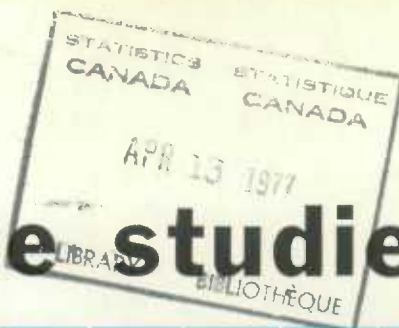


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No 8



Underutilization of Manpower in Canada

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1. The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the atom.

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ERRATA

Page 7 Paragraph 1, Line 18 should read - "Part-time workers", ...

Page 10 Paragraph 4, Line 17 should read - "and July 1966".

Page 10 Table 3, Line 5 should read - "Manhours lost by unemployed".

Page 12 Paragraph 3, Line 5 should read - tural" unemployment.
The likely presence of some structural unemployment ...

Page 18 Table 9, Line 1, Column 3 should read - 2.4.

Page 23 Table 16, Column 1, box heading should read - 25-44.

1500-506

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Special Manpower Studies and Consultation Division

AQLH 3283103 c-3

SPECIAL LABOUR FORCE STUDIES

No. 8

UNDERUTILIZATION OF MANPOWER IN CANADA

by

NAND K. TANDAN

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The Minister of Industry, Trade and Commerce

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FOREWORD

This is the eighth in a series of research studies concerned with the analysis of selected economic, social or demographic aspects of the working population in Canada. The statistical information on which this study was based was derived from published and unpublished tabulations prepared from the Monthly Labour Force Surveys. Further reports in the series will be presented as and when data become available.

These studies are prepared under the direction of Dr. Sylvia Ostry, Director, Special Manpower Studies and Consultation.

WALTER E. DUFFETT,
Dominion Statistician.

SYMBOLS

The following standard symbols are used in Dominion Bureau of Statistics publications:

- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- amount too small to be expressed.
- Ⓟ preliminary figures.
- Ⓡ revised figures.

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INTRODUCTION

The object of this study is to measure the extent of underutilization of labour in Canada. The unemployment rate is one of the most widely discussed statistics by both economists as well as the public at large. It is used for a variety of purposes such as a barometer of economic activity, a measure of welfare for certain sectors of the population, as an aid in collective bargaining; it is also regarded as a measure of the underutilization of human resources or the potential supply of workers for increasing the economy's output. The unemployment rate, however, is somewhat deceptive as a measure of unused labour supply. On the one hand, a state of zero unemployment is not only unattainable but also undesirable; some unemployment is necessary as a lubricant for the smooth functioning of the labour market. On the other hand, a number of workers, reported as employed, are willing to work full-time and many others working full-time are doing so at less than their productive capacities. There are still others classified as outside the labour force who would accept a job if it were offered to them. A comprehensive measure of underutilization should ideally take account of these factors as well as visible unemployment.

Components of Underutilization

Underutilized labour can be divided into four categories:

- (a) **Involuntary unemployed:** This is the group reported as unemployed in the Monthly Labour Force Survey of households.¹ It includes those in the labour force who are currently without a job and seeking work or volunteer the information that they would have looked for it if the prospects of success had been better. This group is further subdivided into two groups according to whether they are seeking full-time or part-time work.
- (b) **Involuntary part-time employed:** This group includes those workers who work less than full-time because of their inability to find a full-time job.
- (c) **Not in the labour force but available for work:** These are the people who do not seek employment because they are not hopeful of finding it.
- (d) **Underemployed:** This group consists of workers who are working at less than their full capacity, i.e., whose productivity in their current occupation is less than what they could produce in another job.

Measures of Underutilization

Unemployment. — The generally accepted measure of unemployment, and the one that is used in the Labour Force Survey, is the number of people

without a job and looking for work in a particular week. It also includes workers on temporary layoff and those who would have looked for work but for temporary illness or the conviction that no work was available for them. It is important to remember the reference period of one week because the number of people who have experienced some unemployment in a given month or a year will be substantially greater than those in a given week.² A distinction should also be made among the unemployed according to the hours of work sought. The labour force survey divides the unemployed persons between those seeking full-time or part-time work and this distinction should be used in compiling a composite measure of underutilization.

Part-time unemployment. — It is necessary to distinguish between the full-time and part-time workers reported in the Labour Force Survey. The employed include everyone who worked one hour or more during the week but some workers working less than full-time do so because they are unable to find full-time jobs. They are the involuntary part-time workers and represent a "loss" or underutilization of manpower as do, although not to the same degree as, the fully unemployed. Thus the United States Department of Labor publishes every month an index of time-loss³ combining the effect of "full-time" as well as "part-time" unemployment on labour force utilization.

Non-participation. — A measure of "involuntary non-participants" in the labour force cannot be accomplished directly with the data generated by the labour force survey. Nearly 45 per cent of all people in what is usually termed the working age groups (viz., 14 and over) are outside the labour force. An overwhelming majority of them are either engaged in some non-economic (though not necessarily non-essential) activity or are unable to work because of health or other personal factors and not due to a lack of demand in the labour market. Included in this group, however, are also some people who do not look for work because they are not very hopeful of finding suitable employment; typical examples of such cases are older workers whose skills have become obsolete, some seasonal workers during a period of seasonal slack, workers on indefinite layoff in a single-employer town, and some housewives who have been sporadically but unsuccessfully testing the market over a long period of time. On the other hand, institutional factors, in particular the Unemployment Insurance Act, might

¹ The Monthly Labour Force Survey was started in November 1945. It is currently based on a representative sample of 30,000 households representing all households in Canada. However, during the period covered by this study, the sample size was 35,000 households.

² In the year 1964, the rate of unemployment on the basis of annual work experience was 15.8 per cent as against an annual average of 4.7 per cent on the basis of the monthly household surveys. See DBS Special Labour Force Studies, No. 2, *Annual Work Patterns of the Canadian Population/1964*, by Frank J. Whittingham and Bruce W. Wilkinson, Ottawa, April 1967, page 9.

³ For the method of computation used in this index, see Gertrude Bancroft, "Some Alternative Indexes of Employment and Unemployment", *Monthly Labor Review*, February 1962, pp. 167-174.

induce some people to report themselves as unemployed even though they are not interested in finding a job while receiving unemployment benefits.

To measure the involuntary non-participation, the concept of "manpower gap" has been utilized in the United States.⁴ The estimate of the so-called manpower gap involves computing the gap between "potential" employment, defined on the basis of a selected norm, and actual employment as estimated by the Labour Force Survey. This gap has two identifiable components:

- (a) unemployment, and
- (b) non-participation in the labour force.

The unemployment component represents the difference between the number actually employed and that computed on the basis of a selected norm of minimum unemployment. The second component is the difference between the actual labour force and one computed on the basis of a selected norm of "full capacity participation".

Underemployment.—This aspect of underutilization is the hardest to estimate in the absence of an objective standard of an individual's full capacity. Various measures have been suggested for a person's full capacity, such as income in a previous occupation, intelligence tests and self-assessment of potential but none has been found satisfactory. In a series of surveys⁵ the United States Department of Labor included anyone with an annual income of \$3,000 or less in the underemployed category but the limitations and arbitrariness of such a measure are quite apparent.

⁴ The United States Department of Labor, *Unused Manpower: The Nation's Loss*, Bulletin No. 10, September 1966.

⁵ The United States Department of Labor conducted these surveys from a list of the poorest census tracts in eight major cities: Boston, New Orleans, New York, Philadelphia, Phoenix, St. Louis, San Antonio and San Francisco. See "The Subemployment Index—A New Measure", by Barbara Feld, *Conference Board Record*, July 1968, pp. 26-29.

A Brief Outline

In the absence of adequate data to explore the different measures suggested for underemployment, this study will be confined to the first three components of underutilization. The next section deals with part-time workers. The combined effect of involuntary part-time and part-time seeking (i.e. unemployed seeking part-time work) will be studied and illustrated through the computation of an index of time-loss.

Section III deals with the notion of "manpower gap". The merits of this approach are discussed along with its shortcomings. The labour market in the Province of Ontario in 1952-53 has been chosen as approximating full-employment conditions and the Ontario unemployment and participation rates at that particular time have served as a norm for the rest of Canada. A refinement is then introduced by adjusting for secular trends in participation rates over the period under study. Section IV adds further refinement to these estimates by presenting the manpower gap in various age group as a proportion of corresponding "potential employment" in that age group, thus taking account of population changes. This section highlights the regional differences in the underutilization of labour in Canada.

Section V looks into underutilization rates with a view to understanding their cyclical behaviour. The usual distinction is made between "primary" and "secondary" workers.⁶ Various hypotheses that have been suggested regarding the cyclical behaviour of "secondary" workers are briefly discussed along with conclusions reached by empirical studies undertaken in the United States and in Canada. An attempt is made to test these hypotheses by a simple study of the relationships between the participation gap and unemployment. However, a more thorough investigation of this phenomenon through regression analysis is reserved for a later study in this series. The final section summarises the findings of the present study.

⁶ The concept of "primary" and "secondary" worker is discussed in Section 5.

II. PART-TIME WORKERS

A growing proportion of the Canadian labour force works less than full-time. It is not strictly valid to specify a single norm for distinguishing part-time from full-time workers because the number of hours constituting full-time work varies with industry and occupation. However, for convenience and simplicity, all those who report working less than 35 hours in the reference week for any given monthly survey are arbitrarily considered to be part-time workers. A large and increasing majority of these people work part-time by choice. This development reflects, among other things, the changing composition of the labour force, especially the growing proportion of married women in it.⁷ But

there is also a number of persons who, depending on economic conditions, work part-time because they cannot find full-time work. The Survey distinguishes, for those working 1-34 hours, persons who usually work less than 35 hours and those usually working 35 hours or more. The latter category is subdivided into "economic", viz., those on "short-time and turn-over" and "non-economic" part-time workers.⁸ Separate figures for persons usually

⁷ Sylvia Ostry, *The Female Worker in Canada*, DBS 1961 Census Monograph, Ottawa, 1968, Table 2, page 5.

⁸ Those at work 1-34 hours are divided into "short-time and turn-over" (includes "short-time", "laid off part of the week", "lost job during week" and "found job during week") and "other reasons" (includes "bad weather", "illness", "industrial dispute", "vacation" and "miscellaneous"). We have called the former "economic" and the latter "non-economic" workers although the distinction is not strictly valid.

working less than 35 hours for "economic" reasons, which are available since September 1962, suggest that they constitute only a small proportion of all those who usually work less than 35 hours.

Table 1 summarises the trends in part-time employment since 1953. The proportion of part-time workers among the employed rose from one in sixteen in 1953 to one in six in 1967. The nature of part-time employment has also changed during this

period with a sharp decline in the proportion of "economic" part-time workers. The remarkable growth of part-time employment over this period was primarily attributable to:

- (a) a nearly four-fold increase in the number of those who usually work less than 35 hours in the week, and
- (b) more generous provisions regarding paid leaves and holidays.

TABLE 1. "Part-time" Workers in Canada in Selected Years

Year	Part-time workers ¹ as per cent of total employed	Short-time and turn-over as per cent of all part-time workers	Usually working less than 35 hours as per cent of all part-time workers	"Economic" ^{2,3} part-time workers as per cent of all part-time workers
1953	6.1	15.0	60.0	
1957	13.6	8.5	36.2	
1961	13.0	9.8	58.4	
1965	18.9	4.9	49.3	7.3
1967	16.0	6.6	61.4	9.0

¹ "Part-time" workers relate to those persons who worked 1 to 34 hours during the survey period. Their number can vary from year to year according to the number of survey weeks which included statutory holidays.

² "Economic" part-time workers include workers due to short-time and turnover and those usually working less than 35 hours for "economic" reasons.

³ Figures for persons usually working less than 35 hours for "economic" reasons were not available until 1962.

Source: All tables in this report are based on DBS Monthly Labour Force Survey.

It is clear from Table 2 that "economic" reasons account for a very small proportion of the usual part-time workers, particularly among women. It may also be added that an overwhelming majority of those under "non-economic" reasons seem to prefer to work short hours.⁹ For the rest, school was an important reason for part-time work of men and household responsibility for that of women.

⁹ Too much reliance cannot be put on the number of those preferring to work less than 35 hours. Their number is likely to be influenced by the phrasing of the question in the survey.

Time Lost due to Part-time Employment and Unemployment

The "economic" part-time workers are currently classified as "employed" by the Labour Force Survey. However, in theory at least, a comprehensive measure of underutilization ought to take into consideration the extent of their involuntary partial unemployment. As was pointed out earlier, the "economic" part-time group includes those who usually work full-time but who, during the survey week, worked less than full-time for "economic" reasons, as well as those who usually work part-time for

TABLE 2. Persons Who Usually Work Less than 35 Hours a Week by Economic and Non-economic Reasons, October, 1968

Reason	Male	Female	Both sexes
Economic reasons	6.8	3.0	4.2
Non-economic reasons ¹	93.2	97.0	95.8
Totals	100.0	100.0	100.0

¹ An overwhelming majority of those under "non-economic" reasons answered "No" to whether they would prefer to work 35 hours or more each week.

similar reasons. Data on the latter group, however, are not available prior to 1962 so that any long-run series of "time-lost" indices would exclude this group. Judging from the available data, however, the inclusion of "economic" part-time workers would not make too large a difference in the "time-lost" after an adjustment has been made for those unemployed persons who are seeking only part-time work.

In order to illustrate this, an index of "time-lost", computed in a similar way to that by the United States Bureau of Labor Statistics,¹⁰ is shown in Table 3 for December 1968, which was a period of relatively high unemployment. This index takes into account not only "visible unemployment" but also all involuntary part-time employment. Further, in the calculations a distinction is made between those seeking full- or part-time work. The computation assumes that:

- (a) the average weekly hours worked by the "economic" part-time workers are the same as those worked by all part-time workers;
- (b) the average number of hours of work sought by the unemployed seeking full-time work, as well

as "economic" part-time workers, is equal to the average number of hours worked by full-time workers;

- (c) the average number of hours of work sought by the unemployed seeking part-time work is the same as the average number of hours worked by all part-time workers; and
- (d) the average weekly hours worked by the "fully employed" can be imputed to those with a job but not at work during the reference week.

It is clear from Table 3 that, at least during the period cited, the index of "time-lost" was only about half of a percentage point higher than the unemployment rate. On the basis of this evidence, therefore, it seems doubtful if the advantages to be gained by calculating a more comprehensive measure of underutilization - such as the "time-lost" index - outweigh the essentially arbitrary nature of the series of assumptions involved in the computation. The advantages of constructing a long-run series of "time-lost" indices by using arbitrary estimates of the usually "economic" part-time workers (i.e. those usually working less than 35 hours for "economic" reasons) prior to 1962 seems to be still more dubious.

¹⁰ Gertrude Bancroft, *op. cit.*

TABLE 3. An Estimate of Time Lost Due to Unemployment, December, 1968

	Thousands
I. Total manhours provided by the economy	302, 252
Manhours worked ¹	293, 742
Manhours imputed to persons with a job but not at work	8, 510
II. Total manhours lost	16, 700
Manhours lost by	14, 152
By those seeking full-time work	13, 720
By those seeking part-time work	432
Manhours lost by "economic" ² part-time workers.....	2, 548
III. Total available labour force time (I + II)	318, 952
Time lost as percentage of labour force time	5. 2
Unemployment rate	4. 7

¹ Aggregate of weekly hours worked by all employed.

² See footnote 2, Table 1.

Involuntary Part-time Workers and the Cyclical Effect

Another notable feature of the part-time worker group, besides a secular increase in their numbers, is the cyclical behaviour of the component due to "short-time and turnover".¹¹ Chart 1 traces this component as well as the rate of unemployment. It appears that changes in "short-time and turnover" lead the unemployment rate at turning points in the cycle. The two series display six major turning points during this period. The peaks in the "short-time" series were in February 1954, April 1958 and

November 1960 and the corresponding peaks in the unemployment series were in September 1954, June 1958 and December 1960. The troughs in the short-time series were in June 1956, April 1959 and December 1965 with the corresponding troughs in the unemployment series in August 1956, July 1959 and July 1965. It may be surmised that the employers react to a fall in demand for their product initially by spreading the effects of a cut-back in production among their workers rather than resorting to lay-offs and to an increase in demand by increasing working hours of those already employed but working less than a full work week. However, a persistence of deteriorating or improving conditions induces them to lay-offs or additional hirings, thereby affecting the level of employment.

¹¹ The bulk of those under "short-time and turnover" are on short-time.

CHART-I

SHORT TIME AND TURNOVER WORKERS, AND UNEMPLOYMENT RATE, TWELVE-MONTH MOVING AVERAGES, CANADA, 1953-68



III. MANPOWER GAP

The terms "manpower gap" and "manpower loss" have recently been used in the economic literature to denote the cyclical component of unused labour.¹² The gap is estimated in relation to an arbitrarily fixed level of full-utilization which is assumed to correspond to the lowest unemployment rate that the economy is capable of achieving in normal times without inducing an inflationary spiral.¹³ A variety of methods, some more complex than others, have been employed to estimate this gap. Kenneth Strand and Thomas Dernberg¹⁴ sought to estimate full-employment "participation ratio" from a regression of it upon employment and "exhaustion" ratios. This ratio was applied to the actual population to estimate "full employment labour force" and "manpower gap" was obtained thereby by subtracting actual employment from this estimate. A simple technique used by the United States Department of Labor¹⁵ was based on establishing as a norm, for all workers 25-64 years, the average unemployment rate actually experienced by white males in the 25-64 age group in 1951-53.

The present study seeks to measure "manpower gap" both in relation to a low unemployment period and to the region in Canada with the highest level of manpower utilization. It is obvious that the estimated gap will depend to a large extent upon the chosen period and region. The present study chose the years 1952-53 as the period of "full employment" and Ontario as the region of "maximum utilization" for the purpose of estimating "manpower gap". The years 1952-53 were chosen as a basis for comparison because this was the period of the lowest unemployment in the post-war years. Ontario was chosen as the "maximum utilization" region because it has the highest labour force participation rate of any region in Canada and is second only to the Prairies in having low unemployment. The Prairie provinces, however, retain a relatively large segment of their labour force in agriculture and therefore, the measured unemployment may be somewhat understated.¹⁶

¹² For example, K. Strand and T. Dernberg, "Cyclical Variation in Labour Force Participation", *Review of Economics and Statistics*, November 1969, pp. 378-391; and "Hidden Unemployment 1953-62: A quantitative Analysis by Age and Sex", *American Economic Review*, March 1966, pp. 71-95. The United States Department of Labor, *Unused Manpower: The Nation's Loss*, *op. cit.*

¹³ Strand and Dernberg define "low full employment" and "high full employment" as situations that are obtained when the measured seasonally adjusted aggregate unemployment rate is 4 and 3 per cent respectively.

¹⁴ Strand and Dernberg, *op. cit.*

¹⁵ *Unused Manpower*, *op. cit.*

¹⁶ Unemployment rates for the Prairie provinces go up when standardized according to the industrial composition of Canadian labour force. See *Unemployment in Canada*, by Sylvia Ostry, DBS, 1961 Census Monograph, Ottawa, 1968, Table 15, page 15.

The estimates of "manpower gap" include a sizeable "structural"¹⁷ component in addition to the cyclical gap¹⁸ as the regions other than Ontario are likely to contain substantial amounts of "structural" unemployment in Ontario itself in the base period would signify that the unemployment rate could be pushed down further with appropriate policy measures. To the extent that the removal of structural unemployment is one of the aims of manpower training programmes, the estimates presented in this study can only be considered as low.

Crude Gap

The "crude manpower gap" was compiled as the difference between actual employment and the "potential" employment estimated on the assumption that the average participation and unemployment rates experienced in Ontario in the base period prevailed in all regions throughout the period of analysis. The crude gaps compiled as above are presented in Table 4.

The crude gap for men nearly quadrupled during the years 1953-67 with the participation gap providing the major share in all years except 1958, which was a year of rapid build-up of unemployment. As against this, the estimated gap for females rapidly declined showing large "overutilization" in recent years. This is particularly true of the non-participation component and indicates a secular growth in female labour force participation rates.

The estimates of "crude manpower gap" as well as its two components are affected by changes in the size and the age composition of the labour force. However, the most important element introducing a large measure of unreality in the above estimates, particularly in the case of females, is the secular change in labour force participation rates. These trends are particularly pronounced among teen-age workers, married women and older workers. Thus in the following section, an attempt is made to adjust the crude gap for secular trends in participation rates in various age groups.

¹⁷ There are complex conceptual problems involved in defining "structural unemployment" but they lie outside the scope of this study. For a discussion of some of the major issues see John W.L. Winder, "Structural Unemployment", *The Canadian Labour Market*, edited by Arthur Kruger and Noah M. Meltz, Toronto, 1968.

¹⁸ Indeed, all estimates of the gap must include a "structural" component as well. It cannot be assumed that all unemployment at the arbitrarily fixed level of full employment is "frictional". See Frank T. Denton and Sylvia Ostry, *An Analysis of Post-War Unemployment*, Staff Study No. 3, Economic Council of Canada, Ottawa, 1964, pp. 18-20.

TABLE 4. "Crude Manpower Gap"¹ in Canada in Selected Years

Year	Male			Female			Both sexes		
	Total	Due to ² non-participation	Due to ² unemployment	Total	Due to ² non-participation	Due to ² unemployment	Total ³	Due to ³ non-participation	Due to ³ unemployment
	thousands								
1953.....	163	117	45	134	130	4	297	248	48
1957.....	300	158	137	26	11	14	326	170	151
1961.....	608	299	289	- 119	- 157	42	489	142	331
1965.....	575	461	105	- 320	- 345	29	255	116	134
1967.....	643	510	121	- 500	- 530	38	143	- 20	160

¹ Obtained as difference between actual and "potential" employment based on Ontario unemployment and participation rates in the base period.

² The two components of the gap do not, generally speaking, add up to the total because of a very small interaction which is not shown in the above table.

³ Estimates of the gap for males and females may not add exactly to the gap for both sexes due to rounding.

Trend-adjusted Gap

A trend-adjusted manpower gap was computed for major age-sex groups by estimating the "full employment" level of participation rates for each group in Ontario in all years and assuming this estimated rate to be the target for all regions. The computation of the trend-adjusted gap involved the following steps:

- (1) The target participation rates were obtained by simple linear interpolation between the average participation rates achieved in Ontario during the two high employment periods, 1952-53 and 1965-66. The estimate for the last year, 1967, was obtained by extrapolating the trend. This was done for each of the 10 age-sex groups: 14-19, 20-24, 25-44, 45-64 and 65 plus.
- (2) The potential labour force for each year was obtained in the five regions and in all the age-sex groups as a product of the population in that group and its target participation rate for that year as estimated in (1) above.
- (3) The potential employment for each of the above group was obtained as a product of (2) and the target employment rate, viz., the proportion of the employed in the labour force.
- (4) The manpower gap is the difference between the potential employment thus calculated and actual employment.
- (5) The participation gap was obtained by subtracting actual employment from the product of the potential labour force as calculated in (2) above and the observed employment rate.
- (6) The manpower gap due to unemployment was obtained by subtracting actual employment from the product of the actual labour force and the potential employment rate.

- (7) The potential employment and manpower gap as well as its two components computed in (3) to (6) above were aggregated to obtain regional as well as Canadian totals for each age group and all ages. Male and female values were added to obtain manpower gap for both sexes.

The actual and "potential" employment computed in the above manner is shown in Chart II. The trend-adjusted manpower gap for Canada is presented in Table 5. The dissimilarity of movement of "crude" and "adjusted" gaps, as presented in Tables 4 and 5 respectively, reveal the substantial difference made by eliminating trends in participation rates. In the last year of the analysis, the "crude" male gap was more than three times as much as the trend-adjusted value because of the declining trend in overall male participation rates. The difference in the measures in the base year itself reflects the differences in the age-mix of Canada and the province of Ontario, the latter having a relatively higher proportion of high-employment and high-participation "primary" workers, viz., males aged 25-64.¹⁹ Both components of the gap show considerable year to year fluctuations (see Table D-4 in the Appendix) although those in the participation component are relatively smaller. In general, the relative share of the non-participation component declines during a period of high unemployment and rises in the opposite situation. This is so because the participation rates for the bulk of the male labour force (those in the 25-64 age group) have been insensitive to changes in the conditions in the labour market.

¹⁹ The proportion of men in the age group 25-64 in Ontario in 1953 was 68.3 per cent as against 66.2 per cent in Canada.

CHART-II



TABLE 5. "Trend-adjusted Manpower Gap" in Canada by Sex in Selected Years

Year	Male				Female				Both sexes				Male gap as per cent of gap for both sexes	Female gap as per cent of gap for both sexes
	Total	Due to non-participation	Due to unemployment	Non-participation gap as per cent of total gap	Total	Due to non-participation	Due to unemployment	Non-participation gap as per cent of total gap	Total	Due to non-participation	Due to unemployment	Non-participation gap as per cent of total gap		
	'000				'000				'000					
1953.....	121	77	42	63.4	189	182	6	96.7	310	259	48	83.6	39.1	63.4
1957.....	182	49	130	26.9	220	210	10	95.2	403	259	140	64.3	45.3	54.7
1961.....	382	89	284	23.3	245	202	40	82.4	627	291	325	46.3	60.9	39.1
1965.....	189	86	97	45.8	246	218	26	88.7	435	305	123	70.1	43.4	56.6
1967.....	193	81	109	41.7	192	154	38	80.1	386	235	147	60.8	50.1	49.8

Note: See Methodology in Appendix for method of computation. See also footnote 2 and 3, Table 4.

Women display a strong secular increase in participation rates. Therefore, adjusting for trend has the effect of increasing their estimated gap (or reducing "overutilization"). So strong is this trend effect that in the last year an estimated "crude" overutilization of over 500,000 is transformed, after adjusting for trend, into an underutilization of over 192,000. The higher trend-adjusted gap in the base year itself reflects the higher proportion in Ontario of women aged 45 or over with lower participation rates. The non-participation component of the gap

fluctuates within a relatively narrow range and, since it constitutes the bulk of the total female gap, so does the total. Women account for a smaller part of the gap during recession because of two factors:

- (1) the greater importance of the unemployment gap among men, and
- (2) the relative stability of the participation gap for both men and women.

Age-composition of the Manpower Gap

The percentage distributions of the trend-adjusted gap and its two components into five major groups is shown in Table 6 for 1953 and 1967,²⁰ the first and the last year of this analysis. It is seen that the bulk of the male gap is constituted by workers in the 25-64 age group who form the major portion of the total available labour resources. The non-participation gap shows a higher proportion in the older ages and a lower proportion among the

²⁰ The year 1967 was marked by a higher unemployment rate than that in 1953. It has been observed that unemployment and participation rates of various age-sex groups are affected differently at different levels of unemployment. This would, in particular, tend to increase the proportion of the gap in 1967 for teen-agers and old workers.

young, while the opposite is true of the unemployment component. This would suggest that an older worker is more likely to retire from the labour force while the younger worker is more likely to remain when faced with unemployment. The female gap is also concentrated in the age group 25-64, even more so now than in 1953. This change is due primarily to the twin factors of a big spurt in the labour force participation of married women²¹ and a decline in the labour force activity of teen-age girls. It is, however, a reflection also of the particular norm or standard used in measurement, reflecting greater disparity between Ontario and other parts of the country in the participation rates of married women than of teen-age workers.

²¹ The participation rate of married women increased by 93.2 per cent between 1951 and 1961. See Sylvia Ostry, *The Female Worker in Canada*, op. cit., page 5, Table 2.

TABLE 6. Age-composition of the Manpower Gap by Sex, 1953 and 1967

Age group	Male			Female		
	Total	Due to non-participation	Due to unemployment	Total	Due to non-participation	Due to unemployment
per cent distribution						
1953						
14-19 years.....	1.5	- 8.2	18.0	15.6	14.7	37.6
20-24 ".....	7.7	5.0	12.7	8.6	7.0	55.0
25-44 ".....	31.5	27.2	39.9	44.8	46.0	12.1
45-64 ".....	28.0	28.9	26.8	27.7	28.8	- 4.7
65 years and over.....	31.2	47.1	2.6	3.4	3.5	-
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0
1967						
14-19 years.....	0.3	- 30.4	22.5	0.7	- 9.6	45.3
20-24 ".....	13.0	9.9	15.4	-	- 6.4	26.6
25-44 ".....	33.6	35.2	32.9	51.5	59.7	16.9
45-64 ".....	36.7	51.8	25.7	46.3	55.1	8.6
65 years and over.....	16.3	33.6	3.4	1.5	1.2	2.6
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0

Note: See footnotes 2 and 3, Table 4.

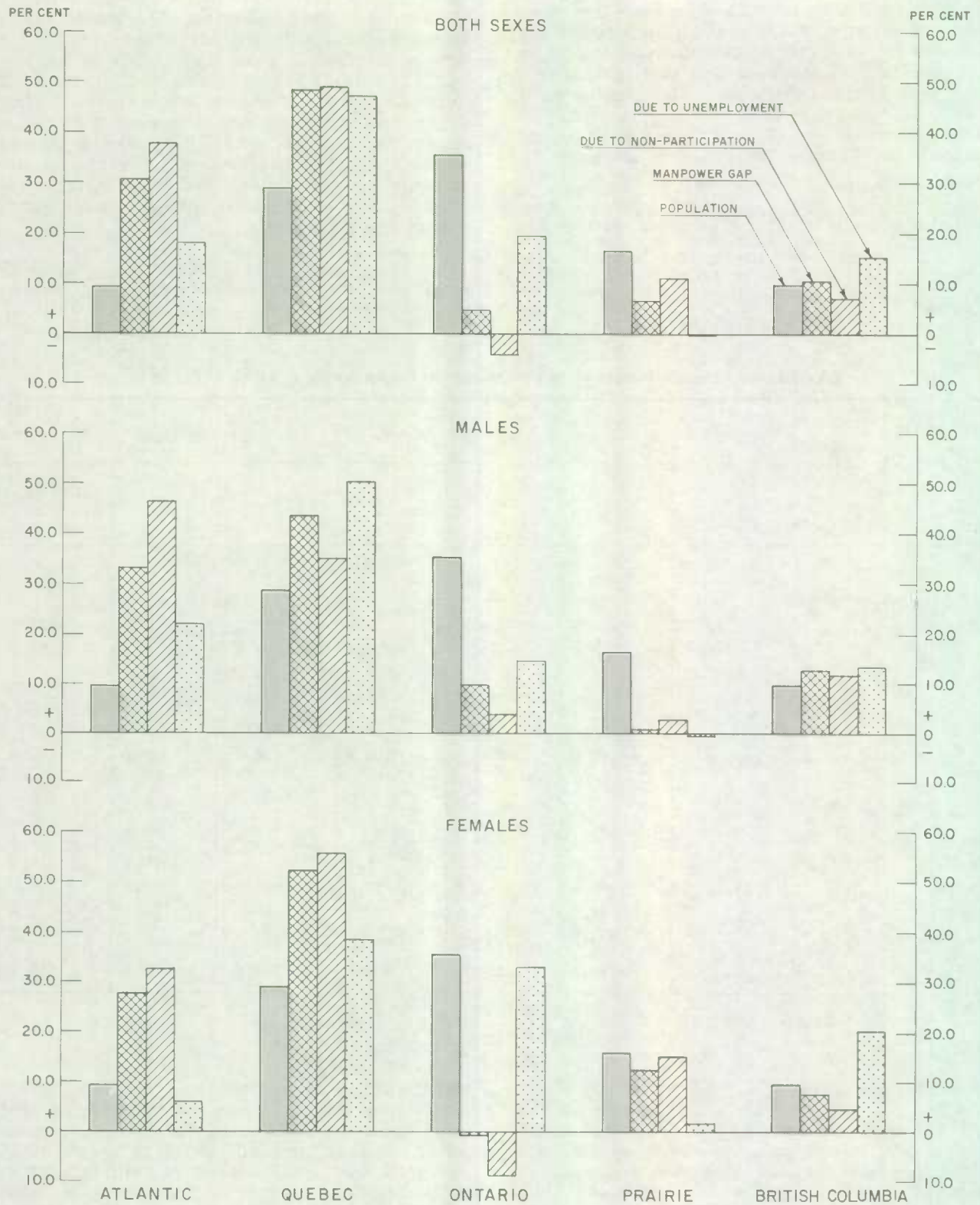
Regional Composition

The regional composition of the gap is shown in Table 7 for both men and women for 1953 and 1967. It is seen that the Atlantic Region, together with the provinces of Quebec and British Columbia, account for 90 per cent or more of the entire male gap in both years. The situation seems to have improved considerably in British Columbia, however, whose share of the gap in 1967 was half of what it

was in 1953. The opposite is true of Quebec, whose share of the gap in 1967 was nearly double its 1953 value. Quebec's share of the non-participation component increased from 10.5 per cent in 1953 to 35 per cent in 1967, while that of the Prairies fell from 16 per cent to 3 per cent. The pattern for other regions for this component was similar to that of total gap. Quebec claimed a major share of the unemployed men, too, in both years. The Atlantic Region and British Columbia also claimed a high

CHART-III

REGIONAL COMPARISON OF MANPOWER GAP, BY SEX, 1967 (PER CENT OF CANADA TOTAL)



share of the unemployment gap but the year 1967 showed a significant improvement over 1953 in both regions.

The unused female labour was concentrated almost equally in the Atlantic Region, Quebec and the Prairies in 1953. But in 1967 Quebec accounted

for more than half of the unutilized female workers while the share of the Prairies declined from 33 to 12.6 per cent.

Chart III, depicting the percentage of population and manpower gap in each region, highlights the unequal distribution of the manpower gap and its two components among regions.

Table 7. Regional Composition of the Manpower Gap by Sex, 1953 and 1967

Year and region	Male			Female			Both sexes		
	Total	Due to non-participation	Due to unemployment	Total	Due to non-participation	Due to unemployment	Total	Due to non-participation	Due to unemployment
per cent distribution									
1953									
Atlantic	42.3	43.1	39.7	26.9	27.6	9.4	33.0	32.2	36.2
Quebec	22.5	10.5	46.3	29.6	28.4	64.8	26.8	23.1	48.4
Ontario	0.3	- 0.4	1.6	3.9	4.3	9.7	2.5	2.9	0.3
Prairie	7.6	16.3	- 8.2	33.0	33.9	7.0	23.1	28.7	- 6.4
British Columbia	27.2	30.5	20.6	6.6	5.8	28.8	14.0	13.1	21.5
Canada	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1967									
Atlantic	33.2	46.5	22.2	27.8	32.9	6.2	30.5	37.6	18.0
Quebec	43.6	35.0	50.3	52.5	55.8	38.4	48.1	48.7	47.2
Ontario	9.8	3.9	14.7	- 0.7	- 8.7	33.2	4.6	- 4.3	19.5
Prairie	0.8	2.9	- 0.8	12.6	15.3	1.8	6.6	11.1	- 0.1
British Columbia	12.7	11.7	13.6	7.8	4.7	20.3	10.2	7.1	15.4
Canada	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

IV. UNDERUTILIZATION RATES

In order to illustrate the relative extent of underutilization, the estimated trend-adjusted manpower gaps were divided by "potential" employment (to adjust for increases in population) and expressed as underutilization rates. Table 8 shows the underutilization rates and both their components, viz.,

(a) UUR_1 due to non-participation, and

(b) UUR_2 due to unemployment.

The deflation of the gap by "potential" employment does not invalidate observations made earlier in connection with trend-adjusted gap. UUR_1 has been relatively stable and showed a declining tendency over this period, while an opposite tendency towards increase was visible in UUR_2 .

TABLE 8. Underutilization Rates in Canada, Total and Components, by Sex in Selected years

Year	Male			Female			Both sexes		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	2.9	1.8	1.0	13.9	13.4	0.4	5.6	4.7	0.9
1957	4.0	1.1	2.9	13.6	12.9	0.6	6.6	4.2	2.3
1961	8.0	1.9	6.0	12.8	10.5	2.1	9.4	4.4	4.9
1965	3.8	1.7	1.9	10.9	9.6	1.1	6.0	4.2	1.7
1967	3.7	1.5	2.1	7.7	6.2	1.5	5.0	3.0	1.9

Note: Underutilization rate is manpower gap expressed as a percentage of potential employment. UUR, UUR₁ and UUR₂ stand for total, non-participation and unemployment underutilization rates respectively.

Male UUR₁ is low and stable while UUR₂ showed large fluctuations. UUR and UUR₂ moved in similar fashion reflecting the relative stability of UUR₁ as well as the numerical dominance of the unemployment component in the total gap. The underutilization rate for females (UUR) is much higher due to the greater disparity of female labour force utilization between Ontario and the rest of the country. That this disparity is declining also becomes evident from the fact that UUR dropped from nearly 14 per cent in 1953 to less than 8 per cent in 1967. UUR₁ showed a declining trend, too, reflecting a faster rate of increase in the participation rate in Canada relative to that in Ontario. UUR₂, on the

other hand, showed a rising trend possibly revealing a firmer attachment to the labour force so that women, when out of a job, keep looking for one instead of withdrawing from the labour market.

Underutilization Rates in Selected Age Groups

The degree of underutilization varies considerably among age groups. To highlight these differences, the rates of underutilization for different age groups in Canada for the years 1953, 1961 and 1966 are presented in Table 9 (the rates for other years and regions are given in the Appendix at the end).

TABLE 9. Underutilization Rates by Age and Sex in Canada, 1953, 1961 and 1966

Age group	1953			1961			1966		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
Male									
14-19 years	0.6	- 2.0	2.0	17.7	5.7	11.1	3.4	- 1.3	4.4
20-24 "	2.0	0.8	1.2	7.9	- 0.8	8.7	2.0	0.3	1.7
25-44 "	1.9	1.0	0.8	6.2	0.8	5.3	1.7	0.9	0.9
45-64 "	2.8	1.8	0.9	7.1	1.7	5.3	4.0	2.3	1.6
65 years and over	16.7	16.0	0.5	17.4	13.9	2.9	13.9	11.3	2.3
Female									
14-19 years	12.5	11.4	0.9	9.6	3.2	6.2	1.7	- 2.0	3.8
20-24 "	6.0	4.8	1.1	10.9	7.8	2.8	- 0.4	- 1.5	1.2
25-44 "	15.0	14.9	0.1	15.7	14.4	1.1	11.7	11.2	0.4
45-64 "	19.8	20.0	- 1.0	11.8	10.7	1.1	12.3	12.0	0.2

Note: Underutilization rates for females 65 years and over are not included because of their very small number in the labour force and high sampling error. See footnote, Table 8 for definition of underutilization rate.

The highest underutilization among men is in the age group 65 and over and most of it is due to non-participation rather than unemployment; in 1966, one out of seven potential workers in this group was out of work and one out of nine was outside the labour force. It can be hypothesized that many of the older workers withdrew from the labour force in the face of unemployment. Teen-age workers have a high degree of underutilization during a recessionary period such as 1961 most of which is due to unemployment. The underutilization rates of other male groups, as well as those of teen-age workers during a period of low unemployment, are relatively small. In particular, men in the 25-64 age group are marked by low and stable underutilization due to non-participation. Female workers in the 25-64 age group are marked by high rates of underutilization. During 1966, underutilization in both the 25-44 and 45-64 age groups was in the neighbourhood of 12 per cent which was due almost entirely to non-participation. The unemployment component is extremely small in all groups excepting teen-age workers where it was particularly high during 1961. It can be seen that underutilization of female workers in all ages has declined considerably over the period under this study.

Regional Underutilization Rates

The impact of unemployment and non-participation varies widely over regions. Table 10 shows this variation in selected years as reflected in the underutilization rates in the five geographic regions. In the last year of this study, 1967, the Atlantic region had a rate of underutilization far above that of any other region. The rate of underutilization was above average in Quebec whereas in British Columbia it was nearly the same as the national average. Underutilization in the remaining two regions, Ontario and the Prairie provinces, was far below average.

Table 11 shows underutilization rates for men in the five regions. The Atlantic provinces experienced the highest rates of underutilization due to both non-participation and unemployment. It is seen that during years of high unemployment 1957-62, UUR₁ fell while UUR₂ rose. The province of Quebec shows above-average unemployment rates but near-average participation rates. Ontario has, naturally, the lowest gap due to non-participation and is second to the Prairies in the unemployment gap. British Columbia shows above-average unemployment and participation gaps.

TABLE 10. Underutilization Rates in Regions in Selected Years, Both Sexes

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	17.6	14.4	3.0	5.3	3.8	1.5	0.4	0.4	--	7.1	7.4	- 0.3	9.5	7.2	2.2	5.6	4.7	0.9
1957	19.0	12.9	5.5	9.4	6.0	3.5	- 0.1	- 1.5	1.4	6.9	6.7	0.2	9.3	6.6	2.4	6.6	4.2	2.3
1961	20.9	12.1	8.1	14.2	7.3	6.7	3.7	0.2	3.5	4.8	2.5	2.3	12.8	6.5	5.9	9.4	4.4	4.9
1965	17.5	12.8	4.3	10.4	7.3	3.0	0.7	0.3	0.5	2.6	2.2	0.4	6.2	4.0	2.0	6.0	4.2	1.7
1967	16.5	12.4	3.8	8.2	5.1	3.1	0.6	- 0.4	1.0	2.0	2.1	--	5.2	2.2	3.0	5.0	3.0	1.9

TABLE 11. Underutilization Rates in Regions in Selected Years, Males

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	11.8	7.6	3.8	2.4	0.7	1.7	--	--	0.1	1.2	1.6	- 0.4	9.0	6.4	2.4	2.9	1.8	1.0
1957	14.1	6.5	7.1	4.4	- 0.1	4.6	0.8	- 0.6	1.5	1.7	1.4	0.3	8.7	4.9	3.4	4.0	1.1	2.9
1961	18.0	6.6	10.6	10.8	2.2	8.4	4.5	0.5	4.0	3.2	0.3	2.8	11.5	4.1	7.1	8.0	1.9	6.0
1965	13.8	7.4	5.9	6.4	2.6	3.6	0.3	0.1	0.2	0.3	- 0.1	0.4	4.8	2.9	1.8	3.8	1.7	1.9
1967	13.4	7.8	5.1	5.5	1.8	3.6	1.0	0.2	0.8	0.2	0.3	- 0.1	4.7	1.8	2.9	3.7	1.5	2.1

The regional differences are more marked in the rates of female underutilization (Table 12). The differences in female unemployment rates, as revealed in UUR₂'s, are not significant from one region to another. However, there are very large disparities in participation rates, though the gulf has narrowed

during the period under study. The Atlantic Region, the Prairies and Quebec have above-average underutilization, primarily due to low participation rates. British Columbia and Ontario experienced below-average rates of underutilization during most years.

TABLE 12. Underutilization Rates in Regions in Selected Years, Females

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953.....	34.8	34.5	0.4	13.9	12.9	0.9	1.6	1.7	- 0.1	26.0	25.9	0.2	11.2	9.6	1.4	13.9	13.4	0.4
1957.....	32.1	30.2	1.4	22.6	22.0	0.7	- 2.9	- 3.8	1.0	21.9	22.0	--	11.0	11.6	- 0.5	13.6	12.9	0.6
1961.....	27.6	25.2	2.1	22.3	19.4	2.6	1.5	- 0.5	2.0	9.0	8.1	0.9	16.0	12.7	2.9	12.8	10.5	2.1
1965.....	25.4	24.5	0.7	19.2	17.5	1.6	1.6	0.7	0.9	7.8	7.5	0.3	9.3	6.6	2.5	10.9	9.6	1.1
1967.....	23.0	21.8	1.0	13.7	11.7	2.0	- 0.2	- 1.5	1.4	6.1	6.0	0.2	6.2	3.0	3.2	7.7	6.2	1.5

Regional Disparities

Regional disparities in economic development are a fact of Canadian life, and manpower utilization is no exception to the rule. The high rates of underutilization in the Atlantic Region and Quebec reveal the potential reservoir of human resources that have remained unexploited for economic purposes. To focus on these differences, the underutilization rates in Ontario in each year were subtracted from those of other regions for the corresponding year. The results for three selected years, two of relatively full employment, viz., 1953 and 1966, and one of high unemployment, viz., 1961, are presented in Table 13. The overall gap between Ontario and all Canada (including Ontario) was slightly reduced between the two years of relatively full employment. It appears that the gap widens during recession and narrows when the economy is buoyant. This is true of both the components but much more so of unemployment, a fact which brings out the greater hardship imposed on the economically backward regions during a period of lull in economic activity.

The Atlantic provinces lagged behind all other regions with a difference of over 17 per cent with Ontario in 1953 and nearly 16 per cent in 1966. There has been a small bridging of this gap in participation rates but none in unemployment. Unlike the situation in the Atlantic provinces, the gap in Quebec has widened considerably both due to differences in the participation and unemployment rates. On the other hand, the position of the Prairies and British Columbia has improved *vis-à-vis* Ontario in respect of both unemployment and participation rates.

When each sex is examined separately (Table 14), it may be seen that for males the total gap as well as the unemployment component reveal the same cyclical effect as was the case for both sexes, viz., a tendency to widen during the recession and to narrow during the boom. The disparity of the total gap between Canada and Ontario remained unchanged between 1953 and 1966 because of the counterbalancing trends in its two components: a narrowing of the participation and a widening of the unemployment gap.

Ranked according to the utilization of male manpower in 1953, the Prairies were second to Ontario, followed by Quebec and British Columbia with the Atlantic provinces forming a poor tail. The only change in 1966 was a switching of the third and fourth place between Quebec and British Columbia. The same ranking was obtained for unemployment with the one exception that the Prairies surpassed Ontario as the region of the lowest unemployment in both 1953 and 1966. In the case of labour force participation, the Atlantic Region formed the tail once again, Quebec belonged to the second place in 1953 but conceded it to British Columbia in 1966. The overall picture can be summed up as follows:

- continuing disparity in the Maritimes, suggesting that the factors responsible for higher unemployment in the first place have been sustained over the period;
- a lagging of Quebec in both the participation and unemployment rates especially in respect of men in the 45-64 age group;
- a catching up of participation rates in the Prairies with those in Ontario, bringing the region's manpower utilization nearly at par with Ontario's; and
- a marked improvement in the use of male manpower in British Columbia, both in respect of employment and participation in the labour force.

The gap in female workers' utilization between Ontario and the rest of Canada has been reduced significantly over the same period (Table 15). This is a result of the faster growth in average participation rates in the rest of the country relative to Ontario—a phenomenon of the nineteen-sixties and common to all regions except Quebec. In Quebec, it should be noted, the growth in labour force participation of women has been sluggish as compared to other regions. The unemployment component of women, as has been mentioned earlier, is very small and shows relatively little interregional variation.

TABLE 13. Disparities¹ in Labour Force Utilization by Region, Both Sexes, 1953, 1961, 1966

Year	Atlantic	Quebec	Prairie	British Columbia	Canada
UUR 1953	17.2	4.9	6.7	9.1	5.2
..... 1961	17.3	10.5	1.1	9.1	6.1
..... 1966	15.8	8.0	1.7	5.0	4.6
UUR ₁ 1953	14.0	3.4	7.0	6.8	4.3
..... 1961	11.9	7.1	2.3	6.3	4.2
..... 1966	12.2	6.0	2.3	3.3	3.6
UUR ₂ 1953	3.0	1.5	- 0.3	2.1	0.8
..... 1961	4.7	3.2	- 1.2	2.5	1.4
..... 1966	3.2	2.0	- 0.6	1.7	0.9

¹ Disparity is measured as the difference in underutilization rates between the region and Ontario.

Table 14. Disparities¹ in Labour Force Utilization, by Region, Males, 1953, 1961 and 1966

Year	Atlantic	Quebec	Prairie	British Columbia	Canada
UUR 1953	11.8	2.3	1.2	9.0	2.9
..... 1961	13.5	6.3	- 1.4	7.0	3.5
..... 1966	11.8	5.1	--	3.6	2.9
UUR ₁ 1953	7.7	0.7	1.6	6.4	1.9
..... 1961	6.1	1.7	- 0.2	3.7	1.4
..... 1966	6.7	2.3	0.5	1.6	1.5
UUR ₂ 1953	3.8	1.6	- 0.5	2.3	1.0
..... 1961	6.6	4.4	- 1.2	3.1	2.0
..... 1966	4.7	2.7	- 0.5	1.9	1.3

See footnote, Table 13.

Table 15. Disparities¹ in Labour Force Utilization by Region, Females, 1953, 1961 and 1966

Year	Atlantic	Quebec	Prairie	British Columbia	Canada
UUR 1953	33.3	12.3	24.4	9.6	12.3
..... 1961	26.1	20.8	7.5	14.5	11.2
..... 1966	24.2	14.1	5.6	8.3	8.2
UUR ₁ 1953	32.8	11.2	24.2	7.9	11.7
..... 1961	25.7	19.9	8.7	13.2	11.0
..... 1966	23.9	13.6	6.4	7.0	8.0
UUR ₂ 1953	0.5	1.0	0.3	1.6	0.5
..... 1961	--	0.6	- 1.2	0.9	0.1
..... 1966	0.1	0.4	- 0.8	1.3	0.1

See footnote, Table 13.

V. PRIMARY AND SECONDARY WORKERS

Students of labour market have generally divided the labour force into two broad categories: "primary" and "secondary" workers. A "primary" worker is one with a continuous attachment to the labour force throughout the span of his working life except for interruptions due to illness, accidents, etc. The "secondary" worker's attachment to the labour force, on the other hand, is intermittent and unstable and depends upon the prevailing economic climate. It is not possible, on the basis of available data, to obtain the exact number of persons in these two categories. However, rough approximation can be, and has been, made in treating certain age-sex groups as belonging to one or the other category. The "primary" group is presumed to correspond to men aged 25 to 64 years while the "secondary" group captures all others in the labour force. A man in the age group 25-64 is identified as "primary" worker because he is usually the head of the family and as such the society places him in the role of breadwinner. His attachment to the labour force in most cases is automatic and independent of the demand for labour.

The other age groups lack this steady link with the labour force. The lack of firm attachment of these groups to the labour force is due to varying factors. A large number of those in the 15-24 age group is not available for work as they are still receiving education or training to prepare for their eventual entry into labour market. Similarly, a large proportion of those aged 65 years and over have come to the end of their working lives. Many women in the 25-64 years age group have household responsibility which prevent them from becoming a full member of the labour force. However, all these groups have one characteristic in common, viz., most of their members supplement the "primary" earner in the family and in this sense are "secondary" workers.

It is necessary at this stage to emphasize the arbitrariness of labelling any age-sex group as either "primary" or "secondary". Many men enter the labour force after they are 25 or leave it before they reach 65. There are always some men who do not feel compelled to join the labour force both due to economic and non-economic factors. Likewise, many individuals in the so-called "secondary" age-sex groups have a steady attachment to the labour force. One example is the labour force behaviour of single women of all working ages which is similar to those of the "primary" workers; another is that of the married women who re-enter the labour force after their children have grown up to school-going age, and become fully committed to working outside the home.

Secondary Workers and the Cyclical Phenomenon

A substantial amount of empirical work has been done in the United States bearing upon this subject. The problem was brought into focus by

W.S. Woytinsky²² who argued that during recession there is an addition into the labour force of the "secondary" members of the family in order to supplement the reduced earnings of the major breadwinner. The work of Clarence Long²³ suggested that the labour force made neither net gains nor losses under cyclical changes in aggregate demand but does expand under the stimulus of extremely high demand such as war mobilization, and shrinks in a severe depression. Lee Hansen's study²⁴ of "gross movements"²⁵ into and out of the labour force revealed that an entry of additional people from outside the labour force into the ranks of unemployed during recession was offset by a matching withdrawal of the unemployed from the labour force. Kenneth Strand and Thomas Dernberg²⁶ found that participation rates of younger and older male groups and all female groups respond to changes in the level of employment and that for all groups excepting males 55-64, the direction of change is such that a rise in employment is accompanied by a rise in the labour force participation. Working with cross sectional data, W.G. Bowen and T.A. Finegan²⁷ and Glen Cain²⁸ found evidence of the "discouraged" effect in the census years 1940, 1950, and 1960. The empirical work by Cooper and Johnston²⁹ and Alfred Tella³⁰ provided further evidence of the "discouragement" phenomenon.

There have been fewer studies in Canada on this topic and the evidence produced has been rather less conclusive than for the United States. In a regression analysis of time-series data (from the Labour Force Survey) Pierre-Paul Proulx³¹ deduced that the additional worker hypothesis prevailed in Canada for the total labour force, total males, males

²² W.S. Woytinsky, *Additional Workers and the Volume of Unemployment in Depression*, Committee on Social Security, Social Science Research Council, Washington, 1940.

²³ Clarence D. Long, *The Labor Force Under Changing Income and Employment Conditions*, Princeton, 1958.

²⁴ W.L. Hansen, "The Cyclical Sensitivity of the Labor Force Supply", *The American Economic Review*, June 1961, pp. 299-309.

²⁵ "Gross-Movement" data trace the change in the employment status of individuals from one month to the other as revealed in the monthly population surveys.

²⁶ Strand and Dernberg, *op. cit.*

²⁷ W.G. Bowen and T.A. Finegan, "Labor Force Participation and Unemployment", in A.M. Ross, ed., *Employment Policy and Labor Market*, Berkeley, 1965, pp. 115-161.

²⁸ Glen Cain, *Labor Force Participation of Married Women*, Chicago, 1966.

²⁹ S. Cooper and D.F. Johnston, "Labor Force Projections 1970-1980", *Monthly Labor Review*, February 1965, pp. 129-140.

³⁰ A. Tella, "The Relation of Labor Force to Employment", *Industrial and Labor Relations Review*, April 1964, pp. 454-469.

³¹ Pierre-Paul Proulx, "The Cyclical Variability of Labour Force Participation in Canada", Department of Economics, University of Montreal, (mimeographed). For a revised version, see "La Variabilité Cyclique des Taux de Participation à la Main-d'oeuvre au Canada", *Canadian Journal of Economics*, May 1969, pp. 268-277.

20-24, males 45-64, females 14-19, females 45-64 and females 65 and over, whereas the discouragement effect was dominant among males 14-19, males 65 and over and females 20-24. Lawrence Officer and Peter Anderson³² sought to explain variations in participation rates of fourteen age-sex groups by using such explanatory variables as unemployment, intensity of unemployment, income, wages, consumer credit, birth rate and school-going population. They concluded that the "discouraged" worker effect dominates male participation with the exception of 35-44 age group while the "additional" worker hypothesis is satisfied in the female participation rates with the exception of teenagers. In their study of "gross movements" into and out of the labour force, Mary Hutton and Alexei Poliansky³³ found evidence in support of the "discouraged" worker effect. Frank Whittingham³⁴ concluded, from a regression analysis of the cross sectional data from the 1961 Census, that "to the extent that married women in Canada change their labour force status when labour market conditions deteriorate, this change occurs in one direction only, a movement out of the labour force" (p. 32). However, he did not find this phenomenon to be statistically significant. In a study of the British Columbia Labour Force, J.T. Montague and J. Vandercamp³⁵ found that higher unemployment tended to discourage people from participating in the labour force.

³² Lawrence H. Officer and Peter R. Anderson, "Labour Force Participation in Canada", (mimeographed), Research Department, Bank of Canada, Ottawa. For a revised version see "Labour-Force Participation in Canada", *Canadian Journal of Economics*, May 1969, pp. 278-87.

³³ Mary Hutton and A.N. Poliansky, *Gross Movement of the Labour Force*, Manpower Supply Studies Report No. 1, Research Branch, Department of Manpower and Immigration, Ottawa, 1966.

³⁴ Frank J. Whittingham, "Short-Run Labour Force Participation of Married Women", Seminar Paper, (mimeographed), Department of Economics, Queen's University, Kingston, 1968.

³⁵ J.T. Montague and J. Vandercamp, *A Study in Labour Market Adjustment*, Institute of Industrial Relations, University of British Columbia, 1966.

Secondary Workers and Participation Gap

Another study in this series will be devoted to multiple regression analysis of time-series data in an effort to "test" the various hypotheses concerning the cyclical behaviour of labour force participation rates. In this present report, however, the measures already developed will be looked into for evidence of cyclical patterns. In particular, an attempt will be made to explore any relationship between the non-participation component of the underutilization rate, UUR_1 , reflecting cyclical movement of participation rates and the unemployment rate of the core of primary workers, men aged 25-44. The movement of these two series for "secondary" workers are traced in Chart IV.

The contrast between the stability of the participation component, UUR_1 , of the "primary" workers, pointed out earlier in Section IV, and cyclical sensitivity of that of the "secondary" workers is evident. However, it is difficult to discern a systematic pattern in the direction of this cyclical sensitivity. In eight out of the fourteen year-to-year movements, UUR_1 moved in the direction of unemployment and took an opposite course in the six remaining years. Similar sensitivity and a lack of systematic pattern characterize the regions as well.

A particular category of "secondary" workers which has been the focus of many recent labour force studies is the married women with household responsibilities. The age groups which approximate this category most closely are 25-44 and 45-64. The UUR_1 's for these two groups are also traced in Chart IV and simple coefficients of correlation between UUR_1 and unemployment rate of men 25-44 years old in Canada as well as regions are presented in Table 16. The non-participation component of the underutilization rate for both these groups shows the same sensitivity and lack of consistency in the direction of movements which is characteristic of all "secondary" workers. The coefficients of correlation are insignificant for Canada. However, there is a significant evidence of a "discouraged" effect in Quebec and of an "additional" effect in the Prairies in the 25-44 age group.

TABLE 16. Coefficients of Correlation between Unemployment Rate of Males 25-44 and Non-participation Underutilization Rate for Females 25-44 and 45-64, Canada and Regions

Region	15-44	45-64
Canada	0.3	- 0.4
Atlantic	0.1	- 0.3
Quebec	0.5 ¹	-
Ontario	0.3	- 0.4
Prairie	- 0.8 ¹	- 0.2
British Columbia	0.2	- 0.1

¹ Denotes significance.

CHART-IV a

UNEMPLOYMENT AND NON-PARTICIPATION UNDERUTILIZATION RATES OF GROUPS OF WORKERS BY REGION 1953-68

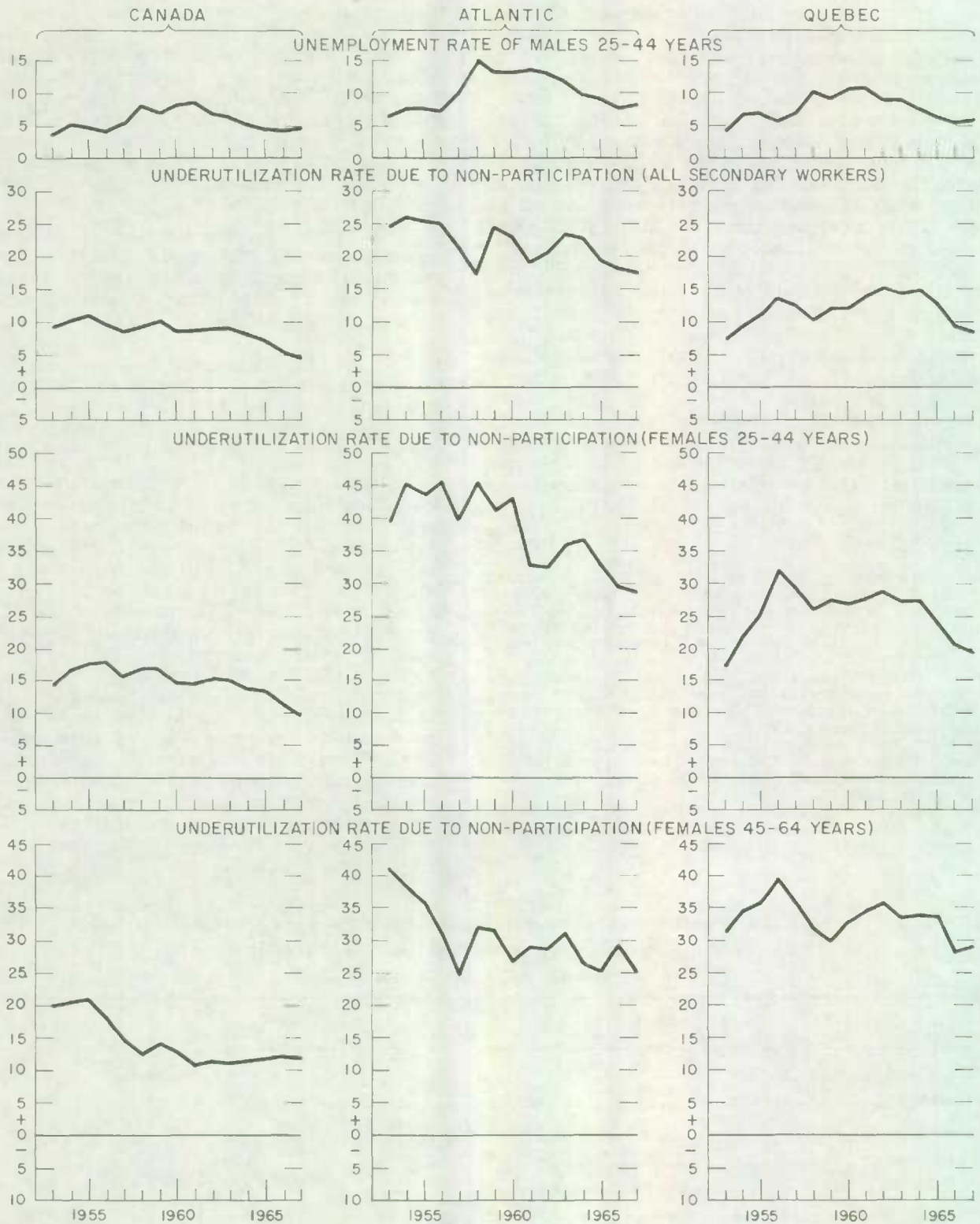
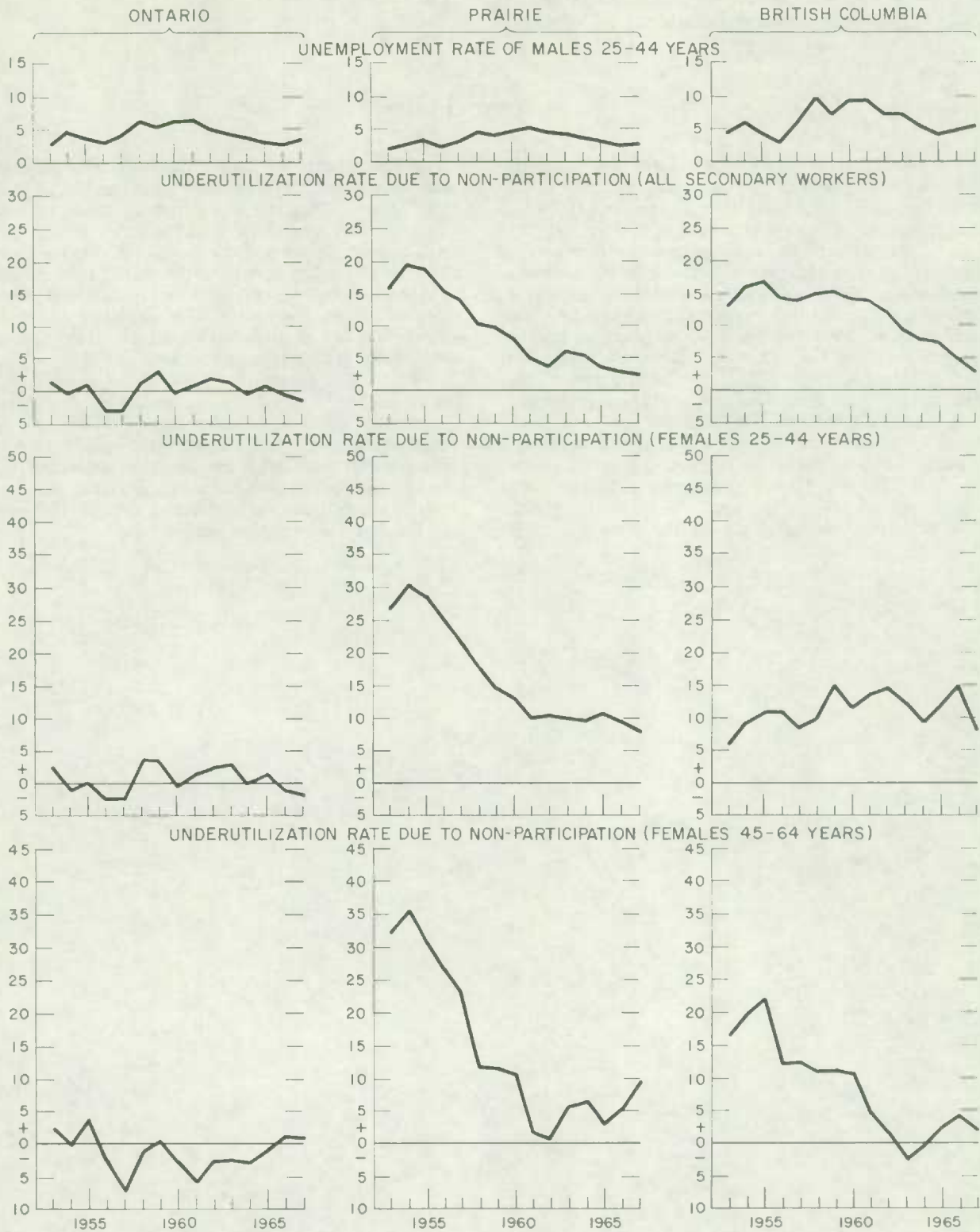


CHART-IV b

UNEMPLOYMENT AND NON-PARTICIPATION UNDERUTILIZATION RATES OF GROUPS OF WORKERS BY REGION 1953-68



To conclude, the non-participation component of the underutilization rate fails to provide significant evidence in favour of either of the competing hypotheses concerning the labour force behaviour of the "secondary" workers. However, the non-participation component of underutilization is not complete-

ly independent of annual changes in unemployment. A more rigorous analysis is needed to solve the riddle of the cyclical behaviour of the labour force participation rates of "secondary" workers in Canada.

VI. CONCLUSIONS

Unemployment as currently measured is inadequate as a measure of the potential reservoir of untapped human resources. The "manpower gap" which measures the difference between "potential" and actual employment is a more suitable concept for measuring unused manpower available for economic utilization. This gap was estimated to amount to approximately 386,000 workers in 1967, i.e., employment in 1967 would have to expand by this number to bring Canada to the level of "full utilization" (as measured by the unemployment rates for various age groups which prevailed in Ontario in 1952-53). Nearly half of this gap was accounted for by underutilization of females although they constituted less than one third of the labour force. As might be expected, unemployment is the major component of the "male gap" while non-participation accounts for the bulk of the "female gap".

The "manpower gap" was unequally distributed among regions, with 90 per cent (in 1967) of it in the Atlantic Region, Quebec and British Columbia. The highest degree of underutilization was in the Atlantic provinces and the second highest in Quebec. British Columbia occupies the third place while the Prairies were only slightly behind Ontario in their use of human resources. The evidence showed, as well, that the regions with high unemployment gaps also have high participation gaps.

The simple analysis presented here does not provide any systematic evidence of a consistent pattern of cyclical relationships between the participation gap and unemployment rate for "secondary" workers. A more rigorous analysis designed to examine the extent and nature of cyclical patterns in manpower utilization in Canada will be the subject of another study in this series.

A. EXPLANATORY NOTE AND DEFINITIONS

This report is based on the data collected in the Monthly Labour Force Survey. The survey is generally carried out in the week ending the second last Saturday of every month.

Scope of Monthly Labour Force Survey

In the Monthly Labour Force Survey, interviews are carried out in approximately 35,000 households chosen by area sampling methods across the country.³⁶ The sample used in this survey has been designed to represent all persons in the population, 14 years of age and over, residing in Canada with the exception of: residents of the Yukon and Northwest Territories, Indians living on reserves, inmates of institutions, and members of the armed forces. These excluded categories amount to about three per cent of the total population 14 years of age and over. Estimates derived from a sample survey are subject to sampling and other kinds of error. This aspect is discussed further under the heading "Reliability of Estimates".

Definitions

The following are definitions of terms used in this study.

Labour force.—The civilian labour force is composed of the civilian non institutional population 14 years of age and over who, during the reference week, were employed or unemployed.

Employed.—The employed includes all persons who, during the reference week:

- (a) did any work for pay or profit;

- (b) did any work which contributed to the running of a farm or business operated by a related member of the household; or

- (c) had a job, but were not at work, because of bad weather, illness, industrial dispute, or vacation, or because they were taking time off for other reasons.

Persons who had jobs but did not work during the reference week and who also looked for work are included in the unemployed as persons without work and seeking work.

Unemployed.—The unemployed includes all persons who, through the reference week:

- (a) were without work and seeking work, i.e., did no work during the reference week and were looking for work; or would have been looking for work except that they were temporarily ill, were on indefinite or prolonged layoff, or believed no suitable work was available in the community; or

- (b) were temporarily laid off for the full week, i.e., were waiting to be called back to a job from which they had been laid off for less than 30 days.

Not in the labour force.—Those not in the labour force include all civilians 14 years of age and over (exclusive of institutional population) who are not classified as employed or unemployed. This category includes those going to school; keeping house; too old or otherwise unable to work; and and voluntarily idle or retired. Housewives, students and others who worked part-time are classified as employed. If they looked for work they are classified as unemployed.

Unemployment rate.—The unemployed as a percentage of the labour force.

³⁶ For a comprehensive description of the design of the Monthly Labour Force Survey see Dominion Bureau of Statistics, *Canadian Labour Force Survey—Methodology*, Ottawa, 1965.

B. RELIABILITY OF ESTIMATES

Sampling Error

The estimates in this report are based on a sample of households. Somewhat different figures might have been obtained if a complete census had been taken using the same questionnaires, enumerators, supervisors, processing, etc. This difference is called the sampling error of the estimates. In the design and processing of the Labour Force Survey extensive efforts have been made to minimize the sampling error. The sampling error (expressed as a per cent of the estimate it refers to) is not the same for all estimates; of two estimates the larger one will likely have a smaller per cent sampling error, and of two estimates of the same size the one referring to a characteristic more evenly distributed across the country will tend to have a smaller percent sampling variability. Also, estimates relating to age and sex are usually more reliable than other estimates of comparable size.

Non-sampling Errors

Errors, which are not related to sampling, may occur at almost every phase of a survey operation. Enumerators may misunderstand instructions, respondents may make errors in answering questions, the answers may be incorrectly entered on the questionnaires and errors may be introduced in the processing and tabulation of the data. All these errors are called non-sampling errors. Some of the non-sampling errors will usually balance out over a large number of observations but systematically occurring errors will contribute to biases. Non-sampling errors can be reduced by a careful design of questionnaires, intensive training and supervision of enumerators and a thorough control of the processing operation. In general, the more personal and more subjective inquiries are subject to larger errors. Also, data referring to persons with less stable labour force status will have relatively large non-sampling errors.

C. METHODOLOGY

The basis of this study are "manpower gaps" and "underutilization rates" which were computed in the following manner:

Crude Manpower Gap

If P_t = Population in the year t

R_t = Participation rate in the year t

E_t = Number of employed in the year t

e_t = employment ratio (i.e. ratio of employed to the labour force) in the year t

R_0 = Average participation rate in Ontario in 1952-53, and

e_0 = Average employment ratio in Ontario in 1952-53, then

Crude manpower gap = $P_t \cdot R_0 \cdot e_0 - E_t$

Non-participation component = $P_t \cdot R_0 \cdot e_t - E_t$

Unemployment component = $P_t \cdot R_t \cdot e_0 - E_t$

Trend-adjusted Manpower Gap

If P_i = Population in the i th age group

R'_i = Target participation rate in the i th age group, viz., linearly interpolated rate between average participation rates in Ontario in 1952-53 and 1965-66

e_{i0} = Target employment ratio in the i th age group, viz., average employment ratio in Ontario in 1952-53, and

E_i = Number of employed in the i th age group, then the trend-adjusted gap in the i th age group is

$$MPG_{it} = P_{it} \cdot R'_{it} \cdot e_{i0} - E_{it}$$

Non-participation component,

$$MPG_{1it} = P_{it} \cdot R'_{it} \cdot e_{it} - E_{it}, \text{ and}$$

the unemployment component,

$$MPG_{2it} = P_{it} \cdot R_{it} \cdot e_{i0} - E_{it}$$

The aggregate trend-adjusted manpower gaps as well as their two components were obtained by summation over age groups, i.e.,

$$MPG_t = \sum_i MPG_{it}$$

$$MPG_{1t} = \sum_i MPG_{1it}$$

$$MPG_{2t} = \sum_i MPG_{2it}$$

Underutilization Rates

Underutilization rates are manpower gaps expressed as percentages of "potential employment" where potential employment in the i th group = $P_{it} \cdot R'_{it} \cdot e_{i0}$

Thus underutilization rate in the i th group in the year t ,

$$UUR_{it} = \frac{MPG_{it}}{P_{it} \cdot R'_{it} \cdot e_{i0}} \times 100$$

The non-participation component,

$$UUR_{1it} = \frac{MPG_{1it}}{P_{it} \cdot R'_{it} \cdot e_{i0}} \times 100 \text{ and}$$

The unemployment component,

$$UUR_{2it} = \frac{MPG_{2it}}{P_{it} \cdot R'_{it} \cdot e_{i0}} \times 100$$

D. DETAILED TABLES
TABLE D 1. Target Participation Rates¹ by Age and Sex, 1953-67

Year	Male					Female				
	14-19	20-24	25-44	45-64	65 +	14-19	20-24	25-44	45-64	65 +
1953.....	51.1	93.8	98.6	93.6	41.4	37.7	49.8	27.1	21.4	5.0
1954.....	50.1	93.3	98.6	93.7	40.5	37.2	50.2	28.0	22.7	5.1
1955.....	49.1	92.8	98.6	93.7	39.6	36.6	50.6	28.9	24.0	5.2
1956.....	48.1	92.3	98.6	93.7	38.7	36.1	51.0	29.8	25.3	5.3
1957.....	47.1	91.9	98.6	93.7	37.8	35.5	51.3	30.7	26.7	5.4
1958.....	46.1	91.4	98.6	93.8	36.9	35.0	51.7	31.5	28.0	5.5
1959.....	45.1	90.9	98.5	93.8	36.1	34.5	52.1	32.4	29.3	5.6
1960.....	44.1	90.4	98.5	93.8	35.2	33.9	52.5	33.3	30.6	5.7
1961.....	43.1	90.0	98.5	93.9	34.3	33.4	52.9	34.2	31.9	5.8
1962.....	42.1	89.5	98.5	93.9	33.4	32.9	53.3	35.1	33.2	5.9
1963.....	41.1	89.0	98.5	93.9	32.5	32.3	53.7	35.9	34.5	6.0
1964.....	40.1	88.5	98.5	94.0	31.6	31.8	54.1	36.8	35.8	6.1
1965.....	39.1	88.1	98.5	94.0	30.7	31.2	54.5	37.7	37.1	6.2
1966.....	38.1	87.6	98.5	94.0	29.8	30.7	54.9	38.6	38.4	6.3
1967.....	37.2	87.1	98.5	94.1	28.9	30.2	55.3	39.5	39.8	6.4

¹ The target participation rates were obtained by simple linear interpolation between average participation rates in Ontario in 1952-53 and 1965-66.

TABLE D 2. "Part-time" Workers in Canada, 1953-67

Year	Part-time workers ¹				
	Employed	Total	Due to short-time and turnover	Usually work less than 35 hours	"Economic" ^{2,3} part-time workers
thousands					
1953.....	5,235	320	48	192	
1954.....	5,243	493	62	203	
1955.....	5,364	373	54	219	
1956.....	5,585	368	45	237	
1957 ⁴	5,725	779	66	282	
1958.....	5,695	851	80	340	
1959.....	5,856	729	68	358	
1960.....	5,955	798	77	389	
1961.....	6,049	789	77	461	
1962.....	6,217	852	66	481	
1963.....	6,364	957	68	515	107
1964.....	6,595	1,178	65	580	102
1965.....	6,862	1,299	64	641	95
1966.....	7,152	1,159	62	659	93
1967.....	7,379	1,180	78	724	106

¹ "Part-time" workers relate to those persons who worked less than 35 hours during the survey period. Their number varies with the number of survey weeks with holiday in any year.

² "Economic" part-time workers include those on short-time and turnover and those usually working less than 35 hours for "economic" reasons.

³ Figures for persons usually working less than 35 hours for "economic" reasons not available for the year 1953-62.

⁴ Figures for the years 1957-64 based on unrevised data. However, the inclusion of revised figures will not make any appreciable difference.

TABLE D3. "Crude Manpower Gap"¹ in Canada, by Sex, 1953-67

Year	Male			Female			Both sexes ³		
	Total ²	Due to non-participation	Due to unemployment	Total ²	Due to non-participation	Due to unemployment	Total ²	Due to non-participation	Due to unemployment
	thousands								
1953	163	117	45	134	130	4	297	247	48
1954	276	152	119	136	119	16	412	271	135
1955	277	162	111	126	108	16	403	269	128
1956	229	160	67	68	59	8	297	219	76
1957	300	158	137	26	11	14	326	170	151
1958	470	189	269	22	13	35	492	176	304
1959	454	229	214	- 14	- 40	27	441	189	241
1960	537	247	275	- 72	- 108	38	465	139	313
1961	608	299	289	- 119	- 157	42	489	142	332
1962	587	351	218	- 150	- 182	37	437	169	255
1963	608	394	198	- 186	- 219	38	422	174	236
1964	591	430	147	- 252	- 281	35	339	149	182
1965	575	461	104	- 320	- 344	29	255	116	134
1966	578	481	88	- 425	- 448	29	153	33	118
1967	643	510	121	- 500	- 530	38	142	- 20	160

¹ Obtained as difference between "actual" employment and "potential" employment based on Ontario unemployment and participation rates in the base period.

² The two components of the gap do not, generally speaking, add up to the total, because of a very small interaction component between unemployment and participation rates which is not shown in the above table.

³ Estimates of the gap for males and females may not add exactly to the gap for both sexes due to rounding.

TABLE D4. "Trend-adjusted Manpower Gap" in Canada, by Sex, 1953-67

Year	Male				Female				Both sexes				Male gap as per cent of gap for both sexes	Female gap as per cent of gap for both sexes
	Total	Due to non-participation	Due to unemployment	Non-participation gap as per cent of total gap	Total	Due to non-participation	Due to unemployment	Non-participation gap as per cent of total gap	Total	Due to non-participation	Due to unemployment	Non-participation gap as per cent of total gap		
	'000				'000				'000					
1953	121	77	42	63.4	189	182	6	96.7	310	259	48	83.6	39.0	61.0
1954	218	100	114	46.0	221	206	13	93.2	438	306	127	69.8	49.7	50.3
1955	199	94	104	46.9	245	229	14	93.7	444	322	117	72.6	44.9	55.1
1956	134	70	262	52.4	221	216	4	97.7	355	286	66	80.6	37.7	62.3
1957	182	49	130	26.9	220	210	10	95.2	403	259	140	64.3	45.3	54.7
1958	331	62	263	18.8	260	220	36	84.6	591	282	298	47.7	56.1	44.0
1959	289	73	210	25.4	263	238	23	90.5	552	311	232	56.3	52.4	47.6
1960	339	64	270	18.9	247	208	36	84.3	586	272	306	46.4	57.9	42.1
1961	382	89	284	23.3	245	202	40	82.4	627	291	325	46.3	60.9	39.1
1962	322	101	211	31.5	260	222	36	85.1	582	323	247	55.5	55.3	44.7
1963	302	102	191	33.9	271	233	35	85.8	573	335	226	58.5	52.7	47.3
1964	242	96	140	39.5	259	224	32	86.5	501	319	172	63.8	48.3	51.7
1965	189	86	97	45.8	246	218	26	88.7	435	305	123	70.1	43.4	56.6
1966	158	76	78	48.0	201	174	27	86.5	359	250	105	69.6	43.9	56.1
1967	193	81	109	41.7	192	154	38	80.1	386	235	147	60.8	50.1	49.8

Note: See Methodology in Appendix for method of computation and also see footnotes 2 and 3, Table D3.

TABLE D5. Underutilization Rates, Both Sexes, All Ages, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	17.6	14.4	3.0	5.3	3.8	1.5	0.4	0.4	--	7.1	7.4	- 0.3	9.5	7.2	2.2	5.6	4.7	0.9
1954	20.8	16.0	4.2	8.3	4.9	3.3	1.4	- 0.4	1.8	9.8	9.6	0.1	11.3	8.6	2.6	7.7	5.4	2.2
1955	19.6	15.4	3.8	9.2	5.4	3.7	1.4	0.3	1.1	9.7	9.1	0.6	9.4	8.1	1.3	7.6	5.6	2.0
1956	18.7	15.0	3.3	9.0	6.5	2.4	- 1.3	- 1.4	0.1	7.3	7.4	--	7.7	7.1	0.6	6.0	4.8	1.1
1957	19.0	12.9	5.5	9.4	6.0	3.5	- 0.1	- 1.5	1.4	6.9	6.7	0.2	9.3	6.6	2.4	6.6	4.2	2.3
1958	23.6	14.1	8.7	11.7	5.2	6.3	3.6	0.2	3.4	6.9	4.9	1.9	13.9	7.3	6.1	9.4	4.5	4.7
1959	22.5	14.3	7.6	11.5	6.2	5.3	3.1	0.7	2.4	5.6	4.6	1.0	11.5	7.3	3.8	8.6	4.8	3.6
1960	21.8	14.0	7.2	12.7	6.0	6.6	2.8	- 0.6	3.4	5.7	3.9	1.8	13.6	6.8	6.4	8.9	4.2	4.7
1961	20.9	12.1	8.1	14.2	7.3	6.7	3.7	0.2	3.5	4.8	2.5	2.3	12.8	6.5	5.9	9.4	4.4	4.9
1962	20.8	12.7	7.3	13.2	8.0	4.9	3.1	0.8	2.3	4.1	2.3	1.8	10.6	5.8	4.3	8.6	4.8	3.6
1963	21.4	14.4	6.3	12.9	7.8	4.9	2.2	0.4	1.7	4.7	3.3	1.4	9.5	5.2	4.1	8.2	4.8	3.2
1964	19.8	14.5	4.8	12.0	8.1	3.7	0.8	- 0.3	1.2	4.1	3.0	1.0	7.4	4.1	3.1	7.0	4.5	2.4
1965	17.5	12.8	4.2	10.4	7.3	3.0	0.7	0.2	0.4	2.6	2.2	0.4	6.2	4.0	2.0	6.0	4.2	1.7
1966	16.0	12.0	3.7	8.2	5.7	2.4	0.2	- 0.2	0.5	1.9	2.1	- 0.1	5.2	3.0	2.2	4.8	3.3	1.4
1967	16.5	12.4	3.8	8.2	5.1	3.1	0.6	- 0.4	1.0	2.0	2.1	--	5.2	2.2	3.0	5.0	3.0	1.9

Note: Underutilization rate is manpower gap expressed as a percentage of potential employment. UUR, UUR₁ and UUR₂ stand for total, non-participation and unemployment underutilization rates respectively. For detailed method of computation, see Methodology in the Appendix.

TABLE D 6. Underutilization Rates, Males, All Ages, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	11.8	7.6	3.8	2.4	0.7	1.7	--	--	0.1	1.2	1.6	- 0.4	9.0	6.4	2.4	2.9	1.8	1.0
1954	15.0	9.3	5.0	4.9	0.9	4.0	1.8	- 0.3	2.1	3.5	3.3	0.1	10.7	7.3	3.3	5.1	2.4	2.7
1955	13.8	8.6	4.8	5.0	0.7	4.4	1.4	0.3	1.2	3.5	2.7	0.8	7.3	5.7	1.6	4.6	2.2	2.4
1956	12.9	8.2	4.2	3.2	0.2	3.0	- 0.3	- 0.6	0.4	2.3	2.4	- 0.1	5.9	5.5	0.4	3.0	1.6	1.4
1957	14.1	6.5	7.1	4.4	- 0.1	4.6	0.8	- 0.6	1.5	1.7	1.4	0.3	8.7	4.9	3.4	4.0	1.1	2.9
1958	19.0	6.5	11.6	8.2	0.4	7.8	3.5	- 0.4	3.8	3.5	1.4	2.1	13.1	5.3	7.2	7.2	1.4	5.7
1959	17.4	6.2	10.4	7.9	1.2	6.7	2.7	- 0.1	2.8	2.5	1.3	1.2	9.9	4.8	4.6	6.2	1.6	4.5
1960	17.3	6.6	9.9	9.3	1.1	8.2	3.6	- 0.4	4.0	3.0	0.8	2.2	12.3	4.6	7.4	7.2	1.4	5.7
1961	18.0	6.6	10.6	10.8	2.2	8.4	4.5	0.5	4.0	3.2	0.3	2.8	11.5	4.1	7.1	8.0	1.9	6.0
1962	17.2	6.8	9.6	9.2	2.7	6.3	3.1	0.6	2.4	2.7	0.6	2.1	9.4	4.0	5.0	6.7	2.1	4.4
1963	16.7	7.4	8.5	9.3	3.0	6.1	1.9	0.1	1.8	2.4	0.8	1.7	8.9	4.2	4.6	6.2	2.1	3.9
1964	15.1	7.8	6.6	7.8	2.9	4.8	1.2	0.1	1.1	1.4	0.3	1.1	6.0	3.3	2.6	4.9	1.9	2.8
1965	13.8	7.4	5.9	6.4	2.6	3.6	0.3	0.1	0.2	0.3	- 0.1	0.4	4.8	2.9	1.8	3.8	1.7	1.9
1966	12.0	6.6	4.9	5.3	2.3	2.9	0.2	- 0.1	0.2	0.2	0.4	- 0.3	3.7	1.6	2.1	3.1	1.5	1.5
1967	13.4	7.8	5.1	5.5	1.8	3.6	1.0	0.2	0.8	0.2	0.3	- 0.1	4.7	1.8	2.9	3.7	1.5	2.1

Note: The two components of underutilization may not add up to total due to interaction. See methodology in appendix.

TABLE D 7. Underutilization Rates, Females, All Ages, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	34.8	34.5	0.4	13.9	12.9	0.9	1.6	1.7	- 0.1	26.0	25.9	0.2	11.2	9.6	1.4	13.9	13.4	0.4
1954	37.5	35.2	1.6	17.9	16.2	1.6	0.1	- 0.5	0.6	29.4	29.2	0.2	13.2	12.7	0.5	15.5	14.5	0.9
1955	35.6	34.5	0.9	20.7	18.4	1.9	1.2	0.5	0.7	28.4	28.7	- 0.2	16.0	15.4	0.4	16.5	15.4	0.9
1956	34.8	33.8	0.9	24.7	23.7	0.8	- 4.3	- 3.8	- 0.5	22.2	22.1	--	13.3	12.1	1.1	14.3	14.0	0.2
1957	32.1	30.2	1.4	22.6	22.0	0.7	- 2.9	- 3.8	1.0	21.9	22.0	--	11.0	11.6	- 0.5	13.6	12.9	0.6
1958	35.5	33.8	1.3	20.7	17.7	2.5	4.1	1.8	2.2	16.4	15.0	1.2	16.2	13.0	2.8	15.3	12.9	2.1
1959	35.7	34.8	0.7	20.7	18.7	1.8	4.0	2.6	1.4	14.2	13.7	0.4	15.9	14.3	1.4	14.8	13.4	1.3
1960	32.8	32.1	0.6	21.0	18.2	2.6	0.7	- 1.2	2.0	13.1	12.3	0.7	16.9	12.5	3.7	13.4	11.3	2.0
1961	27.6	25.2	2.1	22.3	19.4	2.6	1.5	- 0.5	2.0	9.0	8.1	0.9	16.0	12.7	2.9	12.8	10.5	2.1
1962	29.0	26.7	2.0	22.4	20.4	1.8	3.0	1.2	1.8	7.6	6.6	1.1	13.5	10.3	2.7	13.0	11.1	1.8
1963	32.2	30.3	1.4	21.1	18.7	2.0	2.6	1.1	1.5	10.2	9.4	0.7	11.0	7.6	3.0	13.0	11.2	1.7
1964	30.2	29.1	0.9	21.1	19.5	1.4	--	- 1.3	1.2	10.4	9.4	1.0	10.4	5.9	4.3	11.9	10.3	1.5
1965	25.4	24.5	0.7	19.2	17.5	1.6	1.6	0.7	0.9	7.8	7.5	0.3	9.3	6.6	2.5	10.9	9.6	1.1
1966	24.5	23.2	1.1	14.4	13.0	1.4	0.3	- 0.7	1.0	5.9	5.7	0.2	8.6	6.3	2.3	8.5	7.4	1.1
1967	23.0	21.8	1.0	13.7	11.7	2.0	- 0.2	- 1.5	1.4	6.1	6.0	0.2	6.2	3.0	3.2	7.7	6.2	1.5

TABLE D 8. Underutilization Rates, Males, 14-19 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	23.3	14.0	7.8	- 9.6	- 12.7	3.4	1.7	1.1	0.6	- 7.1	- 4.6	- 2.6	22.9	12.0	9.4	0.6	- 2.0	2.4
1954	31.2	17.8	10.6	- 4.7	- 10.5	6.5	0.7	- 3.7	4.6	1.4	3.6	- 2.1	29.6	17.8	9.4	4.9	- 0.4	5.1
1955	30.7	17.3	10.7	1.1	- 6.9	8.6	- 0.3	- 1.8	1.5	0.2	0.7	- 0.5	23.6	18.3	4.3	5.8	0.8	4.8
1956	29.2	16.3	10.4	- 4.2	- 9.1	5.4	- 3.1	- 3.5	0.3	0.8	1.2	- 0.4	18.0	18.6	- 0.4	2.8	- 0.4	3.1
1957	26.8	12.0	12.7	- 2.4	- 10.2	8.7	1.9	- 1.3	3.3	- 1.7	- 1.1	- 0.6	18.3	10.3	7.1	4.2	- 1.7	5.8
1958	38.3	11.8	22.2	6.3	- 7.3	14.8	10.6	2.1	8.2	0.1	- 1.0	1.1	33.8	19.5	11.0	12.6	1.0	11.1
1959	32.3	10.3	19.1	11.6	- 1.3	13.0	9.4	2.5	6.7	- 0.1	0.6	- 0.6	24.3	16.4	6.6	12.4	3.0	9.0
1960	30.4	11.2	16.6	14.4	- 1.4	16.1	12.0	2.6	9.2	- 3.1	- 5.2	2.3	29.9	17.3	10.1	13.8	2.1	11.2
1961	27.5	9.6	15.9	21.6	5.4	15.2	16.7	8.5	7.4	- 1.2	- 6.2	5.4	31.4	15.2	13.3	17.7	5.7	11.1
1962	34.4	13.0	17.8	20.7	6.5	13.2	13.4	7.8	5.0	- 11.2	- 12.5	1.5	24.3	13.8	8.8	15.0	5.1	8.9
1963	36.8	17.5	15.0	23.5	8.4	13.6	5.7	- 0.1	5.7	- 8.3	- 9.6	1.4	14.2	6.0	7.7	13.4	3.6	8.8
1964	31.4	16.1	12.4	20.5	9.9	9.4	6.3	1.6	4.6	- 14.3	- 15.1	0.9	12.1	4.7	7.0	10.7	3.4	6.6
1965	29.7	14.9	12.2	13.9	5.2	8.2	3.2	1.3	1.9	- 18.7	- 19.1	0.6	3.8	- 2.1	6.0	6.0	0.4	5.2
1966	25.3	11.4	12.0	13.4	6.3	6.6	0.2	- 1.3	1.6	- 17.2	- 16.5	- 0.9	- 9.8	- 16.3	7.6	3.4	- 1.3	4.4
1967	24.5	8.6	14.2	10.9	2.0	8.7	- 2.6	- 6.4	4.1	- 25.5	- 24.4	- 1.4	- 10.0	- 16.2	7.2	0.2	- 6.0	6.0

TABLE D 9. Underutilization Rates, Females, 14-19 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	31.0	29.2	1.3	3.3	2.1	1.2	1.1	1.0	--	30.1	29.6	0.3	23.9	18.8	4.1	12.5	11.4	0.9
1954	28.4	22.6	4.4	2.9	0.5	2.4	0.8	- 0.6	1.3	32.6	32.0	0.4	13.9	9.9	3.6	11.7	9.4	2.1
1955	29.0	23.3	4.3	4.7	1.0	3.6	- 2.9	- 4.0	1.2	36.8	36.0	0.5	29.8	24.7	3.8	13.0	10.3	2.4
1956	29.5	23.8	4.3	2.5	1.4	1.0	- 9.3	- 9.0	- 0.3	22.9	22.7	0.1	20.2	16.2	3.3	7.3	6.3	1.0
1957	27.7	22.3	4.1	1.1	- 0.9	2.0	- 7.2	- 8.0	1.0	30.6	30.1	0.3	19.6	22.5	- 2.2	8.5	7.0	1.4
1958	28.9	23.5	4.0	4.1	- 1.3	5.4	11.6	6.1	5.1	15.8	13.3	2.1	24.0	20.4	2.8	13.0	8.2	4.4
1959	32.3	30.7	1.1	0.6	- 4.4	5.1	4.3	0.8	3.4	17.0	14.6	2.1	30.4	26.4	2.9	10.6	7.1	3.4
1960	30.3	28.8	1.0	1.2	- 6.4	8.2	0.2	- 5.0	5.4	18.1	15.7	2.0	32.6	17.3	12.2	9.7	3.8	5.8
1961	20.0	9.6	9.3	2.8	- 3.8	6.9	7.0	1.6	5.3	14.4	10.1	3.9	21.8	13.9	6.8	9.6	3.2	6.2
1962	25.3	14.4	9.1	3.1	- 0.4	3.5	8.6	3.4	5.1	12.9	8.9	3.6	25.0	17.1	6.5	10.8	5.5	4.9
1963	31.4	23.2	6.1	7.5	2.8	4.5	7.4	2.6	4.7	16.0	11.9	3.5	16.3	9.8	5.8	12.5	7.3	4.7
1964	30.5	26.0	3.3	5.1	0.7	4.3	5.7	0.4	5.3	12.8	11.3	1.4	13.2	0.2	13.0	10.3	5.3	4.7
1965	24.2	17.4	5.5	2.4	- 2.6	5.1	5.5	1.4	4.0	7.8	6.6	1.1	10.2	1.6	8.4	7.6	3.0	4.4
1966	18.9	15.5	2.8	- 4.0	- 8.5	4.9	2.1	- 1.5	3.7	2.4	1.6	0.9	- 4.5	- 11.3	7.6	1.7	- 2.0	3.8
1967	19.3	13.1	5.4	- 3.4	- 8.7	5.8	0.7	- 4.3	5.3	- 2.1	- 2.8	0.7	- 7.9	- 16.8	10.6	0.4	- 4.5	5.2

TABLE D 10. Underutilization Rates, Males, 20-24 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	10.7	5.3	5.1	4.5	1.8	2.6	- 1.3	- 0.9	- 0.4	- 0.9	0.3	- 1.2	1.7	- 0.7	2.5	2.0	0.8	1.2
1954	18.2	8.1	9.3	7.9	1.8	5.9	2.9	- 0.8	3.6	- 0.1	- 0.1	--	6.4	1.2	5.2	5.8	1.2	4.4
1955	13.6	4.0	9.2	7.3	0.7	6.5	1.7	--	1.7	0.6	- 1.8	2.4	2.6	0.5	2.1	4.6	0.4	4.2
1956	12.7	5.3	7.0	5.2	0.7	4.4	- 0.8	- 1.2	0.3	0.1	--	0.1	1.8	- 0.2	2.0	2.9	0.4	2.4
1957	14.3	2.9	11.1	8.4	0.7	7.7	1.4	- 1.4	2.8	- 1.7	- 0.5	- 1.2	10.2	5.7	4.3	5.1	0.4	4.6
1958	21.0	3.5	16.8	11.2	- 0.4	11.6	6.3	- 1.3	7.8	- 1.0	- 3.3	2.5	18.6	6.3	11.4	9.2	- 9.2	9.3
1959	19.2	3.4	15.2	11.2	0.2	10.9	1.9	- 1.4	3.3	1.8	- 0.6	2.4	11.3	4.3	6.7	7.3	0.2	7.0
1960	20.8	2.9	17.3	13.1	0.2	12.8	3.3	- 2.4	5.9	1.2	- 2.2	3.6	11.4	- 0.5	12.0	8.5	- 0.9	9.3
1961	18.9	2.7	15.7	12.1	0.1	12.0	4.0	- 1.8	5.9	0.6	- 2.9	3.5	8.9	- 0.7	9.7	7.9	- 0.8	8.7
1962	18.7	3.3	14.8	9.4	1.5	7.7	4.0	0.6	3.4	2.1	- 1.3	3.5	7.9	3.3	4.4	7.2	1.0	6.1
1963	16.0	2.0	13.6	11.2	1.9	9.0	1.7	- 0.8	2.6	1.2	- 1.0	2.2	6.3	- 2.4	8.9	6.6	0.2	6.3
1964	13.6	4.0	9.1	8.4	0.6	7.7	1.0	- 0.8	1.7	0.2	- 0.8	0.9	4.0	- 1.6	5.7	4.9	0.1	4.7
1965	9.2	2.5	6.5	4.8	0.9	3.9	0.4	0.1	0.3	- 1.2	- 0.8	- 0.4	1.6	0.9	0.7	2.6	0.5	2.1
1966	9.7	2.2	7.3	3.5	0.5	3.0	- 0.1	- 0.1	--	- 1.4	0.1	- 1.5	1.1	- 1.0	2.1	2.0	0.3	1.7
1967	10.0	4.6	5.2	5.1	1.0	4.1	2.1	0.9	1.2	0.9	0.5	0.3	4.1	0.6	3.5	3.9	1.2	2.6

TABLE D 11. Underutilization Rates, Females, 20-24 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	27.7	24.2	2.6	- 0.4	- 1.6	1.1	0.1	0.1	--	16.2	14.9	1.1	3.7	- 0.4	4.2	6.0	4.8	1.1
1954	28.2	24.8	2.6	2.0	- 0.2	2.3	2.0	2.0	--	18.9	17.5	1.1	9.8	10.9	- 1.0	8.4	7.1	1.1
1955	32.2	28.5	2.6	5.6	3.3	2.3	2.2	1.1	1.1	18.7	19.9	- 0.9	5.2	6.4	- 1.1	9.6	8.4	1.1
1956	28.1	24.7	2.6	10.3	9.0	1.2	- 2.0	- 1.9	- 0.1	10.1	11.3	- 1.0	10.7	6.5	3.9	8.1	7.3	0.7
1957	29.9	26.5	2.5	8.7	7.5	1.1	6.3	4.2	2.0	15.0	13.8	1.1	8.4	9.6	- 1.0	11.2	9.6	1.4
1958	31.6	23.9	5.7	6.0	2.7	3.2	4.8	2.8	2.0	14.4	13.2	1.0	26.1	16.6	7.8	11.3	7.8	3.0
1959	35.3	27.3	5.7	8.3	5.0	3.2	11.0	8.9	2.0	12.0	13.1	- 1.0	13.7	5.7	7.5	13.1	10.0	2.7
1960	26.2	19.2	5.5	5.8	2.6	3.1	10.2	8.1	1.9	9.6	8.6	0.9	20.4	16.5	3.2	11.2	8.3	2.6
1961	24.8	21.9	2.2	6.4	2.4	4.0	7.8	4.9	2.8	10.2	9.2	0.9	25.2	21.0	3.3	10.9	7.8	2.8
1962	28.8	25.9	2.1	4.6	0.9	3.7	7.0	5.1	1.8	8.8	8.0	0.8	13.0	9.8	2.9	9.3	6.8	2.4
1963	25.8	23.2	2.0	1.2	- 2.2	3.4	7.2	5.4	1.8	11.2	8.4	2.6	20.9	13.2	6.6	9.0	5.9	2.8
1964	25.2	22.8	1.8	1.2	- 1.1	2.3	1.9	1.2	0.7	13.5	12.7	0.8	23.8	16.5	6.0	7.9	5.9	1.8
1965	16.1	14.2	1.6	0.5	- 1.6	2.1	3.3	2.7	0.6	9.7	9.0	0.6	5.5	3.3	2.1	5.0	3.6	1.4
1966	12.6	11.0	1.3	- 5.9	- 7.7	1.9	- 1.4	- 2.6	1.2	1.2	2.4	- 1.1	4.8	2.9	1.8	- 0.4	- 1.5	1.2
1967	16.2	14.8	1.2	- 7.9	- 10.8	3.2	- 3.3	- 5.0	1.7	3.1	2.7	0.4	15.1	7.6	6.9	--	- 2.4	2.4

TABLE D 12. Underutilization Rates, Males, 25-44 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	9.5	5.7	3.6	2.3	1.0	1.3	0.1	--	0.1	0.4	0.8	- 0.3	2.4	0.9	1.5	1.9	1.0	0.8
1954	11.5	7.0	4.1	4.3	0.9	3.3	2.0	0.1	2.0	1.8	1.6	0.2	3.9	0.8	3.1	3.7	1.3	2.4
1955	10.0	5.6	4.1	4.6	0.8	3.7	0.8	- 0.1	0.9	2.2	1.5	0.7	1.4	0.2	1.3	3.1	1.0	2.0
1956	10.4	6.1	4.0	3.4	0.8	2.6	- 0.1	- 0.3	0.2	0.8	0.9	- 0.1	0.7	0.6	0.1	2.1	0.9	1.2
1957	12.0	5.0	6.6	4.5	0.7	3.8	1.0	- 0.3	1.4	1.3	0.9	0.4	3.4	0.5	3.0	3.3	0.7	2.5
1958	15.8	4.4	10.8	7.7	1.0	6.7	2.8	- 0.5	3.3	2.6	0.9	1.7	7.2	0.4	6.8	5.7	0.7	5.0
1959	14.7	4.5	9.7	6.8	0.9	5.8	2.0	- 0.4	2.4	1.4	0.6	0.9	3.8	--	3.9	4.6	0.6	3.9
1960	14.8	5.0	9.3	7.8	0.7	7.1	2.9	- 0.4	3.3	2.7	0.5	2.1	7.3	0.4	6.8	5.7	0.6	5.0
1961	16.3	4.9	10.8	8.6	1.2	7.3	3.2	- 0.3	3.4	3.1	0.5	2.6	6.8	0.4	6.4	6.2	0.8	5.3
1962	14.9	5.0	9.3	5.9	0.8	5.1	1.7	- 0.2	1.9	2.9	0.8	2.1	4.4	0.4	3.9	4.5	0.8	3.7
1963	12.5	4.2	7.9	6.2	1.4	4.7	0.8	- 0.3	1.1	2.4	0.5	1.8	4.3	0.9	3.4	4.0	0.8	3.1
1964	11.6	5.3	5.9	4.4	0.8	3.6	0.4	- 0.1	0.5	1.9	0.8	1.1	1.3	- 0.1	1.4	2.9	0.8	2.1
1965	10.1	4.4	5.4	4.2	1.2	3.0	- 0.4	- 0.1	- 0.2	0.9	0.5	0.3	1.6	0.3	1.3	2.2	0.8	1.4
1966	7.6	4.1	3.4	3.2	1.1	2.0	- 0.1	0.1	- 0.2	0.4	0.8	- 0.4	1.4	0.2	1.2	1.7	0.9	0.9
1967	9.3	5.1	4.0	4.0	1.3	2.7	1.0	0.5	0.5	1.2	1.1	0.1	2.7	0.5	2.2	2.7	1.2	1.5

TABLE D 13. Underutilization Rates, Females, 25-44 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	38.0	39.4	- 0.8	18.2	17.3	0.7	1.9	2.2	- 0.3	26.5	26.4	--	6.6	5.8	0.8	15.0	14.9	0.1
1954	47.1	45.3	1.0	23.8	22.2	1.3	- 0.7	- 1.3	0.6	30.1	30.1	--	10.0	9.3	0.7	17.4	16.5	0.7
1955	42.4	43.7	- 0.8	27.1	25.5	1.2	0.6	0.1	0.5	28.4	28.4	--	11.4	10.7	0.6	18.1	17.6	0.5
1956	44.1	45.4	- 0.7	33.1	32.1	0.7	- 3.0	- 2.5	- 0.5	24.5	24.6	- 0.1	11.5	10.9	0.5	18.0	17.9	--
1957	40.8	39.4	0.8	30.8	29.3	1.1	- 1.7	- 2.4	0.7	21.2	21.4	- 0.2	8.7	8.3	0.4	16.4	15.6	0.6
1958	43.9	45.2	- 0.7	28.7	26.1	1.9	4.9	3.4	1.4	18.0	17.3	0.6	11.8	9.8	1.8	18.2	16.7	1.2
1959	39.8	41.1	- 0.8	29.4	27.5	1.3	4.0	3.3	0.6	15.1	14.6	0.5	15.3	14.9	0.3	17.5	16.7	0.6
1960	41.7	43.0	- 0.8	29.0	27.2	1.2	0.2	- 0.9	1.2	13.6	13.1	0.4	13.2	11.4	1.7	15.7	14.7	0.9
1961	33.5	32.7	0.5	29.9	27.7	1.6	2.3	1.2	1.1	10.3	10.0	0.3	15.5	13.6	1.6	15.7	14.4	1.1
1962	31.1	32.4	- 0.9	29.8	28.8	0.7	3.8	2.3	1.4	9.7	10.2	- 0.5	16.2	14.4	1.6	16.0	15.2	0.7
1963	34.8	36.2	- 0.8	28.2	27.4	0.6	3.8	2.7	1.0	10.3	10.0	0.2	13.5	11.8	1.5	15.7	15.0	0.6
1964	35.5	36.8	- 0.8	28.2	27.5	0.6	0.8	- 0.1	0.9	9.9	9.7	0.2	10.4	8.9	1.3	14.4	13.7	0.6
1965	33.5	32.8	0.4	25.4	24.3	0.8	1.8	1.2	0.5	10.0	10.5	- 0.5	14.4	11.6	2.5	14.0	13.3	0.6
1966	30.1	29.6	0.4	21.7	20.8	0.7	- 0.8	- 1.2	0.4	8.9	9.4	- 0.5	16.2	14.9	1.2	11.7	11.2	0.4
1967	29.2	28.7	0.3	20.2	19.4	0.6	- 1.0	- 1.8	0.9	7.3	7.9	- 0.6	9.9	7.8	1.9	10.2	9.5	0.7

TABLE D 14. Underutilization Rates, Males 45-64 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	10.0	6.7	3.0	2.4	0.9	1.5	- 0.3	- 0.3	--	2.3	2.2	0.1	9.3	6.7	2.4	2.8	1.8	0.9
1954	12.8	8.7	3.8	5.0	1.6	3.4	0.9	- 0.6	1.5	4.0	3.4	0.6	10.6	7.2	3.2	4.6	2.4	2.2
1955	12.5	9.3	2.9	3.8	0.3	3.5	1.8	0.4	1.4	3.5	2.5	1.0	7.0	4.6	2.2	4.2	2.0	2.1
1956	10.5	7.5	2.7	3.2	0.7	2.5	0.3	- 0.4	0.7	2.5	2.5	0.1	5.7	4.4	1.2	3.0	1.7	1.3
1957	12.4	6.3	5.7	4.0	0.5	3.5	0.7	- 0.3	1.0	2.4	1.5	0.9	6.0	3.2	2.7	3.5	1.2	2.3
1958	17.2	6.5	10.0	7.6	1.3	6.2	2.3	- 0.6	3.0	4.3	1.4	2.9	10.2	3.6	6.4	6.3	1.3	4.8
1959	15.4	6.4	8.4	6.6	1.7	4.8	2.5	- 0.2	2.7	2.4	0.8	1.5	8.1	3.3	4.6	5.4	1.5	3.8
1960	15.7	7.6	7.4	7.8	1.2	6.5	2.9	- 0.8	3.7	3.4	1.1	2.3	9.9	2.4	7.2	6.2	1.2	4.9
1961	17.2	7.8	8.6	9.8	2.2	7.4	3.8	--	3.8	3.6	1.0	2.6	8.8	1.6	7.1	7.1	1.7	5.3
1962	14.0	6.4	7.0	9.6	3.5	5.9	2.7	0.1	2.6	4.1	2.0	2.1	7.1	1.5	5.5	6.3	2.1	4.1
1963	14.4	7.6	6.2	8.4	3.1	5.2	1.6	- 0.2	1.8	3.5	1.8	1.6	8.0	3.2	4.6	5.6	2.1	3.4
1964	13.3	7.5	5.4	8.1	3.6	4.3	1.1	- 0.1	1.2	2.3	1.4	0.8	5.1	2.5	2.5	4.8	2.2	2.5
1965	13.0	7.9	4.6	6.8	3.4	3.2	0.4	--	0.4	2.5	1.7	0.8	4.6	2.8	1.8	4.1	2.3	1.8
1966	11.4	7.2	3.9	6.6	3.4	3.0	0.3	--	0.3	2.3	1.9	0.4	5.5	3.2	2.3	4.0	2.3	1.6
1967	13.2	8.9	3.8	5.8	2.6	3.1	1.1	0.5	0.6	2.6	2.5	0.1	6.2	3.4	2.7	4.3	2.5	1.7

TABLE D 15. Underutilization Rates, Females, 45-64 Years of Age, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	40.0	41.1	- 0.6	31.3	30.3	0.7	2.1	2.1	--	30.9	32.0	- 0.7	15.7	16.7	- 0.9	19.8	20.0	- 1.0
1954	37.0	38.0	- 0.7	34.6	33.7	0.6	0.5	- 0.3	0.8	34.4	35.5	- 0.7	18.8	19.8	- 0.9	20.7	20.5	0.2
1955	34.8	35.8	- 0.7	35.9	33.3	1.7	4.4	- 3.6	0.7	29.2	30.3	- 0.8	20.9	22.0	- 0.8	21.6	21.0	0.4
1956	30.0	31.0	- 0.7	39.5	38.7	0.5	- 3.8	- 2.7	- 1.1	25.2	26.3	- 0.8	11.0	12.1	- 0.9	17.5	18.0	- 0.6
1957	23.6	24.6	- 0.8	36.1	37.2	- 0.7	- 7.0	- 7.3	0.4	22.1	23.2	- 0.8	11.1	12.2	- 0.9	14.2	14.7	- 0.4
1958	30.9	32.0	- 0.7	31.9	28.9	2.1	0.3	- 1.4	1.7	14.2	11.8	2.1	13.0	11.0	1.8	15.3	13.4	1.6
1959	30.4	31.5	- 0.7	29.9	29.7	0.1	1.2	0.3	0.9	12.2	11.7	0.5	9.9	11.0	- 1.0	14.5	14.2	0.3
1960	25.5	26.6	- 0.8	32.8	31.5	0.9	- 1.7	- 3.0	1.3	10.8	10.4	0.4	12.2	10.6	1.4	13.7	12.8	0.8
1961	27.8	28.9	- 0.8	34.6	34.6	0.1	- 4.4	- 6.0	1.7	2.9	1.5	1.4	7.9	4.5	3.3	11.8	10.7	1.1
1962	30.5	28.7	1.3	35.8	34.7	0.7	- 2.2	- 2.7	0.5	0.4	0.4	0.1	2.5	1.6	0.9	12.3	11.5	0.6
1963	33.0	31.2	1.2	33.3	30.6	1.9	- 2.1	- 2.5	0.4	5.9	5.8	0.1	- 0.1	- 2.7	2.6	12.5	11.2	1.0
1964	27.6	26.3	1.0	33.9	32.2	1.1	- 2.5	- 2.8	0.3	7.6	6.5	1.0	1.9	- 0.4	2.4	12.6	11.4	0.9
1965	24.2	25.2	- 0.8	33.5	32.9	0.4	- 1.0	- 1.2	0.2	2.6	2.7	- 0.1	2.9	2.3	0.6	11.9	11.7	0.2
1966	28.1	29.2	- 0.8	28.0	27.5	0.3	1.8	1.2	0.6	5.0	5.1	- 0.1	4.5	4.1	0.4	12.3	12.0	0.2
1967	24.0	25.1	- 0.8	28.8	27.1	1.2	1.4	0.9	0.5	9.4	9.5	- 0.1	2.1	1.8	0.3	12.4	11.9	0.4

TABLE D 16. Underutilization Rates, Males 65 Years of Age and Over, by Region, 1953-67

Year	Atlantic			Quebec			Ontario			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	23.8	21.5	1.8	21.0	20.9	0.1	1.9	1.9	--	15.3	15.4	- 0.1	45.0	41.5	2.0	16.7	16.0	0.5
1954	22.1	19.8	1.8	23.4	18.1	4.3	3.6	2.2	1.3	22.6	22.5	0.1	44.5	47.1	- 1.4	19.0	17.5	1.4
1955	25.5	22.9	2.0	20.8	18.2	2.2	7.2	7.1	0.2	22.7	22.6	0.1	38.7	41.3	- 1.6	19.4	18.8	0.5
1956	19.7	22.3	- 2.0	9.6	7.5	1.9	- 0.8	- 0.8	--	18.7	18.7	--	35.5	38.1	- 1.6	12.4	12.7	- 0.1
1957	19.1	16.8	1.9	9.6	5.4	4.0	- 2.5	- 3.6	1.2	11.0	11.2	- 0.2	45.8	37.0	5.2	11.6	8.9	2.1
1958	18.3	20.9	- 2.1	13.2	6.5	6.3	3.1	1.6	1.4	18.8	16.3	2.1	41.7	33.5	5.2	15.2	12.0	2.7
1959	20.5	18.0	2.1	13.8	9.2	4.1	4.7	3.2	1.5	16.8	14.3	2.2	46.6	37.2	5.6	16.2	12.7	2.8
1960	16.6	14.3	2.0	15.7	13.3	2.1	5.0	3.4	1.5	13.8	13.8	--	45.3	41.5	2.2	15.5	13.7	1.4
1961	18.7	16.2	2.1	20.3	15.2	4.3	8.3	5.2	3.0	12.2	9.8	2.2	44.6	40.7	2.1	17.4	13.9	2.9
1962	22.1	19.2	2.3	22.1	16.8	4.4	4.4	2.7	1.6	12.8	12.8	--	46.2	36.0	6.1	17.0	13.7	2.5
1963	28.8	25.4	2.5	19.4	14.3	4.3	11.3	9.3	1.8	15.1	14.9	0.2	48.7	43.9	2.6	20.3	17.5	2.2
1964	27.8	24.4	2.6	18.8	16.1	2.2	2.0	1.7	0.3	17.6	14.5	2.6	47.2	42.5	2.6	17.1	14.8	1.7
1965	30.3	26.5	2.8	20.8	15.5	4.4	1.8	0.1	1.7	15.2	14.8	0.3	41.5	37.2	2.6	16.5	13.8	2.3
1966	32.1	27.8	3.0	9.5	5.1	4.2	1.6	- 0.1	1.8	15.8	15.4	0.4	39.7	35.5	2.7	13.9	11.3	2.3
1967	40.0	34.7	3.4	12.9	6.0	6.5	4.3	3.8	0.5	15.9	18.4	2.1	38.6	34.4	2.7	16.3	14.0	1.9

TABLE D 17. Underutilization Rates of All Secondary Workers, 1953-67

Year	Atlantic		Quebec		Ontario		Prairie		British Columbia		Canada	
	UUR ₁	UUR ₂	UUR ₁	UUR ₂	UUR ₁	UUR ₂	UUR ₁	UUR ₂	UUR ₁	UUR ₂	UUR ₁	UUR ₂
1953	24.7	2.5	7.4	1.6	1.1	- 0.1	15.7	- 0.5	12.9	2.6	9.2	0.8
1954	26.2	4.4	9.6	3.3	- 0.6	1.7	19.6	- 0.2	16.2	2.0	10.3	2.2
1955	25.5	3.9	11.3	3.8	0.7	1.0	18.9	0.3	16.8	0.9	11.1	2.0
1956	25.2	3.1	13.7	2.2	- 3.0	- 0.2	15.2	0.9	14.3	0.7	9.6	1.0
1957	21.7	4.7	12.5	3.3	- 3.1	1.6	14.1	- 0.3	13.7	1.8	8.6	2.2
1958	17.3	6.7	10.3	6.1	1.3	3.7	10.1	1.5	15.0	5.4	9.1	4.5
1959	24.6	5.9	12.1	5.1	3.1	1.3	9.7	0.8	15.5	3.3	10.2	3.0
1960	23.0	5.7	12.2	6.2	- 0.6	3.4	7.9	1.3	14.2	5.5	8.3	4.3
1961	18.8	2.8	14.0	6.0	0.7	3.3	4.8	2.0	13.9	4.9	8.4	4.3
1962	20.5	6.2	15.1	4.4	1.9	2.4	3.6	1.4	12.2	4.0	9.0	3.4
1963	23.6	5.4	14.3	4.8	1.2	2.2	6.0	1.0	9.3	4.3	9.0	3.3
1964	22.8	4.0	14.8	3.6	- 0.7	1.6	5.3	1.1	7.7	4.6	8.1	2.6
1965	19.5	3.4	12.9	2.9	0.6	1.0	3.6	0.2	7.2	2.7	7.3	1.8
1966	18.1	3.8	9.6	2.4	- 0.7	1.0	2.9	0.2	4.8	2.8	5.4	1.7
1967	17.6	3.6	8.4	3.3	- 1.4	1.6	2.4	- 0.1	2.7	3.6	4.4	2.2

TABLE D 18. Differences in Underutilization Rates Between Ontario and Other Regions, Both Sexes, 1953-67


Year	Atlantic			Quebec			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	17.2	14.0	3.0	4.9	3.4	1.5	6.7	7.0	- 0.3	9.1	6.8	2.1	5.2	4.3	0.8
1954	19.4	16.3	2.4	7.0	5.3	1.6	8.4	10.0	- 1.6	10.0	8.9	0.9	6.3	5.8	0.5
1955	18.2	15.0	2.7	7.8	5.0	2.7	8.3	8.8	- 0.5	8.0	7.7	0.3	6.2	5.2	1.0
1956	20.0	16.4	3.2	10.3	8.0	2.3	8.6	8.8	- 0.2	9.0	8.6	0.5	7.3	6.2	1.0
1957	19.1	14.4	4.2	9.5	7.4	2.1	7.0	8.2	- 1.2	9.4	8.1	1.0	6.7	5.7	0.9
1958	19.9	13.8	5.3	8.0	5.0	2.9	3.3	4.7	- 1.5	10.3	7.0	2.7	5.7	4.2	1.3
1959	19.4	13.5	5.7	8.4	5.4	3.3	2.6	3.9	- 1.0	8.4	6.6	1.8	5.5	4.1	1.5
1960	18.9	14.6	3.8	9.9	6.6	3.1	2.9	4.5	- 1.6	10.8	7.4	2.9	6.1	4.8	1.2
1961	17.2	11.9	4.7	10.5	7.1	3.2	1.1	2.3	- 1.2	9.1	6.3	2.5	5.7	4.2	1.4
1962	17.7	11.9	5.1	10.1	7.2	2.7	1.0	1.5	- 0.5	7.5	5.0	2.1	5.5	4.0	1.4
1963	19.3	14.0	4.6	10.8	7.4	3.1	2.6	2.9	- 0.3	7.4	4.8	2.4	6.1	4.4	1.5
1964	19.0	14.8	3.7	11.2	8.4	2.6	3.2	3.3	- 0.1	6.6	4.4	2.0	6.2	4.8	1.3
1965	16.8	12.5	3.8	9.7	7.1	2.6	1.9	1.9	- 0.1	5.5	3.8	1.6	5.3	3.9	1.2
1966	15.8	12.2	3.2	8.0	6.0	2.0	1.7	2.3	- 0.6	5.0	3.3	1.7	4.6	3.6	0.9
1967	15.9	12.8	2.7	7.6	5.4	2.0	1.4	2.4	- 1.0	4.5	2.6	1.9	4.3	3.4	0.9

TABLE D 19. Differences in Underutilization Rates Between Ontario and Other Regions, Males, 1953-67

Year	Atlantic			Quebec			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	11.8	7.7	3.8	2.3	0.7	1.6	1.2	1.6	- 0.5	9.0	6.4	2.3	2.9	1.9	1.0
1954	13.2	9.7	2.9	3.1	1.3	1.8	1.7	3.7	- 2.0	9.0	7.6	1.2	3.2	2.7	0.5
1955	12.4	8.3	3.6	3.6	0.4	3.2	2.1	2.4	- 0.3	5.9	5.4	0.4	3.2	1.9	1.2
1956	13.2	8.9	3.8	3.4	0.8	2.6	2.6	3.0	- 0.4	6.2	6.1	0.1	3.3	2.2	1.1
1957	13.3	7.1	5.6	3.6	0.6	3.0	0.8	2.1	- 1.2	7.8	5.6	1.9	3.2	1.7	1.4
1958	15.5	6.9	7.7	4.7	0.7	3.9	--	1.7	- 1.7	9.6	5.6	3.4	3.7	1.7	1.9
1959	14.6	6.3	7.6	5.1	1.2	3.9	- 0.2	1.4	- 1.6	7.1	4.9	1.8	3.5	1.6	1.7
1960	13.6	7.0	5.9	5.6	1.4	4.2	- 0.7	1.1	- 1.8	8.7	5.0	3.4	3.6	1.7	1.7
1961	13.5	6.1	6.6	6.3	1.7	4.4	- 1.4	- 0.2	- 1.2	7.0	3.7	3.0	3.5	1.4	2.0
1962	14.1	6.1	7.2	6.0	2.0	3.8	- 0.5	- 0.1	- 0.4	6.2	3.4	2.5	3.6	1.5	2.0
1963	14.8	7.3	6.6	7.4	2.8	4.3	0.5	0.6	- 0.1	7.0	4.0	2.7	4.3	2.0	2.1
1964	14.0	7.8	5.5	6.6	2.8	3.7	0.2	0.2	- 0.1	4.9	3.2	1.5	3.7	1.9	1.7
1965	13.5	7.3	5.6	6.0	2.5	3.4	--	- 0.2	0.2	4.5	2.9	1.5	3.4	1.7	1.7
1966	11.8	6.7	4.7	5.1	2.3	2.7	--	0.5	- 0.5	3.6	1.6	1.9	2.9	1.5	1.3
1967	12.4	7.7	4.2	4.5	1.7	2.8	- 0.8	0.1	- 1.0	3.7	1.6	2.0	2.7	1.4	1.2

TABLE D 20. Differences in Underutilization Rates Between Ontario and Other Regions, Females, 1953-67

Year	Atlantic			Quebec			Prairie			British Columbia			Canada		
	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂	UUR	UUR ₁	UUR ₂
1953	33.2	32.8	0.5	12.3	11.2	1.0	24.4	24.2	0.3	9.6	7.9	1.6	12.3	11.7	0.5
1954	37.4	35.6	1.0	17.8	16.6	0.9	29.2	29.7	- 0.5	13.1	13.2	- 0.2	15.4	15.0	0.3
1955	34.4	34.0	0.2	19.4	17.9	1.2	27.2	28.2	- 1.0	14.8	14.9	- 0.3	15.3	15.0	0.2
1956	39.1	37.5	1.4	29.0	27.5	1.3	26.5	25.9	0.5	17.6	15.9	1.6	18.6	17.8	0.8
1957	35.0	34.0	0.4	25.4	25.8	- 0.4	24.8	25.8	- 1.0	13.9	15.5	- 1.5	16.4	16.8	- 0.4
1958	31.4	32.0	- 0.8	16.6	15.9	0.4	12.4	13.2	- 1.0	12.2	11.1	0.6	11.2	11.1	- 0.1
1959	31.6	32.2	0.9	16.6	16.1	2.0	10.2	11.2	0.7	11.9	11.8	1.6	10.8	10.8	0.9
1960	32.1	33.3	- 1.3	20.3	19.4	0.6	12.4	13.5	- 1.3	16.2	13.7	1.8	12.7	12.5	- 0.1
1961	26.1	25.7	--	20.8	19.9	0.6	7.5	8.7	- 1.2	14.5	13.2	0.9	11.2	11.0	0.1
1962	26.1	25.5	0.2	19.4	19.2	--	4.7	5.4	- 0.7	10.5	9.2	1.0	10.0	9.9	- 0.1
1963	29.5	29.2	- 0.1	18.4	17.6	0.5	7.5	8.4	- 0.8	8.4	6.6	1.5	10.4	10.1	0.1
1964	30.2	30.4	- 0.4	21.2	20.8	0.2	10.5	10.7	- 0.3	10.4	7.2	3.0	11.9	11.6	0.2
1965	23.8	23.8	- 0.2	17.6	16.8	0.7	6.2	6.8	- 0.6	7.7	5.9	1.6	9.3	9.0	0.2
1966	24.2	23.9	0.1	14.1	13.6	0.4	5.6	6.4	- 0.8	8.3	7.0	1.3	8.2	8.0	0.1
1967	23.1	23.3	- 0.4	13.9	13.2	0.5	6.3	7.5	- 1.3	6.3	4.6	1.8	7.9	7.7	0.1



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