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An Analysis of Primary and Secondary Sector Employment in Canada in Relation to the

Distribution of Median Income

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Abstract

The Canadian economy continues to become more 'advanced' and is shifting towards more service jobs; tertiary, quaternary, and quinary. As a result, the Canadian job market now focusses less on direct resource and manufacturing employment. These changes are occurring in the context of globalization where productivity is continually being improved upon and higher education is greatly valued. This study addresses employment activity in the primary and secondary sector in Canada. This analysis is done to get a better understanding of the continued importance of these employment activities in a country that is focussing on more professional and service jobs. In order to analyze the primary and secondary sector in Canada, three variables have been used. The three variables are: 1) mining, quarrying, and oil and gas extraction; 2) agriculture, forestry, fishing, and hunting; and 3) manufacturing. ArcMap has been used in this study to provide a visual representation of the spatial distribution of each of these three variables by according to a low, middle, and high range of industry activity. Locations in Canada that are categorized as low, middle and high in terms of industrial activity are also compared by median income. This research indicates that primary and secondary sector activity in Canada is still very important to the national economy as well as numerous local economies in Canada.

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Introduction

Canada is a country with an abundance of resources that have been a vital part of the Canadian economy and job market. Resource extraction activities have long occurred in Canada and new extraction projects continue to occur. Resource activities like forestry have become important to the Canadian economy and an important material for exporting. Canada has a tremendous amount of forested land making the lumber and forestry industry very lucrative and important to Canada. Resource extraction activity in Canada has attracted international attention through, for example, the large scale mining occurring in Sudbury and other areas in northern Ontario as well as the more recently began operation of the Alberta Oil Sands. Manufacturing activity in Canada also has played a significant role in making Canada a developed country. As Canada began to be colonized, major metropolitan centers engaged in manufacturing activities which made this industry a large producer of jobs. Other activities such as agriculture and hunting have also been significant sources of income from the onset of Canada being colonized. Canada is home to some of the richest soil in the world and has a tremendous amount of wildlife activity. All of these activities display a historic dependence on employment activity in the primary and secondary sector.

In analyzing primary and secondary sector activity across Canada, the continued importance of these activities will be discovered. This analysis will be performed through the examination of various maps and tables addressing primary and secondary sector activity as well as median incomes across Canada. In a developed country like Canada, there is a constant demand for new technology and greater efficiency in production activities. The increasing

advancement of Canada means the job market is becoming more professional thus increasing the demand for higher educated workers. This trend appears to come at the expense of lower skilled jobs, particularly in industries such as manufacturing. However, by addressing activity in the primary and secondary sector, Canada remains to rely on manufacturing for a significant number of workers. Existing literature on manufacturing emphasizes the impacts of the recession in 2008-2009 and influences of globalization. There has been much research performed looking into the ability of a resource project to employ a large number of individuals in the local and national economies through direct and indirect means. Understanding indirect and direct linkages is important for understanding how the economy may benefit from the implementation of a new resource project. Furthermore, the literature on the size of a resource project has been shown to change the competitiveness and volatility that a project will experience in the course of its operations.

<u>Literature Review</u>

Introduction

Resource activity in the Canadian economy is a major contributor of national GDP. Additionally, the role of manufacturing in Canada has been a tremendous source of income in the Canadian economy, although on the decline in recent years. One of Canada's most vital resources is lumber, which provides a significant source of national GDP. A study of forest pests expresses the vulnerability of the forestry industry to substantial losses in output. Much research has been performed on developing trends among the manufacturing and resource sectors. Particularly as it pertains to manufacturing, globalization has played a significant role in the loss

of Canadian incomes. As will be discussed, this loss of income comes from the appeal of low wage work available overseas as well as the advancement of technology. Those employed in manufacturing have also experienced job loss and other difficulties due to the recession that occurred in 2008-2009. Beyond manufacturing, researching resource activities such as mining provides insight into the employment opportunities that are created both directly and indirectly from a resource project, which contribute to increasing employment and national GDP. Indirect and direct linkages from a resource project, as well as government programs, illustrate how income may be generated, and kept in a community as well as potentially creating jobs in other communities. As Canada is becoming more developed and the types of jobs are transitioning, it is important to understand what new types of jobs are being created in contrast to the jobs being lost. Understanding what sectors are on the rise is important to address unemployment and thus increase income levels. Researching small towns and small resource projects provides insight into the direct contributions a new project can have on a local community. Small towns are in a vulnerable position as they typically lack a diversified economy. Providing non-employment income to individuals in small towns provides stability to these locations as well as a means for diversifying their economy.

Globalization

In a developed country increasing its productivity through technological advancements and outsourcing employment opportunities to underdeveloped countries the need for low-skilled workers continue to decline. Globalization has been influential on changes in Canadian employment and income levels particularly in manufacturing and other blue-collar jobs.

Globalizations, generally, creates job loss in two ways, through shifting Canadian jobs overseas and through displacing workers due to new technology. As technology continues to become more advanced in Canada, unemployment will continue to grow (Gamu, Le Billon, & Spiegel, 2013). The ability of new technology to displace workers is a significant social problem in Canada, as well as other developed countries like the U.S, that ought to be remedied. Advancing technology has led to an increase in productivity for manufacturing plants which has led to mass layoffs in the manufacturing sector. Increasing productivity in a manufacturing plant means the plant is able to more effectively produce a commodity at a better cost. A 2006 Canadian study analyzing the distribution of national income towards labour reveals surprising results which are concluded to be associated with the influences of globalization. More precisely, this study addresses the variations experienced in labours share of income over 18 general sectors in Canada (Morel, 2005). Upon analyzing 18 sectors in the Canadian economy, this study makes conclusions that expand on the already difficult situation of blue-collar workers losing their jobs to globalization. Blue-collar workers are not only losing jobs due to globalization as this study has discovered, but globalization is also responsible for reducing the share of national income allocated to labour (Morel, 2005). All this points to the extreme difficulty in working-class individuals to earn a sufficient income to support themselves and their families. This study goes further than explaining the current issues facing labours share of income as it also provides future predictions as to what will continue to happen with labours share of income. Through globalization and firm's openness to trade, this study expresses that labours share of income may continue to fall in the future (Morel, 2005). Globalization seriously impacts working-class blue-collar jobs in developed countries, an issue that must be addressed to resolve growing unemployment. A recent book, "White Working Class," discussing the problems facing the U.S

working class highlights the impacts of globalization on blue-collar jobs and introduces an idea for stopping growing unemployment. The author raises the idea of vocational training to provide job-ready skills for displaced working-class individuals as a means of reducing unemployment in the U.S (White Working Class, 2017). This idea would surely help resolve unemployment and increase the average household income received by those in the working-class and likely those in the lower class.

2008-2009 Canadian recession

The manufacturing sector has experienced significant challenges particularly since the beginning of the 2000s. A study on manufacturing employment indicates that productivity growth has also served a substantial portion of a decline in manufacturing employment since the 1960s (Iscan, 2014). For starters, globalization has been a serious issue for job loss as has been previously mentioned. Additionally, as the Canadian economy aspires to become more of a professional and skilled workforce, jobs are further encouraged to shift overseas. On top of such barriers to success, the manufacturing sector has been even further impeded by the recession that occurred from 2008-2009. While recessions provide challenges for all sectors in the economy, the manufacturing sector already experiencing major difficulties was particularly affected. Despite declines in almost all industries producing durable goods, the most impacted industry was the transportation equipment industry, which experienced a decline of about 32% (Clarke & Couture, 2017). This industry composes a large portion of the manufacturing industry in Canada. Although other manufacturing industries saw greater declines in their percentage loss of GDP, the size of the transportation equipment industry means that this sector lost the greatest amount,

by far, of GDP during the recession. The significant decline in the transportation equipment industry was caused by contractions of the motor vehicle industry and motor vehicle parts industry (Clarke & Couture, 2017). The impacts of this recession provide a representation of the weakened state of the manufacturing sector since the turn of the 2000s. Recovery from the 2008-2009 recession in the manufacturing sector was the slowest it has been since World War II (Clarke & Couture, 2017). The results of this recession indicate a massive loss in GDP in the manufacturing sector and thus a decline in earning potential for those employed in that sector. Furthermore, it also indicates the presence of high unemployment during that period, jobs which may never re-appear. The recession of 2008-2009 has had lasting effects on household income and employment for those who rely on the manufacturing sector to provide for their families.

Direct linkages

Mining ventures typically have a small contribution to the national economy but serve a more significant purpose in small, local economies through increased employment and income levels. Despite the importance a mining project may have on local economies, the direct impact of a mining project on employment is relatively minor. Mining projects, and the mining sector generally, directly employs a low number of workers compared to other sectors in the Canadian economy (Fleming & Measham, 2014). The size of a mining project in a community has been shown to also have a particular effect on employment in local communities. A small-scale mining project, for example, is more likely to provide employment to the poor populations in their community (Gamu, Le Billon, & Spiegel, 2013). Mining projects have the ability to reduce poverty because they offer a high-income potential in addition to employing the poor.

(Gamu, Le Billon, & Spiegel, 2013). The direct impacts of a mining venture span beyond just reducing poverty through increasing job opportunities that high-incomes. Other direct contributions from mining projects include the value added generated by the mining venture as well as the capital that enters the economy from outside economies and entrepreneurial efforts (Soderholm & Svahn, 2015). As shown, a mining project does not provide direct benefits to a large sum of people but remains to have the ability to improve a community's economic well-being.

Benefit-sharing mechanisms and community agreements

The presence of benefit-sharing mechanisms with respect to mining projects has helped to maintain the profits of these ventures in their local economies. Benefit-sharing mechanisms are especially important to have in local and unstable economies that rely on the capital brought into communities by a mining venture. That being said, benefit-sharing mechanisms were incorporated for the purpose of withholding a large sum of the economic benefits achieved from resource projects in the region in which the project occurred (Soderholm & Svahn, 2015). A benefit-sharing mechanism is a process for allocating both monetary and non-monetary benefits that are earned by a resource project (Soderholm & Svahn, 2015). In allocating the benefits of a project the local economy can improve its overall well-being and, in the case of a small town, help diversify the economy. More specifically, a monetary benefit refers to investments and monetary funds (Soderholm & Svahn, 2015). As well, non-monetary benefits mean implementing new infrastructures such as educational institutions and medical facilities. Together, monetary and non-monetary benefits can provide significant improvements to a

communities current and future success by providing increased income earnings and new

infrastructure. Non-monetary benefits may be particularly beneficial as they provide more

employment opportunities than the direct jobs that become available from the implementation of

a new project (Soderholm & Svahn, 2015). These jobs include a position in both developing the

new infrastructure as well as jobs that exist within those facilities once they have been built.

Canada has also become accustomed to community development agreements which serve a

similar purpose as benefit-sharing mechanisms. These community development agreements, like

benefit-sharing mechanisms, work to withhold the profits generated from local resource projects

but go further in that they encourage more indigenous involvement in resource projects

(Soderholm & Svahn, 2015). Canada has implemented over 150 community development

agreements which have helped to improve local and indigenous communities economic well-

being (Soderholm & Svahn, 2015). Through the use of benefit-sharing mechanisms and

community development agreements, local communities can share in the benefits earned from

new resource projects. Therefore, these local areas will experience increases in employment,

even if its minor increases generated form mining projects, and a flow of capital into their

economy.

Indirect linkages

The ability of resource projects to generate employment elsewhere in the economy can

present a significant source of employment and income to both the local and national economy.

The ability of an industry to generate employment in other sectors varies significantly from one

sector to another. The mining sector has the potential to employ a large number of people in

other sectors whereas activities in manufacturing and agriculture typically do not lead to a large

increase in employment for other sectors. Results show that mining projects have significantly

higher multipliers for employment than manufacturing and agriculture industry (Fleming &

Measham, 2014). Indirect linkages take many forms and eventually lead to an increase in capital

brought into the economy. One form of linkage refers to the need for new infrastructure such as

transportation services (Soderholm & Svahn, 2015). The demand for processing of material from

the earth also serves an indirect method for increasing employment opportunities (Soderholm &

Svahn, 2015). The employment increases required from a processing plant are not necessarily

experienced by the local communities in which the extraction activity occurs. Several local

communities have the ability to benefit from indirect linkages associated with a mining venture

the potential indirect benefits a mining venture may have can span across. Additionally, the

direct benefits from a mining venture include the income earned by the project spent in the

community and government taxes that enter the economy. The ability these indirect jobs have to

employ individuals exceeds the direct ability of a mining project to employ individuals. Small-

scale mines lack the ability to indirectly employ a significant amount of people compared to

larger industrial mines. Thus, the implementation of industrial mines is the more appropriate

route through which poverty can be reduced (Gamu, Le Billon, & Spiegel, 2013). Overall, the

implementation of resource projects has the ability to increase income earnings in local

communities, often in rural Canada, through indirect employment opportunities.

Emerging sectors in the Canadian economy

Recent trends towards globalization and shifting low-level jobs to peripheral countries for cheap labour have led to noticeable declines in manufacturing employment. The Canadian agriculture industry has also experienced a decline in employment over the years in the 2000s. These declines in manufacturing and agriculture employment signify a transition to a more professional labour force demanding higher skills and qualifications. Manufacturing employment prior to the 2000s was a significant source of income for the Canadian economy and experienced constant overall growth. Spanning from 1961 until 2000, GDP in the Canadian business sector and manufacturing sector grew at nearly the same rate (Clarke & Couture, 2017). At the beginning of the 2000s, Canada began to specialize and improve its efficiency by increasing its reliance on technological advancements and eliminating domestic jobs. During the 2000s, GDP growth in the business sector rose apart from the manufacturing sector as GDP growth in manufacturing came to a near halt (Clarke & Couture, 2017). Manufacturing is not the only industry that experienced a near stoppage in growth, the agriculture sector also experienced declining employment. The agriculture sector has seen a reduction in employment levels at the same time that employment in personal services has increased steadily (Iscan, 2014). The business sector and personal services sector represents several different industries which in total is growing at higher rates than the rest of the economy. More precisely the economy has seen growth in the professional, scientific, and technical services sectors as well as the finance, real estate, and leasing sectors (Morel, 2005). These sectors demonstrate a growing reliance on more skilled employment opportunities that require more education and qualifications. Therefore, the

Canadian economy has endured a tremendous transition over the years beginning in the 2000s which have trended to a more educated and technologically savvy society.

Small regions and small-scale projects

The influence a particular industry has in a small region is extremely sensitive to the total state of the industry. Despite its vulnerable position, small-scale resource projects and manufacturing plants play a significant role in providing a large source of employment to many individuals in a small region. Thus, local projects in small regions are an important source of income and employment for a large portion of that population. The size of such projects and plants may change the economic climate for a small region. An American study has researched the presence of job stability in the logging industry. This study has found that small to medium size logging and sawmilling establishments providing greater employment stability than larger establishments (Lee & Eckert, 2001). One reason smaller establishments provide for greater job stability is that jobs are not as threatened by technological advancements. With larger establishments comes the increased potential for introducing new technology into plants which may displace workers. This pattern of smaller establishments being able to offer better job security has been noticed. As this study indicates, there has been a reduction in those working in larger establishments (Lee & Eckert, 2001). The size of a region may also be an indicator of industry competition, as one study has found in looking at the Canadian manufacturing industry. This study has concluded that in small regions, plants that become more diversified and increase their exports will experience greater volatility in their sector (Baldwin & Brown, 2003). Furthermore, plants that increase their employment and plant size will incur less volatility

(Baldwin & Brown, 2003). The relationship that manufacturing has to increases and decreases on industry volatility indicate that small manufacturing regions are highly susceptible to economic shocks. Clearly, within industries, there are specific conditions that may significantly impact employment levels and income. Small regions are extremely vulnerable to the status of the entire economy as changes to the economy, and industry, permeate through small regions affecting employment and competition levels.

A Case study of forest pests

The Canadian forestry industry is a large source of employment throughout Canada but is extremely vulnerable to the presence of invasive species. Invasive species have entered Canadian ecosystems, both in waterways and in forests, and have a devastating and deteriorating effect on those ecosystems. This study addresses the potential economic impacts a forest pest, the Spruce Budworm (SBW), may have on the forestry industry. To bring perspective to the massive economic toll a forest pest may have on the forestry industry, it serves beneficial to provide information on the current output generated by the forestry sector. According to statistics presented in this study, the forestry sector produces 3% of total national output which equates to CDN $51 billion (Chang, Lantz, Hennigar, & MacLean, 2012). In generating this total output, the forestry sector, through direct and indirect employment, provides 600,000 jobs and is responsible for CDN $26 million (Chang, Lantz, Hennigar, & Maclean, 2012). These statistics demonstrate the importance of the forestry sector on the Canadian economy. Upon demonstrating this importance, it becomes clear that threats to the well-being of forests serve a substantial risk to national output in Canada. This study indicates there is approximately 200

communities' dependant on activities in the forestry sector for a minimum of 50% of their economic base (Chang, Lantz, Hennigar, & MacLean, 2012). Consequently, the outbreak of a forest pest may have devastating effects on those economies characterized by unemployment and poverty. Statistics analyzed from a period of 1975-2009 display an annual loss of 24 million hectares of forest land due to forest pests (Chang, Lantz, Hennigar, & MacLean, 2012). This study uses models to generate estimates of the potentially devastating effects a forest pest may cause under a moderate outbreak and a severe outbreak. Models have indicated a loss of CDN $6.6 billion in the presence of a moderate outbreak of forest pests in Canada and a loss of CDN $9.6 billion from a severe outbreak of forest pests (Chang, Lantz, Hennigar, & MacLean, 2012). These results indicate under moderate and severe outbreaks of forest pests, the Canadian economy will suffer a significant loss in total output and further that many jobs will be negatively impacted from the subsequent loss of forest materials to be processed. Problems generated by forest pests are not limited to the forestry sectors which may exacerbate the problem. Manufacturing, an industry already facing serious problems, is estimated to lose CDN $5.1 billion dollars in output (Chang, Lantz, Hennigar, & MacLean, 2012). It is also predicted that the supporting activities for agriculture and forestry as well as the oil and gas industries will take a huge hindrance from a severe outbreak (Chang, Lantz, Hennigar, & MacLean, 2012). Overall, the potential outbreak of a forest pest has severe effects that will hurt several Canadian industries and national output by a large sum. Therefore, it is imperative that forest pests be contained and properly adhered to in order to avoid potentially harmful scenarios.

Non-employment Income

Many rural Canadians are plagued with non-diversified economies which creates a pattern of unemployment and low incomes among rural towns. The presence of non-employment income, that being income received without performing paid work, has become a significant source of income in rural Canadian towns and may help to diversify these economies. Non-employment income is not restricted to rural Canada as it plays a key role in providing assistance for the poor in urban areas. Non-employment income includes income from investments and government transfers to provide an example (Petigara, Patriquin, & White, 2011). The issuance of non-employment income is vital to undiversified towns. This kind of income along with agriculture income dependence are the two most important sources of income dependence for rural Canadian communities (Petigara, Patriquin, & White, 2011). Rural Canadian communities rely on non-employment income for an average of slightly less than 15% of their economic base (Petigara, Patriquin, & White, 2011). The ability of non-employment income to provide assistance to rural communities in Canada helps provide stability to those communities through unstable economic times. Rural communities are not typically as diversified as urban areas and thus vulnerable to economic shocks which could significantly impede the output generated in poor economic conditions. Consequently, non-employment income is a form of diversifying rural communities as it provides another source of income (Petigara, Patriquin, & White, 2011). Despite a focus on rural communities, all communities across Canada including urban areas, are able to benefit from non-employment income. This income offers an excellent mechanism through which individuals can be supported when stuck in a rough economic situation.

Lessons from the Literature

Canada's resource economy and manufacturing sector have experienced significant

hurdles particularly since the turn of the 2000s. The manufacturing sector has most likely faced

the most struggles since the turn of the 2000s. The influence of globalization on top of the 2008-

2009 recession seriously slowed growth in the manufacturing sector. Manufacturing jobs have

been lost to cheap labour overseas and new technological advancements. The recession created a

mass of unemployment which only added to the problem of globalization which has already

removed a large number of employment opportunities from the manufacturing sector. What does

this research mean for incomes and employment in the manufacturing sector? This means

unemployment is a growing concern in the Canadian economy and manufacturing's contribution

to GDP is on the decline. Individuals still employed in manufacturing fail to receive a good

income and those who have been displaced from work are placed in a difficult situation. The

manufacturing sector offers employment to low-skilled workers, and once let go from these jobs

workers have difficulty finding employment in an increasingly professional economy requiring

increased education and technical skills. Consequently, dependence on non-employment income

is rising as people are in greater need of assistance to support themselves and their families. Even

though non-employment income is heavily relied upon in rural Canadian communities, it is still

very important to urban areas as well. While growth in the manufacturing sector has been all but

stopped, jobs in the personal services sector, as well as other sectors requiring high-skilled

workers, have experienced growth rates far exceeding manufacturing and agriculture. A major

contribution the resource sector makes to the overall well-being of the economy is through the

implementation of new resource projects. Studies show that the direct benefits brought about by

a new resource project, although beneficial, are far outweighed by the indirect benefits. Establishing a new resource project, especially in a small town, has been shown to diversify economies through the need for new infrastructure and new investments entering the economy. Direct benefits of a resource project are still important to communities as they reduce unemployment and provide good sources of income. The indirect benefits tend to employ even more individuals through the development of new infrastructure for supporting activities such as processing plants and educational and medical facilities. The new infrastructure is able to employ even more individuals once construction is completed and bring more money into the economy. Research indicates small resource towns are in a peculiar situation in that it serves beneficial to keep resource activities on a small-scale level as this encourages job stability, this is the case occurring in the U.S forestry industry. Therefore, in keeping resource activities on a small-scale level in small regions, the runoffs of such activities will not be as fruitful for the entire economy. However, those employed and living in such communities are provided more stable jobs and are less concerned with the potential for economic downs. The Canadian forestry industry is extremely vulnerable to the presence of invasive species which may have a significant impact on national GDP. A study has shown that the outbreak of a forest pest could lead to GDP losses in the billions of dollars. This study acknowledges the importance of properly addressing the issue of forest pests to ensure workers are able to maintain their jobs. Overall, research governing resource activity as well as employment in the manufacturing sector indicates a transition from a blue-collared workforce to a more professional economy. Resource activities will remain a vital part of the Canadian economy and thus Canada's natural resources ought to be protected to ensure longevity in providing a consistent source of employment and income within these

sectors. In response to the loss of manufacturing employment, programs need to be instituted to provide unemployed workers with the skills necessary to work in an evolving economy.

Methodology

Objectives

1. To classify industry activity in the primary and secondary sectors in Canada by low, middle, and high ranges;

2. To isolate areas in Canada with high industry activity in the primary and secondary sectors and analyze these areas at the census subdivision level; and

3. To determine the distribution of median incomes in municipalities exhibiting high industry activity in the primary and secondary sectors

The purpose of this study is to address regions throughout Canada at the census division level for the amount of activity these industries have in the primary and sectors. In doing so, it is an objective to demonstrate the remaining importance of Canada's primary and secondary sectors in Canada despite the emergence of an increasing professional and more skilled-workforce. Once census divisions exhibiting high industry activity in the primary and secondary sectors have been identified, these areas are further analyzed at the census subdivision level. Further analyzing regions at the census subdivision level allows for greater analysis and more specified conclusions. Median incomes were then measured within the census divisions displaying high industry activity in the primary and secondary sectors. In doing so, the goal is to understand how income is distributed within municipalities that compose the larger census division. For example,

where inside a census division demonstrating a high percentage of activity in the manufacturing sector are high median incomes located. Furthermore, are higher incomes located in rural areas, urban areas, and more precisely in peripheral or core areas of an urban center.

Data Sources

For the purpose of this study all data was collected from Statistics Canada. In addition, the boundary files showing a base map of Canada were downloaded from Statistics Canada. Two boundary files were downloaded from Statistics Canada in addition to two datasets. One boundary file contains a map of Canada divided up according to census divisions (Statistics Canada, 2017a). This boundary file was necessary for analyzing primary and secondary sector activity in Canada by census division. More precisely, this boundary file is necessary to focus on areas in Canada with a higher degree of industry activity in the primary and secondary sectors. The other boundary file expresses a map of Canada divided into census subdivisions (Statistics Canada, 2017b). This boundary file was needed in order to provide an example of where within a census division exhibiting a high range of activity in the primary or secondary sector, the industry activity is located. As previously mentioned, this boundary file will provide an example within a census division as to where individuals working in primary and secondary sector jobs are located, the objective of this example is to provide context to the information expressed in the SacType table. To display information on the census division boundary file, a dataset from Statistics Canada indicating employment by industry was used (Statistics Canada, 2017c). This dataset made it possible to indicate where high, middle, and low ranges of each variable occurred across Canada by census division. This dataset also contains employment activity by census

subdivision. The census subdivision information was used to provide a visible understanding of where primary and secondary sector activity occurs within a region noted for having a high degree of activity in the primary and secondary sector. At the census division level, a dataset containing information on median incomes across Canada was used (Statistics Canada, 2017d). This dataset was necessary for generating a table on median incomes for each variable. This dataset is also effective as it allows the reader to visually understand where high median incomes occur throughout Canada and how they correspond to industry activity in the primary and secondary sectors.

Analysis

SacType

ArcGIS provides a method for classifying census subdivisions in accordance with characteristics of their locations. This classification is called a SacType and it groups census subdivisions into seven categories. In general, a lower category number relates to a more urban setting. Within each layer that was analyzed at the census subdivision level, each subdivision is given a SacType number ranging from one to seven. Only three layers were transferred into the census subdivision level, the three are the high range categories for agriculture, forestry, fishing, and hunting; mining, quarrying, and oil and gas extraction; and manufacturing. In effect, under a single layer there will be a group of census subdivisions, or potentially none, falling within each of the seven SacType categories. Comprehending this is important as it is necessary for understanding the SacType table. The SacType table takes these groups of census subdivisions in each category and computes the median value which is then displayed on the table. This

computing is done for under each of the three layers for each SacType. Therefore, the SacType

table is important for understanding how industry activity for the three layers is distributed

within a census division exhibiting a high range of industry activity in the primary or secondary.

For example, the table may indicate that within a census division that has a high range of

industry activity in agriculture, forestry, fishing and hunting the largest proportion of the

industries activity is located in more rural census subdivisions. In effect, this table provides

context as to where primary and secondary sector jobs are located within census divisions that

have a high range of industry activity in the primary and secondary sector.

Defining SacType's	
SacType	**SacType Description**
1	Census subdivision within census metropolitan areas
2	Census subdivision within census agglomeration with at least one census tract
3	Census subdivision within census agglomeration having no census tracts
4	Census subdivision outside of census metropolitan area and census agglomeration area having strong metropolitan influence
5	Census subdivision outside of census metropolitan area and census agglomeration area having moderate metropolitan influence
6	Census subdivision outside of census metropolitan area and census agglomeration area having weak metropolitan influence
7	Census subdivision outside of census metropolitan area and census agglomeration area having no metropolitan influence
8	Census subdivision within the territories , outside of census agglomeration

(Statistics Canada, 2015)

Why use medians?

Calculating medians was used throughout this study to compute values that would be displayed in the tables. Median calculations were used generate income statistics that would be implemented into a table identifying the median incomes for each range (low, middle, high) of each variable. Each of these median calculations are a median of a median. This is because the dataset downloaded from Statistics Canada initially provided a column expressing the median incomes within each census division across Canada. It was then necessary to group the median incomes for census divisions that were attributed to each percent range of each variable. Some census divisions may be associated with more than one layer, for example, a single census division may fall into the low percentage range of all three variables. Once these groups of medians were collected for each percent range of each variable, the median was then computed amongst these already median values thus creating a value that is a median of a median. To remain consistent, the table indicate percentage of industry activity by SacType also uses medians to determine where most industry activity occurs within a census division. Medians were used instead of averages because computing an average of an average is less effective than computing a median of a median. Calculating an average of an average is less effective because it does not account for the difference in the amount of incomes that go in to computing the average for that census division. An average income for a larger census division will be based off of far more incomes that the average income of a much small census division. Consequently, computing an average of an average does not recognize the difference in inputs going into each average and thus the results are not proportionate. Using the middle income for each census division avoids this problem and provides for more accurate statistics.
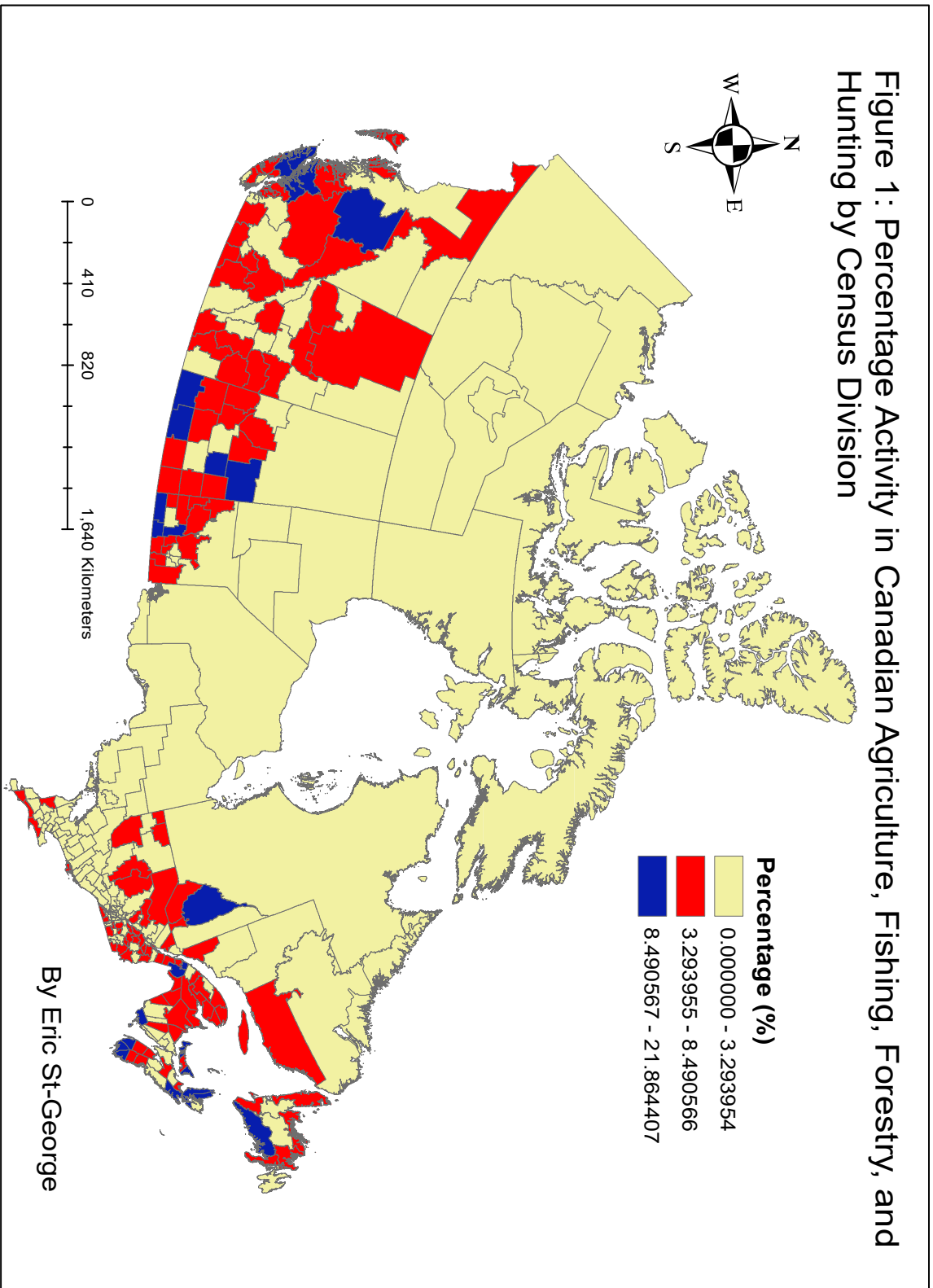
Required Software

ArcMap was used to produce all the maps displayed in this study (ArcMap 10.5). Key functions used in ArcMap include querying to isolate high, middle, and low regions in Canada for each variable, creating new layers from such querying, and adding new data to attribute tables in order to identify percentages of industry activity for each variable. In order to isolate the layers to be used in this study, Beyond 220/20 Professional Browser was used (Beyond 20/20 Professional Browser). Once the data set was retrieved from Statistics Canada, Beyond 20/20 Professional Browser was required to remove unnecessary layers in the dataset to ensure only required variables were introduced into ArcMap. The required layers include the three variables used to represent activity in the primary and secondary sector as well as median income values. In order to calculate median values IBM SPSS Statistics 24 was used (IBM SPSS Statistics 24). The calculations of median statistics were necessary for generating the tables indicating median percentage values by each SacType as well as the table expressing median incomes.

Observations

Analyzing agriculture, forestry, fishing and, hunting at the census division level allows for an understanding of special trends in this industry. Figure 1 displays several important and noticeable trends across the country. The Atlantic region is composed of several CDs in the high range of industry activity along with several other CDs with moderate activity in the industry. The central provinces, Alberta, Saskatchewan, and Manitoba, display noticeable trends in

agriculture, forestry, fishing, and hunting. In these provinces, there are various CDs with moderate activity in the southern portion of the provinces. These provinces also have few CDs with high activity in agriculture, forestry, fishing, and hunting. Unlike the other central provinces, Alberta has areas of moderate activity in the province, whereas Manitoba and Alberta have no CD in the northern parts of the province with moderate or high activity. British Columbia has several areas with both moderate and high industry activity throughout the province. High areas of industry activity in British Columbia occur in the southern regions along the coast of the Pacific Ocean as well as a CD in the center of the province. Moderate levels of industry activity occur in the southern parts of the province, against the coast, in the central part of the province and in the north. The final region in the country exhibiting high activity in the industry occurs in central Quebec with moderate CDs located just south of that high CD. Important to note is that the northern portions of all the provinces, with the exception of British Columbia and Alberta, have very little activity in the industry. Furthermore, the territories display no CDs with moderate or high activity in agriculture, forestry, fishing, and hunting. Many of the CDs containing a high proportion of activity in agriculture, fishing, forestry, and hunting may be presumed with a general understanding of Canada's geography. For example, high industry activity in Atlantic regions, as well as high activity in B.C along the coast, is related to the fishing industry.

Figure 1: Percentage Activity in Canadian Agriculture, Fishing, Forestry, and Hunting by Census Division

By Eric St-George

Percentage (%)
0.000000 - 3.293954
3.293955 - 8.490566
8.490567 - 21.864407

Canada has a large dependence on resource extraction activities in Canada, the Alberta Oil Sands, as well as other regions in Canada, are among world leaders in resource extraction activities. Figure 2 expresses how mining, quarrying, and oil and gas extraction is distributed in Canada by census division. The territories rely heavily on mining, quarrying, and oil and gas extraction with large CDs exhibiting moderate industry activity, and one with high industry activity, composing a significant portion of the Canadian territories. This industry is very important to the territories as other primary and secondary sector activities occur only to a small extent in the territories. Census divisions in mainland Newfoundland and Labrador display a great importance in this industry with moderate and high industry activity. The island of Newfoundland and Labrador has very little activity in the industry although a couple CDs contain moderate industry activity. Paralleling Newfoundland and Labrador are CDs in northern Quebec which have moderate and high levels of industry activity. Adjacent to Quebec is Ontario which has regions in the north that contain a high amount of activity in the industry as well as a couple CDs with moderate activity. Saskatchewan has a high amount of activity in the industry which occurs in the north bordering the Alberta Oil Sands. Other regions in Saskatchewan that show moderate and high levels of activity occur along the boundary line between Saskatchewan and Alberta as well as in the most southeastern CDs in the province. Alberta is the province exhibiting the most activity in mining, quarrying, and oil and gas extraction in Canada by far. Moderate and high CDs occurs commonly all throughout the province with only a few CDs in the low range of industry activity. Northern Alberta has several CDs in the high range of industry activity. Other high areas in the province occur in the very center of the province, against the boundary line between Alberta and Saskatchewan, and a CD in the south-central part of the province. British Columbia is among one of the provinces relying least on this industry

according to the map. Moderate and high activity in this industry occur almost exclusively in the northernmost CDs, with only one other moderate CD occurring in the center of the province. Manitoba is the province showing the least reliance on mining, quarrying, and oil and gas extraction. Manitoba has no high range CDs and only four CDs with moderate activity in the industry. Among the higher populated provinces, Ontario, Quebec, and British Columbia, activity in this industry does not occur in high or moderate levels in the southern regions of these provinces, where much of the population is located. A key finding from Figure 2 is the entire lack of industry activity in Atlantic region with the exception of Newfoundland and Labrador.

Figure 2: Percentage Activity in Mining, Quarrying, and Oil and Gas Extraction by Census Division
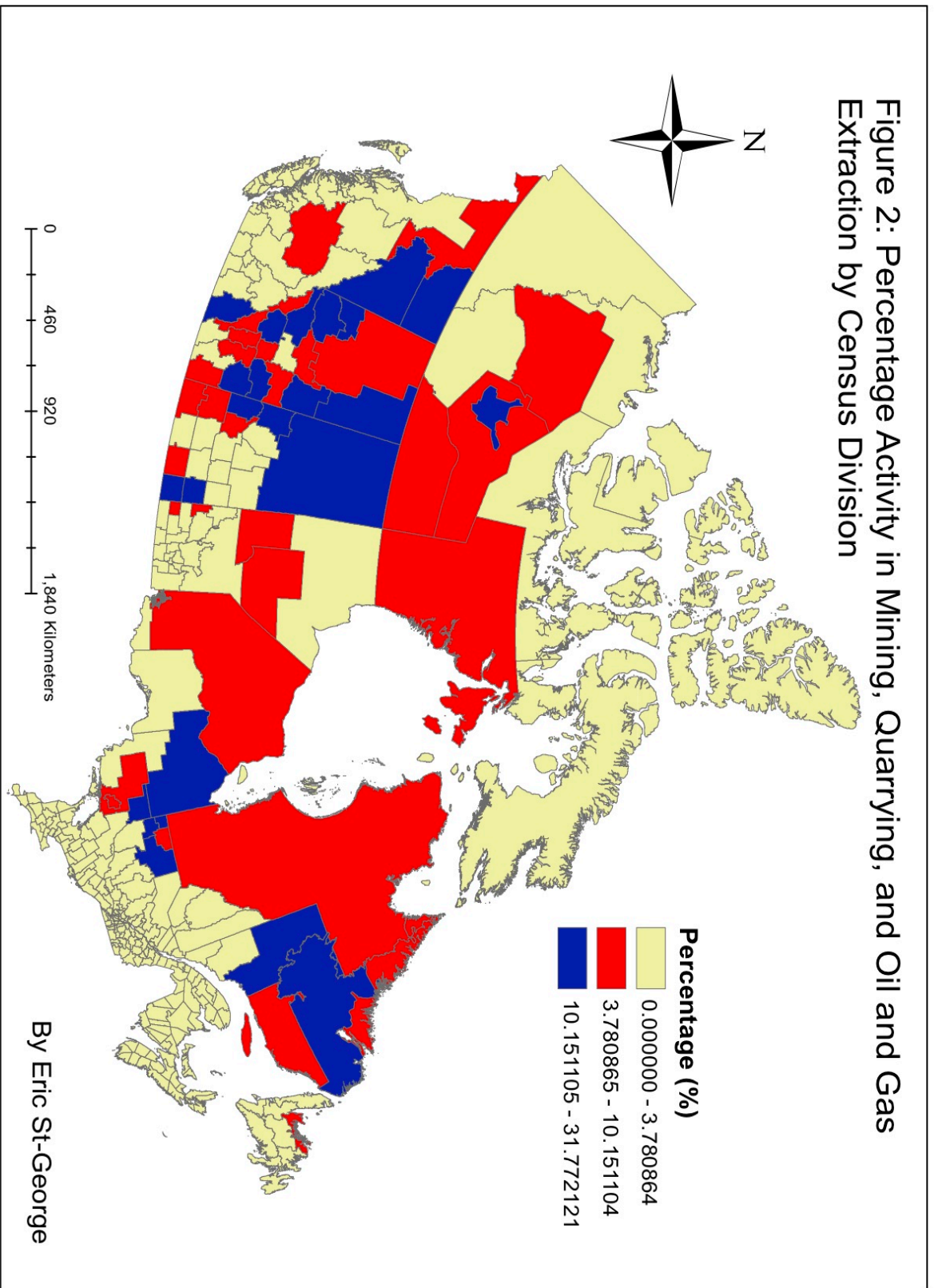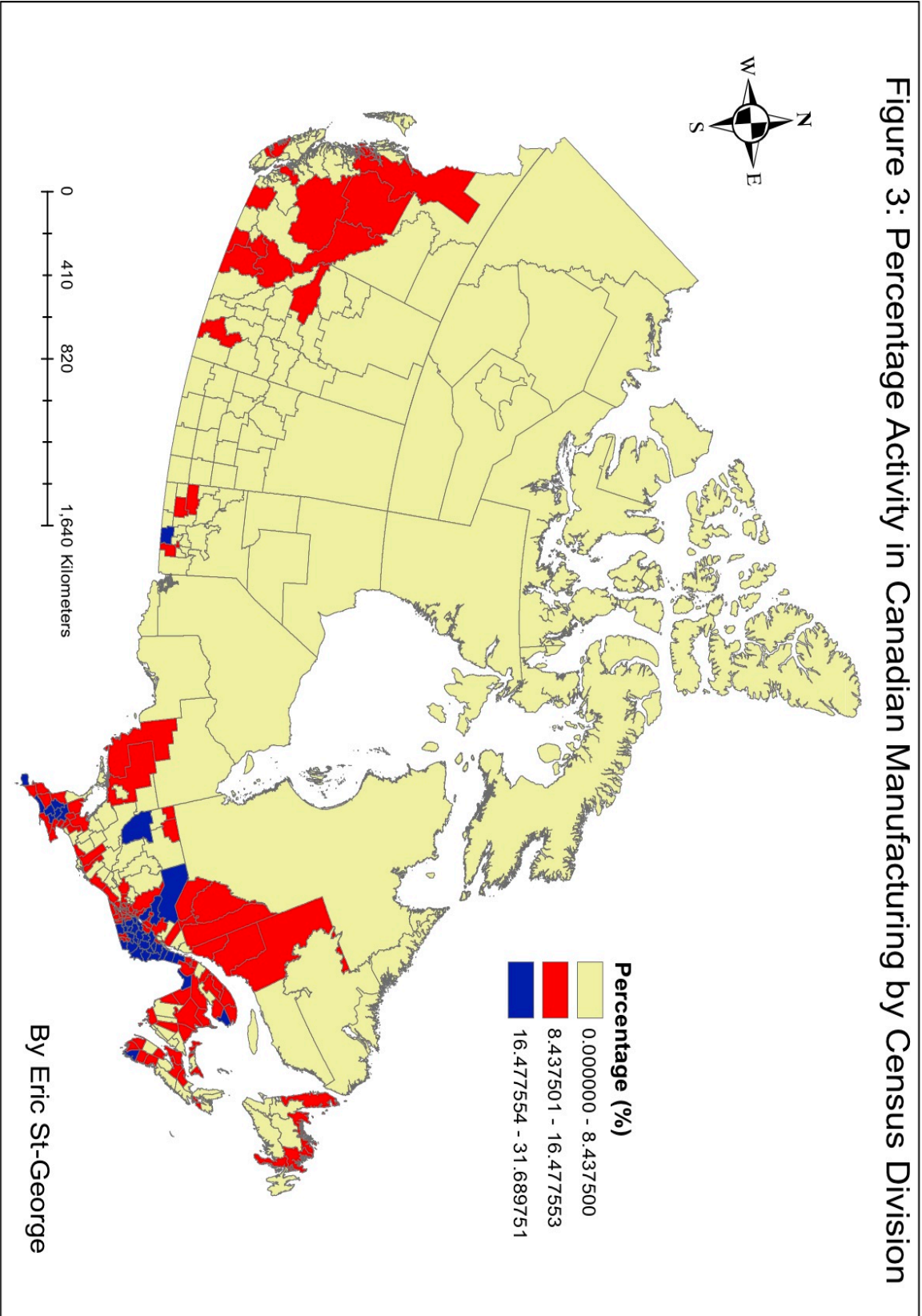
The manufacturing sector occurs in isolated pockets throughout Canada as shown in Figure 3 shows. The territories have no census division with moderate or high industry activity. Furthermore, Saskatchewan has no CDs displaying moderate or high levels of industry activity in manufacturing. Manitoba has one CD in the very south with a high range of manufacturing activity and a few other CDs located near it with moderate industry activity. Overall, the province displays very little reliance on manufacturing. Alberta, like Manitoba, also shows little reliance on manufacturing while still having some CDs with moderate industry activity. One CD in the moderate range occurs in the central part of the province bordering B.C and the other few CDs with moderate industry activity occur in the southwest and one in the southeastern part of the province. British Columbia has several CDs throughout the province with moderate industry activity, despite no CD in the high range of activity. Nevertheless, B.C shows some dependence on manufacturing whereas the previous regions show very little. Much of the moderate CDs in British Columbia occur in the center portion of the province. Mainland Newfoundland and Labrador displays very little emphasis on manufacturing whereas the island of Newfoundland and Labrador has a couple CDs with moderate activity in manufacturing. The other Atlantic regions show a much greater emphasis on the manufacturing industry with a majority of the CDs showing moderate industry activity in manufacturing and a few CDs with a high amount of manufacturing activity. Quebec and Ontario certainly contain the largest amount of manufacturing activity in the country. Beginning with Ontario, the southern part of the province is composed almost entirely of moderate and high activity in the manufacturing sector. Most of the high range CDs are located near Toronto, the provinces main metropolitan center. There is also an isolated pocket of moderate industry activity in the center of the province. Quebec has the greatest concentration of manufacturing in Canada. Moderate activity occurs in the

northeastern part of the province as well as consistently throughout the southern Quebec.

Located around Quebec City is a concentration of several high range activity in manufacturing.

Next to this large concentration of high range activity in manufacturing is a concentration of CDs

exhibiting moderate activity in manufacturing which spans to the Montreal metropolitan areas.

Figure 3: Percentage Activity in Canadian Manufacturing by Census Division

By Eric St-George

Percentage (%)

- 0.000000 - 8.437500
- 8.437501 - 16.477553
- 16.477554 - 31.689751

Mapping median incomes by census division provides for a good understanding of how household earnings vary geographically in Canada, as can be seen in Figure 4. The Atlantic region in Canada, with the exception in Newfoundland and Labrador, does not demonstrate median incomes in the top two high ranges for income levels. In Newfoundland and Labrador, median incomes are in the moderate to low ranges on the island but in the mainland portion of the province, there are two CDs with the second highest range of median incomes. Northern Quebec is generally composed of median incomes in the middle range. Southern Quebec has a few CDs which display the highest range of median income, these areas occur near the major metropolitan areas in the province. In Ontario, the southern part of the province is composed mostly of the middle range of median incomes with a high range of median incomes occurring in the Toronto metropolitan area. The rest of the province contains CDs in the second and third median income ranges. Manitoba appears to have the lowest median incomes of all the provinces in Canada. Manitoba has one CD with the highest range of median income with other areas in the south displaying moderate levels of median incomes. Central and northern Manitoba contains mostly the lowest range of median incomes. Northern Saskatchewan is composed of low median incomes and southern Saskatchewan contains several CDs in the moderate to high median income ranges. Alberta displays the highest median incomes among any of the provinces in Canada. A notable area with the highest median income range is in northern Alberta where the Oil Sands are located. Alberta also has numerous CDs in the second highest range of median incomes. Furthermore, Alberta has no CDs with the lowest median income range. British Columbia exhibits regions with moderately high median incomes in the northern regions of the province. In general, B.C the province is composed of moderate to low median incomes with a couple CDs in the north that have the lowest median income. The territories contain four large
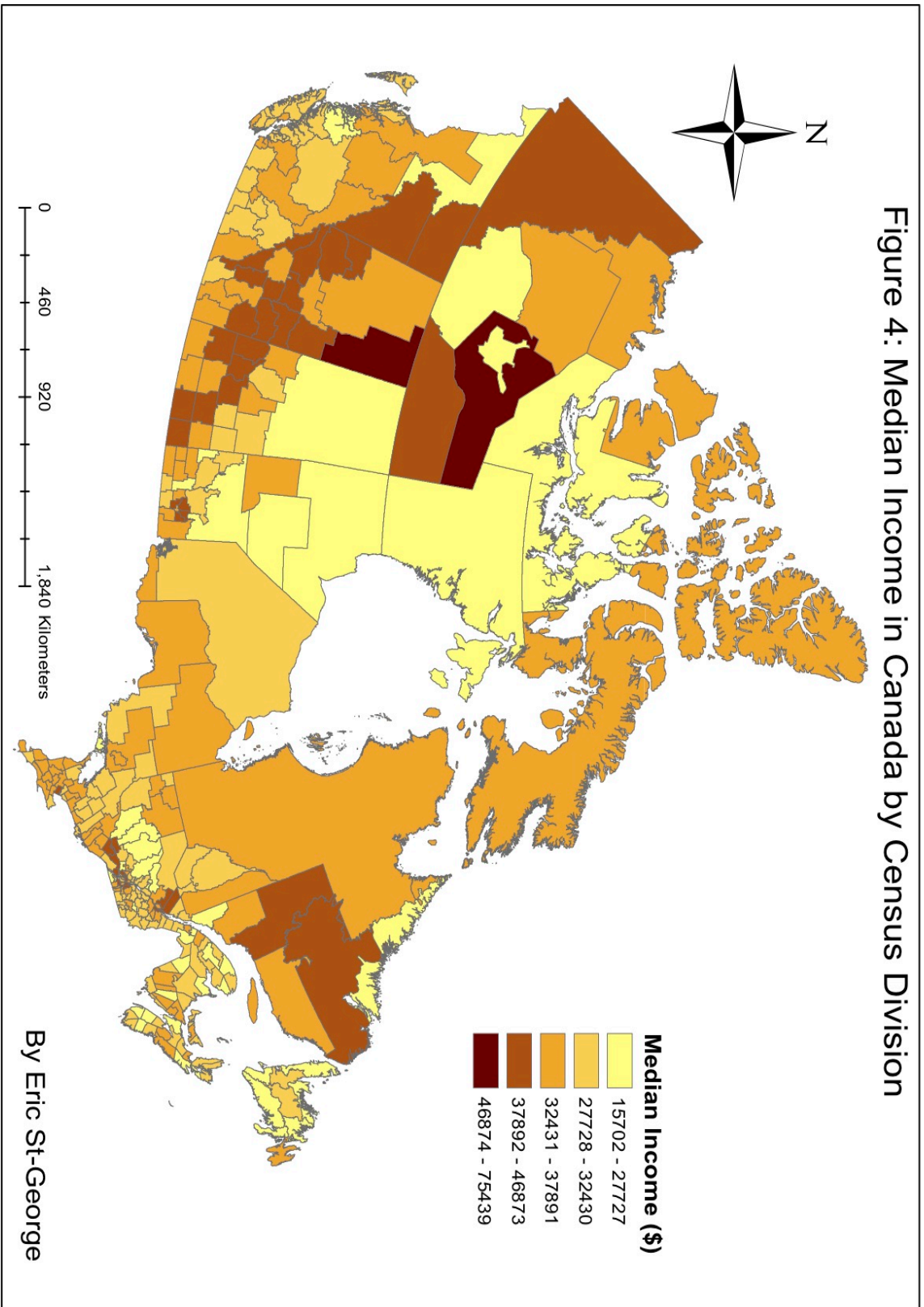
census divisions with a middle median income and the second highest range of median incomes. One CD in the territories contains the highest range of median incomes which is located in the Northwest Territories. Southern and central Nunavut contains low median incomes and the northern part of the territory is composed of the middle median income range.

Figure 4: Median Income in Canada by Census Division

By Eric St-George

Median Income ($)

- 15702 - 27727
- 27728 - 32430
- 32431 - 37891
- 37892 - 46873
- 46874 - 75439

0   460   920   1,840 Kilometers

In order to help give context to the contents of the SacType table that is listed below a map of Canada focussing on Quebec and Ontario at the census subdivision level has been made. The SacType table is provided for developing an understanding of where primary and secondary sector activity is located within a particular census division displaying a high degree of employment activity in the primary and secondary. Figure 5 provides a visual representation of the distribution of high industry activity in the primary and secondary sector, essentially the same information that Table 2 is providing. Figure 5 shows where high census subdivisions are for each of the variables being addressed. Manufacturing is the most common of the primary and secondary sector activities in Ontario and Quebec, this is where the majority of Canadian manufacturing occurs. Notable areas of manufacturing in Ontario are in census subdivisions located near the Toronto metropolitan areas as well as in the very south in province around Windsor. In Quebec, census subdivisions high in manufacturing occur commonly in Quebec City and spanning to the Montreal area. In general, manufacturing is concentrated to more urban areas of the province. Mining, quarrying, and oil and gas extraction is restricted to northern areas of Ontario. More precisely, mining, quarrying, and oil and gas extraction occurs to a larger extent in the Sudbury region and north to areas such as Timmins. Thus, this resource activity does not occur in large urban areas but still has some urban influence. Agriculture, forestry, fishing, and hunting does not occur often in high amounts in the Quebec and Ontario. The few areas with a high amount of agriculture, forestry, fishing, and hunting occurs in northern Quebec and a little bit north of the Quebec City metropolitan area. Figure 5, like the SacType table, will provide for a proper understanding of how census subdivisions high in primary and secondary sector activity are distributed.

Figure 5: Distribution of Primary and Secondary Sector Activity by Census Subdivision:
An example of Ontario and Quebec

Legend

Manufacturing

Mining, Quarrying, and Oil and Gas Extraction

Agriculture, Forestry, Fishing, and Hunting
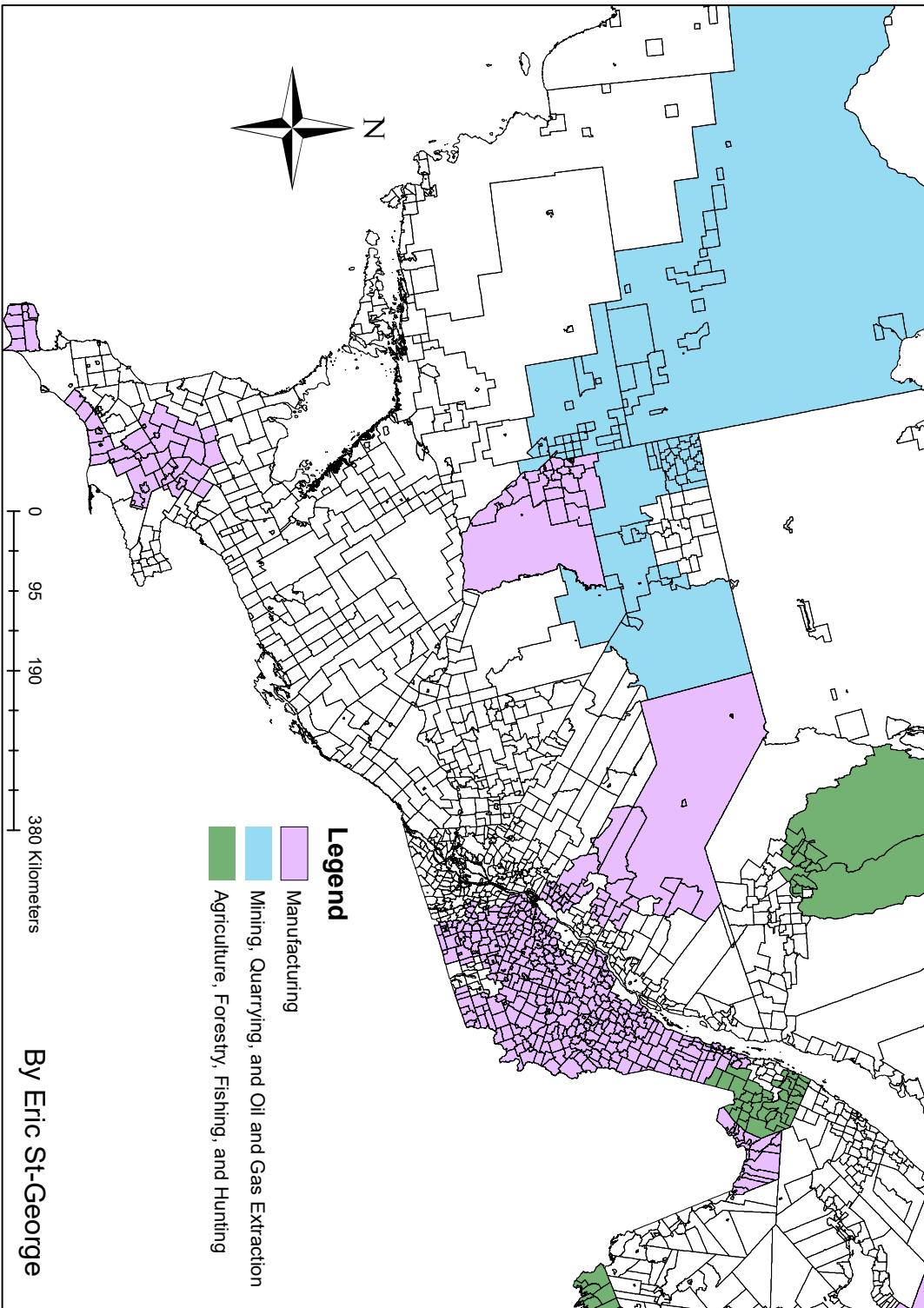
By Eric St-George

Table 1 shows median incomes by the range of activity for each industry variable is effective in understanding variations in earnings in the presence or absence of certain activities. For example, Table 1 provides information on how the presence of primary sector activity in a CD may relate to lower or higher median incomes. In describing Table 1, it is helpful to describe income variations within each industry first, and then provide comparisons between each industry variable. Within the agriculture, forestry, fishing, and hunting variable, as the amount of industry activity increase from low to high the median income decreases. Thus, the median income in the low range for this industry is higher than the median income for the high range. According to median incomes in mining, quarrying, and oil and gas extraction, as industry activity increases in CDs so does the median income. Therefore, the middle range of industrial activity in this variable has a higher median income than the low range and the high range of industrial activity has a higher median income than the middle range. The manufacturing industry follows the same pattern as the agriculture, forestry, fishing, and hunting variable which sees median incomes fall as the industry becomes more common in a CD. Table 1 shows that the manufacturing and the agriculture, forestry, fishing, and hunting, variables are negatively associated to increasing incomes whereas the mining, quarrying, and oil and gas extraction variable is positively correlated. Therefore, Table 1 indicates that mining, quarrying, and oil and gas extraction is associated with higher income earners. Additionally, the highest median income present in Table occurs in the high range of industry activity in mining, quarrying, and oil and gas extraction which provides further support that this industry provides higher incomes. The agriculture, forestry, fishing, and hunting variable as well as the manufacturing variable exhibits nearly identical incomes, showing that the two variables provide smaller income potential than mining, quarrying, and oil and gas extraction.

Table 1: Median Income by Census Division for Primary and Secondary Sector Activity in Canada		
Industry	Percentage Range	Median of the Median
Agriculture, Fishing, Forestry, and Hunting	Low	$33,927.50
Agriculture, Fishing, Forestry, and Hunting	Medium	$30,526.00
Agriculture, Fishing, Forestry, and Hunting	High	$29,910.00
Mining, Quarrying, Oil and Gas Extraction	Low	$31,633.00
Mining, Quarrying, Oil and Gas Extraction	Medium	$35,203.50
Mining, Quarrying, Oil and Gas Extraction	High	$38,713.50
Manufacturing	Low	$33,843.00
Manufacturing	Medium	$31,155.00
Manufacturing	High	$30,430.00

Table 2 showing SacType provides better understanding of the spatial distribution of primary and secondary sector activity in census divisions displaying a high range of activity in the primary and secondary sector. Essentially, the goal of Table 2 is to understand if primary and

secondary sector activity occurs in urban areas, rural areas, or somewhere in between. The general rule with the seven SacType categories is that the higher category numbers have less metropolitan influence. Agriculture, forestry, fishing, and hunting occurs in the highest amount where there is a strong metropolitan influence, SacType 1. Beyond SacType 1, this industry occurs mostly in rural areas, SacType 5 and SacType 6. Also noticeable in this industry is that no activity occurs in SacType 2 regions throughout the country where agriculture, fishing and, hunting is occurring in the high range. Mining, quarrying, and oil and gas extraction also has a missing value, which occurs in SacType 1. Therefore, no activity in this industry occurs in regions with a very strong metropolitan influence. Additionally, mining, quarrying, and oil and gas extraction occurs to a small extent in SacType 2 and SacType 7 where the median value is 0 for both categories. Mining, quarrying, and oil and gas extraction is most common in areas with moderate metropolitan influence, SacType3 and 4. Manufacturing contains the highest median incomes in every SacType category with the exception of type 7 which is the same as the other variables. Of the high median values of industry activity, the lowest value occurs in SacType 1 which has the strongest metropolitan influence. SacType 1 through 7 has consistently high median incomes thus demonstrating that manufacturing activity is common all throughout census divisions high in manufacturing. The is quite different than the high census divisions for the other two variables because the majority of the activity is concentrated into pockets throughout the CDs.

Table 2: Median Percentage of Activity by SacType at the Census Subdivision Level			
SacType	Agriculture, Forestry, Fishing, and Hunting	Mining, Quarrying, and Oil and Gas Extraction	Manufacturing
1	15.52	Missing	16.97
2	Missing	0	23.35
3	8.16	11.51	19.1
4	10.39	12.812	20.69
5	13.91	10.53	23.78
6	12.12	8.97	21.05
7	0	0	0
8	Missing	Missing	Missing

Conclusion

Primary and secondary sector activity in Canada remains an important source of employment and revenue in local economies as well as Canada's national economy. Analyzing primary and secondary sector activity in Canada along with median income reveals the significance of resource and manufacturing activity in the country. Concerning manufacturing, the results of this study show the remaining importance of manufacturing activity as a large job producer, which can be demonstrated through the SacType table. Another important finding from the maps is that, generally, there is little overlap amongst the three variables displaying high

industry activity. Furthermore, upon analyzing the SacType table and viewing the maps, it becomes clear that primary and secondary activity occurs consistently to some extent across almost all census divisions in Canada. Regardless of the amount of activity occurring in the census divisions, the three employment variables studied occur in most census division thus indicating that many local economies rely on these industries. The variable, mining, quarrying, and oil and gas extraction is the most common variable to have a high range of industry activity and also covers the greatest geographical areas among the three variables. Through an analysis of the maps and tables, it becomes apparent that manufacturing is highly concentrated in areas displaying low median incomes.

The presence of manufacturing activity in Canada is almost exclusively concentrated in some of Canada's largest census metropolitan areas. Large census metropolitan areas high in manufacturing include Toronto, Montreal, and Quebec City, as is seen in Figure 3 and in Figure 5 which concentrates on Montreal and Quebec City. Manufacturing activity also feeds off these large metropolitan centers as high and moderate activity occurs in southern Ontario and southern Quebec. Finding the continued importance of manufacturing activity in these large metropolitan areas is also indicative of the historical significance of manufacturing in the country. During the development of Canada, Quebec City and then Toronto and Montreal became key manufacturing centers for the country, a characteristic that remains to be true in present society. Understanding that manufacturing occurs mostly in and around large cities is important for drawing a comparison between manufacturing and median incomes. Throughout a country, poverty rates tend to be highest within cities, as naturally, there will be higher unemployment and lower paying jobs. This is due to the fact that a large mass of a countries population resides in these

areas. Table 1, illustrating median incomes, indicates the presence of lower median incomes in large metropolitan centers. Because high rates of manufacturing occur in large cities and high rates of manufacturing correspond to lower median incomes, it can be properly inferred that manufacturing activity is connected to lower median incomes. Existing literature also supports this correlation as manufacturing provides low skilled jobs. This finding is important because it shows a correlation between manufacturing activity and median incomes.

Analyzing census data for the primary and secondary sectors in Canada indicates the continued importance of the manufacturing sector in the Canadian economy, and generally as a source of employment. Despite the previously mentioned correlation between manufacturing activity and lower incomes, this industry still employs a large number of people and therefore is extremely important and beneficial to the economy. The above section focused on manufacturing activity at the census division level which is beneficial for correlating the industries activities and median incomes but analyzing activity by census subdivision allows for further conclusions to be drawn. Addressing manufacturing activity by census subdivision indicates the high amount of manufacturing activity that occurs in Canada according to each SacType category, noted in table 2. With the exceptions of SacTypes seven and eight in table 2, which are the same for all three variables, the lowest median value in manufacturing is higher than any other median value for any category number for the other two variables. Figure 3 also shows how manufacturing is relied upon in some Atlantic regions, in southern Manitoba, and in British Columbia. So, although manufacturing activity does not cover a wide geographic area in the country, it occurs more extensively than the industries analyzed in this study covering the primary sector. This finding expresses an alternative to the general view that manufacturing is relied on much less in

current society in the presence of globalization. In the context of globalization, literature

provides that manufacturing is a fading industry in developed countries, however, this study

holds that this contemporary understanding of manufacturing activity is flawed. There is no

doubt that the size of the manufacturing sector has been reduced but general understanding of the

state of the industry are wrong in that they fail to understand that the industry is still critical to

the national economy and specific local economies. This study has found, through census data,

that manufacturing remains to be a vital part of the Canadian economy.

Concentrating on the maps that have been produced from the 2016 census data, it

becomes apparent that there is little overlap between the high range areas for each of the three

variables. Examining figures 1, 2, and 3 shows that within each of the three variables, the high

range census divisions do not typically occur in the same area. High census divisions in

agriculture, forestry, fishing, and hunting occurs in central and northern British Columbia,

southern and central Saskatchewan, and throughout the Atlantic provinces but not in mainland

Newfoundland and Labrador. Mining, quarrying, and oil and gas extraction occurs in high levels

in northern British Columbia, throughout all of Alberta, northern Saskatchewan and Ontario, the

Northwest Territories, and in mainland Newfoundland and Labrador. Clearly, there is very little

overlap between the two resource variables that have just been described. The other variable,

manufacturing, occurs in the major metropolitan centers where there is very little primary

activity that takes place. These results indicate that where activity in the primary sector is high,

these census divisions tend to focus on that particular industry. Secondary sector activity occurs

mostly in large cities which have the existing infrastructure to support such activities, thus

explaining why this activity would not typically overlap with primary sector activity. This is

important because it illustrates how census divisions in each of the three variables tend to specialize in a certain primary or secondary sector activity.

Through viewing the various maps and tables, the importance of primary and secondary sector activity in Canada can be accurately understood. The maps provide an understanding of the distribution of primary and secondary sector activity by census division. Low ranges for each variable are difficult to properly address the activity occurring in census divisions because values may equal zero. However, moderate and high range activity occurs in a large majority of census divisions across Canada. Therefore, the maps effectively display a large significance of primary and secondary sector activity in Canada. Furthermore, the SacType table provides more evidence of the importance of primary and secondary sector activity in Canada at a more detailed level. Table 2 shows that there are very few categories displaying zero activity in any of the three variables. All three variables had no activity in category eight, which occurs outside census agglomerations and only in the territories. Besides category eight, the only other missing values occurred in category two for agriculture, forestry, fishing, and hunting, and in category one for mining, quarrying, and oil and gas extraction. Values of zero occur only four times in the table and thus do not comprise a large proportion of the table. Overall, and of great importance, is that this table demonstrates further, the large significance of primary and secondary sector activity in Canada.

Mining, quarrying, and oil and gas extraction has the most census divisions in the high range of the three variables that have been analyzed. This variable also appears to cover the largest geographical area in Canada. These findings show the significance of resource extraction

activities in Canada as not only do they occur often throughout Canada, but these activities provide higher median incomes than other variables in this study. The larger number of high range census divisions in the mining, quarrying, and oil and gas extraction industry shows a recognition of the fruitfulness and importance of these activities in Canada. Most notably, is the large amount of resource extraction activity that occurs in Alberta, where the Oil Sands are located. The Oil Sands are a world-renowned project which generates enormous revenues in Canada. Figure 2 along with the two tables indicate that this industry is vital to the Canadian economy. Mapping median incomes shows the highest median incomes in Canada occur where mining, quarrying, and oil and gas extraction activity occurs in higher amounts. The high-income potential in mining, quarrying, and oil and gas extraction is further supported by table 1 which indicates that median incomes in census divisions increase as the range of activity increases from low to high. In effect, census data on mining, quarrying, and oil and gas extraction demonstrates that the industry has been and continues to be a significant industry for the Canadian economy.

Current research on employment activity in Canada tends to focus on the emerging sectors in the Canadian economy, this includes service sector jobs as well as jobs requiring more advanced education requirements. This study is important as it illustrates the remaining importance of primary and secondary sector activity in Canada. The primary and secondary sectors have experienced significant declines in employment in the presence of globalization, however, these industries remain vital to supporting local economies throughout Canada. Upon realizing the vital importance of Canada's primary and secondary sector, this paper suggests that the government ought to implement appropriate policies and initiatives to tailor to the unique demands of resource and manufacturing communities. Communities relying on activity in the

primary and secondary sector are unique from other communities in Canada that tends to focus on the emerging sectors in the Canadian economy, thus the government should recognize these communities to ensure their longevity. Further research on the primary and secondary sector is recommended in order to add to the literature on the importance of Canada's resource and manufacturing industries.

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