# Report on the Demographic Situation in Canadian Armed Forces*

Adjust policies based on trends across groups

George Zhiqi Chen

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**Abstract**

In this paper, I study and introduce the demographic information and composition within the Canadian Armed Forces. The report uses several data sets from the open government-military personnel report to analyze several major aspects and trends of the military population and the policy issues behind it. These aspects are the total population, attrition rate, English and French population, educational level, and social groups. The army can use these findings to implement more effective policies to support the development of various groups in the army.

**Keywords:** Canadian Army, Demography, Conscription, Education, Attrition, Bilingual, Social Group

## 1 Introduction

The Canadian Armed Forces is one of the most diverse in the world. People of all backgrounds can find opportunities and succeed in the Canadian Armed Forces. Understanding the Canadian Armed Forces structure is very important for the development of the military. This paper will use several sets of data collected from the Military personnel report of the open government to introduce the demographic information and development trend within the military, and analyze the reasons for the trend. It is mainly divided into five aspects: the total population, the attrition rate , the English and French population, the educational level, and social groups. The paper is organized into several parts.First, in the data section, I discussed the acquisition and cleaning of each group of data, as well as the content and details of each group of data. After that, I also gave an overview of data variables, and then introduced how I can visualize the data.In the results section, I will analyze the information and trends reflected in each graphs and table, and compare different data in the same data group. Then, in the discussion part, I summarize the aspects represented by each set of data, and introduce and analyze the factors and background stories in the trend. Finally, I will review some previous work and discuss the limitations and suggestions of this paper in data selection and topic positioning.

## 2 Data

I used R (R Core Team 2019), the tidyverse package (Wickham et al. 2019), the ggplot2 package (Wickham2016), and the knitr package (Xie 2019) (Xie 2015) (Xie 2014) to analyze the data and make plots and tables. Also, I made a data sheet explaining the data information in detail based on this paper (Gebru, n.d.).

*Code and data are available at: LINK.

To better understand the demographic composition of the Canadian Armed Forces, I extracted six datasets from the Canadian Armed Forces and Personnel Departments that focus on different aspects, namely, "Number of Regular Forces 1997-2020" (Canada 2019), "Number of Attritions in the Army 1997" -2020" (Canada 2019), "Proportion of English and French speaker in the Army 1997-2020" (Canada, 2019) "Proportion of Social Groups in the Army" (Canada 2020), "Education level for officers 1997-2018" (Canada 2019), "Education level for non-commissioned member 1997-2018" (Canada, 2019). The dataset used for this report was downloaded from the website Open government, a public government repository where people can share various data from the government. These datasets are all from the Canadian Armed Forces, and there are similar datasets available but with a different focus. Different datasets focus on different aspects, with the purpose of the "Number of Regular Forces 1997-2020 dataset"to collect data on troop strength trends from 1997 to 2020 to monitor changes in service in the Canadian Armed Forces over time. The purpose of the "Number of Attritions in the Army 1997-2020" is to "collect data on troop attrition trends from 1997 to 2020 to monitor combat and non-combat attrition of the Canadian Forces over time. The purpose of the"Proportion of English and French speaker in the Army 1997-2020" is "to collect data on trends in English and French speaker numbers within the armed forces from 1997 to 2020 to monitor the linguistic distribution of the Canadian armed forces. The purpose of the"Proportion of Social Groups in the Army" is to "collect data on the participation of social groups within the armed forces to date to monitor the structure of the Canadian armed forces. The purpose of the data on educational levels within the armed forces is to"collect trends in educational levels across ranks within the armed forces to monitor shifts in talent needs in the Canadian armed forces.

The "Number of Regular Forces 1997-2020 dataset" consists of 24 variables in each of three parts. The three parts are the officers and the NCMs and the Total. Variables mainly include the number of troops in each class per year. The attrition data consists of 24 variables in three parts. The three parts are the officers and the NCMs and the Total. Variables mainly include the number of layoffs at each level each year. The data on French and English speaker numbers in the military consists of 24 variables in each of four sections. The four sections are French officer French ncm and English Officer English ncm. Variables mainly include the number of French and English speakers at all levels each year. The data of the proportion of military social groups consists of four parts with three variables each. The four sections are women, ethnic minorities, aboriginal people and people with disabilities. The variables mainly include the proportion of each class. The data on military education level consists of 24 variables in each of five components. The four sections are masters and above, bachelors, college, high school and below high school. The variables consist mainly of the number of these qualifications per year.By analyzing these datas, we can help viewers understand the characteristics of the Canadian military and its demographic profile.

Thanks again to the R, I analyzed the data set and used several R packages to help visualize the data and clean up the raw data (R Core Team 2021). For the data cleansing process, the focus is on understanding the code used for the data and transforming it into an understandable form for better analysis, using the package Janitor to help examine and clean up the raw data (Firke 2021). I also changed and edited some names so that the R and GGplot functions could better arrange certain elements in the best order on the chart. To help draw the charts we need for our analysis, we use the R package GGplot2 to help efficiently build the charts (Wickham 2016). , we use it to help generate all charts and operational data sets (Wickham et al. 2019). In addition, we have applied readR packages to help load and read dirty and clean datasets for further data manipulation (Wickham, Hester, and Bryan 2022). In addition, software packages such as Knitr (Xie 2021b), Tinytex (Xie 2021C), and Bookdown (Xie 2021A) were used to enable R Markdown and output this article as a PDF. In order to visualize these data effectively and in detail, I have chosen to combine bar and line graphs to display different aspects of the data. I think doing each one separately is best for this task, since the main purpose of the graph is to show the total number of observations in each answer, and to illustrate clear trends.

## 2.1 Figure 1

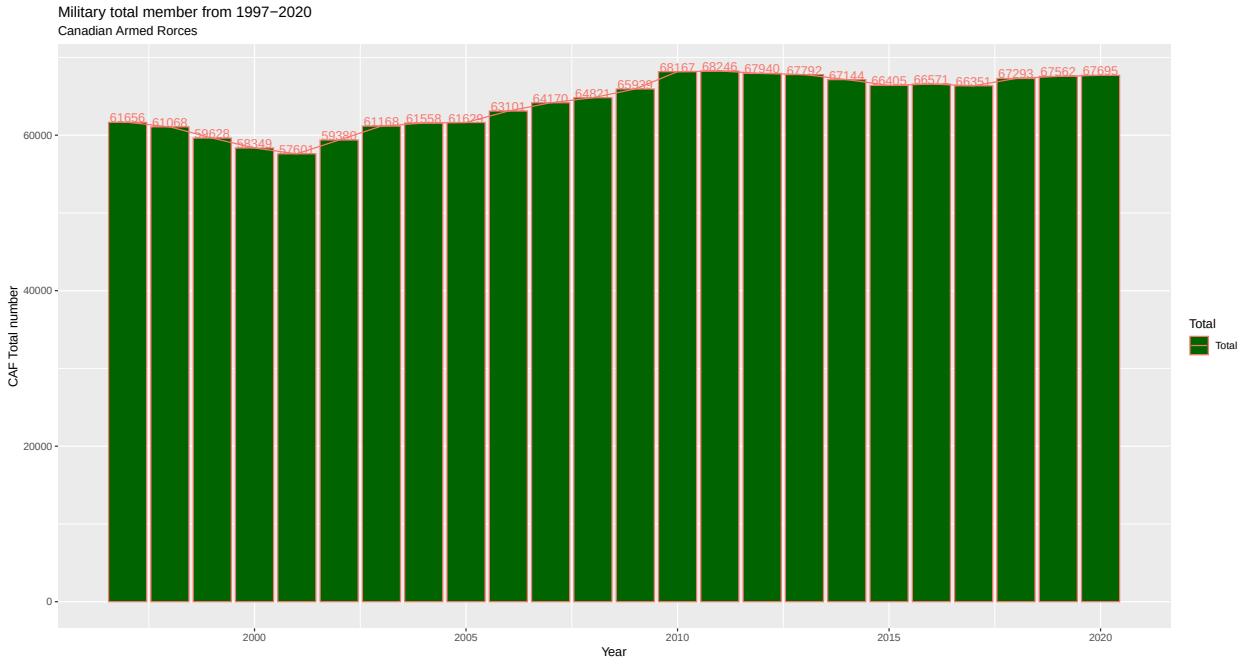


Figure 1 shows the total number of regular active military personnel from 1997 to 2020. Overall troop numbers have risen at a very slow pace since 2000, rising by only about 6,000 troops between 1997 and 2020. Military numbers are affected by a variety of factors, which we will discuss in the discussion section.

## 2.2 Figure 2

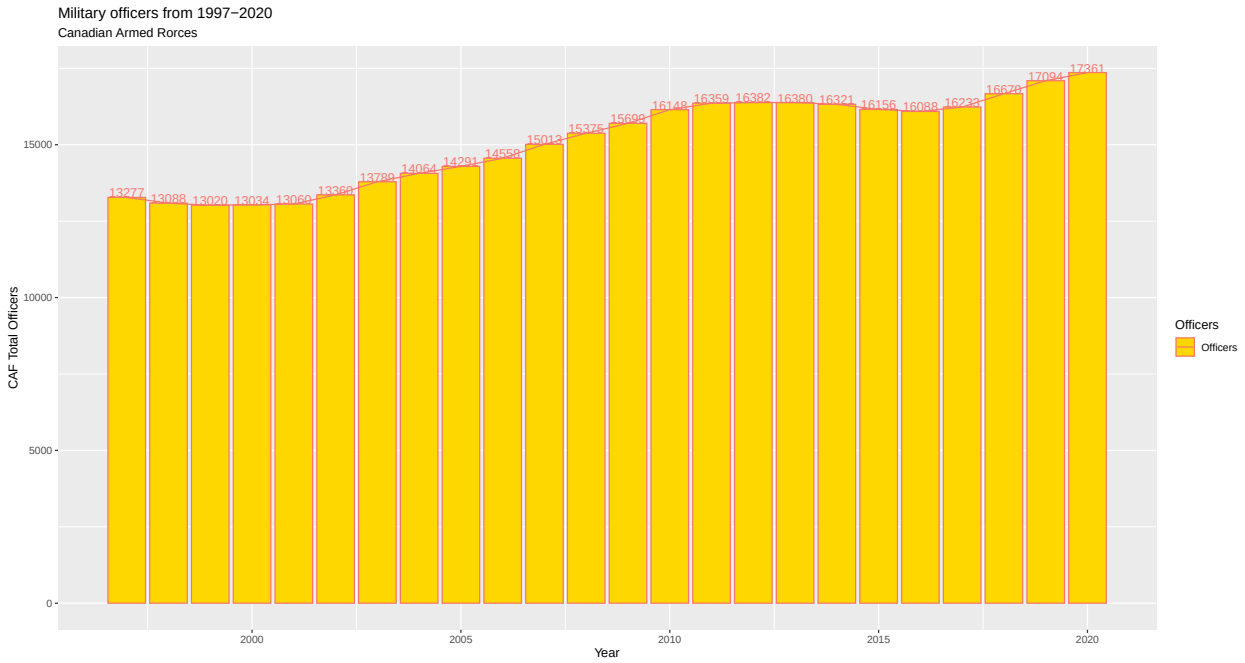


Figure 2 shows the total number of regular active Officers from 1997 to 2020.The overall number of officers was also affected by the reduction in 2000, but overall there has been a very clear trend upward. Officers are generally less affected by attrition, and we will discuss the reasons for this in the discussion section.

## 2.3 Figure 3

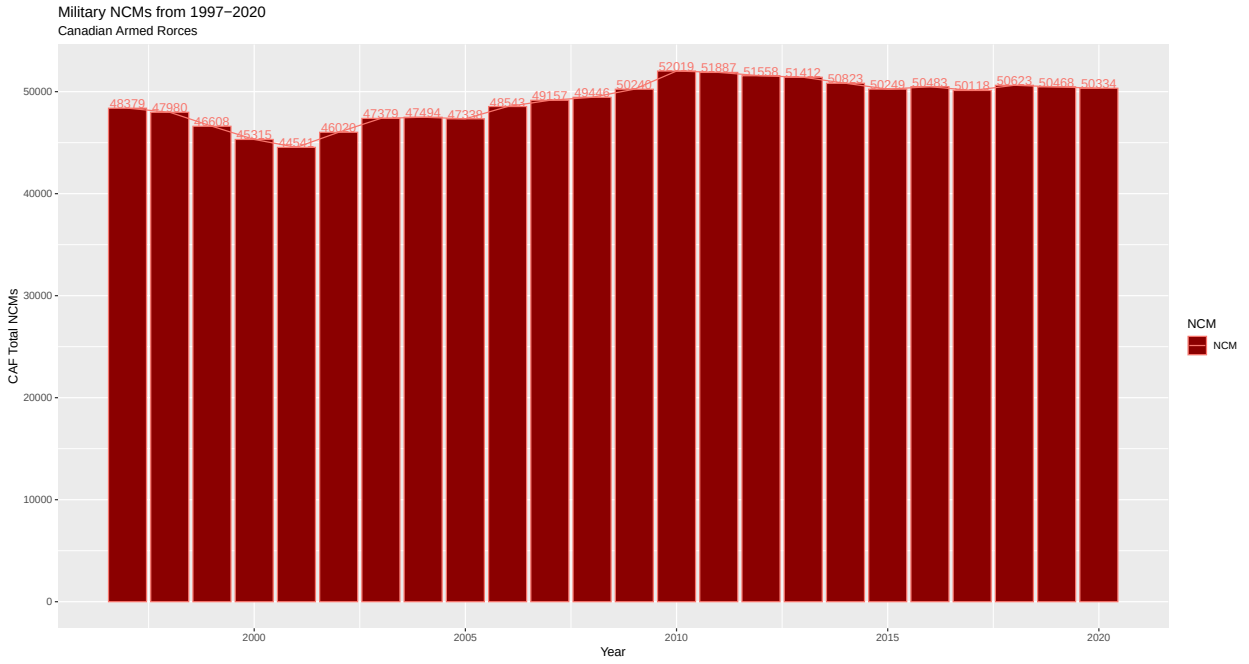


Figure 3 shows the trend of the total number of non-commissioned member from 1997 to 2020. The total number of non-commissioned member was also affected by the reduction in 2000, and it was the most affected group, showing a downward trend overall. Since 1997 it has increased by only about 2000 members, the causes and effects of which will be discussed later.

## 2.4 Figure 4

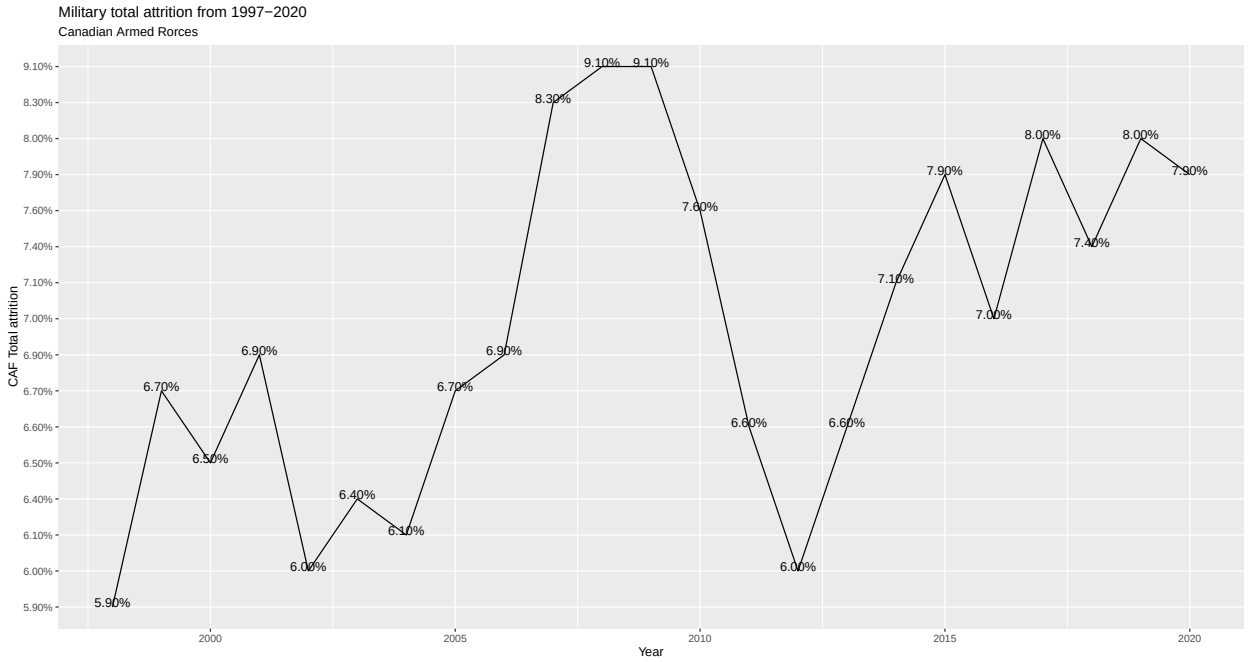


Figure 4 shows trends in the proportion of combat or non-combat attrition from 1997 to 2020. The overall number of redundancies was uneven, largely due to events at different times. For example, the peak years

in this chart, 2007-2009, were the years with the largest combined attrition, and the background coincided with the time when Canada was embroiled in the War in Afghanistan by American Allies. I will analyze it in the following part.

## 2.5 Figure 5

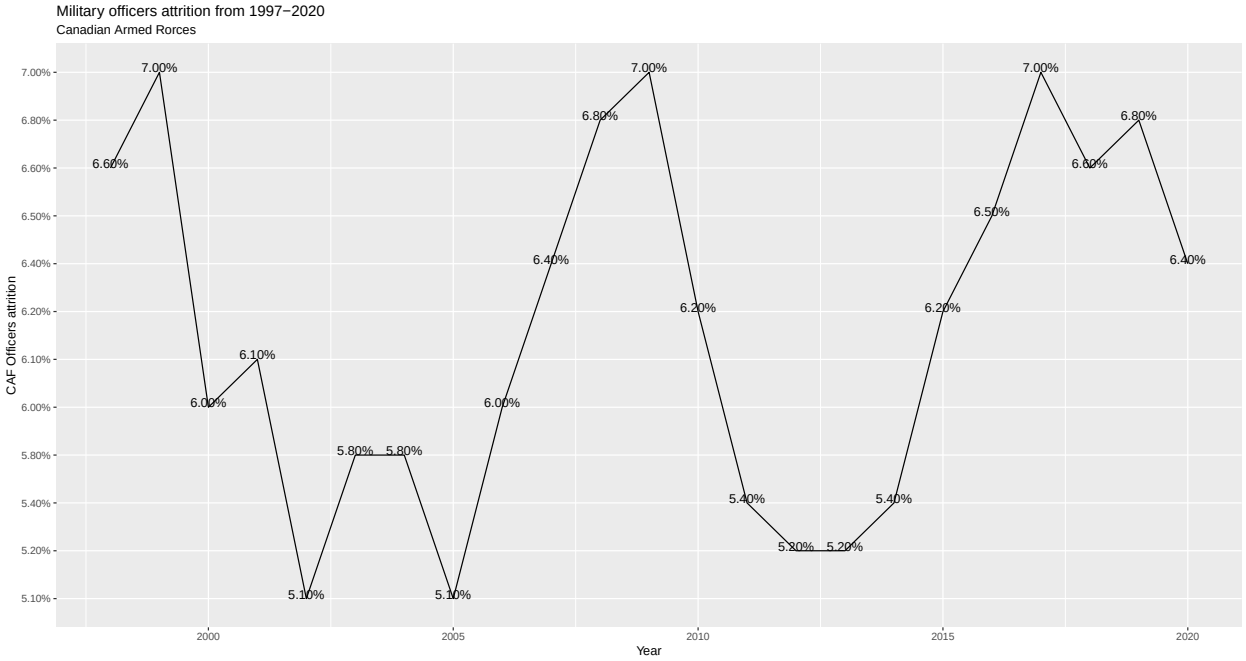


Figure 5 shows trends in the proportion of combat or non-combat officers attrition from 1997 to 2020. The overall number of redundancies was uneven too, largely due to events at different times. I will analyze it in the following part.

## 2.6 Figure 6

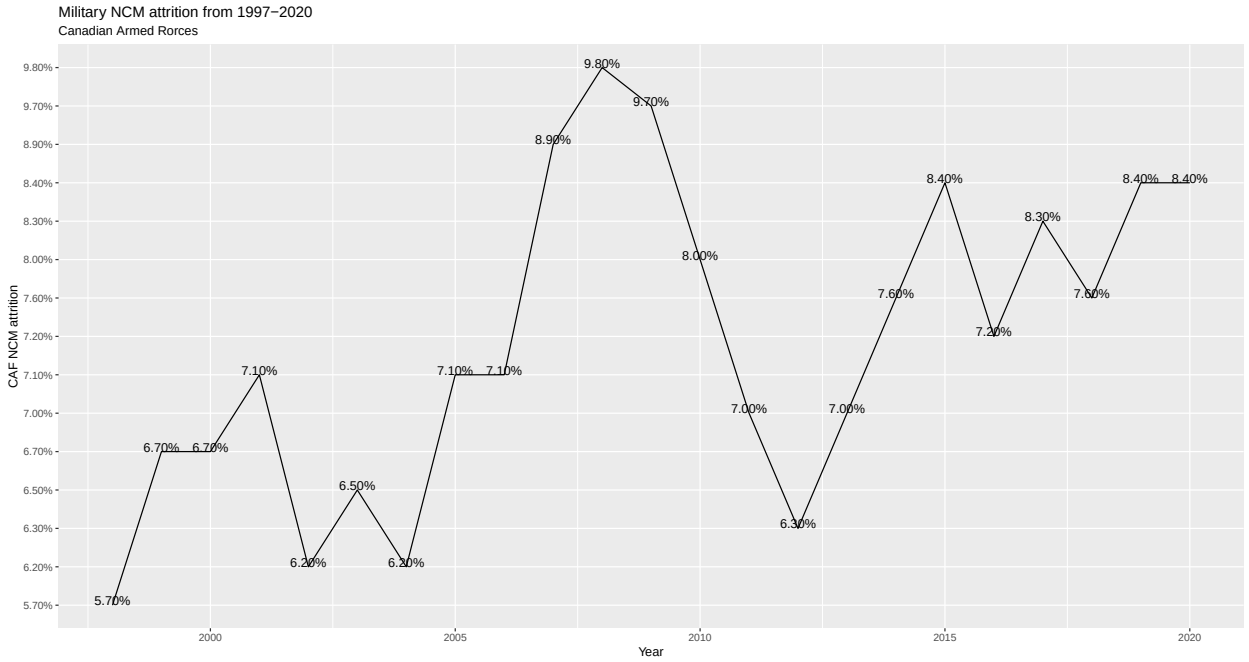


Figure 6 shows trends in the proportion of combat or non-combat NCM attrition from 1997 to 2020. The overall number of redundancies was uneven, largely due to events at different times. However, in line with our expectations, NCM accounts for a large proportion of the total attrition. I will analyze it in the following part.

## 2.7 Figure 7

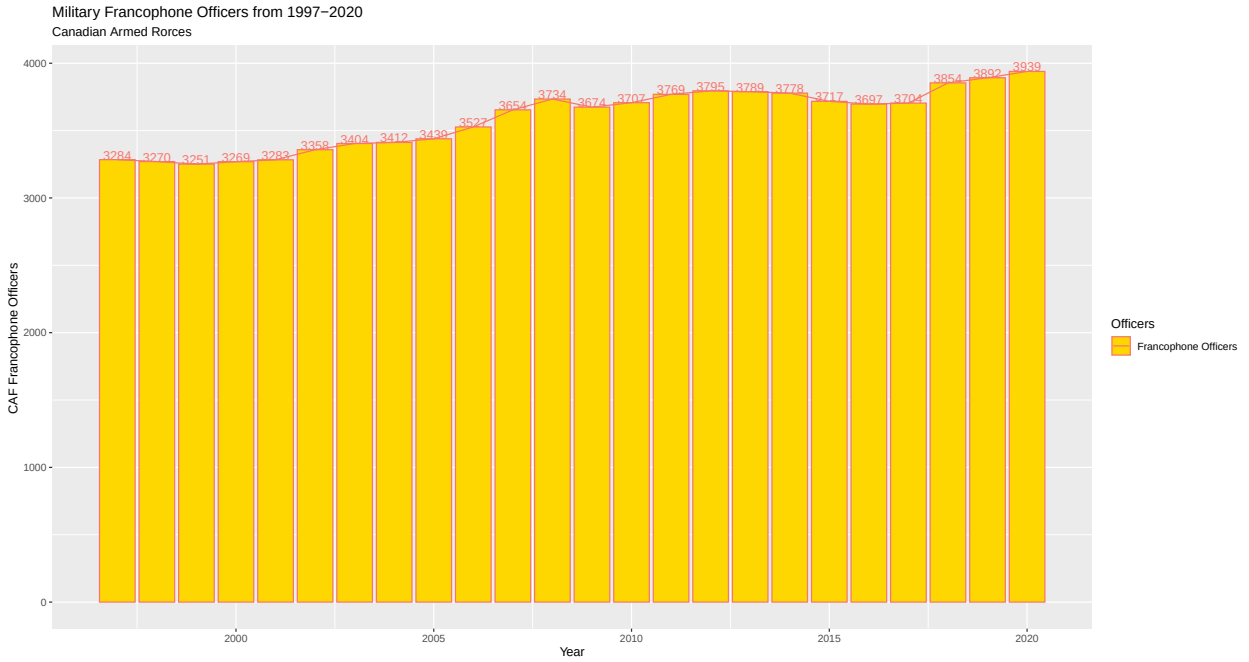


Figure 7 shows the total number of French-speaking officers in the Canadian Armed Forces from 1997 to 2020. Given the relatively small proportion of French speakers in Canada, the proportion of French speakers

in the army is relatively small. But the surprise is that the growth trend of the number of officers is very obvious, up to now by more than 300

## 2.8 Figure 8

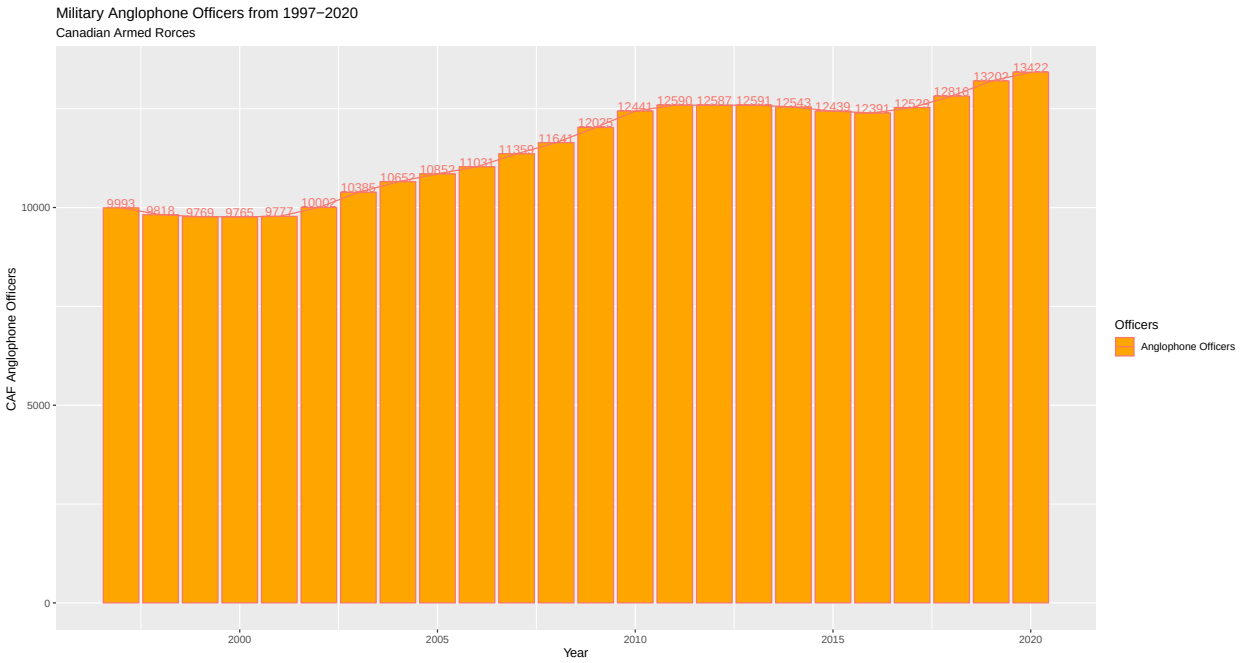


Figure 8 shows the total number of English-speaking officers in the Canadian Armed Forces from 1997 to 2020. As expected, English is the majority of the population, and the growth trend is very obvious.

## 2.9 Figure 9

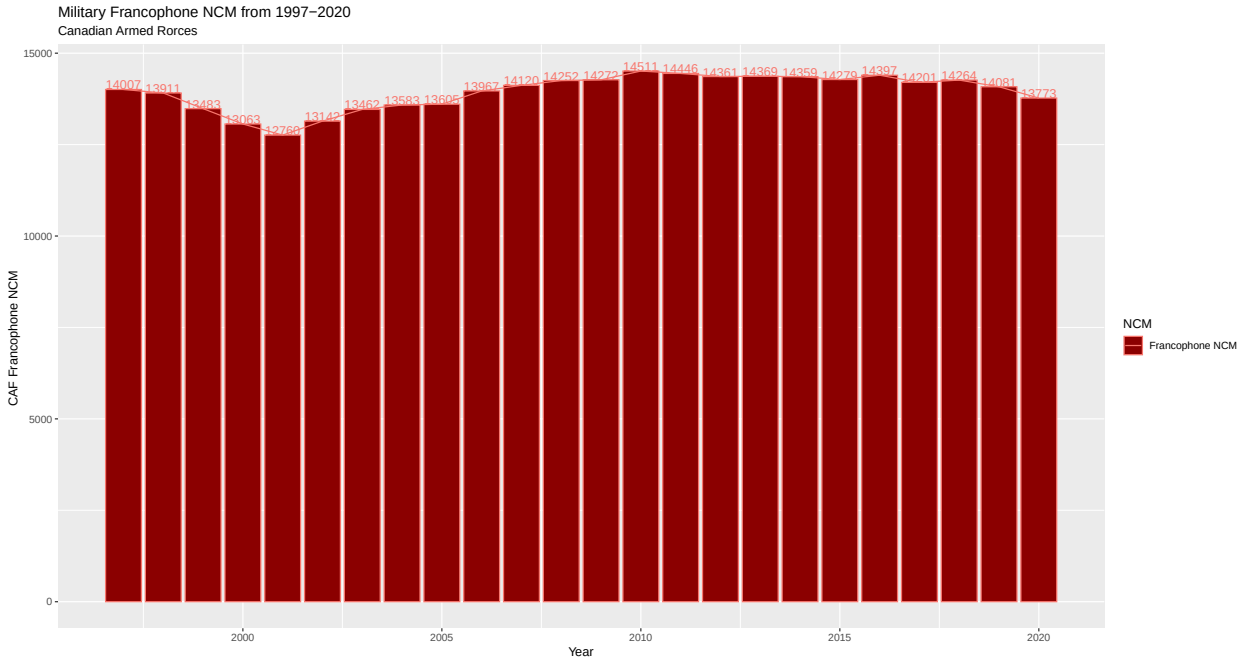


Figure 9 shows the total number of French-speaking NCM in the Canadian Armed Forces from 1997 to 2020. Given the relatively small proportion of French speakers in Canada, the proportion of French speakers in the army is relatively small. The overall trend of NCM is very flat and even, and there is even a trend of decline in 2020.

## 2.10 Figure 10

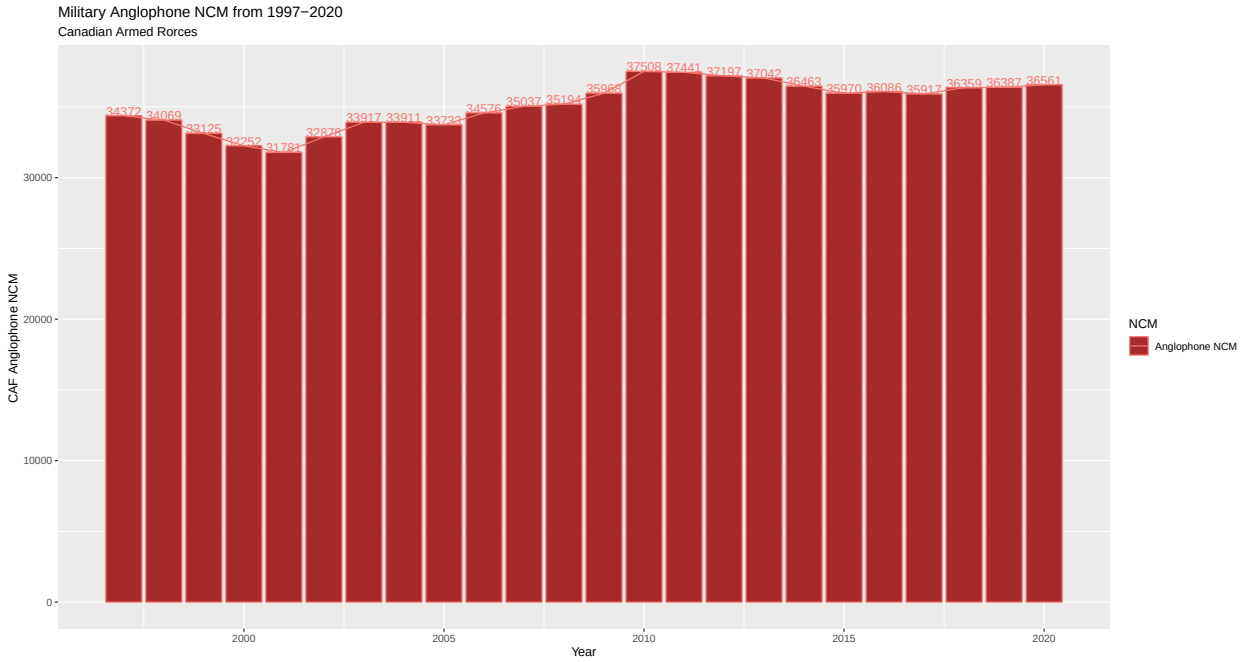


Figure 10 shows the total number of English-speaking officers in the Canadian Armed Forces from 1997 to 2020. As expected, English is the majority of the population, and the growth trend is very even and flat,

but there is a slight upward trend in 2020.

## 2.11 Figure 11

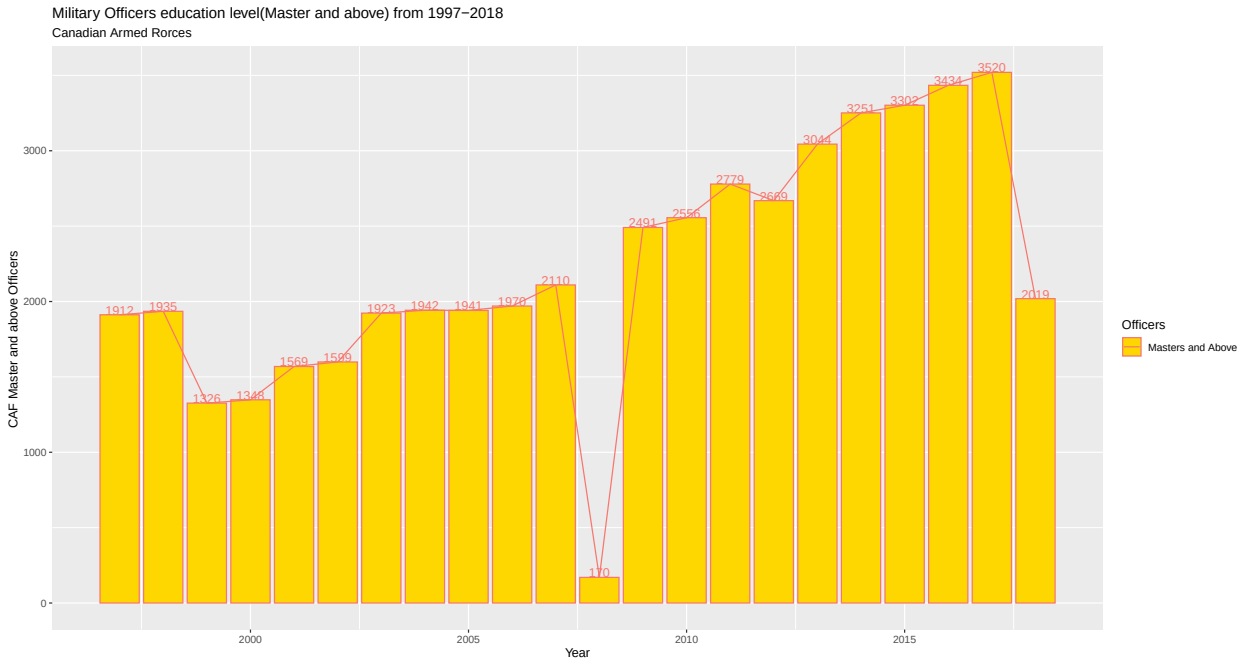


Figure 11 shows the development trend of CAF Officer's master and above education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-2018 and 2008.The outliers were simply a statistical error for that year.As can be seen from the above, the rising trend of master and above education is very obvious. The reasons and background will be discussed in a later section.

## 2.12 Figure 12

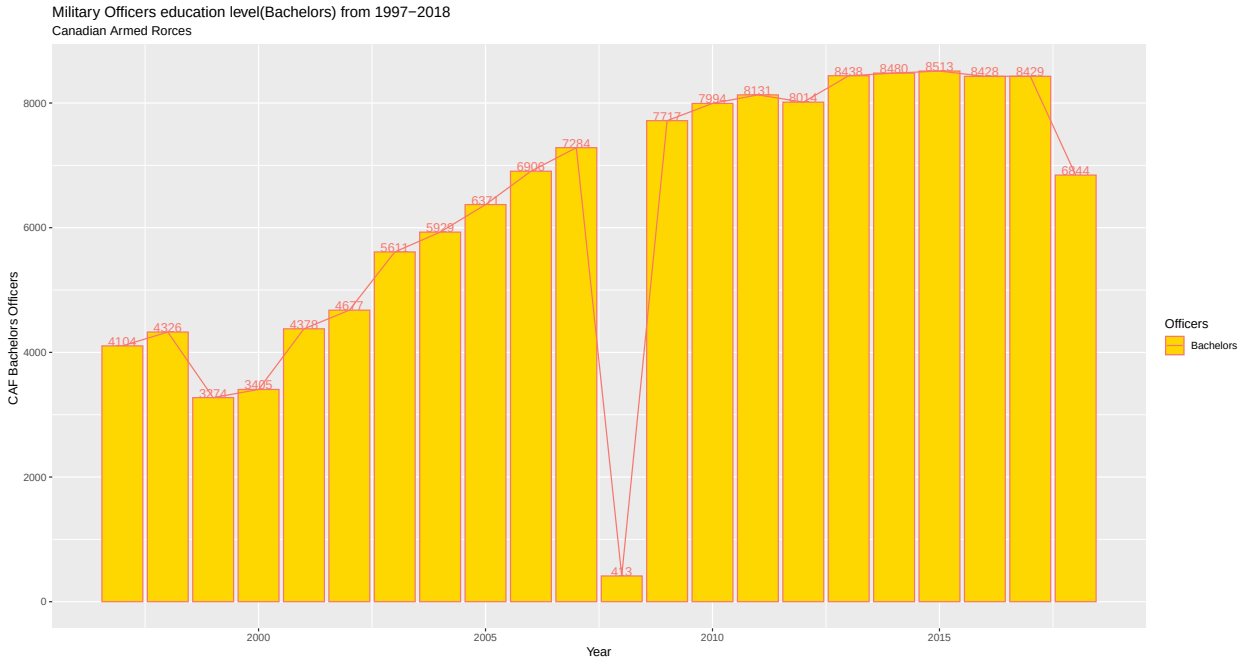


Figure 12 shows the development trend of CAF Officer's Bachelor education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-2018 and 2008.The outliers were simply a statistical error for that year.As can be seen from the above, the rising trend of bachelor is very obvious. The reasons and background will be discussed in a later section

## 2.13 Figure 13

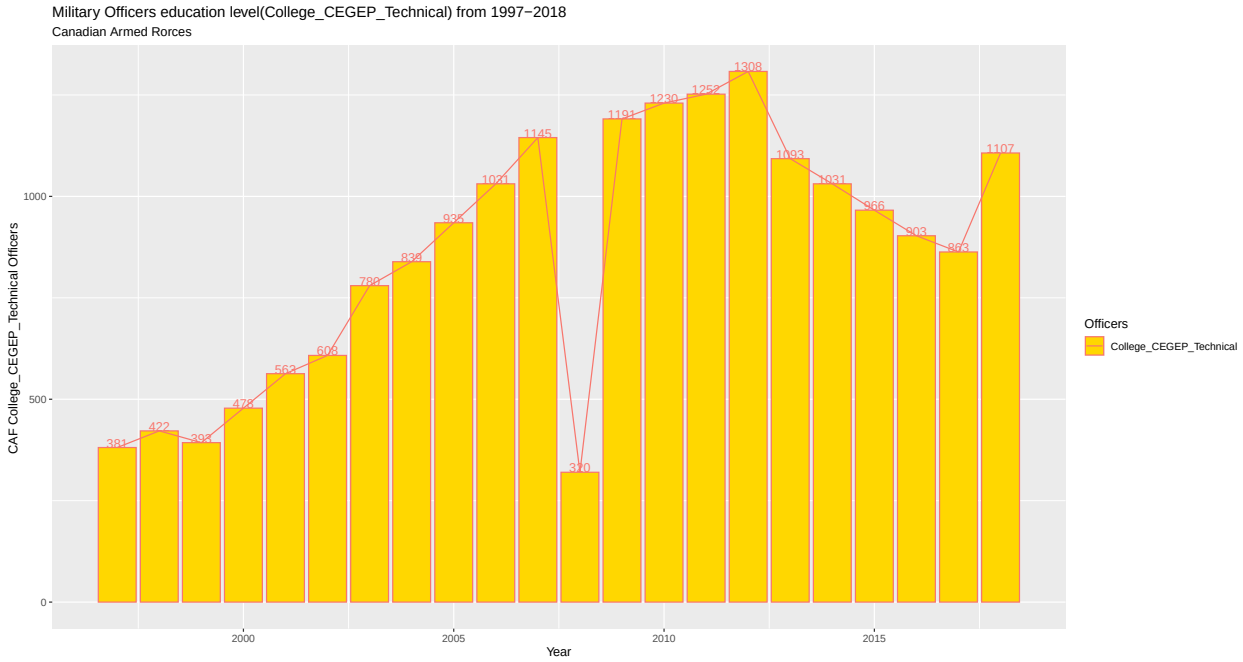


Figure 13 shows the development trend of CAF Officer's College_CEGEP_Technical education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-2018 and

2008.The outliers were simply a statistical error for that year.As can be seen from the above, the rising trend of College is very obvious from1997 to 2012, but suddenly decreased from 2013 to 2017. The reasons and background will be discussed in a later section.

## 2.14 Figure 14

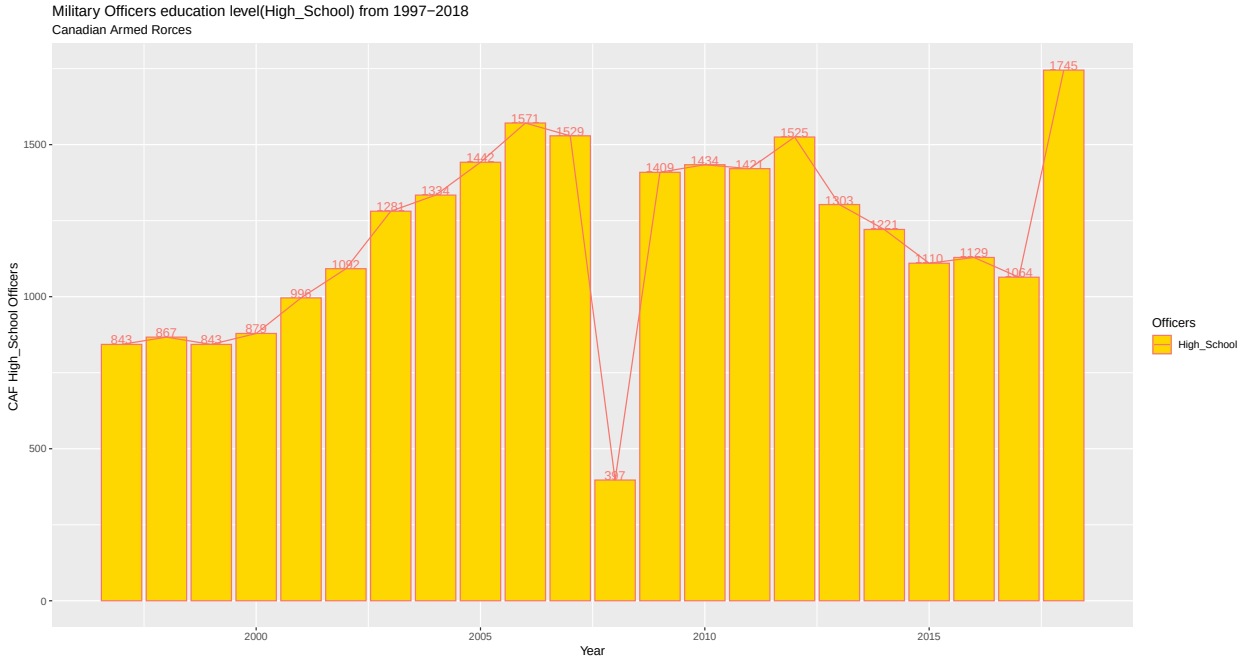


Figure 14 shows the development trend of CAF Officer's High school education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-2018 and 2008.The outliers were simply a statistical error for that year.As can be seen from the above, the rising trend of high school is very obvious from 1997 to 2006, but gradually decreased from 2013 to 2017. The reasons and background will be discussed in a later section.

## 2.15 Figure 15

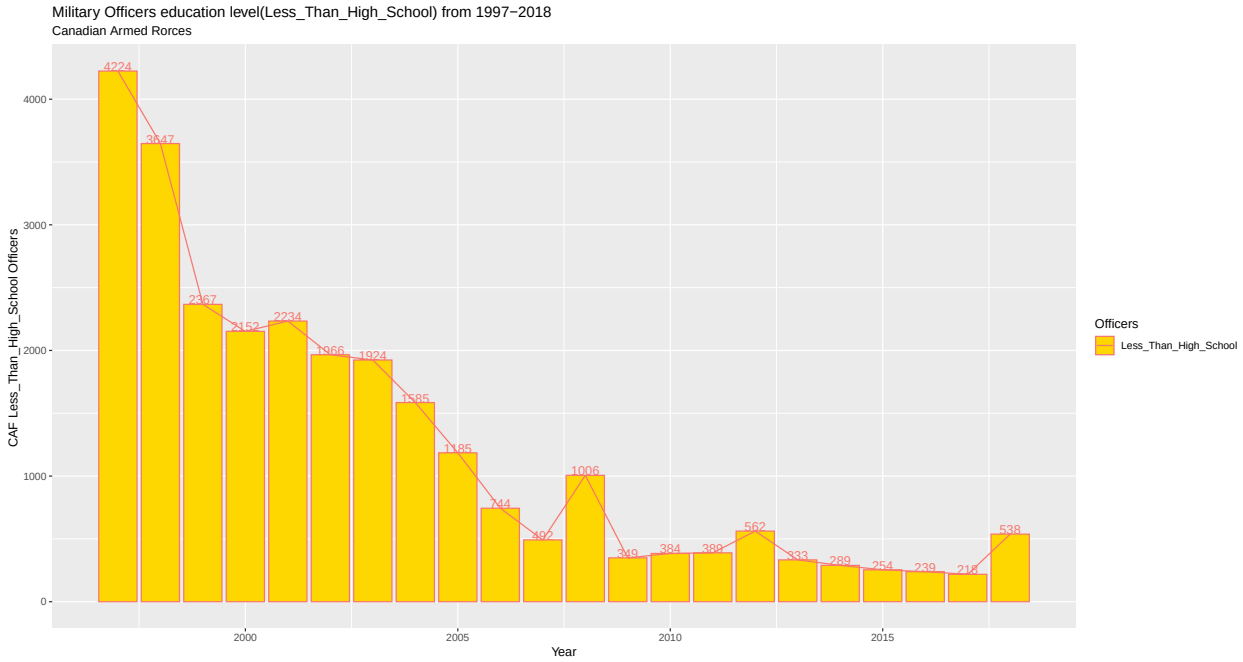


Figure 15 shows the development trend of CAF Officer's Less than High school education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-2018 and 2008.The outliers were simply a statistical error for that year.As can be seen from the above, the decreasing trend of Less than high school eduacation is very obvious from 1997 to 2018, The reasons and background will be discussed in a later section

## 2.16 Figure 16

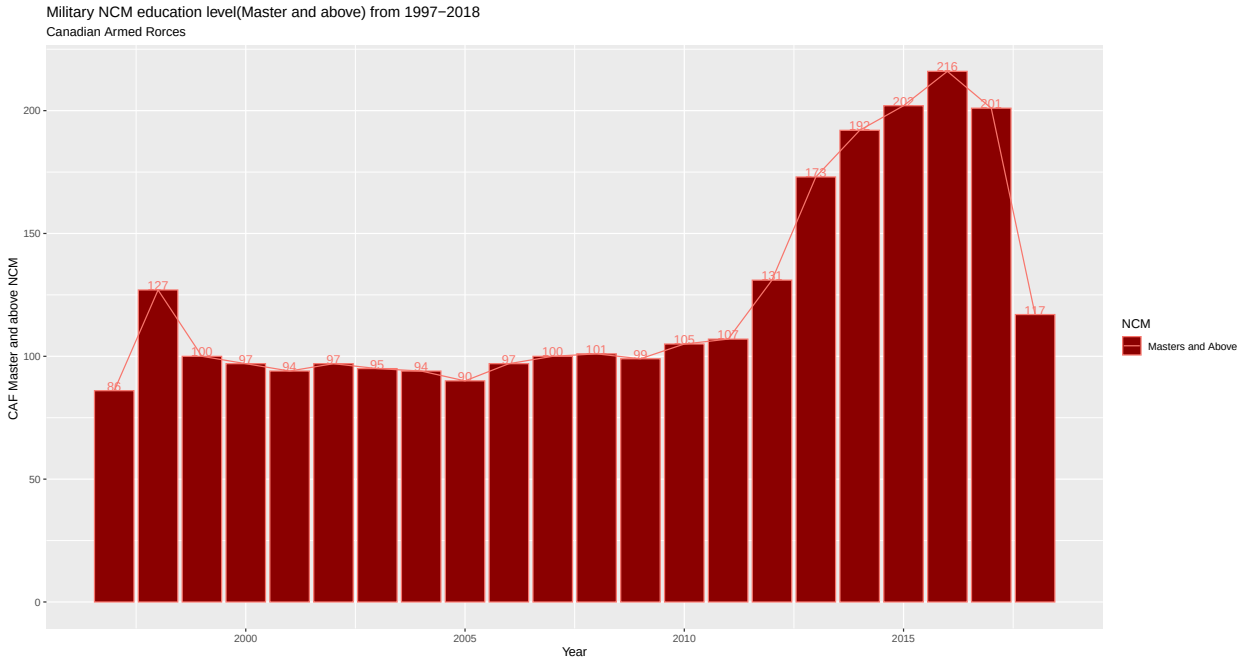


Figure 16 shows the development trend of CAF NCM's master and above education from 1997 to 2018.

Because I combined the bar graph with the line graph, so I still keep the two outlier-1998 and 2018.The outliers were simply a small statistical error for that year.As can be seen from the above, the rising trend of master and above education is very obvious at 2012-2017. The reasons and background will be discussed in a later section.

## 2.17 Figure 17

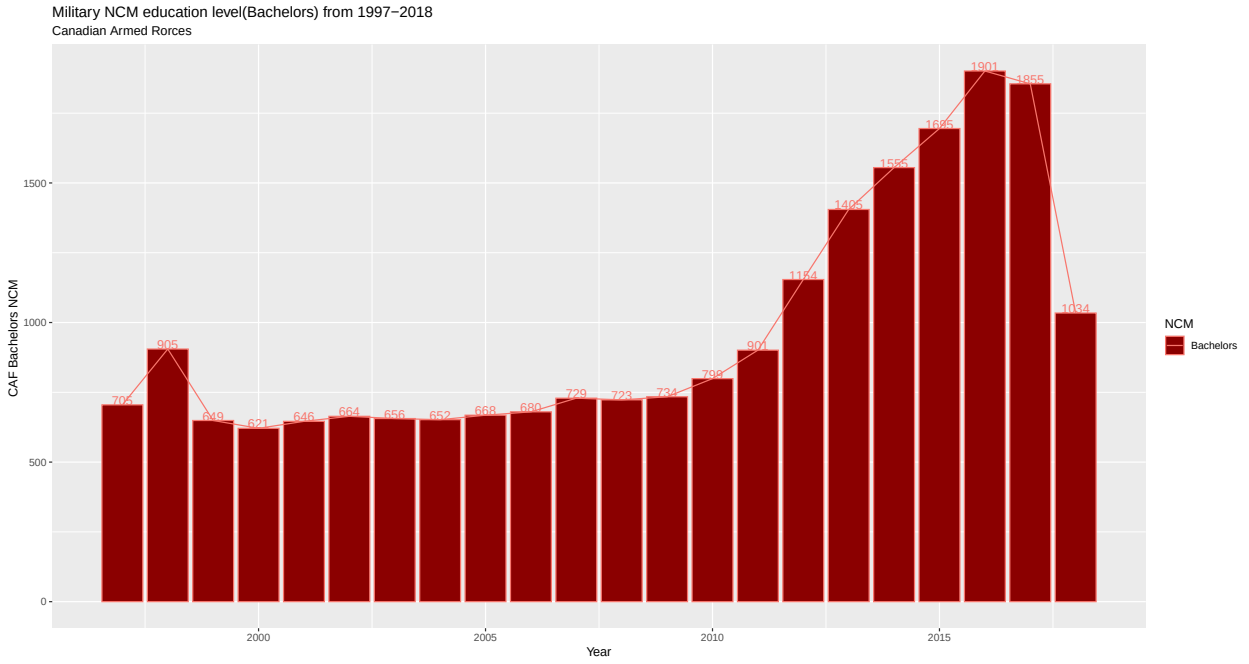


Figure 17 shows the development trend of CAF NCM's Bachelors education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-1998 and 2018.The outliers were simply a small statistical error for that year.As can be seen from the above, the rising trend of Bachelors is very obvious at 2010-2017. The reasons and background will be discussed in a later section.

## 2.18 Figure 18

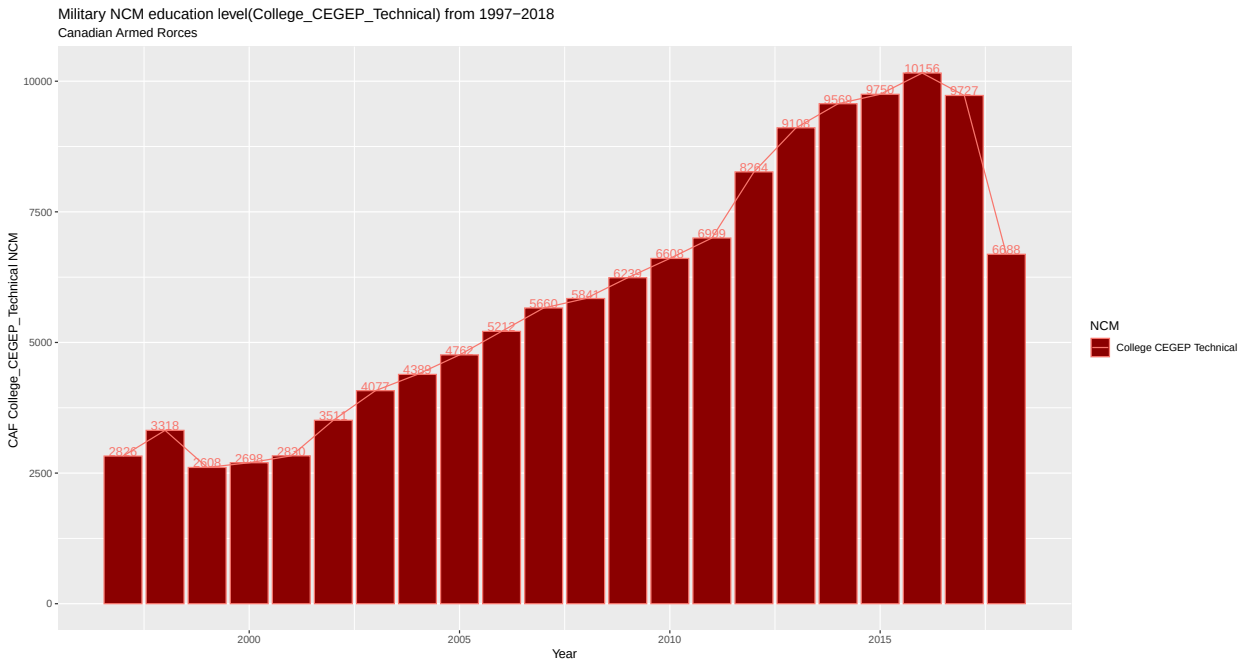


Figure 18 shows the development trend of CAF NCM's College CEGEP Technical education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-1998 and 2018.The outliers were simply a small statistical error for that year.As can be seen from the above, the rising trend of College CEGEP Technical education is very obvious at 2000-2016. The reasons and background will be discussed in a later section.

## 2.19 Figure 19

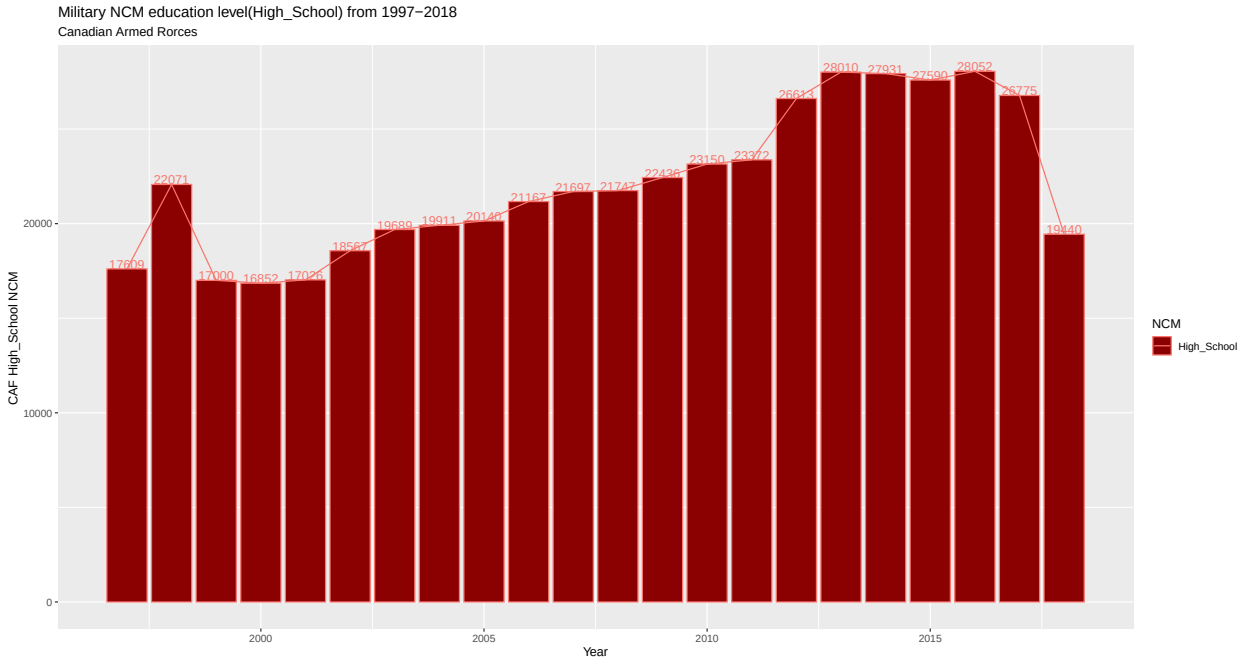


Figure 19 shows the development trend of CAF NCM's High school education from 1997 to 2018. Because I

combined the bar graph with the line graph, so I still keep the two outlier-1998 and 2018.The outliers were simply a small statistical error for that year.As can be seen from the above, the rising trend of high school education is very obvious at 2001-2016. The reasons and background will be discussed in a later section.

## 2.20 Figure 20

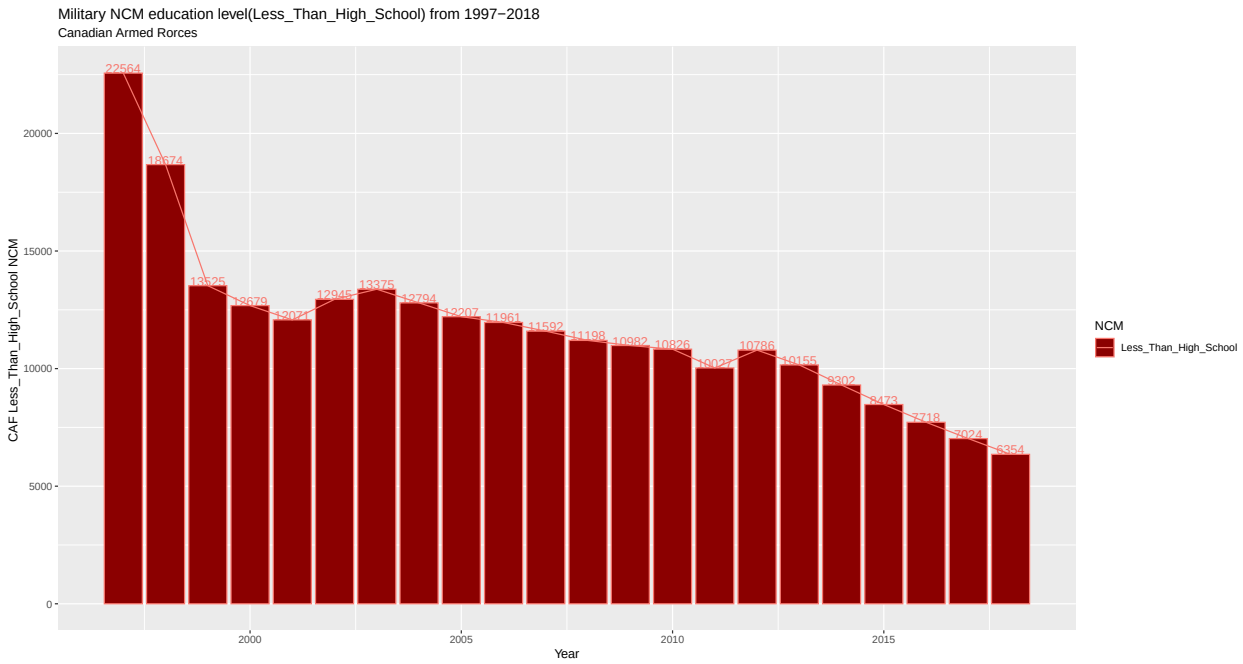


Figure 20 shows the development trend of CAF NCM's Less than High school education from 1997 to 2018. Because I combined the bar graph with the line graph, so I still keep the two outlier-1998 and 2018.The outliers were simply a small statistical error for that year.As can be seen from the above, the rising trend of less than high school education is very obvious at 1997-2018. The reasons and background will be discussed in a later section.

| Group | Officers | NCM | Total |
|---|---|---|---|
| Women | 19.80% | 14.40% | 15.80% |
| Aboriginal People | 1.90% | 3.20% | 2.90% |
| Visible Minorities | 12.80% | 7.40% | 8.80% |
| Persons with Disabilities | 0.80% | 1.40% | 1.30% |

### 2.21 Table 21

Table 21 shows the proportion of different social groups in the CAF by rank so far.Discussion and analysis will be conducted in the following sections

## 3 Results

The results of my analysis show the overall picture of Canadian military characteristics and demographics. Different data sets give us different insights into the structure of the military. These charts help viewers understand the demographics of Canada. I'll start with different data sets.

1. "Number of Regular Forces 1997-2020" Specifically, Figures 1 through 3 belong to this data set. Figure 1 shows the total number of servicemen in the army from 1997 to 2020. It can be seen from the Figure that the overall trend is very flat, with very little increase and even a tendency to reverse in 2020. Figure2 shows the total number of military officers serving in the army from 1997 to 2020. It can be seen from the line graph that the growth of military officers is large and has been on an upward trend, and the demand for military officers is gradually increasing. Figure 3 shows how many non-commissioned members have served in the army from 1997 to 2020. It can be seen from the line graph that the growth rate of non-commissioned officers is very close to the growth of the total number of non-commissioned officers. After all, the proportion of non-commissioned officers is large and has been showing a gentle trend, but recently there has been a tendency to decrease, and the demand for non-commissioned officers has been saturated.

2. "Number of Attritions in the Army 1997" -2020" Figures 4 through 6 are part of this data set, which includes all combat and non-combat attrition from 1997 to 2020. Figure 4 shows the total number of redundancies in the army from 1997 to 2020. From the Figure, it can be seen that the overall trend is uneven, with the data varying greatly from year to year, but the trend is consistent from 2005 to 2012. Since 2015, the number of redundancies has reached a new high, and there is no downward trend in recent years. Figure 5 shows the total number of officers reduced in the army from 1997 to 2020. It can be seen from the line graph that the development range of officers is very large, with the overall shape of "W". At the beginning, the attrition rate of officers was very large, and it has maintained a similar rate until now. Figure 6 shows the total number of non-commissioned officers lost in the army from 1997 to 2020. Again, through the line graph, it can be understand in the growth of petty officer is very close to the total number of growth, after all, ratio of petty officer was very large, and petty officer attrition rate is much higher than the officer, vary widely between each year data, but in 2005 to 2012, there are rules to follow, since 2015, the number of workers reached new highs, and there is no downward trend in recent years

3. "Proportion of English and French speaker in the Army 1997-2020" Figures 7 through 10 are part of this data set, which includes all English and French speakers in CAF. Figure 7 shows the service status of French and English speaking groups in the army from 1997 to 2020. It can be seen from Figure 7 that the French speaking officers in the army generally showed a gentle increase trend. Considering the small proportion of French speaking groups, the number of French speaking officers in the army was relatively small, but it still increased by about 3,000 from 1997 to now. Figure 8 shows the total number of English officers serving in the Army from 1997 to 2020. It can be seen from the line graph that there is a large increase in the number of Officers, and the demand for English officers is gradually

increasing. Figure 9 shows the total number of French NCM in the army from 1997 to 2020. It can be seen from the line graph that the growth of French NCM grew slowly from 2001 and reached a new high in 2010. After that, however, there was a slow decline trend, but the demand for French NCM was generally very flat, and the demand for French NCM was saturated. Figure 10 shows the total number of English NCM in the army from 1997 to 2020. It can be seen from the Figure that the development of English NCM is similar to that of French NCM, which has been growing slowly since 2001 and reached a new high in 2010. The difference is that in the late period to maintain a weak trend of rising. On the whole, it is still very flat, and the demand for English NCM is saturated.

4. "Education level for officers 1997-2018" Figures 11 through 15 are part of this data set, which includes trends in officer education levels within the Armed Forces, 1997-2018. Figure 11 shows the number of officers with master's degrees or above from 1997 to 2018. It can be seen that the trend of master's degrees or above has been increasing rapidly, and the increase has reached twice as much as in the past. Figure 12 (Figure 12) shows the number of bachelor degrees of military officers from 1997 to 2018, from which it can be seen that the bachelor degrees also showed a trend of rapid increase and accounted for a larger proportion. After 2013, the bachelor degrees reached the saturation state, and the increase has reached twice as much as that in 1997. Figure 13 shows the number of officers with college degrees from 1997 to 2018. It can be seen that college degrees also showed a trend of rapid increase from 1997 to 2006, but it declined rapidly and reached saturation state from 2013 to 2017, and it also accounted for a smaller proportion in the officer group. Figure 14 shows the number of high school graduates of military officers from 1997 to 2018. It can be seen that the high school diploma is similar to the college diploma, which also showed a trend of rapid increase from 1997 to 2006. However, it declined rapidly from 2010 to now, and it also accounted for a smaller proportion in the military officer group. Figure 15 shows the number of officers below high school from 1997 to 2018, from which it can be seen that the degree below high school has the largest range, which showed a rapid decline trend from 1997 to 2006, and its proportion in the officer group is getting smaller and smaller. That's almost a 20-fold reduction.

5. "Education level for non-commissioned member 1997-2018" Figures 16 through 20 are part of this data set, which includes trends in officer education levels within the Armed Forces, 1997-2018. Figure 16 shows the number of non-commissioned member with master's degree or above from 1997 to 2018, from which it can be seen that the proportion of master's degree or above in NCM is very small, and the number of master's degree or above has been in a gentle development until 2012, and after 2012, the number of master's degree has shown a trend of rapid increase. Twice as many as in the past. Figure 17 shows the number of bachelor's degrees in NCM from 1997 to 2018, from which it can be seen that the degree of bachelor's degree has been in a gentle development until 2012, and after 2012, the number of bachelor's degrees has shown a trend of rapid increase with a large increase. Compared with 1997, so far the increase has reached twice as much. Figure 18 shows the number of college students in NCM from 1997 to 2018. It can be seen that college degree accounts for a large proportion in NCM and is the second major force in NCM group. Its development follows a very moderate upward trend. Figure 19 shows the number of high school education in NCM from 1997 to 2018. It can be seen from it that high school education is similar to college education, but high school education accounts for a large proportion in NCM and is the first major force in NCM groups. Its development follows a very gentle upward trend. However, over time, there has been a trend of attenuation. Figure 20 shows the number of NCM students below high school from 1997 to 2018. From this, it can be seen that the reduction of those who have less than high school education is relatively large, but the overall trend is very moderate, and their proportion in THE NCM group is also getting smaller and smaller. That's almost a fourfold decrease.

6. "Proportion of Social Groups in the Army" Table 1 belongs to this dataset and includes the current proportion of social groups in the armed forces. By rank.As can be seen from the figure, women account for 19.8% of the total number of officers, but only 14.4% of the total number of NCM. Combined with the total number of officers and noncommissioned officers, women make up only 15.8 percent of the total. Similarly, compared with THE NCM, ethnic minorities accounted for a larger proportion of 12.8% of the total number of officers, but due to the large number of NCM members, ethnic minorities

only accounted for 7.4% of the NCM members. Combined with the total number of officers and non-commissioned officers, minorities make up only 8.8 per cent of the total. In contrast to the first two social groups, indigenous groups and people with disabilities, on the other hand, have a higher proportion in the NCM (1.9% and %0.8 respectively) and a much smaller proportion in the military officers (3.2% and 1.4% respectively). In general aboriginal and disabled participation in the military is very low.

# 4 Discussion

This paper investigates and shows some of the characteristics and demographic structure of the Canadian Armed Forces. The above charts and data can better help readers understand the composition of the Canadian Army. The above charts and data also showed me many interesting phenomena and break my cognition. I will discuss one by one from different data sets.

## 4.1 Number of Regular Forces

The first is the total number of troops. After the reduction of the army in 2000, the total number has increased very slowly. This is due to the gradual move towards peace in the world in the millennium and Canada's unique international status. The main activities and focus of the army are no longer the development of comprehensive war, but small-scale conflicts. For example, Canada has participated in world peacekeeping and counter-terrorism for many times, and the demand for the army is not high. On the other hand, the army has gradually transformed into a high-tech and highly mobile force, "Number of people"The nature of the impact of the war is becoming less and less. In Figure 2, we can see that the increase of military officers is relatively large. Although they were also affected by the reduction of military spending at the beginning of the millennium, on the whole, they can be said to be the group least affected by the reduction, perhaps due to the particularity of their positions. Since the Iraq war, the world has seen the strength of science and technology, the demand for high-tech talents and management talents in the armies of all countries in the world has soared, and the number of officers has increased Obviously, it can be said that this trend is also gaining momentum in the future. In Figure 3, we can see that the growth trend of non commissioned officers in the army is very average. Precisely because they are the main force of the Canadian Army, their trend accounts for almost a large part of the total force. From this picture, we can see that the number of non commissioned officers has been greatly affected after the reduction in 2000, and then increased very slowly after 2002. However, after 2015, the number of non commissioned officers showed a slight decline, and it gradually showed signs of decline by 2020, which also shows that the number of non commissioned officers has been saturated and began to rebound.

## 4.2 Number of Attritions in the Army

Military attrition includes combat and non combat attrition. The overall number of attrition is uneven, which is mainly affected by events at different times. For example, in Figure 1, 2007-2009 was the largest year of comprehensive personnel attrition, and its background story coincided with the time when Canada was involved in the war in Afghanistan by U.S. allies. Of course, in addition to combat attrition, we should also pay attention to non combat normal attrition. In addition to being discharged from the army after injury, most people belongs to normal attrition, such as retirement. According to the Canadian military pension plan, you can apply for retirement after only ten years of service, which is not difficult to explain why the attrition in the figure is periodic. Because the systems of the Canadian Army are constantly adjusted, the reduction of personnel is also affected by many aspects. For example, the attrition of officers in Figure 2 is very regular, showing a "W" shape as a whole, which is likely to be affected by periodic combat attrition and normal attrition. However, compared with figure 3, NCM's attrition is very irregular and even gradually rising later, which is likely to be affected by other reason such as salary and benefit adjustment.

## 4.3 Proportion of English and French speaker in the Army

As a bilingual country, Canada's complex origins revolve around the struggle between English and French. Although English is undoubtedly the mainstream, the status of French can not be ignored. We can see from Figure 1 that the trend of French officers is gradually rising, indicating that more and more French speaker have become the senior level of the Canadian Army, but even so, there is still a big gap compared with the mainstream English speaker (Figure 2), Looking at NCM, it's more obvious. Even in the later stage, French NCM showed a decline trend. But this is not difficult to understand. We all know that serving in the army mostly symbolizes the national identity of their country. However, through many referendums and polls in Quebec, it can be concluded that French speaker generally do not recognize English dominated Canada. In addition, history is also one reason. Quebec people were less enthusiastic about joining the armed forces during the first or second world war than their English speaking peers. And oppose conscription to a large extent. This has a lasting impact. The fact is that French Canadians have less contact with Britain, and their identity is not really limited to becoming part of the British Empire and thinking that they are "different" from other Canadians (or that they are "not Canadians"). It is not difficult to understand why French people have a certain attitude towards the Canadian Army

## 4.4 Education level for officers

On the whole, there is a growing demand for higher education for Canadian military officer positions. At least for current officer applications, Bachelor degrees are just qualified. From this set of data, it is not difficult to see that the overall tactical concern of the Canadian Army has changed. In Figure 1 and Figure 2, the number of master's degree or above and bachelor's degree has only increased. Bachelor's degree has become a major body of officer groups, and even bachelor's degree has become a necessary condition for officer admission in recent years. I think this is because the demand for high-tech talents and management talents in the Canadian Army has soared, which makes higher education level necessary when recruiting officers. Next, look at Figure 3. The demand for technical officers also increased sharply during the early technical war, but it has declined rapidly since 2012. Perhaps the officer position no longer needs pure technical talents, but pays more attention to higher compound talents. As for officers with high school education, in Figure 4, they have gradually declined. The influence of manpower is becoming smaller and smaller in the combat, which is most obvious in Figure 5 - the trend of education below high school. After all, the competition for academic qualifications was not so fierce around 1997. As long as you have the ability, you can become an officer. In recent years, the competition for high positions and the war pattern have changed to high-tech war, so it is difficult for officer positions to accept low education qualifications.

## 4.5 Education level for NCM

In fact, not only the officers, but also the overall education level of non-commissioned members is also gradually rising. After all, the Canadian Army as a whole has a growing demand for higher education. Even for today's NCM applications, high school graduation is the minimum requirement. In fact, from Figure 1 and Figure 2, there is no great demand for master's degree or above and bachelor's degree before 2011, and even the development trend is very flat and in a saturated state. Until around 2012, the demand for higher education was rising sharply, which was also due to the development and reform of the Canadian Army and the surge in the demand for high-tech talents and management talents. Next, look at Figure 3. Since the reduction of college education among officers, the number of college students in NCM began to soar. Although officers no longer need a large number of pure technical arms, as NCM, the demand for pure technical talents is still large. Even became one of the main bodies of the NCM. After all, NCM is directly operated in high-tech warfare. As for non-commissioned members with high school education, we can still see the needs of the army in Figure 4. Although the influence of manpower is becoming smaller and smaller, the main infantry force of the Canadian army is mainly composed of these personnel, and high school is also set as the minimum requirement for entering the army since 2000. However, even if the Canadian Army has reformed the academic qualifications, there are still a certain number of people with education less than

high school. After all, anyone can join the army in 1997, but this trend has gradually weakened. The war pattern has changed from the initial human war to high-tech war. It is difficult to accept low education in the military in the future.

## 4.6 Proportion of Social Groups in the Army

I thought there were fewer women in the army, which was partly in line with my expectations, but I didn't expect that more women were officers than NCMS. I think this may be because NCM is mainly engaged in manual and physical work, and women's physiological structure is not as good as men. Most of the officers are engaged in management and diplomatic activities, and women are also better at planning and communication. In addition, I thought that as a minority, the chances of becoming an officer are far less than that of a non-commissioned member. However, the result is just the opposite. The number of ethnic minorities working as officers is 5.8% more than that of non-commissioned member, which indicates that a large number of ethnic minorities work at the top of the military. This may be due to the gradual change of ethnic minorities' self-identity. However, in contrast to Aboriginal people and people with disabilities, they have a very low proportion, but I also understand why they rarely join the army. For Aboriginal people, firstly, the Canadian Army and aboriginal groups have too many disgraceful histories. Secondly, for disabled people, the army itself is not suitable for the participation of such groups. Understanding the gap between people can help us build a better society. This is what this data set wants to show

## 4.7 Weaknesses and next steps

There are many weaknesses in this study. First of all, there are mistakes in the positioning of demographics. The data selection is too extensive to concentrate on each data. Secondly, the analysis of each data is too simple and only stays on the surface. Most importantly, if it can be improved in the future, I hope I can get more time to collect more data, so that I can analyze one aspect from more details and make a real demographic survey. Or, I can focus on only one aspect and analyze more details of that aspect.