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Regional analysis of unemployment: the Province of Quebec, 1946-1966

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REGIONAL ANALYSIS OF UNEMPLOYMENT: THE PROVINCE OF QUEBEC, 1946-1966

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INTRODUCTION

There is always a lag between the increase of the unemployment level and its intensive analytical study. This is conceivable. First, there is always a shortage of students of unemployment; second, it takes time to see the true emerging pattern of unemployment. As soon as the unemployment rate rises, the market mechanism as well as the automatic stabilizers and other public policies begin to operate. If the rise in unemployment is caused by mild variations of aggregate demand and supply, the above regulators of employment will eliminate the rise of unemployment. However, if full employment cannot be reached, policy makers as well as economists start studying unemployment. This situation prevailed in the postwar period, particularly in the late 1950's.

During the period 1946-1966, although there were many business cycle fluctuations, they were moderate. However, each fluctuation always produced a higher unemployment rate than before the recession. This emerging pattern of unemployment is a major cause of concern. The central question is to explain why unemployment always increased after each recession while other economic variables recovered; or to put it in terms of employment, why full employment cannot be reached.

Investigation of the problem is justified since full employment is one of the important goals of any modern

economy. The academic debate of the question revolves around the question of whether the rise in "recovery-unemployment" is caused by inadequate aggregate demand or by structural changes. The other possible form of the debate is to take into account the above hypothetical causes, but to concentrate the analysis of unemployment on the decomposition of the unemployment rate. This last type of study has been done by Frank T. Denton and Sylvia Ostry (21) in their "Analysis of Postwar Unemployment, Economic Council of Canada Staff Study 3, 1964."

The present study, which examines the 1946-1966 unemployment, is not primarily concerned with a particular type of analysis or a particular hypothesis to be tested. Its first objective is to examine the unemployment problem of a particular economic region of Canada, namely the Province of Quebec. Therefore, a gross plan can be as follows. An investigation will be made of the unemployment problem of an economic region within the national economy, more specifically taking the Province of Quebec as a homogeneous economic region of the Canadian economy. The objectives are as follows:

1) To describe the unemployment of this region, its level, its behavior, its composition, as well as its causes and its components.
2) To derive the policy implications.

The Framework

It is impossible to ask a single question and get a single answer in analyzing unemployment. An overall framework has to be given. Elementary principles of scientific method state that the results of any research project depend primarily upon the original questions. The recent literature on unemployment asked one central question: what are the causes of the unemployment patterns (secular as well as cyclical)? But the question was asked in two different forms and, therefore, two different answers were possible. Whether the present higher unemployment is due to aggregate demand or whether it is due to structural changes is dependent on the form of the question asked about the causes of unemployment. It is quite different to ask whether the cause that led men to become unemployed and prevented them from getting another job is their capacity of becoming employed or the capacity of the economy to employ them. It is not because economists use the same data to investigate the question that they should arrive at the same results. The available figures of unemployment give statistical information which is obviously biased toward the aggregate demand hypothesis, since unemployment as measured in statistical series is akin to a residual phenomenon. Variations in the demand for labor do not "per se" produce unemployment, though there can be a "statistical unemployment". It is necessary

to take into account the needs, the attitudes, and the capacities of peoples to have a meaningful unemployment rate. Unemployment figures should be the result of variations in needs, attitudes, and capacities of members of the labor force as well as the variations of demand. The causes of unemployment are also dependent on how full employment, labor force, labor market, supply of labor, and demand for labor are defined and measured.

Full employment is not the maximum hours a labor force can work, nor the gap between the capacity of production and the maximum labor input which can be used in the production function. It is a question of the number of individuals not at work but in the labor force allowing for seasonal variations and frictional operations of the labor market. In other words, economists as well as policy makers have to be satisfied with "a workable full employment" to adopt a word of J. M. Clarck. As far as the concept and measurement of unemployment are concerned, there are three possibilities. Unemployment can be considered as an activity, that of seeking work; as an attitude, that of desiring a job under certain conditions; or as a need, that of needing a job. Aside from these possibilities, a specific framework of analysis can be given in terms of demand for and supply of labor.

For consideration of the demand for labor, no less than a general exploration of the level and composition of output

would suffice. In addition to these variables included in the usual short-run, closed economy, keynesian and classical analysis, it would be necessary to consider and mention:

1) The stage of economic development of the Province of Quebec.
2) Its rate of industrial growth.
3) The nature and magnitude of its cyclical and seasonal fluctuations.
4) Its changing industrial structure.
5) The path of technological progress, its effects on productivity and on the kind of labor demanded.
6) Finally, the changing pattern of regional trade as well as the regional status of Quebec within Canada which are important topics.

This lengthy enumeration, undoubtedly incomplete, provides a basis for appreciating the difficulties in any attempt to isolate the specific causes of unemployment of the region studied as far as the demand is concerned.

On the supply side, the study will have to take into account the development and growth of the labor force of the region. This requires detailed considerations of:

1) Demographic factors, factors determining the supply of males, females, youth, and aged workers.
2) The effects of changing economic conditions, particularly the wage level, hours worked, the availability of work, the number of persons seeking

work, as well as the growth of trade unionism and the influence of various institutions.

3) The factors determining the proportion of skilled and unskilled labor in the labor force (education, vocational, and apprenticeship training) and the manpower productivity which are part of the analysis.

The Main Hypothesis and the Plan of the Study

The analysis of unemployment will reveal that there is a different level of unemployment from one year to the other and that it has also a different composition as far as the personal characteristics are concerned. It should be obvious, however, that although these aspects are very important to the policy maker, they do not explain the unemployment level. As is well-known, the unemployment level can be decomposed by type of unemployment, that is, in seasonal unemployment, frictional unemployment, cyclical unemployment, secular unemployment, and long-term unemployment. In formulating the set of main hypotheses it is necessary to take into account the above aspects of unemployment, but they must be coupled with some pre-conditioning comments. In general, given a problem, the first step is to identify and to delimit the subject, the second step should be to try to find its mechanism, and finally to find the solution. In the present analysis of unemployment, as in any analysis of total

unemployment, it does not take long to see how complicated the problem is, though it seems very simple to be identified. Unemployment is the surplus of the supply of labor over the demand for labor. This is a clear economic statement, but the underlying variables are not so clear and not so well-defined. As a result, the problem of unemployment is, in fact, not very well identified and not very well delimited. This analysis is not an exception. As stated earlier, total unemployment has different components and each of them can be a subject of analysis. The primary concern is with the overall unemployment of a region, the Province of Quebec. Even with this first delimitation of the analysis, it is obvious that the unemployment of the Province of Quebec can also be decomposed into many components, or contributors, to total unemployment and types of unemployment. In order to choose the best point of view of the phenomenon at the regional level, we formulate a useful hypothesis. This hypothesis is based on the most intricating type of unemployment - the one with the most intricating amount, level, behavior, and component. A gross examination of unemployment rate by sex, age, and type of unemployment reveals that the most intricating unemployment is the secular unemployment rate. It also fills two other conditions. First, it covers all other types of unemployment and, second, it has a particular pattern over the entire period analyzed, 1946-1966.

Until recently the secular unemployment was not a

subject of study because it did not show any particular pattern, but since 1953 it has had a tendency to increase. Given its level, its behavior, and the other unemployment rates, it is easy to hypothesize that the secular unemployment has increased because one of the components of unemployment has increased, one type of unemployment has increased, or because the behavior of the unemployed has changed. It is hypothesized that the rise in secular unemployment is due:

1) To the increase in seasonal unemployment during the period.
2) To the increase in frictional unemployment.
3) To the incapacity of the economic agents to behave rationally with a full employment policy, which requires a production capacity in equilibrium with the aggregate demand.
4) To the inadequate mobility.
5) To the changing structure of the economy.

With these hypotheses the major sources of unemployment will be explored to find the possible causes of the secular increasing unemployment rate.

However, before this set of hypotheses can be tested, the specific character of the analysis must be examined. The next chapter of the analysis is devoted to this subject. In order to state carefully this character, that is the regional character, the following are necessary:

1) A gross analysis of the national economic performance during the period.
2) An examination of the relationship between the level of economic activity of the Province of Quebec and the national economic performance.

This information permits an understanding of the particularity of the unemployment in Quebec which exists as the product of the level and behavior of other economic variables. The particular level, behavior, and composition of the unemployment in Quebec is the subject of the third chapter. The following five chapters are concerned with the set of hypotheses. The final chapter will examine the policy implications which can be derived from the analysis.

THE ECONOMIES AND THE REGIONAL CHARACTER OF THE ANALYSIS

Characters of the Economic Development of Canada, 1946-1966

The following pages provide a review of the economic development in Canada during the period 1947-1966, mainly within the framework of gross national variables. This summary has been largely inspired from the Annual Reports of the Economic Council (15, 16) and from the first and second review of the Council (17, 18).

The main characteristics of the development are revealed by a rapid analysis. First, the Canadian economy has not been able to reach all goals at the same time. There has been either inflation or unemployment, and sometimes mild inflation and above target unemployment, or no inflation but unemployment and slow rate of growth. Another characteristic of the Canadian economy is its dependence. There are some students who think that this is the crucial problem of the economy, but as far as is known there are no studies which analyzed the more important problem of the evolution of this character of the Canadian economy. Is the situation worse in 1967 than it was in 1946? What is the impact of the evolution? Although it is true that there is no economy completely autonomous, it seems that the Canadian economy is less independent than it should be. A third characteristic of the development is the mixture of the results over the period. The Canadian economy has experienced some good periods of

expansion but there have been many short business cycles. The immediate postwar period showed a relatively high level of employment and production; however, this level was due to a deferred domestic demand. The mechanism of the increase was economic but the cause of the increase was external to the economy - World War II. The next period of expansion, the Korean War period, was also due to some external events coupled with a rapid and vigorous intervention of the government. When the Korean War was over and as soon as the European countries had rebuilt their economies, the Canadian economy began to feel the new competition and to experience higher unemployment. In fact, it experienced a series of short business cycles as well as some structural shifts due to the massive external investment. Naturally the problem of the balance of payment reappeared. However, the present expansion which began in 1961 seems to be based on a large foreign and domestic demand.

Aside from these main characteristics and this brief summary of the development, there are some interesting comments which have to be made about certain variables such as unemployment, indicators of the economic growth, prices, wages, and balance of payment. As far as the unemployment is concerned, the last expansion did not solve the problem. The problem appears to be more intricating than ever, and it seems that Canada is confronted with a "prosperity unemployment". From 1946 to 1953 the average rate of

unemployment in Canada was 2.8 per cent. From 1954 to 1957 it increased by more than 50 per cent or to a level of 4.3 per cent. From 1958 to 1962 it increased again to 6.7 per cent. Since 1962 it has decreased. During the same period the employment continued to increase year after year and the unemployment increased from one peak unemployment to the other and from one trough unemployment to the other between 1950-1961.

The Canadian Economic Council gave four indicators to show the economic growth. (a) The total real production has more than doubled. (b) The real production per capita has increased by 30 per cent. (c) Real production per employee has increased by 50 per cent. (d) Real production production per man-hour has increased by 70 per cent. However, the analysis of the rate of growth of these variables shows that the rate of growth has decreased for all these indicators. This is the source of the unemployment problem. Table 1 shows the average percentage change for certain periods and variables.

Inflation is one of the important preoccupations of the Canadian people, as well as governments and economists. Canada experienced many successive periods of rapid increase in prices: 1946-1948, 1950-1951, 1958 and 1966. Price increases had profound effects on the Canadian economy and on Canada's competitive position in the international market. There are also effects on the distribution of income. During

Table 1. Canadian average percentage change for selected variables and periods[a]

	1946-1963	1946-1953	1953-1963
Gross national product	3.9	4.5	3.5
Population	2.6	2.7	2.4
Per capita GNP	1.3	1.7	1.0
Domestic production	4.2	5.1	3.6
Per employed	3.3	3.4	1.6
Per man-hours	3.3	4.5	2.4

[a]Source: (17, p. 13).

1946 and 1966, consumer price index rose from 77.50 to 143.90 or by 85.6 per cent, while the wholesale price index went up from 138.90 to 259.60 or by 86.8 per cent.

One of the major factors in the increase in price is the level of wages, considered as the price for labor. The Economic Council advanced the hypothesis that unit cost of labor paid was a major factor in the decline of the international competitive position. This phenomenon is shown in Table 2.

The problem of the balance of payment seems to become more acute over time and except for the immediate postwar period, 1946-1952, there was always a deficit. In this brief review of the Canadian economic development there is not

Table 2. Canadian average percentage change in unit cost for selected periods[a]

	1946-1953	1953-1963	1960-1963
Canada	50.6	11.6	- 1.3
Canada (unadjusted)	62.0	17.6	-11.3

[a]Source: (17, p. 21).

space to examine this problem although it is very important in itself and in the solution of the unemployment problem since the external demand is part of the aggregate demand. However, the concern is not with the national aggregate demand but with the demand and the economy of one Province, the Province of Quebec. The remaining paragraphs of the chapter present a brief summary of the level of economic activity of this region. Aside from this brief summary of the regional economic development, the character of the analysis is given.

The Economic Development of the Province of Quebec, 1946-1966

During the period 1946-1966 the economy of the Province of Quebec experienced a tremendous growth as shown in Table 3. Over the 21-year period the personal income increased by 384.0 per cent while the disposable income increased by 350.0 per cent, but the taxes (direct) went up by 550.0 per cent. The

Table 3. Province of Quebec, selected economic indicators of growth, 1946 and 1966[a]

	1946	1966	Per cent change
	000	000	
Income			
Personal income	$2,339	$10,830	384.3
Disposable income	2,141	9,652	350.8
Per capita	645	1,885	292.2
Taxes			
Income tax	198	1,188	550.0
Expenditures			
Consumer	1,342	5,610	318.0
Capital (new)	1,005	4,509	348.6
Provincial government	313	2,072	561.9
Municipal government	246	809	237.0
Total	553	2,881	420.9
Production			
Gross value	3,473	15,443	344.6
Added value	1,786	6,505	264.2
Costs	1,686	8,939	430.1
Wages			
Total income (wages)	1,493	7,792	421.9
Average weekly	($34.44)	($90.62)	163.4
Hourly	(0.74)	(2.16)	191.8
Prices			
Consumer	(77.50)	(143.90)	85.6
Wholesale	(138.90)	(259.60)	86.8
Hours	(46.10)	(41.80)	-9.3
Demography, employment			
Population	3,636	5,810	60.0
Labor force	1,337	2,116	58.2
Participation rate	(54.00)	(53.30)	-0.1
Employment	1,282	2,016	57.2

[a]Source: (31, pp. 1, 3, 22, 25-30, 34, 37).

increase in income is reflected in the consumer expenditures, estimated by the retail stores expenditures, which increased by 318.0 per cent. Between governments, municipal government expenditures rose more slowly (237.0 per cent) than the provincial expenditures (561.9 per cent). Unfortunately, the amount of federal expenditures in the Province of Quebec is not available. As far as investment expenditures are concerned, they increased by 348.6 per cent. It is nearly matched by the increase in gross (value) production (344.6 per cent). However, the added value did not have the same rate of growth since the costs increased more rapidly than the gross production. Total wage income increased by 421.9 per cent, while average weekly wage increased by 163.4 per cent. A certain part of the increases in wage income is due to the increase in employment and to the fact that different concepts are represented. Average weekly earning is a composite index, while the total wage income is the estimation of a type of income as given in the National Account. The increase in wages took place while there was a decrease of -9.3 per cent in hours worked. Consumer price index went up by 85.6 per cent and the wholesale price index by 86.8 per cent.

Given this information on the aggregate demand and on the resulting income, the supply of labor can be considered. The population increased by 60.0 per cent, the labor force by 58.2 per cent and there was a decrease of -0.1 per cent

in the participation rate. The employment showed an increase of 57.2 per cent, that is, a smaller increase than the increase of the labor force. There was one per cent difference between the rate of growth of the demand for labor (employment) and the supply of labor (labor force) during the period 1946-1966. However, it cannot be inferred that this resulted in a one per cent unemployment due to the aggregate demand since a too rapid growth of the supply of labor can be due to the rapid growth of the population.

The Regional Character of the Analysis

Given this information of the economic development of the national and regional economy, it remains to specify the regional character of the analysis. The specification of the regional character of the analysis is concerned with:

1) The problem of estimation of the regional economy.
2) The sociological character of the region and its economic characters.
3) The regional labor market.

The objective of the following paragraphs is to eliminate some pitfalls. This is done by the introduction of different types of assumptions about the measures used, the sociological character of the region, and the labor market. In other words, the specification of the regional character is concerned with the set of assumptions.

The problem of estimation of the regional economy

In regional estimation, a number of basic conceptual problems arise which are not encountered in as serious form in national estimations. This is true for income, output, and expenditures estimations. These problems emerge because the region is an open economy. Furthermore, because the nation is a cultural-political unit, which for policy considerations is distinct from the rest of the world, domestic transactors distinguish between home and foreign operations. However, even if their facilities and organizations are entirely contained in the region, the same transactor does not differentiate between transactions with parties in the same region and those in other regions. Moreover, many organizations cannot be said to be located in a given region; this is the case of government. It is difficult, if not impossible, to determine what fraction of governmental operation is internal to the region. In addition, many national data are derived from sampling procedures. Sampling procedures which yield results valid for the nation may not yield reliable data for a region.

Related but apart from the problem of data and estimation of the regional economy, there is the more important problem of the impact of external agents. Though one can be satisfied with the available Quebec statistics, the problem of evaluation of the impact of external agents arises. The heroic assumption has been made that there was

no such uncontrolled impact, that is, the assumption that Quebec's economy is an autonomous economy. The problem necessitates some comments or at least the assumption has to be justified. First, the available data do not permit this type of evaluation. This is an external constraint. The second constraint stems from the fact that the study is the preliminary research of a larger project which will investigate the possibility for the Province of Quebec to control its labor market as well as to have its own set of manpower policies. Therefore, the analysis is restricted to its regional aspect by using regional variables when possible.

The sociological environment

Given the economic assumptions, some comments are necessary on the sociological environment of this regional economy. It is believed that there is some gap in the knowledge of the readers as far as this sociological environment is concerned. First, it should be noted that all economies have a sociological environment (defined very broadly) which has a tremendous impact on the economy. However, it does not determine the level of economic activity as such, but it provides the framework within which the regional level of activity is determined. Historically, the Province of Quebec has a very particular sociological environment. The Province has a different language (about 85 per cent speak French), a different religion, a different

system of education, and a strong provincial sentiment of nationalism. It is obvious that these differences can be a source of differential unemployment rate (religion, language, etc.) but these aspects are impossible to analyze since there are no data on these subjects. It should be obvious that there is no direct relationship between the personal characteristic of an individual and his unemployment experience. However, through discrimination, that is, through one form of the sociological environment, there is an indirect relationship. Apart from the problem of discrimination as a source of unemployment, there is the problem of a difference between the aspirations of the peoples of the Province of Quebec to become a nation and its economic capacity to reach this implicit goal. A general knowledge of the social and political evolution is deemed essential to understand the effort of economic development made by the Province and the consequences of this effort in terms of unemployment. In the history of the Province a definite pattern can be identified in the political evolution which can be coupled with a less clear pattern of social evolution. Both evolutions are translated in terms of the economic development.

The regional labor market

Labor markets are more talked about than seen, for their dimensions most frequently are set by unknown and perhaps mystic ideas in economists' minds. At one extreme it

is said that each worker always has his own market area and each employer has his. At the other extreme there must be some adding of workers' and employers' preferences to get a designated market. The scales of preferences of individual worker and employer are unique. They vary from person to person and from time to time for the same person and when they are totaled, the "market" they constitute has vague and varying contours. The market is by no means a self-contained one with precise limits. Labor markets are also indefinite in their specification of the sellers and the buyers. Such a labor market is merely an area with indistinct geographical and occupational limits. The above characteristics are common to all markets. Depending on one more proposition, the labor market can be qualified as a free choice market when any single worker and any single employer may decide to enter in another market, or a regulated market if worker and employer cannot change from one market to the other. Between these two extremes there are different types of markets which can be grouped under the title of institutional labor markets. Their dimensions are not set only by the preferences of workers and employers or by rules, both formal and informal, but by a mixture of them.

This mixture states which workers are preferred in the market or can be in this market. Rules take the place of individual preference in setting boundaries. Institutional

labor markets are a characteristic of industrial economy. Therefore, any analysis of the unemployment or of the disequilibrium in the labor market has to take into account the type of market. Economists speak of "the" labor market. Do they mean a market where each worker competes with all other workers for jobs, and each employer with all other employers for workers? It is assumed that there are no institutional factors or, if they exist, that they are negligible. That is, pure economic analysis can be done even if institutional factors exist. This latter position might be correct if it is a long run analysis. In other words, the longer the period of analysis, the better the above proposition since in the long run, defined as the time it takes for the great occupational shift to work itself out, "the" labor market may be said to exist because all individuals compete with all other, regardless of the institutional rules.

However, in the short run most individuals are not in competition with each other. In fact, at any instant of time, the standard case is one worker faced by one job. This one job is available to only this one worker, and this worker has only this one job available to him. The job range is limited. An analysis of unemployment in terms of labor market examines these aspects. However, it is obvious that more qualifications of the labor market are needed since unemployment for a certain type of job can exist while

there is a shortage in certain other types or even an overall shortage.

The first qualification about the labor market to be studied is concerned with the spatial range of the market and the form it takes. As far as the spatial range is concerned, an examination of the overall labor market of the Province of Quebec will be made and not the submarkets which exist within the Province. The Province of Quebec may not constitute a "homogeneous economic labor market" but in terms of public organization, it is considered as such. The analysis assumes that the Province constitutes a homogeneous labor market. This market is characterized by the mixture of a free choice labor market and public, trade union, and employer regulations. Therefore, it takes the form of an institutional labor market. But one can make the objection that the labor market as a type of market is an institution which exists in a market economy. This may be true to a certain extent from a sociological point of view, but it is not what economists mean when they say that they are studying "an institutional labor market". The Quebec labor market is institutionalized from an economic point of view, not because it is part of the set of the social institutions, but because it is free to operate and yet not perfectly free since the society and other groups draw the line of this freedom. The present analysis, however, while taking into account the restriction of freedom, assumes

that this is not important. It is assumed that the complex of economic and social forces involved in the process through which employers recruit workers and workers seek employment is not weakened. Therefore, the demand and the supply, as well as the unbalance between them (unemployment and shortage) are influenced by each other, influence each other, and are responsive to wages, hours, structural shifts, mobility, working conditions, and other major economic variables such as productivity and Gross National Product.

Until now the study has introduced the problem, set up the main hypotheses, clarified in detail the framework of analysis, stated the level, and behavior of the national economy as well as the level of the regional economy. In other words, a set of major economic variables have been studied. The process now is to examine the result of the behavior and level of these variables in terms of unemployment. Since unemployment is not an economic variable itself but a residual of a set of variables (the demand for labor and the supply of labor), the next step of the analysis is to describe its level and behavior.

LEVEL BEHAVIOR AND DECOMPOSITION OF UNEMPLOYMENT

An Overall View

During the period 1946-1966, the unemployment rate of the Province of Quebec shows a clear increasing trend. A year to year analysis reveals a continuous change in the level. It increases from 1948 to 1950, decreases in 1951, but again increases from 1952 to 1955. The year 1956 shows a decrease in the total rate of unemployment but it increases to a peak of 9.13 per cent in 1960 and decreases in 1959 and from 1961 to 1966. Between 1947-1953, the total unemployment rate was always below 4 per cent except in 1950 (4.37 per cent). For the rest of the period it was always above 4 per cent. Two years, 1956 and 1966, have a rate between 4 and 5 per cent (4.95 and 4.72 per cent respectively). Two years have a rate between 5 and 6 per cent (1954, 5.72 per cent; 1965, 5.39 per cent) while 1955, 1957, and 1964 have a rate between 6 and 7 per cent (1955, 6.15 per cent; 1957, 6.02 per cent; 1964, 6.35 per cent). The year 1959 has a rate of unemployment of 7.87 per cent and the year 1962 has a rate of 7.49 per cent. Also between 7 and 8 per cent was the year 1963 with a rate of 7.40 per cent. Finally the year 1960 has a rate of 9.13 per cent.

It should be obvious from the above enumeration and the following table (Table 4) that there is a clear pattern of secular as well as cyclical unemployment. Each recession has

produced a higher level of unemployment while each expansion is characterized by small decreases in unemployment from the previous recession but showing always an increasing trough (except in 1966).

Table 4. Selected total unemployment rate in percentages[a]

Recession (peak unemployment)					
1946	1950	1954	1955	1958	1960
4.03	4.39	5.91	6.15	8.84	9.13
Expansion (trough unemployment)					
1947	1951	1953	1956	1959	1966
2.43	2.87	3.76	4.95	7.87	4.72

[a]Source: (31, p. 3).

As already noted, the volume and the rate of unemployment have fluctuated over a wide range during the period and have followed a clear increasing pattern. However, the decomposition of this total unemployment by age group and by sex is interesting and indicates who are the main contributors to this unemployment. In order to investigate this aspect, a brief analysis of differential unemployment by age and sex is useful. Statistics are not available to make a simultaneous analysis of age and sex at the provincial level. The objectives of the differential analysis are to ascertain

the differential pattern that may be observed, to see whether the pattern of unemployment has varied under different rates of unemployment as well as under the different economic conditions, and finally to find if there is a differential vulnerability toward unemployment.

Differential Unemployment

Differential employment by sex

Over the entire period the rate of unemployment of males was always higher than female unemployment. From a low of 2.5 per cent in 1947, male unemployment rate rose to a high level of 4.2 per cent in 1953 while female unemployment rate rose from 1.7 per cent to a level of 2.2 per cent in 1953. From 1956 to 1960, it increased from 5.4 to 10.5 per cent for males and from 3.1 to 4.8 per cent for females. During the last expansion, male unemployment rate decreased from a high level of 10.5 per cent in 1960 to a level of 5.4 per cent in 1966, while female unemployment rate declined from 4.3 per cent to 3.0 per cent. The data show that in a period of large recession, female unemployment did not increase (in terms of rate and in terms of amount) as much as male unemployment did. The reverse is true in a period of expansion. During the period of successive recessions, 1954-1960, the male unemployment rate was nearly always two times higher than the female unemployment rate. When the percentage distribution of total unemployment sex is analyzed, the

same conclusion can be drawn; that is, in a period of recession male unemployment increases its share of total unemployment. Except in 1957, when male unemployment composed 89.2 per cent of total unemployment, male unemployment composed 86 to 88 per cent of total unemployment in a period of recession and between 81 to 85 per cent in a period of prosperity.

Despite this relative stability of the composition of unemployment by sex, it remains that male and female unemployment are two types of unemployment. This stability reflects a flexible female labor force and an inflexible male labor force. Though the participation of females is always increasing, women are more responsive to variations in demand for labor.

While the analysis of unemployment by sex seems to indicate that males are more vulnerable to variations in demand for labor than females, no definite conclusion can be reached since females prefer to leave the labor force rather than become "job seekers". In fact, they are probably unemployed but they are not counted.

Differential unemployment by age

As it was expected, the rate of unemployment of the 14-19 age group was always the highest unemployment rate. This is true in a period of recession and in a period of expansion. In 1960 it reached the highest level (16.20 per

cent). As far as the pattern of unemployment for this group is concerned, it follows the same pattern as the total unemployment rate, that is, an increasing trend from peak to peak as well as from trough to trough during the period. For its contribution to or its proportion of total unemployment, it seems that there is a small opposite trend. In 1946, this group composed 22.2 per cent of total unemployment while in 1955 it was 21.4 per cent and 19.2 per cent in 1965. Even in years of high unemployment, although it always increased in terms of numbers and rates, the proportion was always decreasing (1948, 29.4 per cent; 1951, 26.1 per cent; 1954, 26.0 per cent). This small decrease took place while the group experienced an increasing unemployment rate. This is due to a decreasing participation rate of this group and the increase in school attendance, as well as to the tremendous increase of total unemployment.

The age group 20-24 had a low unemployment rate in 1947, 1948, and 1949 but thereafter it never decreased below 5 per cent except in 1953 and 1954, when it was 4.64 per cent and 4.21 per cent respectively. However, its largest increase occurred between 1955 and 1961. During this period it varied between 7 and 11.87 per cent. During the last expansion, 1961-1966, it decreased from 11.23 per cent in 1961 to 5.89 per cent in 1966, while the age group 14-19 decreased from 16.26 per cent in 1961 to 8.62 per cent in 1966. As a percentage of total unemployment, the proportion of the age group

20-24 decreased from 24.0 per cent in 1946 to 20.0 per cent in 1966, passing by lower proportion in very good years of demand (1956, 17.5 per cent; 1958, 17.6 per cent; 1965, 17.4 per cent). It seems that the labor market offers more opportunities for this group in the years of very large increase in demand for labor, but a demand which is associated with rapid increase in technical progress. The year 1956 is one of those years. However, it is not possible to test this hypothesis. It remains that this group was a major component in the increase of total unemployment. Also, the unemployment rate for this group shows an increasing trend, comparable with the increasing trend of total unemployment.

The third major contributor is the age group of 65 years and older. Age is an important factor controlling job recruitment. This is true for the two previous groups (14-19 and 20-24) as well as for the group 65 and over. But the difference between one extreme and the other is as follows. Young people have a better chance to take a job the older they become, but old people have a decreasing probability of becoming employed as they get older. The unemployment rate of older people is most of the time below the total unemployment rate. It was very high in 1946 at 9.30 per cent and then decreased to a low level of 2.38 per cent in 1954. During the period 1955-1964, it remained above 6.00 per cent except in 1961. A few characteristics are obvious. First,

the unemployment rate of this group has a tendency to lead in peak unemployment (as is the case in 1952, 1958, and 1962) and it has a tendency to lag when other unemployment rates decline. In other words, it takes a very small decrease in demand for labor to increase the unemployment rate of this group, while it takes a very important and sustained increase in the demand for labor to hire older workers. Secondly, the amount of unemployment of this group as a per cent of total unemployment is the lowest. While the unemployment rate of this group has a tendency to increase from peak to peak - although the pattern of increase differs from other patterns - as a proportion of total unemployment it has a tendency to decrease. From its highest proportion of total unemployment in 1946 (7.4 per cent) it decreases to a low level of 1.2 per cent in 1961 and 1.8 per cent in 1965. It seems that the proportion increases in a period of prosperity and decreases in a period of lower demand for labor. For example, during the last expansion, 1962-1966, it starts from a low of 1.2 per cent in 1961, a year of recession, and thereafter increases to 3.0 per cent except in 1965. The same is true in the 1952 expansion and the 1956 expansion (ending in 1952 and in 1956).

Comparison of the unemployment rate of the two remaining age groups, 25-44 and 45-64, reveals an important shift in the composition of unemployment and a change in unemployment

rate. First, both have the familiar increasing trend. Comparison reveals, however, that the rate of the age group 45-64 was very low as compared to the rate of the age group 25-44 at the beginning of the period, but higher at the end of the period. This can be checked either by taking the absolute difference of the two rates which is decreasing, or by comparing the two amounts of unemployment as a per cent of total unemployment. In 1946, unemployment of the age group 25-44 made up 38.8 per cent of total unemployment while the remaining group had 9.2 per cent. In 1954 (a year of recession) the proportions were 33.3 and 14.2 per cent respectively. In 1959 (another year of recession) they were 39.1 per cent and 20.2 per cent. In 1961 they were 37.5 per cent and 21.2 per cent. Consequently, the age group 45-64 has become more vulnerable to unemployment than the age group 25-44. However, in years of recession, the unemployment rate, as well as the proportion, tend to be lower for the group 45-64. This is probably due to the system of seniority which blocks completely the process of layoff and puts into effect the "bombing process" which affects the younger group (25-44) and increases its unemployment rate.

Vulnerability to Unemployment

The last part of the analysis of differential unemployment by age reveals that there are three groups: the two extreme groups, 14-24 and 65 and over, and one major group,

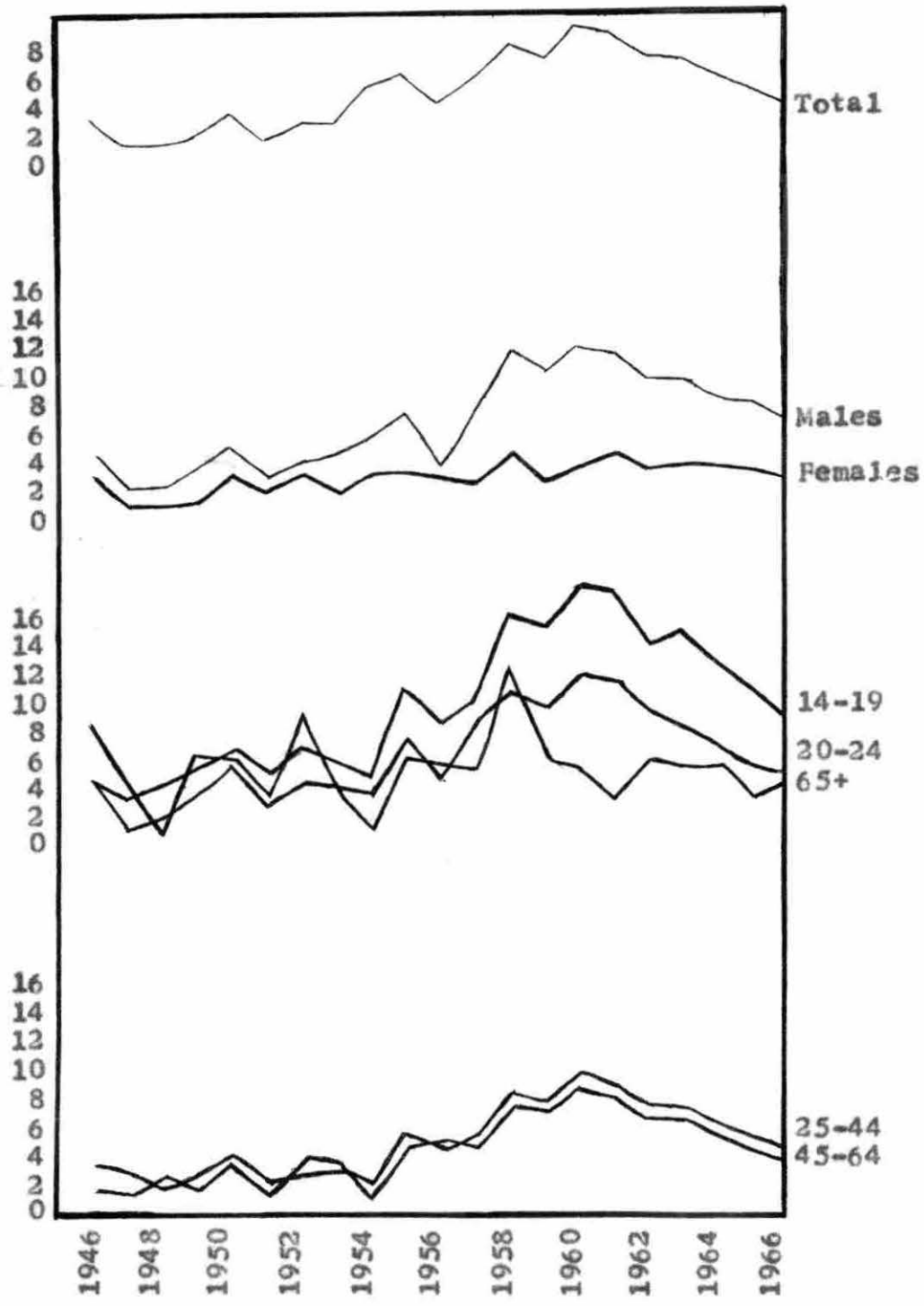

Figure 1. Unemployment rate by sex and age 1946-1966[a]

[a]Source: (31, p. 3).

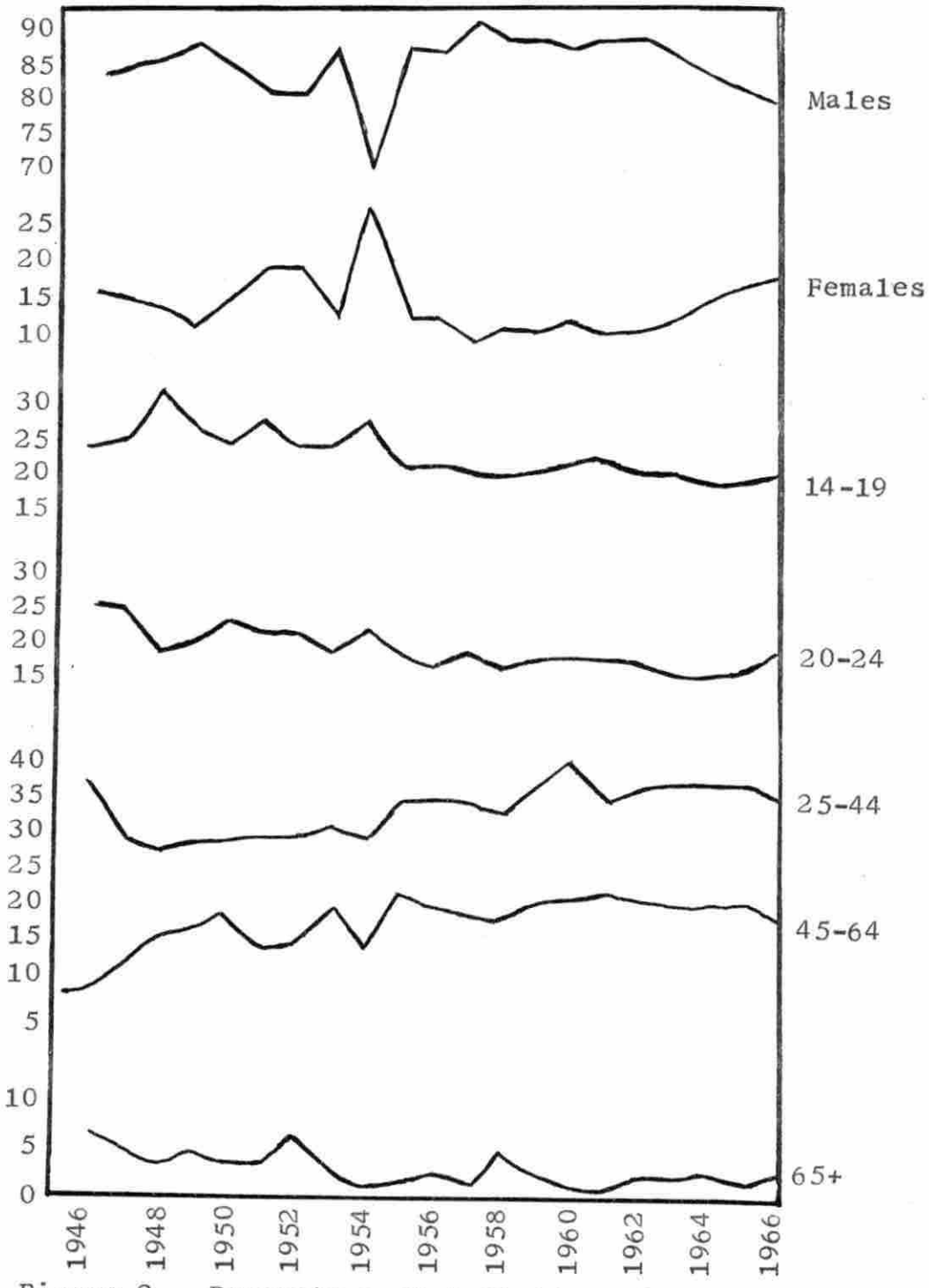

Figure 2. Percentage distribution of unemployment by sex and age 1946-1966[a]

[a]Source: (31, p. 4).

25-64. Within these groups it is possible to compare and analyze unemployment rates but due to different work experiences, seniority rules, and other rules of an institutional labor market, any comparison outside of these groups is not very meaningful. Until now the differential analysis of unemployment has been conducted in terms of unemployment rate and proportion of unemployment. This type of analysis makes it possible to describe and to make particular inferences and some important deductions. It has probably been noted that no mention has been made of how fast these unemployment rates increase and decrease. The percentage change (year to year) analysis should reveal grossly how vulnerable the particular groups are in relation to each other. If the rate of change is higher for certain groups, it is possible to infer that these groups are more vulnerable than the others. In years of recession, male unemployment rate increases faster than female unemployment rate. This is a normal pattern since females have a tendency to leave the labor force. It can be seen from Table 5 that there is a changing pattern of vulnerability measured by the rate of change during the period. The rate of change for the age group 14-19 remains the lowest in general but the rate of the age groups 20-24 and 25-44 decreased from one recession to the other while increasing for the group 45-65. Each recession year has a new structure of the rate of change and for this reason the above inferences are not valid

Table 5. Percentage change from preceding year of unemployment by sex and age[a]

	Recession (peak unemployment)[b]				
	1948/47	1952/51	1955/54	1958/57	1960/59
Total	41.1	56.1	48.9	2.9	12.3
Males	44.8	8.6	183.0	48.8	17.3
Females	20.0	-27.2	8.3	72.7	29.4
14-19	20.0	69.2	45.4	33.3	3.5
20-24	53.8	33.3	0.0	5.0	12.0
25-44	42.8	63.1	85.7	5.2	12.9
45-65	45.4	77.7	250.0	31.5	67.8
65+	10.0	-25.0	100.0	-133.0	-33.3

	Expansion (peak unemployment)[b]					
	1947/46	1950/49	1953/52	1959/58	1962/61	1966/65
Total	-38.8	-33.3	-27.5	-23.5	-13.7	8.2
Males	-37.7	-35.8	-40.6	- 9.5	- 3.0	- 5.3
Females	-44.4	-20.0	-50.5	-10.5	-15.0	- 0.1
14-19	-33.3	-21.4	-30.7	-34.3	-17.6	- 4.7
20-24	-38.4	-40.0	-54.5	-11.1	-16.6	-15.2
25-44	-47.6	-30.0	10.0	-30.3	-10.0	-11.6
45-65	-20.0	-45.4	0.0	-58.6	17.6	-13.6
65+	50.0	-33.3	-100.0	-44.4	-50.0	50.0

[a]Source: (31, p. 6).

[b]Seasonally adjusted

but only an indication of a changing vulnerability to unemployment. The same statement is true for the percentage decrease in unemployment, - during year of expansion. Men have a higher decreasing rate than women. Comparison between ages shows that the rate of decrease in unemployment is lower at the end of the period than at the beginning of the period for all groups. However, the age group 20-24 has maintained a relatively high rate of decrease while the group 65 and older shows very large variations.

Apart from the effect of a different intensity of business cycle fluctuations which were not taken into account during the analysis of differential unemployment, no mention was made of the intensity of the labor force participation, the changing structure of the population, or the changing structure of the labor force. To justify this method, it can be said that the analysis of vulnerability to unemployment is free from these variables as long as it describes the phenomenon. The present analysis tries to describe some aspects of this phenomenon of difference in unemployment rate. These other variables affecting total unemployment rate will be used later to analyze the pattern of unemployment under a changing economy. This latter section is included in the research for the causes of unemployment. Aside from these relationships which will be indicated later, three subjects remain in the analysis of differential unemployment:

1) An overall view of the changing structure of the

composition of unemployment by age, as can be indicated by Lorenz curves.

2) The study of deviation of each particular unemployment from the overall rate of unemployment rate for each year.

3) The discussion of the capacity of this type of differential analysis of unemployment to explain the increasing trend of total unemployment between 1953-1961 and the slow decrease of total unemployment rate during the last period of prosperity which can be termed a "prosperity unemployment".

The Changing Structure of the Composition of Unemployment by Age (Lorenz Curve Analysis)

The relative composition of total unemployment by age has already been analyzed. Although this permits an examination of the structure of unemployment, this procedure does not permit an examination of the changes of this structure. A Lorenz curve analysis gives another view of the phenomenon.

All Lorenz curves were plotted by putting the cumulative percentage distribution of total unemployment (Y axis) by age in any given year against the cumulative percentage distribution by age of labor force of that year (X axis).

Analysis of Figure 3, which contains the Lorenz curves of selected years (1950, 1955, 1960, 1965), reveals that the curve of 1950 cut the three other curves. When this

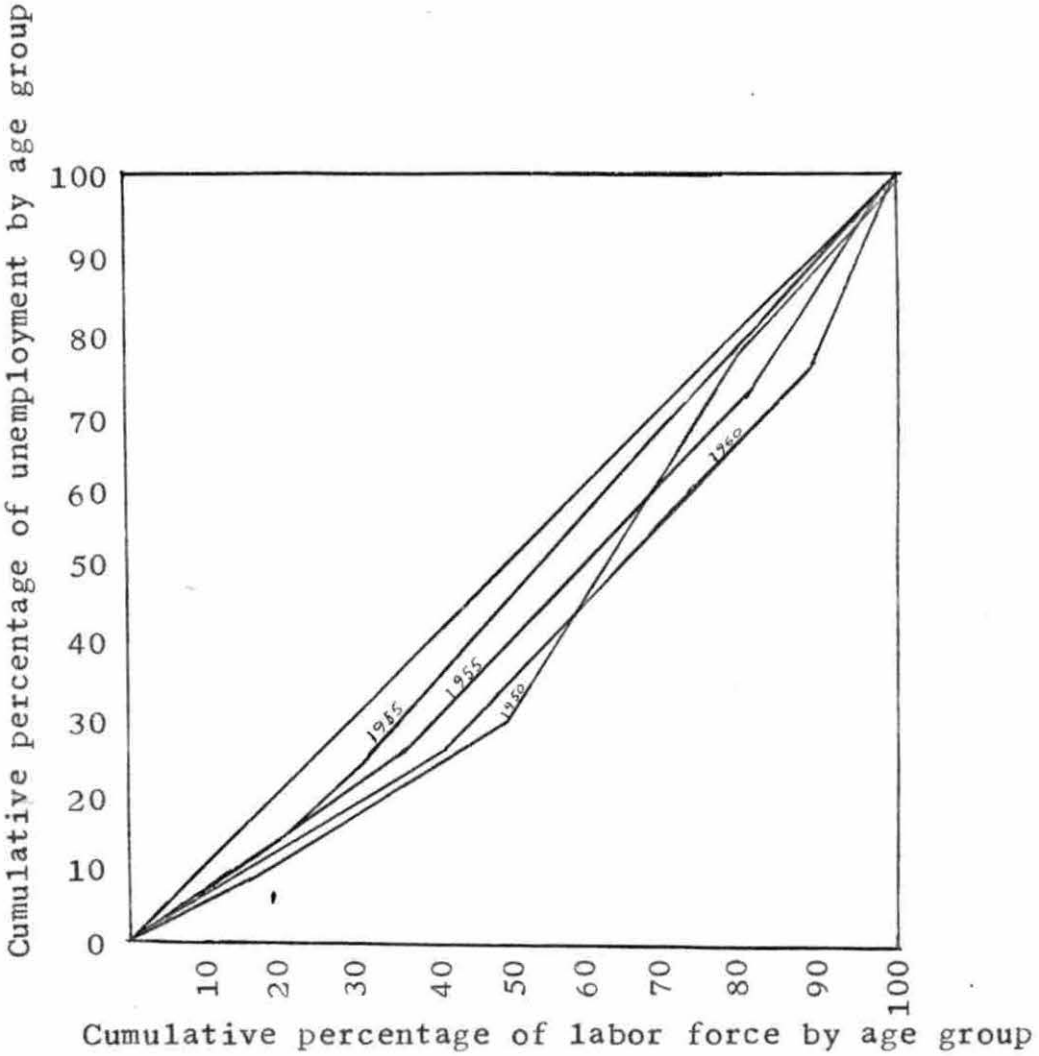

Figure 3. Lorenz curves of unemployment (selected years)[a]

[a]Source: (31, p. 3).

occurs, the interpretation is difficult. Apart from this anomaly, it can be seen that the unemployment did not tend to become more concentrated below 45 per cent for the overall period, since the curve for 1965 is higher than the curve for 1950. However, comparison of each curve shows that while the unemployment became less concentrated between 1950-1955, it became more concentrated between 1955-1960 and 1950-1960. Between 1960-1965 it became less concentrated. Therefore, unemployment of the age group 14-19 and 20-24 has a larger share of total unemployment in 1950 than in 1955 but a larger share in 1960 than in 1955. The share of the group 65 and older did not tend to increase. Though the analysis or the comparison of these curves indicates the changing structure, it does not make it possible to tell how large the change was. It is possible to calculate the coefficient of concentration of each Lorenz curve but the work involved is not worth the result. The next section is concerned with an approximate measure of the shift.

The Index of Dispersion

The index of dispersion is the mean sum of square of the deviation of each type of unemployment from the total unemployment rate. It has been calculated for the entire period 1946-1966 and for three separate periods, 1946-1953, 1954-1960, and 1961-1966. The first subperiod corresponds to a

changing economy from a war economy to a peace economy, the second is a period of short business cycle fluctuations, and the third is a period of prosperity. If the index decreases or increases, this reveals a changing pattern of unemployment. Specifically, if it increases it means that the group is more affected by the unemployment level. The following table contains the index of dispersion.

Table 6. Index of dispersion of unemployment by age and sex[a]

	1946-66	1946-53	1954-60	1961-66
Males	1.178	0.065	2.413	1.466
Females	6.895	1.082	10.484	12.553
14-19	20.120	6.809	25.731	31.556
20-24	2.250	1.652	3.653	2.507
25-44	1.007	0.813	2.701	1.146
45-64	2.107	2.289	1.846	2.604
65+	6.271	10.548	3.215	4.960

[a]Source: (31, p. 3).

The conclusions which can be derived from the index of dispersion contradict some results of the Lorenz curve analysis, at least to a certain extent, but improve others. First, the index gives an idea of the shift in unemployment by sex. It can be seen from Table 6 that female unemployment

has a tendency to become more dispersed over time. This is significant since the unemployment of women has always been less than the unemployment of men. The increase in the index is mainly due to the increase in total unemployment. Definitely it seems that women are less vulnerable than men to unemployment.

It has been concluded that the unemployment did not tend to become more concentrated in the period 1961-1966 below 45 per cent or in the two age groups 14-19 and 20-24. This is still true but this conclusion has to be corrected. In fact, the unemployment did become more concentrated for the age group 14-19, but decreased for the age group 19-20. The index increased also for the group 65 and over and the group 45-64 during the two periods 1954-1960 and 1961-1966. A conclusion already reached can be confirmed by the behavior of the index: that there was a change in the structure of unemployment. For example, the index decreased for the age group 25-44 between 1954-1960 and 1961-1966 while it increased for the group 45-64 during the same period. The reverse was true for the periods 1946-1953 and 1954-1960. Consequently, one can infer that the age group 45-64 has become more vulnerable to unemployment than the age group 25-44 or, in terms of structure, that there was a change in the structure of unemployment.

The Utility of this Type of Analysis to Explain the Higher Unemployment Rate and the Necessity to Have a More Causal Type of Analysis

It should be possible to explain the increasing trend in total unemployment by a differential analysis of unemployment by sex and age, but first the causes and decomposition of each unemployment group must be found and explained. This is not possible. Total unemployment by age and sex can be decomposed but it is clear that this decomposition cannot be used to explain total unemployment since each unemployment group has to be explained. There is no causal scheme between unemployment of a group and total unemployment since this is an "adding-up process". Therefore, it is necessary to find another type of decomposition to explain the increasing trend in total unemployment. It is obvious that this "other type of decomposition" which has been referred to is the decomposition of unemployment by "economic types of unemployment" such as seasonal unemployment, frictional unemployment, aggregate demand or short-term unemployment, structural unemployment and finally long-term unemployment. A large part of the rest of the thesis is devoted to this decomposition. However, before beginning the analysis, each type of unemployment mentioned above will be described as well as the general methodology used to decompose the total unemployment rate.

Seasonal unemployment is the amount of unemployment due to the seasonal variations in the level of economic activity. Frictional unemployment is the unemployment accounted for by the functioning of the labor market. Short-term unemployment is the result of a decrease in aggregate demand and, consequently, of the demand for labor. Short-term unemployment takes place in recession years. Structural unemployment is the unemployment resulting from a changing economic structure. It can take many forms and has many causes. All types of unemployment can take place simultaneously and, therefore, total unemployment in any given year can be the sum of many types of unemployment. Study of this complex topic is difficult and always tentative. There are many problems of definition and measurement as well as component of each type of unemployment. The present decomposition is more than tentative: first, as far as is known this is the first attempt to decompose total unemployment of the Province of Quebec and, second, there is no methodology to decompose total unemployment.

Since there is no method of decomposing the total unemployment, part of it has to be proposed and the other part borrowed. The starting point of the analysis can be stated as follows: if it really exists as a type of unemployment, it should be possible to find its main source. Given this hypothetical main source, it should be possible to estimate the equivalent unemployment rate. However, general types of

unemployment have more than one source and it is not certain that the components or the sources can be added. Many other problems related to this topic are commented upon during the analysis which decomposes total unemployment.

Given the decomposition of unemployment, it can be used to make statistical inferences such as total unemployment and price level, frictional unemployment and price level, etc. From the results of statistical inference it is possible to derive some policies toward total unemployment as well as toward specific groups of unemployment and types of unemployment. But it is not sufficient to solve the problem (i.e., to find the cause) of unemployment and, therefore, unemployment policies are only one set of policies. They have to be accompanied by manpower policies. This will be discussed in the chapter on policies which follows the chapters of the decomposition of unemployment.

The Decomposition of the Total Unemployment Rate

There is obviously a direct relationship between the level of employment and the level of economic activity or changes in the output of goods and services. However, employers often cope with variations in demand without either hiring or laying-off workers by reducing or increasing overtime and hours. In other words, though there is a direct relationship, it is not always measured by the official statistics. The variations of the demand for labor must be

large enough to appear in the statistical series. The same is true for unemployment. The following decomposition of the unemployment rate is concerned with the large variations.

The most regular variations in economic activity which produce variations in the employment level and unemployment are seasonal variations. Consequently, any decomposition of the unemployment rate has to evaluate the contribution of seasonal variations. The second major factor controlling the variations of the unemployment level is the mechanism of the labor market. Though there are many sources of this type of variation, they are usually grouped under the title of frictional unemployment. The following analysis will try to estimate the contribution of frictional unemployment to total unemployment. There remain two types of unemployment: aggregate demand and structural unemployment. The aggregate demand unemployment is similar to the cyclical variations of unemployment. While it is difficult, at least in the short run, to distinguish between unemployment due to variation in the level of economic activity, or aggregate demand, and unemployment due to structural changes, an effort has been made to estimate each.

The following decomposition is used to test the hypothesis that the secular rise in the unemployment rate is due to one of these types of unemployment or to all of them. The main conclusions are as follows: the seasonal unemployment declined between 1946-1966 and, consequently, was not a

cause of the secular rise in unemployment. However, it remained a major contributor of unemployment. Especially the rises in the unemployment rate in the trough unemployment of 1959 and in the peak unemployment in 1960 can be explained by a substantial rise in the level of seasonal unemployment. As far as frictional unemployment is concerned, it contributed to the rise of secular unemployment during the period 1953-1963, although the rise in total unemployment cannot be explained by this contribution. An extensive analysis of structural changes was made, covering many types of changes, but it does not seem that there was a large amount of structural unemployment during the period or that there was a rise in structural unemployment capable of explaining the rise in unemployment total. Consequently, the rise of total unemployment has to be explained by the aggregate demand hypothesis. An analysis of the level of economic activity reveals that this is valid.

Tables 7 and 8 show the result of the decomposition of total unemployment rate.

The Decomposition of Unemployment by Time Period

The time dimension is present in any economic variable and in any economic problem. This is also true for the general problem of unemployment as well as its phenomenal rise over time. Since Alfred Marshall, economists divide the time into three periods: the short-term, the intermediate-term,

Table 7. Decomposition of the total unemployment rate 1949-1966[a]

Year	Unadjusted total unemployment	Seasonal variations	Adjusted unemplymt. (total)	Seasonal	Frictional (labor)	Frictional (business)	Frictional (total)	Long-term (structural)	Aggregate demand
1949	na	na	3.37	na	0.10	na	na	na	na
1950	na	na	4.39	na	0.60	na	na	na	na
1951	na	na	2.87	na	0.40	na	na	na	na
1952	na	na	3.78	na	0.20	na	na	na	na
1953	3.77	0.01	3.76	0.80	0.10	0.83	0.93	0.10	1.94
1954	5.86	-0.05	5.91	1.78	0.10	0.92	1.02	0.10	3.01
1955	6.16	0.01	6.15	0.95	0.50	0.01	0.51	0.30	4.39
1956	4.92	-0.03	4.95	0.71	0.40	0.14	0.54	0.40	3.30
1957	6.00	-0.04	6.04	1.37	0.30	0.48	0.78	0.50	3.39
1958	8.81	-0.03	8.84	0.95	0.20	0.52	0.72	1.50	5.67
1959	7.87	0.00	7.87	1.14	0.20	0.26	0.46	1.00	5.27
1960	9.10	-0.03	9.13	1.46	0.20	0.59	0.79	1.10	5.78
1961	9.13	0.37	8.83	2.07	0.20	1.80	2.00	1.10	3.66
1962	7.35	-0.15	7.50	0.78	0.20	1.41	1.61	0.70	4.41
1963	7.43	0.03	7.40	0.52	0.40	1.80	2.20	0.30	4.38
1964	6.79	0.44	6.35	0.81	0.40	1.57	1.97	0.30	3.27
1965	5.43	0.04	5.39	0.51	0.40	1.06	1.46	0.30	3.12
1966	4.71	-0.01	4.72	0.24	0.40	1.00	1.40	0.20	2.88

[a]Source: (31, pp. 3, 8, 39).

Table 8. Decomposition of the number of unemployed 1953-1966[a]

Year	Unadjusted unemployment (total)	Seasonal variations	Adjusted unemployment (total)	Seasonal unemployment	Frictional (labor)	Frictional (business)	Frictional (total)	Long-term (structural)	Aggregate demand
1953	58,080	80	58,000	12,300	1,538	12,765	14,298	1,538	29,835
1954	91,750	75	91,000	27,800	1,562	14,370	15,932	1,562	47,016
1955	98,160	16	98,000	15,105	7,950	159	8,109	4,770	78,801
1956	79,580	-42	80,000	11,672	6,456	2,259	8,715	6,456	53,261
1957	101,330	33	101,000	23,098	5,058	8,092	13,150	8,430	57,155
1958	152,830	-17	153,000	16,473	3,468	9,016	12,484	26,010	98,396
1959	138,410	41	138,000	20,041	3,516	4,570	8,086	17,580	92,646
1960	164,250	25	164,000	26,323	3,606	10,637	14,243	19,833	104,212
1961	167,500	550	162,000	37,674	3,640	32,760	36,400	20,020	66,612
1962	138,580	-58	138,000	14,695	3,768	26,564	30,332	13,188	83,083
1963	141,580	158	140,000	9,900	7,616	34,272	41,888	5,712	83,394
1964	123,500	-50	124,000	15,795	7,800	30,615	38,415	5,850	63,765
1965	109,250	25	109,000	10,245	8,036	22,195	30,231	6,027	62,680
1966	99,830	-17	100,000	5,078	8,464	(21,286)[b]	29,750	4,232	60,940

[a]Source: (31, pp. 3, 8, 39).
[b]Estimated.

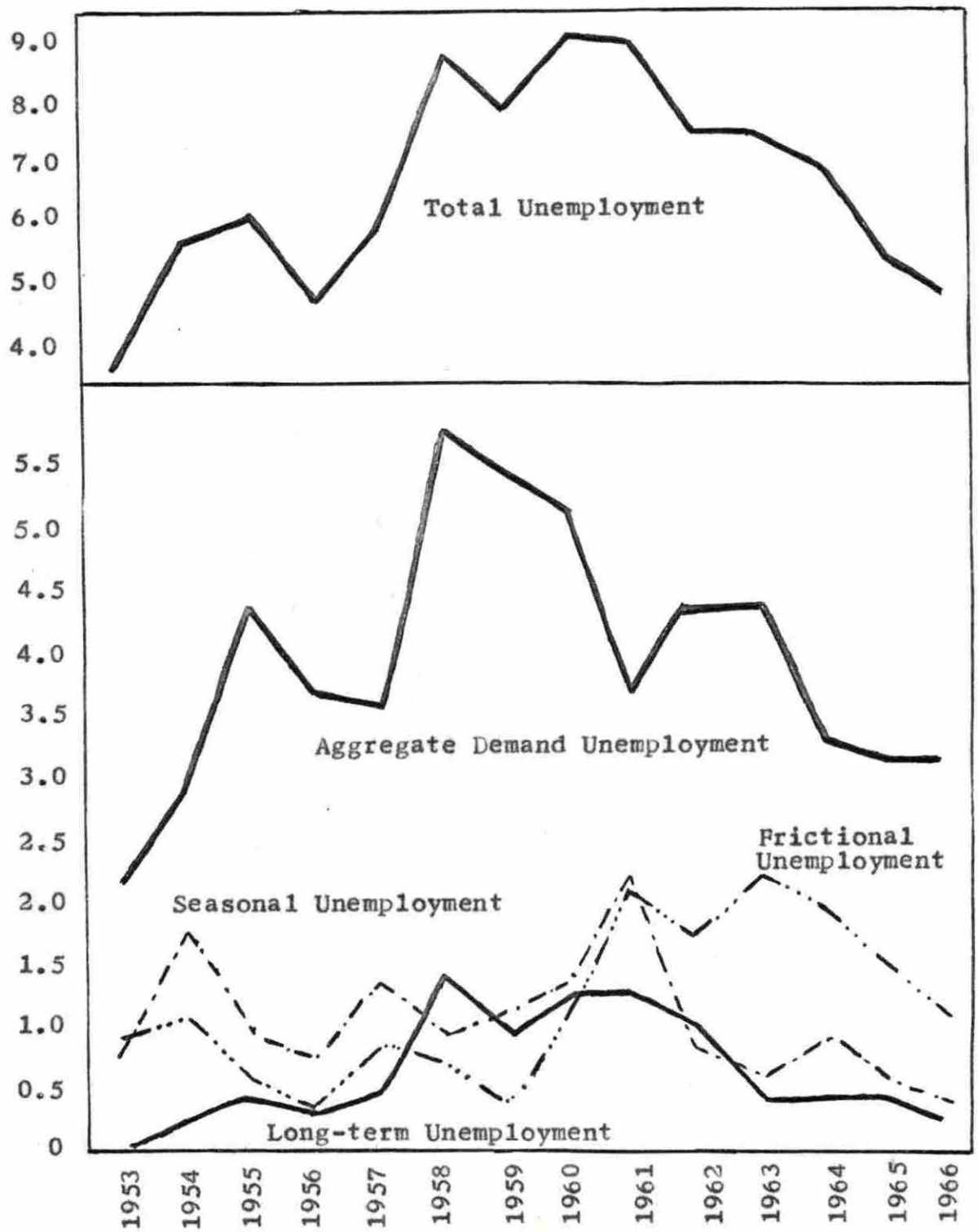

Figure 4. Selected unemployment rates, 1953-1966[a]

[a]Source: (31, pp. 3, 8, 39).

and the long-term. Obviously the same can be done for the unemployment. For any given year and for any given amount of unemployment or any given rate of unemployment, a specific rate of unemployment can be derived according to the time period or to the division of the time period. For example, in 1953 the total unemployment (unadjusted) was 6.3 and can be decomposed into weeks of unemployment: less than 2 weeks of unemployment (2.2 per cent), between 3 and 4 weeks (0.7 per cent), between 5 and 8 weeks (0.8 per cent), between 9 and 12 weeks (0.9 per cent), between 13 and 16 weeks (0.5 per cent), between 17 and 20 weeks (1.3 per cent) and over 20 weeks (0.1 per cent).

When such decomposition of total unemployment is done over a period of time, it is clear that as many types of unemployment as are desired can be derived. In Table 9 three large types of unemployment are found, each of them subdivided into particular types of unemployment. These main types or each subtype can be associated to a certain extent with another classification of unemployment, namely the classification which uses both the level of economic activity and the mechanism of labor market (seasonal unemployment, aggregate demand, frictional unemployment, and structural unemployment). The intermediate-term unemployment can be associated with the aggregate demand unemployment; the unemployment of 3 to 4 weeks can be associated with the frictional unemployment; the unemployment of 20 weeks and over

Table 9. Decomposition of unemployment by weeks[a]

Year	Total	Short-term 1		Intermediate 2		Long-term 3		
		1-a[b]	1-b	2-a	2-b	3-a	3-b	3-c
Unadjusted								
1953	6.3	2.2	0.7	0.8	0.9	0.5	1.3	0.1
1954	6.6	1.2	0.7	0.8	1.2	0.9	1.4	0.0
1955	5.7	1.5	0.8	1.3	0.8	0.9	0.6	0.3
1956	5.6	1.5	0.6	1.0	0.7	0.4	1.2	0.4
1957	7.2	1.9	0.7	0.9	1.1	0.8	0.5	0.5
1958	10.1	2.3	1.0	1.7	1.4	1.0	1.5	1.5
1959	8.5	1.8	0.9	1.5	1.6	0.8	0.5	1.0
1960	8.0	2.1	0.9	1.2	0.9	0.8	0.6	1.1
1961	8.4	2.0	0.9	1.4	1.2	0.8	0.5	1.1
1962	6.9	1.9	0.7	1.3	0.9	0.7	0.4	0.7
1963	6.6	2.4		2.5		2.5		0.3
1964	6.4	2.3		2.1		0.9		0.3
1965	5.8	1.9		2.3		1.0		0.3
1966	4.9	2.0		1.6		0.7		0.2
Adjusted								
1953	3.7	1.9	0.4	0.5	0.6	0.2	1.0	0.0
1954	5.9	1.1	0.6	0.8	1.1	0.8	1.2	0.0
1955	6.1	1.5	0.8	1.3	0.9	0.9	0.1	0.0
1956	4.9	1.4	0.5	0.9	0.6	0.3	1.1	0.3
1957	6.0	1.7	0.5	0.7	0.9	0.6	0.3	0.3
1958	8.8	2.1	0.8	1.6	1.3	0.8	1.4	1.4
1959	7.8	1.7	0.8	1.4	1.5	0.7	0.4	0.9
1960	9.1	2.2	1.0	1.3	1.0	0.9	0.7	1.2
1961	8.8	2.0	0.9	1.4	1.2	0.8	0.5	1.1
1962	7.5	1.9	0.7	1.3	0.9	0.7	0.4	0.7
1963	7.4	2.4		2.6		2.6		0.3
1964	6.3	2.2		2.0		0.8		0.3
1965	5.3	1.8		2.2		0.9		0.3
1966	4.7	1.7		1.6		0.6		0.2

[a]Source: (31, p. 4-a).

[b]Cases: 1 = short-term unemployment, 0-4 weeks; 1-a = very short-term, called period of human reaction, 0-2 weeks; 1-b = normal short-term, called period of labor market reaction, 3-4 weeks; 2 = intermediate-term, 5-12 weeks; 2-a = intermediate-term, 4-8 weeks; 2-b = intermediate-term, 8-12 weeks; 3 = long-term, 13-20+ weeks; 3-a = long-term, 13-16 weeks; 3-b = intermediate long-term, 17-20 weeks; 3-c = very long-term unemployment or structural unemployment, 20+ weeks.

is usually termed the long-term unemployment or structural unemployment. In fact, the present rate of structural unemployment is the long-term unemployment.

The only particularity with the classification presented in Table 9 concerned the subdivision of the short-term unemployment into two subperiods, one termed the period of human reaction, the other the period of labor market reaction. By definition, frictional unemployment has to be a short-term unemployment and it has to be an unemployment due to the non-instantaneous functioning of the labor market. Consequently, nothing is inferred about the behavior of the unemployed worker. However, it seems that there is a difference between the human reaction of the worker in an unemployment situation and the labor market reaction. In other words, it depends on how frictional unemployment is defined and who are counted as "frictional unemployed". In the present note it is simply suggested that the definition of frictional unemployment should not count those having two weeks of unemployment (one week is preferable but there are no statistics). During this period it does not seem that the worker is either in the labor market or in the labor force. It apparently takes a few days before 1) the workers realize the situation, 2) decide to search for a new job, and 3) enter the labor market to compete with other job seekers.

However, the above comments are only a suggestion. No

effort has been made to relate these different types of unemployment with the classifications used in the study. There seems to be a relatively strong association between the two decompositions. The next chapters are concerned with the seasonal and frictional unemployment, the relationship of mobility and unemployment, the under-unemployment problem as revealed by the rural-urban shift, the structural changes in the economy and the structural unemployment, and finally the aggregate demand hypothesis.

THE ANALYSIS OF SEASONAL UNEMPLOYMENT

Introduction

One of the five hypotheses formulated to explain the rise in secular unemployment is that the rise in secular unemployment is due to a rise if seasonal unemployment. Some objections to this hypothesis come to mind immediately and in order to justify this point of view, it becomes necessary to explain it. After this justification, seasonal unemployment will be analyzed under three subdivisions: 1) amount, 2) behavior, and 3) effect.

One of the objections that can be formulated against the above hypothesis is the fact that the unemployment rate is already adjusted for seasonal variations. Therefore, seasonal unemployment cannot be a source of higher unemployment. Although the objection is valid, it is misleading and is not what is meant. It is essential to adjust statistical series since such procedure gives the "real" rise in unemployment.

However, the hypothesis is interesting and useful since even with adjusted unemployment series, there remains a continuous rise of secular unemployment. If not adjusted, the rise of secular unemployment as well as cyclical unemployment will be at a different level. This can be seen in Table 10, columns 1 and 5, and Table 11, columns 4 and 5, where yearly averages of adjusted and unadjusted data are compared.

Table 10. General statistics of seasonal unemployment 1953-1966[a]

Year	Unadjusted				Adjusted				Differences			
	Total unemployment	Seasonal unemployment	Employment	Labor force	Total unemployment	Seasonal unemployment	Employment	Labor force	Total unemployment	Seasonal unemployment	Employment	Labor force
	1	2	3	4	5	6	7	8	9	10	11	12
			000	000	000		000	000			000	000
1953	58,080	23,000	1,480	1,538	58	12,300	1,480	1,538	80	10,700	-0	0
1954	91,750	24,700	1,454	1,562	91	27,800	1,470	1,561	750	-3,100	-16	1
1955	98,160	43,300	1,494	1,590	98	15,200	1,493	1,591	160	28,100	1	-1
1956	79,580	38,500	1,453	1,614	80	11,500	1,435	1,615	-420	27,000	18	-1
1957	101,330	41,300	1,578	1,686	101	22,000	1,574	1,675	330	19,300	4	11
1958	152,830	50,800	1,584	1,734	153	16,400	1,572	1,730	-170	29,200	12	4
1959	138,410	63,400	1,621	1,758	138	20,000	1,613	1,752	410	36,900	8	6
1960	164,250	60,200	1,643	1,803	164	26,300	1,630	1,796	250	33,300	13	7
1961	167,500	56,300	1,651	1,820	162	37,600	1,644	1,812	5,500	18,700	7	8
1962	138,580	42,500	1,720	1,884	138	14,600	1,703	1,841	-580	28,800	17	43
1963	141,580	40,500	1,759	1,904	140	9,900	1,751	1,891	1,580	30,700	8	13
1964	123,500	39,500	1,856	1,950	124	15,700	1,828	1,951	-500	23,600	28	-1
1965	109,250	40,200	1,912	2,009	109	10,200	1,912	2,021	250	29,700	0	-12
1966	99,830	26,800	1,999	2,116	100	5,000	2,016	2,116	-170	21,600	-17	0

[a]Source: (32, pp. 23, 49, 71).

Table 11. General statistics of seasonal unemployment rate 1953-1966[a]

Year	Seasonal unemployment		Total unemployment		Difference (adjusted-unadjusted)	
	Unadjusted seasonal unemployment rate	Adjusted seasonal unemployment rate	Unadjusted total unemployment rate	Adjusted total unemployment rate	Unemployment rate	Seasonal unemployment rate
	1	2	3	4	5	6
1953	1.49	0.80	3.77	3.76	0.01	0.69
1954	1.58	1.78	5.86	5.91	-0.05	0.20
1955	2.72	0.95	6.16	6.15	0.01	1.77
1956	2.38	0.71	4.92	4.95	-0.03	1.47
1957	2.42	1.37	6.00	6.04	-0.04	1.05
1958	2.93	0.95	8.81	8.84	-0.03	1.98
1959	3.61	1.14	7.87	7.87	0.00	2.27
1960	3.35	1.46	9.10	9.13	-0.03	1.89
1961	3.10	2.07	9.20	8.83	0.37	1.03
1962	2.30	0.78	7.35	7.50	-0.15	1.52
1963	2.14	0.52	7.43	7.40	0.03	1.62
1964	2.02	0.81	6.79	6.35	0.44	1.21
1965	1.98	0.51	5.43	5.39	0.04	1.47
1966	1.26	0.24	4.71	4.72	-0.01	1.02

[a]Source: (32, pp. 23, 49, 71).

Table 10 and Table 11 show that during the 14-year period analyzed, the unadjusted unemployment rate is larger than the adjusted rate in six years and they are equal one year, 1959. (See Table 11, column 5.) The difference is not great but in terms of unemployed, the number can be quite substantial. It can be said that the unadjusted data underestimate the unemployment. No reason for such underestimation can be found. The difference is termed the "seasonal variation". The same is true for employment and labor force data. As far as the pattern of seasonal variation is concerned, there is obviously no pattern for unemployment and employment but there is one for labor force data: an increase in the seasonal variation. In other words, labor force data overestimated the "real" labor force. (See Table 10, column 12.)

Therefore, one can say that the rise in secular unadjusted unemployment is composed of 1) seasonal variation and 2) "adjusted unemployment". For example, in 1953 unadjusted unemployment is composed of (80) of seasonal variation plus (58,000) of "adjusted unemployment". The hypothesis can be restated as a large hypothesis and two derived hypotheses. The large hypothesis states that the secular unadjusted unemployment is due 1) to the pattern of seasonal variation and 2) to the rise in adjusted unemployment.

The first derived hypothesis is concerned with seasonal variations: the pattern of seasonal variations is due to

some unidentified causes. (In fact, this study is not interested in the factors of this pattern. This is an outside subject because the analysis is restricted to adjusted unemployment.)

The second derived hypothesis concerns the rise in adjusted unemployment. The original hypothesis can be restated as follows: the rise of "real" or adjusted secular unemployment is partly due to a rise in seasonal unemployment. It is obvious that this hypothesis is quite different from the first one and is not subjected to the objections.

If the validity of this hypothesis is accepted as it is stated, it is necessary to detail its meaning. The first step required is a clarification of the notion of seasonal unemployment. Seasonal unemployment is defined as the unemployment caused by seasonal fluctuations in the general level of economic activity and, therefore, by seasonal fluctuations in the labor market. As far as the fluctuations in the general level of economic activity are concerned, they can be neglected since seasonal fluctuations in demand for labor, estimated by seasonal employment, give an idea of the general level of economic activity. Given seasonal level of employment (or demand) and seasonal level of the labor force (labor supply), seasonal unemployment is obtained as a residual. (It should be noted that seasonal unemployment can be estimated directly.) The above procedure to obtain seasonal unemployment is valid for unadjusted as well as for adjusted

series. Seasonal unemployment is then defined as the residual - or difference - between the two variables. To study the second derived hypothesis it is necessary to take only adjusted data.

Analysis of the Amount of Seasonal Unemployment in Relation to the Secular Rise of Total Unemployment

One of the major problems with seasonal unemployment is the problem of measure. It is not the objective of this study to find a genuine measure of this unemployment. The measures used here are those proposed by the United States Department of Labor (23) and adapted by Smith as follows:

> Essentially the method consists of identifying from an inspection of the seasonal factors the month of minimum seasonal unemployment, of assuming that seasonal unemployment was in fact zero in that month, and of estimating the amount of seasonal unemployment in each of the other months in relation to the base month. (33, p. 195)

Given the minimum month of seasonal unemployment, subtract the other months from it, sum the difference and find the average. It should be noted that the method can be applied to both types of data: adjusted for seasonal variations and unadjusted. To obtain the "real" amount of seasonal unemployment, the adjusted data must be used.

With the amount of seasonal unemployment derived from adjusted data, it is easy to find a seasonal unemployment rate, as well as the proportion of total unemployment which is made up of seasonal unemployment. Seasonal unemployment

rate is the ratio of the amount of seasonal unemployment rate to the labor force, while the proportion of seasonal unemployment within total unemployment is the ratio of the two variables. The pattern of seasonal unemployment depends on the pattern of two variables, labor force and employment (both seasonal), since unemployment is considered as a residual between the supply and the demand for labor. The necessary data are given in Table 12. A year to year analysis of the unemployment is not necessary; it is suggested that column one of Table 12 be read. It can be seen that the amount of seasonal unemployment is decreasing, but its level reflects the level of economic activity. As far as the seasonal unemployment rate is concerned, it shows a decreasing trend with sparodic increases in 1954, 1957, 1959, 1960, 1961, and 1964.

The analysis of the proportion of seasonal unemployment within total unemployment reveals that this type of unemployment has nearly the same pattern as the total unemployment (Table 12, column 7), but the proportion as declined by 400 per cent. If the difference between the rate of total unemployment and the rate of seasonal unemployment is taken an "adjusted" total unemployment is obtained. The same can be done with the amount of seasonal unemployment and the amount of total unemployment (Table 12, columns 8 and 9). In general, except in 1961, the total unemployment rate drops

Table 12. Adjusted amount of seasonal unemployment and other labor force statistics 1953-1966[a]

Year	Data				Rates			Effects	
	Adjusted seasonal unemployment	Total unemployment	Employment	Total labor force	Seasonal unemployment rate	Total unemployment rate	Seasonal unemployment as a per cent of total unemployment	Total unemployment after elimination of seasonal unemployment	Total unemp. rate after elimination of seasonal unemp.
	1	2	3	4	5	6	7	8	9
		000	000	000					
1953	13,000	58	1,480	1,538	0.80	3.76	22.4	34,200	2.96
1954	27,800	91	1,470	1,561	1.78	5.91	30.2	14,200	4.13
1955	15,200	98	1,493	1,591	0.95	6.15	15.4	82,800	5.20
1956	11,500	80	1,535	1,615	0.71	4.95	14.3	68,500	4.24
1957	22,000	101	1,574	1,675	1.37	6.04	21.7	78,500	4.67
1958	20,000	153	1,572	1,730	0.95	8.84	13.0	132,000	7.89
1959	16,500	138	1,613	1,752	1.14	7.87	11.9	122,500	6.73
1960	26,900	164	1,630	1,746	1.46	9.13	16.4	137,100	7.67
1961	37,600	162	1,644	1,812	2.07	8.83	23.5	124,600	6.74
1962	14,400	138	1,703	1,841	0.78	7.50	10.4	123,600	6.72
1963	9,800	140	1,751	1,891	0.52	7.40	7.0	130,200	6.88
1964	15,900	124	1,828	1,951	0.81	6.35	12.8	108,100	5.54
1965	10,500	109	1,912	2,021	0.51	5.39	9.8	98,500	4.88
1966	5,200	100	2,016	2,116	0.24	4.72	5.2	94,800	4.52

[a]Source: (32, pp. 23, 49, 71).

by less than one per cent. But in 1963, 1964, and 1965 it dropped by only 0.52, 0.81, and 0.51 per cent respectively (1966, 0.24 per cent). The conclusions that can be drawn from the Quebec seasonal unemployment analysis are opposite to the conclusions reached by Smith (33) about the Canadian seasonal unemployment rate:

> The rise in seasonal unemployment raise the annual unemployment rate in Canada by more than one percentage point. (33, p. 197)

Regarding the Quebec seasonal unemployment, it can be said that the secular rise in total unemployment is not attributable to a rise in seasonal unemployment since it does not increase, but drop, between the beginning of the period and the end. However, this overall view is misleading as far as the analysis is concerned, that is, as far as the hypothesis is concerned. For each business cycle, the trough of total unemployment is always higher than the previous trough: 1947, 2.43 per cent; 1951, 2.87 per cent; 1953, 3.77 per cent; 1956, 4.95 per cent; 1959, 7.87 per cent. Consequently there is a rise in secular unemployment. The behavior of the seasonal unemployment rate for the period 1953-1966 (data for 1949-1953 are not available) is different. In 1955, a year of recession, it decreased from 1.78 per cent in 1954 to 0.95 per cent in 1955; it decreased from 0.95 per cent in 1955 to 0.71 per cent in 1956. During the recession, 1956-1958, it increased from 0.71 to 0.95 per cent in 1958 passing by a level of 1.37 per cent in 1957, while total

unemployment increased from 4.95 per cent in 1956 to 8.84 per cent in 1958 (1957, 6.04 per cent). However, in 1959, a year of recovery, it continued to increase and reached a level of 1.14 per cent in 1959 while total unemployment decreased from 8.84 per cent in 1958 to 7.87 per cent in 1959. During the period 1959-1960, it increased from 1.14 to 1.46 per cent. Since 1960, it has decreased to a low level of 0.24 per cent in 1966, as shown in Table 13.

Table 13. Total unemployment and seasonal unemployment rates for selected years[a]

	Peak to peak (recession)				
	1954	1955	1958	1960	1961
Total unemployment	5.91	6.15	8.84	9.13	8.83
Seasonal unemployment	1.78	0.95	0.95	1.46	2.07
Adjusted total for seasonal	4.13	5.20	7.89	7.67	6.74
	Trough to trough (expansion)				
	1953	1956	1959	1966	
Total unemployment	3.76	4.95	7.87	4.72	
Seasonal unemployment	0.80	0.71	1.14	0.24	
Adjusted total for seasonal	2.96	4.24	6.73	4.52	

[a]Source: (32, pp. 23, 49, 71).

In other words, during period of expansion - from trough to trough - seasonal unemployment did not tend to rise continuously if one business cycle after the other is taken, as did total unemployment during 1953-1960. During period of recession, it also did not tend to "peak higher" while total unemployment did. Consequently, it cannot be inferred that the rise from peak to peak or from trough to trough in total unemployment is due, in general and over the entire period (1953-1966), to a rise in seasonal unemployment. If total unemployment is taken, after elimination of seasonal unemployment, the same pattern from peak to peak (except in 1960) and the same pattern in trough to trough is obtained. However, if one looks to a particular peak year and trough year, total unemployment has been partly due to a rise in seasonal unemployment. As far as peak years are concerned, this is the case in 1960 because instead of a rise in peak total unemployment there is a drop if seasonal unemployment is eliminated. In the trough to trough phenomenon, the year 1959 is remarkable because it can be said that the rise from 4.95 per cent in 1956 to 7.87 per cent in 1959 of total unemployment is composed of a rise in seasonal unemployment of 0.73 per cent (1.44 per cent of seasonal unemployment in 1959 minus 0.71 in 1956). In other words, assuming that there was no rise in seasonal unemployment - or keeping seasonal unemployment to its level of 1956 - the rise in total unemployment due to the

rise in seasonal unemployment is obtained. Consequently, the years 1959 and 1960 have seen large increases in seasonal unemployment which contribute to "shape" the particular level of total unemployment of those years.

Though the analysis of seasonal unemployment is far from complete, it provides one of the first indications of the phenomenon at the provincial level. Especially it rejects the hypothesis that the secular rise in total unemployment is due to a rise in seasonal unemployment except in 1959 and 1960. The next chapter is concerned with the frictional unemployment and the hypothesis made about the relationship of frictional unemployment and total unemployment.

THE ANALYSIS OF FRICTIONAL UNEMPLOYMENT

Introduction

Frictional unemployment has been regarded as a "catch all" term covering all types of short-term maladjustments of the labor market. There are three sources of short-term maladjustments: one on the supply side, one on the demand side, and finally one on the labor market matching mechanism. Unfortunately, the statistical series are not complete enough to permit an exact evaluation of these different types of frictional unemployment. Most of the time the available data overestimate the phenomenon. Therefore, it will not be possible to evaluate each source of unemployment to derive different rates of frictional unemployment and to add them to find the total frictional unemployment. An effort has been made to follow this procedure but the results show a clear overestimation of the frictional unemployment.

The important sections of the chapter try to test the hypothesis that the secular rise in total unemployment is due to a rise in total frictional unemployment, itself due to a rise in its components. To begin with, frictional unemployment arising from the matching process of the labor market estimated by the hiring and separation rates will be analyzed. Section two will concentrate on the frictional

unemployment which is due to the job creation process and the job destruction process estimated by the failure rate and the new firm rate. It should be noted that the methodology used is more than tentative. However, the results show that this procedure might be an approach.

Labor Turnover as a Source of Frictional Unemployment

Concepts

Analysis of labor turnover rate permits a derivation of a type of frictional unemployment, the unemployment which is due to the matching process of the labor market. This process is made of two components; the result of this process is the product of two economic agents, the employer and the worker. On the one hand, all firms which operate in an expanding economy and deal with mobile manpower must have a recruitment process by resorting to a number of recruitment streams: the unemployed, new entrants in the labor force, re-entrants, and job changers. This recruitment stream makes it possible for the employer to add new workers to his work force. From these new additions one can derive the hiring rate. On the other hand, there is a termination employment rate usually called the separation rate. It is made of persons whose employment has been ended with an establishment and whose names have been removed from the payroll. Canadian statistics do not distinguish separations by type such as quitting or voluntary separation, discharge,

indefinite layoff, and other indefinite involuntary separations. These two rates give a quantitative idea of the volume of movement within the labor market. This movement is usually summarized by the turnover rate, which is defined as being either the hiring or separation rate, whichever is the lower. Turnover rate is a measure of job changes, of movement in the labor market and, to some extent, in the economy. Given the concepts it is then possible to comment on the relationships between turnover rate-level of economic activity-unemployment and to estimate the frictional unemployment rate.

Labor turnover, level of economic activity, and unemployment

For any given composition of the labor force and of employment structure (or composition of the supply of and demand for labor), changes in the unemployment rate depend largely on labor turnover if a short period of time is considered, that is, if frictional unemployment is considered. As mentioned above, labor turnover is composed of the number of accessions and the number of separations. Both depend on the net rate of growth, the rate of addition to the labor force, the rate of mobility within the labor market, the intensity of demand for labor, and the efficiency with which the labor market is organized as well as the desire of workers to move, changes in technology, aggregate demand, and

specific labor market conditions. Little is known about the hiring and job separation processes though these two have a tremendous impact on the level and composition of short-run unemployment. However, the mechanism which produces unemployment seems to have three aspects. Given a certain demand for labor and the size of the labor force, an increase in labor turnover or a decrease in the efficiency of the labor market in handling the hiring and separation process can cause a fall in employment and an increase in short-term unemployment. Since this last increase does not result from a decrease in the aggregate demand, this rise in total short-term unemployment is considered as a change in frictional unemployment. Secondly, regarding turnover as a type of mobility, high level of mobility creates more positive attitudes on the part of certain workers to assume risk in moving from one location to another or in shifting from one occupation to another and from one industry to another. Each risk taken by members of the labor force can result in higher unemployment level. However, the determining factor of the relationship between turnover and unemployment is the level of economic activity because it influences also the hiring and separation processes as well as the mobility. During recession, the turnover rate is normally low, during recovery accession rate is high, and finally in a period of prosperity both the

accession and separation rates are high. In other words, the level of economic activity controls both the unemployment level and the turnover rate and there is an inverse relationship between the turnover rate and the unemployment rate. Superposed on the effect of cyclical fluctuations is the long-term trend of economic development. It is clear that there is a relationship between turnover and unemployment.

Labor turnover as a source of frictional unemployment

It has been seen in the above paragraphs that the labor turnover is either the separation rate of the hiring rate depending on which one is the lower. The pure case of zero frictional unemployment arising from labor turnover necessitates zero turnover. This is not possible; there is always some turnover. However, not all turnover produces frictional unemployment and from this fact it is possible to derive an indirect index of frictional unemployment arising from this source, if it is assumed that those peoples separating from their jobs are equipped, willing, and immediately available to take those vacant jobs partly revealed by the hiring rate. The assumption makes it possible to say that the number of people separated from their job has to be equal to the number of those hired if there is to be no unemployment. Consequently, the frictional unemployment arising from labor turnover - hereafter termed

frictional labor turnover unemployment - can be estimated by the absolute difference between the hiring and separation rate. The absolute difference is taken because if the hiring rate is higher than the separation rate, there is frictional shortage and there is surplus if the reverse is true. But in both cases the type of labor is not specified and due to the complementaries it is quite possible that frictional shortage also produces frictional surplus. The absolute difference is shown in Table 14, column 8, and the frictional labor turnover unemployment in Table 7.

It is seen that the absolute difference, or frictional labor turnover unemployment, has an increasing trend during the period 1949-1965 but that it remained stable during 1958-1963 at a level of 0.20 per cent (point) and during 1963-1965 at a level of 0.40 per cent (point). As far as the hypothesis is concerned - that a rise in total unemployment is due to a rise in frictional unemployment itself due to a rise in one of the different types of frictional unemployment - it is meaningless to make inference at the present stage of analysis. It is preferable to obtain the total frictional unemployment rate since the hypothesis deals with total frictional unemployment. However, there is a relatively strong and statically significant negative relationship between the separation rate and the level of unemployment. The regression give the following equation:

$$Y: \ 5.7 - 0.16(X)$$

Table 14. Hiring, separation, and labor turnover rates[a]

Year	Total unemployment rate	Percentage change in unemployment rate	Hiring rate	Percentage change in hiring rate	Separation rate	Percentage change in separation rate	Turnover rate	Excess or frictional labor turnover unemployment
	1	2	3	4	5	6	7	8
1949	3.37		7.2		7.3		7.2	-0.10
1950	4.39	31.2	8.0	11.1	7.4	1.3	7.4	+0.60
1951	2.87	-33.3	8.9	11.2	8.5	14.8	8.5	+0.40
1952	3.78	2.3	8.5	- 4.7	8.3	- 2.4	8.3	+0.20
1953	3.77	- 6.1	7.4	-14.8	7.5	-10.6	7.4	-0.10
1954	2.69	-27.5	7.2	- 2.7	7.1	- 5.6	7.1	+0.10
1955	6.15	48.9	7.1	- 1.4	7.6	7.0	7.1	-0.50
1956	4.95	-42.8	8.0	12.6	7.6	0.0	7.6	+0.40
1957	6.02	48.7	7.3	9.5	7.6	0.0	7.3	-0.30
1958	8.81	2.9	6.4	-14.0	6.6	-15.1	6.4	-0.20
1959	7.87	-23.5	6.9	7.8	6.7	1.5	6.7	+0.20
1960	9.13	12.3	6.9	0.0	6.7	0.0	6.7	+0.20
1961	8.83	- 7.3	6.6	- 4.5	6.4	- 4.6	6.4	+0.20
1962	7.49	-13.7	6.9	4.5	6.7	4.6	6.7	+0.20
1963	7.40	- 1.4	6.9	0.0	6.5	- 3.0	6.5	+0.40
1964	6.35	-11.4	7.1	2.8	6.7	- 3.0	7.1	+0.40
1965	5.39	-12.0	6.9	- 2.8	6.5	3.0	6.5	+0.40
1966	4.72	- 8.2	6.9	0.0	6.5	0.0	6.5	+0.40

[a]Source: (31, p. 39).

where Y is the total separation rate and X the total unemployment rate. The coefficient of correlation is R: -0.62. In order to complete the analysis of frictional unemployment arising from the job creation and job destruction processes estimated by the new firms rate and the failure rate or the business turnover.

Business Turnover as a Source of Frictional Unemployment

In an expanding and changing economy there is always a certain amount of business turnover. Certain businesses are discontinued, plants are shut down, while new plants are opened. There are many aspects in the analysis of business turnover. The main objective is the evaluation of frictional unemployment arising from it.

Concepts and relationships

Assuming an economy in which there is no change in business - that is, no failure and no new entry - there will be no unemployment due to change in business. But as soon as such changes occur in the form of failure or a new firm there is a certain amount of unemployment produced and, more specifically, a certain amount of frictional unemployment since such changes require immediate adjustments in the labor market. The larger the changes, the larger the expected unemployment rate. However, the size of firm discontinued or created has to be taken into account. Even

if it is assumed that the size of firm remains constant, there are many possible situations which will produce different impacts on the demand for labor and give rise to different reactions from the supply of labor - for example, the location, the skill required, and the skill discontinued. It is not possible to investigate all these situations even if they should have a relationship with the composition of the unemployment. Only a gross measure of business turnover has been designed. Given the statistics on new firms in manufacturing and on failures in manufacturing, it is possible to describe the trend in failures and new firms as well as on job opportunities and job destruction to evaluate the impact on unemployment. A useful measure to summarize these two series is to form the ratio of new firms in manufacturing to failures in manufacturing assuming that the size is held constant. The ratio can take positive value only and had a value infinity (if there is no failure the denominator is zero) and between infinity and one and one and zero. A value of one means a pure frictional unemployment due to the other sources of frictional unemployment while it means no frictional unemployment arising from business turnover. A ratio greater than one shows a decline in unemployment while a ratio of less than one will see an increase in unemployment. However, there can be another set of hypotheses similar to the "discouraged worker and added worker hypotheses". It is

possible, for example, that the higher the ratio the higher the unemployment, more specifically the higher the frictional unemployment. It is possible that the creation of new firms induced a higher unemployment (frictional) though there will be a decline in total unemployment. In this case the rise in frictional unemployment is not shown because it is offset by the increase in employment.

In order to see which set of hypotheses is valid, the process is to regress the total unemployment rate (Y) against the ratio new firm/failure (X). Obviously this is a poor regression but the rate of unemployment in manufacturing or the total frictional unemployment rate are not available. The regression between the two variables gives the following equation:

$$Y: 5.193 + 0.419(X); \quad R: +0.18, S_e: 6.52 \; S_{b1}: 1.9$$

Though the coefficient of correlation is low, it statically means that the higher the ratio - the higher the formation of new business relative to the failure - the higher the unemployment rate. Given the statistical result there is no choice but to formulate the following general hypothesis concerning the frictional business turnover unemployment. Formation of new business in manufacturing puts pressures on the labor market such that the result may be an increase in unemployment due to the increasing level of frictional unemployment. If the sign of the coefficient, b_1, has been

negative, it can be said that the higher the ratio the lower the unemployment rate. It seems that creation of new firm which creates new jobs puts pressure on the labor market. In the language of the discouraged worker theory, the "job opportunity effect" offsets the "job destruction effect". While the statistical relationship is rather weak, the data to obtain it are also weak. This is because 1) they are not adjusted for the size of firm (measure by the employment), 2) the job loser from failure may not be able to enter the new labor market - take the new job, 3) the data are those of the manufacturing sector only. Given this relationship it is possible to estimate the frictional unemployment arising from business turnover and to describe briefly the behavior of the ratio of new firm to failure.

The behavior of the ratio of new firm to failure

The ratio of new firm to failure has varied over time. It is influenced by seasonal, cyclical, and secular factors. There is a lack of data on the seasonal fluctuations. It can be seen from Table 15 that there is an increasing trend in the ratio. This increasing ratio reveals an expanding economy and a high and rapid rate of industrialization, at least during the period 1961-1966. In fact, there are two secular trends, one from 1953-1958 which is decreasing, and the other from 1959-1966 which is increasing.

The ratio of new firm to failure shows a cyclical

Table 15. New business, failure, business turnover, and frictional unemployment rate[a]

Year	1 Unemployment rate	2 Percentage change in unemployment rate	3 New business (manufacturing)	4 Percentage change in new business	5 Business failure (manufacturing)	6 Percentage change in failure	7 Ratio of new to failure	8 Percentage change in the ratio	9 Net business increase (manufacturing)	10 Percentage change in net business increase	11 Ratio: net business/ failure	12 Frictional unemployment rate
1953	3.7		337		286		2.41		51		0.17	0.83
1954	2.6	-27.6	352	4.4	323	12.9	1.12	-115.1	29	-75.8	0.08	0.92
1955	6.1	48.9	543	54.2	270	-19.6	2.01	79.4	273	841.3	1.01	0.01
1956	4.9	-42.8	436	-24.5	234	-15.3	1.86	-8.0	202	35.1	0.86	0.14
1957	6.0	48.7	368	-18.4	241	2.9	1.52	-22.3	127	-59.0	0.52	0.48
1958	8.0	2.9	377	2.4	253	5.8	1.47	-3.4	122	-4.0	0.48	0.52
1959	9.1	-23.5	439	16.4	251	-1.5	1.74	18.3	188	54.0	0.74	0.26
1960	8.8	12.3	487	10.9	188	-33.5	2.50	43.6	299	59.0	1.59	0.54
1961	7.4	-7.3	624	28.1	164	-14.6	3.90	56.0	460	53.8	2.80	1.80
1962	7.4	-13.7	645	3.3	189	15.2	3.40	-14.7	456	0.8	2.41	1.41
1963	6.3	-1.4	836	29.6	220	16.4	3.80	11.7	616	35.0	2.80	1.80
1964	6.3	-11.4	693	-20.6	194	-13.4	3.50	-8.5	499	-23.4	2.57	1.57
1965	4.7	-12.0	620	-11.7	202	4.1	3.00	-16.6	418	-19.3	2.06	1.06

[a]Source: (31, p. 39).

sensitivity. The recessions produce a drop in the ratio (1954, 1957, 1958, but not in 1961). While new firm and failure and their ratio have diverging trends, the difference between new business and failure - which has been called the net business increase - shows an increasing trend except in 1957, 1958, and 1959 which are years of instability. In those years, net business increment is still positive but increase at a slower rate.

Business turnover as a source of frictional unemployment

It has been said earlier that a ratio of one can be associated with zero frictional unemployment arising from business turnover. Consequently, any difference of the ratio from one means frictional business turnover. However, given the above statistical relationship, it is preferable to use the ratio net business increment over failure to evaluate the frictional business turnover unemployment. The difference of this ratio from one gives the frictional business turnover unemployment rate. The results are shown in Table 15, column 12.

Given both types of frictional unemployment, it is assumed that they can be added to find the total frictional unemployment. It should be noted that the shortcomings of this type of analysis are apparent, but it gives an idea of the frictional level of unemployment.

Total Frictional Unemployment

One of the hypotheses to explain the secular rise in total unemployment was the rise of frictional unemployment, itself due to the rise of the components of frictional unemployment. It has been seen that both components of total frictional unemployment have increased during 1953-1966. Consequently, it is quite possible that the rise in total unemployment is due to a rise in frictional unemployment. In Table 16 the total unemployment, the total frictional unemployment, and the component of frictional unemployment are shown; in Table 17 a peak to peak and trough to trough analysis is performed.

Table 16. Total unemployment and frictional unemployment rates 1953-1966[a]

Year	Total unemployment rate	Frictional labor turnover rate	Frictional business turnover rate	Total frictional unemp.
1953	3.77	0.10	0.83	0.93
1954	5.86	0.10	0.92	1.02
1955	6.16	0.50	0.01	0.51
1956	4.92	0.40	0.14	0.54
1957	6.00	0.30	0.48	0.78
1958	8.81	0.20	0.52	0.72
1959	7.87	0.20	0.26	0.46
1960	9.10	0.20	0.59	0.79
1961	9.13	0.20	1.80	2.00
1962	7.35	0.20	1.41	1.61
1963	7.43	0.40	1.80	2.20
1964	6.79	0.40	1.57	1.97
1965	5.43	0.40	1.06	1.46
1966	4.71	0.40	na	na

[a]Source: (31, p. 39).

Table 17. Total unemployment rates and frictional unemployment for selected years[a]

	Peak Unemployment Years				
	1954	1955	1958	1960	1961
Total unemployment rate	5.86	6.16	8.81	9.10	9.13
Total frictional unemployment	1.02	0.51	0.72	0.79	2.00
Difference	4.84	5.65	7.09	8.31	7.13

	Trough Unemployment Years				
	1953	1956	1959	1964	1965
Total unemployment rate	3.77	4.92	7.87	6.79	5.43
Total frictional unemployment	0.93	0.54	0.46	1.97	1.46
Difference	2.84	3.38	7.41	4.82	3.97

[a]Source: (31, p. 39).

It can be seen from Table 17 that total frictional unemployment has been a major contributor of total unemployment in certain years. However, the increase in unemployment from one peak to the other cannot be explained by the frictional unemployment since only the peak of 1961 is eliminated. It should be noted that this peak has already been eliminated by seasonal unemployment. On the other hand, the increase in trough to trough cannot be explained by the increase in frictional unemployment. However, the slow decrease in unemployment from 1961 to 1966 seems to be due to the frictional unemployment. During this period there was a tremendous new business but a

high level of total unemployment. It is hypothesized that the higher unemployment can be due to a rise in total frictional unemployment; that is, the "job opportunity effect" which creates frictional unemployment offsets the "job destruction effect" which creates total unemployment. To summarize the behavior of frictional unemployment, it can be said that the higher the level of economic activity the higher the frictional unemployment level, since during time of prosperity workers take more risk, employers more easily change their work force, labor force members are more willing to change their status and to enter and leave the labor market. If these sources of friction are added, a certain amount of frictional unemployment can be obtained which is quite substantial.

However, and unfortunately, all of the above analysis is based on a set of "heroic" assumptions which can be rejected. For this reason one should not be too confident in the explanation of the rise of total unemployment rate by a rise in frictional unemployment rate.

The two following chapters are devoted to the now classical hypotheses: the structural hypothesis and the aggregate demand hypothesis. As is well-known, the structural hypothesis has been rejected by most economists. It seems that students of unemployment in recent years have used a narrow frame of analysis. The present analysis proves, as far as it can prove, that this might be true.

It is not possible to have short-term structural change even when the structural change is qualified of "rapid structural changes". Moreover, the structural hypothesis is far from realistic. The world is in a period of rapid evolution. Both the structures of the society and the men living in this society experience this evolution. The important question is to determine if the evolution of the men is "pulled" by the evolution of the structures or if the men "push" the evolution and "pull" the structures. This is the whole dimension of the structural hypothesis. The structuralists argue, in fact, that the evolution of the structures is more rapid than the evolution of the men. This is the case for the productivity structures, the skill requirement structure, etc. In other words, they underestimate the capacity of men to adapt themselves to the changing structures of a system as well as their capacity of "pulling" the structures. This is not realistic. Men are capable of adapting themselves to the changes in the structures and of "pulling" the structure. But they may not know how to do it. This is the meaning of the frictional unemployment which, in fact, reflects as always the maladjustment process rather than the capacity of the individual. The above analysis of frictional unemployment proved possibly one thing: the labor market may not be organized to handle the adjustment process and the workers have to find the best way. Since this cannot be done simultaneously, there is more frictional unemployment

than ever but there is not necessarily more structural unemployment. It will be proved by a lengthy analysis of structural changes that there is no apparent rise in structural unemployment. However, before analyzing these problems, some comments are made on another source of unemployment, unemployment due to the lack of mobility.

MOBILITY AND UNEMPLOYMENT IN QUEBEC

The Mobility in General

Given the assumption that the Province of Quebec has a labor market, it is evident that this labor market is characterized by a type of imbalance, a surplus labor market or unemployment. Another characteristic of the labor market is its flexibility. Mobility provides one form of flexibility in a labor force necessary to meet changes in labor requirements in a labor market. Obviously, mobility is a factor influencing labor utilization under any conditions. The economy is dependent on the ability of its workers to change jobs or to move to different locations to meet labor requirements. Without mobility the rate of unemployment would be much higher. Therefore, there are two facts: there is unemployment and there is mobility. The problem is to examine why there is unemployment even with mobility and how mobility can be related to the increasing trend in unemployment. Since mobility took place in the Quebec labor market simultaneously with unemployment, two things could have happened. 1) There was not enough mobility, or 2) there was too much mobility. In both cases, one can analyze the timing, the type, and the categories of movers and ask, for example, if the timing was good. It is not possible to define and to tell when there is too much or too little mobility. A more precise formulation of the relationship mobility and

unemployment could be derived if there was more information on mobility than is now available. However, it is clear that the degree of mobility is a major factor in the efficient use of manpower resources. Since to a certain extent human resources are scarce, their mobility becomes a matter of primary concern to modern economy quite apart from the problem of unemployment. When coupled with unemployment, it acquires a double importance. A direct analysis of the relationship mobility-unemployment is not possible since data on movers do not specify the job seekers, and since series of unemployment do not mention if they move. However, a gross idea of the mobility that took place during the period 1951-1961 can be given and related to unemployment. First the rural-urban shift, considered as a type of mobility, will be studied.

The Rural-Urban Shift

The mechanized economy introduced by the industrial revolution included many sharp changes in the system of production and in the distribution of employment. The easiest example of a large scale mobility in the Province of Quebec caused by the process of industrialization was the shift from rural areas to cities. This phenomenon involved massive employment shifts during the period 1946-1966 from the agricultural and other primary industries to manufacturing and service industries. The major causes of this shift were the

technological improvement, the changing pattern of the consumer demand, the drop of agricultural exportation as well as the decrease of interprovincial exportation from Quebec and the increase of Quebec's agricultural importation, itself due to the changing demand. It is not the purpose of this section to make an extensive analysis of the rural-urban shift. Only those aspects related to the unemployment problem will be considered.

As far as the movers are concerned, they are identified by sex and age group, 0-14, 15-19, 20-24, 25-44, 45-64, and 65 and over. They are classified by type of residence: rural (rural-farm and rural non-farm) and urban total, urban centers: 100,000 and over, 30,000-99,999, 10,000-29,999, 2,500-9,999 and 1,000-2,499. By order of importance, the movers between the census years 1951-1956 were those living on the farm and one age and sex group living in non-farm areas. Naturally there was an increase in urban centers, while total rural residents included some decreasing groups and some increasing groups. Therefore, it can be said that between 1951-1956, certain groups of movers from rural-farm did not move directly to urban centers but chose to remain in rural areas as non-farmers. The same general pattern is observed for the period 1956-1961, but the overall movement was larger and the movers were not necessarily the same age and sex group. Comparison of the two periods is more interesting than the analysis of one period after the other. The

number of people living on the farm in 1951 was estimated at 766,910 (407,430 men and 359,480 women) while in 1956 it was 740,387 (391,716 men and 348,671 women). This is a decrease of -3.3 per cent (-3.9 per cent for men and -3.0 per cent for women). This decrease is small relative to the one that took place between 1956-1961. In 1961, total farm residents were estimated at 564,826 (320,778 men and 264,041 women), a decrease of -29.9 per cent (-22.0 per cent for men and -31.8 per cent for women). This is obviously a tremendous decrease and any analysis of Quebec's unemployment has to take it into account. However, apart from identification of movers by sex it is interesting to identify them by age and sex. This can be done briefly by presenting the percentage changes between the farm population census of 1951-1956 and 1956-1961 as seen in Table 18.

All groups had movers during 1951-1956 except the age group 45-64 and the females of the age group 14-19. However, not all groups had movers out of rural-farm during 1956-1961 since the age group 25-44 had increased its farm population by 28.6 per cent (30.0 per cent for men and 27.0 per cent for women), but this time the age group 45-64 decreased by -18.8 per cent (-19.5 per cent men, -18.4 per cent women). It would be interesting to comment on this change in movement from rural to urban areas, but it is not part of the subject. However, considering this change, it can be used to partially explain the change in the composition of unemployment

Table 18. Percentage changes of farm population classified by sex and age 1951-1956, 1956-1961[a]

		Total	Males	Females
1951-1956	Total	-3.3	-3.9	-3.0
	0-14	-1.8	-1.7	-1.8
	14-19	-2.4	-4.5	0.0
	20-24	-8.9	-9.6	-12.0
	25-44	-7.5	-9.4	-6.6
	45-64	0.0	0.0	0.0
	65+	-5.4	-9.5	0.0
1956-1961	Total	-29.9	-22.0	-31.8
	0-14	-34.5	-34.9	-34.1
	14-19	-12.6	-10.5	-15.6
	20-24	-41.6	-27.0	-57.0
	25-44	28.6	30.0	27.0
	45-64	-18.8	-19.5	-18.4
	65+	-34.6	-26.6	-36.3

[a]Source: (31, p. 10).

mentioned earlier. During this period the unemployment rate of the age group 45-64 increased. This is a general phenomenon since all unemployment rates increased, but it increased relatively more than the rate of the age group 25-44, which

did not experience a rural-urban shift. Consequently, it is possible to infer that the pattern of shift from rural areas to non-rural areas for these age groups 25-44 and 45-64 produced the decrease in the difference of unemployment rate and that the non-rural labor market was not large enough to absorb the increment due to the shift of age group 45-64.

Having identified the movers and made some particular inferences, it is possible to comment on the probable impact of the rural-urban shift on unemployment and the general relationship between the rural-urban shift and the level of unemployment. This can be done by explaining the mechanism of the rural-urban shift, and by pointing out the causes of the shift. The causes can be classified as "pull" and "push" causes; that is, it seems that rural residents are pulled into urban centers and urban labor markets by the attraction of better job opportunity and an increasing demand for labor while they are pushed by the technological progress to leave farm occupation. In the first case the primary determinant is the job opportunity while in the other case it is the opportunity costs for each sex as well as for each age group. Even if there is no way to estimate the costs for each group, it is obvious that the magnitude of the shift reveals it. The higher the costs of farming, the higher the movements from rural to urban area. Given the magnitude of the movement for each group, there are a few clear effects. First, there is a change in the consumption structure since

people living on the farm and people living in the city have a different consumption pattern. Second, the changes of the consumption function produce a change in the production of the non-agricultural sector. These changes of production necessitate changes in the employment and more generally in the demand for labor. The problem of the relationship between the shift from rural to urban area and unemployment is concerned with these changes in the demand for labor due to the urban-rural shift and with the increasing supply of labor due to the same shift.

If the rural-urban shift causes a larger increase in demand for labor than the increase in the supply of labor, there will be no unemployment, if one is willing to assume that this "new non-agricultural supply of labor" wants to take jobs in the non-agricultural sector and if it filled the job requirements.

There is strong presumption that this is not so. Most of the agricultural manpower is unqualified to take jobs in other sectors. Moreover, it seems that most of the movers from rural to urban areas are not rich enough to change the consumption function and consequently the demand for labor does not increase, or if it increases, it does not increase enough to absorb the new supply. As a result, the shift from rural to urban areas probably contributed to the increase in the unemployment rate during 1951-1961.

Though it is not possible to investigate completely this hypothesis, a few examples can be given. If the relationship between rural-urban shift and unemployment is valid, then the larger the shift the larger the unemployment. During the period 1951-1956 the average rate of total unemployment was 4.49 per cent while the average decline in rural-farm residence was -0.6 per cent. But during 1956-1961 the average total unemployment was 7.3 per cent and the average decline of rural-farm was -5.9 per cent. It seems that there is no relationship during the 1951-1956 period between the rural-urban shift and the unemployment rate. However, during the 1956-1961 period, the relationship seems to exist as shown in Table 19.

Table 19. Average unemployment rate and average rural-farm decline by age and sex 1951-1956, 1956-1961[a]

	1951-1956		1956-1961	
	Average unemployment	Average rural-urban	Average unemployment	Av. rur. urban
Total	4.49	-0.6	7.30	-5.90
Males	4.78	-0.7	8.40	-4.40
Females	2.94	-0.6	3.82	-6.30
14-19	7.10	-0.5	12.62	-2.50
20-24	5.09	-1.7	9.34	-8.30
25-44	2.92	-1.5	6.19	-4.70
25-64	3.12	0.0	5.89	-3.70
65+	5.61	0.0	7.37	-6.90

[a]Source: (31, pp. 3, 10).

Apart from the rural-urban shift taken as a type of mobility, it is possible to interpret this shift as a structural change in the economic structure, but because it involves so much movement of the population, it is better to examine it as a type of mobility. Aside from this type of mobility there are three other types of mobility which can be analyzed under the title of geographical mobility. It can be subdivided into interprovincial mobility, inter-regional mobility and intermunicipal mobility. Each type can influence the unemployment rate; unfortunately, not all types can be analyzed.

Interprovincial Mobility and the Share of Quebec in Relation to Unemployment

The interprovincial mobility is very important in Canada as far as the labor markets are concerned. It is one of the possible solutions of a surplus labor market such as in the Province of Quebec since the Province has an above average unemployment. On the one hand, it is possible that the inter-provincial migration has increased its labor supply too much compared to the demand for labor or, on the other hand, the population of Quebec does not move to other Provinces but prefers to live in a surplus labor market.

Total in-migration from other Provinces totalized 32,283 males and 32,600 females, the two major age groups being 5-14 (8,600 males and 7,100 females) and 35-44 (6,000 males and

5,200 females). Of the 32,283 men who moved in Quebec, 28,900 moved in urban centers and the rest in rural areas. The same pattern is observable for women (27,500). The great majority of the 32,283 men originated from contiguous Provinces (25,400), while 25,000 women from contiguous Provinces moved in Quebec. Most of them came from urban centers (21,800 men, 21,700 women). Those from non-contiguous Provinces came also from urban centers (7,800 men, 7,600 women). Though these figures do not give the complete pattern of the share of the Province for the interprovincial migration and mobility, they reveal where the movers came from, who they are, and where they go.

In relation to unemployment, it is possible to partially analyze the direct relationship between unemployment and interprovincial migrations. But to measure the changes, it is necessary to know how many persons left the Province. Table 20 reveals that the Province of Quebec is a net exporter of population and manpower. Consequently, it is not possible to formulate the hypothesis that the in-migration has caused a rise in the unemployment level via an increase in the supply of labor. However, one can say that the interprovincial migration during 1956-1961 had an adverse effect on the level of unemployment; it decreased it. The net out-migration of Quebec is an indication of a surplus labor market. It can also be said that the in-and-out-migration has changed the structure of the labor supply and possibly

Table 20. Interprovincial in-and-out-migration of Quebec by age and sex group 1956-1961[a]

	In-migration	Out-migration	Net
Total males	25,423	36,904	11,481
5-14	6,503	11,257	4,754
15-19	1,608	2,413	805
20-24	2,394	3,972	1,578
25-29	3,525	5,680	2,155
30-34	3,322	5,406	2,084
35-44	4,659	7,951	3,292
45-64	2,832	5,130	2,298
65+	580	1,374	794
Total females	25,045	43,487	18,442
5-14	6,176	10,860	4,684
15-19	1,777	3,223	1,446
20-24	3,265	5,094	1,829
25-29	3,658	5,620	1,962
30-34	2,747	5,178	2,431
35-44	4,087	7,052	2,965
45-64	2,602	4,742	2,140
65+	733	1,775	1,042

[a]Source: (31, p. 13).

created structural unemployment because of complementaries. An out-migration of engineers, for example, could cause structural unemployment of unskilled. The hypothesis cannot be tested.

Aside from the rural-urban shift and the interprovincial mobility, it would be possible to examine the interregional and intermunicipal mobility. However, the rate of unemployment for each region and each city is unknown. Therefore, it is not meaningful to investigate the relationship of regional mobility and unemployment and intermunicipal mobility and unemployment. The same can be said for the industrial and occupational mobility.

The two following chapters will examine the structural and aggregate demand hypothesis.

STRUCTURAL CHANGES AND UNEMPLOYMENT

Introduction

In the following analysis the relationship between unemployment and changes will be investigated. Changes occurring in a society can be the subject of an analysis of functional changes or of an analysis of structural changes. Functional changes are the product of the actions of persons and the ways they act as well as the way they react. However, they behave and act within a framework or a structure. Structural changes are the movements of this framework during the period while functional changes are the movements of the components of the structure. Structural changes occurring in any economic system produce changes in other sectors of this system, engender reactions from the members of the system, and necessitate a readjustment of the total structure. The following analysis is concerned primarily with structural changes that took place in the regional economy and secondly with the reactions of the members - the economic agents.

In any given social system many types of structural changes can take place. An economic analysis has to be concerned with structural economic changes only. It is believed that in this analysis of unemployment only the following changes are relevant: industrial and occupational distribution of manpower, production, consumption, income, and

employment. Given the changes that took place in the economy it will be possible to study the reactions of the economic agent and evaluate the structural unemployment.

Changes in the Industrial and Occupational Manpower Structures

Changes in industrial and occupational structures are very important since they provide useful indications about the stages of economic development and the necessary changes made by the labor force to adapt itself to this development. These manpower structures are defined in terms of broad occupational groups. The main sources of the data are the Census of 1951 and 1961 (2, 3).

Occupational distribution of manpower

Up to 1941, agriculture was the chief occupation of the male labor force (251,539 in 1941) while services were the main sources of jobs for women (126,846 in 1941). In 1951 the manufacturing industry had outdistanced agriculture and accounted for the highest percentage of the occupied male population. Women were still occupied mainly in services although a small drop occurred. Given these main shifts from 1941 to 1951, the changes which took place in the occupational structure during the 1951-1961 period can be examined by sex, age, age and sex and education.

Of a total of 1,471,840 members of the labor force,

there were in 1951, 341,646 women and 1,130,194 men. Ten years later there were 1,768,119 members of the labor force distributed in 1,289,425 men and 478,694 women. In other words, in 1951 there were 38 per cent of women and 62 per cent of men. Men increased by 17.1 per cent and women by 40.1 per cent. Comparison of the occupational distribution by sex, as measured by the percentage distribution, reveals that there were significant changes.

All primary occupations experienced a loss when the totals of both sexes are considered. Manufacturing occupations had 27.4 per cent of the male labor force in 1951 and 30.9 per cent in 1961, while manufacturing occupations had 22.5 per cent of the female labor force in 1951 and 18.0 per cent in 1961. Managerial occupations increased in proportion for males but decreased for females. In service, occupations of males increased their share more than females. It seems that the shift from agricultural to non-agricultural occupations has been more equally distributed for male (occupation) than for females.

As far as age groups are concerned, it is not possible to evaluate this type of shift in detail, percentage by percentage. However, the following paragraphs indicate the major shifts.

The age group 14-19 probably has the greater total (male and female) shift. The major contributor to this shift were males, who became more concentrated in clerical occupations

and in manufacturing, and less in primary industries. Females of this group show a net concentration in clerical, sales, and services.

The distribution of total labor force of age group 20-24 did not change very much except that it became less concentrated in primary occupations and a little more in clerical, sales, and service occupations. Males of this group more than doubled their share in manufacturing and professional. Here again females decreased their concentration in manufacturing and increased it in sales and in professionals.

The age group 25-44 had a relatively stable pattern except that it was more concentrated in manufacturing in 1961 than in 1951. The same can be said for the age group 45-64 when the total of both sexes is considered. However, the analysis of the total is misleading. Men of this group experienced a major shift from primary occupations to professional and manufacturing occupations. On the other hand, women became more concentrated in professional occupations and experienced a sharp decrease in manufacturing and primary occupations.

The group 65 years of age and over did not have any clear trend. However, it seems that there was a shift toward professional from primary occupations although it was not very important except for men.

Another interesting set of data on occupations is the

classification of manpower by sex and years of school. Workers having between zero and four (0.4) years of school experienced major shifts. The total of this group, both males and females, keep the same concentration in primary occupations but larger concentration took place in services and in manufacturing. That is, people having less than four years of school did not leave the agriculture, although their relative share decreased and they took jobs in services and manufacturing. "A priori" there is no reason for this type of shift. It cannot be inferred that service and manufacturing occupations require less education than before since these are very broad occupational groups.

Workers having between 5-12 years of school remained equally distributed among occupations, except for the decrease in agricultural occupations. The group with more than 13 years of school quit the professional occupation and shifted toward sales occupations and toward "not stated" occupations.

Industrial distribution of manpower

An overall view of the manpower distribution reveals there were major industrial shifts, which are comparable to the occupational shifts, between 1941-1961. Primary industries declined more between 1941-1951 than between 1951-1961, while the relative importance of industries of the secondary sector increased between 1941-1961. Finally the

tertiary industries increased their share continuously but more rapidly after 1951. These industrial shifts are shown in Table 21.

Table 21. Industrial shifts by large sectors in percentages[a]

	1941	1951	1961
All industries	100.0	100.0	100.0
Primary	25.6	17.9	11.4
Secondary	32.5	35.8	33.5
Tertiary	40.2	44.4	52.1

[a]Source: (31, p. 18).

Within these large sectors, the agricultural decline was the major contributor to the decline of primary industries. It declined from 21.1 per cent in 1941 to 13.1 per cent in 1951 and 7.2 per cent in 1961. The secondary sector, though its total did not experience a comparable shift, showed important shifts, especially in the construction and manufacturing industries. The tremendous growth of the last sectors, services, was not due to a particular shift but to an overall increase which was caused by the increasing role of the government in education and health. Of the 240,000 new jobs created since 1953, more than two-thirds were in service industries.

Given these general characteristics of the industrial manpower shift, it remains to study these changed by age and sex. A more detailed analysis will be made when studying the production system, the supply of goods, the production function, and the demand for labor. As far as the industrial composition by sex is concerned, the proportion of all men declined in agriculture and manufacturing from 16.5 to 8.9 per cent and from 31.5 to 27.2 per cent respectively, between 1951-1961. These declines were equally redistributed in other industries but services inherited the larger part. Women distribution does not have the same aspect. The proportion of women in agriculture decreased between 1951-1961 while it declined more in manufacturing than the proportion of men employment, from 31.5 per cent to 27.2 per cent and 32.4 per cent to 24.0 per cent respectively. This major decline was absorbed by services industries in which the proportion increased from 38.8 per cent to 42.3 per cent. The other industries shared equally the remaining 4 per cent. Consequently, the total of both sexes decreased in agriculture, in some primary industries, and in manufacturing.

The age group 14-19 experienced a downward shift in all industries except in trade and services for men and services for women. The manpower of this group was more equally distributed in 1961 than in 1951. The males of the age group 14-19 experienced a larger shift than females of the same group.

The same is true for the males of the age group 20-24.

The proportion of the total males of this group increased in construction, trade, finances, and services and decreased in the other industries while proportion of females in this group increased in services, government, and transport. Consequently, there was a shift for the total of this group (both males and females) from agricultural and manufacturing industries toward services. The manpower of this group was equally distributed among industries with a small concentration in services.

The last conclusion is even more valid for the age group 25-44 which, in fact, did not experience major shifts except the well-known declines in agriculture and a small decrease in manufacturing.

One cannot say the same of the last two groups and especially for the group of 65 and over, which had major shifts between 1951-1961. While the males of the age group 45-64 were relatively well distributed both in 1951 and 1961 the females became more concentrated in services. The males 65 and over had three main sources of employment: agriculture, services, and manufacturing. There was a substantial decrease in services for the females of this group. The total of this group had a major shift from primary industries to manufacturing, transportation, finance, and trade.

Although this type of analysis is not perfect it proves as far as it can prove that there were substantial shifts among industries and occupations, not only of total

employment but also for each sex and age group. The analysis was primarily designed to indicate the direction of the latter shifts for each particular group and not to repeat that there were shifts from agriculture to manufacturing or from manufacturing to services. These phenomena are well-known but their analysis does not show the complete picture since the shifts are different for each sex and age group. The important factor is to know the relative shift of the groups in order to be able to evaluate the relative impact of the shifts on the unemployment of each group. As far as the relationship between industrial shift of manpower and unemployment is concerned, it will be studied later in this chapter.

Changes in Personal Income, Wages, and Hours

Personal income structure

The following section is concerned with the personal income structure. The possibility exists of analyzing the level of economic activity, then the structures, or the level and the structures simultaneously. In the present study the structures and the changes of the structures are analyzed separately from the level. In good economic logic, the income should come after the analysis of production and before the analysis expenditures. The income, the expenditures, then the production, and finally the employment can also be studied. This is a cycle since after the analysis

of employment, the income can be re-studied. Given the information of the gross changes in the occupational and industrial structures, it is possible to analyze the income first, if the details of the employment structure which underlied them are abstracted and if the description of large groups of employment (occupation and industry) are satisfactory.

There were some important shifts in the structure of personal income. The shift from agriculture to manufacturing caused a decline in the proportion of the total agricultural revenue. It was 6.6 per cent of the total in 1946 and only 1.7 per cent in 1966. This was obviously a major shift. On the other hand, the share of wages and salaries showed an increasing trend, 63.8 per cent in 1946 and 71.9 per cent in 1966. This overall trend can be divided in four subperiods: 1946-1952 (63.8-70.0 per cent), 1953-1956 (69,9-71.1 per cent), 1957-1961 (71.4-68.4 per cent), and 1962-1966 (74.6-71.9 per cent). These subperiods revealed that the increase was not regular. However, the increase in the proportion is important enough to be noted. Revenue of non-agricultural business showed a steady decreasing trend. From 10.6 per cent in 1946 the proportion decreased to 6.2 per cent in 1966. As far as interests are concerned, there is an increasing trend which follows a cyclical pattern. This source of revenue shared 8.5 per cent of the total in 1946 and 10.1 per cent in 1966. The last components of personal

income, transfers, showed mixed trends. It decreased from 10.6 per cent in 1946 to 7.2 per cent in 1951 and increased thereafter to 13.0 per cent in 1966.

Among the factors affecting the amount and the composition of personal income are the number of hours worked, the wages and level of employment. In the following paragraphs, only wages and hours will be analyzed.

Wage structure

The wage structure of any economy is important because:

1) Wages are one of the major factors influencing the level of personal income.
2) It is a very good economic indicator.
3) The structure itself reveals the wage differential and the change in the wage differential.

Except for agriculture the wages nearly doubled between 1949-1964. The industrial composite average weekly wage was $38.46 in 1948 and $88.62 in 1964. Table 22 shows the increase and the rank of the wage for industrial groups.

There were some shifts in the structure of wage between 1948-1964. Agriculture, public utility trade, and services kept the same rank. Forestry, mining construction increased their rank; manufacturing, transportation, and finance decreased it. Within manufacturing the pattern was stable. Chemical industries were fourth in 1948 and first in 1964, while paper was first in 1948 and fourth in 1964. All

Table 22. Value and rank of average weekly wage by industrial group 1948, 1964[a]

	1948		1964		1964-1948	
	$	rank	$	rank	$	rank
Agriculture	21.06	10	31.20	10	10.14	10
Forestry	34.89	7	89.09	5	54.20	4
Mining	40.11	3	102.82	1	62.71	1
Manufacturing	38.50	5	83.70	7	45.20	6
Construction	36.87	6	95.60	4	58.73	2
Transportation	45.55	1	97.88	3	52.33	5
Public utility	43.35	2	100.03	2	56.68	3
Trade	34.33	8	73.99	8	37.66	8
Finance	40.02	4	83.75	6	43.73	7
Services	25.45	9	62.00	9	26.55	9

[a]Source: (31, p. 28).

others kept the same rank, for average weekly wage, between 1948-1964.

Hours

The number of hours worked is also an important factor influencing the composition and the level of personal income. Any shift in the structure of hours worked affects many other variables. Analysis of hours differential can be made. Table 23 indicates the first phenomenon, the

declining, while the second is described in Table 24, the table of difference in hours.

Table 23. Hours and rank by large industrial sectors, 1951, 1966[a]

	1951		1966		1951-1966	
	Hours	Rank	Hours	Rank	Hours	Rank
Mining	47.0	5	41.7	2	-6.3	1
Manufacturing	43.5	2	41.8	3	-1.7	6
Construction	39.9	1	42.4	6	2.5	5
Transportation	45.0	4	41.9	4	-3.1	4
Communication	47.9	6	42.3	5	-5.6	2
Services	44.1	3	40.5	1	-3.6	3

[a]Source: (31, p. 29).

Table 24. Hours differential by large industrial sectors, 1951, 1966[a]

	1951	1966	1951	1966	1951	1966	1951	1966
	Mining		Manufacturing		Construction		Transportation	Services
Mining								
Manufacturing	-2.5	-0.7						
Construction	-6.1	-0.1	-3.6	8.1				
Transportation	-1.0	-7.4	1.5	0.2	5.1	-7.9		
Services	-1.9	-2.0	0.6	-1.3	4.2	-9.4	-0.9	-1.5

[a]Source: (31, p. 29).

There were major shifts among large industrial groups between 1951-1966. Services were first in 1966 and third in 1951; mining was second in 1966 and fifth in 1951; construction industry was sixth in 1961 but first in 1951. A complete study of hours differential cannot be made here. Without this complete analysis of hours worked, it is extremely difficult to make inference between hours worked and unemployment.

Table 25 shows that within manufacturing the pattern is not as stable as the pattern of wage.

Table 25. Hours and rank of hours within manufacturing[a]

	1949	1964	1949-1964	1949	1964	1949-1964
	Hours			Rank		
Manufacturing	44.5	41.2	-3.3			
Food and beverage	48.2	42.4	-5.8	15	12	4
Tobacco products	41.9	37.6	-4.3	3	3	10
Rubber	44.2	43.4	-0.8	9	15	16
Leather	44.1	39.4	-4.7	6	4	9
Textiles	47.9	43.1	-4.8	4	13	8
Knitting	41.6	42.3	0.7	2	11	15
Clothing	40.9	32.1	-8.8	1	1	1
Wood products	49.5	45.6	-3.9	16	17	11
Paper products	50.1	43.1	-7.0	17	13	3
Printing	42.4	39.7	-2.7	4	5	12
Iron and steel	45.1	43.6	-1.5	10	16	14
Transportation (eqpt.)	47.3	41.7	-5.6	13	8	6
Non ferrous metal	44.1	41.8	-2.3	6	9	13
Electrical apparatus	43.0	42.8	-0.2	5	10	17
Non metallic product	44.1	36.4	-7.7	6	2	2
Petroleum and coal	47.0	41.3	-5.7	12	7	5
Chemical	46.1	41.1	-5.0	1	6	7

[a]Source: (31, p. 29).

Changes in the Structure of the Expenditures

Introduction

> Two fundamental factors produced changes in the patterns of demand for labor. The first is an enormous expenditure in the past 25 years on research and development, which has given a new direction to technological change. The second is the rising affluence of the American peoples, which has changed patterns of consumer spending. (26, p. 7)

This quotation by Killingworth (26) indicates one of the major sources of changes. In order to understand the importance of the changes of this variable, it has to be replaced, first in a general economic context and second in a general historical context. The demand for labor is a derived demand, and a shift in the production function produces a shift in the demand for labor. It is possible to infer that the shift in the production function is the result of a reaction to the shift of demand for goods and services although, to a certain extent, the reverse is also possible; that is, an autonomous shift of production will affect the demand for goods and services. This is the meaning of the quotation: on the one hand the demand for goods changes the production function which in turn changes the demand while the new technology changes the production function and indirectly the demand for goods and the demand for labor.

In the following section it is assumed that the shift in the production function, if it occurred, is partly due to the shift in the consumption function. The chain of

causation is as follows: a shift in the consumption function was large enough to require a shift in the production function, which in turn has necessitated a shift in the demand for labor. This last shift was a source of structural unemployment since the skill requirements and the location of expanding labor markets were different.

Two historical events may have affected the consumption function, the depression of 1929 and more recently World War II. The first event, because of material scarcities and lack of purchasing power, affects both the general level of consumer spending and the components (durables, non-durables, and services). The second, because of public control of consumer spending, affects the level of spending to a certain extent but especially the type of consumption. As a result the normal pattern of demand for goods and services was shifted. These shifts will not be analyzed; the analysis instead will be of the reactions to those shifts. The reactions to the first event took the form of a hunger for non-durable goods while the second created a more important hunger for durable goods. When the demands for durable goods and services were satisfied, another shift took place. The first was the restoration of the level of non-durable consumption, the second one can be called the shift from non-durable to durable goods, and finally the last one is termed the shift from durable goods to services.

Consumer expenditures

Data are not available on the consumer spending at the provincial level but it is possible to observe some changes by analyzing the retail trade expenditures. During the period 1946-1966 the item grocery and combination, which is used to estimate food and beverage, had a relatively constant proportion of the total retail expenditures. It always increased: 1946, 21.1 per cent; 1954-1959, 23 per cent; 1959-1967, 25 per cent; 1966, 21 per cent. This increase was probably due to the increasing population and the location of this population, rural-urban shift. The second major item of non-durable goods, clothing, kept a constant proportion of total retail expenditures, 2 per cent. The remaining components of non-durable goods, drug, bazaar, shoes, and fuels, had also a constant share of the total (1-3 per cent). There was a small shift within non-durable goods due to the increasing food and beverage expenditures. As far as durable goods are concerned, the shift was remarkable for transportation expenditures estimated by the value of motor vehicle dealers and garage and filling stations. Starting with a proportion of 5 per cent of the total in 1946, in 1966 it was 15 per cent (1949, 8 per cent; 1950, 13 per cent; 1953, 17 per cent; and 1958, 18 per cent). Home furnishing and lumber building material had constant proportion. It is obvious that the first two shifts are verified to a certain extent. It remains to

verify if there was a shift from durable goods to services. It is not possible to evaluate this shift from retail expenditures. Even with better statistics, the real magnitude of this shift is not clear since many specific items of this group can change without being included in the statistics. An example is the tendency toward more consumption outside the home (preparation of foods and small reparation). Many expenditures which were domestic are now commercial. Apart from this hidden shift in services there is another which can not be counted directly as a shift from goods to services made by the consumers, considered as the spending units, but which is a shift in consumer expenditures if the consumer is regarded as the "consuming unit". This is the case of education, health, and old age, all major services which are both consumer and public services. There is a trend toward the transfer from individuals to government agencies to organize these services. Therefore, the shift in consumer expenditures from goods to services does not take place directly but via government expenditures and revenue, that is, via taxes. The next step in the analysis of the changing structures of expenditures will study a type of consumer expenditures (taxes) and their uses, in other words public revenue and expenditures. It should be noted that this is not a study of taxation policies but an analysis of the structure of taxation, taxes being considered as an item of consumer expenditure as well

as a major source of revenue of government. Later the study of aggregate demand will take into account the level of taxation while the study of policy implications will analyze the taxation policies.

The changing structure of public expenditures of the Province of Quebec, 1952-1962

The Province of Quebec on the whole followed the behavior of the other Provinces. Total expenditures which increased slowly at the beginning of the period compared to certain Provinces, later began to increase more rapidly. The average rate of increase was around 13.0 per cent.

The most striking changes occurred in the fields of education, health, and transport. The Province spent less per capita in the early 1950's but about the same amount in early 1960's. A complete analysis is not possible but percentage of the total distribution for selected years in Table 26 reveals there were major shifts.

Table 26. Percentage distribution of provincial expenditures for selected years[a]

	1952	1957	1960	1966
Health	10.2	11.9	12.7	22.8
Social welfare	9.8	13.0	14.9	10.2
Education	16.7	22.9	24.3	25.0
Transport	34.6	25.9	23.5	15.9
Natural resource	9.8	10.4	9.5	5.4
Cultural	0.5	0.3	0.4	0.0

[a]Source: (31, p. 30).

As far as local government expenditures are concerned, there is a shift from local government to Provincial government as the spending unit while there is no clear change in the structure of local government expenditures. There are two trends for certain fields. The proportion of health expenditures increased between 1952-1956 but thereafter declined. Social welfare expenditures showed a decreasing trend between 1952-1957 (1952, 2 per cent; 1957, 0.8 per cent) but thereafter increased (1957, 0.8 per cent; 1962, 1.2 per cent). Education expenditures as a percentage of the total local government decreased slightly while the proportion of highway and road expenditures varied.

The major effect of the changing structure of public expenditures is to reinforce the shift from goods to services employment and to a certain extent create structural unemployment. However, the direct effect cannot be evaluated.

Capital expenditures

The third most important type of expenditures is investment spending. It is also a very important factor of the level of economic activity of the Province at any time. Extensive changes may take place and had taken place from year to year in the level of investment and, because of this variability, capital expenditures from year to year form one of the most dynamic factors affecting the level of employment

and income in a region. Capital expenditures are those outlays made to replace, modernize, or expand the nation's stock of physical capital which is used to produce with greater efficiency the increasing volume of goods and services.

This section is not interested in the amount of capital expenditures (this will be the subject of analysis in the study of aggregate demand), but with the structure of capital expenditures. The amount of investment is important and also its structure. It gives an idea of the expanding sectors and reflects the stated intentions of business, governments, and demand. Capital structure is one of the structures which can be influenced and indirectly can help to control the economy as well as the other structures. There is no clear change in capital expenditure when considering the total period 1947-1966, but dividing this period in three subperiods, it seems there were changes in the patterns of capital expenditures. Between 1947-1953, primary industries and construction showed an increasing trend. They had 9.3 per cent of total investment in 1947 and 13.0 per cent in 1953. From 1953 to 1962, a series of fluctuations around 11.2 per cent can be observed, but from 1962 it declined. Manufacturing investment lost its first place as the major field of investment during 1947-1962. Its percentage of total investment declined from 28.3 per cent in 1947 to 20.4 per cent in 1953, fluctuated around

18.0 per cent until 1960, and thereafter increased to 20.4 per cent. As far as public utilities investments are concerned, the percentage of total increased until 1953 (1947, 20.3 per cent; 1953, 24.4 per cent), dropped sharply in 1954, began to increase again until 1960 when it experienced another drop from 26.1 per cent in 1960 to 23.9 per cent in 1961. Since 1961 it has fluctuated around 22 per cent. The sector including trade and finance followed a less clear trend than the others. Over the period its percentage increased from 7.3 per cent in 1947 to 11.8 per cent in 1966. Housing investment showed cyclical variations. Its percentage of the total increased between 1947-1951, dropped in 1952, increased from 1953-1956, dropped in 1957, but thereafter it declined except in 1962 and 1963. Public investment does not have an increasing trend as can be expected. Moreover, it has the cyclical pattern, although the theory says that in years of recession, public investments have to be made, while they have to be decreased in years of prosperity. However, it should be noted that this is regional public and institutions investment.

It cannot be inferred that there were major changes in the structure of investment, estimated by the percentage distribution of total investment, classified by large economic sectors. Except for the declines in investment of primary industries, there are only small changes over the period although there are different cyclical behaviors.

Taking one of these sectors, manufacturing, which is the largest user of manpower, it seems that the percentage distribution of the total manufacturing has changed. The industries which have not kept their percentage in the total are food and beverage, and textiles, between 1947-1959 (thereafter the percentage increased). Paper products have the same pattern as textiles. Wood products, iron and steel, knitting, clothing, rubber, leather, electrical apparatus keep the same percentage. Two industries show cyclical behavior, chemical products and non ferrous metal. Petroleum, transportation equipment, non metallic mineral products, printing and publishing have increased their percentage of total manufacturing. Consequently, it can be inferred that there was a shift in capital spending from consumer good industries (food and beverage, rubber, leather, and textiles) toward capital good industries and extracting good industries (non metallic mineral product and non ferrous metal product).

It is not possible to estimate directly and even indirectly the effects of this shift on employment, demand for labor (quantity and quality) as well as on production. In the case of capital, it is probably more important to have the direction of the shift than a magnitude of the effect since the changing structures of capital expenditure do not have direct effects. If it has some, it is within the frame of other related changes. However, even if these changes are

not believed to have direct effects, the analysis and more precisely the indication of the changes are necessary in order to take into account this important variable.

Changes in the Production Structure

One of the major determinants of the change in employment is the change of the production. First, those factors have been analyzed which can affect the demand - income, wages, prices and hours worked - and secondly the shift that can change the production, that is, the demand for goods and services. Given these changes occurring in the major variables, it is easy to understand the changes that can take place in the structure of production. In turn this will be used to understand the changes in the structure of employment. Two types of data are available to evaluate the shift of production: 1) the value of gross production, and 2) the value of net production. First the study will be made of the changes among large industrial sectors, and second within manufacturing.

Leading the changes in production is the shift from rural to urban location or the mobility since to produce something different from agricultural products, it is necessary to relocate the population. Parallel to the changes in large industrial and occupational groups, and the changes in income and expenditures, the same shift took place in production. The proportion of total production attributable to

agriculture declined steadily from 8.3 per cent in 1946 to 3.9 per cent in 1966, though the gross value of production always increased. The same trend is observable for other primary industries. The proportion of forestry was 4.8 per cent in 1946 and 1.9 per cent in 1966. However, mining showed an increasing trend from 2.6 per cent to 4.7 per cent while trapping and fishing decreased. The proportion of electrical power had two opposite trends; it declined from 2.4 per cent in 1946 to 1.8 per cent in 1957, and then increased to 2.8 per cent in 1966. As far as the most important sector is concerned, manufacturing, there was a decreasing trend but, first, it had a cyclical behavior and, second, the decrease was relatively small, 71.8 per cent in 1946 and 67.9 per cent in 1966. On the other hand, the proportion of construction nearly tripled (1946, 6.4 per cent; 1966, 18.4 per cent).

It should be noted that the same trends are observable when added value is considered, but the proportion does not have the same magnitude. The proportion of agriculture in terms of added value declined from 10.7 per cent in 1946 to 5.7 per cent in 1960 instead of 8.3 per cent to 4.6 per cent in terms of gross value. It declined more in terms of added value. This reflects an increase in costs of production for this sector. The same is valid for forestry, the proportion of which decreased from 7.7 per cent to 3.5 per cent, a larger decrease than the decline in its proportion of gross

value. Fishing and trapping keep the same proportion of the total. The increasing trend which was observed for mining gross value of production is larger for added value by 0.2 per cent. The reduction in hours and the increase in average weekly wage were substantial in this sector. It can be said that these increases are due to an increasing productivity. The proportion of the electrical power showed the same two trends. Manufacturing added value increased its proportion (1946, 63.0 per cent; 1960, 64.0 per cent) while its proportion of gross value was declining. The increase of added value was 0.7 per cent. Obviously, there was a decrease in costs. Finally the proportion of construction had increased between 1946-1960 from 10.1 per cent to 17.1 per cent while the gross value of production increased from 6.4 to 16.2 per cent, a difference in percentage increment of 2.8 higher for added value. This shows a declining cost structure or an increase in productivity.

Within the manufacturing sector, there were significant shifts in the distribution of production. Except in two cases, knitting and petroleum, the direction of change is the same for gross and added value of production. The industries which increased their proportion are food and beverage, rubber, iron and steel product, non ferrous metal, electrical apparatus, non metallic metal, petroleum, chemical. Those with a declining proportion are tobacco products, leather, textiles, knitting, clothing, wood products,

paper products, printing and publishing, and transportation equipment. The comments on the direction of changes in the structure of production give an idea of the shift from "light" to "heavier" manufacturing production. This is the reflection of a changing consumer demand, from non-durable to durable goods, and government expenditures from general maintenance expenditures for the society to expenditures to build the infra-structure.

Changes in the Structure of Employment

Since the subject of the analysis is unemployment, that is, the surplus of the supply of labor over the demand for labor, it has been hypothesized that changes in labor requirements (defined broadly) can yield a certain amount of unemployment. The main subjects of this section deal with these changes or the factors causing these changes. The above sections of the chapter have investigated different types of changes which are directly or indirectly related to change in the labor structure or are the produce of these changes (employment, income) or produce changes in some other variables (demand, production, and employment). The present section studies the changes in the labor structure requirements as the product of other changes. Following this section an overall analysis of structural changes will be made and the impact on unemployment calculated.

Considering the employment structure of the large

industrial sectors, the same shift from agricultural sector toward non-agricultural sector which was observed for production, demand, and income is present in the structure of employment. In 1946 the proportion of total employment in agriculture was 21.6 per cent while in 1966 it was 5.3 per cent. This declining trend took place while there was an increasing demand for agricultural products and increasing gross value of production as well as net value. However, the proportion of agricultural production was also declining. Comparison of these two declining trends and of other variables reveals that this drop in agricultural employment is mainly due to the decline in underemployment and to the increase in productivity and capitalization. Measures of the decline in agriculture are shown in Table 27.

Table 27. Measures of the decline in agriculture 1946, 1966[a]

	% 1946	% 1966	% 1966-1946
Income	6.6	2.6	-4.0
Gross production	8.3	4.6	-3.9
Added value	10.7	5.7	-5.0
Costs	2.4	1.1	-1.3
Capital	9.3	11.2	+1.9
Employment	21.6	5.3	-16.3

[a]Source: (31, pp. 22, 24, 27, 34).

As far as forestry is concerned, its proportion declined from 5.4 per cent in 1946 to 2.7 per cent in 1966. Mining employment increased from 1.4 per cent of total employment in 1946 to a high of 1.7 per cent during 1956-1962, then dropped to 1.5 per cent in 1966. Manufacturing employment showed an increasing trend between 1946-1956 (1946, 27.8 per cent; 1956, 29.0 per cent) and a decreasing proportion to 24.0 per cent in 1966. It is obvious that the drop from agricultural employment between 1946-1956 has been shared by manufacturing, construction, services and not stated. After 1956 the shift from agriculture was reinforced by a shift from manufacturing. The major inheritors of these two declining sectors of employment were services and not stated. The former increased its proportion from 16.1 per cent in 1948 to 17.7 per cent in 1956 and from 17.7 per cent in 1956 to 23.3 per cent in 1966, while the latter increased from 20.0 per cent in 1946 to 28.3 per cent in 1956 and to 34.9 per cent in 1966. The "not stated" industry is a residual value. Given the total employment of any years, the other sectors for which data are available are subtracted. It is not possible to know exactly the composition of this amount. The construction industry showed a small increasing trend but it had cyclical behavior. From 6.7 per cent of total employment in 1948, it increased to 8.3 per cent in 1952, from 7.2 per cent in 1953 it increased to 8.3 per cent in 1957, from 7.9 per cent in 1958

it decreased to 7.3 per cent in 1961, from 8.1 per cent in 1962 it increased to 8.3 per cent in 1965 but decreased to 8.0 per cent in 1966.

Among these larger sectors, only manufacturing employment can be detailed. The shift within manufacturing employment is comparable to the shift within manufacturing production. Eleven of the 18 industries increased their proportion, while nine of them had increased their proportion, of manufacturing added value. Beverage and foods, rubber, iron and steel, transportation equipment, non ferrous metal, electrical apparatus, non metallic metal, and other industries have increased both their production and employment. The proportion of employment was increased in leather and paper products and transportation equipment while the proportion of production was decreased. The proportion of employment decreased in chemical and its proportion of production was increased. Clothing had a constant proportion of total employment but its proportion of total production declined. The remaining industries, tobacco, textiles, knitting, woods, printing and publishing decreased both their proportion of total employment and production.

This analysis of the changing structure of industrial employment has many pitfalls. Among others, one can only tell the direction of changes. In order to evaluate the magnitude of the change, its causes, the stability of the

production and of the employment system as well as the impact of these different changes on unemployment, it is necessary to have an overall view of these changes. The following paragraphs will investigate this aspect of the relationship unemployment and structural changes.

Given the percentage distribution of production, added value, costs, capital, hours, wages, employment of manufacturing in 1949 and 1964, it is possible to have a better idea of the changes occurring in the employment system. Tables 28, 29, and 30 contain the percentage distribution of the above variables, the ranks of the percentages for each of the years 1949 and 1964, and the profile of changes. From these tables it can be seen first that the changes described for any one of the variables are those described earlier. Second, it is obvious that many changes took place during the period. Third, and this is the most important point, the pattern of change for any of the 18 industries is different for to have the second important changes one can consider the changes in the employment as the product of the changes of the other variables and explain the changes of this variable. For example, the changes in the proportion of food and beverage employment seems to have been caused by the increase in the proportion of total production to the decrease in the proportion of costs and, therefore, to the increase in the proportion of added value.

Table 28. Proportion of manufacturing for selected variables in percentages, 1949, 1964[a]

	Production		Added value		Costs		Capital		Hours		Wages		Employment	
	1949	1964	1949	1964	1949	1964	1949	1964	1949	1964	1949	1964	1949	1964
1[b]	18.6	19.1	12.4	15.9	6.2	3.2	12.1	9.1	44.5	41.2	41.5	83.7	10.6	12.1
2	2.9	2.0	3.0	2.1	0.1	0.1	1.3	1.2	48.2	42.4	38.0	78.9	2.2	1.4
3	0.9	1.0	1.1	1.2	0.2	0.2	0.8	1.1	41.9	37.6	40.3	91.5	1.6	1.4
4	2.5	1.6	2.6	1.8	0.1	0.2	0.9	0.6	44.2	43.4	35.1	65.0	4.8	3.5
5	9.2	7.3	9.7	7.1	0.5	0.3	12.0	8.8	44.1	39.4	29.6	56.8	11.2	9.0
6	1.5	1.6	1.9	1.6	0.4	0.0	0.3	0.1	47.9	43.1	37.4	71.0	2.7	2.5
7	9.4	6.9	10.1	7.8	0.8	0.9	4.3	2.1	41.6	42.3	30.5	70.3	14.0	13.3
8	5.1	2.6	5.2	2.8	0.1	0.2	4.4	2.4	40.9	32.1	31.3	55.0	8.2	5.0
9	12.0	10.4	13.2	9.6	1.2	0.8	16.5	21.4	49.5	45.6	35.5	66.8	8.0	8.0
10	2.7	2.9	4.1	4.4	1.4	1.5	2.6	5.0	50.1	43.1	52.7	101.0	4.1	4.6
11	7.0	6.5	9.4	9.2	2.4	2.7	8.5	4.4	42.4	39.7	47.0	95.5	9.1	9.5
12	5.4	3.9	5.9	4.6	0.5	0.7	5.1	4.0	45.1	43.6	45.7	95.5	7.0	5.2
13	8.3	3.8	5.9	4.5	2.5	0.7	5.7	7.4	47.3	41.7	49.7	101.9	3.8	4.9
14	3.1	4.5	4.2	5.1	1.1	0.6	3.5	3.2	44.1	41.8	47.3	104.0	4.0	5.1
15	1.8	2.8	2.3	3.7	0.5	0.9	3.7	7.1	43.0	42.0	47.9	99.0	2.0	2.9
16	4.2	4.2	1.8	1.9	2.4	2.3	7.5	2.9	44.1	36.4	44.3	95.2	0.8	0.5
17	4.4	5.3	5.2	6.8	0.8	1.5	8.0	8.4	47.0	41.3	44.2	94.2	4.0	4.3
18	1.1	2.2	1.5	2.6	0.4	0.4	na	na	46.1	41.1	46.8	107.0	na	na

[a]Source: (31, pp. 23, 25, 26, 28, 29, 34).

[b]1 = manufacturing; 2 = food and beverage; 3 = tobacco; 4 = rubber; 5 = leather; 6 = textiles; 7 = knitting; 8 = clothing; 9 = wood; 10 = paper; 11 = printing and publishing; 12 = iron and steel; 13 = transportation equipment; 14 = non ferrous metal; 15 = electrical apparatus; 16 = non metallic metal products; 17 = petroleum and coal products; 18 = chemical and allied.

Table 29. Rank of selected variables (manufacturing) 1949, 1964[a]

	Production		Added value		Costs		Capital		Hours		Wages		Employment	
	1949	1964	1949	1964	1949	1964	1949	1964	1949	1964	1949	1964	1949	1964
1[b]														
2	1	1	2	1	17	17	2	2	15	12	11	11	3	2
3	12	14	12	13	1	2	11	14	3	3	10	10	14	15
4	17	17	17	17	4	3	16	15	9	15	14	15	16	15
5	14	15	13	15	1	3	15	16	6	4	17	16	8	12
6	4	3	4	5	6	6	3	3	4	13	12	12	2	4
7	16	15	15	16	5	1	17	17	2	11	16	13	13	14
8	3	4	3	4	9	11	10	13	1	1	15	17	1	1
9	8	13	8	12	1	3	9	12	16	17	13	14	5	8
10	2	2	1	2	12	10	1	1	17	13	1	4	6	5
11	13	11	11	10	13	13	13	7	4	5	5	7	9	10
12	6	5	5	3	14	16	4	8	10	16	7	6	4	3
13	7	9	6	8	6	8	8	9	13	8	2	3	7	6
14	5	10	6	9	14	8	7	5	6	9	4	2	12	9
15	11	7	10	7	11	7	12	10	5	10	3	5	10	7
16	15	12	14	12	6	11	11	6	6	2	8	8	15	13
17	10	8	16	14	14	15	6	11	12	7	9	9	17	17
18	9	6	8	6	9	13	5	4	1	6	6	1	10	11

[a] Source: (31, pp. 23, 25, 26, 28, 29, and 34).

[b] 1 = manufacturing; 2 = food and beverage; 3 = tobacco; 4 = rubber; 5 = leather; 6 = textiles; 7 = knitting; 8 = clothing; 9 = wood; 10 = paper; 11 = printing and publishing; 12 = iron and steel; 13 = transportation equipment; 14 = non ferrous metal; 15 = electrical apparatus; 16 = non metallic metal products; 17 = petroleum and coal products; 18 = chemical and allied.

Table 30. Profile of ranks of selected variables (manufacturing)[a]

Industry	Gross production	Added value	Costs	Capital	Wages	Hours	Employment
Food and beverage	=	+	=	=	=	+	+
Tobacco and products	-	-	-	-	=	=	-
Rubber	=	=	+	+	-	-	+
Leather	+	-	=	=	=	-	-
Textiles	+	-	=	=	=	-	-
Knitting	+	-	+	=	+	-	-
Clothing	-	-	-	-	-	=	=
Wood products	+	-	-	-	-	-	-
Paper products	=	-	+	=	-	+	+
Printing, publishing	+	+	=	+	-	-	-
Iron and steel products	+	+	-	-	+	-	+
Transportation equipment	-	-	-	-	+	+	+
Non ferrous metal products	-	-	+	+	+	-	+
Electrical apparatus	+	+	+	+	-	-	+
Non metallic metal product	-	+	-	+	=	+	+
Petroleum and coal product	-	+	-	-	=	+	=
Chemical and allied	-	+	-	+	+	-	-

[a]Source: (31, pp. 23, 25, 26, 28, 29, and 34).

In general it seems that those industries which increased their proportion of total employment have also increased their proportion in other variables. The reverse is also true. When this is not the case, there were larger productivity changes in these industries relative to the others. This is the case for printing and publishing, and transportation equipment. It seems that there were structural changes. However, this is not the important point since it is insufficient to have structural changes to have structural unemployment. The following section will explain why these structural changes did not necessarily produce structural unemployment.

The Relationship Between Structural Changes and Unemployment

The previous analysis of the structures of the system is far from complete since structural characters other than economic characters were only mentioned. It is obvious that the political and juridical structure of the system can be the subject of a deeper analysis than the one made in this study. The same comment is true for the psychological and sociological structures as well as for the technical and demographic structures. In fact, it all depends upon the point of view. In the above chapter, an economic angle was adopted. To have a complete analysis of the structural changes, it is necessary to choose each structure, one after the other, as the dependent variable and the elements of

this structure, while selected other structures were considered as the independent variables. Moreover, one set of elements of the economic structure was considered as the dependent variable, namely the variables of the labor market: the demand for and the supply of labor, their imbalance. Within this framework the concern is with the changes of this set of variables as the product of the changes in other selected structures. Until now the concern has been only with the changes in the other selected structures and it has been proved that there were changes in these selected structures. Before analyzing the relationships between the changes in the set of variables and the change of other structures, it is necessary to analyze the possibility, the meaning, and the mechanisms of such relationships.

For the possibility to exist, it is necessary to verify that there were changes in the unemployment level, amount, composition, and behavior; that is, that there were changes in the supply of and in the demand for labor which were due to changes in other structures or in the elements of the economic structures. This is one of the hypotheses of the study: that the rise in secular unemployment is due to changes in the structures of the system. This is the well-known, but now always well-understood, structural hypothesis of unemployment. In this hypothesis, the unemployment structure, composed of the level, amount, behavior, and components (both personal characteristics of sex and age, and type of

unemployment), is supposed to be dependent on both the economic structure and the changes occurring in this structure and in other structures. It is obvious that non-economic structures can change without changing the unemployment structure directly or indirectly. It is easy to formulate a "chicken and egg" problem. Therefore, the first limitation of the structural hypothesis is the causality scheme as to what comes first. Since this problem must be solved if one wants to test the hypothesis, there is no choice but to assume that changes of the unemployment structure come after the other changes and are caused by them. Consequently, the whole structural hypothesis is based on an unverified principle. Apart from this first limitation one can explore a second "chicken and egg" problem.

The structural hypothesis states that structural changes product structural unemployment. However, it does not state the type of causation, that is, if they cause unemployment directly or indirectly. In the latter case, one can formulate the hypothesis that unemployment is due to the cyclical variations of aggregate demand, which in turn are the product of structural changes, and consequently the unemployment is indirectly produced by structural changes. That is, the principles and the causes of cyclical variations of demand are caused by the structural variations or one can formulate the hypothesis that unemployment is due directly to structural variations themselves caused by cyclical

variations of aggregate demand. Here again is a "chicken and egg" problem. It is believed that to test the structural hypothesis, one must assume the first scheme of causation and the second scheme to test the aggregate demand hypothesis. In other words, when one tests one of the hypotheses, the other must be taken into account. This is only the application of an elementary principle of economics: the interdependence principle.

Given these two limitations and their possible solutions, it is easy to see that the structural hypothesis about unemployment is valid for specific structural periods of change only, since the notion of structure refers to the set of stable elements. However, it is not excluded that this set of stable elements does not have a cyclical behavior comparable to the cyclical pattern of non-structural elements. Therefore, cyclical unemployment can be the product of:

1) Cyclical variations of non-structural elements.

2) Cyclical changes of structural elements.

3) Both cyclical variations and cyclical changes.

Long-term cyclical changes can be associated with the stage of economic development, while short-term cyclical changes can be associated with short-term mutations of the equilibrium of the system. On the other hand, long run cyclical variations are oscillations around long-term position of equilibrium. The problem of structural unemployment is a problem of dynamics since long-term and short-term mutations

necessitate changes in the equilibrium position of the system and a new position of all the structures as well as of all the elements within each structure. To prove that there is structural unemployment, one must prove that 1) there were mutations (long-run and short-run) in the system, and 2) the mutations were large enough to produce a disequilibrium. This is quite difficult since, though there can be large mutations, not all can be strong enough to engender a disequilibrium in the economic system and more precisely in the labor market. (Many of the structural changes cancel each other so they cannot be added.) To prove that the postwar rising trend of secular unemployment was due to successive structural changes, one has to prove that the unemployment was a non-homeostasis variable; that is, unemployment did not return to its initial level after each permenent short-term mutation. The homeostasis condition is usually illustrated by organic examples. If the temperature in the environment of an organism falls, the fall will cause heat to drain more rapidly from the organism which, in turn, will activate a mechanism which will increase the body's generation of heat, so that unless the fall in external temperature is too great, the temperature of the organism after a temporary fall returns to normal.

Given this general model and the previous analysis of the changes in each selected structure, it remains to verify the hypothesis that the rise in secular unemployment

during 1946-1966 was due to structural changes, or in terms of homeostasis, that the unemployment does not fill the homeostasis condition during the period analyzed.

As far as the long-term mutations are concerned, it seems that the Province of Quebec experienced a second take off. Therefore, it is possible that the change from one stage of economic development to the other has produced a certain amount of structural unemployment. It is impossible to infer that the increasing trend of total unemployment is due to this type of mutation since on the one hand the same pattern of unemployment prevailed in Canada and the United States (assuming that they are at a different stage of economic development) and on the other hand the new position of equilibrium may not be reached by now. If this latter argument is true, it is possible to say that the rise in unemployment is a "temporary long-term situation". As far as short-term mutations are concerned it is difficult to verify the hypothesis since in all structures analyzed, the changes were slow intermediate and long-term changes. This is true for the demographic structures, expenditures, income, wages, prices, and production. It is not possible to have short-term structural unemployment since it takes sharp and rapid structural changes to produce structural unemployment. However, if one wants to consider the structural transformations as short-term transformations, the proposed frictional hypothesis will be verified.

Apart from these two possibilities of the model, it remains to analyze another source of structural unemployment. It is possible to have hidden structural changes and creeping structural unemployment. For example, it is believed that each of the long-term structural shifts (rural-urban shift, decline in fertility, etc.) as well as each of the short-term structural shifts (variation in the composition of demand and production), though they did not produce large amounts of structural unemployment, can have produced each year a creeping amount of unemployment not accounted for by the statistics. When these particular amounts are added up a total structural unemployment for any given year is derived. The model requires that each type of unemployment be added up but this is not necessarily true since many hidden structural changes will cancel out and since there is a certain amount of flexibility in the system. The last possibility cannot be verified.

It should be noted that the above analysis does not reject the structural hypothesis, that of having higher secular unemployment due to structural changes. It simply does not verify it directly nor indirectly. The approach used is quite different from the approach used by the United States Joint Economic Committee on Higher Unemployment Rate (35), structural transformation or inadequate demand, 1957-1960. The main reason for the different approach is the lack of statistical series. The approach of the Joint Economic

Committee appears too narrow for the period analyzed, though it might be excellent for a very short period.

A weak indicator of structural unemployment is the long-term unemployment rate which has been evaluated earlier in the note on the decomposition of the unemployment rate by time period. Table 31 shows the evolution of the long-term unemployment - or structural unemployment - and total unemployment rate.

Table 31. Structural unemployment and total unemployment rates[a]

Year	Total unemployment rate	Structural unemployment rate
1953	3.76	0.00
1954	5.91	0.00
1955	6.15	0.36
1956	4.95	0.30
1957	6.04	0.32
1958	8.84	1.41
1959	7.87	0.90
1960	9.13	1.26
1961	8.83	1.16
1962	7.50	0.79
1963	7.40	0.30
1964	6.35	0.30
1965	5.39	0.30
1966	4.72	0.20

[a]Source: (31, pp. 3, 4-a).

It can be observed that the structural unemployment is quite stable over the period 1953-1966 though there is a sharp rise between 1957-1961. This rise is not high enough to explain the rise in total unemployment and the method used

to evaluate the structural unemployment - that is, the long-term unemployment rate - is only an indication of the phenomenon. It seems that the same conclusions can be made.

AGGREGATE DEMAND AND UNEMPLOYMENT

The Aggregate Demand Hypothesis

The previous chapter was concerned with structural changes in the economy. These shifts in the structure of the society and in its economic components have affected the employment. However, the above analysis was mainly a type of neutral analysis since it only describes the structural changes. To have a positive analysis, the two sides of the process must be considered, namely: 1) the reduction in employment in certain occupations and industries, and 2) the increase in employment elsewhere. The last two sections have proved, as far as they can prove, that there was no structural unemployment. This may be true, but in fact this is a meaningless statement and should not be considered as a definite conclusion about the causes of the rise in secular unemployment. There was, in fact, structural unemployment, at least a certain amount, but it was hidden in the whole process. Changes in the conditions of demand and supply, in the volume of output, in its distribution between industries, changes in the method of production, as well as changes in the supply of labor and in its sources, in other words, the series of structural changes as described above may be the causes of an increase in the demand for labor, though there can be declines for specific demands. From this point of view, structural unemployment is possible only if another

condition is fulfilled: the reduction of employment caused by structural shifts via declining demand for labor must be greater than the increase in employment itself due to the structural changes via the increase in productivity. This is the case in agricultural employment. One can analyze the structural changes and say there was structural disemployment or reduction of employment, but since structural disemployment is not equivalent to structural unemployment, it cannot be inferred that as soon as there is structural change there is structural unemployment. Therefore, the conclusion of the previous chapter that there was no visible structural unemployment should not be surprising. It is true that there was a large amount of structural disemployment caused by large shifts in the structure of the economy, but there were larger, or at least equal, increases in employment due to the same shifts. The present chapter is concerned with this increase and the cause of this increase, that is, the aggregate demand. However, it is convenient to differentiate between certain types of increase. Some are the product of the shift only, while others are the result of both the shifts taking place in the economy and the growth of the economy, and finally others are due only to the growth of the economy. For example, the changing rural-urban structure increases the demand for goods and services (the non-imputed demand) since those living in rural areas and on farms have a different pattern of consumption. On the other hand, the

increase in income causes an increase in demand while the shift in the structure of production gives rise to a higher productivity, higher wages, higher income, and finally higher demand. In the first case the increase is due to a shift only, while in the second it is due to the economic growth of the economy, and in the third case the increase is due to both the shift and the growth. This chapter, though it is concerned with all increases, will focus mainly on the increases due to economic growth. In other words, the concern is with the usual aggregate demand hypothesis about employment and unemployment.

The Economic Growth of the Province of Quebec, 1946-1966

During the period 1946-1966, the economy of the Province of Quebec experienced a tremendous growth as shown in Table 32. Over the 21-year period, the personal income increased by 384.0 per cent while the disposable income increased by 350.0 per cent, but the taxes (direct) went up by 550.0 per cent. The increase in income is reflected in the consumer expenditures, estimated by the retail stores expenditures, which increased by 318.0 per cent. Between governments, municipal government expenditures rose more slowly (237.0 per cent) than the provincial expenditures (561.9 per cent). Unfortunately, the amount of federal expenditures in the Province of Quebec is not available. As far as investment expenditures are concerned, they increased

Table 32. Province of Quebec selected economic indicators of growth, 1946 and 1966[a]

	1946	1966	Per cent change
	000	000	
Income			
Personal income	$2,339	$10,830	384.3
Disposable income	2,141	9,652	350.8
Per capita	645	1,885	292.2
Taxes			
Income tax	198	1,188	550.0
Expenditures			
Consumer	1,342	5,610	318.0
Capital (new)	1,005	4,509	348.6
Provincial government	313	2,072	561.9
Municipal government	246	809	237.0
Total	553	2,881	420.9
Production			
Gross value	3,473	15,443	344.6
Added value	1,786	6,505	264.2
Costs	1,686	8,939	430.1
Wages			
Total income (wages)	1,493	7,792	421.9
Average weekly	($34.44)	($90.62)	163.4
Hourly	($ 0.74)	($ 2.16)	191.8
Prices			
Consumer	(77.50)	(143.90)	85.6
Wholesale	(138.90)	(259.60)	86.8
Hours	(46.10)	(41.80)	-9.3
Demography, employment			
Population	3,636	5,810	60.0
Labor force	1,337	2,116	58.2
Participation rate	(54.00)	(53.30)	-0.1
Employment	1,282	2,016	57.2

[a]Source: (31 , pp. 1, 3, 22, 25, 26, 27, 28, 29, 30, 34, 37).

by 348.6 per cent. It is nearly matched by the increase in gross (value) production (344.6 per cent). However, the added value did not have the same rate of growth since the costs increased more rapidly than the gross production. Total wage income increased by 421.9 per cent while average weekly wage increased by 163.4 per cent. A certain part of the increases in wage income is due to the increase in employment and to the fact that different concepts are represented: average weekly earning is a composite index, while the total wage income is the estimation of a type of income as given in the national account. The increase in wages took place while there was a decrease of -9.3 per cent in hours worked. Consumer price index went up by 85.6 per cent and the wholesale price index by 86.8 per cent.

Given this information on the aggregate demand and on the resulting income, the supply of labor can be considered. The population increased by 60.0 per cent, the labor force by 58.2 per cent, and there was a decrease of -0.1 per cent in the participation rate. The employment showed an increase of 57.2 per cent, that is, a smaller increase than the increase of the labor force. There was one per cent difference between the rate of growth of the demand for labor (employment) and the supply of labor (labor force) during the period 1946-1966. However, it cannot be inferred that this resulted in a one per cent unemployment due to the aggregate demand since there can be a too rapid growth of

the supply of labor due to the rapid growth of the population.

Although this description of the growth gives an idea of the behavior of certain economic variables, it does not constitute a test of the aggregate demand hypothesis. The first approach to test the hypothesis should be the analysis of the set of major variables year after year in terms of number, percentage changes. Since this requires lengthy analysis, it is not possible to make this analysis. However, an analysis of the same variables will be made for each business cycle measured by the unemployment rate only. Peak unemployment rates are equivalent to peak years of recession, while trough unemployment rates correspond to trough years of expansion. Given the unemployment during the period 1946-1966, four recession (peak) years are obtained: 1950, 1954, 1958, and 1960; and four expansions: 1947, 1951, 1956, and 1966. The percentage changes from the preceding year for these years and for the major variables (available) appear in Table 33. Average percentage changes have been calculated from one trough (included) to the other peak (included).

It can be seen from Table 33 that the aggregate demand hypothesis explains the increasing total unemployment rate and obviously it explains also the total unemployment rate when the latter is adjusted for other unemployment, that is, after elimination of other types of unemployment. The

Table 33. Rate of growth of selected economic indicators of the aggregate demand for selected years[a]

	PEAK[b] 1950	1954	1958	1960
Income				
Personal	8.3	3.9	7.9	6.6
Disposable	9.6	4.1	7.3	5.2
Taxes				
Direct	5.1	2.2	5.1	16.4
Expenditures				
Consumer	16.6	1.4	4.8	4.3
Capital	6.8	-6.7	1.5	-1.3
Government	na	15.2	6.0	16.1
Municipal	na	18.6	3.6	5.9
Provincial	na	12.5	8.0	24.6
Production				
Gross	1.7	3.4	-3.3	1.8
Added value	11.8	1.4	0.5	5.1
Costs	6.3	2.5	-5.9	-1.1
Parameters				
Wage income	6.6	2.7	3.2	4.7
Average weekly	4.1	3.3	4.0	3.4
Consumer price	2.9	0.6	2.6	1.1
Wholesale price	6.5	-1.6	0.0	0.1
Hours worked	0.8	-2.3	-0.9	0.7
Supply of labor				
Population	2.2	2.8	3.3	2.3
Labor force	0.7	2.1	3.2	2.5
Participation	-1.1	-0.9	0.9	-2.6
Demand for labor				
Employment	-0.4	-1.0	0.8	1.0
Surplus of labor				
Unemployment				
Per cent change, number	31.2	27.5	51.4	12.3
Per cent change, rate	30.2	50.9	46.3	16.0
Unemployment (rate)	4.3	5.6	8.8	9.1
Unemployment (number)	63.0	92.0	153.0	164.0

[a]Source: (31, pp. 1, 3, 22, 25-30, 34, 37).

[b]Percentage change from preceding years.

Table 33 (Continued)

	TROUGH[b]			
	1947	1951	1956	1960
Income				
Personal	11.4	13.4	9.7	7.3
Disposable	12.5	-19.6	10.1	8.1
Taxes				
Direct	-1.1	71.6	3.7	11.8
Expenditures				
Consumer	20.7	11.9	10.5	10.6
Capital	na	21.2	10.7	9.0
Government	na	na	8.9	na
Municipal	na	na	9.5	na
Provincial	na	na	8.4	14.1
Production				
Gross	18.2	22.0	10.7	5.7
Added value	16.8	18.3	9.3	4.8
Costs	27.7	26.1	15.1	9.2
Parameters				
Wage income	17.6	17.7	13.0	12.7
Average weekly	5.8	10.4	5.5	9.1
Consumer price	9.4	10.4	1.7	3.7
Wholesale price	17.5	13.7	3.2	12.2
Hours worked	-1.5	-3.2	0.0	0.0
Supply of labor				
Population	2.2	2.2	2.5	1.8
Labor force	1.4	2.0	1.5	4.7
Participation	-0.3	0.7	-0.5	2.0
Demand for labor				
Employment	3.2	3.6	2.8	5.4
Surplus of labor				
Unemployment				
Per cent change, number	-58.8	-33.3	-22.5	-9.0
Per cent change, rate	-65.8	-52.9	-24.2	-14.1
Unemployment (rate)	2.4	2.8	4.9	4.7
Unemployment (number)	34.0	42.0	80.0	100.0

Table 33 (Continued)

	PEAK TO TROUGH[c]			
	1947-50	1951-54	1956-60	1961-66
Income Personal	9.5	8.8	6.7	6.9
Disposable	10.1	11.1	6.4	7.5
Taxes				
Direct	7.8	22.1	13.5	12.5
Expenditures				
Consumer	13.0	6.4	7.0	6.4
Capital	30.8	7.5	4.2	10.4
Government	na	11.7	10.3	na
Municipal	na	6.1	13.5	40.0
Provincial	na	8.4	12.0	na
Production				
Gross	9.2	8.8	3.3	7.1
Added value	11.2	8.1	2.9	6.9
Costs	15.7	8.2	3.0	5.0
Parameters				
Wage income	10.7	9.5	9.0	9.3
Average weekly	5.5	7.0	4.4	5.0
Consumer price	7.4	3.5	1.5	2.1
Wholesale price	12.2	5.8	1.1	2.0
Hours worked	-0.6	-1.8	-0.1	0.1
Supply of labor				
Population	2.2	2.5	2.6	1.8
Labor force	1.7	2.2	2.4	3.1
Participation	0.0	0.0	0.6	0.7
Demand for labor				
Employment	1.6	1.6	1.8	4.1
Surplus of labor				
Unemployment				
Per cent change, number	4.1	0.7	-14.8	-11.0
Per cent change, rate	0.6	8.1	9.0	-13.4
Unemployment (rate)	3.0	3.7	6.7	6.6
Unemployment (number)	42.0	54.0	114.0	130.0

[c]Average percentage change.

period 1947-1950 has an average rate of unemployment of 3.0 per cent or 42,000 unemployed while in terms of percentage changes the rate changes by 0.6 per cent and the number of unemployed by 4.1 per cent. One source of this unemployment is the supply of labor. The population increased on the average at a rate of 2.2 per cent, the labor force rose at a rate of 1.7 per cent, while the demand for labor increased at a rate of 1.6 per cent. There was no change in the participation rate. Therefore, about 0.1 per cent of change of unemployment can be accounted for the difference in the average rate of increase in the supply of and demand for labor. This is a negligible proposition. The demand for goods and services went up by 13.0 per cent on the average, while total investment increased by 30.8 per cent. As a result of these large increases in demand, consumer prices rose by 7.4 per cent and wholesale prices by 12.2 per cent on the average. Therefore, the slow percentage increase in unemployment was obtained at the expense of a large percentage increase in prices. On the other hand, the increase in prices is reflected in the costs of production and in wages (15.7 per cent and 10.7 per cent respectively). Assuming that there is a causal scheme between investment-production-employment, it can be seen that a 30.8 per cent increase in investment results in a 9.2 per cent increase in production which, in turn, gives a 1.6 per cent increase in employment. However, the large percentage increment in investment

is an abnormal situation. It reflects the change from a war economy to a peace economy.

Comparison of this period 1946-1950 with the following period 1951-1954 reveals that on the supply side (of labor) the average increase was larger during 1951-1954 than during the period 1946-1950 (2.2 per cent and 1.7 per cent respectively). There was no difference in the participation rate (0.0 per cent) as well as in the percentage change of employment (1.6 per cent). Therefore, it should not be surprising to observe an increase in the unemployment rate from 3.0 per cent (on the average for 1946-1950) to 3.7 per cent (on the average for 1951-1954). The percentage changes in the rate of unemployment of 8.1 per cent can be compared with a 3.5 per cent change in the consumer price index and 5.8 per cent change in the wholesale price index for the same period. It should be noted that the average increase in prices for the 1951-1954 period is half the increase in prices for the previous period 1946-1950 though the unemployment rate did not double (however, the percentage change in the unemployment rate increased from 0.6 per cent to 8.1 per cent). Aside from these changes are the increases of 9.5 per cent in total wage income and 8.8 per cent and 11.1 per cent in personal income and disposable income respectively. On the demand side there was a sharp decrease in consumer expenditures from 13.0 per cent to 6.4 per cent and a larger drop in investment from 30.8 per cent to 7.5 per

cent in 1951-1954 while total government expenditures increased at a rate of 8.4 per cent. Since data on government expenditures are not available for the period 1947-1950, it cannot be said whether this is a good rate of increase for these items. The decrease in the average rate of growth of demand for goods and services produced a decrease in the average rate of growth in the gross production. This is reflected by the drop in the average percentage change of gross production, from 9.2 per cent in 1947-1950 to 8.8 per cent for the 1951-1954 period. It seems possible to infer that the increase in the average unemployment rate from 3.0 per cent to 3.7 per cent for the same period can be accounted for in the decrease of the aggregate demand.

The hypothesis can be verified also for the period 1956-1960 which has seen an increase in the unemployment rate (average) from 3.7 per cent in 1951-1954 to 6.7 per cent in 1956-1960 while the number of unemployed persons passed from an average of 54,000 to 114,000. On the other hand, the population increased by 2.6 per cent on the average as compared with 2.5 per cent for the previous period. The average percentage of the labor force rose from 2.2 per cent to 2.4 per cent (change) and the participation rate from 0.0 per cent to 0.6 per cent. These average increases in the supply of labor were not matched by the increase in the demand for labor which on the average passed

from 1.6 per cent in 1951-1954 to 1.8 per cent for the 1956-1960 period. The major causes of this slow increase in the demand for labor as estimated by the employment or the causes of the large increase in the unemployment are the decrease in income, investment, and production. Personal and disposable income increased by 6.7 per cent and 6.4 per cent on the average as compared with the 8.8 per cent and 11.1 per cent of the preceding period 1951-1954. Though the average rate of increase in income decreased, the consumer expenditures rose and on the average were 7.0 per cent in 1956-1960 and 6.4 per cent in 1951-1954. As a result, it should not be surprising to observe a decrease in production which, in fact, declined from an average rate of change of 8.8 per cent to 3.3 per cent. However, this sharp drop in production rate of growth was mainly caused by the decrease in the rate of investment expenditures which dropped from 7.5 per cent to 4.2 per cent. It seems that between 1956-1960 there was a definite choice between change in prices and change in unemployment. The former increased on the average by 1.5 per cent (consumer price index) and 1.1 per cent (wholesale price index) as compared with 3.5 per cent and 5.8 per cent in 1951-1954 while the rate of unemployment went up by 9.0 per cent on the average.

The last period, 1961-1966, is the largest period of expansion since World War II. However, the Province

experienced a "prosperity unemployment" as did the rest of Canada and the United States. A large part of the recent literature on unemployment has tried to explain this phenomenon of "prosperity unemployment". Although there was an overall expansion, the average rate of unemployment decreased by only 0.1 per cent (from 6.7 per cent in 1956-1960 to 6.6 per cent in 1961-1966). As far as the supply of labor is concerned, it continued to increase but at a slower rate of increase. This time the average rate of increase of the labor force was lower than the average rate of increase of the demand for labor. The population increased at a rate of 1.8 per cent, that is, at a lower rate than in the other periods (1947-1950, 2.2 per cent; 1951-1954, 2.5 per cent; 1956-1960, 2.6 per cent; and 1961-1966, 1.8 per cent). The average increase of the labor force for the period was 3.1 per cent while the participation rate of change was 0.7 per cent. This increase in the supply of labor has been more than matched by the increase in the demand for labor which rose at a rate of 4.1 per cent on the average. However, the increase did not affect the average unemployment rate though in terms of percentage change in the rate of unemployment it did. The rate of change of the unemployment rate declined by 13.4 per cent while in the rate of change in the number of unemployed it declined by 11.0 per cent.

These declines in unemployment are the results of larger investments which have an average rate of increase of 10.4 per cent as compared with 4.2 per cent during the previous period. Also, as a consequence of this rate of investment, the rate of increase of the gross value of production went up from 3.3 per cent in 1956-1960 to 7.1 per cent in the 1961-1966 period. As usual the drop in unemployment was followed by an increase in prices which on the average rose from 1.5 per cent (rate of change) to 2.1 per cent in consumer price index and from 1.1 per cent to 2.0 per cent in wholesale price index. These increases were matched by the increase in wages, costs, and income.

It is clear that the sharp increase in the unemployment rate between 1956-1960 is largely the result of an inadequate demand, especially the inadequate rate of growth of investment which in terms of average percentage change dropped from 7.5 per cent in 1951-1954 to 4.2 per cent in 1956-1960. During the 1961-1966 period it rose from 4.2 per cent to 10.4 per cent. A summary table helps to explain the unemployment level during the period 1951-1966 and to verify the aggregate demand hypothesis. This is shown in Table 34.

It seems obvious that the "prosperity unemployment" is, in fact, an inadequate demand unemployment though the average unemployment rate remains higher than it should be expected to since the rate of growth of other variables is high during the period 1961-1966. First, it cannot be

Table 34. Summary table of the aggregate demand hypothesis, percentage rate of change[a]

	1951-54	1956-60	1961-66	1956-60 1951-54	1961-66 1956-60
Investment	7.5	4.2	10.4	-3.3	+6.2
Gross production	8.8	3.3	7.1	-5.5	+3.8
Consumer price	3.5	1.5	2.1	-2.0	+0.6
Labor force	2.2	2.4	3.1	+0.2	+0.7
Participation rate	0.0	0.6	0.7	+0.6	+0.1
Employment	1.6	1.8	4.1	+0.2	+2.3
Unemployment (rate)	3.7	6.7	6.6	+3.0	-0.1

[a]Source: (31, pp. 1, 3, 22, 25-30, 34, 37).

inferred that if a decrease of 3.3 per cent in the rate of growth of investment and a decrease of 5.5 per cent in the rate of growth of production during 1951-1954 and 1956-1960 had produced an increase of 3.0 per cent in the unemployment rate, a similar increase and even a higher increase in the rate of growth of these two variables will necessarily produce a comparable decrease in the unemployment rate, that is, a decline of 3.0 per cent. Second, during the 1961-1966 period, although the average increase of investment was 10.4 per cent as compared with 7.5 per cent during the 1951-1954 period, it remains that the gross value of production increased on the average by only 7.1 per cent as compared with

8.8 per cent in 1951-1954. Third, the average percentage change of 4.1 per cent in employment was just enough to keep the unemployment from rising, since the supply of labor rose by 3.1 per cent (labor force) and 0.7 per cent (participation rate). The large increase in the rate of investment was, therefore, absorbed by the increase of the supply of labor. To have a substantial decrease in unemployment, it would have been necessary to have a rate of growth in investment of 15 per cent (approximately). Fourth, the type of investment also has to be considered. The difference in the rate of growth of investment (10.4 per cent) and the rate of growth in production (7.1 per cent) reveals that this factor explains the small decrease in unemployment. Fifth, a theoretical argument can be used to explain the so-called "prosperity unemployment". The underconsumption thesis states that total income is equal to total cost payment in an economy for any given period. As long as investment in every period (one year) fills the gap between income and consumption, any employment level can be maintained indefinitely. However, investment not only creates income but also adds to capacity in subsequent periods. If next year's consumption and investment are identical to this year's, excess capacity will appear. The existence of excess capacity discourages investment because it makes it possible for producers to meet the existing demand with smaller outlays of capital. As soon as investment falls, employment

and income fall. The fall in income takes place until the excess capacity is not absorbed. As soon as the economy swings up, the problem reappears. It is clear that what is needed to absorb constantly the increasing capacity is a constantly increasing income, that is, a constantly increasing investment since the demand for goods and services is relatively fixed. In other words, it is not enough for consumption and investment to repeat themselves period after period. They must grow exponentially. But this is nearly absurd since very act of saving to increase investment cuts the demand for consumer goods while the uses of these savings, or investments, augment the supply of goods and the capacity of production. The only possibility is to have a good absorbing economic agent: the government. Unfortunately, it is not possible to prove that the governments (all levels) did not play their role. There is lack of statistics on this subject which by itself is a subject of research. However, it seems that the higher unemployment level during a prosperity period is due to the deficiency of the government to act as an absorbing economic agent.

The next chapter is concerned with the conclusions and the policy implications of the analysis.

CONCLUSIONS AND POLICY IMPLICATIONS

Material presented in the preceding chapters provided background for this concluding section. First, the discussion has to point out the main facts or conclusions regarding unemployment. Second, it has to answer the question of how these facts can be related to the set of values, goals, means, and policies.

Conclusions

A judgment of the principal conclusions to be drawn from the analysis inevitably depends upon one's point of view. However, the previous study has potentially three different types of concern:

1) Methodology about the problem.

2) Information and description of the problem.

3) Analysis of the causes of the problem.

This present chapter adds another one: certain policy implications of the problem.

As far as the methodology is concerned there was no attempt to improve the existing methodology which has been formulated between the early 1930's and 1966. The major sources of inspiration were Gilpatrick (24), the Subcommittee Study (35), and Smith (33). The methodology used can be summarized by saying that the general problem of unemployment was identified as the surplus of the supply of labor over the demand for labor. Moreover, some comments

were made about which supply and which demand or in other words, about which labor market. The Province of Quebec has been considered as a homogeneous region of Canada. Though the Province of Quebec can be a homogeneous political region and even a homogeneous economic region, it does not follow that the Province formed a homogeneous labor market. However, it was assumed that the Province is a homogeneous labor market. It was assumed that both the supply of and demand for labor were responsive to the level of economic activity taking place in the national economy and regional economy. The last statement is relatively important since the analysis can be used to derive regional policies as well as the evaluating of possibilities of controlling the employment level strictly on a regional basis. However, to evaluate possibilities or to derive policies, it is necessary to have the causes of the level of unemployment.

Since 1953 the rate of unemployment has had a secular increasing trend. Each recession produced a higher peak while each expansion resulted in a decrease in unemployment. The trough unemployment was always higher than the preceding one except for the last expansion 1961-1966. This pattern of unemployment is the major cause of concern. Most of the recent literature has tried to explain it. Two main hypotheses have been set up to answer the puzzle: the aggregate demand hypothesis and the structural hypothesis. As far as

methodology is concerned these two hypotheses have not been found sufficient to explain the 15-year period of unemployment. An analysis of Quebec's unemployment has to consider two other aspects of this economy:

1) The effect of its location and climate on the employment level which is revealed by the level of seasonal unemployment.
2) The recent wave of urbanization which is shown by the decline of the farm population.

It seems obvious that the seasons have a certain impact on the level of employment. Therefore, it was "a priori" possible to investigate the possibility of a secular rise in unemployment due to the rise in seasonal unemployment. It seems that Quebec's seasonal unemployment is composed of two types of unemployment. A certain amount of unemployment is caused by the variations of the level of the aggregate demand for labor, the rest being caused by the frictions which take place in the labor market. For example, there is a certain amount of seasonal unemployment which is due to the movement of certain types of workers who become "forestry job seekers" during the winter, "fishery job seekers" during early summer, and "crop job seekers" late in the summer (tobacco, potatoes, and fruit).

After many discussions most economists now agree that none of the members of the dichonomy composed of the aggregate demand hypothesis versus the structural hypothesis

can explain alone the level of unemployment. For practical purposes a compromise has been reached; they agree that both hypotheses are necessary. However, it is possible that there will remain a substantial amount of unemployment even after elimination of seasonal unemployment, aggregate demand unemployment, and structural unemployment because pure frictional unemployment due to the functioning of the labor market has not been counted. Therefore, there was room for another hypothesis based on frictional unemployment. It was hypothesized that the secular rise in unemployment was partly due to the rise of frictional unemployment. It seems that this last hypothesis is as rich as the structural hypothesis. Structuralists claim that the present period of economic development is a period of rapid technological progress and of rapid change in the structure of the society and of the economy. Most of the students of unemployment agree on that point. It can be argued that these rapid changes are more likely to produce friction in the economy than large long-term structural transformation which by essence takes time. In fact, it is possible that the proponents of the structural thesis have misused the fact of rapid change. Consequently, the analysis is based on five hypotheses.

1) Is the secular rise in unemployment due to a rise in seasonal unemployment?

2) Is the secular rise in unemployment due to a rise in frictional unemployment?
3) Is the secular rise in unemployment due to an inadequate mobility?
4) Is the secular rise in unemployment due to a rise in structural unemployment?
5) Is the secular rise in unemployment due to a rise in aggregate demand unemployment?

Each hypothesis yields a certain amount of unemployment and obviously a certain rate of unemployment. Both sets of data are available in Tables 7 and 8. Each amount and each type of unemployment have been analyzed. The major results are as follows. The most important cause of unemployment was the level of economic activity. In other words, the aggregate demand hypothesis was verified. Secondly, it seems that the two next sources of higher unemployment are the frictional unemployment and the movement of the farm population toward urban labor markets coupled with an already existing population pressure. The labor market mechanism was not able to handle these frictions and to absorb this surplus of manpower. As far as seasonal unemployment is concerned, the rise in unemployment in 1959 and 1960 is partly explained by the rise in seasonal unemployment while the other years can be qualified of nearly normal seasonal unemployment. Moreover, since 1961 the seasonal unemployment rate has been very low. Finally, it seems that

although there were many structural changes, they were smooth and long-term transformations except for the movement of the farm population already counted as a mobility phenomenon. Consequently, the rise of structural unemployment did not take place. It should be noted that three conditions have been formulated to have structural unemployment. The structural changes which are observed must produce structural labor market disequilibrium and structural unemployment, the homeostasis condition must be satisfied, and the disemployment caused by the structural change must be greater than the resulting increase in the level of employment. Conditions one and three were not satisfied. Condition two cannot be tested directly but it seems that it was not satisfied since on the one hand the structural transformation can be considered as long-term and, therefore, it cannot be inferred that the homeostasis condition is satisfied or is not satisfied since the new equilibrium is not reached. On the other hand, if one considers the structural transformation as a short-term phenomenon, the proposed frictional hypothesis will be verified. As it was said earlier, apart from these possibilities, it is impossible to have hidden structural changes and creeping structural unemployment. However, this sub-hypothesis was not verified.

Policy Implications

Given these hypotheses and the results of the study based on them, it is possible to derive policies. Two different sets of policies have to be proposed: the employment policies and the manpower policies. The first set is concerned with the level of employment or the level and type of demand for labor, while the second is concerned with the supply of labor (quantity and quality). However, apart from the technical aspects of the policies, there are some very important problems which have to be examined before proposing any policy at all. Especially for the present case, that is, the unemployment of the Province of Quebec, it is important to consider the system of value of the Province, its goals, its means, and its capacity for its own employment and manpower policies separately or within the framework of the national economy.

As far as the system of value is concerned, it is changing since Quebec's society is changing. This is a general phenomenon. The problem is rather to specify exactly what the system of value was and to discover the trends and emerging patterns and developments. This is a problem for sociologists. However, assuming that this information is given to the economists who can add to them the economic trend, it is possible to fix some of the economic goals. The most obvious trend of the society is the increasing economic dependence of local areas upon a money and market

economy with loss of self-subsistent local economies. The introduction of government and political authority is another significant phenomenon of the postwar development. The increasing mobility of people is capable of producing certain beneficial effects but many families and workers experience net loss. There are many people who cannot move by themselves and, therefore, cannot compete with others. The introduction of new technology in agriculture and in other industries has produced substantial long-term transformation though this transformation is not complete.

Due to the pressures of certain groups and to the lack of information, there was a time when the Province of Quebec did not accept these trends nor the changes in the system of value which a society has to make to keep up with others. This was the case of agriculture. Not too long ago it was believed that the Province of Quebec should be and should remain a region of farmers. How a society deals with its agriculture can be critical to its economic progress and political structure. Despite widespread emphasis on industrialization at the present time, the success of economic development will depend largely on how the farm problem is handled. This is probably the first general goal of the whole set of goals. In fact, it seems that this is a prerequisite to successful employment and manpower policies. There are many reasons underlying this position. If the same rate of decline is projected for the next 15 years,

there will be relatively few people remaining on farms. This might produce positive as well as negative effects. The next paragraph concentrates on the negative effects since this is where the policies are needed.

The decline of the farming industry, though it will increase agricultural productivity per capita, will probably require more importation of food. This is an empirical question. The problem is to determine the minimum manpower needed in agriculture which will permit a stable equilibrium between the agricultural productivity, the supply of food, and the population. Given this equilibrium point, it will be possible to make employment and manpower policies. That is, the policies should be concentrated on the difference between the actual supply of labor in agriculture and the needed supply of labor. The growth of the population, national income, and industrial productivity must be considered. This difference is nothing other than the number of potential movers from rural areas to urban centers. Statistical series of the sources of supply of manpower reveal that the most important source is the migration from rural areas to cities. The population growth and the immigration are also involved, but these two sources do not seem to have the capacity of creating a surplus of the supply of labor over the demand for labor because:

1) The major effects of the "baby booms" have been absorbed by the increasing level of education or

according to all indications will be absorbed soon.

2) The rate of natural increase begins to decline.

3) The immigration is controlled and the immigrants are selected before they arrive. They do not constitute a problem since the number is limited and the quality is probably as good as those living in Quebec now. Most of them have a respectable level of education or are professional.

This is not the case for the rural-urban migrants. Most of them, due to their lack of education and training, will become unemployed if there is a rather large variation of the demand for labor. Specific policies have to be designed to prepare the passage from farm to urban centers and urban labor market. They have to change their way of life, certain values, as well as learn a trade. On the other hand, jobs have to be created. It is not the place here to design these policies but the above comments point out the necessity of both employment and manpower policies toward this group, the rural-urban movers. One can argue that these policies are policies to eliminate structural effects. However, they will fit better under a framework of policies toward mobility since the first effect of this structural change, the decline of agriculture, is the shift from rural areas to urban areas or a mobility effect.

Apart from this set of policies, which is directed

toward the group of movers, there must be a set of policies directed toward the functioning of the labor market. In this regard, it is essential to control or at least to be able to influence the rate of mobility, that is, the rate of departure from the agricultural and rural labor market and the rate of arrival in the urban labor market. This is essential because it might happen that the urbanization phenomenon will be more rapid than the industrialization process which by nature is a long-term process. If the rate of urbanization is larger than the rate of industrialization of the cities, especially of certain cities like Montreal and Quebec, the society will be confronted not only with a labor market problem but also with an urban problem. Urbanization outstripping industrialization simply transfers rural poverty to urban centers while the presence of large numbers of people who have not been integrated to the economic institution may create more friction in the labor market and even a disequilibrium in the labor market. In turn, a large group of workers who become dependent upon the society due to the lack of employment produces negative effects. Labor markets have to be organized, shaped, and extended if the new manpower is to be absorbed.

The above policies are mainly concerned with the two causes of higher unemployment: the decline of agricultural manpower and its effect on the urban labor markets. However, the analysis has shown that the major source of

unemployment is the aggregate demand. The set of policies which can be designed to eliminate the unemployment due to this cause is usually made up of monetary policies, fiscal policies, and international policies. As far as these three general types of policies are concerned, there is not much to say if one considers the Province of Quebec as an economic region of Canada. These policies are controlled by the federal government though the Provinces influence them via the system of inter-provincial conferences. In other words, it is obvious that the major source of unemployment cannot be controlled by any one of the regions unless the actual system is changed; that is, unless the monetary authority is decentralized and unless the fiscal system is based on a provincial level. This is an empirical question if one wants to know if decentralized policies and systems will have better effects or if a more centralized system will. It seems that the solution of this problem is to be found in a better coordination of all policies whatever they are. However, at the provincial level there is a major problem. "A priori" it seems that the demand for labor is influenced for all practical purposes by the federal government via monetary and fiscal policies while the supply of labor is influenced by the Province via its system of education, allocation of the social welfare expenditures, and other social investments. Consequently, the major problem of coordination can be translated in terms of

supply and demand terminology. They have to be matched. There are some experiences which indicate that they were not matched.

Even with the best set of policies and the best analysis of the causes of the unemployment, there always remains the overall problem of coordinating the policies with the means and the system of value. The policies have to be acceptable, but the policy makers have to decide for whom they are acceptable: for all? for the workers? for the employers? for the consumers?

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