, they had an incredibly high crime rate around the turn of the millennium, peaking at one crime committed for every 3.68 people in 2001. Thankfully, that fell back in line with other communities in the region by 2003. The second, and most intriguing piece of information, is Red Lake's crime rate after 2011. Since the campus opened, Red Lake's crime rate plummeted to unprecedented rates, roughly one fifth what they were at their worst. And, as Figure 25 shows, overall decreases in crime across the region do not account for Red Lake's performance.

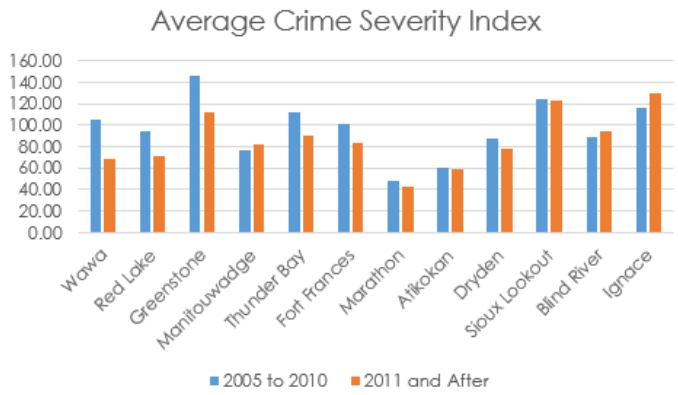
Figure 25: Six-year average crime rates, select Northern Ontario communities



Source: Author's calculations from Statistics Canada Incident Based Crime Statistics Table 35-10-0180-01

Figure 25 takes the six year average crime rates of each community before and after the campuses opened in Red Lake and Wawa, and compares them. Three communities – Red Lake, Wawa, and Greenstone – saw 40 per cent or better reductions in crime; two of them opened a campus. Virtually everywhere else saw 15 per cent improvement or less. There are a number of other important things to note. First, as seen in Figure 24, Manitouwadge's crime rate spiked from 2009 to 2011, then dropped to just under the rate it had been steadily at since 2003. Next, Atikokan changed from a municipal police service to the OPP in 2006. That year, the crime rate jumped nearly 7,000 incidents per 100,000 people, then returned to just under what it was before. In both cases, an abnormally high phase made the improvement look more dramatic than it truly is. Lastly, Ignace, the final counterfactual, was the sole jurisdiction to see their crime rate increase. In short, Wawa and Red Lake, having virtually nothing else in common in 2011 aside from opening their campus, saw dramatic improvements in their crime statistics. Meanwhile, the counterfactual group saw changes roughly on par with, or worse than, regional trends. As alluded to above, increased education levels and the "incapacitation effect" both contribute to lowering crime rates, and this appears to be the case in Wawa and Red Lake. Even more compelling, their improvement extends to crime severity, something not seen in the counterfactual group.

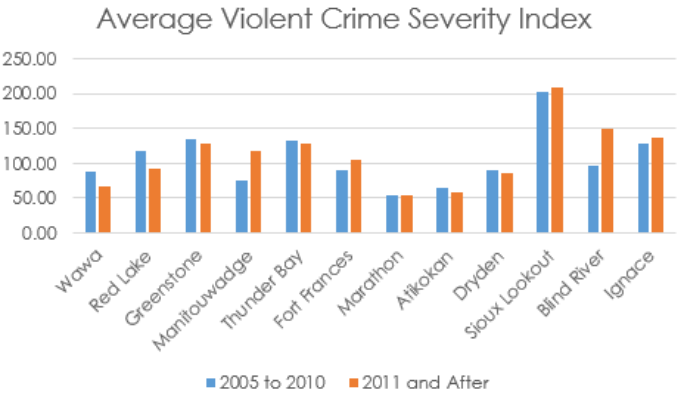
Figure 26: Six year average Crime Severity Index values, select Northern Ontario communities



Source: Author's calculations from Statistics Canada, Crime Severity Index and Weighted Clearance Rates, Police Services in Ontario. Table 35-10-0188-01

Figure 26 uses the same idea as Figure 25, only it examines the crime severity index, rather than crime rates.[9] Manitouwadge and Atikokan, despite seeing improved crime rates, do not see much change in the severity of crimes committed. Meanwhile, Wawa and Red Lake see incredible improvement. The trend holds for violent crime rates, as well as the violent crime severity index, as shown in Figure 27. This is line with Hjalmarsson and Lochner's (2012) finding that, while all crime decreased with an additional year of education, assault and murder saw some of the most notable decreases.

Figure 27: Six year average Violent Crime Severity Index values, select Northern Ontario communities



Source: Author's calculations from Statistics Canada, Crime Severity Index and Weighted Clearance Rates, Police Services in Ontario. Table 35-10-0188-01

Confederation College opening campuses in Red Lake and Wawa in 2011 had a significant impact on crime statistics. These two communities are alone seeing major improvements to each of the variables examined. Others may have seen progress in one or two metrics, but not all four. Atikokan changing police forces demonstrates that HEIs are not the only method to generate this progress. Nevertheless, there is a strong link between Confederation College activity and improvement in community safety.

5.4.4 Dimension Summary:

The evidence shows that Confederation College has played an important part in keeping Northwestern Ontario communities stable and safe. While it might not seem effusive praise, the fact that campus communities are shrinking much less rapidly than those without a campus is extremely important in this context. Shrinking populations is one of the biggest challenges the region faces, and the evidence suggests Confederation makes an important contribution to facing that challenge. Meanwhile, there appears to be a surprisingly strong connection between college presence and community safety.

There is incredible potential – not to mention need – for this dimension to expand and grow should data become readily available. This will be crucial, as many of the most important indicators – ones that the literature links strongly to HEIs – would fall under this dimension. Future study should definitely focus on fleshing out the data for indicators that could enhance this dimension.

[9] *The Crime Severity Index assigns different crimes different weights based on their seriousness, as defined by the actual sentences handed down, with the year 2006 set as the baseline of 100. Anything above 100 indicates more serious crimes were committed.*

VI. Conclusion and Future Research

6.1 Conclusion

Social progress in Northwestern Ontario is a fickle concept. By most measures, the region was much better off in 2016 than in 1996. However, those same measures show a clear regression from the halfway point of the timeframe, when the region was hamstrung by collapses in some key sectors of the economy. To say that the region, or any of its constituent parts, are x per cent better or worse off overall would fail to capture the nuance of each dimension and component. There are, however, some clear trends that can be identified.

The entire region is better educated, and this is one of the few indicators that does not tail off since 2006. This aligns with the Canadian Index of Well-Being's finding that education is one of the only areas to keep pace with the rising GDP (CIW 2018). The benefits are not equally distributed however. Those communities where Confederation College has a higher level of activity see their education levels increasing more quickly than those with less college presence. This is true within the campus community group, between campus and non-campus communities, and within the non-campus communities. This finding alone is hugely important, as every index examined viewed a more educated population as a crucial component of social progress.

On the other end of the spectrum, labour force participation is rapidly declining across the Northwest, as are population totals. While those communities with high levels of engagement with Confederation College do better, it is ultimately a rather hollow triumph. Confederation College's presence has helped many communities weather the economic difficulties of the last 13 years, while those areas that could theoretically have opened a campus are struggling to stanch the losses.

The most visible, and perhaps surprising, finding is that Confederation College appears to have made a massive contribution towards improving safety in Red Lake and Wawa. Those two communities have seen unprecedented and unmatched universal improvement in their crime statistics since opening their campuses in 2011. Whether it is due to the 'incapacitation effect' of keeping young people occupied, or through psychological effects of more education, Confederation College was a key driver behind this important component of social progress.

While this study identified some important relationships between Confederation College and social progress in Northwestern Ontario, it is, and should be viewed as, merely the first step in what should be a continuous process. The numbers shown here should continue to be tested as more data become available, and the analytical model itself subject to evolution. There are a few avenues that could be helpful in this regard.

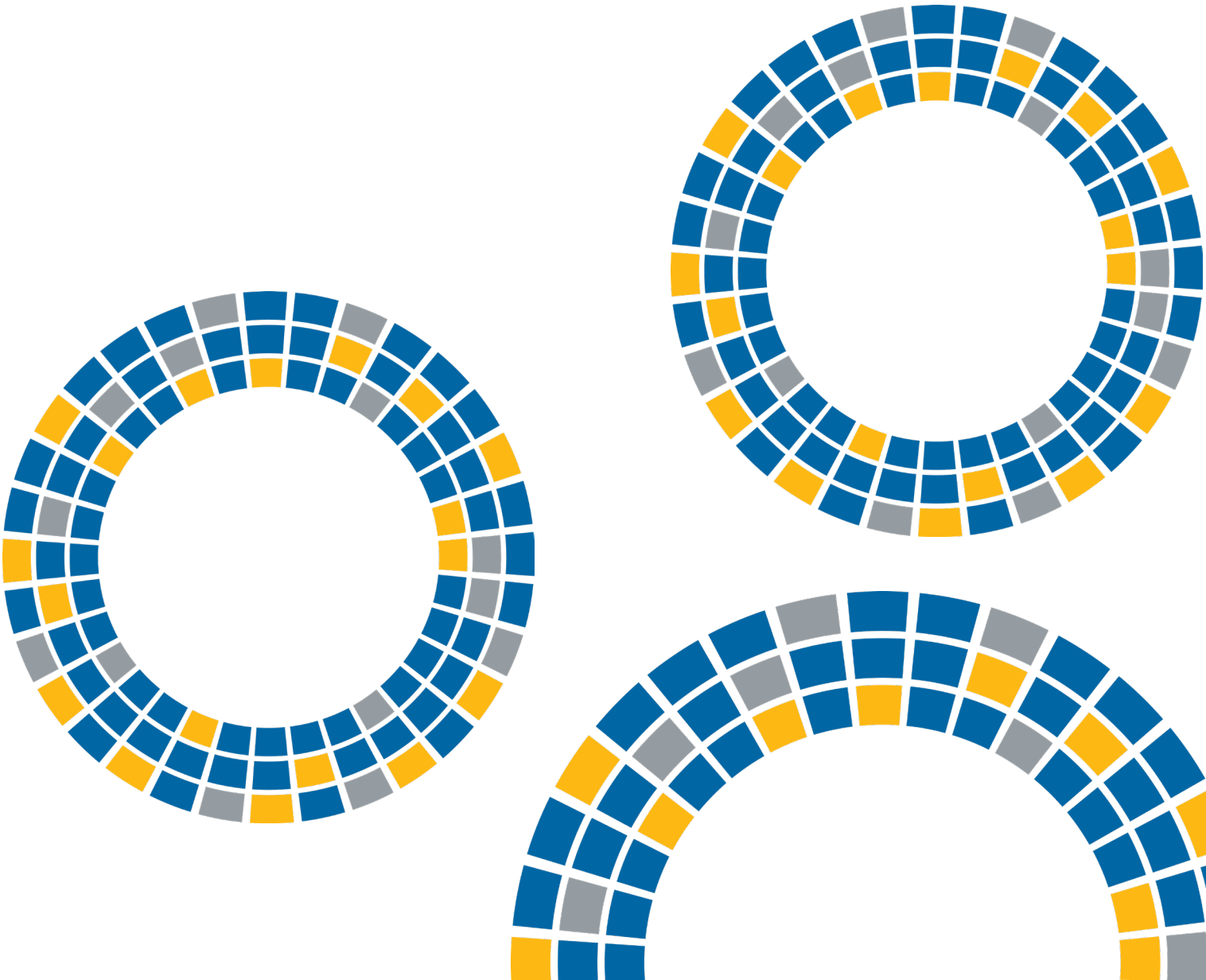
6.2 Future Research

Among the most important next steps is to make the independent variable more robust. There are some best practices to emulate in this regard, including the Carnegie Community Engagement Classification. This would allow for better measurement of Confederation College's presence in communities, and solidify the analysis. Ideally, the independent variable would become strong enough to run an analysis similar to what Andersson et al (2004) did for the regional campuses in Sweden. If there was data for enough years, someone could perform an econometric analysis to determine what changes are observable from a one unit increase in college engagement. It could perhaps be broken down to constituent parts, such as an increase of x faculty leads to a certain response on the dependent variable.

The dependent variable itself might also be enhanced by adopting Social Progress Imperative's method of converting values to z-scores. These are standardized scores that measure how far each community is from the average. Unfortunately, they require complete and accurate information, to the point that SPI imputes and/or estimates data for countries where reliable information is not available. The process of converting the values for each indicator was ultimately beyond the scope of this study.

Another option to continue the research might be to examine the age groups of campus communities, and search for any changes in social progress in those cohorts who would have stood to benefit the most when a new campus opened. For example, Thunder Bay's campus is 52 years old, so, given the standard age for college enrollment is around 20, what changes, if any, can be observed between the age group over 75 and the one 65-74? Do other communities that did not open a campus see similar trends? Do other communities that opened their campus later see similar changes in their respective college-aged cohorts? Developing the independent variable would be very helpful in this regard as well, as it could determine which cohorts to focus on, depending on when the college's presence increased or decreased.

Without question, the most crucial next step is to improve the quality of data in Northwestern Ontario. A number of analytical approaches were stymied due to missing information, and a maddening amount of important indicators had to be excised because they were not tracked at the appropriate geography and/or timeframe. Environics Institute may offer some much needed relief in this regard. They performed a survey to measure social capital in Toronto in 2016, which captured many of the indicators not available for this study. The methodology can be found online and should be replicable for communities in Northwestern Ontario. Performing this research could go a long way toward further measuring the role that Confederation College has on driving social progress in Northwestern Ontario.



Bibliography

Andersson, Roland, John Quigley, and Mats Wilhelmson. 2004. "University decentralization as regional policy: the Swedish experiment." Journal of Economic Geography 371-388.

Boucher, G., C Conway, and E Van der Meer. 2003. "Tiers of Engagement by Universities in their Region's Development." Regional Studies 887-897.

Brown, Lathania, and Robert T. Greenbaum. 2016. "The Role of Industrial DIversity in Economic Resilience: An Empirical Examination Across 35 Years." Urban Studies 1347-1366.

Canadian Index of Well-Being. 2016. How Are Canadians Really Doing? The 2016 CIW National Report. Waterloo Ontario: University of Waterloo.

Conference Board of Canada. 2016. Wood Buffalo Semi-Annual Economic Outlook. Economic Outlook, Wood Buffalo: Conference Board of Canada.

Cress, Christine. 2012. "Civic Engagement and Student Success: Leveraging Mutiple Degrees of Achievement." Association of American Colleges and Universities. Accessed January 21, 2019. https://www.aacu.org/publications-research/periodicals/civic-engagement-and-student-success-leveraging-multiple-degrees.

Cuddy, James, and Dr. Bakhtiar Moazzami. 2016. Northern Projections Human Capital Series: Thunder Bay District. Northern Policy Institute. https://www.northernpolicy.ca/upload/documents/publications/reports-new/hcs_thunder-bay-en.pdf.

EMSI. 2013. Economic Impact Study. Thunder Bay: Confederation College.

Feinstein, Leon, Ricardo Sabates, Tashkewa M. Anderson, and Anik Sorhaindo. 2006. Measuring the Effects of Education on Health and Civic Engagement. Organization for Economic Cooperation and Development.

Health Quality Ontario. 2018. Measuring Up 2018: A Yearly Report on how Ontario's Health System is Performing. Health Quality Ontario.

Helliwell, JF., and RD. Putnam. 1999. "Education and Social Capital." NBER Working Paper NO. 7121.

Hermansson, Kristinn, and J. Kim. Swales. 2010. Capturing the Overall Economic Impact of Higher Education Institutions. Glasgow: Scottish Government.

Hjalmarsson, Randi, and Lance Lochner. 2012. The Impact of Education on Crime: International Evidence. ifo DICE Report, Leibniz Institute for Economic Research at the University of Munich.

Kromydas, Theocharis. 2017. "Re-thinking Higher Education and its Relationship with Social Inequalities: Past Knowledge, Present State and Future Potential." Palgrave Communications. doi:10.1057/s41599-017-0001-8.

Ljiphart, Aredn. 1971. "Comparative Politics and Comparative Method." American Political Science Review 682-93.

Ma, Jennifer, Matea Pender, and Meredith Welch. 2016. Education Pays 2016: The Benefits of Higher Education for Individuals and Society. College Board.

McMahon, Walter. 2010. "The External Benefits of Education." International Encyclopedia of Education 260-271.

McMahon, Walter. 2004. "The Social and External Benefits of Education." In International Handbook on the Economics of Education, by Geraint Johnes and Jill Johnes, 211-259. Edward Elgar Publishing Limited.

Mokyr, Joel. 2002. The Gifts of Athena: Historical Origins of the Knowledge Economy. Princeton Press.

Ostrovsky, Yuri, and Marc Frenette. 2014. The Cumulative Earnings of Postsecondary Graduates over 20 Years: Results by Field of Study. October. Accessed January 21, 2019. https://www150.statcan.gc.ca/n1/pub/11-626-x/11-626-x2014040-eng.htm.

Ross, Nancy. 2002. Community Belonging and Health. Health Reports Vol. 13 No. 3, Statistics Canada.

Savage, James, and Andrew Norton. 2012. Non-Financial Benefits of Higher Education. Melbourne, Australia: Grattan Institute. Accessed January 21, 2019. https://grattan.edu.au/wp-content/uploads/2014/04/164_graduate_winners_non-financial_benefits.pdf.

Shapiro, Harold Tafler. 2005. A Larger Sense of Purpose: Higher Education and Society. Princeton Press.

Social Progress Imperative. 2018a. "2018 Social Progress Index Methodology Summary." Social Progress Imperative. Accessed January 23, 2019. https://www.socialprogress.org/assets/downloads/resources/2018/2018-Social-Progress-Index-Methodology.pdf.

—. 2018. Learn About Us - What We Do. Accessed January 17, 2019. https://www.socialprogress.org/about-us.

Spiel, Christiane, Rob Reich, Marius Busemeyer, Nico Cloete, Glli Drori, Lorenz Lassnigg, Barbara Schober, Simon Schwartzman, Michele Schweisfurth, and Suman Verma. 2018. "How Can Education Promote Social Progress?" In Rethinking Society for the 21st Century: Report on the International Panel on Social Progress, Chapter 19.

The World Bank. 2018a. Land Area (square kilometres). Accessed February 18, 2019. https://data.worldbank.org/indicator/AG.LND.TOTL.K2.

The World Bank. 2018. "World Development Report 2018 - LEARNING to Realize Education's Promise." Accessed January 21, 2019. http://www.worldbank.org/en/publication/wdr2018.

Valle Painter, Carla. 2013. Sense of Belonging: Literature Review. Citizenship and Immigration Canada.

Zimmerman, Emily B, Steven Woolf, and Amber Haley. 2015. "Understanding the Relationship Between Education and Health: A Review of the Evidence and an Examination of Community Perspectives." Population Health: Behavioural and Social Science Insights 347-384.

Zomer, Arend and Benneworth, Paul. 2011. "The Rise of the University's Third Mission." In Reforms of Higher Education in Europe, by J. Enders and H.F de Boer and D.F. Westerheijden, 81-101.

Appendix A: List of Indices Consulted, in Alphabetical Order

1. British Columbia Statistics Agency Socio-economic Indices
2. Canadian Index of Wellbeing
3. Climate Competitiveness Index
4. Community Well-Being Index
5. Conference Board of Canada City Magnets
6. European Environment Agency
7. Genuine Progress Indicator
8. Global Creativity Index
9. Global Peace Index
10. Happy Planet Index
11. Human Development Index
12. International Property Rights Index
13. Legatum Prosperity Index
14. Organization for Economic Co-operation and Development Better Life Index
15. Social Progress Imperative
16. Sustainable Society Index
17. World Happiness Index

Appendix B

Index of Confederation College's Impact on Social Progress in Northwestern Ontario

Human Capital

Educational Attainment	Highschool or below	Per cent with of the population with highschool or less as their highest completed degree or certificate
	Postsecondary credential	Per cent of the population with a completed degree or certificate above highschool
Labour Force	Participation Rate	Per cent of the population either working or actively seeking work
	Unemployement Rate	Per cent of the labour force not working and seeking work
	Employement Rate	Per cent of the labour force currently employed
	Gender ratios	The ratio of rates for males to females

Economy

Productivity	GDP per capita	The estimated amount of wealth generated by the local economy divided by the population each person
Productivity	Location quotients	How much more or less a local economy relies on the three largest economic sectors in Northwestern Ontario, compared to the region as a whole

Individual Prosperity

Income and Inequality	Average household income	Average annual income of households
	Low income cut-off before tax	Per cent of households whose income is less than the low income cut-off threshold
Housing Conditions	Owner affordability	Per cent of home owners who spend greater than 30 per cent of their after tax income on shelter costs
	Tenant affordability	Per cent of renters who spend greater than 30 per cent of their after tax income on shelter costs
Health and Well-Being	Access to regular health care provider	Per cent who report having a regular family doctor or nurse practitioner
	Quality of life satisfaction	Per cent who report high or very high satisfaction with their quality of life
	Perceptions of physical and mental health	Per cent who report their health to be good or very good
	Mortality rates	The number of annual deaths per 100,000 people

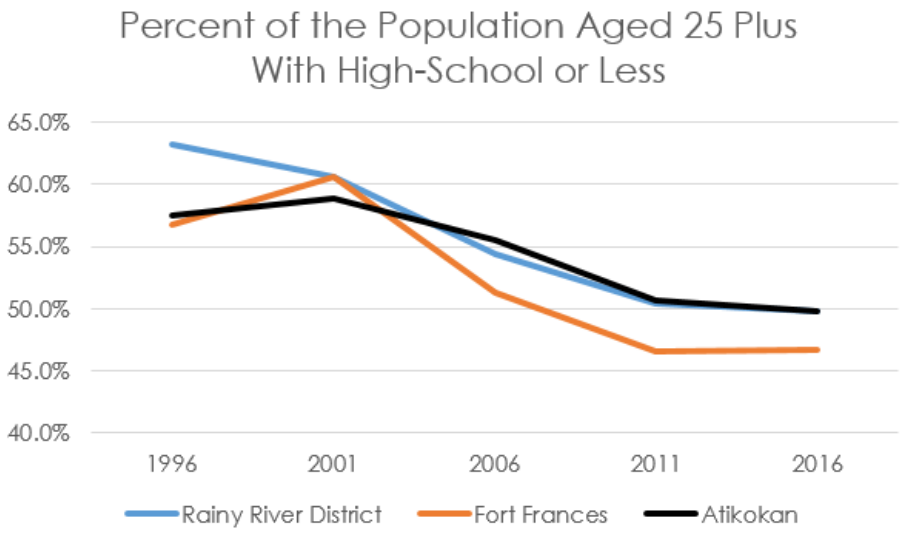
Community Vitality

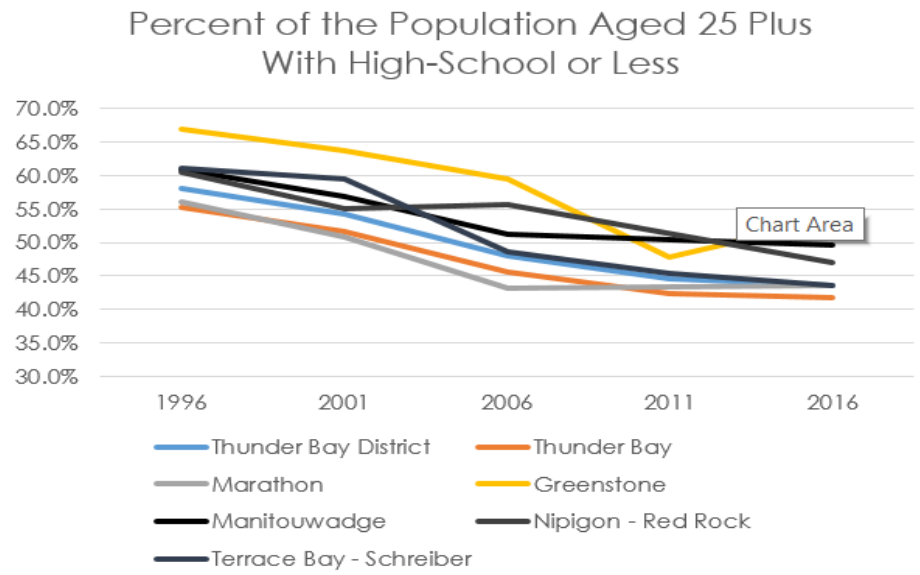
Demographics	Population rate of change	Per cent change in population size from one census to the next
	Composition	The ethno-cultural makeup of the population
Civic engagement	General election voter turnout	Per cent of eligible voters who cast a ballot in federal elections
	Sense of community belonging	Those who report strong or very strong sense of belonging ot their local community
Community safety	Crime rate	Number of crimes (excluding traffic violations), per 100,000 people
	Violent crime rate	Number of violent crimes per 100,000 people
	Crime severity index	Severity of crimes committed, as determined by the length of sentences handed down
	Violent crime severity index	Severity of violent crimes committed, as determined by the length of sentences handed down

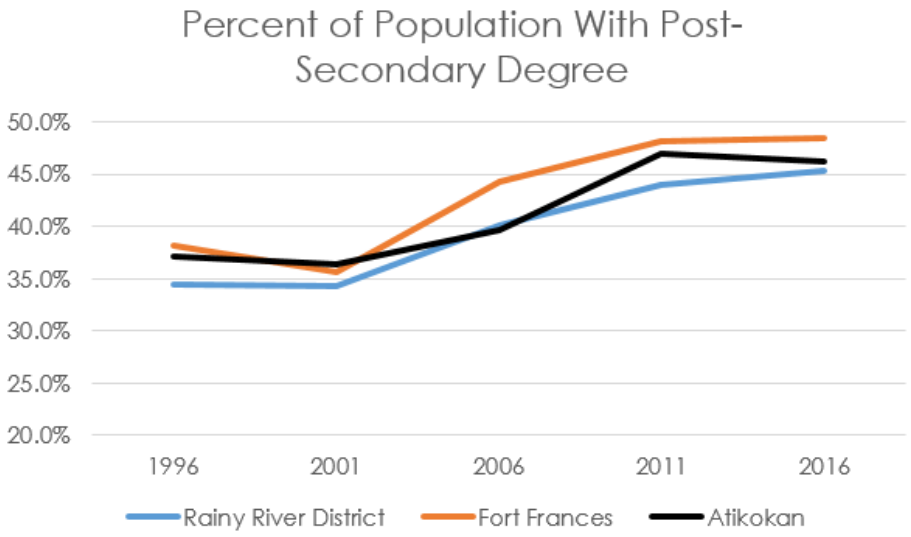
Appendix C

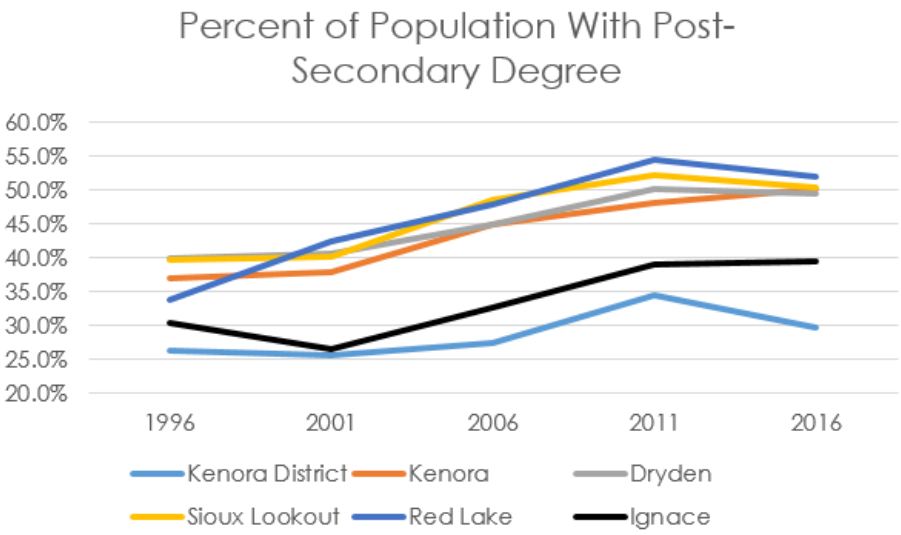
Graphs for Districts Not Shown in the Report
Sources: Statistics Canada censuses and National Household Survey 1996-2016; Statistics Canada Canadian Community Health Surveys 2003-2016; Statistics Canada General Social Surveys 2003-2014

Educational attainment

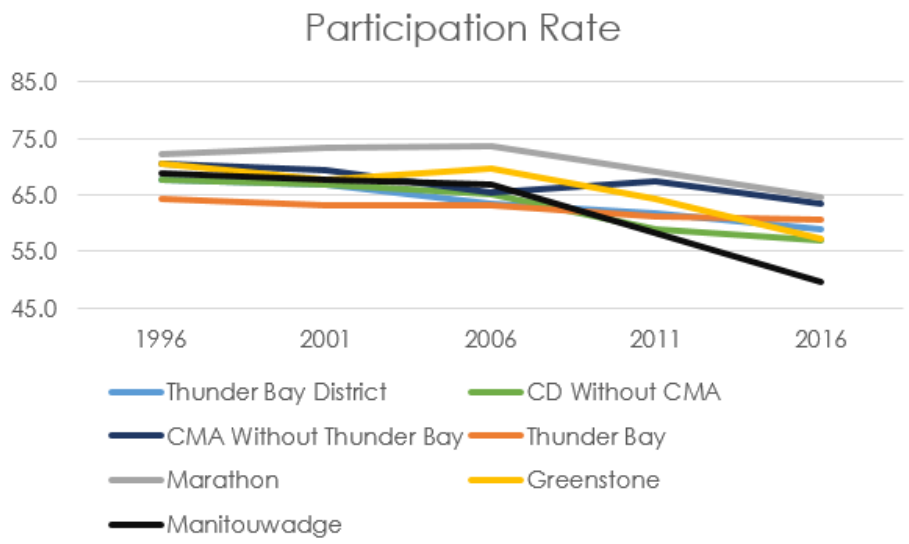


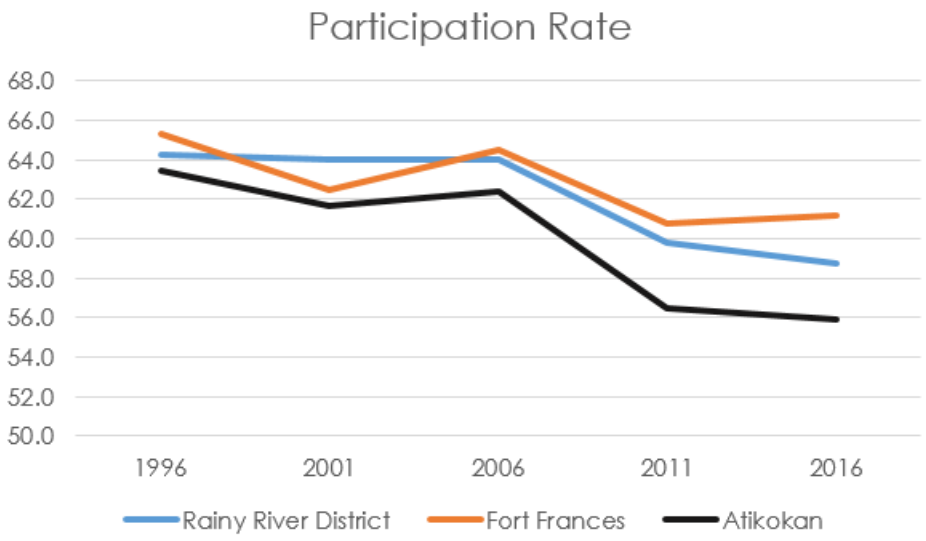


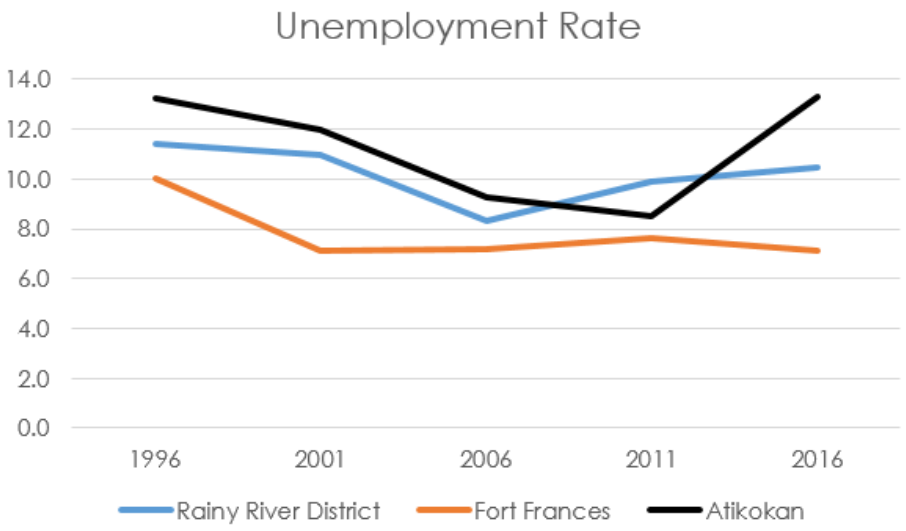

Percent of Population With Post-Secondary Degree
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
1996
2001
2006
2011
2016
Rainy River District
Fort Frances
Atikokan

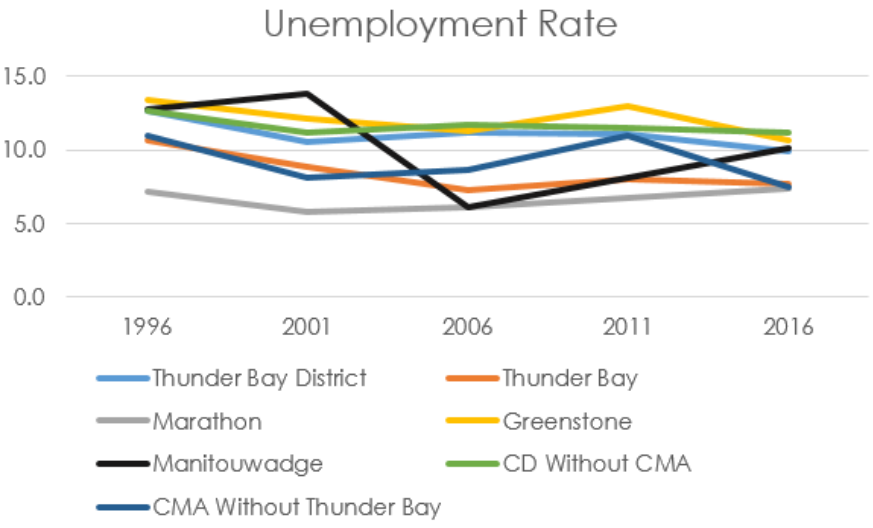

Percent of Population With Post-Secondary Degree
60.0%
55.0%
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
1996
2001
2006
2011
2016
Kenora District
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

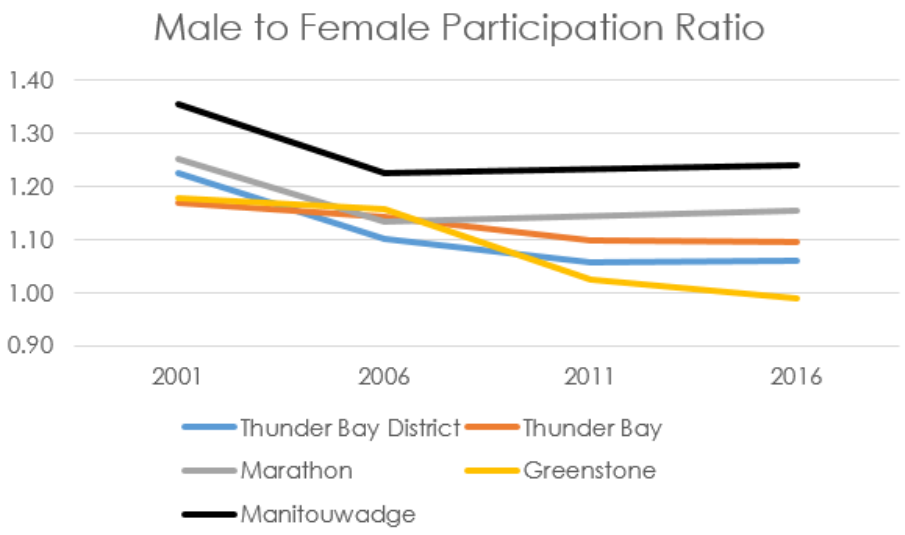
Labour Force

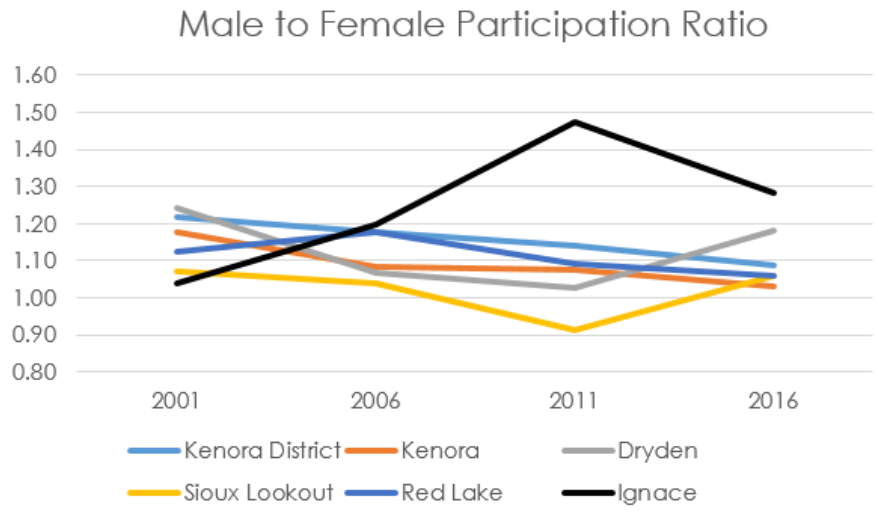


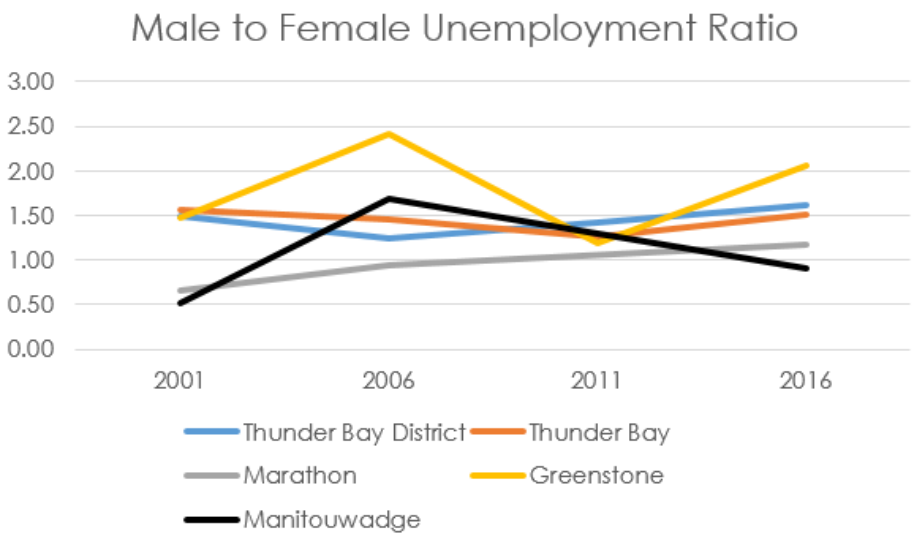


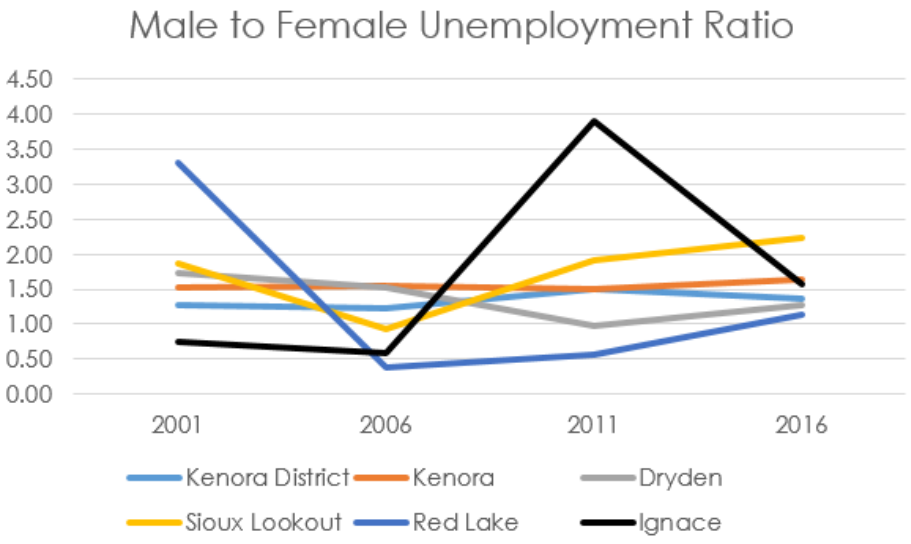

Unemployment Rate
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1996
2001
2006
2011
2016
Rainy River District
Fort Frances
Atikokan


Unemployment Rate
15.0
10.0
5.0
0.0
1996
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge
CD Without CMA
CMA Without Thunder Bay

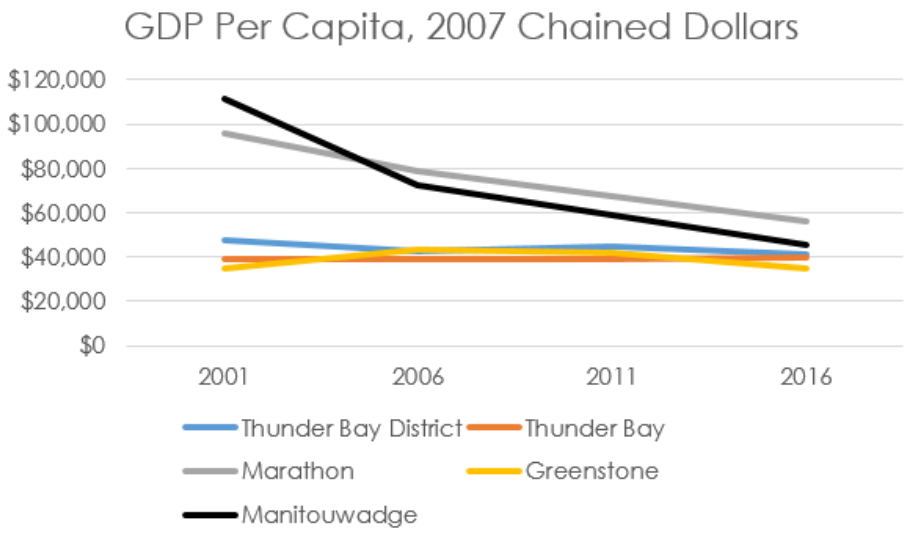

Male to Female Participation Ratio
1.40
1.30
1.20
1.10
1.00
0.90
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge

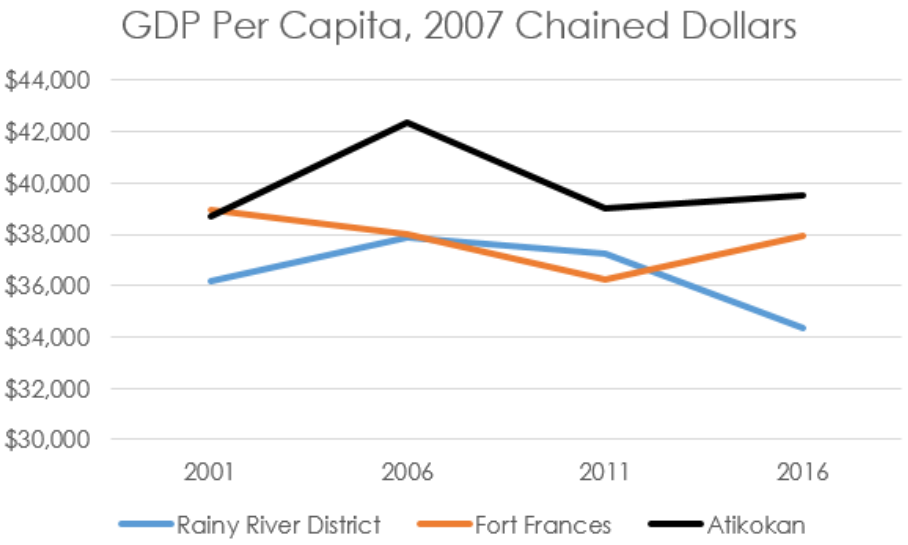

Male to Female Participation Ratio
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
2001
2006
2011
2016
Kenora District
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

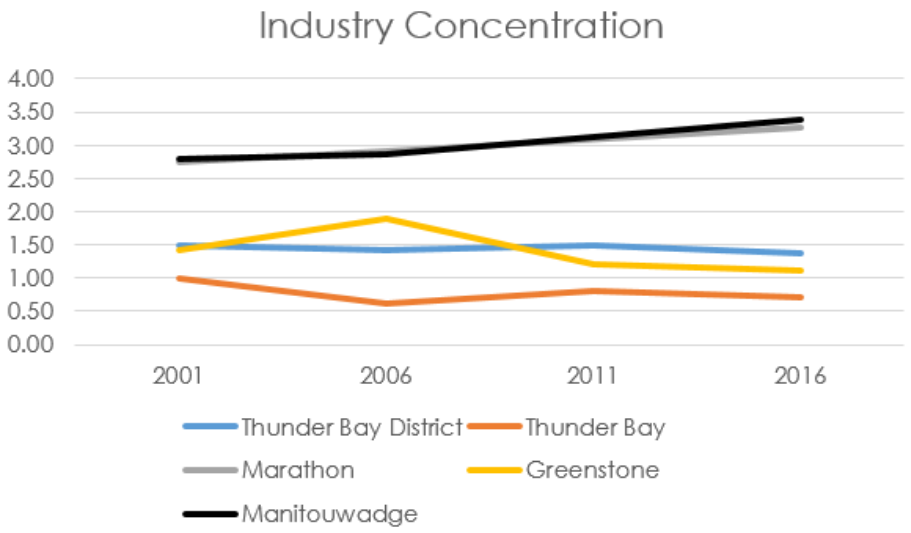

Male to Female Unemployment Ratio
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge

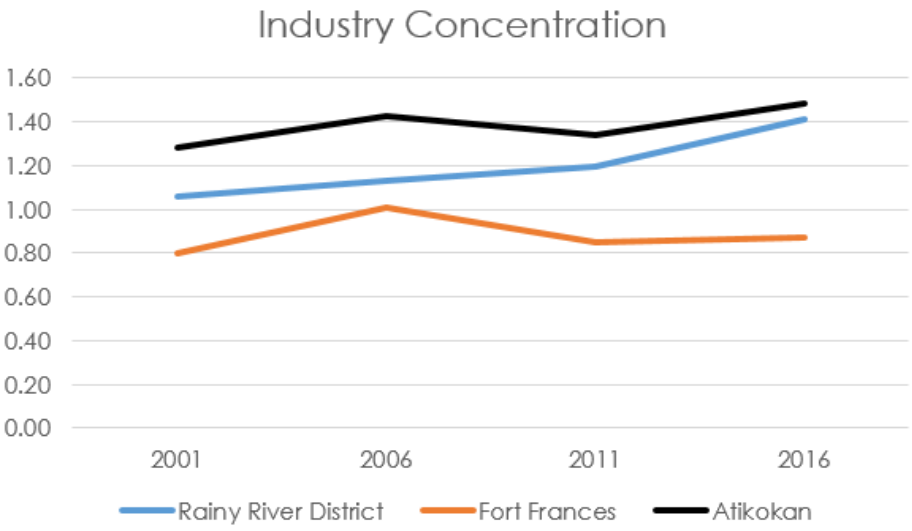

Male to Female Unemployment Ratio
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2001
2006
2011
2016
Kenora District
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

Economy: Productivity

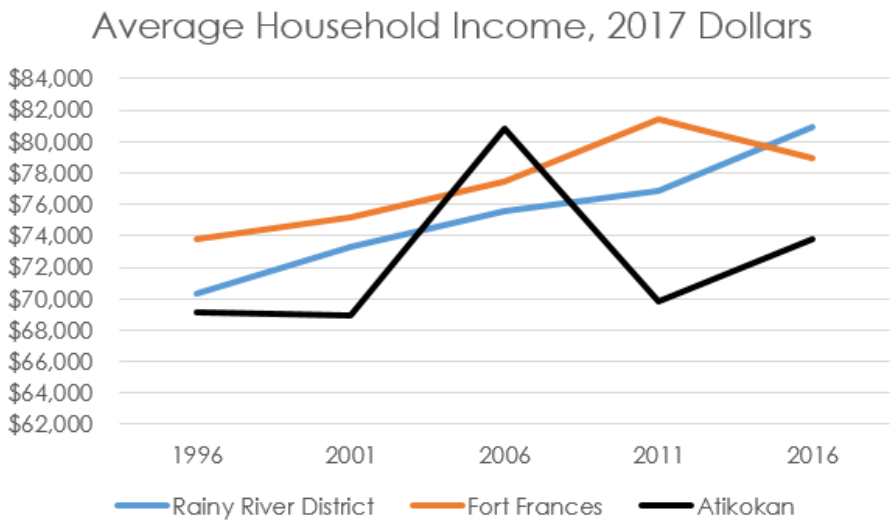


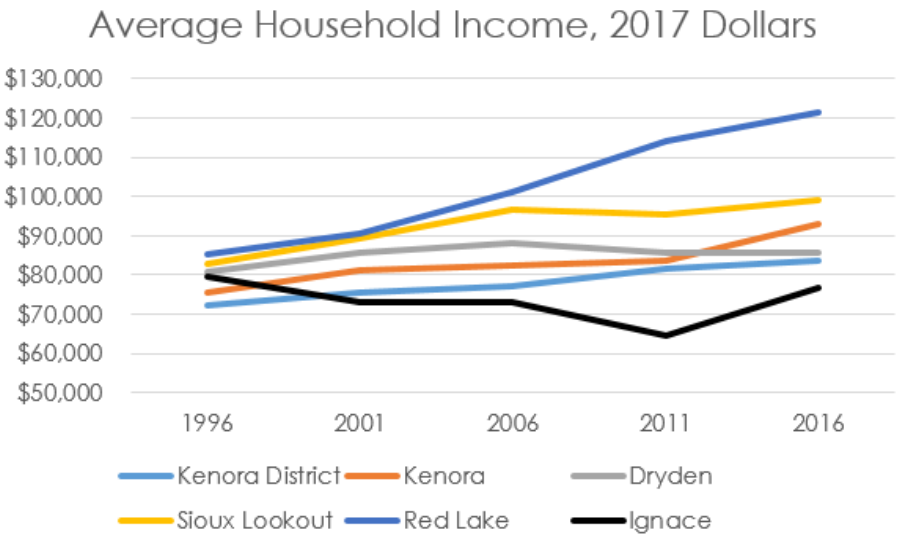



Industry Concentration
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge

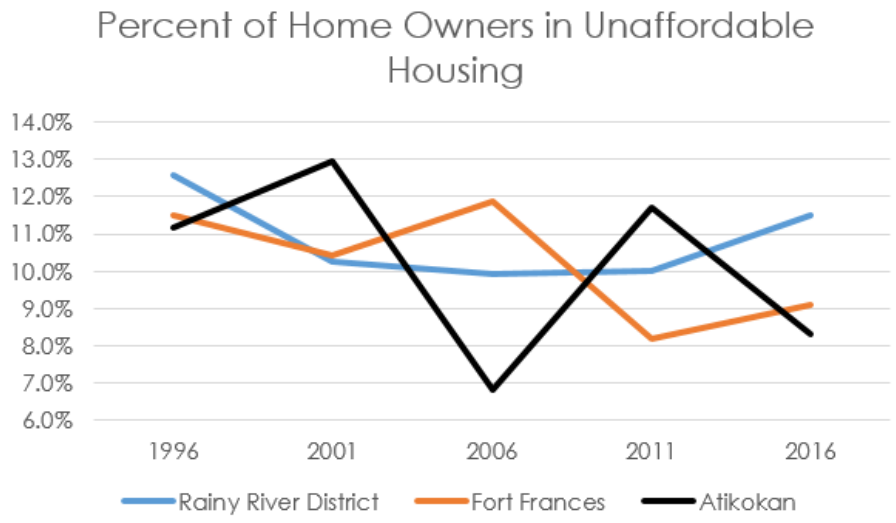

Industry Concentration
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
2001
2006
2011
2016
Rainy River District
Fort Frances
Atikokan

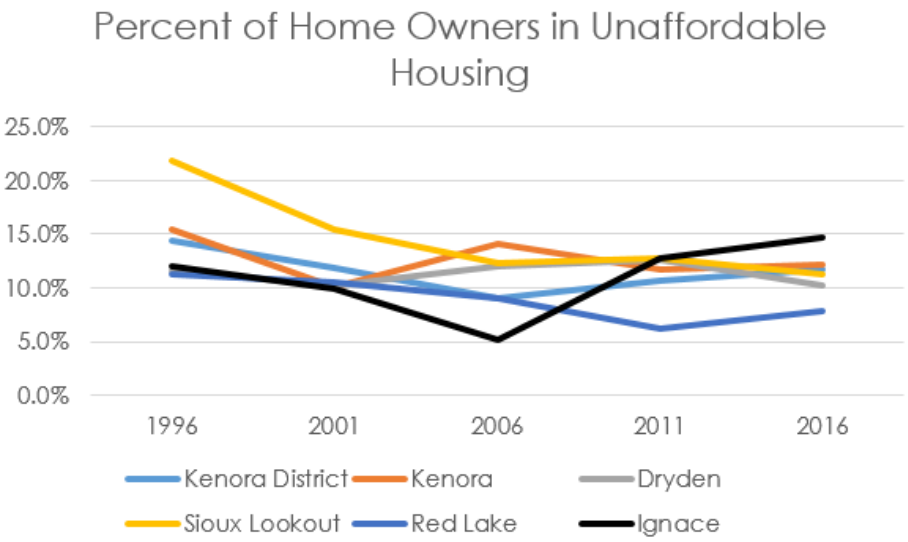
Individual Prosperity: Income and Inequality



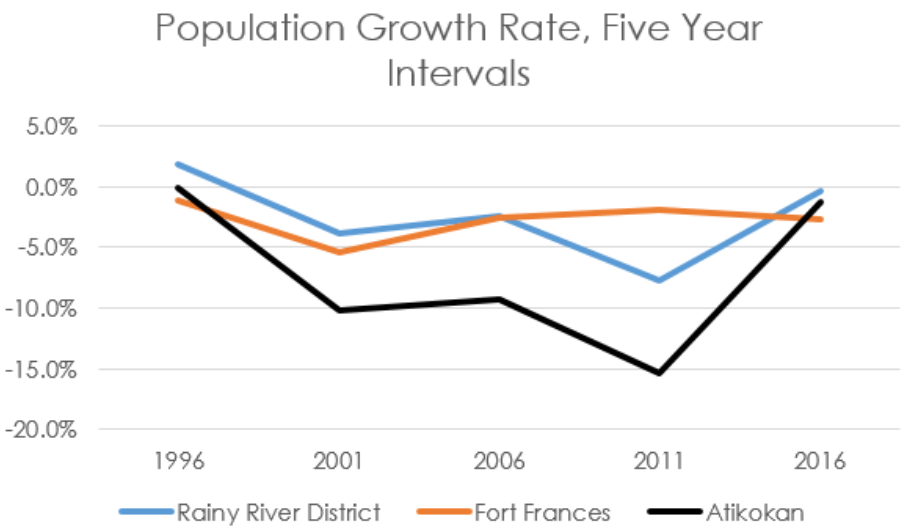


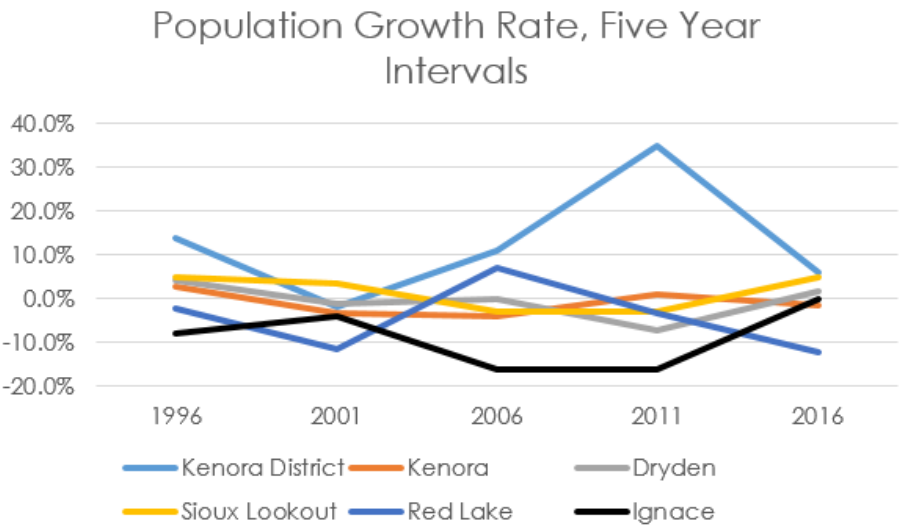
Housing affordability



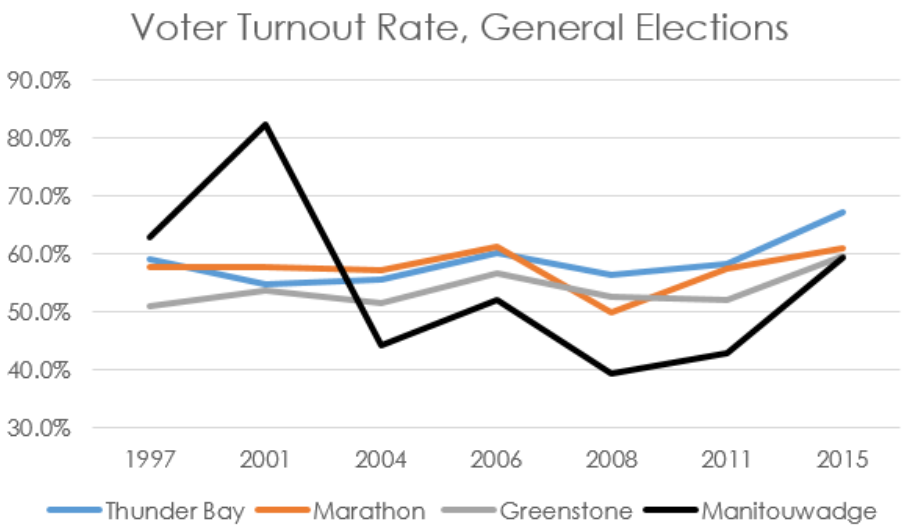


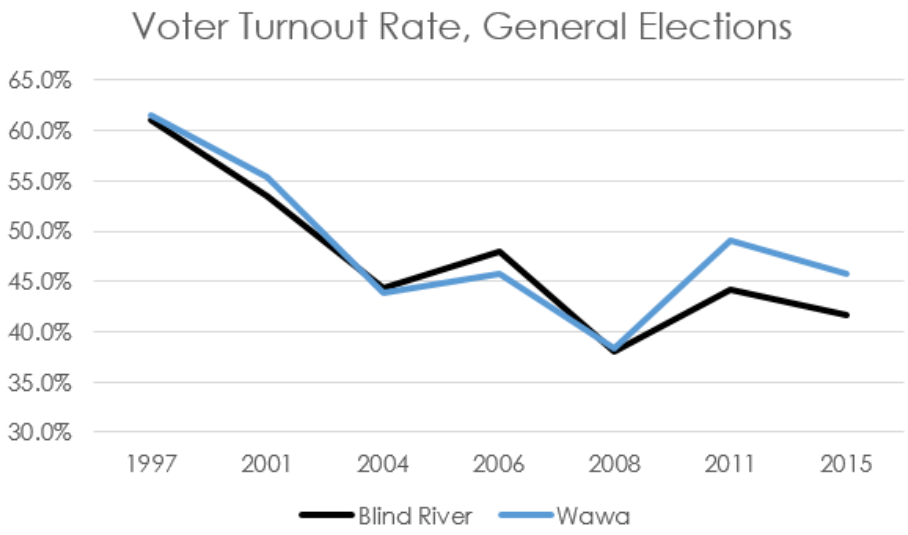
Community Vitality: Demographics

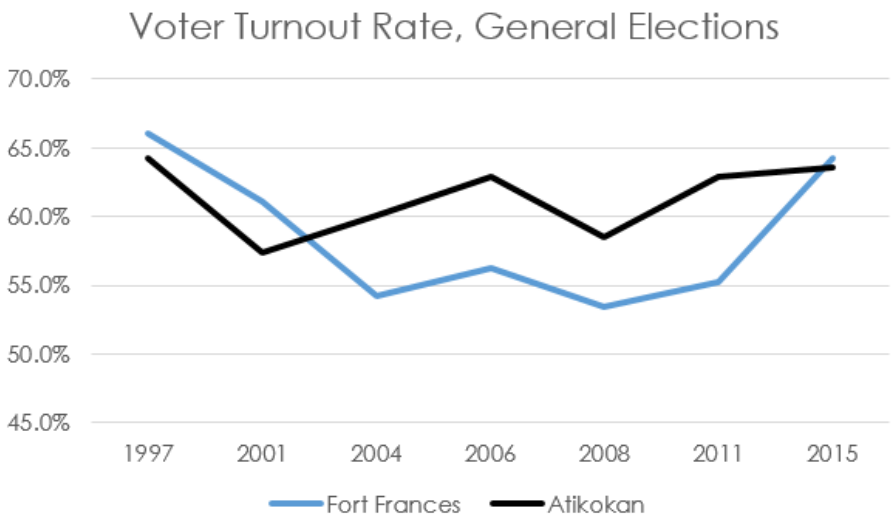




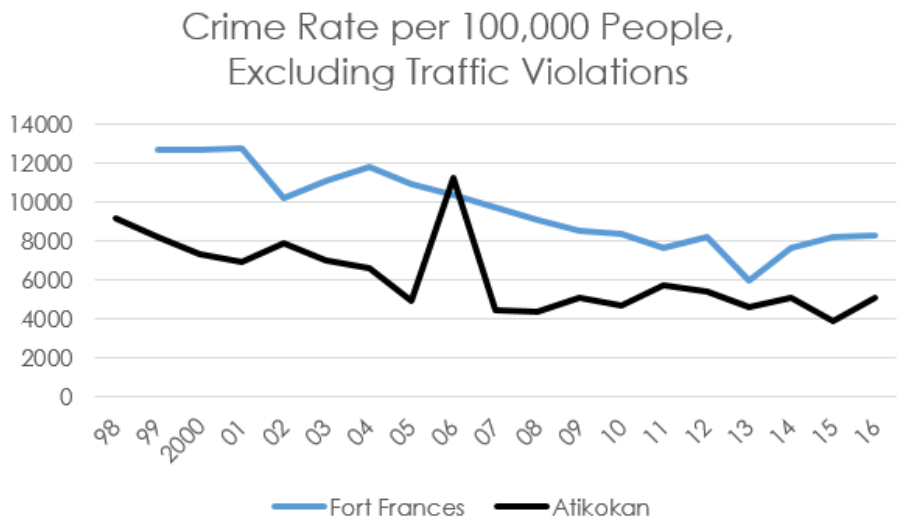
Civic engagement

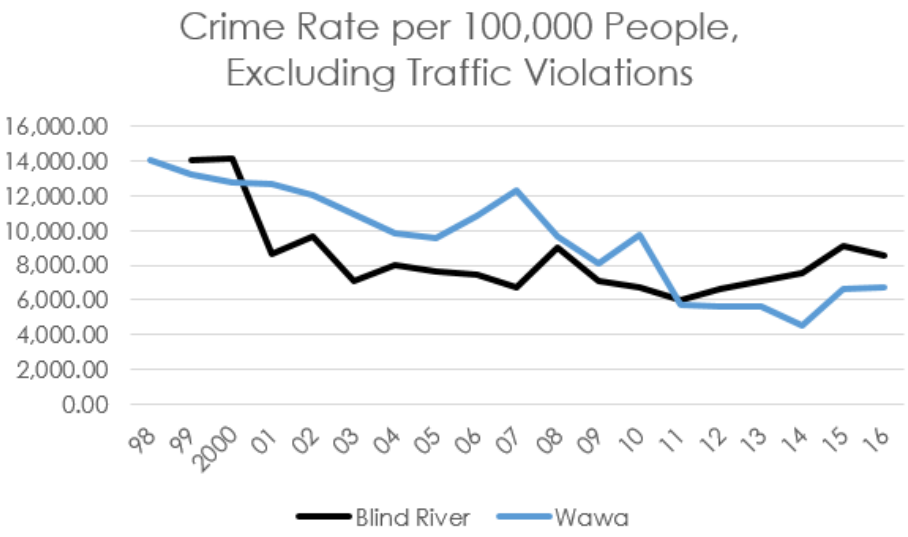


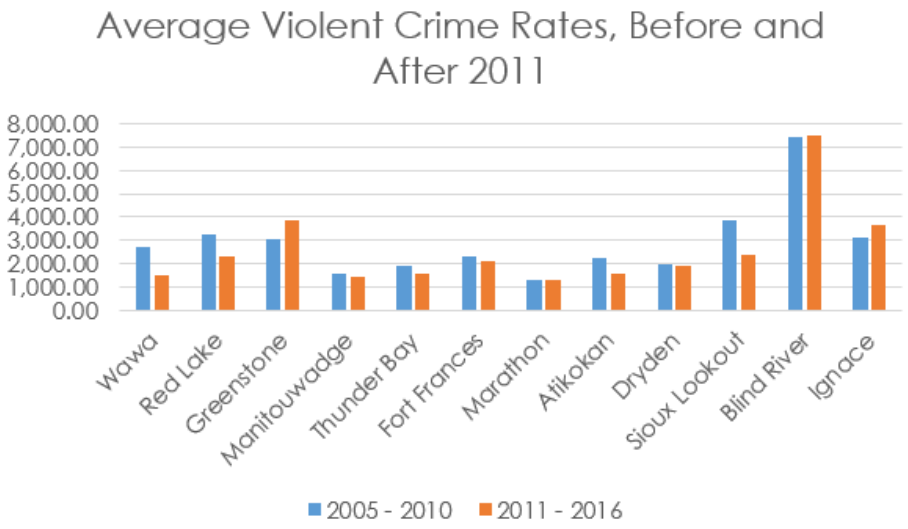




Community Safety

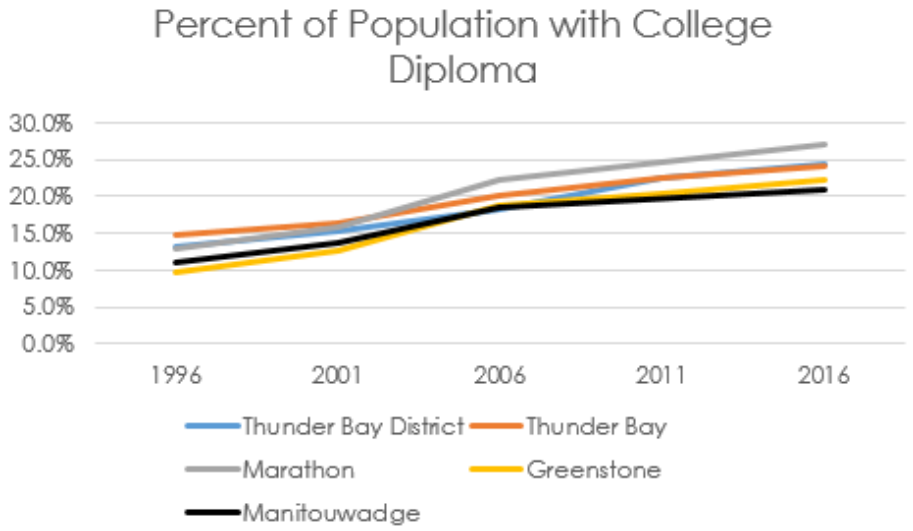

Crime Rate per 100,000 People, Excluding Traffic Violations
14000
12000
10000
8000
6000
4000
2000
0
98 99 2000 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
Fort Frances
Atikokan

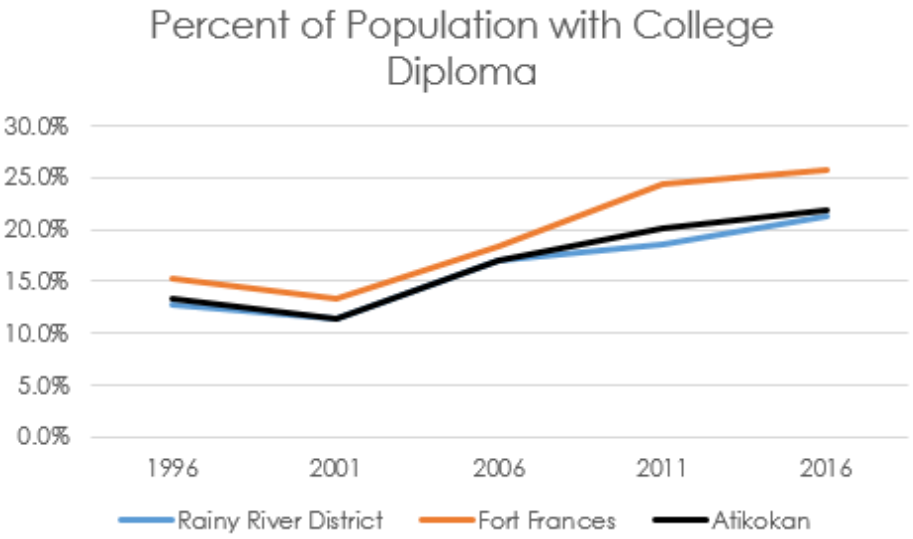

Crime Rate per 100,000 People, Excluding Traffic Violations
16,000.00
14,000.00
12,000.00
10,000.00
8,000.00
6,000.00
4,000.00
2,000.00
0.00
98 99 2000 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
Blind River
Wawa

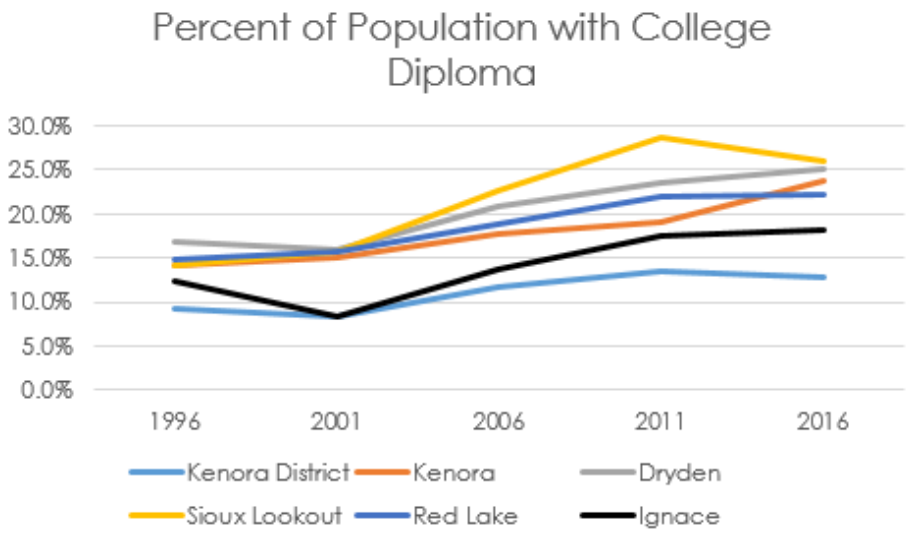

Average Violent Crime Rates, Before and After 2011
8,000.00
7,000.00
6,000.00
5,000.00
4,000.00
3,000.00
2,000.00
1,000.00
0.00
Wawa
Red Lake
Greenstone
Manitouwadge
Thunder Bay
Fort Frances
Marathon
Atikokan
Dryden
Sioux Lookout
Blind River
Ignace
2005 - 2010
2011 - 2016

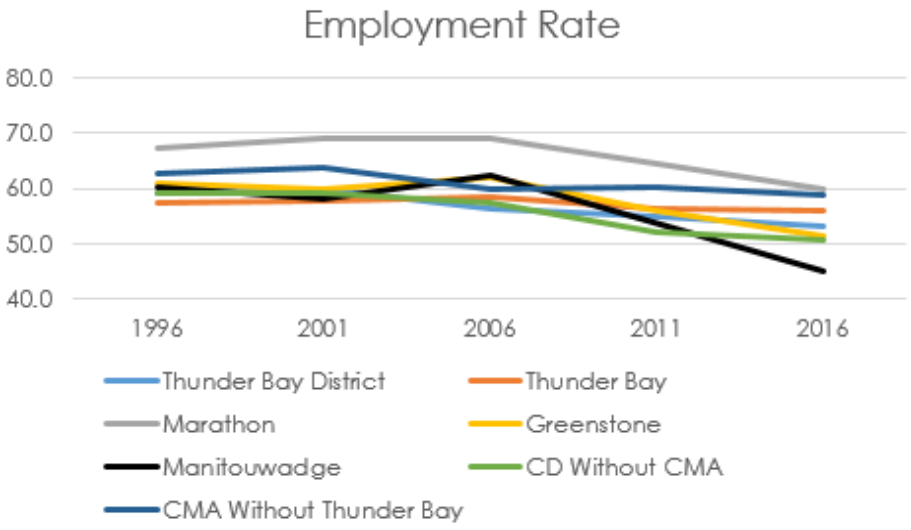
Appendix D

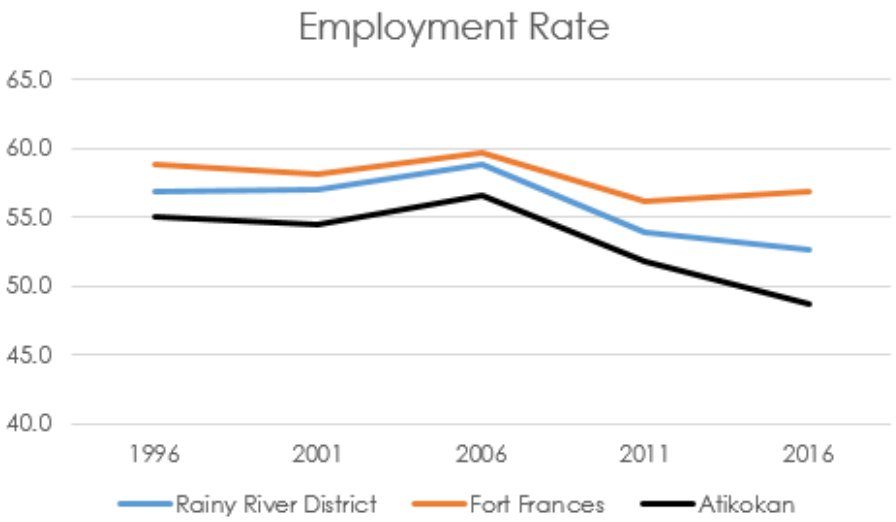
Additional Graphs
Sources: Statistics Canada censuses and National Household Survey 1996-2016; Statistics Canada Canadian Community Health Surveys 2003-2016; Statistics Canada General Social Surveys 2003-2014

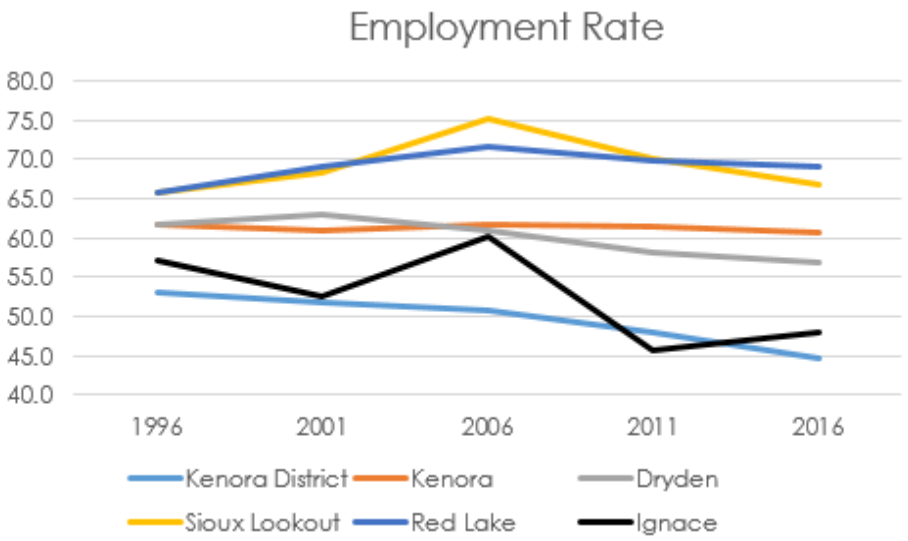


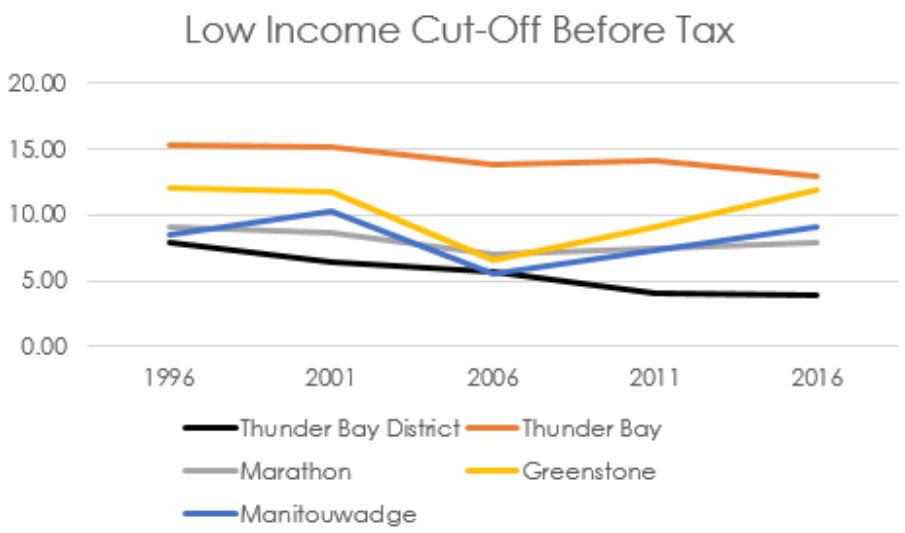


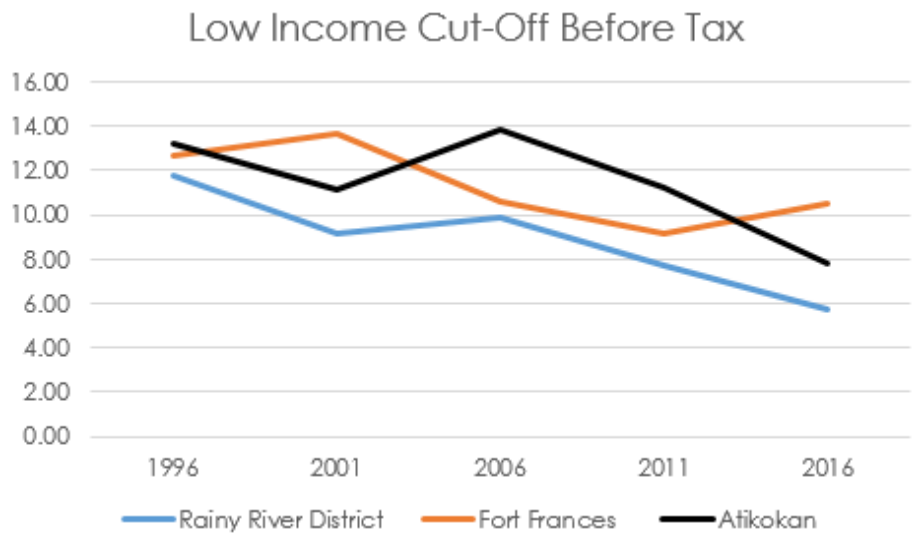

Percent of Population with College Diploma
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
1996
2001
2006
2011
2016
Kenora District
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

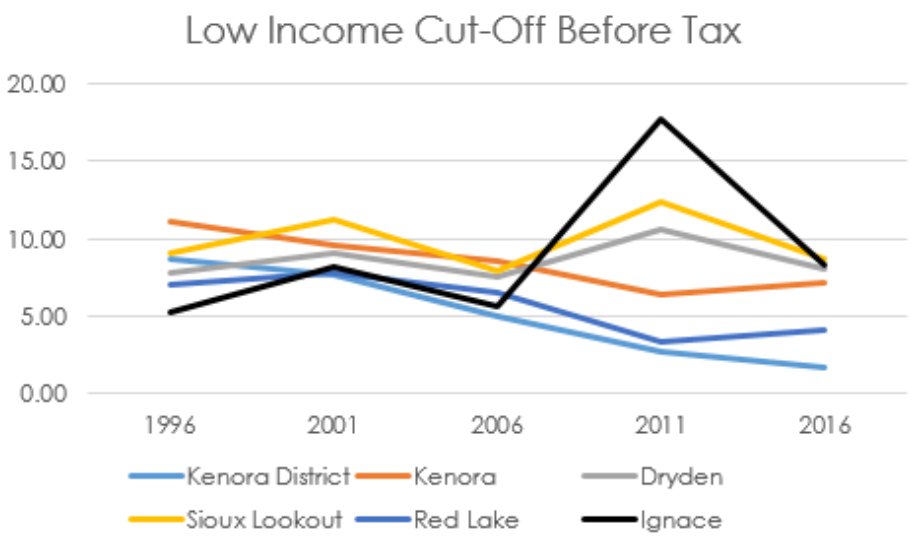

Employment Rate
80.0
70.0
60.0
50.0
40.0
1996
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge
CD Without CMA
CMA Without Thunder Bay

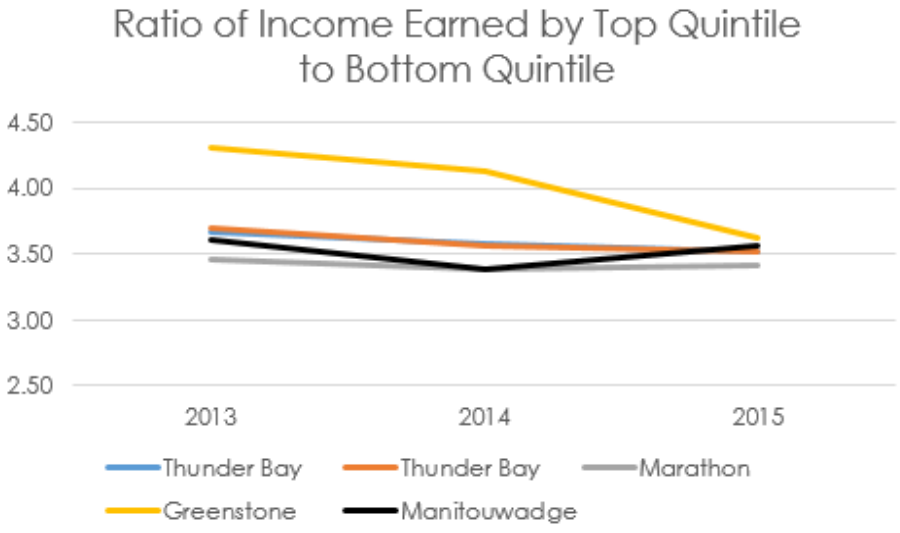

Employment Rate
65.0
60.0
55.0
50.0
45.0
40.0
1996
2001
2006
2011
2016
Rainy River District
Fort Frances
Atikokan

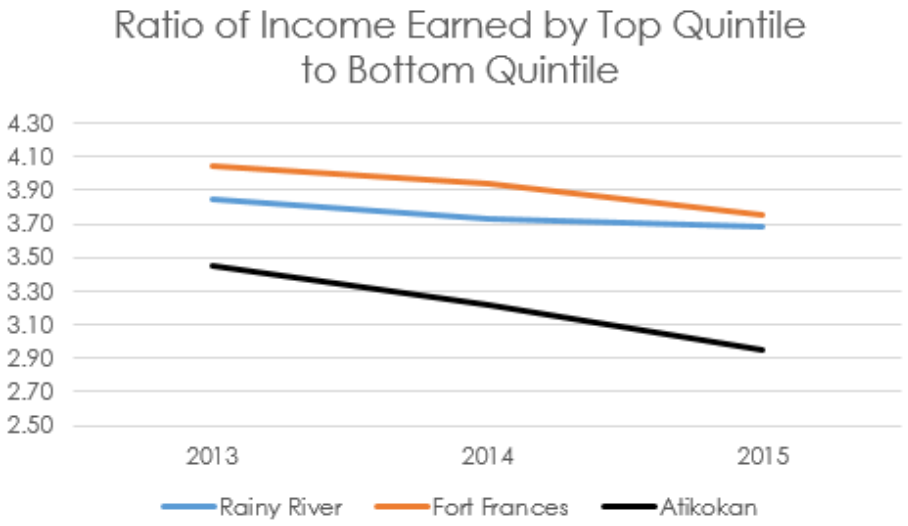

Employment Rate
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
1996
2001
2006
2011
2016
Kenora District
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

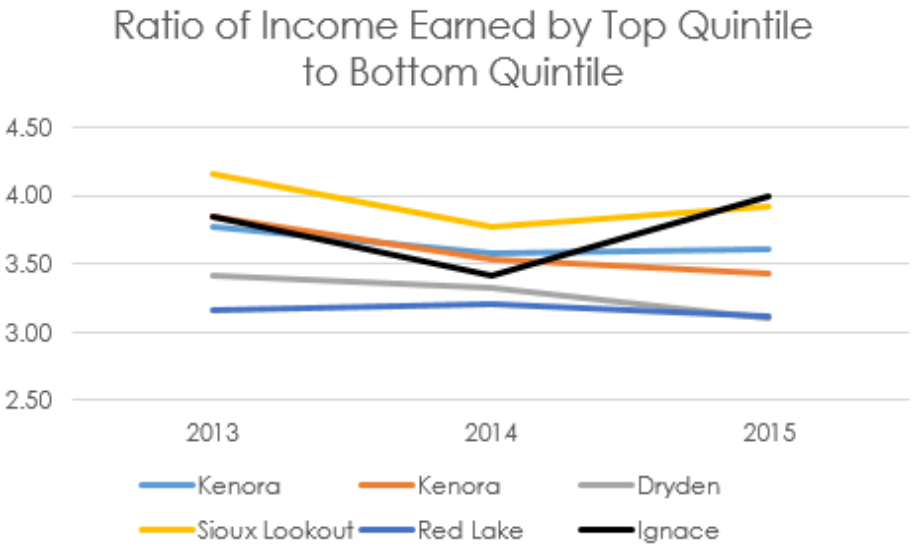

Low Income Cut-Off Before Tax
20.00
15.00
10.00
5.00
0.00
1996
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge

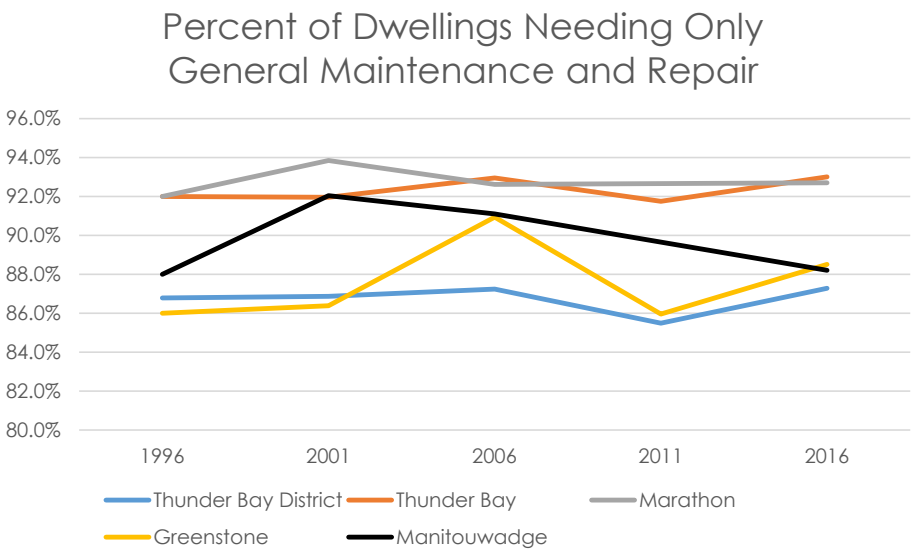

Low Income Cut-Off Before Tax
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
1996
2001
2006
2011
2016
Rainy River District
Fort Frances
Atikokan

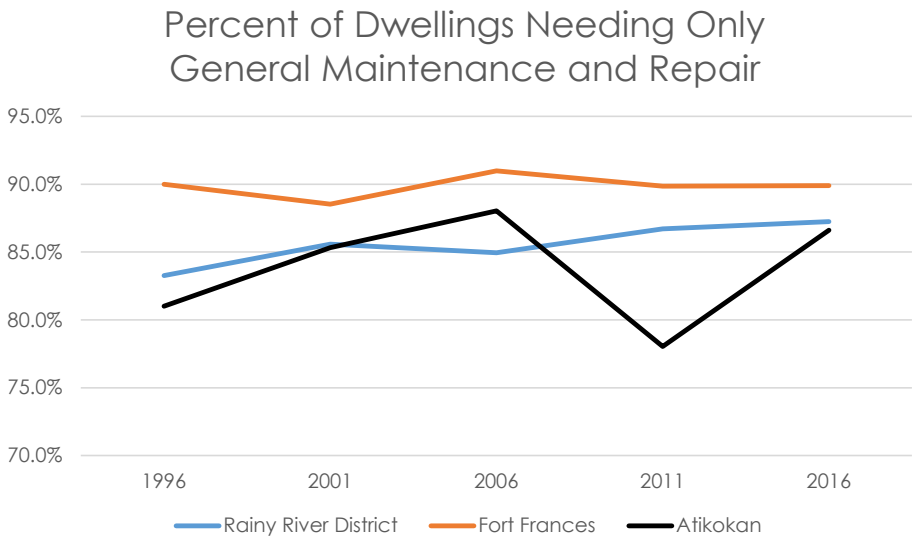

Low Income Cut-Off Before Tax
20.00
15.00
10.00
5.00
0.00
1996
2001
2006
2011
2016
Kenora District
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

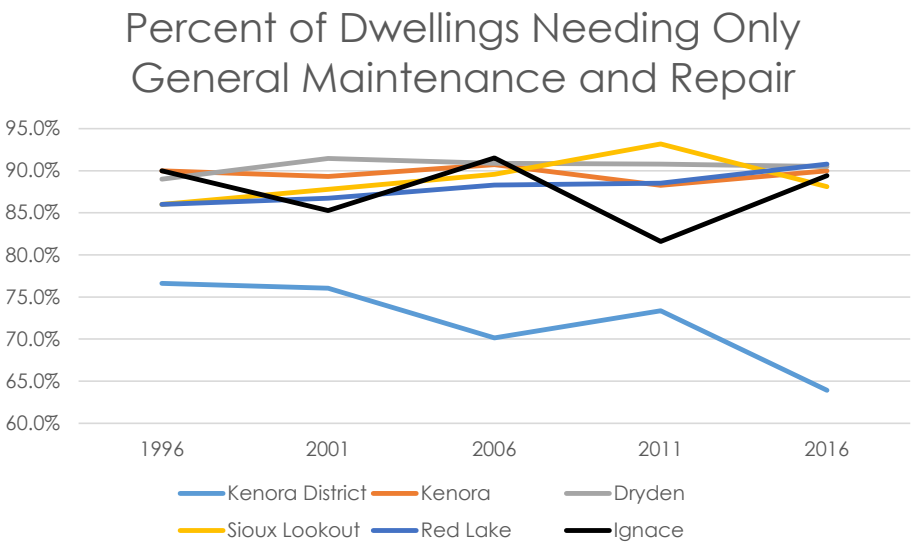

Ratio of Income Earned by Top Quintile to Bottom Quintile
4.50
4.00
3.50
3.00
2.50
2013
2014
2015
Thunder Bay
Thunder Bay
Marathon
Greenstone
Manitouwadge

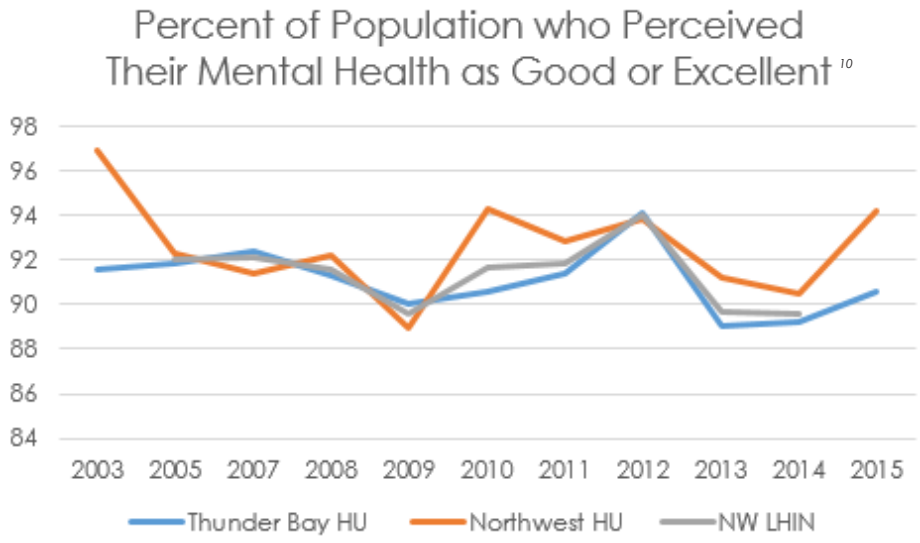

Ratio of Income Earned by Top Quintile to Bottom Quintile
4.30
4.10
3.90
3.70
3.50
3.30
3.10
2.90
2.70
2.50
2013
2014
2015
Rainy River
Fort Frances
Atikokan


Ratio of Income Earned by Top Quintile to Bottom Quintile
4.50
4.00
3.50
3.00
2.50
2013
2014
2015
Kenora
Kenora
Dryden
Sioux Lookout
Red Lake
Ignace

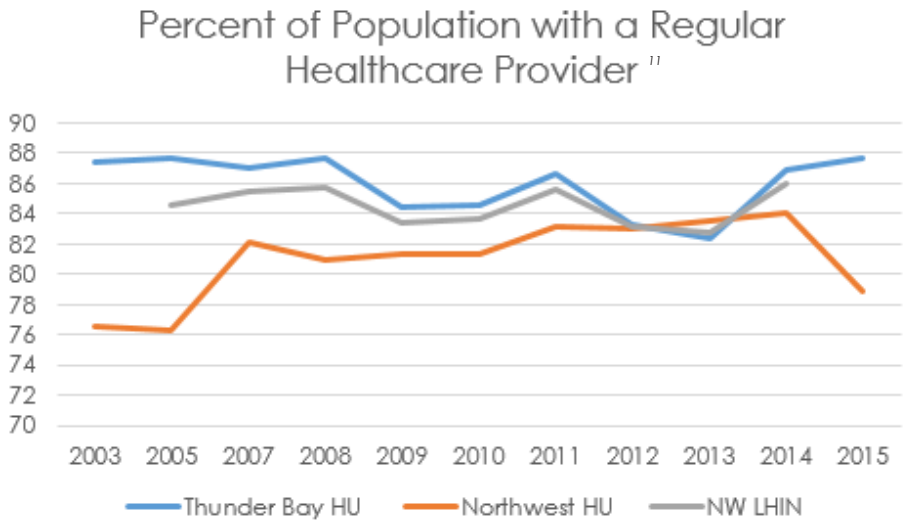

Percent of Dwellings Needing Only General Maintenance and Repair
96.0%
94.0%
92.0%
90.0%
88.0%
86.0%
84.0%
82.0%
80.0%
1996
2001
2006
2011
2016
Thunder Bay District
Thunder Bay
Marathon
Greenstone
Manitouwadge


Percent of Dwellings Needing Only General Maintenance and Repair
95.0%
90.0%
85.0%
80.0%
75.0%
70.0%
1996
2001
2006
2011
2016
Rainy River District
Fort Frances
Atikokan

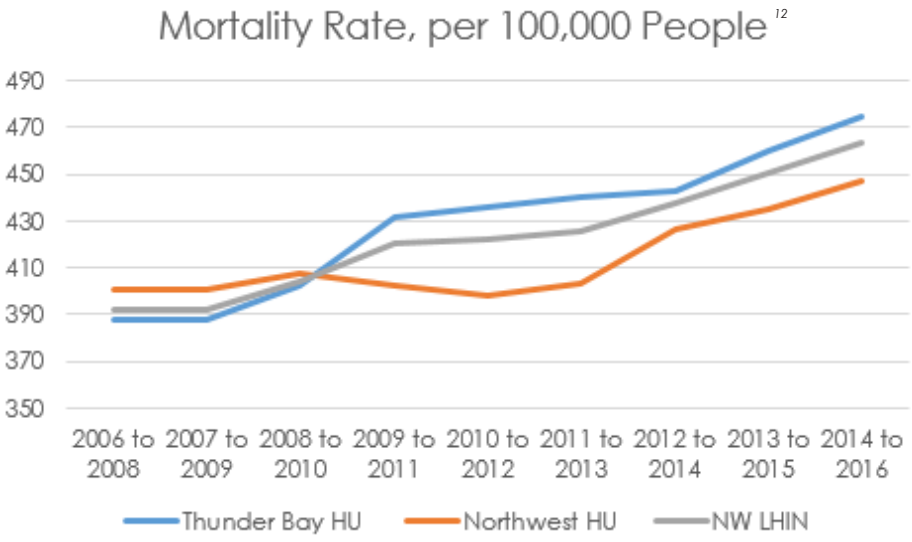




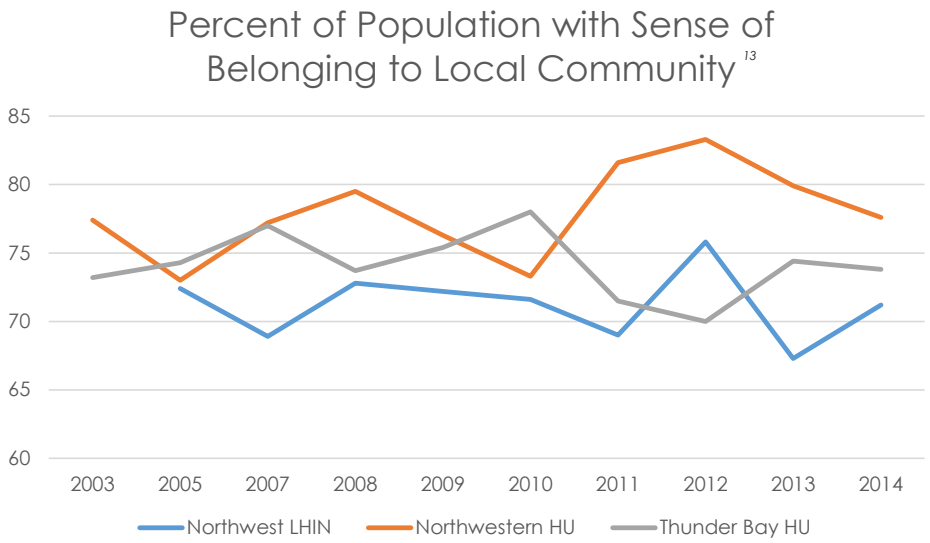
[10] *"HU" refers to Health Unit, "NW LHIN" refers to North West Local Health Integration Unit.*



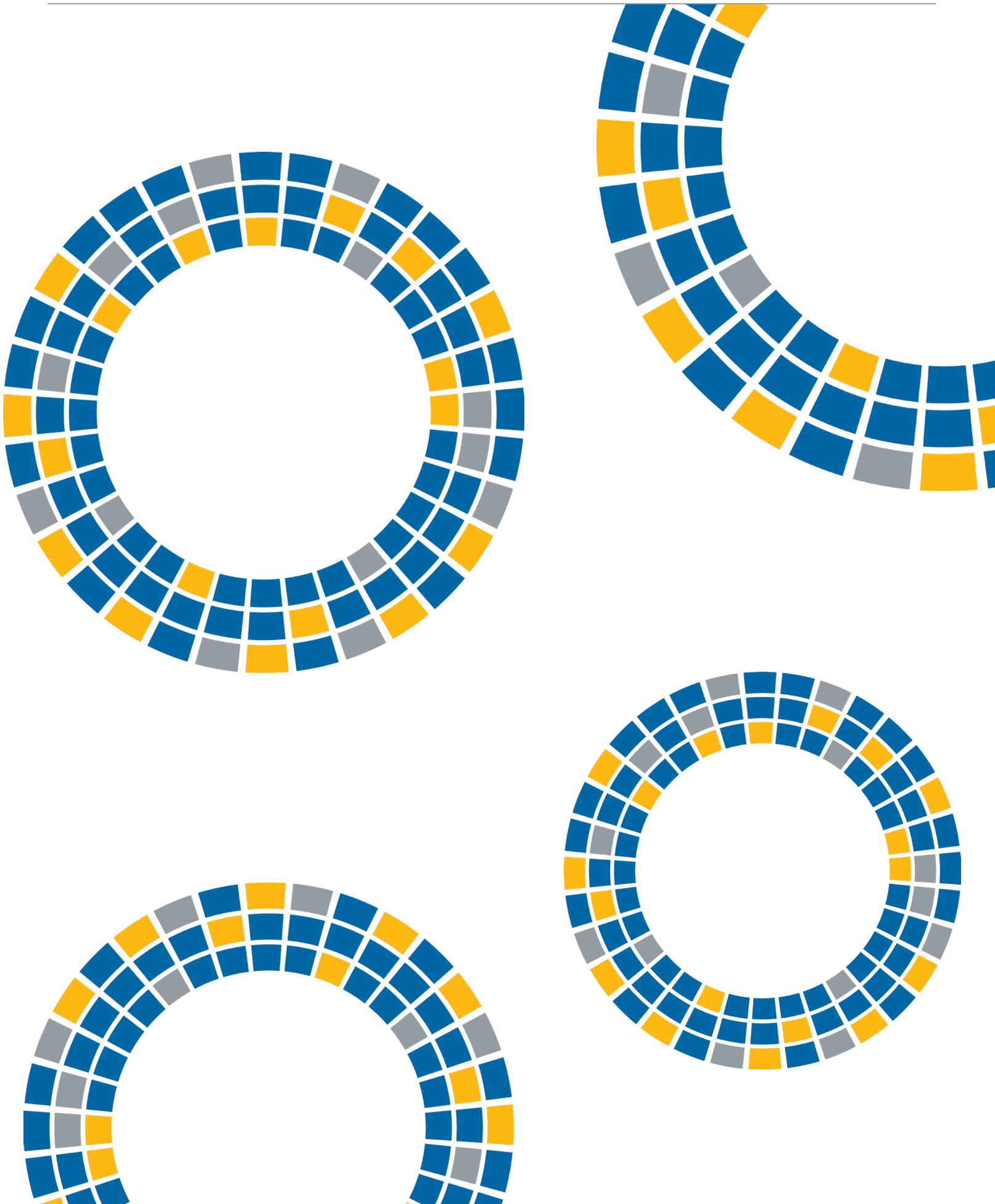
[11] *"HU" refers to Health Unit, "NW LHIN" refers to North West Local Health Integration Unit.*



[12] *"HU" refers to Health Unit, "NW LHIN" refers to North West Local Health Integration Unit.*



[13] *"HU" refers to Health Unit, "NW LHIN" refers to North West Local Health Integration Unit.*



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