

2008

NWT Diamonds



MAC
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Executive Summary

The 2008 NWT *Diamonds* report is the third in the series published by the Mining Association of Canada in cooperation with the NWT and Nunavut Chamber of Mines. The purpose of this report is to provide a critical analysis of the effects of the diamond industry on the economic and social performance of the Northwest Territories. Consideration is given to the effects of all components of the industry, including diamond exploration, mine construction, diamond production, sorting and evaluation, and cutting and polishing.

The last report was written in 2005 and covered the effects of the NWT diamond industry up to and including 2004. Since that time, its contribution has increased further with the addition of De Beers' Snap Lake diamond mine that was under construction from 2005 to 2007 at a cost that approached \$1 billion. The contribution of diamond production to the territory's overall gross domestic product when coupled with the construction activities at Snap Lake has hovered close to 40 per cent since 2004. Meanwhile, direct employment associated with construction and operations has risen to average 1,500 full-time equivalent jobs over the past four years. When one factors in the indirect and induced jobs that are being created as a result, the total number of jobs being created rises to average approximately 2,250 over the same period.

The NWT diamond industry's expenditures on labour and capital are having a positive influence on people living in the Northwest Territories. The measures which show the progress of society in its economic and social performance reveals most facets of northerners' quality of life have improved over the past ten years. While there are many contributors to this rise in well-being, the diamond industry has become the principal economic driver within the territorial economy, especially the North Slave region, and therefore must be considered the prominent instigator of these recent changes.

The NWT diamond industry is effectively raising gross domestic product, employment and personal income levels across the territory. As a direct result, government revenues have grown as have consumer expenditures on goods and services. The size and quality of the territory's labour force has gone up as a result of the diamond producers bringing productive opportunities to the local population and businesses, expanding their collective skill set and capacities.

Introduction and Purpose of Report

The purpose of this report is to provide a critical analysis of the effects of the diamond industry in the Northwest Territories. It has been ten years since the first diamond mine began production. Since that time, two additional diamond mines have opened in the Territory with a fourth in the regulatory permitting process. The production of diamonds has allowed the creation of a secondary industry in sorting, cutting and polishing. Combined, the industry contributes to the overall economic growth of the Northwest Territories and the well-being of the local population through its expenditures on labour and capital. The direct, indirect and induced impacts of these expenditures are analysed in this report.

The 2008 *NWT Diamonds* report is the third in the series published by the Mining Association of Canada in cooperation with the NWT/Nunavut Chamber of Mines. The last report was published in 2005 and covered the period 1991 to 2004. This year's edition extends the quantitative analysis to 2007. The focus of this analysis starts in 1999 which coincides with the first full year of production at the Ekati Diamond Mine (herein referred to as 'Ekati').

The findings of this report are based largely on quantitative analysis of readily-available, public data collected by Statistics Canada, NWT Bureau of Statistics, various government departments, and the mine operators.

Overview

It would be difficult for anyone to argue that the diamond industry has not been a boon to the economic and social performance of the Northwest Territories. Most, if not all, economic objectives that are common to any western society have improved substantively over the past ten years. The territorial economy has grown in terms of its overall productivity, efficiency, and wealth and is enjoying a prolonged period of stability. Collectively, governments have benefited through higher tax revenues and a reduction in the dependence on social transfers.

Similarly, many social objectives are being met as a direct or indirect result of the increased economic activity and the wealth generated by the diamond industry. This is in part a result of consistent efforts by northern leaders to ensure benefits are maximized across a wide cross-section of economic, social and community areas, but is also a reflection of the sheer size of the industry's contribution to the NWT's economy. For example, since 1998 unemployment rates have decreased considerably, especially among Aboriginal communities. The NWT labour market is now described as one at full employment.¹ This has dramatically reduced dependence on social services in the impacted communities. This is especially the case starting in 2003; a year that coincides with the opening of the Diavik diamond mine (herein referred to as 'Diavik').

Not all indicators of NWT's well-being are showing improvements, however. There are a few areas where the Territory is struggling. For instance, many indicators of health appear to be improving, but life expectancy was falling for a number of years and has only just begun to climb. Crime rates grew during the first half of the decade as did the rates of single parent families.

In all of these cases, one must be cautious in assessing specific cause and effect relationships, especially when viewing data on social performance indicators. For instance, there is no doubt that the rise in employment opportunities provided by the mining industry is a factor that is influencing students' decisions to remain in school and graduate. However, the improved performance also coincides with an increased level of education services offered in a number of NWT's smaller communities—children in most communities can now

¹ It should be noted that full employment is not equal to zero unemployment rate.

graduate from high school without having to leave their community. How much of the improvements can be considered a result of the growing economy versus the improved public service is difficult if not impossible to determine. Similarly, the rise in family issues is likely the result of a multitude of factors of which family disruptions created by the two-week in/two-week out work schedule incorporated by the mining industry is one.

It is not the purpose of this report to provide a comprehensive socio-economic evaluation of NWT society and all of its influences, but rather, to investigate the contribution that the NWT diamond industry is making to the quality of life of the local population. With that said, one cannot nor should they ignore completely other influences that are altering the economic and social realities of northern society when evaluating these outcomes.

Following this Overview, the report is presented in three chapters. The first highlights the direct contribution of the diamond industry to the NWT economy. Specifically, this chapter provides the most recent data on employment and business expenditures of the existing diamond projects as well as an update on the exploration and value-added components of the industry. This is followed by an assessment of the economic and social performance of the Territory in an effort to understand what impacts the NWT diamond industry is having on NWT society. Included in this chapter is a specific look at the socio-economic changes taking place in Aboriginal communities within the territory. The report concludes with a summary and some final remarks.

The Direct Contribution of the Diamond Industry to the NWT Economy

The most immediate contribution of the diamond industry to the Northwest Territories is generated by the money it spends on labour and capital. A large portion of these expenditures end up in the hands of local consumers, businesses and governments improving their collective well-being. For instance, labour earns wages and salaries which are spent on consumer goods and services, taxes, and savings. Business employs additional resources, invests in machinery and equipment, and pays taxes. Government revenues grow allowing for additional programming and/or a reduction in taxes.

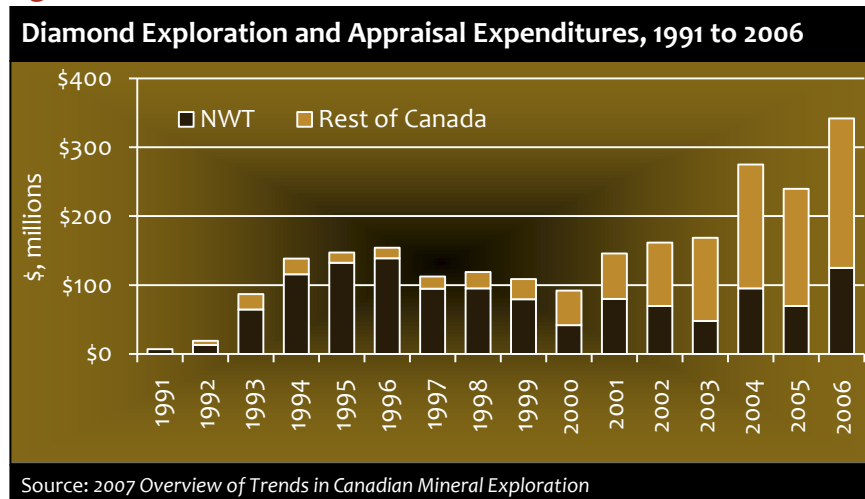
In the absence of the diamond industry, the current NWT economy would be entirely dependent on the public sector. This makes the expenditures by the diamond industry that much more important since they emanate from the private sector. This represents *new* money to the region and in fact to Canada. This is far different from government expenditures, which is a redistribution of the existing wealth of Canadians. In other words, the presence of the diamond industry reduces the NWT's dependence on Canadian taxpayers and improves government's collective fiscal situation.

This report examines the broad contribution of the diamond industry to the overall economic and social performance of the Northwest Territories. But this contribution starts with the direct expenditures made by mining, exploration and diamond processing companies for the purchase of labour and capital at each stage of its development, including exploration, mine construction, mineral extraction and value-added operations.

Exploration

Diamond exploration is an important contributor to the economy in the NWT. In 2006, junior and senior mining and exploration companies spent \$124.9 million in the Territory searching for and evaluating diamonds and diamond-bearing rock. Figure 1 contains exploration and deposit appraisal expenditures for diamonds made in the NWT and the rest of Canada. The peak of expenditures in the Territory occurred from 1994 to 1996 when spending exceeded \$100 million annually. Without adjusting for inflation, spending returned to this level in 2006. The figure also shows that diamond exploration in the rest of Canada began to grow in earnest starting in 2000.

Figure 1



It is difficult to determine the precise impact of this spending on economic indicators such as GDP, employment and income. One reason is there are many leakages embedded in exploration expenditures—meaning a portion of the money spent on exploration ends up in the hands of labour and businesses outside the NWT. This is also the case for deposit appraisals. While there are NWT-based businesses capable of performing some of this work, larger mineral samples are often shipped out of the Territory for assessment.

Taking those factors into consideration, it has been estimated that over 2,900 jobs² have been created since 1991 as a result of the

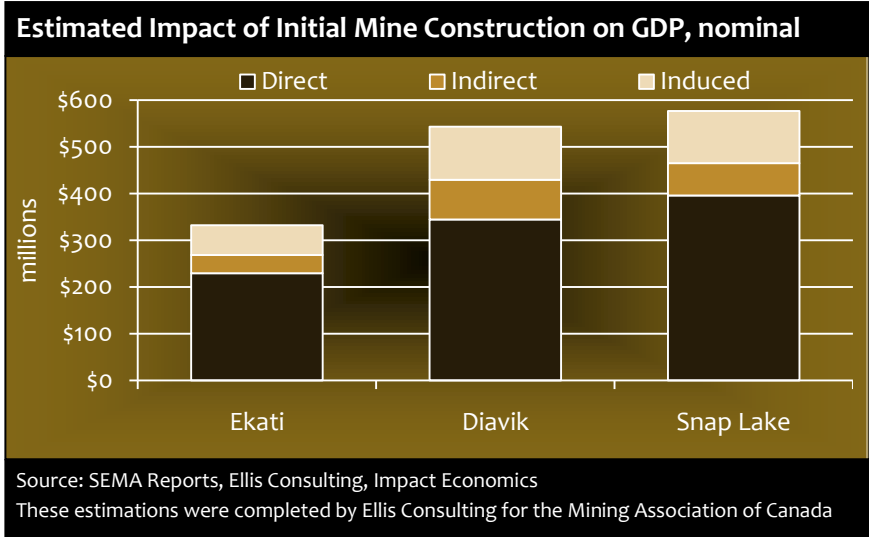
² All references to employment impacts are given in terms of full-time equivalent jobs unless otherwise noted. Using an example, 100 full-time equivalent jobs should be interpreted as equal to 200 full-time jobs over 6 months, 400 full-time jobs over 3 months, or 200 half-time jobs for a full year. These 100 full-time equivalent jobs can be shared by any number of people.

diamond exploration expenditures, raising labour income by \$119 million and nominal GDP by \$535 million. Averaged over the past 16 years, this represents 182 jobs, \$7.4 million in labour income and \$33.4 million in nominal GDP annually. In percentage terms, this activity represents 1.3 per cent of the NWT economy in an average year.

Construction

Building a diamond mine in the Northwest Territories is a massive undertaking. Both Diavik and Snap Lake construction costs exceeded \$1 billion. The contributions of these expenditures to the NWT economy are equally impressive (see Figure 2).³ In viewing these results, one should be reminded that in 1996—one year prior to the start of construction activities at Ekati—the NWT economy equalled \$1.9 billion.

Figure 2



After the initial construction period, both BHP Billiton and Rio Tinto have invested additional dollars into further construction projects, including the preparation for underground mining. The impacts of these investments are described separately due to technical challenges associated with distinguishing construction and operational expenditures. This distinction is important because the contribution of construction-related expenditures to GDP is recorded as *construction output* by Statistics Canada. Therefore, one cannot

³ Estimating the contribution of mine construction on GDP requires the use of the multipliers and intensity ratios provided by an Input-Output Model because Statistics Canada does not release this information as a part of its *Provincial and Territorial Economic Accounts* due to reasons of confidentiality.

determine the total direct impact of the diamond industry by reviewing mining output exclusively. Exhibit 1 explains this issue in more detail.

Exhibit 1

Recording the Economic Contribution of Ongoing Construction at Ekati and Diavik Diamond Mines

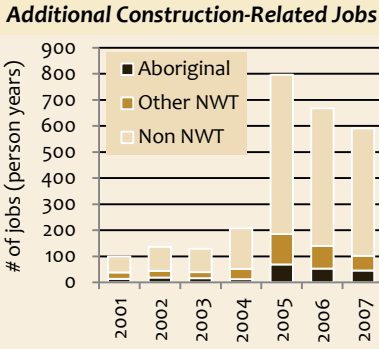
The overall contribution of the diamond industry to the territorial economy is higher than what is recorded by Statistics Canada as *mining output*. As described in this report, the expenditures associated with the construction of these mines have a sizeable influence on the economy. Statistics Canada records this activity as *construction output*. Combining the contribution of these two distinct economic activities gives an initial estimate of the industry’s overall economic contribution (not including exploration or the value-added components).

However, a challenge appears in this calculation when assessing the impact of construction activities *after* the initial mine construction phase of each project. The challenge lies in distinguishing between capital expenditures for construction versus operations. The construction expenditures appear in Statistics Canada as construction output but cannot be separated from the overall territorial construction number. Furthermore, there isn’t sufficient public information provided by the mine producers to make these calculations oneself.

Regardless of this technical challenge, one should still pay attention to these ongoing construction activities. For example, the underground construction costs at Diavik are expected to reach \$787 million according to a Rio Tinto news release issued on November 26, 2007. This is in addition to the initial \$1.2 billion spent on the mine’s original construction and will contribute an estimated \$320 million to GDP in NWT over the life of the project.

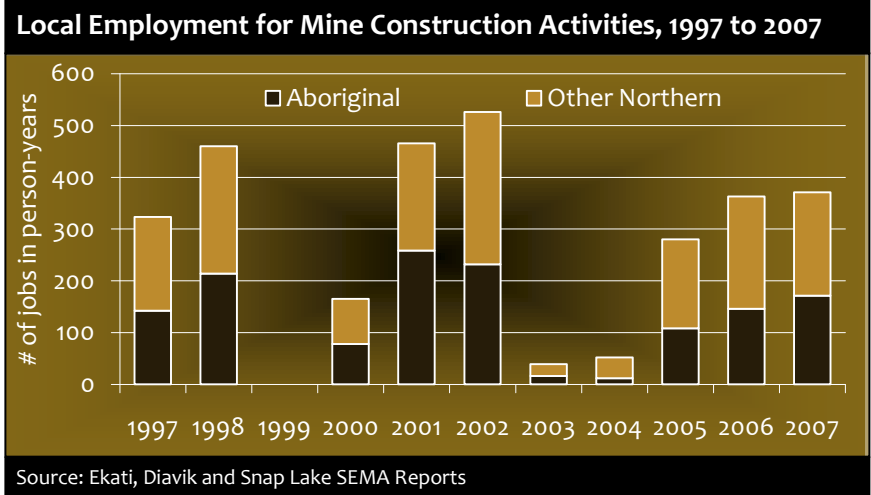
A similar challenge exists with additional construction projects taking place at Ekati where construction activities have been underway since 2001, with approval given to development work on the Sable, Pigeon and Beartooth kimberlite pipes in 2003. Since 2005, it would be reasonable to attribute as much as 2 per cent of the territory’s economy to the continuing construction at Ekati and Diavik.

Ongoing construction activities require labour. The figure to the right provides the number of jobs being created by Ekati and Diavik for their additional construction activities. A peak was reached in 2005 when close to 800 full-time equivalent jobs were being generated directly by the construction projects at Ekati and Diavik.



NWT-based labour and businesses have captured significant portions of the total capital expenditures on construction of the diamond mines. The employment generated by these projects, including the initial build and the additional expansions, is shown in Figure 3. This includes people working for the mine owners and their contractors.

Figure 3



Meanwhile, NWT businesses have been awarded approximately 70 per cent of the construction contracts when calculated by value. For the Snap Lake project alone, this represents more than \$725 million in business revenues which goes toward the payment of wages and salaries, the purchase of goods and services, investment in machinery and equipment, local profits, and the payment of taxes.

Production

Ekati began its operations in 1998, with the first full year of operations coming one year later. By 2003, operations at Diavik were underway while the final months of 2007 marked the start of operations at Snap Lake. Diamond production in the NWT has been climbing steadily for the past ten years as a result (see Figure 4). The value of this production peaked in 2004 through a culmination of rising world prices and higher overall quality and quantity of diamonds recovered (see Figure 5).

Figure 4

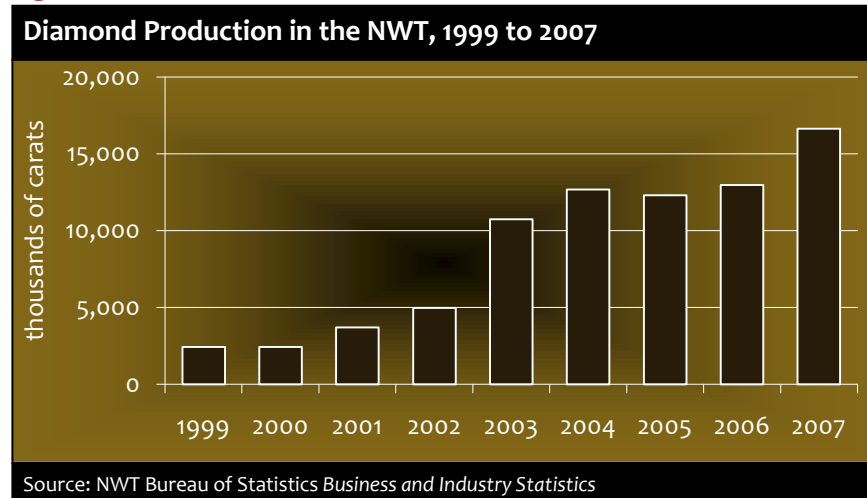
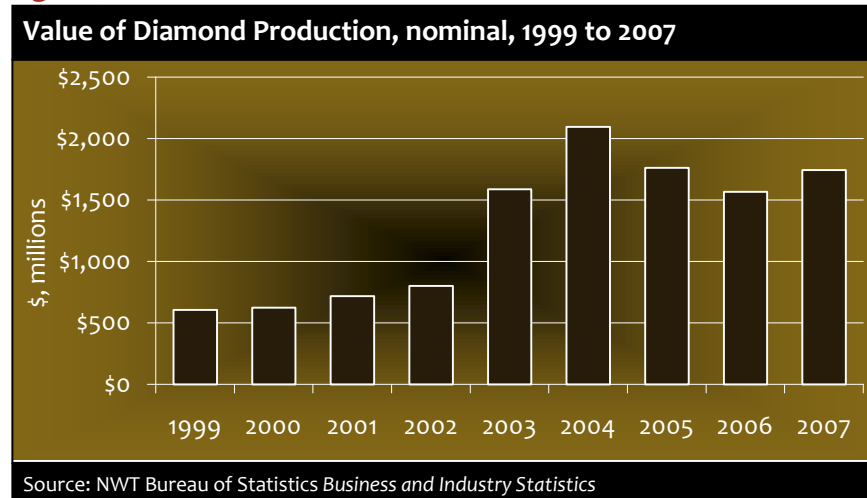


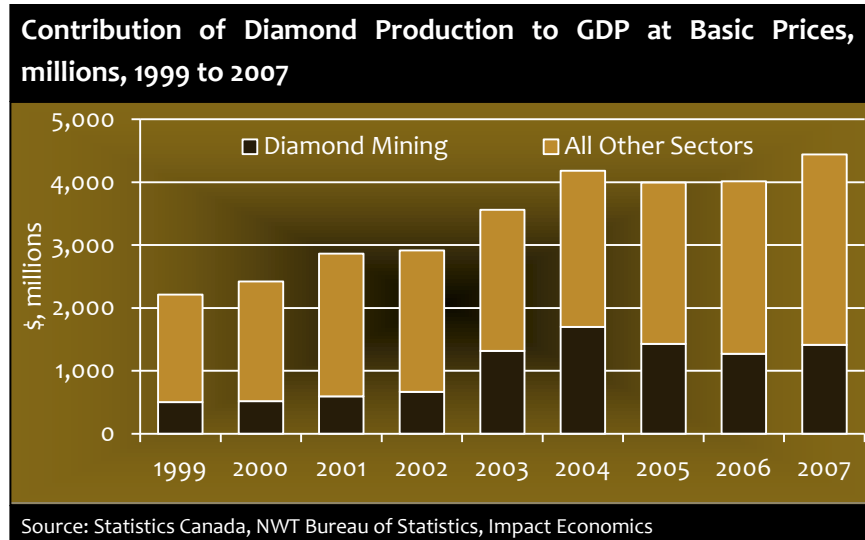
Figure 5



The lower overall value of production in the last three years has meant the contribution of diamond production to the NWT economy has eased somewhat (see Figure 6). As of 2007, diamond production represented 32 per cent of the overall economy when factoring in its

indirect and induced impacts. This is down from its peak in 2004 of 41 per cent. It is anticipated that with De Beers' Snap Lake Diamond Mine now in full production, the 2008 contribution of the diamond industry to the territorial economy will once again approach 40 per cent.

Figure 6

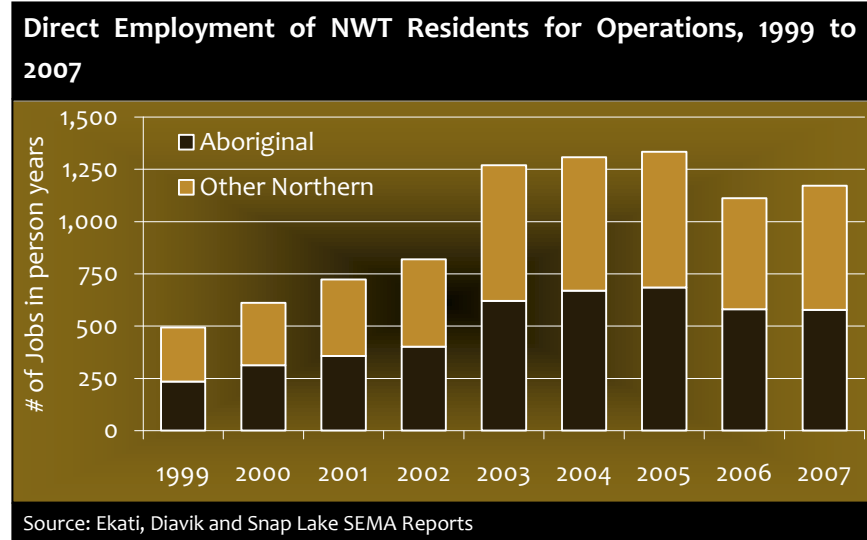


Employment

Employment is perhaps the most prominent benefit flowing from the diamond industry's presence in the NWT. Figure 7 provides details on the direct employment by the mine operators and their contractors. Throughout the entire history of diamond production in the NWT Aboriginal and non-Aboriginal residents have shared equally in the available jobs. At its peak, Ekati and Diavik were employing more than 1,300 northerners for their operations. This does not include people working on construction activities.

Data on the wages and salaries earned by these employees is not publicly available. However, if we were to assume the average employee at Ekati and Diavik (includes those working for contractors) engaged in operational activities earns \$65,000 to \$70,000 annually before benefits, then these two mines are infusing close to \$80 million in personal income into the territorial economy each year. This level of income generates close to \$10 million in personal income taxes for the two levels of government each year leaving the local population with \$70 million in disposable income. By the end of 2008, the total personal income generated directly from mine operations will exceed \$100 million with the addition of operations at Snap Lake.

Figure 7



Employment benefits do not stop at the mine sites. The operational activities of the diamond industry create additional opportunities throughout the NWT economy. These additional benefits are often described as indirect and induced impacts. Indirect impacts (including the impacts on employment, income and GDP) are generated when direct suppliers of goods and services to the mines spend money in re-supplying their own businesses creating a ripple effect in the economy as more and more businesses are affected. Induced impacts are those generated when employees working as a direct or indirect result of the mines' operations spend their income and increase the demand for businesses offering consumer goods and services. Exhibit 2 offers one example of direct, indirect and induced employment impacts.

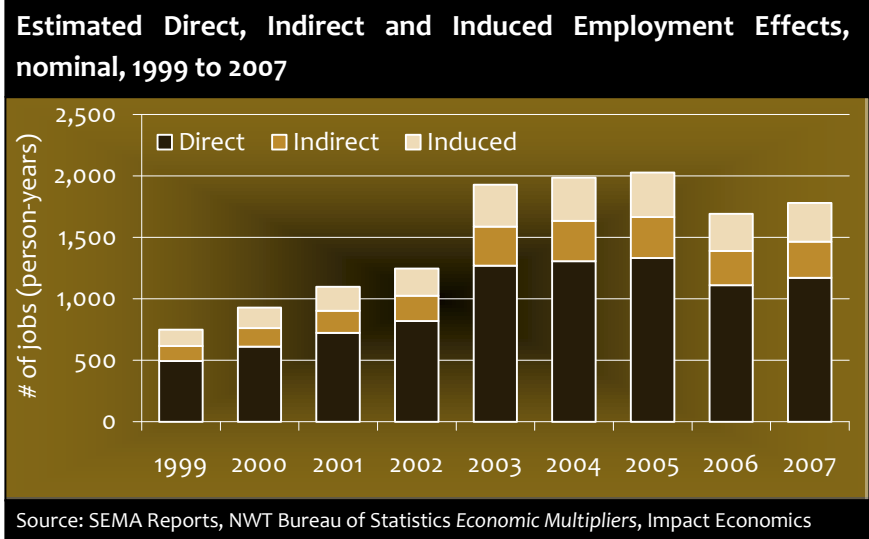
Exhibit 2

A practical example of direct, indirect and induced effects

A local auto dealership that is awarded a contract with a mine operator to supply it with vehicles and maintenance will need to increase its staffing to meet the needs of the contract. The increase in employment at the dealership is a direct effect. A local business, such as an accounting firm, that provides services to this dealership might see demand for its services increase as the activities at that dealership increases. This local business might need to purchase additional supplies and/or hire additional staff. This is an indirect impact of the mines' operations. The newly-hired employees at the auto dealership and the accounting firm earn wages and salaries. A portion of those earnings are spent in local stores offering goods or services from electronics to restaurant food. If business increases substantially at these local stores, they too will require additional employees. This would be an induced effect of the mines' operations.

An estimate of the indirect and induced employment impacts are provided in Figure 8. This figure shows that employment impacts peaked in 2005 when more than 2,000 full-time equivalent jobs existed as a result of the diamond mining in the NWT.

Figure 8



Capital Investment

The direct impact of mine operations on local businesses is also very important. Expenditures across the three diamond mines for construction and operations have exceeded \$1.5 billion in each of the last two years. Capturing a share of these expenditures can afford local businesses the opportunity to expand their own production, employ more people, invest in machinery, equipment and improved technologies, and increase their profits which ultimately improves the economic vibrancy of the territorial economy. Additionally, this adds to the mine’s direct, indirect and induced impact on government revenues.

The owners of the three diamond mine have signed agreements with the territorial government that ensures local Aboriginal and non-Aboriginal businesses have an opportunity to access the goods and services contracts available at each mine.⁴ This has been a boon for NWT business owners and joint ventures. Figure 9 provides evidence of the dollar value of all contracts flowing into the NWT business

⁴ These agreements are available on the Government of the Northwest Territories’ website and are stated in the SEMA Reports published by the owners of Ekati, Diavik and Snap Lake mines.

community. One can see that Aboriginal and non-Aboriginal businesses have expanded in the past ten years, and are now managing close to \$1.2 billion in sales from the three mines.

Figure 9

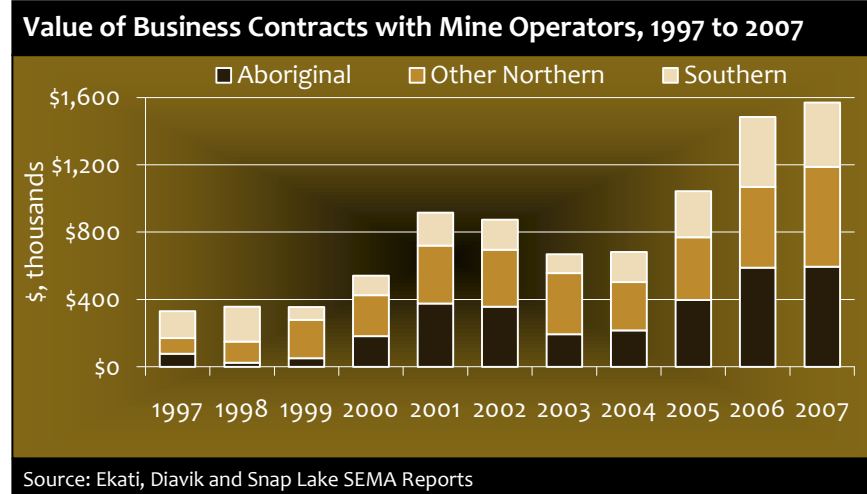
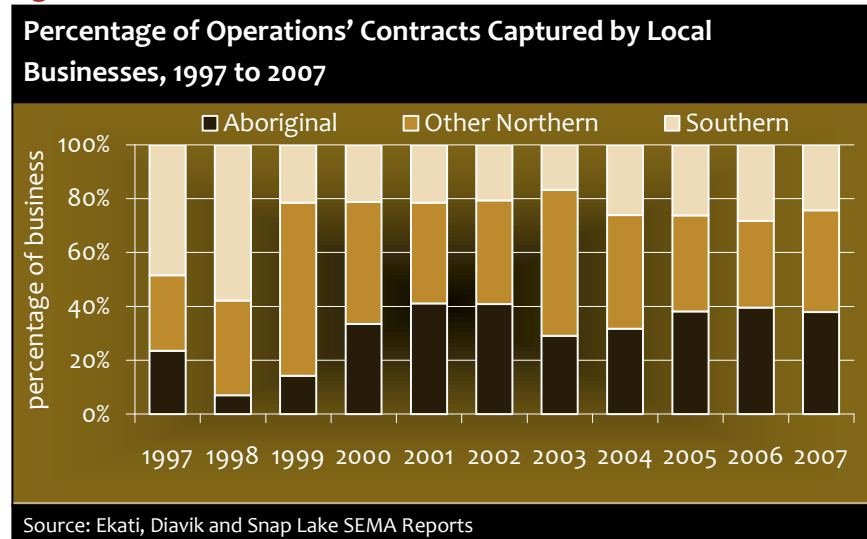


Figure 10 provides this information in terms of percentage of total business that goes to NWT-based businesses versus those operating in southern Canada.⁵ After the initial years when Ekati was under construction and the NWT business community was still growing its own capacities, it has managed to capture 75 per cent to 80 per cent of the available business flowing directly from the mines’ construction and operations.

Figure 10

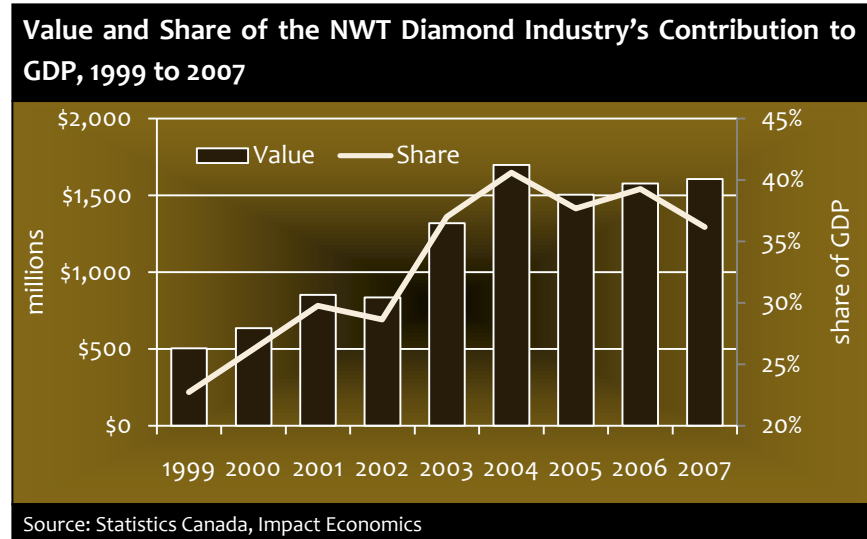


⁵ The term ‘southern’ in this figure includes foreign companies.

Combined Impact of Construction and Operations

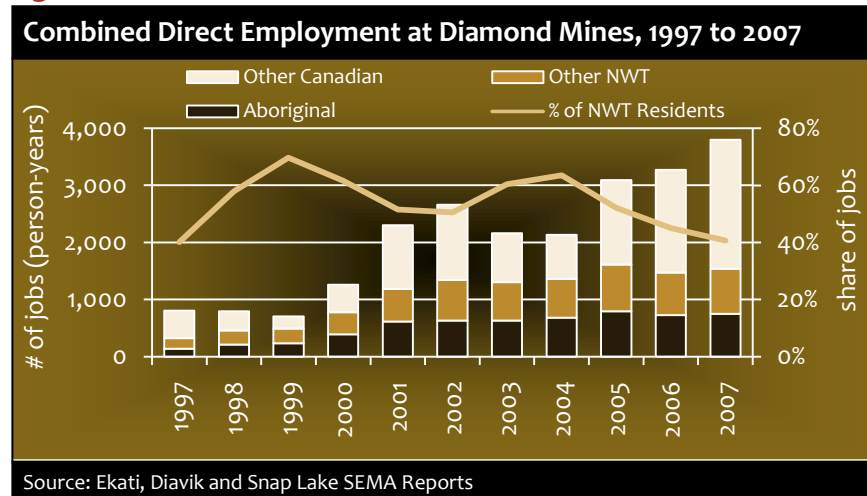
The Snap Lake construction and ongoing production activities at Ekati and Diavik were responsible for close to 40 per cent of the entire NWT economy in 2007 when reported together (see Figure 11).

Figure 11



From an employment perspective, the number of direct jobs being filled by Aboriginal or other NWT residents has exceeded 1,300 for the last six years, and at times, has reached 1,600 (see Figure 12).

Figure 12



Collectively, the three mine owners have exceeded all expectations with respect to the total number of Aboriginal and non-Aboriginal employees from the NWT (see Exhibit 3). This cannot be overlooked when evaluating the industry's hiring performance and is the principal reason for the Territory's full employment status.

Value-added Industries

At present there are two value-added components to the NWT diamond industry—sorting for royalty evaluation and manufacturing through cutting and polishing. Jewellery making and tourism are also activities that benefit from the diamond industry, but these are difficult to quantify accurately and therefore are not included in this report.

Diamond Sorting

The Canada Mining Regulations require that all rough diamonds be valued by the Government Diamond Evaluator prior to sale or export. The Government of Canada requires that this evaluation process takes place within the NWT.

As a result of these rules, BHP Billiton and Rio Tinto have built sorting and valuation facilities in Yellowknife. Together they employ approximately 25 people. With Snap Lake beginning production in the final months of 2007, the number of jobs in the sorting business has increased further. These jobs are not full-time equivalent positions since the sorting and evaluation activities take place for no more than one week each month.

The number of jobs in the diamond sorting business is not significant when compared with the employment numbers generated through diamond extraction activities or mine construction. However, these jobs do contribute to the overall employment impact of the diamond industry and offer diversity in the employment options generated. One must also keep in mind that these jobs, along with those offered by the cutting and polishing businesses, are located in Yellowknife

Exhibit 3

Actual versus Projected Employment

- From the period 2001 to 2006, average northern employment at **Ekati** was predicted to equal 574. The actual average employment reported by the mine's owners over this time period was 766.
- **Diavik** had predicted northern employment would reach 300 full-time equivalent jobs. As of 2007, the mine owner and its contractors were employing 267 Aboriginal people and 257 non-Aboriginal northerners.
- The construction of **Snap Lake** was initially expected to create 180 jobs for Aboriginal and non-Aboriginal residents of the NWT. By the end of 2007 when the mine construction was complete, total employment of northerners had reached 588.

and thus appeal to labour unable or unwilling to take diamond-related jobs that operate on a two week in/two week out schedule.

Cutting and Polishing

Background

BHP Billiton has an agreement with the Government of the Northwest Territories to supply rough diamonds to qualified diamond manufacturers in the NWT. In total, BHP Billiton agreed to allocate a number of carats up to 10 per cent of the value of the Ekati Mine output. These rough diamonds (uncut and unpolished) are sold to local businesses for the same price as what is paid by direct buyers located in Antwerp. This arrangement gives NWT cutters and polishers access to rough diamonds before additional mark-ups are added to the price. Also, contrary to normal diamond marketing practice, local buyers are able to select specific size categories and can purchase only what they need rather than the entire allotment.

Rio Tinto signed a similar agreement with the Government of the Northwest Territories to supply rough diamonds to the local NWT cutting and polishing industry. This agreement has never been made public, but it is generally thought to be similar to that between BHP Billiton and the government.

As further evidence of the contents of Rio Tinto's agreement, De Beers Canada Inc. signed an agreement with the territorial government in 2004 to make available 10 per cent (in value) of Snap Lake's diamond production in economically 'cuttable' categories to support the NWT's secondary industry. Snap Lake diamonds are made available for sale to those local cutting and polishing factories that are Government of the Northwest Territories-approved manufacturers and that successfully fulfil the Diamond Trading Company's (DTC) client selection criteria. The DTC is the sales and distribution arm of De Beers.⁶

⁶ De Beers Canada Inc. *Snap Lake: Project Development—Phrase Three: Mining*. http://www.debeerscanada.com/files_2/snap_lake/snap_project-developmen_phase-three.html

Estimated Impact of Cutting and Polishing Industry

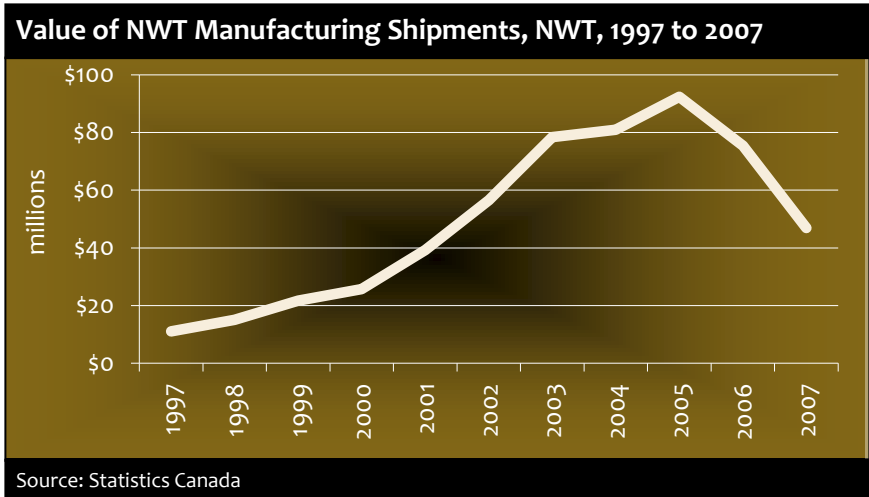
The diamond cutting and polishing industry has had some difficulty in establishing a secure base within the NWT economy. At times, there were as many as four producers operating in Yellowknife. This number shrank to just two until late in 2008, when HRA Investments opened its facility. A history of the cutting and polishing operations in Yellowknife is shown in Exhibit 4.

The turbulence in the industry has led to a decrease in the number of rough diamonds being processed by the cutting and polishing industry. The result is a sharp decline in the value of manufacturing shipments in 2007 after four strong years of production (see Figure 13). At its peak from 2003 to 2006, the cutting and polishing businesses were responsible for as much as 65 per cent of the Territory’s overall manufacturing shipments in value, if not more.⁷

Exhibit 4

History of Diamond Cutting and Polishing Operators in the NWT	
•	1999 – Sirius Diamonds opens
•	2000 – Deton’Cho Diamonds opens
•	2000 – Arslanian Cutting Works opens
•	2002 – Deton’Cho Diamonds closes
•	2003 – Deton’Cho Diamonds reopens under the name Canada Dene Diamonds
•	2003 – Laurelton Diamonds opens
•	2005 – Sirius Diamonds sold to Arslanian Cutting Works
•	2006 – Canada Dene Diamonds closes
•	2008 – Crossworks opens

Figure 13



The industry’s peak employment came during the period in which four independent producers were operating at the same time and employing 125 people in cutting, polishing and administration. In addition to these jobs, the industry contributed directly to additional

⁷ Information on the exact value of ‘manufactured’ diamonds is not public knowledge, though this value can be estimated.

employment is such fields as security. When combined with those working in the sorting facilities, the number of direct jobs created by the NWT diamond industry's value-added component exceeded 160, with another 40 generated through indirect and induced effects.

Looking forward, the addition of HRA Investment's *Crossworks* cutting and polishing facility should have a positive impact on the manufacturing sector in the NWT as will the addition of diamonds from Snap Lake.

Contribution of the NWT Diamond Industry to the Progress in Economic and Social Performance

One should review a broad selection of economic and social variables to fully appreciate the changes in well-being that have taken place throughout NWT society since 1998 and the opening of the Territory's first diamond mine. Since that time, gross domestic product has more than doubled, unemployment rates have dropped to what is likely the region's natural rate, real personal income has risen, and government revenues have grown. At the same time, the economy is moving toward a position of full employment (if it hasn't reached that point already), issues of disparity are on the decline, the number of families receiving social assistance has decreased, and NWT youth are performing better in school. In this chapter, indicators that help measure the changes in economic and social progress of the NWT are presented.

Economic Performance

Gross Domestic Product

Gross domestic product (GDP) is the most common indicator used to measure economic progress. It is defined as the value added at every stage of production. GDP can be calculated by summing the wages and salaries, profits before taxes, capital consumption allowance (depreciation) and indirect taxes less subsidies of each goods- and services-producing industry in the economy.

Figure 14, Figure 15, and Figure 16 provide different views of how GDP has changed since 1991.

Figure 14 shows the value of GDP from 1991 to 2007 in nominal terms. A marked change in its growth path began in 1998 when Ekati first went into production. By 2004, one year after Diavik began its operations phase, GDP had doubled. Since that time the economy has been more stable, but in 2007 the economy grew by an additional 10 per cent, largely on the back of capital investments at Diavik and Snap Lake.

Figure 14

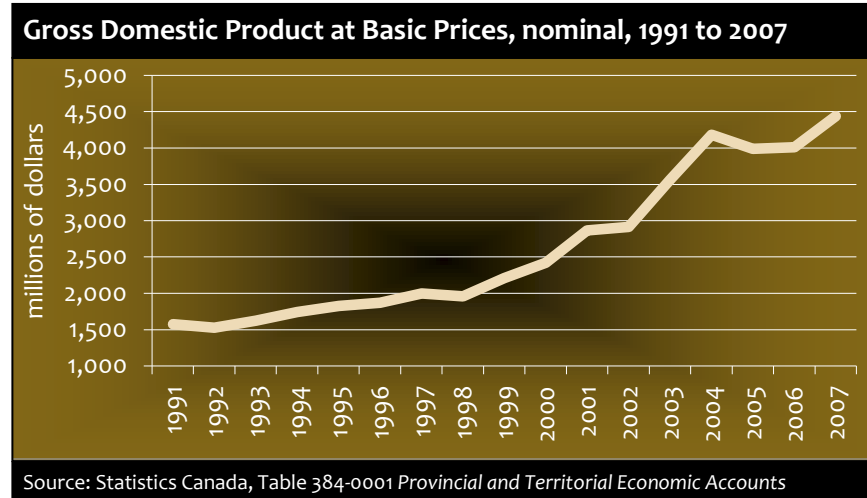


Figure 15 represents the same GDP data on a per person basis. In 1998, this measure of economic growth was just below \$50,000. By 2004, it was approaching \$100,000. This is by far and away the highest per capita production of any region in Canada. Again, one can attribute the greatest share of this increase to the construction and operation activities of the Territory's three diamond mines.

Figure 15

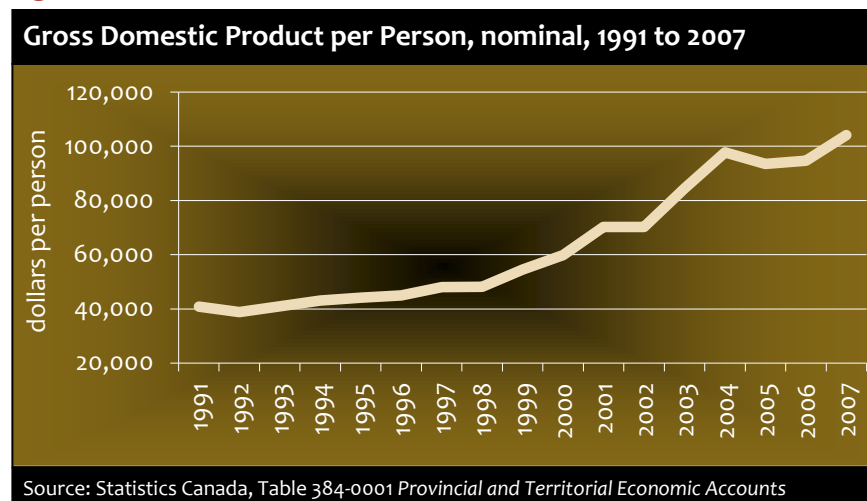


Figure 16 reveals the value of real GDP at market prices from 1999 to 2007. This measure of GDP is calculated by summing the real expenditures of consumers and governments on goods and services and the real investment expenditures of the public and private sector. It also includes the value of exports minus the value of imports. Over the period 1999 to 2007, growth in real GDP has averaged 7.9 per cent

per year when compounded annually. Exhibit 5 provides an explanation of real versus nominal statistics.

Figure 16

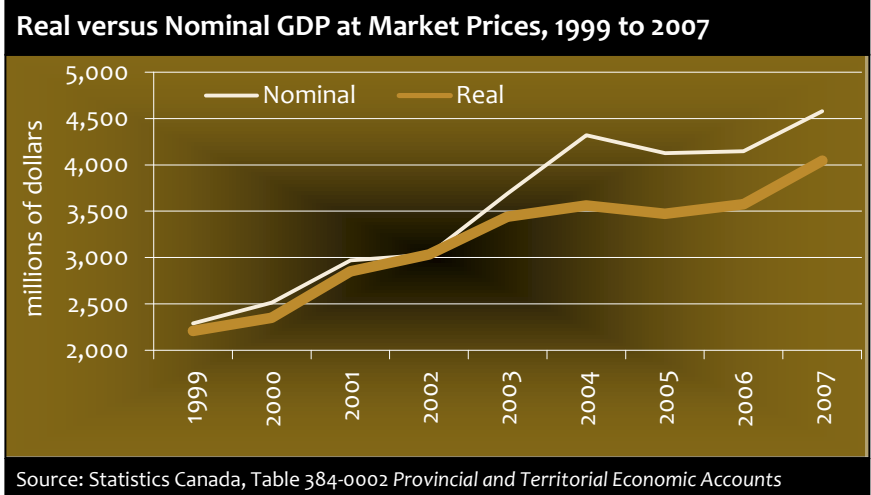


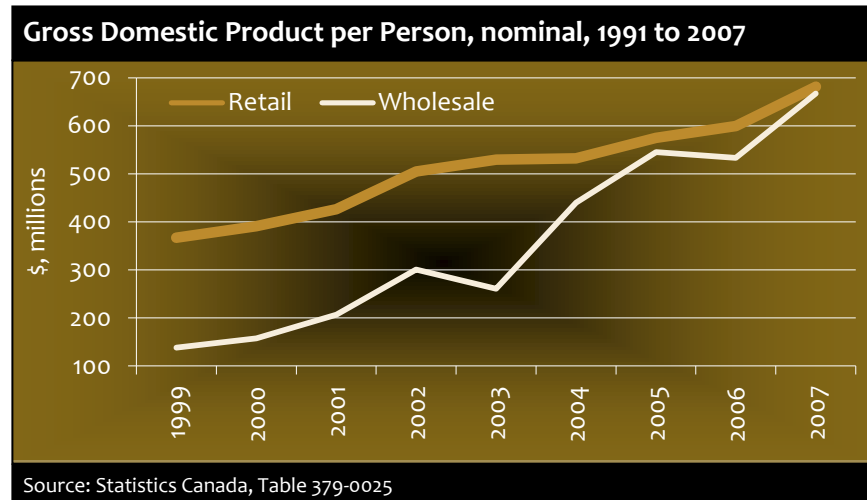
Exhibit 5

Real versus Nominal Statistics

The difference between real and nominal is important. Real data, whether GDP, consumer or government expenditures, or personal income, takes into account the effects of inflation. For example, if overall personal income grew by 1 percent, but the price of all consumer goods and services also grew by 1 percent, then in *real* terms, the value of that income (what it is worth in terms of its purchasing power) has not changed. Nominal income does not consider the effect of inflation and therefore can be misleading. In the example above, the 1 per cent rise in nominal income would be misconstrued as an increase in consumer’s purchasing power if the increase in prices was not factored.

The activity in the diamond industry has spurred growth throughout the economy. For example, Figure 17 shows the pace of growth in retail and wholesale trade since 1999, averaging 8 per cent and 22 per cent per year (compounded annually) respectively. Other notable increases have come in construction, transportation, and mine services. Less noticeable through the review of statistics has been the rise in the availability of consumer goods and services including such things as increased air service to remote or isolated communities.

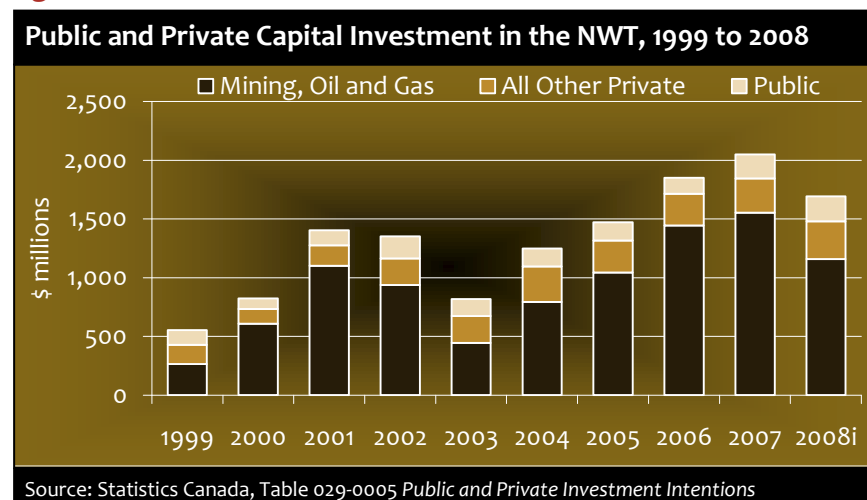
Figure 17



Capital Investment

Perhaps the clearest indicator of the diamond industry’s role as the economic driver of the territorial economy is capital investment. Figure 18 provides the dollar value of capital investment over the past ten years for mining, oil and gas, all other private sector investors and the public sector that includes health, education, public administration and defence. In peak years, mining, oil and gas sector investments have exceeded 75 per cent of the total investment spending in the NWT.

Figure 18

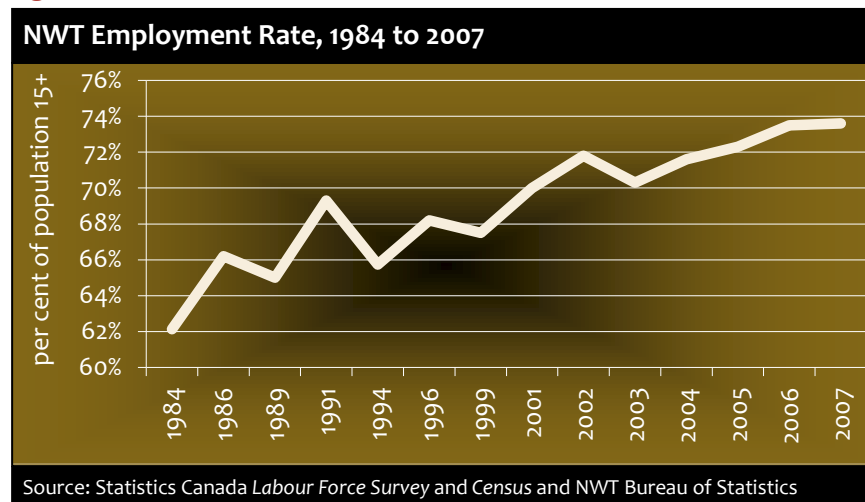


Employment

A closer review of employment data reveals the extent to which NWT residents have accessed the economic opportunities provided by the

diamond industry. The previous chapter highlighted the extent of local direct participation at the three operating diamond mines. Figure 19 shows the increase in the employment rate that has come as a result.⁸ Increases have come in all categories of the labour market including skilled, semi-skilled, and unskilled. It has brought many newcomers into the workforce, some of whom were previously thought to be unemployable due to low education, low skill levels, general immobility, and no prior work experience.

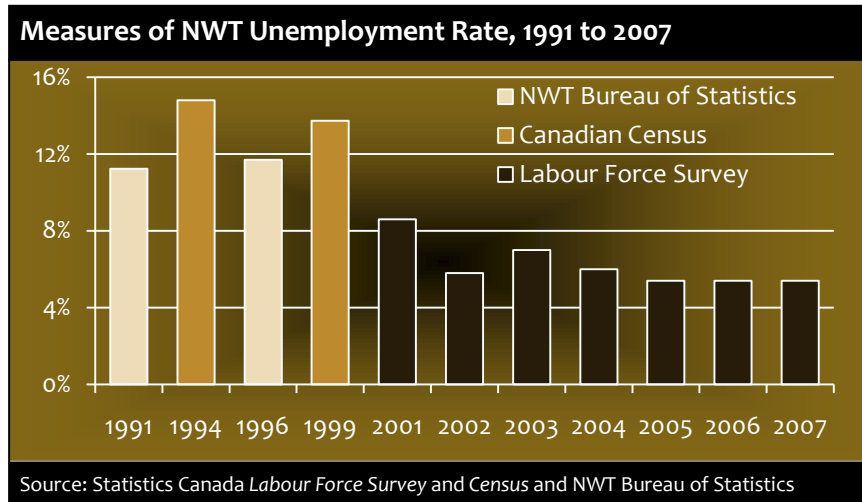
Figure 19



This employment has brought the Territory to a state of near-full employment. Figure 20 shows how the unemployment rate fell to 5.4 per cent and has remained there for three straight years. For the most part, people wanting a job but who are out of work can be categorised as frictionally unemployed (people who are between jobs, new to the workforce, or on temporary layoff) or as structurally unemployed. This latter group tend to face numerous challenges in participating in the new economy, including issues of mobility, education, mismatching skills, cultural issues and a lack of interest in the wage economy.

⁸ There are data limitations present in the unemployment data. Statistics Canada's *Labour Force Survey* is available from 2001 onwards. Prior to that, the NWT Bureau of Statistics conducted labour-related surveys (1994 and 1999) as did Statistics Canada through its *Census* (1991 and 1996). The latter two surveys do not produce an uninterrupted time series, with gaps present in the years 1992, 1993, 1995, 1997 and 1998. Each survey has a different methodology, and therefore they are not directly comparable.

Figure 20



Personal Income

Together, the greater number and variety of jobs coupled with the shortage of labour has resulted in a rise in personal income throughout the NWT and contributed to a significant increase in standards of living (see Figure 21). The growth in jobs and income has also reduced the percentage of the population receiving income assistance (see Figure 22).

Figure 21

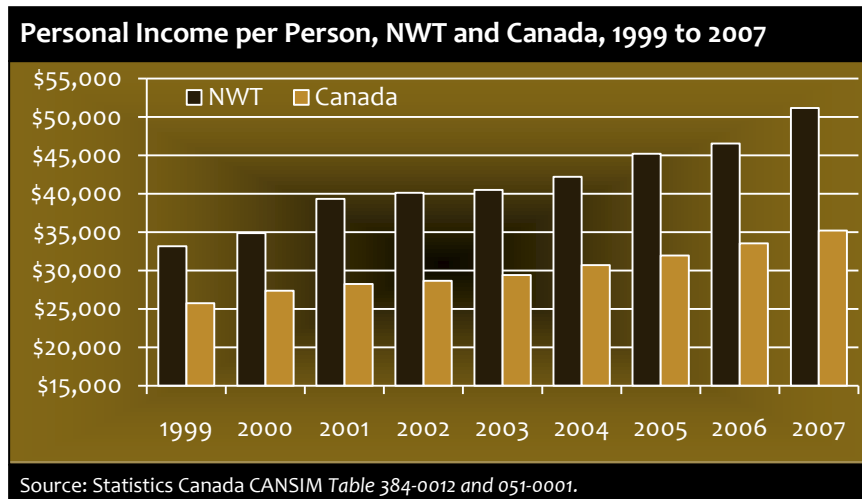
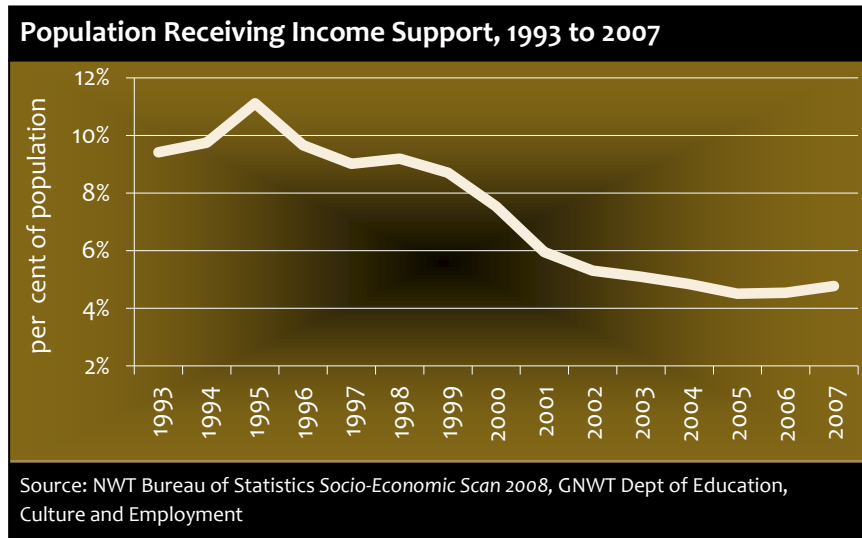


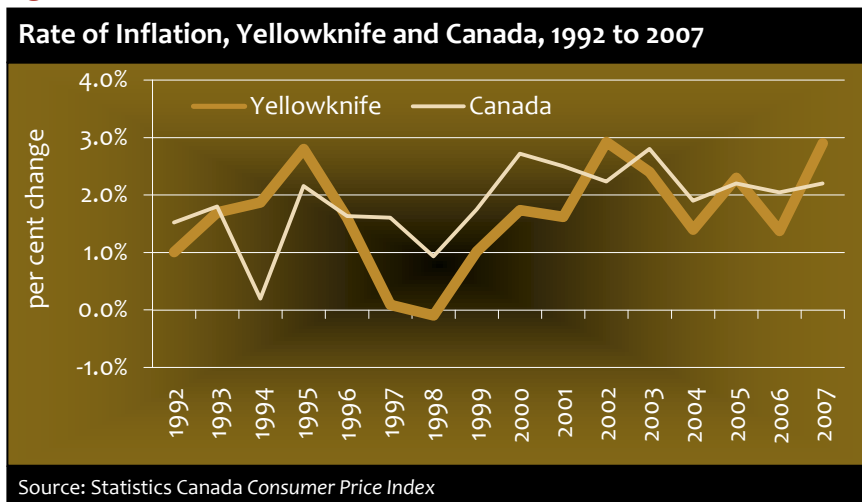
Figure 22



It is interesting to note that over the past ten years the rate of inflation has remained *below* the national average (see Figure 23), despite the dramatic rise in wealth. This likely comes as a surprise to some. But one must recognise that price pressures in energy, food and housing affected all Canadians during this time period, and was not unique to the North.

Statistics Canada’s *Consumer Price Index* (CPI) is available for Yellowknife only, and therefore is not a perfect indicator of inflation for the entire Territory. However, it does provide a useful proxy. Other measures such as the Final Domestic Demand Implicit Price Index which measures the price impact on all final domestic expenditures across the entire economy returns similar results to CPI.

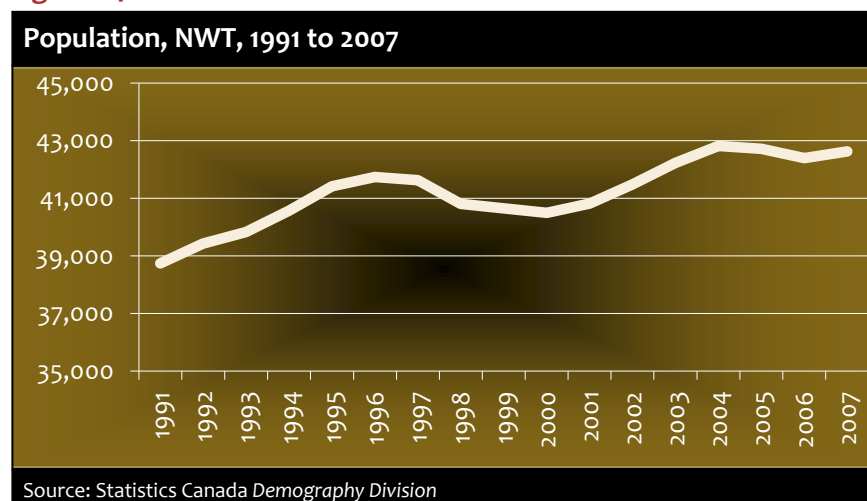
Figure 23



Population

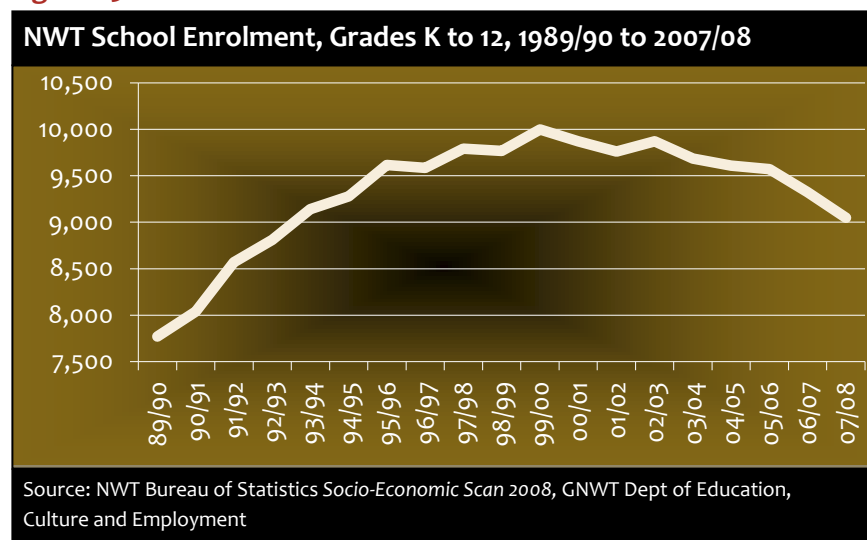
In most parts of the country, strong economic growth brings about an influx of people. This has not been the case consistently in the NWT where the population growth has ebbed and flowed over the past two decades, and is now just 10 per cent higher than it was in 1991 (see Figure 24) which represents an average annual growth of 0.6 per cent. There are several possible explanations. The distance and isolation of the north along with its climate are often viewed as deterrents in relocating here. Cost of living is high when compared to the south—for example, Statistics Canada estimated that in 2005 the cost of living in Yellowknife was 17.5 per cent higher than in Edmonton. Furthermore, despite the growth in the economy, some events have destabilised the population including the separation of Nunavut from the NWT in 1999 and the closure of Giant Mine and Con Mine in 2003 and 2004 respectively.

Figure 24



Whatever the reasons, the slow growth in the NWT's population has a number of implications. For one, it has meant slow growth in the working-age population. This has forced employers needing workers, including those operating in the diamond industry, to look to southern markets to find labour. It also has implications for governments. The pressures on infrastructure normally associated with strong economic growth because of the impacts on population growth have not materialised. An example is school enrolment, where the numbers have been on the decline for several years (see Figure 25).

Figure 25



Government Revenues

The revenue impact on the territorial government generated by the diamond industry is complicated by the fact that the Government of the Northwest Territories' annual federal grant entitlement is impacted by incremental revenues. This means that increased revenues to the territorial government signal a reduction in transfers from the federal government. The current 'clawback' amounts to 80 per cent of new revenues.

Calculating transfers from the federal government is further complicated by the fact that the annual transfer amount is determined using preliminary data. If an adjustment is required after receipt of finalised data, those adjustments are made in the following years. This can create a wide variance in the year-over-year transfer amount.

While these factors complicate any analysis, the trend in revenues flowing to the territorial government is clearly upward. From 2000 to 2008, the government's total revenues have grown from \$823 million to \$1.47 billion (see Figure 26). This represents an average annual increase of 7.5 per cent that far exceeds the rate of inflation combined with the rate of population growth (see Figure 27).

Figure 26

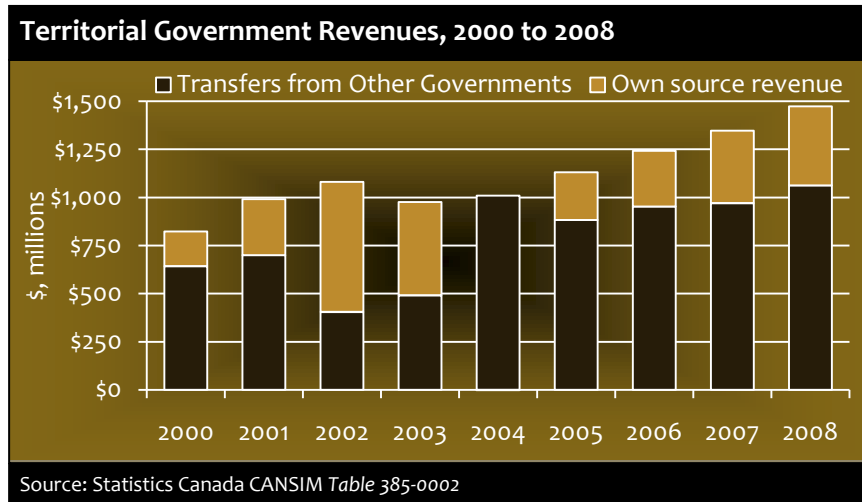
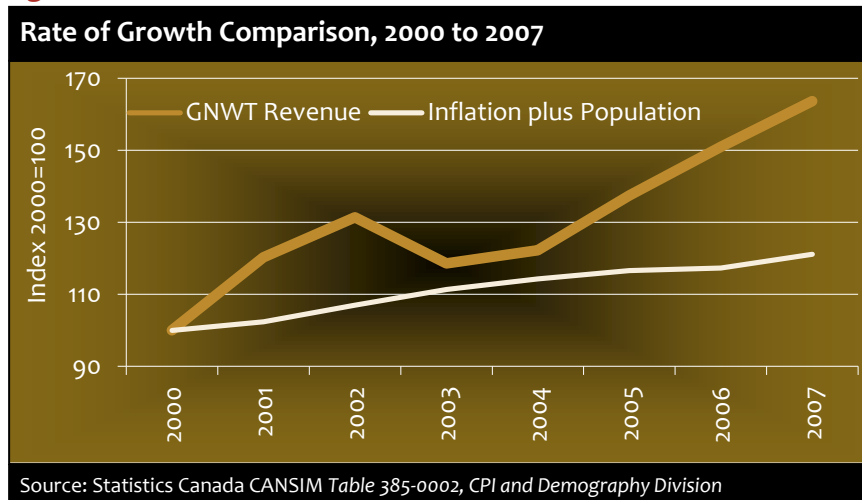


Figure 27



Social Performance

Society's social objectives tend to focus on issues of education, health, equality, families, and issues of safety. A society's performance in these areas is closely linked with that of economic performance. A vibrant economy that brings about an increased number and variety of jobs, raises standards of living through increased financial wealth, and improves productivity is often the impetus for improved health and social well-being.

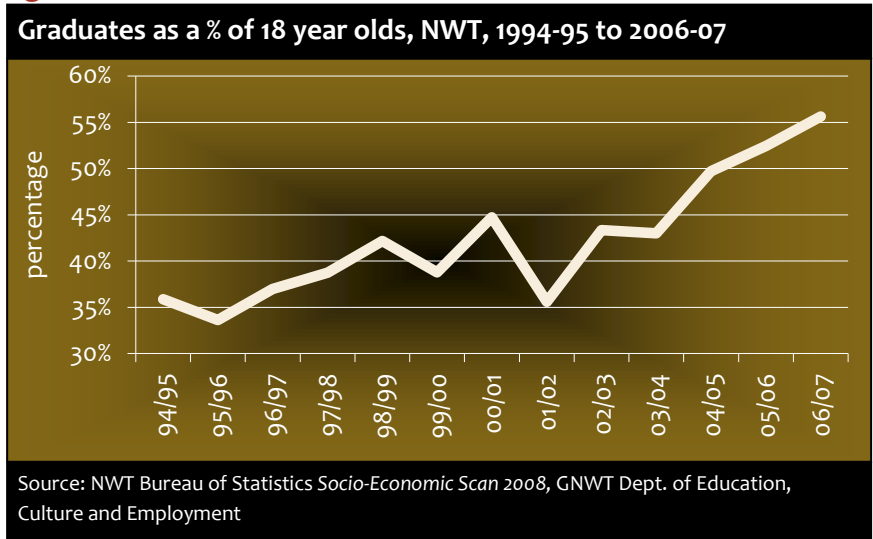
It is difficult to attribute specific changes in social conditions to the recent industrial development in the Territory, specifically the development in the diamond industry. But having demonstrated its contribution to economic growth, one can conclude it is a

contributing factor in the social changes that are occurring. In other words, the diamond industry is not responsible for the decisions NWT's society makes with respect to expenditures on social objectives, however, it does provide the means in which these choices are available.

Education

Figure 28 provides a graphic on the improved education outcomes occurring in the NWT. The figure shows a dramatic improvement over the past several years. Caution is needed here before attributing all of this change to the diamond industry. The Government of the Northwest Territories has been improving education services in the region's smaller communities which are allowing children to graduate from high school without having to leave their home towns. The timing of this improved service coincides with the rise of the diamond industry. Nevertheless, the offer of employment in high paying jobs to graduates of high school surely must be an incentive, especially in remote or otherwise isolated communities where employment opportunities were previously rare and in some cases non-existent.

Figure 28

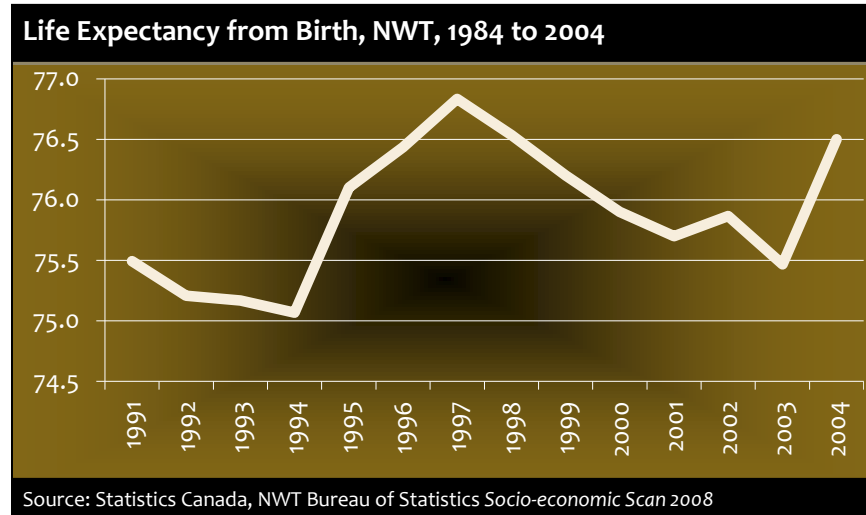


Health

From the perspective of overall health, life expectancy is the most common indicator. It had been on the decline for several years. It is not clear why this was the case since infant mortality rates have been improving while the trend in the number of suicides is unchanged as is the trend in the number of accidental deaths. It is likely that the trend is a sampling error given the small population of the NWT.

Nevertheless, a persistent downward trend in life expectancy is reason for alarm. From Figure 29, the last year of data (2004) shows a reversal of this trend that began in 1998. It cannot be known at this time whether it represents a change in trend or a one-time outlier.

Figure 29



Income Disparity

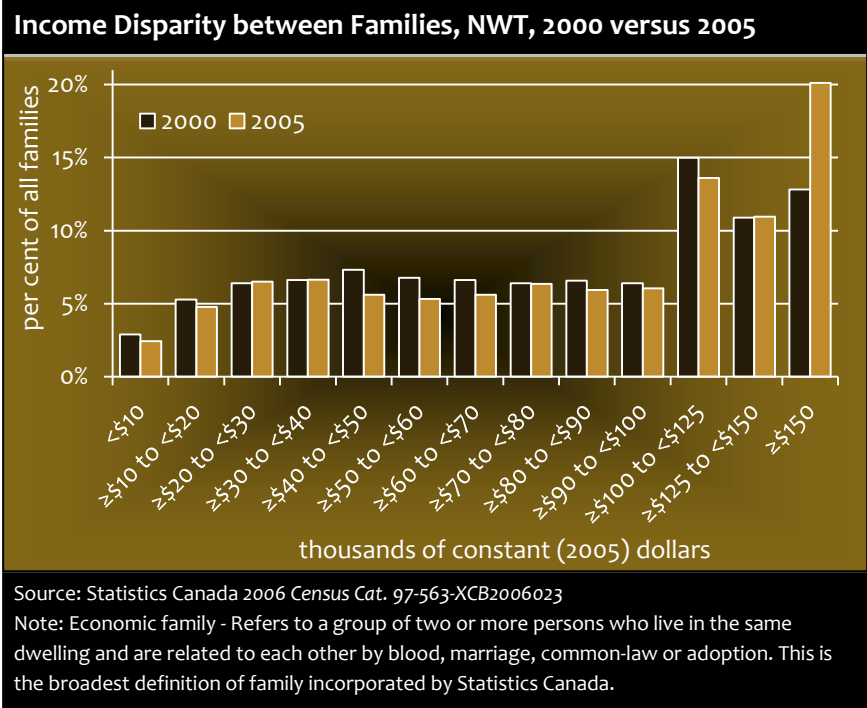
Equality is an important social consideration. The idea that a widening income gap lowers society's collective well-being is one held by many people. The widening or narrowing of this income gap also speaks to the fairness and durability of the drivers of the economy.

- Is the economy bringing more or less people into the workforce; that is, are opportunities to participate expanding into new labour markets or retracting?
- Is the manner in which people are gaining access to the opportunities fair; that is, are people being chosen based on skills and aptitudes or on family connections, ethnicity or gender?
- For those unable or unwilling to participate, is there a reasonable chance that with some investments they or their children could participate in the future?

These are all important questions to consider when an economy is expanding rapidly since their answers determine whether the economic growth is in fact benefiting society. A good indicator of this is income disparity.

Figure 30 shows Census data on family income levels from 2000 and 2005 in real terms (removes the effects of inflation). These data show a dramatic increase in the percentage of families earning \$150,000 while only two income brackets below \$125,000 have an increased percentage of families. This means that in the NWT, there has been a strong *collective* increase in financial wealth and that all of society appears to be benefiting.

Figure 30



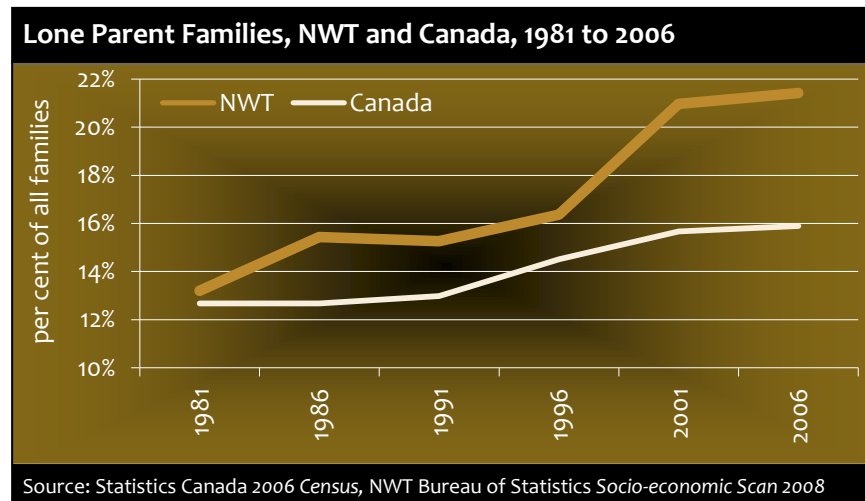
Family

Another social performance indicator that is watched closely in the NWT is the number of lone parent families. The long-term trend across Canada has been upward, in particular, starting in the early 1990s. The NWT has consistently shown a higher rate than the country’s average, and the period 1996 to 2001 marks a clear increase in the number of occurrences (see Figure 31).

The question must be asked whether the rise in lone parent families is a result of increased family stresses for which the root cause could be any number or combination of events including modernisation and the employment schedule at the diamond mines, or because of increased financial security that has afforded people and families living in untenable relationships the freedom to live on their own. It is important to understand that there can be many factors that

influence social outcomes and that in many cases whether the outcome is viewed positively or negatively depends entirely on the situation. This does not mean the measure on family well-being should not be considered, or that the higher rate of lone parent families in the NWT should not be a concern. The indicator does point to underlying family problems and in all likelihood an increase in the stress under which children are living.

Figure 31



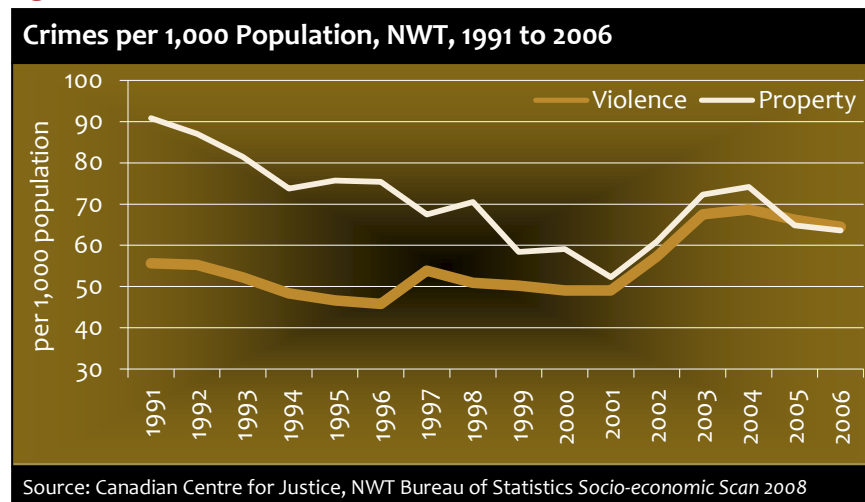
Safety and Security

A society's safety is a fundamental requirement for a high and sustainable quality of life. People have the right to feel secure in their home and in their community. For a period from 2001 to 2004, the number of crimes across the NWT was rising. This led many to conclude that it was the result of the diamond mines and the increased wealth that is was creating. The idea that increased prosperity is the root cause of higher crime rates does not have much statistical backing. To date, most analyses searching for this relationship have not found anything other than anecdotal evidence.

In the last two years for which data are available, overall crime rates have returned to their 1999 levels (see Figure 32). Crime in the NWT remains well above the national rate and violent crime is still high in comparison to previous peaks throughout the 1990s. For this reason, one must conclude there is a safety and security issue within the Territory. However, this issue is one that persisted long before the arrival of the diamond industry and therefore it is difficult to direct too much blame in its direction.

It is reasonable to speculate that the adjustment of newcomers to the workforce did create tensions that had consequences to those individuals, their families and communities. In fact, these early results were anticipated by the mine operators and were stated for the record as a part of their agreements with the Government of the Northwest Territories. Over time, it would be reasonable to expect the number of issues to decline as the NWT workforce becomes more accustomed to the impacts of work life.

Figure 32



Socio-Economic Impacts on Aboriginal Communities

Background

The NWT diamond industry has brought tremendous change to Aboriginal communities in the NWT through its agreements to employ Aboriginal labour and businesses and its contributions to Aboriginal community well-being.

- BHP-Billiton entered into individual “Impact and Benefit Agreements” with the Dogrib Treaty 11 Council, Akaitcho Treaty 8, the North Slave Metis Alliance and the Inuit of Kugluktuk.
- Rio Tinto signed “Participation Agreements” with the Dogrib Treaty 11 Council, the Yellowknives Dene First Nation, the Lutsel K’e Dene Band, the Kitkmeot Inuit Association, and the North Slave Metis Alliance.

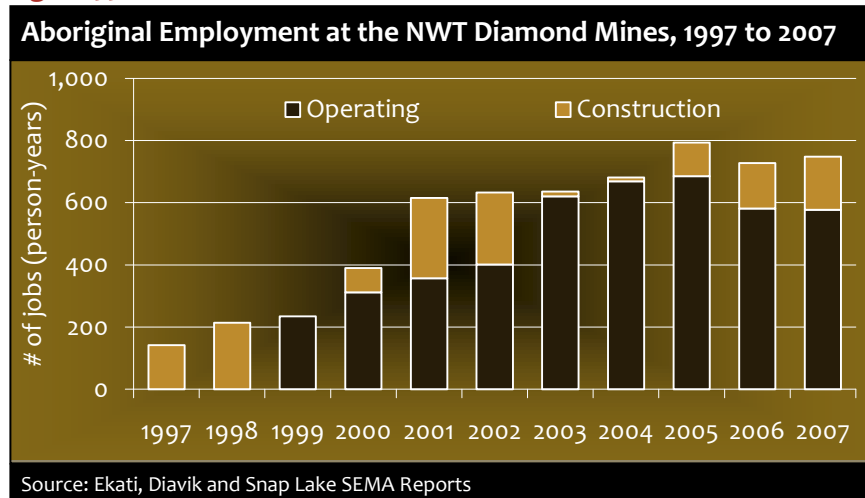
- De Beers Canada Inc. agreed to Impact and Benefit Agreements with four Aboriginal communities and governments close to their operations at Snap Lake.

These are confidential agreements that contain provisions for annual financial payments, employment and business opportunities, as well as training initiatives and scholarships. In addition, the three operators entered into Socio-Economic Agreements with the Government of the Northwest Territories that further commit the mine owners to hiring from within the local labour force and working with NWT-owned businesses.

Direct Involvement with the Diamond Mines

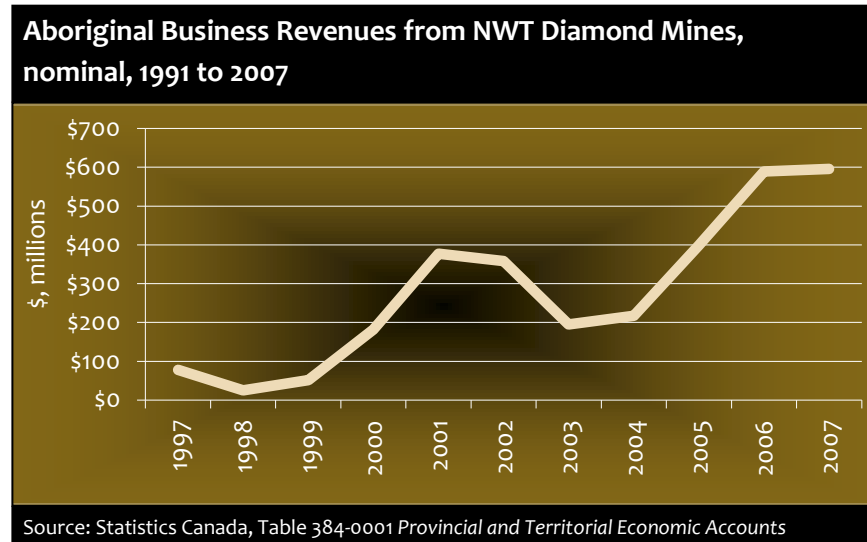
The direct impacts on NWT’s Aboriginal population generated by the mines were presented earlier. A summary here shows that at its peak, the NWT diamond industry brought almost 800 person-years worth of employment to Aboriginal people in the Territory (see Figure 33). This is a substantial figure in its own right, but is especially impressive considering a portion of these people live in remote or isolated communities and would otherwise have limited opportunities for employment. The NWT diamond industry has brought economic growth to these communities that serve as residential and administrative centres.

Figure 33



At the same time, Aboriginal business capacity has grown considerably as a result of the mines’ demand for goods and services. Gross revenues generated from contracts with the three mines approached \$600 million in 2006 and did so again in 2007 (see Figure 34).

Figure 34



The combination of increased participation in the NWT diamond industry and the rise in Aboriginal-based commercial enterprise is having a remarkable impact on the employment rate of Aboriginal people in the NWT (see Figure 36).

In the Tlicho communities, the rise in employment has had a dramatic impact on the region's total income and subsequently, the number of income support beneficiaries (see Figure 37). Total income has grown by more than 60 per cent since 2000 (and 113 per cent since 1996) while the number of income support beneficiaries has declined by almost 50 per cent over the same time period.

Figure 35

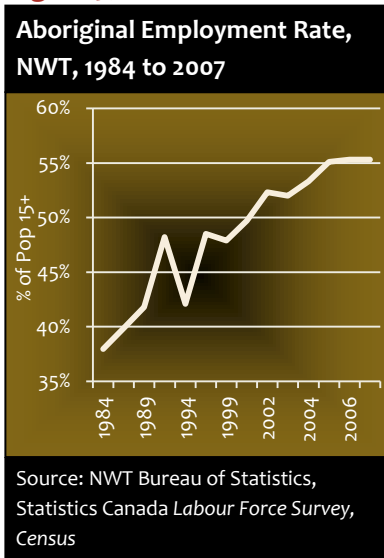
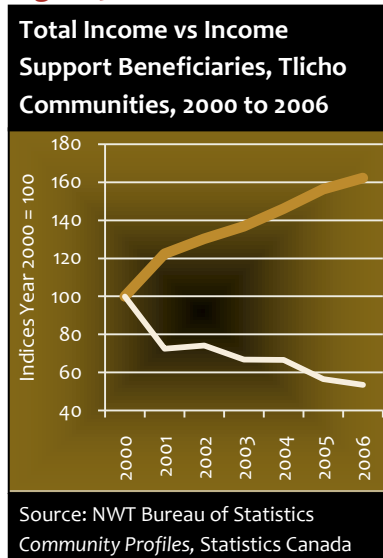


Figure 36



Growing Changes in Aboriginal Communities

Knowing that Aboriginal people are finding success at the diamond mines through employment and business contracts is an important outcome in itself, but tells only part of the overall story of change that is taking place in the impacted Aboriginal communities. The improved standard of living through greater participation coupled with increased productivity and enhanced economic security is and will continue to have substantive impacts on Aboriginal well-being.

Through greater financial wealth, individuals, families and communities can improve upon their socio-economic position because it offers increased economic, social and political freedom; that is, financial wealth provides people the opportunity to make choices. For example, through participation in a vibrant economy, the number and variety of commercial choices that are accessible improves—an increased number and variety of goods and services become affordable. Greater financial wealth provides the means to improve one's health and education. It offers the choice to spend now or save for the future. And for some, new financial wealth offers the freedom of mobility. It should be noted that in the absence of a vibrant economy, people have little real freedom since their choices are restricted and in some instances, non-existent.

The NWT diamond industry cannot direct the expenditures of its employees or its contractors and therefore is only partially responsible for many socio-economic outcomes in the Territory. What it can and does do, however, is provide the means in which these freedoms of choice are available to the Territory. Much of the social and economic statistical evidence from the Northwest Territories suggests that the local population are using these proceeds from the NWT diamond industry to improve their personal and collective well-being.

Summary of Results

The rise of the NWT diamond industry has been a boon to the northern economy and to northerner's prosperity and well-being. It goes without saying that without the discovery of diamonds and the subsequent development of the diamond industry, the NWT economy would be half the size it is today and one could speculate that the population would be on the decline along with the general welfare of the enduring population.

In the ten years since the Ekati diamond mine first began production the number of direct, full-time equivalent jobs for northerners has risen steadily, and reached a peak of 1,600 in 2006. When including the indirect and induced impacts of the industry, the number of jobs created as a result of the NWT diamond industry has grown beyond 2,000. Meanwhile, the total value of goods and services produced in the Territory has increased twofold and will increase further when the Snap Lake diamond mine reaches full production.

In this report, the results of the NWT diamond industry's activities were viewed through its direct contribution to employment and capital expenditures and through the subsequent rise in socio-economic performance of NWT residents, both Aboriginal and non-Aboriginal. The collective actions of the industry are reaching an ever increasing number of local people, bringing them the benefits of economic growth. As a result, important economic and social objectives are being reached while the freedoms associated with a greater number and variety of choices continues to grow.