1997

Economics of Quebec Separatism

J. Scott Attenborough

Wright State University - Main Campus

Follow this and additional works at: https://corescholar.libraries.wright.edu/econ_student

Part of the Business Commons, and the Economics Commons

Repository Citation
https://corescholar.libraries.wright.edu/econ_student/2

This Master's Culminating Experience is brought to you for free and open access by the Economics at CORE Scholar. It has been accepted for inclusion in Economics Student Publications by an authorized administrator of CORE Scholar. For more information, please contact corescholar@www.libraries.wright.edu, library-corescholar@wright.edu.
ECONOMICS OF QUEBEC SEPARATISM

An internship report submitted in partial fulfillment of the requirements for the degree of Master of Science

By

J. Scott Attenborough
B.S., Southern Illinois University, 1991

1997
Wright State University
I HEREBY RECOMMEND THAT THE INTERNSHIP REPORT PREPARED UNDER MY SUPERVISION BY J. Scott Attenborough ENTITLED Economics of Quebec Separatism BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF Master of Science.

Thomas L. Traynor, PhD
Faculty Supervisor

John P. Blair, PhD
Faculty Reader

Roger Sylvester, Director, M.S. in Social and Applied Economics Program
# Table of Contents

**Chapter 1**

INTRODUCTION ...........................................1

1.1 Purpose ...............................................1

1.2 Description of the Quebec Economy .........................4

1.2.1 Population .......................................8

1.2.2 Labor Market .....................................9

1.2.3 Income .........................................9

1.3 The Separatist Movement ................................11

1.4 “Exit, Voice & Loyalty” ................................16

1.4.1 Exit ............................................16

1.4.2 Voice ...........................................19

1.4.3 Loyalty ........................................20

1.5 Theses ............................................23

1.6 Welfare of Separatism ................................26

**Chapter 2** .............................................30

2.1 Model Specification ...................................30

2.1.1 The Wage Earnings ................................30

2.1.2 Consumption ....................................33

2.1.3 Employment .....................................36

2.1.4 Unemployment Rate ..............................39

2.1.5 Provincial Gross Domestic Product .................42
Table 1.2.1 Growth Indicators Canada .....................7
Table 1.2.2 Growth Indicators Quebec .....................7
Table 1.3.1 .............................................17
Chart 1.3.1 .............................................21
Chart 3.3.1 GDP Growth ....................................49
Table 3.3.1 GDP Growth Statistics and t-Test ...........50
Chart 3.3.2 Wage Growth ...................................52
Table 3.3.2 Wage Growth Statistics and t-Test ...........53
Chart 3.3.3 Unemployment - Quebec vs Ontario ..........54
Table 3.3.3 Unemployment Statistics and t-Test ...........55
Chart 3.3.4 Consumption ...................................56
Table 3.3.4 Consumption Statistics and t-Test ..........57
Table 3.4.1 Per Capita Wages Parameter Estimates .......60
Table 3.4.2 Consumption Parameter Estimates .............62
Table 3.4.3 Employment Parameter Estimates .............64
Table 3.4.4 Unemployment Rate Parameter Estimates .....66
Table 3.4.4 GDP Parameter Estimates ......................69
Chapter 1

INTRODUCTION

1.1 Purpose

The status of the economies in various regions of Canada is continually a key concern for the nation's political leaders. Historically disparities have existed between regions as the nation developed over time. The fact that the regions have not developed equally has been highlighted by the Premiers of each province bringing their plight before Canada's parliament.

One region that has recently lagged behind the economic development of most other regions is the province of Quebec. Although quite competitive with the overall Canadian economy until 1960, the Quebec economy now lags behind overall national economic performance. Quebec's unemployment rate remains high at 10.9 percent compared with 9.5 over the rest of Canada.

In most economic analyses of Quebec, the same arguments are presented to explain the poor performance in Quebec. Articles cite lack of regional cycles (Raynaud, 1988) private investment, weakness of infrastructure (Dingwall, 1992), interest rates, and loss of manufacturing (Barrell, 1995), among others, are cited as reasons for economic decline or sluggish performance. Many papers speculate
about the outcome of a separation of Quebec from Canada forecasting how the economy will perform under the stress of a newly separated Quebec. (Byers 1980, Martin 1995, McCallum 1992, McGuire 1995) One particular aspect of the society has continually been ignored. A search of economic literature has revealed that there is little attention has been paid to the potentially adverse economic effects of a coalition to gain economic and potential freedom from Canada. This is the Separatist Movement.

The major objective of this study, however, is to construct and evaluate a model which includes a measure of instability or uncertainty which would isolate the effect of the separatist movement on the Quebec economy.

This objective translates into three objectives:

(1) Develop a model for key economic indicators (income, unemployment, gross provincial product, etc) which includes some measure of separatist activity.

(2) From the above model, estimate parameters and evaluate equations.

(3) Discuss implications of the results obtained in (2).

A descriptive analysis focusing on the historical development and general structure of the Quebec economy will
follow in Section 1.2. At present it is sufficient to present the following general characteristics that outline the Quebec economy:

(1) An economic base of natural resources and hydroelectric power.

(2) An abundant labor force, receiving wages comparable to the Canadian average, and becoming increasingly well-educated.

(3) Montreal, as a transportation hub and as Quebec's largest urban area, has a great influence on the performance of the province's economy as a whole.

The remainder of this introductory chapter will include a detailed description of Quebec's economic plight; a full description of the nationalist movement, its activities and its current status; a discussion of the Hirshman's "Exit, Voice and Loyalty" as it relates to population movement within the province and an outline of the remaining chapters and appendices.
1.2 Description of the Quebec Economy

Three major factors have influenced the historic development of the Quebec economy:

(1) Natural and hydro electric resources.

(2) Ready availability of a large labor force.

(3) The Montreal urban community as a main Canadian transportation hub.

The presence of natural and hydro electric resources was influential in Quebec’s economic development, in that they fostered the development of forestry and primary metals-processing industries. Similarly, the abundant supply of reasonably-priced labor prompted development in such labor-intensive industries as textiles, clothing, housing and leather.

The urban community of Montreal had a profound effect on the development of Quebec’s economy. An island in the St. Lawrence River, Montreal’s physical location as the furthest inland city that was navigable enabled it to become a North American transportation hub. Montreal rapidly grew into Quebec’s largest urban area, attracting many head business offices. The growth of business and finance, and the large volume of manufacturing for both local and export markets have made Montreal’s economic well-being crucial to the general prosperity of the province’s economy.
In relation to the Canadian economy, Quebec's economy prospered until the end of the 1950's, and with the 1960's came a decline in Quebec's relative position. This decline in Quebec's position was due primarily to the following factors:

(1) Quebec, as an industrial nerve center, was far removed from the main areas of activity in the United States.

(2) In times prior to the 1960's Quebec had been well represented in rapid growth industries such as forestry, textiles and primary metals. However the 1960's saw a shift in these growth industries, and Quebec found itself with a low share of representation.

The implications of these factors were far-reaching. To begin with, Montreal obviously suffered as a service center, as a great number of the head offices that migrated west were previously located there. Additionally, the completion of the St. Lawrence Seaway made areas west of Montreal accessible to sea trade, diminishing Montreal's importance as a transportation hub. Because of Montreal's degree of influence on the Quebec economy, the province's sluggish growth of the 1960's and 1970's was even more pronounced.
Foreign pressure in Quebec's basic industries also was detrimental to its economy. Although there were some tariff agreements which were set up to favor Quebec, the province still suffered relative to the remainder of the country.

The slow growth of the 1960's had an adverse effect on the labor market in Quebec. In fact, an analysis of Quebec's unemployment rates shows that they were consistently higher than those of Canada throughout the 1960's. The 1960's period also witnessed the province's share of Canada's population, but still maintaining higher unemployment rates than the national average.

An analysis of Tables 1.2.1 and 1.2.2 shows that with the 1970's came an increase in the rates of growth of economic indicators for both Canada and Quebec. Gross domestic product, wages, and fixed investment all grew substantially in this decade. Note also, however, that key economic indicators were still lagging behind their national counterparts, with personal income being the only exception.
The seventies marked a rapid expansion of economic transfers and on the surface serve to placate the province’s economic troubles. The need for these transfer payments, however, only highlights the economic difficulties of the province. The Quebec labor market also suffered throughout the seventies, with the province’s share of national unemployment steadily rising so that in 1995 the unemployment rate was 11.3 compared with 9.5 for the rest of Canada and it has not been under 10 percent since 1990.

While Quebec is indeed losing ground relative to the national economy, there are a few comparative advantages
that the province enjoys over Canada as a whole. The five basic advantages are:

(1) Quebec is well-developed as a source of raw materials (mainly forest and mineral resources and hydro electric power).

(2) Quebec has a young labor force that is becoming increasingly skilled and generally is better educated than the national average (census data).

(3) Quebec’s geographic location, although separated from the mainstream of United States activity, is quite accessible to foreign markets through Montreal.

(4) Montreal is still a key urban area in the northeast.

(5) Quebec, over the years, has acquired a considerable stock of capital.

The following is a detailed analysis of the activity of population, the labor market, and income in Quebec over the past three decades.

1.2.1 Population

From 1960 to 1990, Quebec’s share of population eligible for the national labor force (those older than 14) has steadily declined. Quebec accounted for 29.5 percent of Canada’s Population in 1962, 28.2 percent in 1971, 27.1
percent in 1979, 24 percent in 1992 and is expected to continue to drop through 2021. The reasons behind this steady decline are two fold:

(1) The birth rate, and

(2) migration levels

The birth rate in Quebec has steadily lagged behind the rest of Canada. Quebec's 1991 birth rate was 1.6 children below the Canadian average of 1.82, both below the 2.1 level needed to maintain a stable population. Overall, migration has been negative. Between 1966 and 1991 there has been a net negative migration of 368,500 people to other provinces around Canada.

1.2.2 Labor Market

While the population of labor force age has steadily declined in its national share, the participation rate, conversely, has increased. In 1962 there was 52.5 percent of the eligible Quebec population in the labor force and that figure had risen to 56.0 percent in 1971, 60.1 percent in 1979 and is currently running at 62.3 percent for 1995.

1.2.3 Income

With rising unemployment (above the national average 11.3 percent compared with 9.4 national rate), and with Quebec's share of gross domestic product falling from 25.2 percent in 1962 to 23.1 percent in 1979 and 22 percent in
1995. Personal income in Quebec is currently only about 90 percent of that of the rest of the country.
The nationalist movement in Quebec began with Confederation (1867), achieving strength after the First World War. Its ongoing purpose has been to preserve the culture that existed in the area now known as Quebec since the French settled there three centuries ago. The reason for the development of a movement after many years of passive retention of this culture is that the French Canadians began to feel threatened that their culture was dissolving in the face of English dominance in Quebec and Canada.

Before explaining the forces that made French Canadians feel threatened, it is important to understand the cultural foundation these people began actively attempting to protect. French Canadians possess two characteristics which make the province of Quebec unique:

1. the French language and culture, and
2. a deep commitment to the Roman Catholic religion

The characteristic of a unique language and culture is self-explanatory. The French Canadian’s deep beliefs in Roman Catholicism, however, have far-reaching implications which should be discussed. The Roman Catholic influence had deeply engraved into the mind-set of the French Canadians a definite set of priorities. For example, the clergy were
looked upon as the true leaders of society. The community, defined by parish boundaries, was integral to each French Canadian's social life, and the hierarchy of important figures was topped by the parish priest, who was to the community what the father was to the family.

The church, being influential in the politics of the province, also had a great deal to say about the education system. A French educator writes, "Education must be based upon a man's spiritual nature and eternal destiny ... If it does not bring him near to God it is a failure" (5)

It is evident, therefore, that the Roman Catholic Church had a great deal to do with the establishment and maintenance of many aspects of the French Canadian culture. With a rough understanding of the basis of the culture, it is easier to comprehend the development of a movement to protect it.

After World War I, deep concern arose among many French Canadians that their culture was in jeopardy. The attack was believed to be in two areas:

(1) the English-speaking businesses present in Montreal and other areas of Quebec were threatening the native language of the inhabitants of the province, and

(2) the foreign capital used for investments in Quebec, and the subsequent industrialization and
urbanization, threatened the rural communities that were essential to the Roman Catholic way of life.

Herbert Quinn, in his book *The Union Nationale* writes that "One of the most significant characteristics of this nationalist movement was its opposition to the widespread changes which industrialism was making in the French Canadian way of life and to the fact that the economy of Quebec was dominated by foreign capital."

A tangible product of the nationalist movement was the creation of the Union-Nationale, a Quebec political party whose ideas were based initially upon radical, and subsequently upon conservative nationalism. The Union Nationale came into power in Quebec from 1936-39, with Maurice Duplessis as Prime Minister in its early days. The Union Nationale held office two more periods from 1944-60 and from 1966-70. Until the early '80s the Union Nationale was the major political party to represent these nationalistic sentiments. In the early 1960's a new political force came on the scene to represent Quebec nationalism -- the Parti-Quebecois led by Rene Levesque. The party was a combination of three smaller coalitions which believed, with reason, that the Union National had failed to protect the French culture from the outside forces that were threatening it.
Although the importance of the Roman Catholic Church had declined over the years, the Parti-Quebecois was engaged in a fight to keep Quebec speaking French and to prevent Quebec from becoming ruled by the predominantly English federal government. The solution that Levesque and the Parti-Quebecois were proposing was the political and economic separation of Quebec from the rest of the Canada, with agreements to be made for trade with the mother country. This proposed separation of Quebec from Canada caused the actions of the Parti-Quebecois to become known as the "new Nationalism" or more commonly the "separatist movement."

The Parti-Quebecois first entered the legislature in 1970 by winning seven seats in the Provincial Legislative Assembly. Although a small portion of the 100 total seats, the successes were significant in that they contributed, along with massive Liberal Party victories, to reducing the Union Nationale's number from 56 seats in 1966 to 17 in 1970. Complete victory for the Parti-Quebecois came in 1976 when it won 70 seats in the Assembly and placed its leader Rene Levesque at the helm of the province.

Although the party platform during the election was not one based on potential separation, Levesque had a strong hand in organizing a referendum in May 1980, asking
Quebeckers if they favored separation. The referendum failed 60 percent to 40 percent -- the Quebec population not willing to go out on a limb for their independence.

In the years following the 1980 vote Prime Minister Brian Mulroney attempted to make amends with Quebec. First his hopes were crushed in 1990 when the proposed Meech Lake constitutional accord failed to win unanimous approval from all on the provinces; and second, in 1992 another proposal, the Charlottetown accord was rejected by a national referendum.

In 1994 Jacques Parizeau won a majority in the Quebec provincial election. Parizeau served as finance minister under Rene Levesque. When Levesque indicated he would abandon secession from Canada platform and pursue negotiations with the federal government, several separatists including Parizeau resigned. He was determined to seek independence for Quebec. On October 30, 1995 the question of secession was again put to the people of Quebec and again, for the second time in 15 years, the measure was defeated. Quebeckers decided 50.6% to 49.4%, to remain part of the Canadian federation.
1.4 "Exit, Voice & Loyalty"

1.4.1 Exit

The separatist movement in the province of Quebec represents an example of the concept put forth in A. O. Hirschman's 1970 book *Exit Voice & Loyalty*. Exit, Voice and Loyalty play a significant role in the history of the separatist movement in Quebec.

In 1961 the population of Quebec represented 29.6% of the total population of Canada.

The net outward movement of English speaking people from Quebec between the years 1966 through 1991 is 275,000. As the English speaking population becomes more dissatisfied with conditions in Quebec they are choosing to "exit". This "exit" has created a shift in the makeup or the population of the province. The following table represents the change in the composition of the population of Quebec from 1971 through 1991.
### TABLE 1.3.1

<table>
<thead>
<tr>
<th>Mother Tongue</th>
<th>1971 Pop</th>
<th>1971 % Pop</th>
<th>1991 Pop</th>
<th>1991 % Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>French-language</td>
<td>4,867,250</td>
<td>80.8%</td>
<td>5,585,650</td>
<td>82.1%</td>
</tr>
<tr>
<td>English-language</td>
<td>789,185</td>
<td>13.0%</td>
<td>626,200</td>
<td>9.2%</td>
</tr>
<tr>
<td>Neither</td>
<td>371,330</td>
<td>6.2%</td>
<td>589,455</td>
<td>8.7%</td>
</tr>
<tr>
<td>Total</td>
<td>6,027,765</td>
<td>100%</td>
<td>6,801,305</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Montreal Gazette, 1995

Several things happened during that time to make the environment for English-speaking less tolerable, as the following excerpt reveals:

"Bill 101 promoting French as the language of work in the province but Bill 101 was not the only cause of the unfavorable climate in Quebec. First, there were FLQ bombs in 1962. Then, there was the October Crisis of 1970. Then, in 1974, Bill 22 restricted access to English schools. The Parti Quebecois was elected in 1976. Bill 101 was passed in 1977. The referendum was held in 1980. The Parti Quebecois was re-elected in 1981. Bill 178 was passed in 1989." (Donderi, B3)

Decline in the English-speaking population has been steady since 1991 and with the narrow defeat of the
sovereignty referendum in October 1995, and the pledge by the leaders of the Parti Quebecois to continue to push for separation, it seems that "exit" will be the expression of dissatisfaction of choice for the English speaking population of Quebec.

Hirschman says that when you choose "exit" as your option you lose your opportunity to influence. He also states that the choice to use "voice" or "exit" is a rational one. If there is no chance to influence the outcome, regardless of whether your opinion is voiced, then the choice will clearly be "exit".

If the volatile atmosphere that existed in Quebec in the twenty years from 1971 through 1991 caused the English-speaking population to choose "exit" -- why did the French-speaking population not "exit" in droves as the anglophones. There must be those from the French-speaking population for whom the volatility in the economy and threats to personal safety were just as great as the threat of a change in language. There was at least half of the French-speaking population who voted against sovereignty on the 1995 referendum. Many of them must still want to be a part of Canada.

For the native French-speaking population there would be a much higher penalty to pay for exiting. For them,
there are no reasonable substitute as readily available. If the English-speaking person decides to "exit" the whole of Canada holds possibilities because the rest of Canada speaks the same language. The French, however, do not have the luxury of that reasonable alternative. If they move to other parts of Canada, the United States or Mexico they would have to learn a new language which for many would be a very high price to pay. For "exit" to be effective there needs to be an adequate substitute available. What is an adequate substitute to the English-speaking person is not the same in this case for the French-speaking person.

1.4.2 Voice

The voice of the Quebecois has been heard across Canada. It is clear that a significant number of French-speaking people no longer wish to be a part of the Canadian federal system. According to Hirschman, the "voice" option is most effective when there are few substitutes. This is true in the province of Quebec for the French.

Clearly they believe they have been mistreated by the federal government and that their culture has been ignored. This caused a great deal of discontent and without reasonable substitutes available the francophone decided to exercise its voice. Hirschman also states that one of the aspects of voice that makes it so effective is the threat of
exercising the "exit" option. This threat of "exit" can be seen in the referendums of 1980 and 1995.

As the prospect of "exit" increases, the possibility that change will take place is increased. After the referendum vote of 1980 it became clear that the Parti Quebecois was serious about their threat to separate Quebec from Canada. Several years later in an effort to avoid the secession of Quebec, Prime Minister Mulroney offered concessions to make amends with Quebeckers on two separate occasions. Both times the accords were balked at by the other provinces. It would seem the rug was pulled out from under the Separatists again.

1.4.3 Loyalty

Loyalty does not exist with the separatist mindset. Originally their objective was autonomy within the dominion not necessarily separation. Now it seems their sole objective is to secede from Canada. There may have been some chance at reconciliation at one time but now, for the separatist there is no result other than autonomy that exists.
During the years following the 60-40 defeat of the separatist referendum Rene Levesque believed he could get some conciliation and was willing to work with the federal government to achieve some compromise. For some, such as Parizeau, there was not compromise short of separation.

In the above model you can see that the non-separatist French-speaking Quebeckers will stay in much longer that the English-speaking Quebeckers. Their dissatisfaction, coupled with the absence of viable alternatives, must be
greater than the English in order to entice them to consider "exit" as an option. The separatist, because they believe their cause to be just and their options to be few will endure much before being persuaded to leave their homeland. Thus the English-speaking will tolerate the least dissatisfaction while the Separatist will endure the most because of their seemingly irrational interest in the preservation of their culture as epitomized in the sovereignty of the province.
1.5 Theses

It is clear that Quebec has not enjoyed the same prosperity as have many of the other regions of Canada. My thesis is that the threat of Quebec's political and economic "exit" from Canada has had an adverse effect on the economy of Quebec as measured in output.

The line of reasoning behind this hypothesis is as follows:

(1) The threat of separation would create an unusually high degree of volatility in the business climate due to: a) the uncertainty business as would experience about their future, and b) the many francophone-imposed regulations on many predominantly English-speaking corporations. (Note also that it is assumed these regulations are triggered by nationalist activity.)

(2) This volatility should lead to emigration of corporate offices from Quebec to locations that are a) more economically and politically stable and b) not as demanding in the area of French-speaking regulations. While it is acknowledged that other influences, such as geographical closeness to United States cities, are inherent in Quebec, it is important to note that the separatist impetus is a definite possibility.
(3) With business moving out of Quebec there should be the following effects on the key economic indicators:

a) **POPULATION.** There should be a corresponding movement of population to the regions with greater stability and higher job availability. As was stated earlier, migration statistics reflect this shift.

b) **LABOR MARKET.** While the emigration of the population should have eased the strain of high unemployment, this has not been the case. It is posited in this study that this is due to the immobility of the francophone labor force caused by a loyalty to the French-speaking Quebec.

c) **INCOME.** The effect of the threat of separation would tend to lower income or at least keep it from rising at par with the rest of the country. Since fewer businesses are being established or maintained in Quebec, there should be a corresponding disparity in income per capita.

In summary, the threat of Quebec's separation, as it contributes to a volatile political and economic atmosphere, is expected to be detrimental to the province's economy. Finally, it is important to note that this study considers, in part, the effect of the nationalist movement (the threat
of "exit) on the current economy of Quebec; it does not consider the effect of Quebec’s actual separation from Canada on that province’s economy. This is an important distinction.
When it comes to measuring how well or worse an individual is there are many things that we could consider. We could consider how happy an individual is or try to measure how much benefit they receive from a specific purchase or activity. Measuring their happiness or the utility they receive from a particular activity can be subjective at best.

Utility measurements for an individual can be expressed by the following:

\[(1) \ u_1 = f(X_1, X_2, X_3 \ldots X_n) \]  

(Buchanan, Stubblebine, p 372)

The utility of individual 1 \((u_1)\) can be expressed as a function of all of the activities in which that individual engages \((X_1, X_2, X_3 \ldots X_n)\). Then it would follow that the utility of the state would be equal to an aggregate of the utility of all of the individuals in that state.

\[(2) \ u^s = f(u_1, u_2, u_3 \ldots u_n) \]  

The utility of the state as a whole \(u^s\) would be a function of the utility of each of the individuals in the state \((u_1, u_2, u_3 \ldots u_n)\).

Individuals are constantly making decisions concerning what they will do with the resources they have. We should assume that each individual will spend their resources in
such a way as to maximize their utility. In order to measure a person's welfare we must make some assumptions:

1) People have limited resources

2) People must make decisions concerning the disposition of those resources

3) People will act to maximize their utility

4) People make rational decisions.

If those assumptions are true then we can measure an individual income as a measure of their welfare. The more an individual makes the more options they will have available to them. Using Maslow's hierarchy of needs we can assume that once the fundamental needs are satisfied an individual can pursue higher needs. Income then becomes a reasonable substitute for an individual's welfare. Then from equation's one and two we can measure the welfare of a society as the aggregate welfare of each individual. Pigou stated in the Economics of Welfare that "The range of our enquiry becomes restricted to that part of social (general) welfare that can be brought directly or indirectly into relation with the measuring rod of money" (Pigou, p.11)

The change national income is one way to measure the effects of separatism on the people of Quebec. If the change in national income is positive then people consume
more goods and services. If the change is negative then people have less to spend on goods and services.

Measuring monetary changes in national income is possible but in this case the change may be due to an increase in prices. Measuring real income changes can provide better picture. If the increase in national income is due to price increases it would actually make people worse off. It is only positive changes in real income that will make individuals better off.

Measuring total income by itself may not be a reliable way to measure economic welfare. Especially if a increase in national income comes as a result of exploiting workers. If workers are made to work longer hours or if they are paid less in wages or both they would be less well off.

Increases in national income may not lead to increases in social welfare if the distribution is less than favorable. If increases in income come at the top end of the income ladder at the expense of the people at the lower end the economic welfare is made worse. There are more people at the lower end than there are at the upper end of the spectrum. Thus, per capita income may rise but overall the benefits are not distributed equally and the society is worse off.
This paper will use provincial income, per capita income, employment, and unemployment to measure the welfare of the Quebec society.

Provincial income will be measured in real terms using the change in provincial income over time. If the change is negative the people can be considered to be worse off. If the change is positive the people could be better or worse off depending on the distribution of that income.

Per capita income will be used to if the increase or decrease in national income relates to the individual. Per capita income will be measured in real terms to account for increases in price levels.

Companies that expect political uncertainty or instability in the province may opt to move their headquarters to other parts of the country or out of Canada altogether. In a 1994 survey of 50 multinational companies in Quebec 55 percent said they would leave Quebec if separation becomes a reality. Others are moving out of Quebec because the instability created by separatist activity has made it too difficult to do business. As businesses leave the province Primier Bouchard is campaigning to bring new business into the province.
2.1 Model Specification

In this chapter, estimating equations will be derived to explain the behavior of certain key economic indicators in the province of Quebec. The indicators, in order of presentation, are: wage earnings, consumption, employment, unemployment, and output. The models will be estimated as individual regression equations.

2.1.1 Per Capita Wage Earnings

The per capita wage earnings in Quebec, defined here as total quarterly wages and salaries divided by employment.

The equation will be estimated using the following linear equation:

\[ WQ_t = \alpha_1 + \beta_1 GDPQ_t + \beta_2 WGR_{t-1} + \beta_3 Sep1_t + \beta_4 Sep2_t + \epsilon_t \] (2.1)

Because the unemployment rate is commonly used as part of a Phillips Curve equations it was originally added to the above equation. The unemployment rate degraded the the overall fit of the equation and was eliminated. In the Phillips Curve model when the unemployment rate is used it is usually used in a wage growth model which also includes inflation as part of the model. This model was also attempted as a wage growth model, however, the fit with the
wage growth model, $R^2$, was considerably lower than the above model.

\[
\begin{align*}
W_Q &= \text{Per Capita Wage Earnings for Quebec at period } t, \\
GDP_Q_t &= \text{Nominal Provincial Gross Domestic Product for Quebec at period } t \\
WGR_{t-1} &= \text{Percent change in Per Capita Wage Earnings for Quebec at period } t-1 \\
Sep_{1t} &= \text{Dummy variable equal to 1 where } t \text{ is a quarter in which there was a vote on a separation referendum and 0 otherwise} \\
Sep_{2t} &= \text{Dummy variable equal to 1 where there was significant separatist activity (see appendix 1) and 0 otherwise.}
\end{align*}
\]

The expected signs of the coefficients are as follows:

\[
\begin{align*}
\alpha (\text{the constant}): &\quad ?? \\
\beta_1: &\quad > 0 \\
\beta_2: &\quad > 0 \\
\beta_3: &\quad < 0 \\
\beta_4: &\quad < 0
\end{align*}
\]

The coefficient for GDP is expected to be positive. As GDP grows in the province more labor will be needed to produce the new level of output. As the supply of qualified labor dwindles the wages labor can ask for the service they
provide will rise because of the scarcity of that labor. Therefore, as laborers become more scarce the value of that labor will increase and create upward pressure on wages.

The coefficient for lagged wage earnings growth is expected to be positive. When people plan on spending from one year to the next the best predictor or their future wages is their wages from the previous year. An individual's expectations for growth in this year's wages are based on last year's wage growth.

For the dummy variables dealing with separatist activity, both Sep1 and Sep2, the following hypothesis applies:

H₀: Separatist activity will have a positive effect or no effect on wage earning in the province.

Hₐ: Separatist activity has a negative effect on wage earnings in the province.

An increase in unrest or negative sentiment toward the government will cause businesses to have less confidence in the province. As businesses decide to leave the area there will be a surplus in the amount of labor available. The supply of labor will begin to outpace the demand for labor in and average wage earnings will be driven downward.
2.1.2 Consumption

Consumption will be estimated using a standard consumption function as suggested by Klien (1950).

\[ C_t = \beta_0 + \beta_1 y_t + \beta_2 W_t + \beta_3 C_{t-1} + \varepsilon_t \]

where \( C_t \) is consumption this period, \( C_{t-1} \) is consumption the previous period, and \( W_t \) is the total of government and private wages. However, in a study of the Hawaiian economy by Ghali and Renaud found that the lagged consumption variable caused problems with correlation between \( Y_t \) and \( C_{t-1} \).

The following equation will be used to estimate consumption in the Quebec economy.

\[ C_0t = \alpha_2 + \beta_1 GDP_0t + \beta_2 WAGES_{t-1} + \beta_3 SEP1_t + \beta_4 SEP2_t + \varepsilon_t \]  (2.2)

where

\[ C_0t = \text{Change in Quebec Consumption in period } t \]
\[ GDP_0t = \text{Nominal Provincial Gross Domestic Product for Quebec at period } t \]
\[ WAGES_{t-1} = \text{Per Capita Wage Earnings period } t-1 \]
\[ SEP1_t = \text{Dummy Variable equal to 1 where } t \text{ is a quarter in which there was a vote on a separation referendum and 0 otherwise} \]
$Sep_{2t} = \text{Dummy variable equal to 1 where there was significant separatist activity (see appendix 1) and 0 otherwise}$

The expected signs of the coefficients are as follows:

- $\alpha$ (the constant): ??
- $\beta_1$: $> 0$
- $\beta_2$: $> 0$
- $\beta_3$: $< 0$
- $\beta_4$: $< 0$

As people increase their income and they have more disposable income they will increase the amount of money they spend on consumption. In this model the output for Quebec in the form of nominal provincial gross domestic product in used as a proxy for personal income. The marginal propensity to consume is represented by the coefficient for personal income. It is estimated that as provincial gross domestic product increases consumption will increase also. Therefore, the coefficient for gross domestic product will be positive.

People made decisions on their previous experience. An individual will plan to make this year at least what they made the year before because their previous year's wages are the only predictor they have for this year's wages. If a
person expects more in wages this year because of their past wages they will plan for the increase and consumption will increase. Therefore, as the previous years wages go up the expected wages for this year will increase also and as a result consumption will increase also.

Uncertainty, on the other hand will have a deleterious effect on an individuals propensity to consume. If an individual is unsure about their job or their prospects for earning a wage they will tend to consume less and save more. According to a University of Michigan studies support the theory that as people get the feeling the "things are going to get worse" their consumption will decrease. On the other hand a positive outlook on the future of the economy will stimulate consumption.

Separatist activity in Quebec may have created an atmosphere of uncertainty. The hypothesis to be tested is: $H_0$: Separatist activity will have a positive effect or no effect on consumption in the province. $H_A$: Separatist activity has a negative effect on consumption in the province.
2.1.3 Employment

Employment can be described as the total demand for labor in the province of Quebec. The value of total production \( Y \) can, according to the Cobb-Douglas production function, allow continuous substitution between labor \( L \) and capital \( C \).

\[
Y = \alpha L^p K^q
\]

So that total production can be obtained using any combination of Labor and Capital. A logarithmic transformation of this function can produce the following equation.

\[
\ln Y = \alpha + \beta \ln L + \gamma \ln K
\]

By rearranging the production we can obtain an equation for the demand for labor:

\[
L^p = \alpha^{-1} Y K^{q-1} e^{\gamma t}
\]

If we express the demand for labor in a logarithmic form the function becomes:

\[
\ln L = -(1/\beta) \ln \alpha + (1/\beta) \ln Y + (\alpha/\beta) \ln K - (\gamma/\beta) t.
\]

The demand for labor as measured by employment will be estimated using the following log-linear equation:

\[
LEMPQ_t = \alpha + \beta_1 LGDPQ_t + \beta_2 L CAPINV_t + \beta_3 LWQ_t + \beta_4 SEP1_t + \beta_5 SEP2_t + \varepsilon_t
\]

(2.3)

where:
\( LEMPO_t \) = Log of Total Employment, both male and female, in Quebec for period \( t \)

\( LGDPQ_t \) = Log of Nominal Provincial Gross Domestic Product for Quebec at period \( t \)

\( LCAPINV_t \) = Log Quebec Capital Investment at period \( t \)

\( LWQ_t \) = Log of Per Capita Wage Earnings for Quebec at period \( t \)

\( SEP1_t \) = Dummy Variable equal to 1 where \( t \) is a quarter in which there was a vote on a separation referendum and 0 otherwise

\( Sep2_t \) = Dummy variable equal to 1 where there was significant separatist activity (see appendix 1) and 0 otherwise

The expected signs of the coefficients are as follows:

\[ \alpha \ (the \ constant): \ ?? \]

\[ \beta_1: \ > \ 0 \]

\[ \beta_2: \ > \ 0 \]

\[ \beta_3: \ < \ 0 \]

\[ \beta_4: \ < \ 0 \]

\[ \beta_5 \ < \ 0 \]

As GDP in the province increases it is expected that employment would increase to meet the new demand.

Gains in employment from increases in Gross Provincial Product could be offset by increases in the population or
the participation of more workers in the economy. Capital investment, however, is an indication that the economy is expanding. Normally, investment and capital are viewed as being substitutes for one another. If a firm invests in capital they do so to be able to substitute that acquired capital for labor. However, if the capital investment is being made in order to expand business then increases in capital spending can lead to increases in labor employment. In this case capital spending increases is being viewed as expansion and would make new jobs available. Therefore the expected sign for this parameter is positive.

If wages increase this will decrease the demand for labor. Therefore, the coefficient for wages is predicted to be negative.

Separatist activity in Quebec may have created an atmosphere of uncertainty. The hypothesis to be tested is:

$H_0$: Separatist activity will have a positive effect or no effect on employment in the province.

$H_A$: Separatist activity has a negative effect on employment in the province.
2.1.4 Unemployment Rate

In 1962 Okun determined that in order to reduce the unemployment rate by one percent output would have to grow 3.3 percent above its natural growth rate. Where the unemployment rate is a function of output and expected output and $t_t$ is a time trend that accounts for effective rate of utilization of capital, population growth rate, and labor force participation rate. Freidman and Wachter (1973) extended Okun's model to include price and wage factors in the labor market. These changes included ratios of current prices/expected prices and current wages/expected wages so that the equation. Gordon (1984) deconstructed real GDP into employment rate, hours per worker, labor force participation rate, and labor productivity.

For the purposes of this study the Quebec unemployment rate is defined as the ratio of total unemployment to the total labor force multiplied by 100. It will be estimated with the following linear equation:

$$UEMPO_t = \alpha + \beta_1 \Delta WQ_t + \text{CAPINVQ} \beta_2 t_t + \beta_3 \text{GDPQ}_t + \beta_4 \text{CPROFITS}_t + \beta_5 \text{SEP1}_t + \beta_6 \text{SEP2}_t + \varepsilon_t \quad (2.4)$$

Another variable that was considered in determining this equation was inflation. A consistent inflation measurement was not available for the period without
incurring significant translation charges. Therefore, inflation was excluded from this equation.

where

\[
\begin{align*}
\text{UEMP}_t & = \text{Unemployment Rate for Quebec at period } t \\
\Delta W_{Qt} & = \text{Change in Per Capita Wage Earnings for Quebec from period } t-1 \text{ to period } t \\
\text{CAPINV}_Q & = \text{Quebec Capital Investment at period } t \\
\text{GDP}_Q & = \text{Nominal Provincial Gross Domestic Product for Quebec at period } t \\
\text{CPROFITS}_t & = \text{Corporate Profits in Quebec for period } t \\
\text{SEP1}_t & = \text{Dummy Variable equal to 1 where } t \text{ is a quarter in which there was a vote on a separation referendum and 0 otherwise} \\
\text{Sep2}_t & = \text{Dummy variable equal to 1 where there was significant separatist activity (see appendix 1) and 0 otherwise}
\end{align*}
\]

The expected signs of the coefficients are as follows:

- \(\alpha\) (the constant): ??
- \(\beta_1\): > 0
- \(\beta_2\): < 0
- \(\beta_3\): < 0
- \(\beta_4\): < 0
- \(\beta_5\): > 0
- \(\beta_6\): > 0
The coefficient for wages is expected to be positive because unemployment should rise as wages increase. As employers must pay more for their employees they will try to get more efficiency out of each individual worker and therefore employ fewer people.

Capital investment is also included and should be negative because as employers are expanding operations they will be investing more money on property plant and equipment. As new business increases new operating location will be necessary to keep up with demand. Opening new locations and operations in order to expand operations will generate more jobs. As capital investment for expansion increases the number of jobs will increase thereby decreasing the unemployment rate. The instability created by separatist activity is expected to positively relate to the unemployment rate.

Separatist activity in Quebec may have created an atmosphere of uncertainty. The hypothesis to be tested is:

\( H_0: \) Separatist activity will have a negative effect or no effect on the unemployment rate in the province.

\( H_A: \) Separatist activity will increase the unemployment rate in the province.
2.1.4 Provincial Gross Domestic Product

The final measure of welfare that will be used will be Provincial Gross Domestic Product. As domestic unrest increases businesses may decide to leave the area. If businesses leave the area output will fall. The measure for output for Quebec will be Gross Domestic Product.

The Cobb-Douglas production function bases output as a function of capital and labor. Varying inputs of capital and labor can be used to achieve a specific output. This equation, based on the Cobb-Douglas production function, will be used to estimate gross domestic product for Quebec will be as follows.

\[ \Delta GDPQ_t = \alpha + \beta_1 \Delta CAPINVQ_{t-1} + \beta_2 \Delta LABOR_t + \beta_3 \Delta PROFITS_t + \beta_4 SEP1_t + \beta_5 SEP2_t + \beta_6 t + \varepsilon_t \] (2.5)

\[ \Delta GDPQ_t \] = Percent Change in Nominal Provincial Gross Domestic Product for Quebec at period t

\[ \Delta CAPINVQ_{t-1} \] = Quebec Capital Investment for the period t-1

\[ \Delta LABOR_t \] = Percent Change in the Quebec Labor Force at period t

\[ \Delta PROFITS_t \] = Percent Change in Corporation Profits in Quebec at period t
\[ SEPl_t = \text{Dummy Variable equal to 1 where } t \text{ is a quarter in which there was a vote on a separation referendum and 0 otherwise} \]

\[ Sep2_t = \text{Dummy variable equal to 1 where there was significant separatist activity (see appendix 1) and 0 otherwise} \]

The expected signs of the coefficients are as follows:

- \( \alpha \) (the constant): ??
- \( \beta_1: > 0 \)
- \( \beta_2: > 0 \)
- \( \beta_3: > 0 \)
- \( \beta_4: < 0 \)
- \( \beta_5: < 0 \)
- \( \beta_6: > ?? \)

As capital investment increases in the province of Quebec it is expected those investments will be used to increase production output. In the same manner as demand rises labor is increased. According to the Cobb-Douglas production function output is a function of capital and labor. The labor force will increase as more people come to the province to fill the need for labor. For that reason the coefficients for both labor and capital investment are expected to be positive. In the case of capital investment,
an investment this year will bring an increase in output next year. For labor, during the year there is an increase in output the labor force would have to be increased to meet demand.

Corporate profits are used as a proxy for the health of business in Quebec. If business is bad in the province corporations may decide to leave to pursue opportunities elsewhere. As businesses leave the province, overall profits for corporations will decrease. On the other hand, if businesses are moving in and prospering corporate profits should be increasing. Therefore, it is expected the coefficient for the change in corporate profits will have a positive relationship to output.

Separatist activity in Quebec may have created an atmosphere of uncertainty. The hypothesis to be tested is: $H_0$: Separatist activity will have a positive effect or no effect on gross provincial product in the province. $H_A$: Separatist activity has a negative effect on gross provincial product in the province.
Chapter 3

MODEL ESTIMATION

3.1 Scope of the Chapter

The parameters described in the previous chapter were estimated by ordinary least squares. The least squares were processed using SAS through an X-Windows UNIX connection. The current chapter presents these results along with an analysis and evaluation of the estimated structure. Data collection and a preliminary analysis of the data are also addressed in this chapter.
3.2 Data Collection

The data were collected through various sources from the office of Statistics Canada out of Ottawa, Ontario, Canada. There is a wealth of information and statistical time series available on the province of Quebec through the Statistics Canada time series databases on the world wide web http://www.statcan.ca and time series databases through the province of Quebec http://www.gouv.qc.ca. These databases provide a wide variety of economic and social statistics including provincial accounts and population movement.

The data that was retrieved from Statistics Canada was compiled through several different sources. Some were from hard copy records of provincial financial accounts publications and some electronically. The range of the data retrieved varied from annual accounts through detailed monthly accounts. The annual data that was collected was compiled from Provincial Economic Accounts using 1984 base annual figures and ranged from 1961 through 1995. Unemployment and unemployment rates were determined from electronic database at Statistics Canada, were monthly and ranged from 1977 through 1995.
The variables are defined as follows.

GDP Canada: National Gross domestic product at market prices for Canada.

GDP Quebec: Provincial Gross Domestic Product at market prices for the province of Quebec.

Consumption: Consumption includes expenditures on consumer goods and services.

Capital Investment: Capital investment attributed to business.

Unemployment: Unemployed persons are those who, during the reference week:

a) were without work, had actively looked for work in the past four weeks and were available for work;

b) had not actively looked for work in the past four weeks but had been on layoff and were available for work;

c) had not actively looked for work in the past four weeks but had a new job to start in four weeks or less from the reference week, and were available for work.
Unemployment Rate: The unemployment rate represents the number of unemployed persons expressed as a percentage of the labor force. The data is collected through a survey of 52,000 households. An interviewer contacts 75 households and conducts personal interviews.

Per Capita Wages: Per capita wages include wages, salaries and supplementary labor income for the province of Quebec divided by the labor force for Quebec.

\[
\text{(wages/labor force} = \text{per capita wages)}
\]

Labor: The total labor force in the province of Quebec.
3.3 Preliminary Analysis of the Data

3.3.1 GDP Quebec versus Non-Quebec Canada

A preliminary comparison of Quebec’s GDP and Non-Quebec Canada shows that Quebec has had a lower percentage growth in GDP than Non-Quebec Canada. This lower growth can be seen in the chart below. Growth rates during the years that Quebec was voting on referendum for separation (1980 and 1995) are shown to be lower than Non-Quebec Canada for both of those years.

![GDP Growth Chart](image)

A t-test was conducted to determine if the GDP growth in Quebec was statistically different from the GDP growth in Non-Quebec Canada.

Hypothesis: There is no statistical difference between the average growth in gross domestic product for the
province of Quebec and the growth in gross provincial product for the provinces in Non-Quebec Canada.

To determine the percentage differences in GDP growth rates the following formulas were used:

QUEBEC GDP GROWTH

\[
\text{GDP}_{Qt} - \frac{\text{GDP}_{Qt-1}}{\text{GDP}_{Qt-1}}
\]

NON-QUEBEC CANADA GDP GROWTH

\[
(\text{GDPC}_{t} - \text{GDPC}_{t-1}) - \frac{(\text{GDPC}_{t-1} - \text{GDPC}_{t-1})}{(\text{GDPC}_{t-1} - \text{GDPC}_{t-1})}
\]

<table>
<thead>
<tr>
<th>Table 3.3.1</th>
<th>Quebec</th>
<th>Non-Quebec Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.07847016</td>
<td>0.083698139</td>
</tr>
<tr>
<td>Variance</td>
<td>0.001101911</td>
<td>0.001398429</td>
</tr>
<tr>
<td>Observations</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.925568908</td>
<td></td>
</tr>
<tr>
<td>Hypothesized Mean Difference</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>t Stat</td>
<td>-2.142552354</td>
<td></td>
</tr>
<tr>
<td>t Critical one-tail</td>
<td>1.692360456</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.039618296</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>2.03451691</td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that there is a statistical difference between the growth in gross domestic product in Quebec and the growth rates in Non-Quebec Canada. The mean growth rate for Non-Quebec Canada is 8.37% and the mean GDP growth rate for Quebec is 7.85. The critical t-statistic for 95% confidence interval is 1.69 at 33 degrees of freedom. The t-statistic comparing the mean growth rates is -2.14.
Therefore the hypothesis that there is no statistical difference must be rejected in this case.
3.3.2 Wage Earnings Growth Quebec versus Non-Quebec Canada

Since 1968 wage earnings growth for Non-Quebec Canada has outpaced wage growth for the province of Quebec. This difference can be seen in the chart below. In 1980 where the first referendum vote took place wage earnings growth in Quebec was slightly greater than Non-Quebec Canada at 13.2% compared to 12.9% respectively. During 1995, at the second vote for separation Quebec wage earnings growth dropped to a growth rate of 1.34% where in Non-Quebec Canada wage earnings grew at 3.73% during that year.

A t-test was conducted to determine if the growth in wages in Quebec was statistically different from the growth in wages in Non-Quebec Canada.

Hypothesis: There is no statistical difference between the average growth in wages for the province of...
Quebec and the growth in wage earnings for the provinces in the rest of Canada.

To determine the percentage differences in wage growth rates the following formulas were used:

QUEBEC

\[
\text{WAGES}_t - \text{WAGES}_{t-1} / \text{WAGES}_{t-1}
\]

CANADA (NOT INCLUDING QUEBEC)

\[
(\text{WAGES}_{t,\text{C}} - \text{WAGES}_t) - (\text{WAGES}_{t-1,\text{C}} - \text{WAGES}_{t-1}) / (\text{WAGES}_{t-1,\text{C}} - \text{WAGES}_{t-1})
\]

<table>
<thead>
<tr>
<th>Table 3.3.2</th>
<th>Non-Quebec Canada</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.092847409</td>
<td>0.08803381</td>
</tr>
<tr>
<td>Variance</td>
<td>0.001761198</td>
<td>0.00198931</td>
</tr>
<tr>
<td>Observations</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.962214128</td>
<td></td>
</tr>
<tr>
<td>Hypothesized Mean Difference</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>t Stat</td>
<td>2.304073785</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) one-tail</td>
<td>0.013826634</td>
<td></td>
</tr>
<tr>
<td>t Critical one-tail</td>
<td>1.692360456</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>0.027653268</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>2.03451691</td>
<td></td>
</tr>
</tbody>
</table>

The results of the t-test indicate that the average growth in wages in Canada without Quebec, 9.28\%, and the wage growth in Quebec, 8.80\%, are statistically different. The critical t-statistic is 1.69 and t-statistic for the test was 2.30 at 33 degrees of freedom. Therefore, the hypothesis that there is no difference in the wage growth in Non-Quebec Canada and in Quebec must be rejected.
3.3.3 Unemployment Rate Quebec versus Ontario

The unemployment rate in Quebec has been consistently higher than in Ontario, Quebec's closest neighbor in proximity, population, resources and contribution to Canada's GDP. The following chart shows that Quebec's unemployment rate has consistently been much higher than Ontario's.

The unemployment rate has averaged over three points between Quebec and Ontario; 11.36% versus 7.92%. A t-test was conducted to ensure that the differences were statistically significant.

Hypothesis: There is no statistical difference between the average rate of unemployment for the province of
Quebec and the unemployment rate in the province of Ontario.
The results of the test are as displayed in the following table.

<table>
<thead>
<tr>
<th></th>
<th>Quebec</th>
<th>Ontario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>11.3674009</td>
<td>7.92334802</td>
</tr>
<tr>
<td>Variance</td>
<td>3.08627773</td>
<td>3.99790379</td>
</tr>
<tr>
<td>Observations</td>
<td>227</td>
<td>227</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.87124387</td>
<td></td>
</tr>
<tr>
<td>Hypothesized Mean</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>226</td>
<td></td>
</tr>
<tr>
<td>t Stat</td>
<td>52.8650169</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) one-tail</td>
<td>1.592E-129</td>
<td></td>
</tr>
<tr>
<td>t Critical one-tail</td>
<td>1.65162419</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>3.185E-129</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>1.97051577</td>
<td></td>
</tr>
</tbody>
</table>

The mean unemployment rate for the period starting January 1977 through December 1995 was 11.37% for Quebec and 7.92% for Ontario. The critical t-statistic for this test was 1.65 at 226 degrees of freedom. The t-statistic for the test was 52.87. Therefore the hypothesis that there is no difference in the unemployment rates of Ontario and Quebec must be rejected.
3.3.4 Consumption Quebec versus Non-Quebec Canada

The rate of consumption in Canada not including Quebec has, for the most part, been lower than in Quebec. The rate of consumption or the percent of GDP attributed to private consumption on goods and services has averaged 58.5% in Non-Quebec Canada compared to Quebec's 60.2% consumption rate. Consumption rates were obtained using the following equations:

QUEBEC

CONSUMPTIONQ_t / GDPQ_t = CONSUMPTION RATE

NON-QUEBEC CANADA (NOT INCLUDING QUEBEC)

( CONSUMPTIONC_t - CONSUMPTIONQ_t ) / ( GDP_C_t - GDPQ_t ) = CONSUMPTION RATE

![CANADA VS QUEBEC - CONSUMPTION RATES]

Chart 3.3.4
To determine if the differences were statistically different a t-test was made.

Hypothesis: There is no statistical difference between the average rate of consumption for the province of Quebec and the rate of consumption for the rest of Canada. The results of the test are as displayed in the following table.

<table>
<thead>
<tr>
<th>Table 3.3.4</th>
<th>Non-Quebec Canada</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.584984454</td>
<td>0.60195334</td>
</tr>
<tr>
<td>Variance</td>
<td>0.000786836</td>
<td>0.00037114</td>
</tr>
<tr>
<td>Observations</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.798762802</td>
<td></td>
</tr>
<tr>
<td>Hypothesized Mean Difference</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>t Stat</td>
<td>-5.848041669</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) one-tail</td>
<td>6.78283E-07</td>
<td></td>
</tr>
<tr>
<td>t Critical one-tail</td>
<td>1.690923455</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>1.35657E-06</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>2.032243174</td>
<td></td>
</tr>
</tbody>
</table>

The results of the t-test show the critical t-statistic is 1.69 at 34 degrees of freedom. The t-statistic for the test was -5.84. Therefore the hypothesis that there is no difference is rejected in this case.

Consumption in Quebec may be higher because wage growth in Quebec has lagged behind the Non-Quebec Canada and therefore there is less to allocate to savings.
3.4 Analysis of Econometric Models

The equations will be presented in the following order and are repeated here for convenience:

**Per Capita Wage Earnings in Quebec**

\[ W_{Qt} = \alpha + \beta_1 GDP_{Qt} + \beta_2 WGR_{t-1} \beta_3 Sep1_t + \beta_4 Sep2_t + \varepsilon_t \]  

**Consumption in Quebec**

\[ C_{Qt} = \alpha + \beta_1 GDP_{Qt} + \beta_2 WAGES_{t-1} + \beta_3 Sep1_t + \beta_4 Sep2_t + \varepsilon_t \]  

**Employment in Quebec**

\[ \Delta EMP_{Qt} = \alpha + \beta_1 \Delta GDP_{Qt} + \beta_2 \Delta CAPINV_t + \beta_3 \Delta W_{Qt} + \beta_4 Sep1_t + \beta_5 Sep2_t + \varepsilon_t \]  

**Unemployment Rate in Quebec**

\[ \Delta EMP_{Qt} = \alpha + \beta_1 \Delta W_{Qt} + \Delta CAPINVQ\beta_2 t + \beta_3 \Delta GDP_{Qt} + \beta_4 \Delta PROFITS_t + \beta_5 Sep1_t + \beta_6 Sep2_t + \varepsilon_t \]  

**Gross Domestic Product for Quebec**

\[ \Delta GDP_{Qt} = \alpha + \beta_1 \Delta CAPINVQ_{t-1} + \beta_2 \Delta LABOR_t + \beta_3 \Delta PROFITS_t + \beta_4 Sep1_t + \beta_5 Sep2_t + \varepsilon_t \]

For each equation, the sign, magnitude, and significance of the parameters will be discussed, summary statistics will be presented and evaluated.

One method of evaluating an economic model is through the analysis of certain summary statistics pertaining to the overall qualifications of the equations. The three general summary statistics that will be evaluated in this section...
are $R^2$, standard error of the estimate and Durbin-Watson test statistic for serial correlation.

When the equations were run as standard least square regressions, the Durbin-Watson statistic for all of the equations fell below the lower limit Durbin-Watson critical statistic. This would indicate the presence of positive serial correlation in all of the equations. The equations were rerun using the Cochran-Orcutt procedure to correct for the existence of serial correlation.

The $R^2$, measures the overall fit of an equation. Basically, it is a figure that indicates what percentage of the dependent variable is accounted for by the regression, taking into account the number of the explanatory variables included in the equation. In the estimating equations used for the Quebec all of the $R^2$ indicate the equations had a very good fit.

The last measure used to evaluate the equations, the standard error of the estimate (SSE), indicates the average error associated with each equation. This statistic is equal to the square root of the mean squared error. The equations that were used in these models faired quite well with modest errors across all equations.
3.4.1 Per Capita Wage Earnings in Quebec

\[
WQt = \alpha + \beta_1 \text{GDP}_t + \beta_2 \text{WGR}_{t-1} + \beta_3 \text{Sep1}_t + \beta_4 \text{Sep2}_t + \beta_5 t + \epsilon,
\]

Hypothesis: Separatist activity has had no effect on the per capita wage earnings as measured by two dummy variables. The first represents years in which there was a vote on a referendum for separation from Canada. The second dummy variable represents years in which significant separatist activity has occurred.

<table>
<thead>
<tr>
<th>Table 3.4.1</th>
<th>(R^2): .9968</th>
<th>SSE: .12058</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term</strong></td>
<td><strong>B Value</strong></td>
<td><strong>t Ratio</strong></td>
</tr>
<tr>
<td>(\alpha) - Intercept</td>
<td>7.4887</td>
<td>7.620</td>
</tr>
<tr>
<td>(\beta_1) - Quebec GDP</td>
<td>0.000059</td>
<td>2.909</td>
</tr>
<tr>
<td>(\beta_2) - Lagged Per Capita Wage Earnings Growth</td>
<td>8.452</td>
<td>2.675</td>
</tr>
<tr>
<td>(\beta_3) - First Dummy Variable for Separatist Activity</td>
<td>-0.5913</td>
<td>-2.725</td>
</tr>
<tr>
<td>(\beta_4) - Second Dummy Variable for Separatist Activity</td>
<td>-0.1278</td>
<td>-0.695</td>
</tr>
<tr>
<td>(\beta_5) - Dummy Variable for Time</td>
<td>0.5321</td>
<td>3.606</td>
</tr>
</tbody>
</table>

The \(R^2\) for the equation measuring per capita wage earnings in Quebec was .9968 and the SSE was 0.94 indicating that the fit for this equation was very good. The Cochran-Orcutt procedure was run on the model to compensate for serial
correlation because the Durbin Watson test on the original least squared estimates suggested there might be a problem with serial correlation. There was no indication that multicollinearity or heteroscedasticity existed in this equation.

All base parameters for this equation were significant at the 95% confidence level as shown in by the t-Ratios of the parameters for Quebec GDP ($\beta_1$) and the lagged per capita wage earnings ($\beta_2$). The signs of these parameters both positive as expected. The variable used to account for the passing of time and increases in technology ($\beta_5$) was positive and significant with a t-ratio of 3.606.

The first dummy variable for separatist activity ($\beta_3$) was negative as expected and was significant with the t-Ratio -2.725. In this case we must reject the null hypothesis that the votes to separate from the rest of Canada had no effect on the per capita wage earnings.

The second dummy variable for separatist activity ($\beta_4$) was negative as expected, however, was not significant at the 95% level with a t-Ratio of -0.695. In this case we must accept the null hypothesis that there was no effect of separatist activity on the per capita wage earnings.
3.4.2 Total Consumption in Quebec

\[ C_{Qt} = \alpha + \beta_1 GDP_{Qt} + \beta_2 WAGES_{t-1} + \beta_3 SEP_{1t} + \beta_4 SEP_{2t} + \varepsilon_t \]

Hypothesis: Separatist activity has had no effect on consumption in Quebec as measured by two dummy variables. The first represents years in which there was a vote on a referendum for separation from Canada. The second dummy variable represents years in which significant separatist activity has occurred.

<table>
<thead>
<tr>
<th>Table 3.4.2</th>
<th>( R^2: .998 )</th>
<th>( SSE: 1270 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>B Value</td>
<td>t Ratio</td>
</tr>
<tr>
<td>( \alpha ) - Intercept</td>
<td>-9453.969</td>
<td>-2.779</td>
</tr>
<tr>
<td>( \beta_1 ) - Quebec GDP</td>
<td>0.511326</td>
<td>5.937</td>
</tr>
<tr>
<td>( \beta_2 ) - Lagged Per Capita Wage Earnings</td>
<td>993.009</td>
<td>1.495</td>
</tr>
<tr>
<td>( \beta_3 ) - First Dummy Variable for Separatist Activity</td>
<td>1022.71</td>
<td>1.546</td>
</tr>
<tr>
<td>( \beta_4 ) - Second Dummy Variable for Separatist Activity</td>
<td>463.322</td>
<td>0.696</td>
</tr>
</tbody>
</table>

The \( R^2 \) for the equation measuring consumption in Quebec was .998 and the SSE was 1270 indicating that the fit for this equation was very good. The Cochran-Orcutt procedure was run on the model to compensate for serial correlation because the Durbin Watson test on the original least squared

Scott Attenborough 62
estimates suggested there might be a problem with serial
correlation. There was no indication that multicollinearity
or heteroskedasticity existed in this equation.

The parameter for Quebec GDP ($\beta_1$) was significant at
the 95% level with a t-Ratio of 5.937. The lagged variable
for per capita wage earnings ($\beta_2$) was not significant at the
95% level with a t-Ratio of 1.495. The signs of these
parameters both positive as expected.

The first and second dummy variables for separatist
activity were positive. These variable were expected to be
negative. These variable were not significant at the 95%
level with t-Ratios of 1.546 for $\beta_3$ and 0.696 for $\beta_4$.

In these cases we must accept the the null hypothesis that the
votes to separate from the rest of Canada and significant
separatist activity had no effect on consumption in Quebec.
3.4.3 Employment

LEMPQt = α + β1LGDPQt + β2LCAPEQQt + β3LWQt + β4SEP1t + β5SEP2t + εt

Hypothesis: Separatist activity has had no effect on employment as measured by two dummy variables. The first represents years in which there was a vote on a referendum for separation from Canada. The second dummy variable represents years in which significant separatist activity has occurred.

<table>
<thead>
<tr>
<th>Term</th>
<th>B Value</th>
<th>t Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>α - Intercept</td>
<td>6.8219</td>
<td>28.375</td>
</tr>
<tr>
<td>β1 - LOG Quebec GDP</td>
<td>0.11285</td>
<td>1.367</td>
</tr>
<tr>
<td>β2 - LOG Capital Investment</td>
<td>0.005437</td>
<td>2.708</td>
</tr>
<tr>
<td>β3 - LOG Quebec Per Capita Wage Earnings</td>
<td>-0.04966</td>
<td>-0.661</td>
</tr>
<tr>
<td>β4 - First Dummy Variable for Separatist Activity</td>
<td>0.0010</td>
<td>0.195</td>
</tr>
<tr>
<td>β5 - Second Dummy Variable for Separatist Activity</td>
<td>0.0067</td>
<td>1.928</td>
</tr>
</tbody>
</table>

The R² for the equation measuring employment in Quebec was .9956 and the SSE was 0.00035 indicating that the fit for this equation was very good. The Cochran-Orcutt procedure
was run on the model to compensate for serial correlation because the Durbin Watson test on the original least squared estimates suggested there might be a problem with serial correlation. There was no indication that multicollinearity or heteroscedasticity existed in this equation.

The parameter for capital investment ($\beta_2$) was significant at the 95% confidence level with a t-Ratio of 2.708. The parameters for Quebec GDP ($\beta_1$) and per capita wage earnings ($\beta_3$) were not significant at the 95% level with a t-Ratio for $\beta_{31}$ of 1.367 and for $\beta_{33}$ -0.661. The signs for $\beta_1$, $\beta_2$, and $\beta_3$ were all as expected.

The first dummy variable for separatist activity ($\beta_{34}$) was positive. It was expected to be negative. It was not significant at the 95% level with the t-Ratio 0.195. In this case we must accept the null hypothesis that the votes to separate from the rest of Canada had no effect employment in the province of Quebec.

The second dummy variable for separatist activity ($\beta_{35}$) was positive. It was expected to be negative. It was not significant at the 95% level with a t-Ratio of 1.928. In this case we must accept the null hypothesis that separatist activity had no effect on employment in the province of Quebec.
3.4.4  Unemployment Rate

\[ \text{UEMP}_t = \alpha + \beta_1 \Delta \text{WQ}_t + \beta_2 \Delta \text{CAPINVQ}_t + \beta_3 \Delta \text{GDPQ}_t + \beta_4 \Delta \text{CPROFITS}_t + \beta_5 \text{SEP1}_t + \beta_6 \text{SEP2}_t + \varepsilon_t \]

Hypothesis: Separatist activity has had no effect on unemployment as measured by two dummy variables. The first represents years in which there was a vote on a referendum for separation from Canada. The second dummy variable represents years in which significant separatist activity has occurred.

<table>
<thead>
<tr>
<th>Term</th>
<th>B Value</th>
<th>t Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha ) - Intercept</td>
<td>6.124</td>
<td>2.869</td>
</tr>
<tr>
<td>( \beta_1 ) - Quebec Per Capita Wage Earnings Growth Rate</td>
<td>1.18953</td>
<td>2.968</td>
</tr>
<tr>
<td>( \beta_2 ) - Capital Investment Growth Rate</td>
<td>-0.00042</td>
<td>-5.009</td>
</tr>
<tr>
<td>( \beta_3 ) - Quebec GDP Growth Rate</td>
<td>-0.0000734</td>
<td>-1.284</td>
</tr>
<tr>
<td>( \beta_4 ) - Growth Rate for Corporate Profits in Quebec</td>
<td>-0.000141</td>
<td>-1.578</td>
</tr>
<tr>
<td>( \beta_5 ) - First Dummy Variable for Separatist Activity</td>
<td>-0.7904</td>
<td>-1.388</td>
</tr>
<tr>
<td>( \beta_6 ) - Second Dummy Variable for Separatist Activity</td>
<td>-0.7103</td>
<td>-2.019</td>
</tr>
</tbody>
</table>
The $R^2$ for the equation the unemployment rate in Quebec was .8858 and the SSE was 0.38011 indicating that the fit for this equation was good. The Cochran-Orcutt procedure was run on the model to compensate for serial correlation because the Durbin Watson test on the original least squared estimates suggested there might be a problem with serial correlation. There was no indication that multicollinearity or heteroscedasticity existed in this equation.

The parameter for the growth in the per capita wage earnings ($\beta_1$) was significant at the 95% level with a $t$-Ratio of 2.968. The parameter for the growth in capital investment ($\beta_2$) was significant at the 95% confidence level with a $t$-Ratio of -5.009. The parameters for GDP growth ($\beta_3$) and growth in corporate profits ($\beta_44$) were not significant at the 95% level with $t$-Ratios or -1.294 for $\beta_3$ and -1.578 for $\beta_4$. The signs for $\beta_1$, $\beta_2$, $\beta_3$ and $\beta_4$ were all as expected.

The first dummy variable for separatist activity ($\beta_5$) was negative. It was expected to be positive. It was not significant at the 95% level with the $t$-Ratio -1.388. In this case we must accept the null hypothesis that the votes to separate from the rest of Canada had no effect the unemployment rate in the province of Quebec.
The second dummy variable for separatist activity ($\beta_6$) was negative. It was expected to be positive. It was not significant at the 95% level with a t-Ratio of -2.019. In this case we must accept the null hypothesis that separatist activity had no effect on unemployment in the province of Quebec.
3.4.5 Gross Domestic Product

\[ \Delta GDP_Q^t = \alpha + \beta_1 \Delta CAPINV_Q^t-1 + \beta_2 \Delta LABOR_R^t + \beta_3 \Delta PROFITS_t + \beta_4 SEP_1^t + \beta_5 SEP_2^t + \varepsilon_t \]

Hypothesis: Separatist activity has had no effect on the growth output represented by growth of GDP in Quebec as measured by two dummy variables. The first represents years in which there was a vote on a referendum for separation from Canada. The second dummy variable represents years in which significant separatist activity has occurred.

<table>
<thead>
<tr>
<th>Term</th>
<th>B Value</th>
<th>t Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha ) - Intercept</td>
<td>7.605</td>
<td>7.678</td>
</tr>
<tr>
<td>( \beta_1 ) - Capital Investment Growth Rate</td>
<td>0.1004</td>
<td>2.463</td>
</tr>
<tr>
<td>( \beta_2 ) - Labor Growth Rate in Quebec</td>
<td>0.6592</td>
<td>2.678</td>
</tr>
<tr>
<td>( \beta_3 ) - Growth Rate for Corporate Profits in Quebec</td>
<td>0.0332</td>
<td>2.125</td>
</tr>
<tr>
<td>( \beta_4 ) - First Dummy Variable for Separatist Activity</td>
<td>-0.000141</td>
<td>-1.578</td>
</tr>
<tr>
<td>( \beta_5 ) - Second Dummy Variable for Separatist Activity</td>
<td>-0.7904</td>
<td>-1.388</td>
</tr>
</tbody>
</table>

R\(^2\): .924  SSE: 1.074
The $R^2$ for the equation measuring per capita wage earnings in Quebec was .924 and the SSE was 1.074 indicating that the fit for this equation was very good. The Cochran-Orcutt procedure was run on the model to compensate for serial correlation because the Durbin Watson test on the original least squared estimates suggested there might be a problem with serial correlation. There was no indication that multicollinearity or heteroscedasticity existed in this equation.

All base parameters for this equation were significant at the 95% confidence level as shown in by the t-Ratios of the parameters for capital investment growth ($\beta_1$) and the labor growth rate ($\beta_2$) and growth rate of corporate profits ($\beta_3$). The signs of these parameters were all positive as expected.

The first dummy variable for separatist activity ($\beta_4$) was negative as expected and was not significant at the 95% level with the t-Ratio -1.578. In this case we must accept the null hypothesis that the votes to separate from the rest of Canada had no effect on the growth of output as measured by the GDP growth.
The second dummy variable for separatist activity \( (\beta_5) \) was negative as expected, however, was not significant at the 95% level with a t-Ratio of -1.388. In this case we must accept the null hypothesis that there was no effect of separatist activity on the growth of output as measured by the GDP growth.
Chapter 4

SUMMARY AND FUTURE RESEARCH DIRECTIONS

4.1 Summary

The purpose of this study was to gain an understanding of the effect of separatist activity on the Quebec economy. The data was analyzed and it was determined that the economy has lagged significantly behind the economy of the rest of Canada and of its closest neighbor.

Several econometric equations were constructed to evaluate the effect of the separatist activity on the Quebec economy. These estimates proved inconclusive concerning the effect of separatist activity in the province. The models confirmed the parameter estimates used in the equations valid and the models $R^2$ indicated that the models were acceptable overall.

Limitations on using these models were varied. First, the availability of the data was sporadic and special care had to be given to getting like series. Second, it would have been helpful to get data that was quarterly instead of annual. Quarterly data may have increased the confidence in the models by providing more observations. Finally, there may be better dummy variables or parameters that can be used for determining the effect of separatist activity on the
economy of Quebec. The parameters used in this study were inconclusive.

4.2 **Future Research Directions**

The areas for future research stemming from this study divide in two areas:

1. those which deal with evaluating models that deal with quarterly data and can use lagged variables to enhance the fit of the models.

2. those which further the study of the separatist question.

Of those oriented toward increasing the accuracy and fit of the models:

1. The models can be expanded to include a broader spectrum of variables.

2. The study can be undertaken with quarterly data to increase the explanatory effect of the independent variables.

In the separatist movement area, two options are:

1. Search for better data on separatist sentiment and activity and include this new data in the current models.

2. Attempt to determine whether separatist activity had an effect on other areas such as regional interest rates, investment, housing, etc.
It is possible that the economic woes that have been experienced by Quebec have given rise to the separatist movement. Since Non-Quebec Canada has economically outpaced Quebec the people in Quebec feel they have been somehow discriminated against or left behind. The weak relative performance of the Quebec economy with high unemployment and lagging wages could have been the genesis of separatist activity. The language barrier may have caused lack of labor mobility, increased transaction costs, and lack of big business investment in Quebec. The language they are trying to preserve may be the cause of their sluggish performance.

From the analysis comparing Quebec with Non-Quebec Canada, there is evidence that Quebec has consistently lagged behind in the economic indicators that were tested. However, in the econometric models, the economic performance was not significantly correlated with the indicators chosen for separatist activity. Though root cause of the poor performance in Quebec cannot be tied to any particular event in separatist history the one overwhelmingly obvious difference between Quebec and Non-Quebec Canada is language.

The separatist movement, for the most part, has been peaceful. There have been no catastrophic events that would shock the economy. The people in Quebec do not have to worry about terrorist bombings or random rampages by
separatist sympathizers. The movement in Quebec has been a political action rather than a revolutionary one that would upset established institutions that help create stability. Quebec separatists are talking about autonomy not so much reform or overthrowing the government. This peaceful, political movement may account may not pose as significant a threat to the economy.

In summary, the current study introduces many opportunities for future research on the Quebec regional economy. As the regions in Canada continue to exhibit wide economic disparities, so will the study of these regions become increasingly interesting and important. In conclusion, the Assistant Chief Economist, Lise Bastarache, at the Royal Bank of Canada in Montreal stated that "To deny that it (uncertainty/separatist activity) has any impact is being naive or having your head in the sand". "But", she added, "to blame all of Quebec's economic woes on the prospect of independence is equally naive." Future analysis may be able to get at the root of Quebec's economic woes.
Appendix 1

Significant events in the Separatist Movement


8. May 20, 1980: Quebec voters defeat sovereignty proposal, 60 percent to 40 percent.


12. June 3, 1987: Meech Lake accord agrees to recognize Quebec as "distinct society," must be approved by all 10 provinces within 1 year.


17. Sept. 24, 1991: Federal government tables proposals to recognize Quebec as a distinct society and grant greater provincial power.

18. August 1992: Quebec and other provinces reach deal with federal government, known as Charlottetown Accord, that gives provinces greater power over federal government.


23. Oct. 25: In televised address, Chretien pleads with Quebeckers not to secede.


25. Oct. 30: Quebeckers vote against sovereignty, 50.6 percent to 49.4 percent.
Appendix 2

The Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Quebec GDP</th>
<th>Quebec Fixed Capital Investment</th>
<th>Quebec Consumption</th>
<th>Quebec Population</th>
<th>Wage Rate</th>
<th>Quebec Unemployment Rate</th>
<th>Quebec Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>10,608</td>
<td>1,756</td>
<td>6,790</td>
<td>4,767</td>
<td>2.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1962</td>
<td>11,574</td>
<td>1,871</td>
<td>7,408</td>
<td>4,776</td>
<td>2.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1963</td>
<td>12,297</td>
<td>2,004</td>
<td>7,915</td>
<td>4,789</td>
<td>2.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1964</td>
<td>13,645</td>
<td>2,473</td>
<td>8,465</td>
<td>5,311</td>
<td>3.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>14,970</td>
<td>2,760</td>
<td>9,148</td>
<td>5,345</td>
<td>3.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>16,641</td>
<td>3,009</td>
<td>9,963</td>
<td>5,388</td>
<td>3.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>18,017</td>
<td>2,771</td>
<td>11,044</td>
<td>5,439</td>
<td>4.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>19,195</td>
<td>2,711</td>
<td>11,523</td>
<td>5,495</td>
<td>4.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>21,080</td>
<td>2,863</td>
<td>12,506</td>
<td>5,540</td>
<td>4.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>22,484</td>
<td>3,410</td>
<td>14,143</td>
<td>5,565</td>
<td>5.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>24,271</td>
<td>4,127</td>
<td>15,939</td>
<td>6,172</td>
<td>5.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>27,217</td>
<td>5,182</td>
<td>18,379</td>
<td>6,211</td>
<td>6.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>30,928</td>
<td>6,755</td>
<td>21,304</td>
<td>6,261</td>
<td>7.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>36,342</td>
<td>8,380</td>
<td>24,630</td>
<td>6,321</td>
<td>9.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>40,944</td>
<td>9,042</td>
<td>27,706</td>
<td>6,385</td>
<td>10.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>47,697</td>
<td>9,770</td>
<td>30,504</td>
<td>6,437</td>
<td>10.96</td>
<td>10.32</td>
<td>296.75</td>
</tr>
<tr>
<td>1977</td>
<td>52,211</td>
<td>10,054</td>
<td>33,607</td>
<td>6,449</td>
<td>11.66</td>
<td>10.95</td>
<td>322.08</td>
</tr>
<tr>
<td>1978</td>
<td>58,122</td>
<td>11,386</td>
<td>37,785</td>
<td>6,467</td>
<td>12.84</td>
<td>9.70</td>
<td>290.33</td>
</tr>
<tr>
<td>1979</td>
<td>64,939</td>
<td>12,435</td>
<td>41,831</td>
<td>6,500</td>
<td>14.14</td>
<td>9.93</td>
<td>306.25</td>
</tr>
<tr>
<td>1980</td>
<td>72,220</td>
<td>13,577</td>
<td>46,674</td>
<td>6,543</td>
<td>15.79</td>
<td>10.47</td>
<td>326.92</td>
</tr>
<tr>
<td>1981</td>
<td>81,513</td>
<td>14,819</td>
<td>51,884</td>
<td>6,586</td>
<td>16.79</td>
<td>13.86</td>
<td>427.67</td>
</tr>
<tr>
<td>1982</td>
<td>86,228</td>
<td>15,694</td>
<td>60,359</td>
<td>6,637</td>
<td>18.13</td>
<td>12.89</td>
<td>412.33</td>
</tr>
<tr>
<td>1983</td>
<td>92,274</td>
<td>16,911</td>
<td>66,544</td>
<td>6,706</td>
<td>19.06</td>
<td>11.95</td>
<td>389.83</td>
</tr>
<tr>
<td>1984</td>
<td>100,962</td>
<td>18,240</td>
<td>72,379</td>
<td>6,710</td>
<td>20.00</td>
<td>11.05</td>
<td>365.67</td>
</tr>
<tr>
<td>1985</td>
<td>109,076</td>
<td>20,316</td>
<td>77,919</td>
<td>6,770</td>
<td>21.15</td>
<td>10.33</td>
<td>349.50</td>
</tr>
<tr>
<td>1986</td>
<td>119,439</td>
<td>22,600</td>
<td>83,458</td>
<td>6,829</td>
<td>22.50</td>
<td>9.43</td>
<td>324.67</td>
</tr>
<tr>
<td>1987</td>
<td>140,710</td>
<td>25,260</td>
<td>93,357</td>
<td>6,906</td>
<td>23.57</td>
<td>9.31</td>
<td>323.75</td>
</tr>
<tr>
<td>1988</td>
<td>148,543</td>
<td>28,422</td>
<td>101,557</td>
<td>7,200</td>
<td>26.08</td>
<td>13.17</td>
<td>466.67</td>
</tr>
<tr>
<td>1989</td>
<td>154,380</td>
<td>29,195</td>
<td>104,524</td>
<td>7,270</td>
<td>26.32</td>
<td>12.21</td>
<td>438.33</td>
</tr>
<tr>
<td>1990</td>
<td>157,373</td>
<td>25,630</td>
<td>106,567</td>
<td>7,315</td>
<td>26.47</td>
<td>11.29</td>
<td>407.75</td>
</tr>
</tbody>
</table>

Scott Attenborough
References


Byers, R. B.; Leyton-Brown, David, "The Strategic and Economic Implications for the United States of a Sovereign Quebec", Canadian Public Policy; v6 n2 Spr. 1980, pp.325-41

Cote, Marcel, "The Economics of Quebec Separation", Canadian Business Economics; v3 n1 Fall 1994, pp. 37-45

Dingwall, James, "Canada Is Coming Unglued", D&B Reports, Sep/Oct 1992, Vol. 40, No. 5; Pg. 58-59

Donderi, Don C., English-Language Population of Quebec has Shrunk, The Montreal Gazette, Pg B 3, August 17, 1995


Ghali, Moheb Amin; Renaud, Betrand, The Structure and Dynamic Properties of a Regional Economy, Lexington Books, Lexington, MA, April 1975

Handler, Richard., Nationalism and the Politics of Culture in Quebec, Madison, Wisconsin,: University of Wisconsin Press, 1988


McGuire, Mark, "Vote Against Change Alters Canada Anyway", The Times Union, Albany, NY, Pg A1, October 31, 1995


Quinn, Herbert F., The Union Nationale. Toronto, Ontario: University of Toronto Press, 1979


Raynauld, Jacques, "Canadian Regional Cycles: The Quebec-Ontario Case Revisited", Canadian Journal of Economics, February 1988, Vol. 21, No. 1; Pg. 115-128