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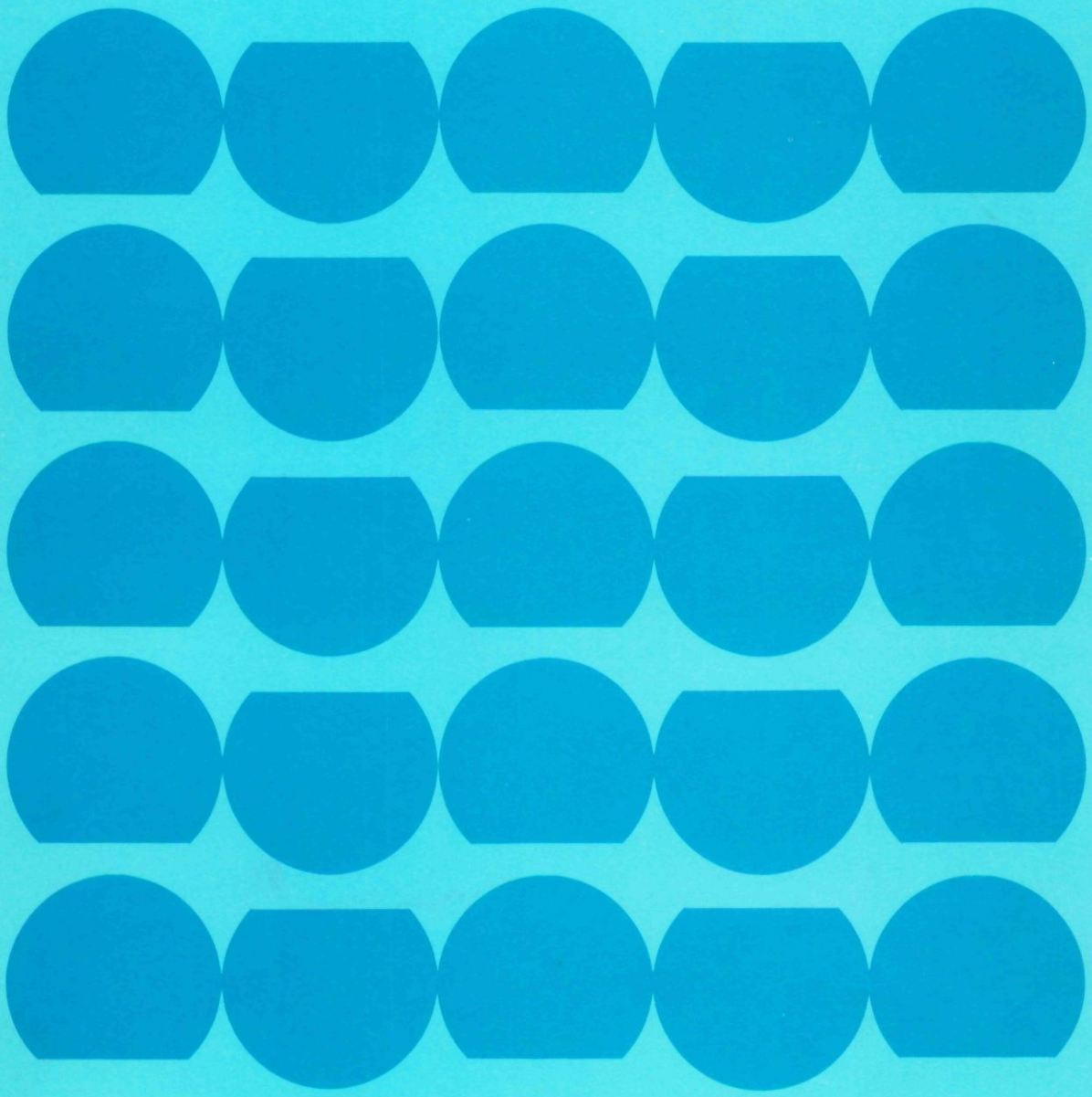
Patterns of Fertility in Canada, 1971

By T.R. Balakrishnan, G.E. Ebanks and C.F. Grindstaff



Census Analytical Study

Patterns of Fertility in Canada, 1971

By T.R. Balakrishnan, G.E. Ebanks
and C.F. Grindstaff

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FOREWORD

The Canadian censuses constitute a rich source of information about the condition of groups and communities of Canadians, extending over many years. It has proved to be worthwhile in Canada, as in some other countries, to supplement census statistical reports with analytical monographs on a number of selected topics. The 1931 Census was the basis of several valuable monographs but, for various reasons, it was impossible to follow this precedent with a similar program until 1961. The 1961 Census monographs received good public reception, and have been cited repeatedly in numerous documents that deal with policy problems in diverse fields such as manpower, urbanization, income, the status of women, and marketing. They were also of vital importance in the evaluation and improvement of the quality and relevance of Statistics Canada social and economic data. This successful experience led to the decision to expand the program of census analytical studies by entering into an agreement with the Social Science Federation of Canada. The present series of analyses is focused largely on the results of the 1971 Census.

The purpose of these studies is to provide a broad analysis of social and economic phenomena in Canada. Although the studies concentrate on the results of the 1971 Census, they are supplemented by data from several other sources. These reports are written in such a way that their main conclusions and supporting discussion can be understood by a general audience of concerned citizens and officials, who often lack the resources needed to interpret and digest the rows of numbers that appear in census statistical bulletins. For these persons, interpretive texts that bring the dry statistics to life are a vital dimension of the dissemination of data from a census. Such texts are often the only means that concerned citizens and officials have to personally perceive benefits from the national investment in the census. This particular report is one of a series planned to be published concerning a variety of aspects of Canadian life, including income, language use, farming, family composition, migration, adjustment of immigrants, human fertility, labour force participation, housing, commuting and population distribution.

I should like to express my appreciation to the universities that have made it possible for members of their staff to contribute to this program, to authors within Statistics Canada who have freely put forth extra effort outside office hours in preparing their studies, and to a number of other members of Statistics Canada staff who have given assistance. An Advisory Panel of the Social Science Federation of Canada, organized and conducted an author selection process for several studies, and arranged for review of seven manuscripts in their original version. In addition, thanks are extended to the various readers, experts in their fields, whose comments were of considerable assistance to the authors.

Although the monographs have been prepared at the request of and published by Statistics Canada, responsibility for the analyses and conclusions is that of the individual authors.

PETER G. KIRKHAM,

Chief Statistician of Canada.

PREFACE

In recent years changes in the reproductive behaviour of Canadian women have had some significant impact on many social, political and economic institutions. Consequences of fluctuations in fertility are even more likely to be crucial in the future. Therefore an investigation of the childbearing patterns of women should have a high priority in Canadian demographic research. This monograph is a limited attempt towards this end. It provides an overall description and analysis of Canadian fertility patterns and differentials using data primarily from the 1971 Census. Though the Census of Canada does not provide information on desires, motivations and expectations, it is adequate for analyses of the many socio-economic correlates of childbearing. Special tabulations directly from Statistics Canada and the availability of Public Use Sample Tapes provide micro-data on individual women and therefore enable one to go beyond routine analysis of published data.

The main emphasis in this monograph has been to attempt a multivariate approach to the study of fertility using data from the sample tapes to sort out the relative importance of various factors on fertility behaviour. It is our hope that this book will make a contribution to the understanding and explanation of this complex human behaviour. It is abundantly clear that the investigation of any demographic behaviour needs information on the socio-economic characteristics and a census that does not gather a minimum of such data is of limited utility. It is our hope that the Census of Canada will continue in a form that will enable researchers in the future to evaluate social, economic and geographic factors associated with a wide range of behaviours in the Canadian population.

This study has its beginnings in 1974, when Statistics Canada, in collaboration with the Social Science Research Council, invited proposals to study various aspects of demographic behaviour in depth using 1971 Census data. The shape this monograph took has much to do with early negotiations with these organizations and especially the two persons in charge of this project, Dr. Marvin McInnes at SSRC and Dr. Leroy Stone at Statistics Canada. Special thanks are due to Dr. McInnes in the development of the proposal before the project itself got underway. From the very start of the project the assistance received from Statistics Canada, and Dr. Stone in particular, cannot be underestimated. Without the generous financial assistance, special tabulations and other help the project could not have

been completed. In a time of economic difficulties and cutbacks, Statistics Canada recognizes, understands and supports the need for continued scholarly research relating to the issues that are important to the people of Canada. Dr. Stone deserves a special debt of gratitude. For almost three years he gave unstintingly of his time and guidance in financial matters, was patient with the authors when deadlines were pushed to the limit and, above all, gave critical editorial and substantive comments on the manuscript.

There are many people and collectives who have made a contribution to this work. Though it is not possible to mention them all individually, some deserve special recognition. The Department of Sociology through its population research laboratory provided the necessary space and other facilities. The University of Western Ontario provided considerable free computer time as well as those intangibles which make large scale empirical research possible. Dr. K.G. Basavarajappa was instrumental in the development of the research project and in the proposal that was submitted for funding. Only a change in employment prevented him from being an investigator. We have greatly benefited from comments received from Drs. E.T. Pryor and T.K. Burch who read parts of the proposal or manuscripts at various stages. The anonymous reviewers of drafts of the monograph provided valuable direction for the completion of the work.

Within the Department of Sociology at the University of Western Ontario, several people gave of their time and talent, without which the monograph would have been more difficult if not impossible. Ms. Dorothy Worth was without peer in her development of the computer programmes and tabulations. Ms. Sandra Bell, Mr. Twumasi-Ankrah and Ms. Maureen Temme were student assistants on the project who were responsible for much of the tabular construction. Ms. Karney Thomas worked long and hard hours on the typewriter under pressures of deadlines and demanding authors to deliver clean and corrected manuscripts. To all of these people, we are more than grateful. However, we are solely responsible for any errors or omissions.

Finally, we would like to acknowledge the very special people in our lives who always assist in making the game fun to play--Ruth, Marryl and Annie. They provide the space and the love in which we work.

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1979

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CHAPTER 1

HISTORICAL TRENDS IN FERTILITY AND SOURCES OF DATA

1.1. Introduction

This book is based upon an analysis of the 1971 Canadian Census of Population with respect to fertility and its correlates (determinants). As such, it is a follow-up to Henripin's (1972) analysis based on the 1961 Census of Population. Unlike Henripin's work, this monograph presents the results of analyses done primarily with the Public Use Sample Tapes. To date, much of the published works on fertility based on census analyses have depended on aggregate tabulated data. In contrast, in this study, because of the availability of the Public Use Sample Tapes, we were also able to focus more on individual units rather than group data. We hope that this work will provide a picture of fertility in Canada up to 1971, subject to the limitations related to using census data to study fertility. We would hope also that this book will motivate in-depth national and sub-national studies of the determinants of fertility in Canada.

The declining and already very low fertility rates in Canada warrant study and understanding so we can better plan our future; they have had and will continue to have important effects on many aspects of our social, cultural, and economic life. The trends, changes, determinants and consequences of fertility affect nearly all the institutional and organizational systems of a country. In short, the fertility behaviour of a people provides a basic blueprint to the economic, educational, social and political evolution of the society that has been developed. The number of children born to any given group of people, the pattern of that childbearing, and the changes in the pattern can tell us a vast amount relating to the basic organization of the social group.

> The individual and social importance of proper knowledge of this vital activity (fertility) cannot be overstated. The network of familial relationship, the pattern of familial activities, and the structure of familial rights and responsibilities are transformed by the entrance of a baby. On the aggregate level, although the law of large numbers prohibits such a dramatic parallel, changes in procreative behavior are influential accompaniments of virtually every variation in the fortunes of society. A disturbance of the rate of production of new members portends for the population successive modifications in the numbers of consumers in each

> higher age group, the demands imposed on the education structure, the flow of young adults into the labor force, the housing requirements of newlyweds, and so on throughout the life span to the ages beyond retirement when the old seek to derive financial if not psychological security from their savings, their progeny, and their government (Ryder, 1959:400).

Fertility in Canada has been declining for more than a century as has been the case in the United States and other developed countries. However, the intensive study of the demographic and socio-cultural causes of this phenomenon is of more recent origin, starting in the 1940's after World War II. The "baby-boom" which began about 1945 and lasted for over a decade, general concerns about the population explosion in the Third World societies and the impact of population on resources and the environment gave rise to much interest and activity in research related to fertility. A great deal has been learned in the last two decades about the nature of the determinants of childbearing. However, the complexity of human behaviour in this area has defied the development of a unified theory and emphasizes clearly the need for more investigation and testing as well as the development of causal models relating to fertility. This study attempts both implicitly and explicitly to contribute to both aspects of this very important area.

In Canada, fertility has been an important component of population change in the past and is likely to be even more so in the future, as mortality stabilizes and immigration stabilizes or decreases. Fertility rates went up rapidly after World War II from the low rates of depression years. Total fertility rates increased from 2.646 in 1937 to 3.935 in 1959 when the decline in fertility started again. Since 1960, the fertility rates have decreased by half, until currently, in 1974, Canada is experiencing its lowest recorded crude birth rate (15.4) and total fertility rate (1.87). This dramatic and massive decline in fertility over the past 15 years has important social and demographic consequences.

The average age of the Canadian population has been increasing in time with the decreasing fertility. This aging of the population is manifested in the increasing proportion of the people who are 65 years and older which is currently about 9%. This will persist as long as fertility continues to decline. The decreasing numbers of children are having and will continue to have an impact on

school enrollment as well as on estimates that were made using certain assumptions about fertility. The age composition of the labour force is likely to undergo drastic changes under the impact of continued fertility decline. Even though the offspring of the larger baby-boom cohorts may have a positive effect on the absolute number of births, the declining fertility trends can still be seen in the declining age specific fertility rates (see Table 1.2). The emerging highly productive role of women in the economy affects the patterns of childbearing both in terms of numbers and spacing.

The study of fertility trends and differentials using 1971 Census data is a worthwhile one for many and varied reasons. First, fertility in recent years has been rapidly declining with net reproduction rates at the moment well below unity. Childlessness in the young age groups has increased and a slight increase in age at marriage is also noticeable. The children ever born data in the young age cohorts, within various socio-economic groupings, should tell us whether these phenomena are universal. It will also indicate whether a narrowing of family size differences is present. Though it is difficult to indicate causation, we will at least be able to identify associated factors in recent patterns in fertility. It should, however, be realized that for women in early childbearing years, fertility up to 1971 may not be a good predictor of subsequent fertility. Second, the children ever born data for later cohorts (say in ages 40 to 49) are basically for women who had most of their children in the baby-boom years of the 1950's. An analysis of the completed fertility of these women should tell us something about the factors related to the high fertility of these years. Thus, a major comparison will be between cohorts in the later years of childbearing in 1971 with corresponding cohorts of women in 1961. Henripin (1972) drew most of his conclusions from the experience of the virtually completed fertility of the cohort of women who were 45-49 years of age in 1961. These were women who were bearing their children primarily in the late 1930's - a period of historically low fertility. In contrast, in 1971, women 40-49 represent the peak baby-boom experience. Thus, the various comparisons by age cohorts may indicate the related factors in the dramatic changes in fertility, from depression years, to post-war baby-boom years in the recent decade. Third, our analysis of the interrelation of various socio-economic factors to fertility, compared with earlier studies, should reveal the changing importance of these explanatory variables.

Extensive analyses of Canadian fertility patterns have been few. The last major study was that of Henripin, Trends and Factors of Fertility in Canada, based mainly on 1961 Census data. It filled an important gap and its wide use is an indication of its importance for population research in Canada.

The decade since 1961 has been very significant for trends in fertility. Apart from social and economic changes influencing childbearing patterns, other developments such as the use of the oral pill, liberalization of abortion laws and concern for world population growth and environmental deterioration have been important for changes in birth rates. Moreover, Canada's population continues to be highly urban and geographically mobile. Educational attainment has been enhanced and women have entered the labour force in far greater numbers than before. Immigration has continued at a high rate but shifted to new sources of immigrants. All of these influences may have contributed and be contributing in highly complex ways to the dramatic changes in fertility that have occurred and are occurring.

Presented in this monograph are the findings of an analysis of the census data which were collected in 1971 with respect to fertility and its various socio-economic correlates. As census data on fertility are basically cohort data on children ever born up to the time the census was taken, our emphasis will be on investigating changes and differentials in children ever born by age cohorts and the socio-economic characteristics of Canadian women. Trends in various period rates are not our primary concern, both because of the nature of the data as well as due to the fact that these are readily available in vital statistics publications. Moreover, historical trends in fertility until 1961 have been presented in the earlier census monograph (Henripin, 1972). A recent census publication has also examined trends in period fertility, the part played by nuptiality patterns on fertility and the influences of illegitimacy on childbearing (Collishaw, 1976). The main concern of this report is not to examine these factors, but rather the relationship of measures of fertility collected in the 1971 Census to various other explanatory variables. The availability of sample data makes extensive multivariate analysis possible. The findings in this report are primarily based on the individual Public Use Sample Tapes made up of a 1% sample of individuals and families. The limitations of the sample data set the bounds on the type of analysis carried out.

Considering fertility as the major dependent variable, we will address the question of what are the independent variables which account for changes in the patterns of fertility over time and differentials in fertility among various groups at the same time. The many studies conducted in developing countries show that there are no consistent patterns with respect to the relationships between fertility and the socio-cultural characteristics of the population (Stycos, 1968; Caldwell et al., 1975; Freedman & Takeshita, 1969; Hawthorn, 1970). However, there have been major attempts at developing frameworks which encompass all relevant variables into a theoretical model for explaining fertility. These theoretical frameworks have served as starting points, blueprints for the derivation and testing of various specific hypotheses. The large number of independent variables can be grouped as social structural factors such as ethnicity, religion, education, occupation, mother tongue and rural urban composition; demographic and biological factors such as fecundity, age and nuptiality; and psychological factors such as attitudes and motivations toward childbearing, family planning, marital adjustment and sex roles.

While recognizing the influence of large numbers of factors, most research studies understandably have concentrated on a very small part of the whole. Our own attempt will be determined by the variables that are available in the censuses. Past studies in Canada and elsewhere on census data have revealed the importance of certain variables in fertility differentials (Charles, 1948; Henripin, 1972; Collishaw, 1976; Grabill et al., 1958; Rindfuss & Sweet, 1977). Type of residence, religion, ethnicity, nativity and mother tongue continue to be associated with size of family. In addition to these variables, achieved characteristics such as education, occupation, income and labour force status of women have considerable impact on fertility. Also of importance are characteristics of the husband, such as his religious background, education and occupation to the extent they influence the childbearing of his wife. The nature of the census data restricts us to the above mentioned variables. This monography will present the relationships of these explanatory variables to fertility, individually and in combination.

Chapter 1 presents a brief demographic history of the Canadian population in relationship to fertility as well as a discussion of the sources of data for this study, its limitations and advantages and the measures used. Chapter 2 presents the findings examining the relationship between fertility and such independent

variables as age at marriage, religion, ethnicity, education and labour force status, mainly through tabular analysis. The prupose is to provide some continuity and comparison to past studies. Chapter 3 presents the multivariate models and methodology used. Chapter 4 presents the findings on the multivariate analysis of "children ever born" and its demographic and socio-economic correlates. The relative importance of the variables are assessed separately for the various age cohorts of women. Chpater 5 examines the patterns in current fertility as measured by "own-children ratios" and some analyses of child spacing. Chapter 6 examines some indices of life style and their relationships to fertility. Chapter 7 summarizes and highlights the important findings and the efficacy of the multivariate models and points out directions for future research.

Due to space and cost limitations, several tables and charts that were constructed are not presented in the book. However, these omitted data are analyzed in the text. These tables and charts are available upon request from the authors.

1.2. Historical Trends in Canadian Fertility

Evolution of fertility rates in Canada over the past century has been well documented in two recent publications: the 1961 Census monograph on fertility by Henripin (1972) and the 1971 Census profile study on fertility by Collishaw (1976). As such, the discussion here will be brief and only highlight the main points already made by the above authors, to provide the background for this report on 1971 fertility patterns.

To what extent has Canada's population growth and change been attributable to fertility? It is part of the conventional wisdom of our country that we are a nation of immigrants from various lands all over the world. From one perspective this analysis is accurate - none of us would be here (except for the native people) if it were not for the fact of immigration by us or our ancestors. However, it should also be noted that most of Canada's population growth is due to the fertility of these immigrants and their descendants, and not to immigration per se. To illustrate this point, one has only to examine fertility/mortality and immigration/emigration statistics. From 1851 (when the population was approximately 2.3 million) to 1971 (population 21.6 million), there were about

9.5 million immigrants into Canada and 6.5 million emigrants leaving the country, for a net gain of roughly three million through immigration. Over this same time period there were more than 28 million births and 11.5 million deaths, for a natural increase of approximately 16.5 million. Thus, fertility has been a more important factor in the growth of the Canadian population than has immigration, while at the same time recognizing the fact that immigrants are responsible for most of the children born in the country. In general, there was about one immigrant for every three births during this 120-year period of the nation's history.

Since vital statistics on a national basis are available only from 1921, estimates for earlier dates are necessarily crude approximations derived from census data. Table 1.1 shows the crude birth rates for Canada at each census year beginning in 1851 and for every five years beginning with the formation of the vital registration system in 1921.

From a high of nearly 50 births per 1,000 people in 1851 (few countries even in the developing world have a birth rate of that magnitude in the 1970's), Canada's crude birth rate fell steadily until the middle of the great depression (1936) when the birth rate was down 60% from the 1851 levels to a rate of 20 per 1,000. The birth rate in that 80-year period responded to the industrial and economic changes that had taken place in Canada. In the 1940's and 1950's, Canada experienced what has been called the "baby-boom" with a 40% rise in births by 1956 to a rate of 28 per 1,000. This increase was related to changes in the age at marriage (decreasing), economic upturn, and shorter intervals between births (Petersen, 1969:530-531). Beginning in 1961, there has been a steady drop in the crude birth rate to a low today of nearly 15 per 1,000. This is by far the lowest birth rate in our history, and recent trends show little sign of an increase. The factors associated with this large decline in birth rates are increasing age at marriage, economic difficulties, more effective contraception, abortion, and the changing role of women in all areas of Canadian society.

Table 1.1 also shows that Quebec has followed the general pattern, and today has one of the lowest provincial birth rates in Canada. Quebec is responding to the same set of conditions as the rest of Canada, but the crude birth rate as a measure is not particularly refined, and Quebec's low rate might simply be an artifact of a not very sophisticated type of measure. Thus, we should

TABLE 1.1. Crude Birth Rates for Canada, Ontario and Quebec, 1851-1977

Year	Population	Number of births	C.B.R. per 1,000		
			Canada	Quebec	Ontario
1851	2,312,919	112,400	48.6	45.0	47.5
1861	3,090,561	145,100	46.9	43.1	46.8
1871	3,689,257	166,200	45.0	43.2	44.8
1881	4,324,810	169,800	39.3	41.9	37.2
1891	4,833,239	172,700	35.7	39.3	31.4
1901	5,371,315	193,200	35.9	38.3	28.7
1911	7,206,643	248,200	34.4	38.0	29.2
1921	8,788,483	264,879	29.3	37.6	25.3
1926	9,451,100	240,015	24.7	31.6	21.4
1931	10,376,786	247,205	23.2	29.1	20.2
1936	10,950,000	227,980	20.3	24.3	17.3
1941	11,506,655	263,993	22.4	26.8	19.1
1946	12,292,000	343,504	27.2	30.7	23.8
1951	14,009,429	381,092	27.2	29.8	25.0
1956	16,080,800	450,739	28.0	29.4	26.6
1961	18,238,247	475,700	26.1	26.1	25.3
1966	20,014,900	387,710	19.4	19.0	19.0
1967	20,378,000	370,894	18.2	17.3	17.9
1968	20,701,000	364,310	17.6	16.3	17.4
1969	21,001,000	369,647	17.6	16.0	17.7
1970	21,297,000	371,988	17.5	15.3	17.8
1971	21,568,311	362,187	16.8	14.8	16.9
1972	21,820,500	347,319	15.9	13.8	16.0
1973	22,094,700	343,373	15.5	13.8	15.6
1974	22,446,300	350,650	15.6	14.6	15.3
1975	22,831,000	359,323	15.8	15.1	15.3
1976	23,025,000	359,987	15.7	15.5	14.8
1977(1)	23,315,600	363,660	15.7	15.1	14.8

(1) Estimated.

Source: Years 1851 and 1861 include only the four original provinces of Ontario, Quebec, Nova Scotia and New Brunswick. Succeeding years include population of Canada and its territories. Henripin (1972:364); Kalbach and McVey (1971:71, 21); Census of Canada 1921, Vol. 1, p. 4; Census of Canada 1971, Vol. 1, p. 1-1; Vital Statistics 1973, Vol. 1, pp. 2, 46, 47; Vital Statistics Annual Report 1975 and 1976; Vital Statistics Quarterly, Vol. 25, No. 2; Vol. 24, No. 2; and Canadian Statistical Review, Vol. 53, No. 1, Section 2.

also examine more detailed types of analysis to determine more accurately what is taking place on the Canadian scene.

The crude birth rate is a good "first impression" of fertility behaviour, but it is inadequate and can be misleading as a total picture. The denominator in the crude birth rate is the total population, and not the population exposed to the risk of childbearing. Moreover, age distribution of females in the reproductive years will affect the crude birth rates. The total fertility rate (the sum of the age-specific rates) is a considerable improvement on the crude birth rate, as it is independent of age distribution and based only on the female population aged 15-49. It can also be seen as the total number of live births that a woman is likely to have at the completion of her reproductive period if she experiences the current fertility levels of all women presently in the childbearing ages. In other words it is the sum of the fertility of women in different age groups in a specified period of time, usually one year. The gross reproduction rate is simply the total fertility rates confined to female births, which in most societies is approximately 48.5% of all births. Table 1.2 presents age-specific rates, total fertility rates, and gross reproduction rates for selected years.

These fertility rates that were high in 1921 steadily declined until 1937 and rapidly increased after World War II until the late 1950's, reaching a maximum in 1959. Since then the rates have been falling reaching the present very low levels. The total fertility rate declined from 3.935 in 1959 to 1.875 in 1974. Since 1971, the gross reproduction rates have been less than unity. While there has been a considerable decline in all the age groups, the relative decline is much greater in the older age cohorts than in the young ones. This is not only due to a decrease in higher parity births (that is, a reduction in the proportion of births of the fourth or higher order) but also to changes in behaviour relating to the timing and spacing of births.

TABLE 1.2. Age Specific Fertility Rates, Total Fertility Rates, and Gross Reproduction Rates for Canada (Selected Years)

Year	Fertility rates per 1,000 women by age groups							Total fertility rate	Gross reproduction rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49		
1921	38.0	165.4	186.0	154.6	110.0	46.7	6.6	3,536	1.712
1926	29.0	139.9	177.4	153.8	114.6	50.7	6.0	3,357	1.628
1931	29.9	137.1	175.1	145.3	103.1	44.0	5.5	3,200	1.555
1937	25.6	113.6	142.2	123.4	85.3	34.7	4.2	2,646	1.286
1941	30.7	138.4	159.8	122.3	80.0	31.6	3.7	2,832	1.377
1946	36.5	169.6	191.4	146.0	93.1	34.5	3.8	3,374	1.640
1951	48.1	188.7	198.8	144.5	86.5	30.9	3.1	3,503	1.701
1956	55.9	222.2	220.1	150.3	89.6	30.8	2.9	3,858	1.874
1959	60.4	233.8	226.7	147.7	87.3	28.5	2.7	3,935	1.915
1966	48.2	169.1	163.5	103.3	57.5	19.1	1.7	2,812	1.369
1971	40.1	134.4	142.0	77.3	33.6	9.4	0.6	2,187	1.060
1972	38.5	119.8	137.1	72.1	28.9	7.8	0.6	2,024	0.982
1973	37.2	117.7	131.6	67.1	25.7	6.4	0.4	1,931	0.937
1974	35.3	113.1	131.1	66.6	23.0	5.5	0.4	1,875	0.911
1975	35.3	112.7	131.2	64.4	21.6	4.8	0.4	1,852	0.902
1976	33.4	110.3	129.9	65.6	21.1	4.3	0.3	1,825	0.887

Source: Vital Statistics 1974, Vol. 1, Table 6.

1.3. Cohort Fertility

Table 1.3. shows the fertility of selected cohorts of women born between 1874 and 1938. The term cohort means a group of individuals who experience the same event at approximately the same time. Thus, for women born in 1900, they all reached age 15 in the same year and were exposed to the fertility rates of all women who were 15. This continues for each successive year, and by 1944, one has a completed family size for a cohort of women born in 1900. In turn, each year has a cohort of women which can be followed. In general, cohort fertility is defined as births to a particular group of women (born in a particular year) over a period of time, usually their total childbearing years. Of course, one can "break in" at any point in the childbearing and this has been defined as children ever born as of a particular time at a particular age. Cohort rates are useful because of timing and spacing problems inherent in any calendar-year period when children may be delayed or conceived based on temporal considerations.

The completed family size which was 4.1 for the 1874 birth cohort decreased steadily to 2.9 for the 1911 birth cohort before starting to increase. Women born around 1910 had most of their children in the depression years, accounting for the low levels. Between 1919 and 1937 the completed cohort fertility has ranged within the narrow limits of 3.0 and 3.3 children. The 1938 birth cohort is estimated to have a completed cohort fertility of less than 3.0, and this is the lowest level since the 1910-14 birth cohorts who had most of their children during the depression years. Our speculation is that completed cohort fertility for birth cohorts after 1938 may be slightly lower than this based on recent trends due to contraceptive use and normative change with respect to chidbearing.

Chart 1.1 clearly shows that much lower fluctuations in cohort rates as against period rates. Strictly speaking, total fertility rates and cohort rates are not directly comparable. Cohort rates relate to the fertility of the same group of women over time while total fertility is measured across different groups of women at the same time. What Chart 1.1 shows is that total fertility has much broader swings between low and high levels reflecting timing and spacing changes (thus over- or under-estimating "true" cohort fertility) while cohort fertility provides a total lifetime experience of childbearing up to the age of the women that is not as affected by particular short-term factors that might

TABLE 1.3. Completed Cohort Fertility Rates for Women Born Between 1874 and 1938, Selected Years, per Woman

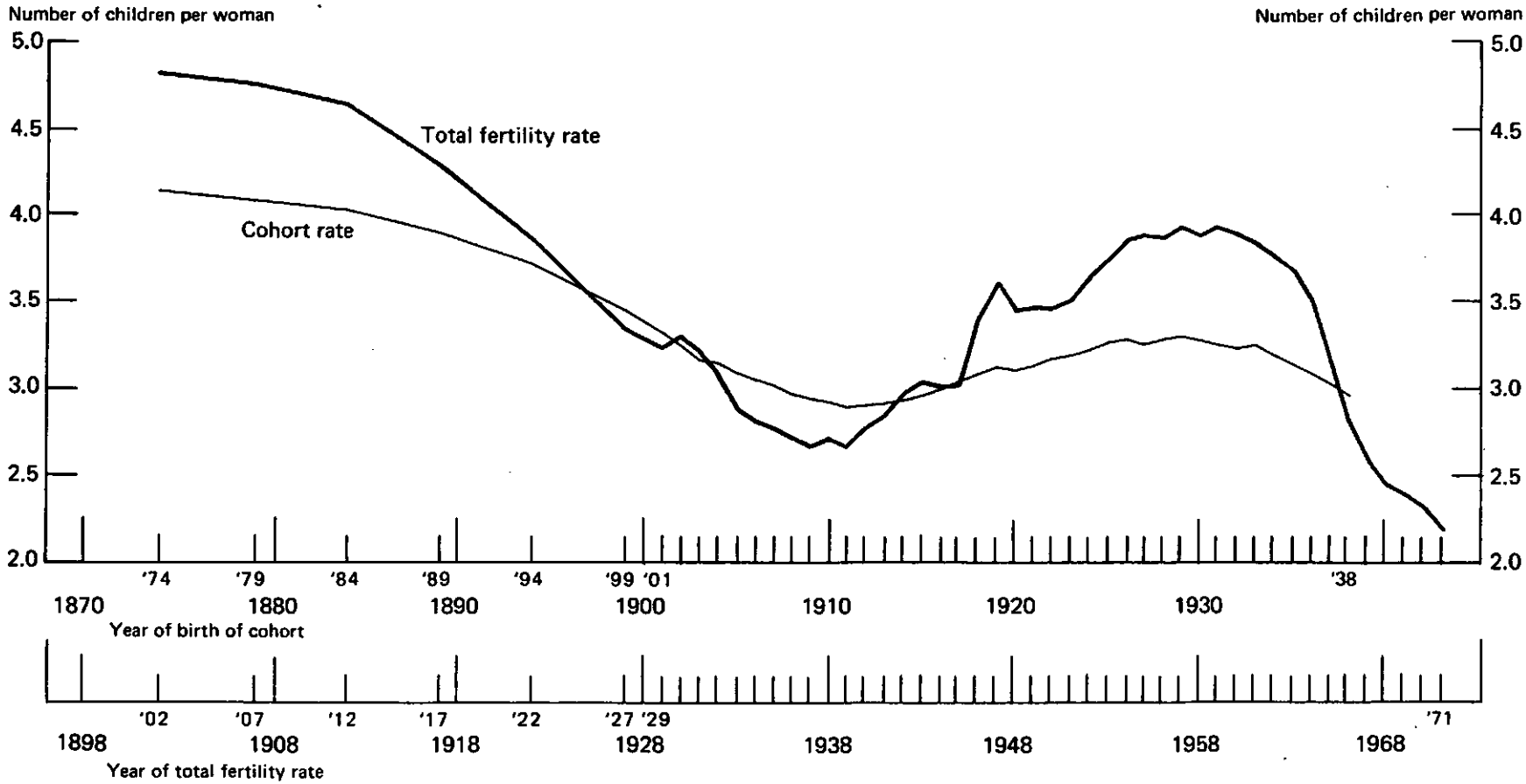
Year of birth	Completed cohort fertility	Year of birth	Age in 1971	Completed cohort fertility
1874	4.118	1924		3.208
1879	4.067	1925		3.246
1884	4.007	1926		3.258
1889	3.891	1927	44	3.241 (1)
1894	3.714	1928	43	3.273
1899	3.444	1929	42	3.288
1904	3.138	1930	41	3.273
1909	2.944	1931	40	3.239
1911	2.891	1932	39	3.217
1914	2.943	1933	38	3.239
1919	3.120	1934	37	3.185
1920	3.098	1935	36	3.127
1921	3.115	1936	35	3.078
1922	3.173	1937	34	3.020
1923	3.178	1938	33	2.954

(1) From 1927 on, these women were under the age of 45 in 1971 and thus the cohort fertility is estimated completed family size, calculated from children ever born data as of 1971. However, in that 90% of Canadian children are born to women under the age of 34, the error in estimating future fertility in their remaining reproductive years is likely to be small.

Source: Figures up to 1919 are from Henripin (1972), Table 2.4, page 33 and from 1920 on from Collishaw (1976), Table 8, page 66.

Chart – 1.1

Total Fertility Rate, 1902-1971 and Fertility of Cohorts Born from 1874-1938, Canada



Source: 1971 Census of Canada, Bul. 5.1-6, Chart 6.

enhance or depress period fertility. Thus, cohort fertility shows a more stable pattern and is perhaps a "better measure" of overall norms and values, while total fertility provides a "better picture" of short-term rates that can be affected by a whole series of variables, usually socio-economic in nature. Generally, the rates move in unison, with the cohort rates showing less fluctuation.

Table 1.4 provides a picture of children ever born at each childbearing age (in five-year intervals) for the three census years in which the fertility questions were asked directly: 1941, 1961, and 1971. Comparing 1961 and 1971, a clear pattern emerges reflecting the baby-boom years of 1947-61. In 1961, women aged 20-29 had had their prime childbearing in the baby-boom years of the late 1950's, and their fertility rates were 25% higher than their corresponding age groups in 1971. At the same time, women aged 30-44 in 1971 were in their prime fertility years during the baby boom, and on the average their fertility is somewhat higher than the women of the same age in 1961 and close to the fertility of women 30-44 in 1941. The fertility of the older women shows the substantial decline of completed fertility in this century.

TABLE 1.4. Children Ever Born by Age of Women Ever Married, 15 and Over, 1941, 1961, 1971

Age	1941	1961	1971	% change 1961-71
15-19	.529	.735	.634	-13.7
20-24	1.003	1.327	.910	-31.4
25-29	1.640	2.178	1.706	-21.7
30-34	2.425	2.775	2.621	- 5.5
35-39	3.206	3.102	3.158	+ 1.8
40-44	3.795	3.231	3.348	+ 3.6
45-49	4.167	3.110	3.315	+ 6.7
50-54		3.154	3.189	+ 1.1
55-59	4.398	3.285	3.037	-10.2
60-64		3.650	3.061	-16.1
65+	4.818	4.038	3.565	-11.7

Source: 1971 Census of Canada, Volume 1, Part 2 (Bulletin 1.2-6), Catalogue 92-718, Table 23.

1.4. Parity Distribution

Table 1.5 shows data compiled on the percentage distribution of women according to the number of children they have given birth to as of 1971. The average number of children born to any particular age group of women is made up of a widely differing pattern of numbers of children to any single woman, and this percentage distribution allows us to examine this individual variation.

TABLE 1.5. Percentage Distribution of Ever-married Women by the Number of Children Born, in Five-year Age Groups, 1971

Age group	Average	Number of children born						
		0	1	2	3	4	5	6+
15+	2.755	15.84	16.19	22.76	16.94	10.73	6.24	11.29
15-19	.634	49.71	41.24	7.29	1.05	.28	.10	.33
20-24	.910	41.97	33.48	18.49	4.57	1.04	.28	.17
25-29	1.706	20.71	24.31	31.75	14.94	5.35	1.86	1.07
30-34	2.621	9.36	12.81	29.51	24.11	13.13	5.92	5.17
35-39	3.158	7.37	9.38	23.56	23.58	16.37	8.87	10.88
40-44	3.348	8.16	9.77	21.70	20.99	15.62	9.42	14.34
45-49	3.315	9.58	11.26	22.00	19.62	13.96	8.45	15.12
50-54	3.189	11.77	13.14	22.41	17.96	12.24	7.66	14.83
55-59	3.039	14.51	14.84	21.83	16.71	10.94	6.87	14.32
60-64	3.061	16.56	15.89	20.57	14.72	9.88	6.54	15.81
65-69	3.234	16.65	15.37	19.02	14.24	9.99	6.77	17.97
70+	3.733	14.11	13.30	16.79	14.17	10.56	7.81	23.25

Source: 1971 Census of Canada, Volume 1, Part 2 (Bulletin 1.2-6), Catalogue 92-718, Table 24.

As expected, the proportion of women (in the youngest age groups) having zero children or one child is quite high (nearly 90% in ages 15-19) and among women 30-44 is very low, under 20%. Older women (50 and over) have higher rates of childlessness which may be accounted for by delayed age at marriage, economic conditions, and/or health problems. Generally, at current levels of completed family size (women 35 and over) childless or one-child families are at a minimum. This emphasizes the norm that families should consist of some children, almost always two or more, but less than five. Women aged 30-39 with six or more children are relatively rare and with each succeeding generation the proportion with as large a family as five or six children gets lower and lower, with the exception of the baby-boom mothers. The circled numbers in Table 1.5 show that the plurality of women are having two children.

A significant factor of the table is the rather high rates of childlessness in the 20-24 and 25-29 age cohorts (41.97% and 20.71%). In 1961, the corresponding figures were only 26.3% and 13.6% respectively. Though most of these young women will go on to have children, the fact that they have delayed their first birth should have a lowering effect on their final fertility (Grindstaff, 1975). Women who postpone childbearing during their fertile years (ages 20-29) are likely to have smaller number of children, not only due to decreased fecundity in later years, but also due to reluctance to change a way of life they have become accumstomed to, which might include work outside home, travel, higher standard of living, and social networks which exclude children.

1.5. Age at First Marriage and Fertility

Table 1.6 presents children ever born controlling for age of woman and age at first marriage. The younger the age at first marriage, the more children a woman has and this association is clear throughout the table. The largest family size (by more than a child) is for women aged 70 and over who were married at ages 15-19.

TABLE 1.6. Children Ever Born by Age of Woman and Age at First Marriage, 1971

Age	Age at first marriage						
	15-19	20-24	25-29	30-34	35-39	40-44	45+
15-19	.634						
20-24	1.393	.557					
25-29	2.534	1.458	.648				
30-34	3.402	2.527	1.574	.853			
35-39	3.955	3.150	2.377	1.499	.944		
40-44	4.153	3.428	2.747	1.960	1.201	.815	
45-49	4.164	3.473	2.851	2.147	1.422	.859	.778
50-54	4.256	3.413	2.784	2.104	1.420	.850	.740
55-59	4.271	3.431	2.656	2.028	1.371	.878	.808
60-64	4.405	3.510	2.596	1.852	1.255	.802	.802
65-69	4.739	3.640	2.693	1.891	1.241	.817	.918
70+	5.391	4.169	3.076	2.363	1.659	1.066	1.219

Source: 1971 Census of Canada, Volume 1, Part 2 (Bulletin 1.2-6), Catalogue 92-718, Table 27.

It is interesting to note that among those women who married relatively young (under age 20 or 25), the family size generally gets smaller the younger the generation, even though all have completed their families. For example, women who married at 15-19, in 1971 when they were 45-49, had 4.164 children. Women who were 55-59 had 4.271 children and women 65-69 had 4.739 children. This reflects the general downward trend in fertility which is strong enough to be seen even when age at marriage is held constant. Women marrying after age 25 have no such clear patterns through successive generations. Obviously, early marriage age has the effect of producing relatively large families, and this relationship has few reversals in the data presented.

1.6. Data Sources

There has never been a national fertility survey in Canada, and previous monographs (Charles, 1948; Henripin, 1972) written on the subject covering Canada have based their analyses on census data. In the 1971 Census, ever-married women aged 15 and over were asked to provide information as to the number of children to whom they had given birth. Given this single question on fertility, there is no method of calculating timing or spacing of births. There is no information on children born to unmarried women (about 9% of the total number of births in 1971) or to girls under the age of 15. However, the omission may not be as great as one would at first be inclined to believe taking into account the increasing rate of illegitimacy in Canada as well as the actual numbers of illegitimate births. This is because if the woman has ever been married her illegitimate births are included in her response whether they are pre- or post-marriage.

Problems with data collection in the census are discussed by Collishaw (1976) as follows:

> Like other census data derived from the one-third sample of households, fertility data are subject to two types of errors, sampling and non-sampling error. Non-sampling errors can be further classified as respondent errors and processing errors. Respondent errors occur if questions are left blank, completed incorrectly or completed for the wrong person. For example, the question on number of children born might be erroneously left blank, five children might be indicated when the woman actually had six or the question might be completed by a single woman or a man.... A post-censal evaluation study indicated that the question on number of children ever born was incorrectly left blank 3.3% of the time. Each of the three parts of the question ask date of first marriage, month, decade and year of marriage, were left blank about 5% of the time (sic). These figures compare favourably with an over-all rate of non-response of 4.9% for all questions in the one-third sample of households.... Other types of non-sampling errors include coverage errors and processing errors. Coverage errors refer to the population missed during enumeration. Generally speaking, fewer married women are missed during a census than any other population groups. Thus,

> undercoverage is not a big problem for census fertility data. Processing errors occur in the attempt to correct respondent errors and in many stages of handling and transcription that the data undergo before reaching their final computerized format. There is no indication that fertility data fared any worse than the rest of the data during the many stages of processing (Collishaw, 1976:3).

From this discussion it is clear that, while there are some problems with census data, the overall quality is such that one has confidence in these data as a basis for the analyses that will be performed in this monograph.

There are three basic types of census data to be utilized in this study. First of all, there will be a limited analysis of published data from the one-third sample. Second, the census office provided us with several special cross-tabulations of variables that are not available in the published records. These tabulations are especially useful where sample sizes are small in particular sub-groups of the population.

Finally, for the first time in any analysis of fertility from census data, we have employed a sample from the overall information called the Public Use Sample Tape. This tape is a 1% sample of the total census, and it is available on three separate files: household, family, and individual.

The household file does not have data on children ever born, and since it is not possible to link the three files due to considerations of confidentiality, limited use of this data set has been made. (See Life Style Index, Chapter 6.) The family file could be employed, but since, compared to the individual file, it provides no additional information in relationship to children ever born and has fewer variables related to the woman, we decided to make extensive use of the individual file. The data on individuals provide the greatest amount of the necessary information for children ever born, age, duration of marriage, and socio-demographic background characteristics of the mother.

The information on the husband available from the wife's individual record is extremely limited. The only data available on husband is his level of schooling. Therefore, we have used the family file wherever we felt it may be

beneficial to examine the characteristics of the husband. Family file provides data on religion, mother tongue, education, ethnicity, and labour force status of both the spouses.

The 1% sample family file contains 50,219 family records. Of these 42,397 were of families where husband and wife were currently married and living together and both married the same number of years. Thus they approximate once-married, presently-married couples. A comparison of the fertility of these women with those selected from the individual file show that they are similar by the various socio-economic breakdowns, and the differences are not large enough to invalidate comparisons. Table 1.7 shows mean number of children ever born per ever-married women (individual file) and per once-married, currently-married women (family file) aged 15-59.

Public Use Samples exclude Prince Edward Island, Yukon, and the Northwest Territories, as these areas do not meet the population criterion of 250,000 persons in 1971. It enables us, however, to look at Montréal and Toronto separately as well as the remaining provinces.

The 1% Public Use Individual Sample Tape provides a base population of 57,073 women who are 15 years of age or older and who have been married. An important question is: How accurately does the sample represent the total Canadian census? Our analysis indicates that the distributions of the two data sets on selected variables are remarkably similar.

Tables 1.8, 1.9, and 1.10 provide comparisons of the Public Use Sample Tape and published reports from the census on the variables of women ever-married, number of children born, age of the woman, education, and mean number of children. The agreement on all of these variables is very close with the vast majority of differences in fractions of 1%. Table 1.10 shows that the mean number of children born to ever-married women in the reproductive ages (15-44) is identical between the published data and the 1% sample - 2.307 children per woman. In controlling for age, the maximum difference in mean number of children is of the order of .02. The comparisons show that even in sample subgroups of women as low in size as 50, the sample value is remarkably close to the census figure.

TABLE 1.7. Mean Number of Children per Ever-married Woman (Individual File) and per Once-married, Currently-married Woman (Family File), Aged 15-59 by Selected Demographic and Socio-economic Characteristics, for All Canada

Characteristics of woman	Ever-married women (individual file)		Once-married currently-married women (family file)	
	Number of women	Mean number of children	Number of women	Mean number of children
Total	45,106	2.594	36,986	2.600
Age of woman				
15-19	771	.615	640	.614
20-24	5,302	.897	4,704	.867
25-29	6,602	1.694	5,754	1.700
30-34	6,023	2.623	4,983	2.656
35-39	5,771	3.145	4,838	3.182
40-44	5,755	3.363	4,783	3.437
45-49	5,623	3.303	4,600	3.367
50-54	4,992	3.167	3,620	3.255
55-59	4,267	3.028	3,064	3.128
Religion				
Catholic	20,499	2.844	17,143	2.826
Protestant	19,454	2.403	13,914	2.416
Other	3,512	2.479	4,723	2.475
None	1,641	1.990	1,206	2.017
Education				
8 years or less	14,221	3.341	11,429	3.314
9-11 years	17,140	2.495	14,138	2.531
12-13 years	10,129	1.994	8,523	2.012
university	3,616	1.810	2,887	1.853
Residence				
Urban 30,000+	26,868	2.274	21,463	2.289
Urban -30,000	8,668	2.780	7,238	2.738
Rural non-farm	7,000	3.220	5,941	3.128
Rural farm	2,570	3.614	2,344	3.689
Ethnicity				
British	20,172	2.476	16,193	2.490
French	12,447	2.955	10,410	2.898
Other European	9,184	2.407	5,927	2.554
Other	3,303	2.477	4,456	2.365
Last worked				
1970-71	23,496	2.149	18,638	2.161
Before 1970	13,994	2.741	11,866	2.739
Never	7,616	3,698	6,482	3.609
Mother tongue				
English	26,205	2.454	21,196	2.471
French	11,793	2.984	9,850	2.915
Other	7,108	2.463	5,940	2.541

Source: 1971 Census of Canada, Vol. 1, Part 2 (Bulletin 1.2-6), Catalogue 92-718, Table 27.

TABLE 1.8. Comparison of 1971 Census and One Per Cent Sample for Women Ever Married; Number of Children by Selected Age Groups

Age by number of children	Census		One per cent sample	
	Number of women	Per cent of total	Number of women	Per cent of total
20-24				
0	224,540	41.9	2,209	41.7
1	179,105	33.5	1,836	34.6
2	98,945	18.5	961	18.1
3	24,440	4.6	223	4.2
4	5,590	1.0	57	1.1
5	1,490	0.3	11	0.2
6+	910	0.2	2	0.0
N	535,035	100.0	5,299	100.0
30-34				
0	54,885	9.4	540	9.0
1	75,105	12.8	769	12.8
2	173,075	29.5	1,773	29.3
3	141,370	24.1	1,474	24.5
4	77,000	13.1	831	13.8
5	34,705	5.9	337	5.6
6+	30,310	5.2	299	5.0
N	586,455	100.0	6,023	100.0
40-44				
0	47,105	8.2	493	8.6
1	56,330	9.8	539	9.4
2	125,270	21.7	1,224	21.3
3	121,160	21.0	1,188	20.6
4	90,160	15.6	929	16.1
5	54,385	9.4	545	9.5
6+	82,765	14.3	837	14.5
N	577,180	100.0	5,755	100.0

Source: 1971 Census of Canada, Volume 1, Part 2 (Bulletin 1.2-6), Catalogue 92-718, Table 24.

TABLE 1.9. Comparison of 1971 Census and One Per Cent Sample for Women Ever Married; Number of Children by Selected Age Groups and Education

Age by education by number of children	Census		One per cent sample	
	Number of women	Per cent of total	Number of women	Per cent of total
15-44				
Below Grade 9				
0	77,575	9.9	789	10.0
1	116,065	14.8	1,194	15.2
2	186,875	23.8	1,864	23.7
3	146,830	18.6	1,483	18.8
4	99,725	12.6	970	12.3
5	60,945	7.8	603	7.7
6+	98,720	12.5	975	12.4
N	786,745	100.0	7,878	100.0
Grades 9 - 13				
0	377,490	19.3	3,778	19.3
1	385,500	19.7	3,852	19.7
2	501,305	25.7	4,976	25.5
3	337,610	17.3	3,330	17.0
4	184,825	9.5	1,964	10.0
5	86,010	4.4	859	4.4
6+	79,920	4.1	800	4.1
N	1,952,650	100.0	19,559	100.0
University				
0	89,905	32.6	902	32.4
1	56,255	20.4	547	19.6
2	61,000	22.0	603	21.6
3	38,240	13.9	412	14.8
4	18,195	6.6	187	6.7
5	7,135	2.6	86	3.1
6+	5,380	1.9	50	1.8
N	276,105	100.0	2,787	100.0

Source: 1971 Census of Canada, Volume 1, Part 5 (Bulletin 1.5-11), Catalogue 92-751, Table 34.

TABLE 1.10. Comparison of 1971 Census and One Per Cent Sample for Women Ever Married; Mean Number of Children by Selected Age Groups

Age	Census			One per cent sample		
	Number of women	Per cent of total	Mean number of children	Number of women	Per cent of total	Mean number of children
15+	5,743,230	100.0	2.775	57,073	100.0	2.767
15-44	3,015,500	52.5	2.307	30,244	53.0	2.307
15-19	77,775	1.4	0.634	771	1.4	0.615
20-24	535,035	9.3	0.910	5,302	9.3	0.897
25-29	663,040	11.6	1.706	6,602	11.6	1.694
30-34	586,455	10.2	2.621	6,023	10.6	2.623
35-39	576,010	10.0	3.158	5,771	10.1	3.145
40-44	577,180	10.1	3.348	5,775	10.1	3.363
45-49	581,190	10.1	3.315	5,623	9.9	3.303
50-54	493,860	8.6	3.189	4,992	8.7	3.167
55-59	438,275	7.6	3.039	4,267	7.5	3.028
60-64	355,945	6.2	3.061	3,446	6.0	3.015
65-69	289,065	5.0	3.234	2,849	5.0	3.236
70-74	569,390	9.9	3.733	2,139	3.7	3.537
75+				3,533	6.2	3.882

Source: 1971 Census of Canada, Volume 1, Part 2 (Bulletin 1.2-6), Catalogue 92-718, Table 24.

1.7. Definition and Measurement of Variables

1.7.1 Independent Variables

The following section lists all of the independent variables employed in the study. For a complete listing of definitions and categories, see the Public Use Sample Tapes User Documentation (Statistics Canada, 1975). The categories in the 1% sample tapes are often not as detailed as in the census due to considerations of size. Categories with fewer cases are often collapsed in the sample data.

1. Level of Schooling: This refers to the highest grade or year of elementary school, secondary school or university attended.

2. Mother Tongue: This refers to the first language learned that is still understood. Persons who no longer understand the first language they learned reported the next language they learned and still understand.

3. Birthplace: This refers to province of birth, if born in Canada, and country of birth according to boundaries at the census date, if born outside Canada.

4. Ethnic Groups: This refers to ethnic or cultural background traced through the father's side.

5. Religion: This refers to the specific religious body, denomination, sect or community reported in answer to the question "What is your religion?"

6. Language of the Home: This refers to the language spoken most frequently by the person in his home.

7. Migration Status: This refers to (a) movers and non-movers (mobility status); and (b) migrants and non-migrants (migration status) between June 1, 1966 and June 1, 1971. Movers refers to persons who, on Census Day, were living in a different dwelling from the one occupied five years previously. Migrants are persons whose place of residence five years prior to the census was outside the municipality in which they were residing at the census date. Non-migrants are

persons who were residing in the same municipality five years prior to the census, even though they may have changed dwellings within the municipality, or have moved out of the municipality and returned to it within the five-year period.

8. Labour Force Participation: (a) When last worked: this refers to the year or period in which persons 15 years and over last worked at all, even for a few days; (b) Weeks worked during 1970: this refers to the number of weeks in 1970 during which the respondent worked, even for a few hours.

9. Family Income: This refers to the sum of the incomes received by all members of the family 15 years and over, from all sources, during the calendar year 1970.

10. Residence: This refers to the place where a person normally lives and sleeps (i.e., his home).

11. Age at First Marriage: The age at first marriage was derived by combining information on date of first marriage with date of birth.

12. Age: In the census publications, age is usually arranged in five-year groupings. In the Public Use Sample Tape, when controlling for regions, the age groupings generally employed are (a) 15-24; (b) 25-34; (c) 35-44; and (d) 45 and over. The main reason for this categorization is to provide for sufficient numbers in the cross tabulations. In addition, these cutting points relate to (i) low fertility, beginning of childbearing; (ii) high fertility, prime childbearing; (iii) low fertility; finished childbearing; and (iv) completed fertility, end of childbearing.

Traditionally, occupation of husband has been used as an explanatory variable in fertility differentials. In 1971, the occupational categories used are different from those of previous censuses and not directly comparable to any other analyses since we are interested primarily in the wife's characteristics.

Occupation as an independent variable in the analysis of fertility will not be used extensively in this study. The 1971 Census developed several new classifications of occupational groups, and thus the 1971 designations are not comparable with any previous census. Only about 50% of the ever-married women, who form the central individual focus of this monograph, are in the occupational structure, and many of the women are concentrated in relatively few occupations. Where husband-wife characteristics are examined in combination, some use will be made of the occupational data, but by and large in the information on the occupation-fertility data will not utilized.

1.7.2. Dependent Variable

The dependent variable of fertility can be measured in several ways. However, the degrees of freedom this suggests, are severely restricted when the data source is the Canadian census. Working with the 1971 Canadian Population Census two adequate measures of fertility are available. The first, easier and more popular method is children ever born. This, acording to the census, "refers to the number of children born alive whether born to the present marriage or any previous marriage." As this definition shows, only live births to ever-married women are included. This measure of fertility is not a pregnancy measure, nor does it realistically tell us about the number of children each respondent adds to the Canadian population. Pregnancies not resulting in a live birth are not included. Infants that die are included and so are all deaths among one's children in later years.

This measure of fertility gives no indication of the timing and spacing of these births. Thus, a woman who gave birth to four children when she was between 16 and 21 years old and another woman who gave birth to the same number each spaced three years apart when she was between 22 and 35 would be seen as having the same family and societal impact due to fertility.

Children ever born is a measure of cohort fertility. In the case of the data used in this study, the cohort can be specified by a number of socio-demographic characteristics such as age, age at first marriage, level of education, and religion to name a few. We can work with single age cohorts of ever-married women or five-year age cohorts of these women. For the younger age cohorts what we have

is fertility up to the time of the interview in 1971. For age cohorts 40 and over, we are, within the Canadian context, talking about completed fertility. We are therefore able to examine fertility changes over time and more specifically among age cohorts of women who are no longer in the childbearing ages. Assuming equal mortality levels among the children, we can in fact also talk about changes in family sizes among age cohorts of women 40 and over. A weakness of this fertility measure is that in fact we can talk about completed fertility without being able to say anything about completed family size or number of living children.

In using this measure of fertility, the children of deceased women and those who have never been married are excluded. We cannot therefore talk about the total contribution of fertility to the population growth rate and size.

Adopted children and step children are excluded from the number of live births reported by their present mother but hopefully are included by their real mother if she is an ever-married woman. Widows, divorcees and separated women were interviewed with respect to children ever born and are included in the analysis of this study under the heading women ever married.

Most of the analyses with respect to children ever born are based on the 1% individual Public Use Sample Tape. The question on children ever born was asked on a sample basis. One in every three ever-married women was asked to respond to this question. Statistics Canada evaluations established the representativeness of both the sample one in three and the subsample 1%. Our comparisons of the sample and the subsample show extremely high correspondence between them on children ever born and the relationships between this variable and several socio-demographic ones. We strongly assert and defend the representativeness of the subsample with respect to the Canadian sample.

The second measure of fertility that can be derived from census data is more complex. By concentrating on young children less than five years of age, a measure of current fertility or most recent fertility can be constructed. This so-called "own-children ratio" has become popular in census fertility data analysis especially in countries with poor vital statistics information. Since Canada has good vital statistics, measurement of current fertility from census data which is at best only a crude approximation is hardly worth the effort. Its merit, however, lies in the fact that correlated information on the socio-

economic characteristics of women are available in the census and not in vital statistics.

Since the census information is for members of a household and not necessarily for a nuclear family, various steps have to be taken to minimize the errors that might arise by considering children in a household who are not necessarily the children of the ever-married woman in that household. In a recent Statistics Canada Bulletin on "own-children ratios", all currently married women 15 to 44 years old who were married once only and had at least one live birth were selected in order to compute these ratios. This selection procedure was expected to exclude couples with stepchildren and childless or other couples who may have adopted children. Children zero to four years old were then linked with the eligible mothers and ratios per 1,000 women were calculated (1971 Census Special Bulletin, 92-777). Our own procedure was somewhat different. Excluding childless women in the denominator of the ratios will substantially increase the ratios, and almost make "own children under one year of age ratios" meaningless. As such we included them. The procedure was to select all once married, presently married women 15 to 44 years of age, provided the number of children in the household was less than or equal to children ever born reported by the woman. Children under one year of age (born June 1970 to May 1971) and under five years of age (born June 1966 to May 1971) in the households were divided by the corresponding number of ever-married women and expressed per 1,000. As such our ratios are not directly comparable to the published Statistics Canada figures.

These calculated ratios are estimates of current (recent) fertility. They perhaps underestimate the fertility levels because the calculation of these ratios ignores mortality of women and children, children not living with their mothers, and children born to unmarried women. The possible misreporting of marital status, age of women, age of children, and number of living children also affects the accuracy of these ratios as a measure of current fertility. These considerations as well as the fact that they are not derivable from the Public Use Sample Tapes have resulted in our limited use of them. The special Statistics Canada bulletin referred to above may be consulted by those who are interested in these ratios. Vital statistics are an excellent source of data on current fertility levels, but because of the lack of socio-demographic variables it is impossible to carry out a study of explanatory factors with respect to fertility using the data of the vital registration system.

The two measures of fertility utilized give us two distinct aspects. Children ever born, being cohort analysis, can be used to look at past and present fertility and among women in the age group 45 and over we can speak of changes in completed family sizes. Own-children ratios, on the other hand, being a measure of current marital fertility tell us something about present period fertility levels. In this case one can relate the present socio-economic characteristics of the women with their present fertility performance, something which is not possible for children ever born. With children ever born we are relating the present socio-economic characteristics of the women with their past fertility. This is especially true among the older age cohorts.

Census data have advantages and disadvantages for the type of investigation we have attempted. On the positive side we have either the total Canadian population or a very large representative national sample. Also on the positive side we have reliable and valid data on our independent and dependent variables. It costs relatively little to obtain a national picture of the fertility situation and the interrelationships between fertility and certain socio-demo-cultural characteristics of the population. On the negative side only limited fertility information is gathered and no attitudinal or motivational data are collected in censuses.

We believe that an undertaking of the type presented here is useful, and we would hope that it may serve as the background against which studies on Canadian fertility can be judged. We would hope also that it may motivate researchers to conduct more intensive investigations of the determinants of fertility within Canada.

1.8. Summary

In this chapter, we have attempted to examine briefly the historical trends of both period and cohort fertility in Canada and to define the appropriate variables. In Chapter 2 we begin the analysis of the 1971 Census data on fertility using basic cross-tabular material and three or four control variables.

CHAPTER 2

VARIATION IN FERTILITY BY GEOGRAPHIC AND SOCIO-ECONOMIC FACTORS

2.1. Introduction

In the preceding chapter, we briefly examined historical trends in fertility in Canada and some of the obvious demographic factors such as age and age at first marriage as they relate to fertility. Of particular interest in understanding fertility is an investigation of differentials by various subgroups of any population. Through cross-tabulations we will examine such differences in this chapter. The main focus of analysis will be ever-married women using the data available on the 1% individual sample file. Because of its overwhelming importance within the context of fertility, age will be controlled wherever possible.

Though equally important, marriage duration is used less often as a control. This is due to two reasons. First, much of the influence of marriage duration is already captured in age. Age and marriage duration are highly correlated. An older woman is likely to have a greater number of children and is also likely to have been married longer. The need for control of marriage duration arises, if for any given age, substantial differences in mean marriage duration exist among the various socio-economic groups. An examination of the data showed that for most of the categories of women, this is not the case. Since simultaneous control for age and marriage duration decreases cell sizes considerably in the investigation of the influence of other variables on fertility, we have concentrated more on age than on marriage duration. However, where it was felt necessary to control for both, this has been done. For example, marriage duration is likely to vary more for younger cohorts than for older cohorts of women and the need therefore to control for marriage duration is greater.

In addition to age, the use of control variables is not likely to extend to beyond two or three other variables in most instances. This is dictated not only due to problems of small cell size problems but also due to difficulties in interpretation where cross-tabulations extend to four or five variables simultaneously. Besides the above socio-economic factors analyzed in this chapter in relation to fertility, a brief examination of the influence of the demographic

factors of age at first marriage and the interval from marriage to first child will be made.

2.2. Type of Residence

One of the most significant fertility differentials in Canada has been that of geographic location. Historically, fertility has varied by provinces as well as by level of urbanization or size of place. These variations persist in 1971, though the overall levels of fertility in 1971 were drastically lower than in 1961, as reflected in child-woman ratios and children ever born. Table 2.1 presents ratios of children 0-4 to married women aged 15-49 in 1961 and 1971. There is nearly a one third decline in the ratios, indicating essentially a substantial change in the period rates in the late 1960's as compared with the baby-boom years of the late 1950's.

TABLE 2.1. Ratio of Children Aged 0-4 to 1,000 Married Women Aged 15-49, Canada and Provinces, Urban and Rural, 1961 and 1971

Area	1961		1971	
	Urban	Rural	Urban	Rural
Canada	704	923	473	626
Prince Edward Island	869	988	563	704
Nova Scotia	778	874	534	626
New Brunswick	802	1,037	551	685
Quebec	773	1,136	466	647
Ontario	652	833	454	562
Manitoba	655	878	486	685
Saskatchewan	752	826	527	618
Alberta	762	870	508	631
British Columbia	628	831	443	560

Source: Reconstructed from Census of Canada publications.

The differences between rural and urban areas are more significant than the differences among provinces. Urban ratios are about 25% lower than rural ratios in 1971 as they were in 1961. The most dramatic decline in the child-woman ratios are in Quebec, from .773 to .466 in the urban areas and from 1.136 to .647 in the rural areas - a decline of more than 40%. The lowest absolute ratios are, however, in Ontario and British Columbia.

While child-woman ratios represent essentially the period of fertility in the five years preceding the census date, children ever born figures measure cohort fertility. Number of children ever born for 1,000 ever-married women by size of place are shown in Table 2.2. Within urban areas, there is a strong inverse relation between population size and fertility. This is true of all the age groups. For a young cohort (aged 25-29), children ever born range from 1,891 per 1,000 ever-married women in urban areas of less than 10,000 inhabitants to 1,472 in large metropolitan areas of 100,000 or more population. For the cohort of women who have just completed their reproductive period (aged 45-49) these figures range from 3,800 to 2,796. The pattern is remarkably consistent through all the age cohorts. Fertility is generally highest in the rural farm areas with the rural non-farm areas having levels of fertility slightly lower, but still considerably higher than urban areas.

While it is true that type of residence is confounded with other factors such as education, occupation and income, which influence fertility, we will show later that even when we control for these factors, type of residence has a considerable influence in itself. There is probably something inherently conducive to higher fertility in the rural economy, environment, social and familial relationships. That is, the economic utility of children is greater on the farm than in urban areas. Social networks are somewhat limited outside the home in rural areas and this may encourage larger and closer family networks. Marginal costs of additional children are likely to be smaller in the rural areas due to lower costs of land and housing. Concerns of social and geographic mobility may be less crucial in rural areas, and in this sense, children are not evaluated as costs in that rural people tend to be less mobile. Rural occupations for women may also be more compatible to simultaneous childbearing and child rearing. Generally, the life style in rural areas is more home-centred, which in turn is an encouragement to a larger family.

TABLE 2.2. Number of Live-born Children per 1,000 Women Ever Married, According to Their Age in 1961 and 1971, Canada, for Various Types of Residences

Residence	Age of women										
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All types of residences: 1961	735	1,327	2,178	2,775	3,102	3,231	3,110	3,154	3,385	3,650	4,038
1971	634	910	1,706	2,621	3,158	3,348	3,315	3,189	3,039	3,061	3,565
All urban areas: 1971	592	832	1,583	2,448	2,936	3,098	3,055	2,912	2,779	2,791	3,320
Less than 10,000 inhabitants	678	1,026	1,891	2,836	3,464	3,740	3,800	3,626	3,494	3,512	4,029
10,000 to 29,999 inhabitants	614	948	1,732	2,672	3,220	3,446	3,436	3,309	3,167	3,195	3,699
30,000 to 99,999 inhabitants	594	850	1,675	2,592	3,162	3,358	3,315	3,164	3,022	3,103	3,659
100,000 inhabitants and over	561	765	1,472	2,298	2,734	2,861	2,796	2,640	2,501	2,495	2,998
Rural non-farm: 1971	766	1,244	2,184	3,258	3,964	4,223	4,202	4,044	3,835	3,912	4,404
Rural farm: 1971	704	1,211	2,249	3,286	3,998	4,329	4,328	4,216	4,057	4,136	4,753

Source: Henripin (1972), Table 4.3, and 1971 Census of Canada, Catalogue 92-718, Vol. 1-Part 2 (Bulletin 1.2-6), Table 24.

The inverse relation between urbanisation and fertility found in all the age cohorts of women also holds true when marriage duration is controlled (table not shown). In the 1% sample, among women aged 15-24, married for less than five years, rural non-farm women averaged .939 children, while those in urban areas of greater than 30,000 population averaged only .610 children. In the various other marriage durations for the older women as well the pattern is consistent. For example, among women aged 35-44 married for more than 15 years, average fertility decreases from 4.525 in rural farm areas to 3.157 in larger urban areas.

Regional analysis shows that fertility in the Atlantic provinces is higher than the national average, a pattern that has been true historically (Henripin, 1972). For the cohorts who have just completed their fertility (women aged 45-49) the average number of children ever born for 1,000 married women was 5,223 in Newfoundland, 4,391 in Prince Edward Island, 4,270 in New Brunswick and 3,737 in Nova Scotia. It was somewhat lower in Quebec at 3,759. Fertility was lowest in Ontario and British Columbia at 2,914 and 2,869, respectively (table not shown). The Prairie provinces fall in between Quebec and Ontario.

The relative ranking of the provinces holds for the younger cohorts who are still in the reproductive ages, except in the case of Quebec, where a sharp change is evident. For all the age cohorts younger than 35 years, Quebec fertility is the lowest in Canada. Children ever born to women aged 25-29 in Quebec was only 1.552 per woman well below the national average of 1.706 and even below the next lowest, 1.652 for Ontario. The rapid decline of fertility in Quebec is the most salient feature of recent Canadian fertility trends. While later analysis will expand on this finding, the primary reasons for the rapid decline undoubtedly relate to the modernization process which has been taking place in Quebec in the past two decades.

There seems to be a narrowing of the inter-provincial differences in fertility among the younger cohorts compared to the older cohorts. However, since these women have not yet completed their childbearing, it can only be surmised that this convergence is likely to persist through the rest of their childbearing period.

Urban fertility is about a third lower than rural fertility in almost all the provinces and age cohorts. The differences in fertility between rural

non-farm and rural farm are much less pronounced than rural-urban differences. Only among the older cohorts of women is the fertility of rural farm women noticeably more than their rural non-farm counterparts.

Table 2.3 presents data on children ever born for the various metropolitan areas. For the younger age cohorts (up to age 40), the three largest metropolitan areas of Toronto, Montréal and Vancouver have the lowest fertility rates. After the three largest metropolitan areas, the generally found inverse relation of fertility to size of place is not so evident among the metropolitan areas. Smaller cities such as London and Kitchener-Waterloo have no higher fertility than larger centres such as Ottawa or Winnipeg. Other factors such as regional location seem to influence metropolitan area fertility more than population size. Metropolitan areas reflect the level of fertility of the regions in which they are located. Those situated in the Atlantic provinces and Québec City have somewhat higher fertility than the others. Regional differences in fertility are difficult to explain. They are probably the result of a large set of variables such as ethnic and religious membership, life style, economic conditions and educational levels.

Though inter-metropolitan fertility differences are not insignificant, the patterns within the cities are remarkably consistent. In every metropolitan area, with hardly any exceptions, fertility in the urbanized core is 10% to 20% lower than in the fringe. For example, the number of live-born children per 1,000 ever-married women aged 15-44 in the urbanized core areas of Montréal and Toronto were 1,986 and 1,850 as compared to 2,418 and 2,209 in the fringe areas. (Table not shown. See 1971 Census of Canada, Catalogue 92-718, Volume I-Part 2, Bulletin 1.2-6, Table 26.) Similar patterns were prevalent in the other metropolitan areas. This, of course, has to do with the character and availability of housing and the type of land use patterns. The housing needs of those with larger families are met better in the fringe areas than in the urbanized core.

Some of the possible interaction between type of residence and other variables such as mother tongue and education on fertility are examined in Table 2.4. The differences by type of residence persist even when these variables are controlled. Both among the English and the French mother tongue groups, the average number of children is higher in the rural areas then in the urban areas. While the difference between rural farm and rural non-farm women is minimal, that

TABLE 2.3. Number of Live-born Children per 1,000 Ever-married Women, According to Age in 1971, Canada, Metropolitan Areas

Metropolitan area	Age of women in 1971										
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
Calgary	561	823	1,595	2,427	2,881	2,950	2,782	2,599	2,441	2,489	2,914
Edmonton	566	830	1,649	2,573	3,040	3,141	3,091	2,890	2,676	2,873	3,494
Halifax	611	844	1,634	2,567	3,136	3,292	3,209	2,922	2,828	2,793	3,361
Hamilton	566	842	1,591	2,435	2,845	2,880	2,737	2,566	2,445	2,397	2,639
Kitchener-Waterloo	489	820	1,618	2,499	2,914	3,014	2,870	2,774	2,472	2,401	2,907
London	551	813	1,563	2,457	2,867	2,973	2,790	2,559	2,348	2,326	2,644
Montréal	531	734	1,440	2,230	2,693	2,912	2,937	2,810	2,701	2,752	3,462
Ottawa	551	766	1,529	2,485	3,027	3,164	3,132	2,918	2,752	2,767	3,377
Québec	560	893	1,734	2,743	3,378	3,817	3,866	3,762	3,640	3,764	4,817
Regina	628	811	1,692	2,606	2,941	3,128	2,928	2,684	2,618	2,905	3,537
St. Catharines	625	935	1,777	2,636	3,026	3,112	2,921	2,726	2,595	2,625	2,963
Saskatoon	606	811	1,682	2,676	3,035	3,171	3,107	2,860	2,757	2,885	3,564
Saint John (N.B.)	579	1,080	1,997	2,924	3,479	3,578	3,274	3,117	2,794	2,677	3,351
St. John's (Nfld.)	631	1,046	1,857	2,980	3,901	4,295	4,195	4,229	3,987	4,025	4,296
Sudbury	585	899	1,980	2,899	3,498	3,609	3,466	3,258	3,160	3,350	4,090
Thunder Bay	702	1,015	1,739	2,660	3,068	3,117	3,121	2,876	2,655	2,508	2,943
Toronto	559	768	1,401	2,191	2,558	2,611	2,485	2,359	2,256	2,202	2,590
Vancouver	571	761	1,453	2,279	2,668	2,747	2,606	2,383	2,190	2,080	2,620
Victoria	576	790	1,649	2,510	2,886	2,984	2,719	2,408	2,113	1,989	2,217
Windsor	618	951	1,792	2,711	3,306	3,254	3,223	2,933	2,738	2,669	3,067
Winnipeg	578	763	1,571	2,425	2,912	2,976	2,835	2,588	2,348	2,362	2,977

Source: 1971 Census of Canada, Catalogue 92-718, Vol. 1-Part 2 (Bulletin 1.2-6), Table 26.

TABLE 2.4. Mean Number of Children Ever Born per 1,000 Ever-married Women by Type of Residence and Mother Tongue and Education, All Canada(1)

	Urban 30,000+	Urban >30,000	Rural non-farm	Rural farm	Total	(Number of women)
Mother tongue						
			15-24			
English	748	962	1,192	1,000	878	(3,892)
French	720	773	996	(2)	804	(1,465)
Other	833	908	1,222	(2)	883	(716)
			25-34			
English	1,931	2,291	2,607	2,667	2,169	(7,157)
French	1,887	2,163	2,607	2,900	2,096	(3,477)
Other	1,864	2,304	3,014	2,932	2,094	(1,991)
			35-44			
English	2,875	3,348	3,860	3,829	2,178	(6,367)
French	3,157	3,823	4,479	5,103	3,619	(3,107)
Other	2,603	3,262	3,727	4,206	2,935	(2,052)
			45+			
English	2,543	3,116	3,443	3,368	2,855	(16,132)
French	3,612	5,063	5,582	6,600	4,423	(6,270)
Other	2,844	3,586	4,415	3,819	3,237	(4,447)
Education						
			15-24			
Below Grade 9	1,115	1,306	1,566	(2)	1,274	(962)
9-11	907	1,005	1,222	1,162	993	(2,556)
12-13	565	665	777	862	623	(1,961)
Some university	368	573	510	(2)	411	(594)
			25-34			
Below Grade 9	2,320	2,762	3,295	3,052	2,636	(2,952)
9-11	2,028	2,304	2,723	2,855	2,241	(5,081)
12-13	1,653	1,937	2,084	2,466	1,801	(3,284)
Some university	1,354	1,654	1,606	2,264	1,450	(1,308)
			35-44			
Below Grade 9	3,183	3,889	4,620	4,667	3,701	(3,964)
9-11	2,902	3,417	3,769	4,026	3,198	(4,422)
12-13	2,614	2,972	3,188	3,808	2,807	(2,255)
Some university	2,507	3,254	2,776	3,135	2,670	(885)
			45+			
Below Grade 9	3,266	4,285	4,790	4,604	3,856	(13,483)
9-11	2,562	3,192	3,345	3,774	2,867	(7,945)
12-13	2,369	2,702	2,771	3,235	2,511	(4,185)
Some university	2,258	2,390	2,480	3,226	2,355	(1,236)

(1) Excluding Yukon, Northwest Territories and Prince Edward Island.

(2) Base less than 50.

Source: Public Use Sample Tape.

between the two urban categories is substantial. For women older than 35, French-speaking groups had more children than English-speaking groups, with the pattern reversing for the younger than 35 age cohorts.

The rural-urban pattern is also evident among the various educational categories. Even though the more educated women have much lower fertility, as a whole, the more educated, rural women have higher fertility than their counterparts in the urban areas. However, rural-urban differences decrease with increase in education. Among the least educated women (below Grade 8) rural fertility is almost 50% higher than urban fertility, while for women with at least some university education, the increase is only 10%. Increased education seems to offset the pronatalist effect of a rural way of life to a considerable degree. Thus, type of residence seems to have an influence of its own on number of children, probably because the rural way of life is conducive in various ways to a higher level of fertility.

2.3. Religion

Religion has always been considered an important explanatory variable in past fertility studies. Some of these studies have concluded that religion is the single most important socio-cultural factor in accounting for differences in fertility (Westoff & Ryder, 1971). Though most religions of the world are pronatalist and emphasize the importance of children in marriage, the influence of this position on their followers shows great variation.

In the United States and Canada, Catholic fertility has substantially exceeded Protestant fertility except for some small groups such as the Hutterites until very recently. Catholic women both desire and have larger families than do non-Catholic women. The higher Catholic fertility has been attributed to the church doctrine on use of birth control methods and in general on the strong pronatalist position of the Catholic church. Even when various other socio-economic factors have been carefully controlled, religious differences in fertility have persisted. Henripin, in analyzing the 1931 through 1961 Canadian Census data, comments that one of the rare elements resisting convergence in fertility is religious background. Average completed family size for a Catholic woman in 1961 was 3.95, as against 2.57 for a Protestant woman.

The rapid decline in fertility in recent years, especially in Quebec, which is predominantly Catholic, warrants a careful re-examination of religious differences in fertility. Table 2.5 presents the mean number of children by age and religious denomination for all Canada. Catholic-Protestant differences do not exist in the younger cohorts up to age 30, the fertility being almost identical. For the age group 25-29, mean number of children per 1,000 ever-married Catholic women was 1,728 compared to 1,713 for Protestant women. The differences which are considerable for the older cohorts have declined with age and vanished among the younger women. Mennonite and Hutterite women have the highest fertility rates and generally the Jewish women the lowest, though there seems to be a convergence among all the religious groups. It is hazardous to conclude about converging fertility differences on the experience of very young cohorts since they have not completed their childbearing. However, the fertility of women in the age group 35-44, who have practically completed their childbearing, show that religious differences in fertility among them are much lower than among older women, aged 65 or over.

Since Protestants and Catholics form about 90% of the total population and are approximately equal in number, it may be worthwhile to examine the differences between these two major groups more closely. Table 2.6 presents fertility by major religious category of women and three other variables. Among foreign-born women Catholics have consistently higher fertility than Protestants even among younger cohorts. However, among native born women, while older Catholic women had much higher fertility than the Protestants, younger Catholics have even lower fertility than Protestants. Evidently this is because native-born French Canadian Catholics are experiencing a much lower fertility than immigrant Catholic women mainly from European countries such as Italy and Portugal.

A comparison of Catholic-Protestant differences by mother tongue is also revealing. Among English speaking women, Catholic fertility is higher even in the younger cohorts. Thus, it is among the French-speaking women that Catholic fertility has dropped substantially. Again, this finding probably relates to the substantial socio-economic changes that have been taking place in Quebec in the past 20 years.

Protestant-Catholic differences are not consistent in the various educational categories. Among the least educated group of women (those with less

TABLE 2.5. Mean Number of Children Born per 1,000 Ever-married Women by Age and Religious Denomination

Religious denomination	Age group										
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
Roman and Ukrainian Catholic	644	919	1,728	2,685	3,326	3,668	3,811	3,819	3,732	3,862	4,691
Greek Orthodox	473	893	1,478	2,039	2,358	2,473	2,499	2,614	2,674	2,977	3,908
Protestant denominations	639	914	1,713	2,574	2,998	3,052	2,896	2,704	2,502	2,434	2,835
Mennonite and Hutterite	591	934	1,913	3,213	3,878	4,363	4,585	4,556	4,583	4,700	5,441
Jewish	328	507	1,357	2,285	2,502	2,495	2,354	2,071	1,965	1,871	2,724
Other	614	898	1,628	2,583	3,137	3,287	3,189	3,052	2,991	3,027	3,466
Total	634	910	1,706	2,621	3,158	3,348	3,315	3,189	3,039	3,061	3,565

Source: 1971 Census of Canada, Catalogue 92-751, Vol. 1-Part 5 (Bulletin 1.5-11), Table 32.

TABLE 2.6. Mean Number of Children Born per 1,000 Ever-married Women by Religion and Nativity, Mother Tongue, and Education

	15-24			25-34			35-44			45+		
	Prot-estant	Cath-olic	Other	Prot-estant	Cath-olic	Other	Prot-estant	Cath-olic	Other	Prot-estant	Cath-olic	Other
Nativity												
Native-born	891	865	809	2,197	2,231	2,129	3,107	3,736	3,214	2,788	4,218	3,033
Foreign-born	814	848	731	1,745	1,935	1,840	2,488	2,718	2,878	2,653	3,389	2,933
Mother tongue												
English	875	944	771	2,122	2,397	1,964	3,015	3,764	3,071	2,702	3,619	2,815
French	(1)	803	(1)	2,200	2,096	2,037	2,841	3,649	(1)	3,702	4,452	3,222
Other	1,000	858	855	2,109	2,079	2,113	2,758	2,916	3,168	3,088	3,383	3,182
Education												
Less than Gr. 9	1,540	1,188	1,179	2,815	2,557	2,674	3,477	3,805	3,534	3,200	4,453	3,421
Grades 9 to 11	1,097	906	1,033	2,365	2,125	2,266	3,062	3,309	3,082	2,567	3,480	2,777
Grades 12 to 13	636	601	635	1,783	1,859	1,717	2,656	3,062	2,845	2,363	3,114	2,233
Some university	401	497	312	1,383	1,532	1,448	2,513	3,020	2,567	2,278	2,790	1,953

(1) Less than 50 cases.

Source: Public Use Sample Tape.

than Grade 9 schooling), Catholic women aged 35 or more had much higher fertility than Protestant women, a pattern that is reversed among the younger women. For cohorts younger than 35 years of age, Protestant fertility is significantly greater than Catholic fertility. For example, Protestant women aged 25-34 have an average of 2.815 children as compared to 2.557 children for Catholic women and in the age group 15-24, Protestant fertility is 1.540 compared to 1.188 for Catholics. One reason for this latter finding may be a larger number of premarital pregnancies leading to marriage among less educated, young Protestant women (Zelnik & Kantner, 1977). However, among the more educated women, Catholic fertility continues to be higher than Protestant fertility even for younger women, though the differences are lower than for the older age cohorts. In other words, the inverse relationship of education to fertility is much less pronounced for Catholics.

For presently married women, fertility by her religion and by her husband's religion are presented in Table 2.7. In general, couples of mixed religious background have lower fertility rates than couples of the same religious backgrounds. Except for the very young age cohort (15-24) couples where both are Catholic have the highest fertility. Where one of the spouses is Catholic and the other non-Catholic, the fertility is lower than when both are Protestant. It seems the higher fertility associated with Catholicism at the older ages occurs only when both spouses are Catholic. There is no clear pattern evident in the various other mixed-marriage groups.

Table 2.8 presents Catholic and non-Catholic couples and the relationships within these two religious groups between education and fertility, while controlling for the present age of the wife. Among non-Catholic couples those with high education for both the husband and wife (Grade 12 and above) have the lowest levels of fertility and those couples in which both the husband and wife have low education have the highest fertility levels. The mixed couples (husband and wife having different educational levels) have fertility levels intermediate between these two groups. In these mixed couples it seems that the wife's low education in the under 35 age groups gives rise to higher levels of fertility and among the 35 and over groups the pattern is reversed. Among Catholic couples, the pattern is in general similar to that seen above for the non-Catholic couples.

TABLE 2.7. Children Born per 1,000 Presently Married Women by her Religion and Husband's Religion

Religion of wife and husband	Age of wife							
	15-24		25-34		35-44		45+	
Wife Catholic - Husband Catholic	844	(2,025)	2,184	(5,078)	3,332	(4,514)	3,440	(6,804)
Wife Protestant - Husband Protestant	883	(1,625)	2,176	(3,230)	2,976	(3,332)	2,541	(7,349)
Wife other or none - Husband other or none	849	(725)	2,036	(1,646)	2,905	(1,493)	2,777	(2,584)
Wife Catholic - Husband Protestant	729	(269)	1,944	(302)	2,959	(224)	2,414	(345)
Wife Catholic - Husband other or none	598	(126)	1,815	(216)	2,681	(135)	2,621	(161)
Wife Protestant - Husband Catholic	863	(293)	1,965	(312)	2,921	(179)	2,297	(286)
Wife other or none - Husband Catholic	1,000	(71)	1,924	(118)	2,569	(72)	1,971	(103)
Wife Protestant - Husband other or none	814	(226)	1,781	(329)	2,784	(260)	2,529	(448)
Wife other or none - Husband Protestant	687	(115)	1,745	(180)	2,576	(137)	2,575	(193)

Source: Public Use Sample Tape.

TABLE 2.8. Children Ever Born per 1,000 Ever-married Women for Catholic and Non-Catholic Couples, by Educational Status of Husband and Wife and Age of Wife, Canada, 1971

Education[1]	Age of wife				
	15-24	25-34	35-44	45-64	65+
Both non-Catholic (N=21,940)					
Husband: High Wife: Low	921 (378)	2,128 (625)	2,841 (620)	2,428 (882)	2,236 (182)
Husband: Low Wife: High	749 (419)	1,947 (718)	2,970 (607)	2,472 (931)	2,627 (158)
Husband: High Wife: High	423 (884)	1,560 (1,697)	2,616 (1,067)	2,362 (1,254)	2,054 (223)
Husband: Low Wife: Low	1,289 (901)	2,650 (1,964)	3,369 (2,492)	3,128 (4,462)	3,156 (1,476)
Both Catholic (N=17,567)					
Husband: High Wife: Low	692 (260)	2,058 (660)	3,262 (450)	3,235 (438)	3,393 (59)
Husband: Low Wife: High	707 (276)	1,953 (525)	3,389 (339)	3,629 (331)	4,000 (61)
Husband: High Wife: High	568 (340)	1,788 (639)	3,220 (370)	3,342 (303)	2,483 (29)
Husband: Low Wife: Low	986 (1,154)	2,388 (3,049)	3,707 (3,143)	4,109 (4,231)	4,611 (910)

(1) High = Grade 12+
Low = ≤ Grade 11

Source: Public Use Sample Tape.

When comparisons are made between the two religious groups, the following patterns emerge. For couples in which the partners are low in education, the non-Catholic couples are higher in fertility in the two youngest age groups and lower in the three highest age groups than the Catholic couples. For the high education couples, the Catholics have higher fertility levels than the non-Catholics in all age groups. This conforms to a pattern that has been documented for the United States (Ryder & Westoff, 1971). Couples who are mixed in education follow the pattern described above for the low education couples. We can summarize by noting that the direction of the differences between Catholics and non-Catholics taking into consideration education and age, further support the much established relationships and trends between fertility and religion except when we compare the highly educated couples.

The patterns described above persist when the number of years since first marriage is introduced, instead of the present age of the wife, as a control variable (Table 2.9). For both Catholic and non-Catholic couples, those with high education have lower fertility than those with low education regardless of the duration of time since the first marriage. Couples of mixed education levels are intermediate between these two groups with respect to fertility. The relationships between the two religious groups are the same as those described above with respect to the control variable, present age of wife. The number of years since first marriage captures in essence the same meaning, as far as fertility is concerned, as the present age of the wife. This is another instance which shows that once age is controlled, the need for additional control on duration of marriage is not too important in analysing fertility differentials by socio-economic categories. The small variation in age at first marriage is the primary explanatory factor in this phenomenon.

Those couples who both speak French and are Catholic have lower fertility in the childbearing ages than the couples who both speak English and are Catholic. At the older ages, this pattern is reversed with the English-speaking Catholic couples having fewer children. These data further document the changing French/Quebec rates of childbearing in comparison to other cultural and geographical groups in Canada. When examining non-Catholic couples and controlling for language, we find that among the English speaking, fertility is consistently lower than for Catholic couples at all ages. The sample size for French-speaking, non-Catholic couples is too small for meaningful comparisons.

TABLE 2.9. Children Ever Born per 1,000 Ever-married Women for Catholic and Non-Catholic Couples, by Educational Status of Husband and Wife and by Years Since First Marriage of Wife, Canada, 1971

Education[1]	Years since first marriage of wife					
	≤4	5-9	10-14	15-19	20-24	25+
Both non-Catholic (N=21,940)						
Husband: High Wife: Low	798 (470)	1,978 (357)	2,617 (357)	2,747 (401)	2,839 (301)	2,517 (801)
Husband: Low Wife: High	705 (553)	1,832 (382)	2,484 (373)	2,853 (333)	2,959 (371)	2,639 (821)
Husband: High Wife: High	503 (1,454)	1,750 (656)	2,415 (656)	2,692 (593)	2,665 (473)	2,363 (1,060)
Husband: Low Wife: Low	1,149 (985)	2,192 (1,061)	2,941 (1,221)	3,266 (1,323)	3,223 (1,565)	3,301 (5,140)
Both Catholic (N=17,567)						
Husband: High Wife: Low	708 (431)	2,927 (338)	2,887 (318)	3,572 (254)	3,462 (200)	3,622 (326)
Husband: Low Wife: High	693 (420)	1,947 (291)	2,964 (243)	3,687 (171)	3,605 (147)	4,148 (260)
Husband: High Wife: High	668 (572)	2,033 (334)	2,709 (248)	3,676 (179)	3,530 (148)	3,493 (200)
Husband: Low Wife: Low	897 (1,635)	2,109 (1,630)	2,958 (1,757)	3,703 (1,753)	4,049 (1,689)	4,530 (4,023)

(1) High = Grade 12+
Low = ≤Grade 11

Source: Public Use Sample Tape.

Fertility patterns by religion and region show that lower Catholic fertility among younger cohorts is largely a phenomenon present only in Quebec (Table 2.10). In the Maritimes, Prairie regions and British Columbia, Catholics continue to have a higher fertility than Protestants at all ages. For women aged 25-34, Catholic fertility is about 10% higher. It is not so evident in Ontario, though still present. Though a slight convergence seems to be present as one moves from older to younger cohorts, Catholics continue to have larger fertility. In Quebec, women 25-34 have on an average 2.025 children if they are Catholic and 2.022 if Protestant. For the youngest age group (15-24), Catholic women have only an average of 0.774 children as compared to 0.880 children for a Protestant woman. It seems that within the Catholic religious group being French Canadian makes a greater difference to fertility than belonging to any other ethnic background. The complete disappearance of Catholic-Protestant differences in Quebec is all the more impressive, as the Catholic fertility used to be about 50% higher than Protestant fertility as can be seen among older women.

2.4. Nativity and Immigration

Nativity is defined in this study as foreign-born or Canadian-born. Currently, foreign-born women have much lower fertility than native-born women (Table 2.11). This is a change from the historical pattern existing at the turn of the century when immigrant women had higher fertility (Bogue, 1969). Table 2.11 presents data on children ever born by place of birth and period of immigration. For all the age cohorts, fertility among the foreign-born is lower than that of the native-born women. The mean number of children ever born per 1,000 ever-married foreign-born women over 15 years of age was only 2,507 compared to 2,854 for native-born women. The differences by nativity are greater for younger cohorts of women - 2,200 and 2,730 for the 30-34 cohort and 1,474 and 1,757 for the 25-29 cohort. This is not surprising given the fact that immigration has mainly been from European countries where fertility has been lower than in Canada. Even in the very recent years of heavier non-European immigration, the fertility of immigrants has been lower because of selectivity on education and other socio-economic and demographic variables.

In the case of the period of immigration, the relationship to fertility is not as consistent. In general, women who immigrated before 1946 had higher fertility than those who entered Canada between 1946 and 1960. The pre-1946 immigrants had more children than the 1961-64 immigrants who are between 30-54 years of age,

TABLE 2.10. Children Born per 1,000 Ever-married Women 15 and Over by Age, Region and Religion

Age and Religion	Ontario		Quebec		Prairies		British Columbia		Maritimes		Total	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
15-24												
Catholic/Ukrainian	834	847	774	1,223	983	360	1,014	139	1,145	242	862	2,811
Protestant	850	1,176	880	100	910	544	790	380	1,088	296	883	2,496
Other	700	303	671	76	861	173	820	172	1,143	42	785	766
Total	825	2,326	776	1,399	927	1,077	842	691	1,116	580	861	6,073
25-34												
Catholic/Ukrainian	2,180	1,708	2,025	3,164	2,544	583	2,306	268	2,792	395	2,180	6,118
Protestant	2,010	2,316	2,022	275	2,273	1,129	1,984	672	2,498	564	2,122	4,956
Other	1,903	638	1,665	182	2,284	356	2,024	296	2,532	79	2,017	1,551
Total	2,057	4,662	2,007	3,621	2,351	2,068	2,063	1,236	2,613	1,038	2,137	12,625
35-44												
Catholic/Ukrainian	3,314	1,528	3,432	2,801	3,799	492	3,444	243	4,946	353	3,531	5,417
Protestant	2,855	2,372	2,585	270	3,116	1,006	2,820	712	3,795	503	2,986	4,863
Other	2,950	510	2,493	148	3.391	299	3,083	241	4,646	48	3,092	1,246
Total	3,025	4,410	3,318	3,219	3,349	1,797	3,000	1,196	4,290	904	3,254	11,526
45+												
Catholic/Ukrainian	3,468	2,507	4,211	5,675	4,092	1,081	3,451	395	5,143	786	4,061	10,444
Protestant	2,560	6,593	2,711	729	3,057	2,717	2,408	2,145	3,600	1,379	2,749	13,563
Other	2,662	1,087	2,313	358	3,620	727	2,926	550	4,350	120	2,986	2,842
Total	2,794	10,187	3,948	6,762	3,395	4,525	2,634	3,090	4,170	2,285	3,285	26,849

Source: Public Use Sample Tape.

TABLE 2.11. Children Ever Born per 1,000 Ever-married Women by Age, Place of Birth and Period of Immigration

Age group	Native born	Foreign born	Period of immigration				
			Before 1946	1946-55	1956-60	1961-64	1965-71
15+	2,854	2,507	3,008	2,431	2,368	2,197	1,840
15-19	645	548	--	604	721	510	467
20-24	922	847	--	861	902	1,148	787
25-29	1,757	1,474	1,724	1,611	1,826	1,784	1,232
30-34	2,730	2,200	2,425	2,572	2,407	2,032	1,905
35-39	3,308	2,582	2,841	2,884	2,525	2,293	2,390
40-44	3,522	2,714	3,146	2,798	2,449	2,464	2,627
45-49	3,496	2,725	3,035	2,672	2,419	2,530	2,795
50-54	3,319	2,613	2,794	2,448	2,471	2,564	2,916
55-59	3,134	2,624	2,683	2,312	2,705	2,986	3,207
60-64	3,221	2,653	2,612	2,443	3,019	3,081	3,203
65+	3,802	3,168	3,197	2,762	3,155	3,239	3,387

Source: 1971 Census of Canada, Catalogue 92-751, Vol. 1-Part 5 (Bulletin 1.5-11), Tables 29 and 30.

but fewer than the 25-29 age group and those over 55 years of age. Women who came to Canada between 1965 and 1971 have lower fertility than the pre-1946 women under 50 years of age and higher than those 50 years and over.

Comparing the last three periods of immigration with the 1946-55 immigration cohorts, we find that among those women entering the country in the last part of the 1950's, women aged 15-29 had higher fertility. The next four age groups (30-49) had lower fertility and those women over 50 years of age had more children than the corresponding age groups among the 1946-55 immigrants. The same trends are observable when 1961-64 cohort is compared to the 1946-55 group. The most recent immigrants have lower fertility than the corresponding age cohorts among the 1946-55 immigrants if they are 44 years and younger, and higher for all ages above 45.

Overall, one can conclude that among older women, the more recent the period of immigration, the higher their fertility, and among the younger women, the more recent the period of immigration, the lower the fertility. It would seem then that for young women who have recently migrated, the immigration process has postponed their childbearing to a certain extent, but given time their fertility may also increase. Older women among the more recent immigration cohorts experienced most, if not all, of their childbearing outside of Canada. Women under 45 years of age among the pre-1946 cohort did all their childbearing in this country and those 45 and over may have had their children in and/or outside. Within the immigration cohort 1946-55, women under 35 years of age have had their children in Canada and those 35 and over had their children in and/or outside of the country. The immigration cohorts' fertility comes under many influences: disruption of childbearing due to the act of immigrating, migration selectivity in socio-economic, cultural and demographic directions as well as attitudes and behaviours with respect to fertility dependent upon a host of other factors. These influences are reflected in the fertility of these women.

The five regions of Canada are heterogeneous economically, socially and demographically, and this diversity is reflected in the number of children ever born by nativity for these regions. Within all geographic areas, with few exceptions, we find that the foreign-born, ever-married have lower fertility than the Canadian-born (see Table 2.12). The exceptions occur in the Prairies and

TABLE 2.12. Women Ever Married by Number of Children Born per 1,000 Women, Showing Age Groups and Birthplace, for Canada and Regions, 1971

Region: Canada

Age group	Birthplace				Total	
	Born in Canada		Born outside Canada			
	Births	N	Births	N	Births	N
15+	2,854	4,440,620	2,507	1,302,610	2,775	5,743,230
15-19	645	68,925	548	8,850	634	77,775
20-24	922	455,485	847	79,550	910	535,035
25-29	1,757	542,935	1,474	120,105	1,706	663,045
30-34	2,730	465,830	2,200	120,625	2,621	586,455
35-39	3,308	456,690	2,582	119,320	3,158	576,010
40-44	3,522	452,960	2,714	124,220	3,348	577,180
45+	3,443	1,997,790	2,884	729,940	3,293	2,727,730

Region: Atlantic Provinces

Age group	Birthplace				Total	
	Born in Canada		Born outside Canada			
	Births	N	Births	N	Births	N
15+	3,478	481,465	3,016	28,225	3,453	509,690
15-19	751	9,170	593	160	748	9,330
20-24	1,201	50,650	900	1,585	1,192	52.235
25-29	2,172	54,605	1,666	2,740	2,148	57,350
30-34	3,267	47,250	2,427	2,265	3,229	49,510
35-39	3,994	45,560	3,007	2,205	3,948	47,765
40-44	4,314	43,230	3,542	2,945	4,265	46,175
45+	4,180	231,000	3,460	16,320	4,132	247,325

Region: Quebec

Age group	Birthplace				Total	
	Born in Canada		Born outside Canada			
	Births	N	Births	N	Births	N
15+	3,151	1,323,810	2,349	173,660	3,058	1,497,470
15-19	600	11,445	514	1,095	593	12,545
20-24	787	118,430	844	11,305	792	129,735
25-29	1,565	172,525	1,422	17,495	1,552	190,020
30-34	2,533	145,165	2,022	18,800	2,475	163,960
35-39	3,234	142,700	2,373	18,290	3,136	160,990
40-44	3,685	141,960	2,542	18,340	3,554	160,300
45+	4,140	591,580	2,773	88,335	3,962	679,915

Region: Ontario

Age group	Birthplace				Total	
	Born in Canada		Born outside Canada			
	Births	N	Births	N	Births	N
15+	2,530	1,484,670	2,335	672,680	2,469	2,157,355
15-19	628	25,555	529	5,500	610	31,055
20-24	901	155,225	841	47,050	887	202,270
25-29	1,730	172,975	1,458	68,745	1,652	241,720
30-34	2,677	148,850	2,191	69,245	2,523	218,095
35-39	3,156	148,115	2,549	68,575	2,964	216,685
40-44	3,217	148,795	2,644	70,675	3,033	219,465
45+	2,856	685,165	2,667	342,900	2,793	1,028,065

TABLE 2.12. Women Ever Married by Number of Children Born per 1,000 Women, Showing Age Groups and Birthplace, for Canada and Regions, 1971 - Concluded

Region: Prairie Provinces

Age group	Birthplace				Total	
	Born in Canada		Born outside Canada			
	Births	N	Births	N	Births	N
15+	2,818	720,865	3,129	225,170	2,892	946,035
15-19	658	13,975	698	940	660	14,920
20-24	961	82,895	880	9,610	953	92,505
25-29	1,919	89,030	1,582	14,820	1,871	103,855
30-34	2,892	78,840	2,377	14,035	2,814	92,875
35-39	3,414	77,840	2,875	13,870	3,332	91,710
40-44	3,562	75,730	3,004	15,925	3,465	91,655
45+	3,333	302,550	3,532	155,970	3,401	458,520

Region: British Columbia

Age group	Birthplace				Total	
	Born in Canada		Born outside Canada			
	Births	N	Births	N	Births	N
15+	2,393	420,305	2,450	201,460	2,412	621,760
15-19	615	8,420	546	1,135	607	9,550
20-24	946	46,750	842	9,855	928	56,605
25-29	1,754	52,075	1,471	16,065	1,687	68,135
30-34	2,662	44,350	2,255	16,065	2,554	60,415
35-39	3,115	41,370	2,651	16,215	2,985	57,585
40-44	3,132	42,330	2,781	16,200	3,035	58,530
45+	2,624	185,000	2,675	125,925	2,645	310,925

Source: 1971 Census of Canada, Population, Catalogue 92-751, Vol. 1-Part 5, Table 29.

British Columbia where women foreign-born over 45 have slightly higher numbers of children. The fertility difference by nativity is greatest in Quebec. For women over the age of 15, native-born women had 3.151 children compared to 2.349 children for the foreign-born; and for women 45 and over, the corresponding figures are even higher, 4.140 and 2.773, respectively. Native-born women in Quebec have almost a third higher fertility than foreign-born, while in the other provinces the difference is more of the order of 10%. The difference in Quebec is obviously due to much greater differences between native-born and foreign-born in their socio-economic characteristics. The differences should substantially decrease for the 15-24 cohort. In the Prairies, these patterns are reversed, but the differences in fertility are smaller. For all foreign-born women, the average number of children was 3.129, compared to 2.818 for native-born. However, it should be noted that this exception is totally explained by the fertility of women 45 and over.

Overall, the Atlantic provinces have the highest fertility and they are also the least urbanized and most economically disadvantaged. Quebec is second in terms of high fertility, followed by the Prairies, Ontario and British Columbia, with only a small difference between these last two regions. The same ranking holds for the fertility of the Canadian-born women. Since age composition and numerical distribution varies substantially among regions, overall rates must be interpreted with caution. For example, the proportion of foreign-born, ever-married women varies from a low of approximately 6% in the Atlantic provinces to a high of 30% in British Columbia and Ontario. The Metropolitan Areas of Toronto and Montréal do not differ in any important way from the findings presented for their respective provinces.

Economic conditions, political climates, as well as immigration regulations influence the number, quality and source of immigrants to Canada and a similar set of conditions determine the regions of original residence as well as future moves within the country. These varied patterns of immigration are likely to have an effect on the fertility behaviour of the women involved in the migrations. Overall, for Canada and the regions, the earlier the period of immigration, the higher is the mean number of children ever born, but within the different age cohorts this generalization does not always hold true. (Table not shown, see 1971 Census of Canada, Catalogue 92-751, Volume I-Part 5 (Bulletin 1.5-11), Tables 29 and 30.) For the Atlantic provinces, when the number of cases is large enough for analysis, the earlier the period of immigration the higher the fertility for the different age

cohorts. The Quebec and Ontario patterns are almost the same as the Canadian one, that is, somewhat inconsistent by age. The relationship for the Prairie provinces and British Columbia is not clear. Their patterns are intermediate between the Atlantic provinces and Quebec or Ontario.

The period of immigration/fertility relationship for the major Metropolitan Areas of Montréal and Toronto is similar to those of Quebec and Ontario, respectively. These are the two major centres for immigrants and hence the results are as expected.

In general, although the foreign-born have lower fertility, we must conclude that period of immigration of these women is not a very useful variable in the explanation of fertility differentials.

2.5. Education

Historically, of all single characteristics, education probably has had the most consistent relationship to fertility (Freedman et al., 1959; Whelpton et al., 1966; Westoff & Ryder, 1971; 1977; Henripin, 1972). The more educated have smaller numbers of children, a phenomenon that can be observed universally in almost all societies. Schooling brings a rational outlook to one's life, affects labour force participation, attitudes towards children, attitudes toward sex roles, religious beliefs and effective use of contraception (Westoff & Ryder, 1971). While we cannot identify all the specific ways by which education affects fertility behaviour, the association of level of schooling and number of children is very clear from the data. Table 2.13 presents the mean number of children by level of schooling for the various age cohorts. An inverse relation of education to fertility is evident for all the age groups. The greatest differences are found in the less-than-30 age cohorts and this is at least partially explained by the later age at marriage of more educated women. However, for the later cohorts as well, education has a negative effect on fertility. The differences are most pronounced between elementary and secondary levels for the older cohorts. Even for the high fertility baby-boom cohort of women aged 40-44, the mean number of children ranged from 3.882 for the below Grade 9 group to 2.773 for those who had gone to university, over a third difference between the groups. If these trends continue, increased education of Canadian women in itself should have a dampening effect on birth rates.

TABLE 2.13. Mean Number of Children per 1,000 Ever-married Women by Age and Level of Schooling

Age group	Level of schooling			
	Below Grade 9	Grades 9-11	Grades 12-13	Some university
15-19	778 (162)	648 (420)	399 (173)	438 (16)
20-24	1,375 (800)	1,061 (2,136)	645 (1,788)	410 (578)
25-29	2,152 (1,326)	1,859 (2,674)	1,384 (1,825)	1,075 (777)
30-34	3,031 (1,626)	2,666 (2,407)	2,323 (1,459)	2,000 (531)
35-39	3,496 (1,866)	3,176 (2,249)	2,734 (1,183)	2,638 (473)
40-44	3,882 (2,098)	3,221 (2,173)	2,887 (1,072)	2,706 (412)
45-49	3,884 (2,226)	3,074 (1,983)	2,689 (1,084)	2,773 (330)
50-54	3,807 (2,078)	2,855 (1,737)	2,532 (901)	2,384 (276)
55-59	3,567 (2,039)	2,679 (1,361)	2,377 (644)	2,103 (223)
60-64	3,647 (1,808)	2,442 (1,013)	2,175 (475)	1,927 (150)
65+	4,044 (5,332)	3,029 (1,851)	2,544 (1,081)	2,257 (257)
Total 15+	3,542 (21,361)	2,542 (20,004)	2,052 (11,685)	1,843 (4,023)

Source: Public Use Sample Tape.

Since education is related to age at marriage and hence to marriage duration more than any other variable, simultaneous control on age and duration is made in examining the relationship of duration to fertility (Table 2.14). The inverse pattern holds even when duration is controlled, except in a few cases where the sample sizes are either very small or it is clearly one due to timing.

The association of education and children ever born when other factors such as ethnicity and family income are controlled is examined in Table 2.15. In each of the broad ethnic categories, the inverse relationship between education and fertility holds and is about the same as detailed in Table 2.13. For example, in the age cohort 25-34, those with some university had only slightly more than half the number of children as women with less than nine years of schooling, controlling for ethnic group. Thus, ethnic background does not seem to have much effect on the relationship between education and fertility. Table 2.15 also presents number of children born by education and family income. Even though in certain age categories, fertility seems to increase among higher income groups, within each income category itself the inverse relation of education to fertility remains true. Thus, irrespective of income, education seems to have an inverse effect on number of children.

The inverse relation of education to fertility is also evident and remains fairly constant where factors such as religion, labour force experience of woman or migration status are controlled. For example in Table 2.6 it can be seen that in every age category for all the religious groups, increased education means lower fertility. That the fertility decline even among Catholics is just as substantial as Protestants is somewhat variant from other sample survey studies which have shown that university educated Catholic women have a tendency to have slightly more children that women who have completed high school (Balakrishnan et al., 1975; Westoff and Ryder, 1971). As in the case of religion, work experience of women seems also to have little effect on the relationship between education and fertility. Within each work category (see Table 2.22) the inverse relation of education to fertility holds. In other words, the interaction of education with work status on fertility is minimal. The extent of the inverse relation of fertility to education also remains the same whether the woman has been living in the same dwelling five years ago or has moved within or outside the community. The strong influence of education on fertility is abundantly clear.

TABLE 2.14. Mean Number of Children per 1,000 Ever-married Women 15 and Over by Age, Marriage Duration and Education

Age		Less than Grade 9		Grades 9-11		Grades 12-13		Some university	
15-24		1.274	(962)	.992	(2,556)	.623	(1,961)	.411	(594)
Marriage duration	0-4	1.008	(734)	.799	(2,094)	.526	(1,780)	.358	(567)
	5-9	2.132	(228)	1.870	(462)	1.575	(181)	1.519	(27)
25-34		2.636	(2,952)	2.241	(5,081)	1.801	(3,284)	1.450	(1,308)
Marriage duration	0-4	1.295	(407)	.932	(820)	.715	(822)	.638	(506)
	5-9	2.240	(1,117)	1.971	(2,073)	1.807	(1,483)	1.668	(548)
	10-14	3.153	(1,174)	2.882	(1,849)	2.642	(878)	2.568	(236)
	15+	4.138	(254)	3.569	(339)	3.248	(101)	3.000	(18)
35-44		3.701	(3,964)	3.198	(4,422)	2.807	(2,255)	2.670	(885)
Marriage duration	0-4	1.107	(56)	1.310	(84)	.661	(56)	.514	(37)
	5-9	1.790	(171)	1.676	(176)	1.522	(134)	1.698	(63)
	10-14	2.853	(660)	2.619	(717)	2.482	(535)	2.502	(249)
	15+	4.036	(3,077)	3.442	(3,445)	3.111	(1,530)	3.011	(536)
45+		3.855	(13,483)	2.867	(7,945)	2.512	(4,185)	2.355	(1,236)
Marriage duration	0-4	.553	(47)	.796	(44)	.818	(22)	.182	(11)
	5-9	2.122	(74)	.692	(65)	.900	(40)	.231	(13)
	10-14	1.478	(134)	1.200	(120)	1.352	(71)	1.439	(41)
	15+	3.901	(13,228)	2.923	(7,716)	2.557	(4,052)	2.431	(1,171)

Source: Public Use Sample Tape.

TABLE 2.15. Mean Number of Children per 1,000 Ever-married Women by Level of Schooling and Ethnicity and Family Income

	15-24				25-34				35-44				45+			
	Less than Grade 9	Grades 9-11	Grades 12-13	Some university	Less than Grade 9	Grades 9-11	Grades 12-13	Some university	Less than Grade 9	Grades 9-11	Grades 12-13	Some university	Less than Grade 9	Grades 9-11	Grades 12-13	Some university
Ethnicity																
British	1,477	1,110	642	353	2,868	2,401	1,799	1,492	3,979	3,236	2,801	2,637	3,307	2,710	2,417	2,326
French	1,191	849	525	495	2,583	1,986	1,834	1,462	3,930	3,357	3,012	2,934	4,720	3,687	3,407	2,879
Other European	1,157	981	642	406	2,422	2,286	1,816	1,309	3,074	2,965	2,706	2,688	3,531	2,660	2,524	2,155
Other	1,283	934	684	551	2,844	2,169	1,690	1,505	3,677	2,942	2,725	2,479	3,634	2,482	2,181	2,226
Family income																
Less than $5,000	1,486	1,186	803	635	3,026	2,585	2,317	1,688	4,023	3,518	3,223	3,036	4,164	3,230	2,604	2,702
$5,000-$9,999	1,212	1,014	726	448	2,583	2,323	2,013	1,615	3,627	3,202	2,895	2,661	3,696	2,850	2,441	2,450
$10,000-$14,999	1,013	760	453	327	2,327	1,989	1,639	1,465	3,606	3,183	2,701	2,740	3,902	2,805	2,562	2,297
$15,000-$24,999	(1)	(1)	337	186	2,200	2,027	1,420	1,165	4,029	3,125	2,794	2,724	4,341	3,135	2,700	2,459
$25,000+	1,011	840	376	(1)	2,504	2,068	1,403	1,435	3,117	2,740	2,624	2,384	3,655	2,582	2,381	2,181

(1) Base less than 50 cases.

Source: Public Use Sample Tape.

For presently married women, children born by wife's and husband's education are presented in Table 2.16. In addition to the relationships observed relating to wife's education, husband's education is also inversely related to fertility. Controlling for wife's education, children ever born decreases as husband's education increases with few exceptions. For the age cohort 25-34 (high fertility years), the mean number of children where both parents had less than Grade 9 education was 2.662, compared to 1.380 if both went to university. For the older cohorts, the differences are not so great but are still substantial. The lowest fertility, however, is found among women 45 years or older where both husband and wife have completed high school. The slightly higher fertility of university-educated couples in this age group may be explained by the positive relationship of higher income to fertility.

2.5.1. Regional Analysis

In turning to particular geographic regions within Canada, the same type of findings are readily apparent (table not shown). The higher the educational attainment, the lower the fertility rate across all age groups in every section of the country. In general terms, the highest levels of fertility are found among the least educated (less than Grade 9) in the Maritimes, with 4.521 children ever born. The lowest levels are among university women in Ontario and British Columbia, with 1.770 and 1.765, respectively. It is worthwhile to note that no university group of women in any region at any age had as high a fertility level as the lowest fertility level among women who had less than Grade 9 education in that same group. For example, in the age category 35-39, the lowest mean number of children in any region for the least-educated women was 3.294, in Ontario. On the other hand, the highest number of children for university women aged 35-39 was 2.987 in the Atlantic provinces. Age and duration of marriage are important considerations in these findings, but the educational variable *per se* also seems to have a significant effect.

There are some differences in the magnitude of the fertility variations between regions. For women who had totally completed their fertility by 1971 (45 years of age and over) the eastern section of the country (the Maritimes and Quebec) showed the widest gaps between educational groups. On the average, in each five-year age grouping, the completed family size difference was approximately two

TABLE 2.16. Children Born per 1,000 Presently Married Women by Education and Husband's Education

Education of wife and husband	Age of wife							
	15-24		25-34		35-44		45+	
Wife ≤ Grade 8; Husb. ≤ Grade 8	1,451	(456)	2,662	(1,616)	3,501	(2,420)	3,404	(6,619)
Wife ≤ Grade 8; Husb. Grades 9-11	1,164	(279)	2,425	(785)	3,219	(878)	2,890	(1,353)
Wife ≤ Grade 8; Husb. Grade 12+	897	(88)	2,283	(275)	3,042	(286)	2,597	(609)
Wife Grades 9-11; Husb. ≤ Grade 11	1,019	(1,662)	2,353	(3,316)	3,155	(3,032)	2,765	(4,589)
Wife Grades 9-11; Husb. Grades 12-13	869	(507)	2,055	(741)	2,854	(598)	2,390	(763)
Wife Grades 9-11; Husb. University	722	(198)	1,879	(508)	2,834	(374)	2,475	(437)
Wife Grades 12-13; Husb. ≤ Grade 11	744	(733)	1,960	(1,207)	2,975	(897)	2,508	(1,412)
Wife Grades 12-13; Husb. Grades 12-13	545	(752)	1,697	(993)	2,553	(658)	2,187	(1,037)
Wife Grades 12-13; Husb. University	494	(356)	1,686	(758)	2,734	(485)	2,495	(575)
Wife Univ. - Husb. Grade 13	562	(185)	1,541	(410)	2,728	(295)	2,403	(488)
Wife Univ. - Husb. Univ.	271	(320)	1,380	(802)	2,664	(423)	2,460	(391)

Source: Public Use Sample Tape.

children between the lowest and the highest levels of education. In the rest of Canada, these differences were closer to one child, especially in the ages 45-59. No explanation of this type of regional variation is readily apparent, but most likely this is related to differing economic, ethnic, and religious factors between the eastern and the other parts of Canada. In the east, it may be that more highly educated women, in comparison to their less educated counterparts, were more likely to be in the labour force for longer periods of time, and thus their fertility was correspondingly low. In any event, university women in the east who had completed their family size did not evidence significantly different numbers of children than university women all across the country, but the less educated women in the eastern regions showed substantially higher fertility than comparable groups in other regions.

Using these data from the 1971 Census, it is possible for the first time to examine completed fertility of women aged 40-49 who had their prime childbearing years in the late 1940's and 1950's, the "baby-boom". While the educational differences remain very strong, it is also generally sure that all of these women had larger completed families than women in the 50-and-over age categories within the respective educational groups. For example, women aged 40-49 in the Prairies had approximately four to three children for the educational categories of less than Grade 9 and university respectively. In the age group 55-64, the completed family size was about 3.7 and 2.5 in those educational groupings. Thus, there is evidence here that the "baby-boom" was not just making up for lost time or timing changes or earlier age at marriage, but that women did, in fact, have more children overall in that era.

Following the procedure we have employed throughout this chapter, we will now turn to an examination of the association of education to fertility, controlling for the other variables under consideration in this study one at a time.

The educational variable remains significant when controlling for place of birth, and this is the case for each region. In virtually every situation, women with higher education have lower fertility regardless of their place of birth.

At the same time, with a few minor exceptions, foreign-born women, especially in the earlier childbearing years, have fewer children than the native-born women

in each of the four educational classifications. Quebec and the Maritimes have the largest differences in fertility between the lowest- and highest-educated groups, but the magnitude of the difference is less for foreign-born than for those women born in Canada, especially in the age group 45 and over. Among this group, all across the country, fertility of foreign-born women is quite similar. The differences for women born in Canada are greater between the lowest- and highest-educated, and generally, native-born women have more children.

For women who have completed, or nearly completed, their family size (35 years of age and older), home language and mother tongue have an influence on fertility when controlling for education, and at the same time education continues to have an inverse relationship to childbearing when the language definitions are taken into account. In the three categories of home language and mother tongue (English, French, Other) the women over 35 show similar fertility patterns for English and Other, and the numbers of children in these groups are relatively low compared to the French-speaking women. That general relationship holds for each region under analysis. Highly educated women in this older age group generally have the lowest fertility in all three language classifications, with English and the Other language women having the fewest children. For younger women, especially those 15-24, the patterns are not nearly so clear. Again, the most educated have lower fertility in almost all cases for the three language groups, but at these ages, the women of French mother tongue and/or home language often have the lowest rates, both in Quebec and Ontario. However, for French-speaking university women, fertility shows a slight increase over those who have completed high school. This may relate to the sectarian nature of their university training. It would appear that language background is of less importance for young people as the society becomes more modernized and as effective contraceptive behaviour is infused at all levels. However, years of education completed remains an important factor among the young married women in relationship to fertility behaviour. The more education, the lower the fertility. Again, rather obviously, this, in part, is a consequence of age and duration of marriage, especially for the youngest group of women, but there are also all of the other factors cited earlier operating through the variable of education that accounts for its special importance in the total picture.

The significance of religious affiliation for fertility behaviour is clear in the women over 45 years of age, with Catholics having on the average about one

child more than the other three religious groups. This finding is uniform throughout the five regions of Canada. At the same time, when controlling for religion among the older women, education accounts for at least one child difference in the completed family size, and on occasion the difference by education is as high as two children. The major cutting point in the educational breakdown seems to be at Grade 9 where those who have completed less than that level of education have a family size that is usually greater by more than one child in comparison to those women who have more than the Grade 9 level of accomplishment.

Again, among women who are in the process of having children, the education variable remains strong but the religious affiliation factor by and large disappears. The same overall fertility distribution holds for the other regions of Canada, with the Maritimes and the Prairies showing the highest rates of childbearing among these relatively young married women.

Rural women have higher fertility than urban women in all regions for all age groups. A problem with the analysis of the variable is that there are relatively few university-educated women who live in rural areas, and thus in many regions there are empty cells in that cross-tabulation. However, where there are enough women for comparison purposes, the place of residence association does not remove the effect of education – schooling still accounts for much of the observed variation.

The educational factor is also important when controlling for ethnicity, with all women in the various ethnic groups having fewer children when they had completed secondary school or gone to university. For the oldest women, those women of French ancestry have the highest number of children even when controlling for education. The pattern for younger women in the ethnic categories (under age 35) is inconsistent and varies by region. Once more, among the younger cohorts, a traditional explanatory variable like ethnicity seems to lose much of the import previously associated with it. In this context, however, education remains strong.

Historically, income has generally shown an inverse relationship to fertility – the higher the income, the fewer the number of children that a woman had.

The data presented in this monograph suggest that this pattern still remains for younger women, but that as they get older, they "catch up" and some of the highest levels of fertility, when controlling for the education, is found for the highest income groups of women over the age of 45. In controlling for income, education retains its inverse relationship to fertility, but the effect is dampened somewhat.

The findings could be shown in all the regions of Canada. In fact, in four of the five regions, for women over the age of 45, the highest number of children in any tabulation is for women with less than Grade 9 education but with a family income of over $25,000. Admittedly, there are relatively few women who fit into this category, but the relationship is there none the less.

One of the clearest indications of this study is that the education data, in combination with the labour force variables of period last worked and number of weeks worked, appear to provide most of the variance explained in fertility. Those who have never worked and have less than Grade 9 education have the highest levels of fertility at all ages and in all regions. On the other hand, the women with university education who also worked full-time in 1970-71 had the fewest number of children at all ages in all regions. It is evident that these variables taken together explain the greatest amount of fertility variation in the study when compared to any other combination of factors under consideration.

In a conclusion for this section, it can be determined that education is an important variable in explaining fertility variation, and the importance is not greatly diminished when controlling for other factors that are enumerated in the census. Indeed, it would appear that education is the strongest of the socio-demographic variables in its relationship to fertility.

2.6. Labour Force Participation

The impact of married women's labour force participation on their fertility has been recognized in both the theoretical and empirical works of many sociologists and demographers (Weller, 1977; Oppenheimer, 1970; Balakrishnan *et al.*, 1975). In the developed industrialized societies, these studies show an inverse relationship between employment and fertility. Analyzing the 1961 Census data, Henripin (1972) concludes that women with more or less permanent work bear only

about half the number of children borne by women who have never worked. Balakrishnan et al. (1975) found that longer working experience resulted in longer birth intervals and a lower completed fertility for working wives in Metropolitan Toronto. A plausible explanation for this inverse relationship may be a basic incompatability between the roles of motherhood and child care and working outside the home. Cause-effect relationship between labour force participation and fertility is hard to establish, since reduced fertility can lead to work experience.

Census data are especially deficient in studying the relationship between maternal employment and fertility. Usually the census collects information on work activity at the time of the census or for an immediately preceding period such as the previous 12 months and does not cover complete work experience. In the 1971 Census, the information is basically for labour force activity during 1970 and 1971. The four categories are, worked in 1970 and 1971, worked in 1970 only, worked before 1970, and never worked. But actual dates worked before 1970 are not available. The measure for fertility is children ever born at the time of the census. In relating this cumulative fertility to the above categories of labour force status, we would expect the women who have never worked to have higher fertility than any of the others who have had some work experience. For the other categories it is difficult to make predictions due to the ambiguities in the measurement. Under the assumption that those who worked in 1970 or 1971 are more likely to have worked before 1970 also, we can treat the four categories as a continuum of labour force participation. The 1971 Census also collected information on number of hours worked per week in 1970, a variable that will be examined with respect to fertility.

Table 2.17 presents the number of children born per 1,000 ever-married women by age and work experience. In all the age cohorts, women who worked in 1970 and/or in 1971 had much lower fertility than those who never worked. For women younger than age 30, those who never worked had nearly twice the number of children as those who worked in 1970 and 1971. For the older cohorts, it was about 50% higher. The fertility differences between women who worked before 1970 and those who worked in 1970 or 1971 were less noticeable, but still significant and consistent across age cohorts. For example, for a baby-boom cohort (aged 40-44) those who worked in 1970 or 1971 had an average of 3.027 children, compared to 3.294 for those who worked before 1970 and 4.456 for those who never worked.

TABLE 2.17. Mean Number of Children Born per 1,000 Ever-married Women by Age and by Period Last Worked

Age	Worked in 1970 and/or 1971	Worked before 1970	Never worked
15-19	0.444 (455)	0.965 (114)	0.802 (202)
20-24	0.618 (3,646)	1.455 (1,229)	1.672 (427)
25-29	1.264 (3,610)	2.128 (2,274)	2.482 (718)
30-34	2.249 (2,835)	2.770 (2,283)	3.424 (905)
35-39	2.826 (2,840)	3.192 (1,968)	3.988 (963)
40-44	3.027 (2,955)	3.294 (1,780)	4.456 (1,020)
45-49	2.866 (2,846)	3.312 (1,640)	4.382 (1,137)
50-54	2.826 (2,455)	3.016 (1,426)	4.113 (1,111)
55-59	2.713 (1,854)	2.670 (1,280)	3.949 (1,133)
60-64	2.477 (1,192)	2.743 (1,194)	3.926 (1,060)
65+	2.906 (939)	3.082 (4,013)	4.315 (3,569)

Source: Public Use Sample Tape.

The mean number of children by number of weeks worked in 1970 are shown in Table 2.18. Only about 42% of the women worked in 1970. The remaining 58% is composed of women who have never worked, those who worked before 1970 and a small number of women who worked in 1971 but not in 1970. Thus the not applicable group is a catch-all category but probably includes a large group of women with less work experience than those who worked in 1970. The purpose of the data in this table is to analyze the differences between those women who work part-time or casually compared to women who work more or less permanently outside the home. The fertility patterns are clear. Those who worked 27 to 52 weeks in 1970 had the lowest fertility rates in all the age groups. Those who worked only part of the time had somewhat higher fertility and those who did not work in 1970 had the highest number of children. Though there is always a danger in generalizing from only a year's experience, the general pattern of relationship between increased work activity and lower fertility seems to be borne out by the data.

The effects of education and family income on labour force status and fertility can be seen in Table 2.19. Even when education is controlled, work experience has an inverse relationship to fertility. For the baby-boom cohort of ever-married women (35-44), among those with less than Grade 9 education, the mean number of children decreased from 4.423 for those who never worked to 3.238 for those who worked in 1970 or 1971. For the same age group with Grades 12 or 13 education, the range was from 3.588 to 2.613. The combined effect of education and work status on fertility is very pronounced. Thus, in all the age groups, women with some university education who worked in 1970 or 1971 had less than half the number of children compared to women with less than Grade 9 education who had never worked. The same pattern is evident in the various income categories. Labour force participation is of course inter-related to other characteristics and a measure of its independent effect on fertility would require more sophisticated analysis. However, our limited tabular analysis invariably points out its considerable impact on fertility.

The inverse relation of work experience to fertility holds across all the regions in all the age groups (table not shown). In the youngest age group (15-24) the fertility of those who have never worked is more than double that of those who worked in 1970 or 1971 in all the regions. However, in this age group, since women have just started their reproductive behaviour, the effects of spacing and timing are likely to be greatest. The fact that those who worked before 1970 had as high

TABLE 2.18. Mean Number of Children Born per 1,000 Ever-married Women by Age and by Number of Weeks Worked in 1970

Age	27-52 weeks	1-26 weeks	Not applicable[1]
15-19	0.321 (209)	0.485 (200)	0.857 (362)
20-24	0.459 (2,438)	0.893 (1,056)	1.490 (1,808)
25-29	1.013 (2,330)	1.673 (1,010)	2.188 (3,260)
30-34	2.084 (1,879)	2.523 (766)	2.945 (3,378)
35-39	2.668 (1,880)	3.113 (744)	3.437 (3,147)
40-44	2.915 (2,093)	3.205 (668)	3.712 (2,994)
45-49	2.793 (2,112)	3.005 (587)	3.731 (2,924)
50-54	2.691 (1,866)	3.192 (458)	3.495 (2,668)
55-59	2.616 (1,434)	2.927 (328)	3.276 (2,505)
60-64	2.451 (906)	2.541 (218)	3.279 (2,322)
65+	2.804 (594)	2.733 (191)	3.660 (7,736)

(1) Includes those who never worked, those who worked before 1970, and those who worked in 1971 but not in 1970.

Source: Public Use Sample Tape.

TABLE 2.19. Children Born per 1,000 Ever-married Women by Period Last Worked and Education and Family Income

	15-24			25-34			35-44			45+		
	Worked in 1970-71	Worked before 1970	Never worked	Worked in 1970-71	Worked before 1970	Never worked	Worked in 1970-71	Worked before 1970	Never worked	Worked in 1970-71	Worked before 1970	Never worked
Education												
Below Grade 9	.954	1.456	1.596	2.166	2.719	3.066	3.238	3.563	4.423	3.257	3.435	4.578
Grades 9-11	.731	1.456	1.348	1.887	2.483	3.019	2.993	3.215	3.981	2.603	2.726	3.591
Grades 12-13	.466	1.322	.983	1.464	2.266	2.796	2.613	3.000	3.588	2.418	2.499	2.835
Some university	.316	(1)	(1)	1.149	2.105	(1)	2.515	2.836	(1)	2.307	2.358	2.605
Family income												
Less than $5,000	.860	1.407	1.406	2.241	2.722	3.289	3.199	3.634	4.566	3.273	3.363	4.415
$5,000-$9,999	.633	1.422	1.426	1.925	2.431	2.864	3.076	3.194	3.983	2.872	2.903	3.951
$10,000-$14,999	.441	1.496	(1)	1.491	2.331	3.038	2.860	3.206	4.453	2.798	2.861	4.433
$15,000-$24,999	.339	(1)	(1)	1.196	2.332	2.729	2.847	3.287	4.574	2.851	3.144	4.643
$25,000 +	.575	(1)	(1)	1.431	2.607	3.278	2.437	2.851	3.976	2.349	2.927	4.050

(1) Less than 50 cases.

Source: Public Use Sample Tape.

a fertility as those who have never worked has an obvious explanation. As most of the women in this age group are recently married, they are likely to become pregnant and stop working to have the baby. The group who worked before 1970 is likely to include a substantial portion of such women. But even in the older age groups (35 or more) the difference is more than 50% across the regions. Fertility is lowest among those who worked in 1970 or 1971, somewhat higher among those who worked before 1970 and substantially higher among those who never worked. Though cause-effect relation for older women is likely to be tenuous, as they might return or begin to work after completing childbearing, the association between work experience and cumulative fertility is strong.

The greater labour force participation of the younger cohorts of women should be noted and because of the relationship established between this and fertility, the role of labour force participation in the ongoing fertility decline in Canada is not inconsequential.

Table 2.20 shows the number of children ever born controlling for labour force status of the husband and wife, by age of wife and marriage duration for presently-married couples. Again, the key factor in fertility differences up to age 35 and in marriage duration of less than 15 years, is the work participation of the wife in 1970-71. On the average, the wife who is currently in the labour force has one child less in this age group and with this marriage duration than the wife who has never worked. Over age 35, the women employed in 1970-1971 and before 1970 show little fertility differences, but in comparison to those women who never were employed, both groups continue to have about one child less on the average. When marriage duration is over 15 years, the relationship described above is nearly identical. Once more, the important difference in completed fertility is the factor of working at some time compared to never having been employed outside of the home. It should be noted that the husbands in these data are always working in that the sample size in any other category is too small for meaningful comparison. The relationship between work status and fertility found earlier for ever-married women is also found to be true for presently-married women.

Table 2.21 presents the same labour force participation data, controlling for French and English mother tongue. Within each language group, the overall relationship between labour force participation and fertility described throughout this

TABLE 2.20. Children Ever Born by Labour Force Status of Husband and Wife, by Age of Wife, and by Marriage Duration, Canada, 1971

(Presently Married Couples Only)

Labour force status	Age of wife					Marriage duration					
	15-24	25-34	35-44	45-64	65+	≤4	5-9	10-14	15-19	20-24	25+
Total N=42,397											
Both worked 1970-71	.573 (3,602)	1.720 (5,355)	3.056 (4,527)	2.954 (5,263)	2.701 (211)	.542 (5,147)	1.692 (2,567)	2.534 (2,397)	3.066 (2,447)	3.159 (2,514)	3.236 (3,886)
Husband worked 1970-71 Wife never worked	1.418 (526)	2.915 (1,324)	4.044 (1,673)	4.014 (3,012)	3.593 (432)	1.262 (608)	2.448 (722)	3.132 (888)	3.992 (970)	4.266 (957)	4.161 (2,822)
Husband worked 1970-71 Wife worked before 1970	1.391 (1,126)	2.432 (3,918)	3.217 (3,233)	2.979 (3,704)	2.671 (416)	1.297 (1,632)	2.207 (2,381)	2.925 (2,175)	3.266 (1,735)	3.348 (1,483)	3.103 (2,991)

Source: Public Use Sample Tape.

TABLE 2.21. Children Ever Born by Labour Force Status of Husband and Wife, by Mother Tongue of Husband and Wife, by Age of Wife, and by Marriage Duration, Canada, 1971

Labour force status	Age of wife					Marriage duration					
	15-24	25-34	35-44	45-64	65+	≤4	5-9	10-14	15-19	20-24	25+
Husband and wife French (N=10,294)											
Both worked 1970-71	.441	1.529	3.371	3.898	3.639	.470	1.713	2.452	3.489	3.881	4.450
	(728)	(1,160)	(762)	(817)	(36)	(1,179)	(542)	(417)	(387)	(404)	(574)
Husband worked 1970-71 Wife never worked	1.340	2.777	4.274	4.573	4.695	1.206	2.330	3.133	4.162	4.828	4.862
	(153)	(623)	(871)	(1,326)	(118)	(209)	(337)	(438)	(517)	(472)	(1,118)
Husband worked 1970-71 Wife worked before 1970	1.177	2.211	3.277	3.938	3.880	1.157	2.076	2.870	3.569	3.858	4.353
	(271)	(1,004)	(677)	(616)	(50)	(464)	(619)	(471)	(370)	(279)	(415)
Husband and wife English (N=22,505)											
Both worked 1970-71	.583	1.763	3.102	2.785	2.088	.542	1.680	2.602	3.035	3.098	2.972
	(2,193)	(2,875)	(2,445)	(3,166)	(137)	(2,939)	(1,372)	(1,248)	(1,374)	(1,430)	(2,453)
Husband worked 1970-71 Wife never worked	1.491	3.248	4.198	3.531	2.832	1.313	2.736	3.403	3.989	3.946	3.526
	(263)	(348)	(393)	(1,054)	(214)	(257)	(180)	(208)	(228)	(285)	(1,114)
Husband worked 1970-71 Wife worked before 1970	1.477	2.535	3.226	2.783	2.419	1.373	2.253	2.948	3.214	3.232	2.851
	(633)	(2,131)	(1,847)	(2,420)	(291)	(818)	(1,280)	(1,243)	(989)	(929)	(2,063)

Source: Public Use Sample Tape.

study is maintained – those women who are or have been employed have fewer children than those ever-married women who have never worked. When controlling for mother tongue, English-speaking husbands and wives have more children than their French counterparts in nearly every labour force comparison up to age 35 and up to a marriage duration of 15 years. Thus, mother tongue explains some variation in fertility within each labour force category, even though the differences between the French and English couples are small and unimportant.

At marriage durations of more than 15 years, and where the women are over 35 years of age, the exact reverse in the fertility comparisons occurs. That is, the French-speaking couples have higher fertility in every case. At the older ages (45+ and over) and longer marriage durations (20 years or more), the differences are substantial – around one child smaller for the English couples. These findings once more substantiate the historical importance of mother tongue for an analysis of fertility, and also show that the current relationship is of little importance in an explanation of fertility variation. The significance of the latter conclusion is that today, fertility among French and English couples in the childbearing ages is practically identical (English slightly higher), with similar patterns regardless of the labour force activity.

2.6.1. Occupation and Fertility

It was decided not to treat occupation as an explanatory variable in this monograph because of perceived problems relating to the form in which the data appear on the Public Use Sample Tapes. It was concluded that the categories used were very heterogeneous and the traditional inverse relationship with fertility would not appear. However, since it is customary to examine the relationship between occupation and fertility, it is mentioned briefly here. Couples are studied with respect to occupation, which is grouped as white-collar, blue-collar, and a residual group of not working, no occupation, and occupation not stated. These data are presented in Table 2.22 controlling for age, and in Table 2.23, controlling for years since first marriage.

As may be expected, for all age groups, couples in which both partners are in white-collar occupations have the lowest fertility levels (Table 2.22). In general, couples where the wife is classified as white-collar, have lower fertility

TABLE 2.22. Children Ever Born per 1,000 Ever-married Women, by Age of Wife and by Occupation of Husband and Wife, Canada, 1971

Occupational grouping	Age of Wife				
	15–24	25–34	35–44	45–64	65+
Husband: White collar Wife: White collar	356 (1121)	1,278 (1789)	2,717 (1175)	2,489 (1398)	1,674 (43)
Husband: White collar Wife: Blue collar	604 (182)	1,901 (208)	3,005 (236)	2,867 (292)	2,857 (7)
Husband: White collar Wife: N.A. or N.S.	1,211 (408)	2,305 (1893)	3,122 (1796)	2,898 (2300)	2,465 (258)
Husband: Blue collar Wife: White collar	504 (1144)	1,587 (1504)	2,905 (1235)	2,734 (1296)	2,417 (24)
Husband: Blue collar Wife: Blue collar	881 (748)	2,279 (1177)	3,370 (1314)	3,415 (1511)	3,222 (63)
Husband: Blue collar Wife: N.A. or N.S.	1,393 (1308)	2,681 (3451)	3,701 (3279)	3,687 (4492)	3,147 (463)
Husband: N.A. or N.S. Wife: White collar	523 (65)	1,469 (85)	2,654 (82)	2,553 (212)	2,513 (37)
Husband: N.A. or N.S. Wife: Blue collar	742 (31)	2,549 (57)	3,867 (66)	3,651 (223)	3,500 (36)
Husband: N.A. or N.S. Wife: N.A. or N.S.	1,041 (337)	2,404 (573)	3,886 (438)	3,662 (1788)	3,649 (2252)

Source: Public Use Sample Tape.

TABLE 2.23. Children Ever Born per 1,000 Ever-married Women by Number of Years Since First Marriage of Wife and by Occupation of Husband and Wife, Canada, 1971

Occupational grouping	Number of years since first marriage of wife					
	≤4	5-9	10-14	15-19	20-24	25+
Husband: White collar Wife: White collar	404 (1901)	1,458 (739)	2,302 (631)	2,785 (679)	2,886 (607)	2,585 (961)
Husband: White collar Wife: Blue collar	507 (230)	1,801 (105)	2,333 (105)	2,948 (128)	3,337 (152)	3.037 (205)
Husband: White collar Wife: N.A. or N.S.	1,208 (706)	2,108 (1111)	2,762 (1164)	3,262 (949)	3,299 (853)	2,909 (1872)
Husband: Blue collar Wife: White collar	506 (1599)	1,577 (730)	2,406 (631)	2,888 (653)	2,948 (671)	3,056 (919)
Husband: Blue collar Wife: Blue collar	783 (877)	1,905 (631)	2,767 (675)	3,391 (703)	3,364 (756)	3,800 (1171)
Husband: Blue collar Wife: N.A. or N.S.	1,271 (1617)	2,327 (2055)	3,099 (1987)	3,675 (1825)	3,920 (1657)	3,902 (3852)
Husband: N.A. or N.S. Wife: White collar	426 (101)	1,756 (45)	2,597 (35)	2,574 (38)	2,761 (61)	2,645 (201)
Husband: N.A. or N.S. Wife: Blue collar	738 (42)	2,130 (23)	3,135 (34)	3,461 (33)	3,558 (65)	3,849 (216)
Husband: N.A. or N.S. Wife: N.A. or N.A.	946 (435)	2,185 (296)	3,030 (295)	3,312 (285)	3,511 (338)	3,775 (3739)

Source: Public Use Sample Tape.

levels than the other subgroups. High fertility levels are associated with blue-collar classification for the wife and also with wives who fall in the residual category. It would appear that the occupational classification of the wife is more important than that of the husband as an explanatory variable. This is in support of other findings in this monograph with respect to labour force participation and fertility. Women who work have lower fertility levels than those who do not and those with white-collar occupations are perhaps more likely to be in the labour force on a regular basis.

Table 2.23 presents data on occupation and fertility with the number of years since first marriage as the control variable. As above, when the present age of the wife is the control variable, it can be seen that in general white-collar couples have the lowest levels of fertility, and couples in which the wife is in a blue-collar occupation or in the residual category have the highest average numbers of live births. The white-collar status of the wife is associated with low fertility and blue-collar with high. Wife's occupational classification seems more closely associated with fertility than is the occupation of the husband. Once again controlling for marriage duration gives the same patterns as when age is controlled.

2.7. Mother Tongue

> If a single characteristic were to be chosen to identify cultural groups, it is probably the mother tongue that would be chosen. Ethnic origin may, in many cases fulfill the same function; but, in many cases, this latter characteristic is scarcely more than a memento kept alive by a surname. It is merely a reminder of a paternal ancestor who emigrated to America, sometimes many centuries ago, whereas mother tongue involves the person enumerated in the census (Henripin, 1972:181).

Mother tongue is the first language spoken by an individual, provided he/she still understands it. There is great overlap between ethnicity, mother tongue and language most often spoken at home. However, there are enough differences between the two first mentioned to justify separate treatment. All three of these are what may be called cultural variables. In this section we will examine the relationship between mother tongue and fertility.

In Table 2.24, taken from Fertility in Canada (Collishaw, 1976) there are nine mother tongue groupings. The last category (Other) which includes the Asians, some Europeans, and some Jews, among others, has the lowest number of children born per 1,000 women. These are followed by the English, the Italians and the Poles, all three being close together but distinctly higher than the Other and distinctly lower than the Germans and the Ukrainians who are close to one another. The French and Dutch are higher in fertility than the Germans and the Ukrainians, but they are lower than the Indians and Inuit who have the highest fertility. The position of the Indians and Inuit at the top in terms of fertility is consistent with past findings. The Other at the bottom of the list reflects the low fertility of the highly educated Asians, Jews and Eastern Europeans, to name a few of those included in this residual category. In terms of ranks from low to high with respect to children ever born we obtain the following order: Other, English, Italian, Polish, German, Ukrainian, French, Netherlands (Dutch), Indian and Inuit.

For ever-married women in the childbearing ages (15-44) the rankings are not significantly different from the above. We, therefore, find that women in the childbearing age groups are similar in ranks, on fertility, to all women. Ever-married women who have completed their childbearing (45 years and above) are somewhat different from those still in the childbearing ages. This minor shifting in ranks between these two broad age groups reflects changing fertility within Canada. Fertility is falling for all groups but it does so faster among certain groups than among others: the greatest difference in ranks between the two age groups occurs for the Italians.

Looking at fertility by mother tongue within five-year age groups some important trends and differences stand out. French fertility is lower than English fertility among the young cohorts (15-34), reflecting dramatically the faster rate of decline in fertility among the French in recent years. From age 35 on, the French fertility is higher than the English. The differences between the two rates become progressively larger as the cohorts get older. The fertility of the Other mother tongue group is, with one exception (20-24) the lowest of all women in the childbearing ages (15-44). Indians and Inuit are the highest in all five-year cohorts in this age range.

TABLE 2.24. Children Born per 1,000 Ever-married Women, Showing Age Groups and Mother Tongue, for Canada, 1971

Mother tongue	Total women ever married	Age group 15-44							Age 45 and over					
		Total	15-19	20-24	25-29	30-34	35-39	40-44	Total	45-49	50-54	55-59	60-64	65+
Canada	2,775	2,307	634	910	1,706	2,621	3,158	3,348	3,293	3,315	3,189	3,039	3,061	3,565
English	2,545	2,248	636	921	1,742	2,671	3,155	3,237	2,863	3,094	2,871	2,653	2,553	2,938
French	3,322	2,439	623	836	1,624	2,623	3,365	3,844	4,428	4,119	4,128	4,032	4,230	5,210
German	2,908	2,362	632	931	1,679	2,424	2,842	2,873	3,419	2,831	2,931	3,096	3,358	4,263
Indian and Inuit	5,354	4,551	1,137	2,115	3,617	5,296	6,261	7,106	6,654	7,089	7,002	6,721	6,315	6,257
Italian	2,553	2,118	538	1,066	1,815	2,347	2,621	2,715	3,380	2,804	2,985	3,359	3,753	4,154
Netherlands	3,357	2,831	644	891	1,873	2,957	3,555	3,876	4,124	3,773	3,802	4,141	4,713	4,645
Polish	2,589	2,167	692	848	1,489	2,137	2,616	2,697	2,814	2,563	2,385	2,351	2,540	3,556
Ukrainian	2,924	2,390	554	880	1,686	2,484	2,867	2,824	3,218	2,678	2,696	2,712	3,003	4,225
Other	2,354	1,939	516	856	1,406	2,104	2,490	2,627	2,772	2,576	2,504	2,491	2,535	3,194

Source: Fertility in Canada. Neil Collishaw, Profile Studies, Statistics Canada, May 1976.

In the age groups from 45 and over, the Polish and Other groups have the lowest fertility. Indian and Inuit fertility is highest in all age cohorts, with the French women a distant second.

2.7.1. Regional Analysis

Having sketched the picture with respect to mother tongue and fertility at the national level, we will now present the findings at the regional level. We find that for the Atlantic provinces, the French have the highest average number of live births for all women aged 15 and over (4.381), the English the next highest (3.320), and Other the lowest (3.211). (Table not shown, see 1971 Census of Canada, Catalogue 92-751, Volume I-Part 5, Bulletin 1.5-11, Table 33.) This is the same for women 15-44 years of age. For those women 45 years and over the French still have the highest fertility and there is very little difference between the English and Other. In the five-year age groups for women in the childbearing ages we find, in general, that the English have the highest level of fertility among the age groups 15-29 and above these age groups the French assume the first position with respect to fertility followed in some cases by the British and in the other cases by the Other language group.

In the province of Quebec, the French in general have the highest fertility and the English slightly higher fertility levels than Other. An examination of the relationship, taking into consideration the age of the women, finds that among women 15-44 years of age the general pattern is the same as cited above. The French-speaking population have the highest fertility (2.368) and there is only a slight difference between the English (2.098) and those other mother tongue groups (1.981). Within the five-year age groups between the ages of 15 and 44, the fertility for women of French mother tongue is higher in all but two of the age groups. However, at these younger ages, the fertility in Quebec is among the lowest of any region in Canada. In the 45-years-and-over age group, the French have the highest fertility, and the English the lowest.

Overall, for Ontario, there is a major difference between the fertility of the French and that of the English and Other, but little difference between English and Other; the French fertility is high relative to the other two mother tongue groupings. Among women aged 45 years and over, the French fertility (4.257) is

substantially higher than the English (2.664), reflecting the historical fertility behaviour of French and English even outside the province of Quebec (Henripin, 1972:181).

In the Prairies and British Columbia the fertility pattern is dissimilar to that of Ontario when examined within the age groups but similar when age is not taken into consideration. Overall, in the West the French have the Highest fertility and the English the lowest, with the average difference for women aged 15 and over approaching one child. For women in the reproductive ages (15-44), the pattern is much the same for the five-year age groups but less pronounced. In the youngest age fertility differentials between French and English are non-existent.

In Canada, the French have the lowest fertility in the age group 15 to 29. However, nearly in every region, the French fertility is higher than the English. An examination of the number of women show that this is a function of differences in distribution of women by mother tongue among the regions. Since most French-speaking women live in Quebec and Quebec has lower fertility compared to other regions, such an apparent anomaly can exist.

In summary, we can say the following with respect to fertility and mother tongue for Canada and its five regions. Without considering age, for Canada, French mother tongue ever-married women have the highest average number of live births among the three groupings considered. The English have the lowest and all other mother tongues combined fall in between. This same pattern holds for Ontario, the Prairie provinces, and British Columbia. In the Atlantic provinces and Quebec, again the French have the highest fertility but they are followed by the English.

The two Metropolitan Areas of Toronto and Montréal by and large display fertility patterns with respect to mother tongue which are similar to those of the region in which they are located (Table 2.25). Fertility levels are comparatively low in Toronto and Montréal, mean number of children ever born per woman 15 years and older being 2.13 and 2.46 respectively as against a national average of 2.78. The lower rates for Toronto compared to Montréal is evident for all the mother-tongue groups. The mean for French mother-tongue women is 2.29 children in Toronto while it is much higher, 2.61, in Montréal. A closer look by five-year

TABLE 2.25. Children Ever Born (Partly Distribution and Mean Number) by Wife's Age and Mother Tongue

Metropolitan area: Toronto

Age group	French		English		Other		Total	
	Number	Mean	Number	Mean	Number	Mean	Number	Mean
15-19	255	0.58	6,500	0.57	2,845	0.54	9,590	0.56
20-24	1,880	0.82	51,740	0.72	18,390	0.89	72,010	0.77
25-29	2,560	1.39	62,050	1.38	24,020	1.45	88,630	1.40
30-34	2,015	2.38	52,170	2.24	27,255	2.08	81,445	2.19
35-39	1,815	2.85	52,380	2.65	26,565	2.37	80,770	2.56
40-44	1,715	2.91	53,595	2.69	24,675	2.42	79,980	2.61
45-49	1,505	2.69	54,900	2.54	23,150	2.35	79,150	2.49
50-54	1,125	2.92	44,875	2.35	13,610	2.36	59,615	2.36
55-59	860	2.63	39,460	2.16	12,555	2.53	52,870	2.26
60-64	600	2.82	31,455	2.04	11,460	2.62	43,510	2.20
65+	1,555	3.53	82,460	2.43	22,225	3.14	105,840	2.59
Total	15,485	2.29	531,175	2.11	206,755	2.18	753,415	2.13

Metropolitan area: Montréal

Age group	French		English		Other		Total	
	Number	Mean	Number	Mean	Number	Mean	Number	Mean
15-19	3,595	0.56	1,020	0.25	1,040	0.46	5,650	0.53
20-24	42,920	0.72	11,790	0.65	7,600	0.91	62,310	0.73
25-29	63,855	1.44	17,495	1.39	10,265	1.50	91,610	1.44
30-34	53,520	2.27	14,975	2.25	12,360	2.02	80,855	2.23
35-39	52,325	2.80	15,100	2.64	12,580	2.32	80,010	2.69
40-44	51,630	3.09	16,240	2.75	11,320	2.34	79,190	2.91
45-49	48,010	3.18	17,160	2.65	10,890	2.35	76,055	2.94
50-54	39,850	3.08	14,975	2.37	7,525	2.27	62,350	2.81
55-59	34,730	2.97	13,305	2.12	7,205	2.46	55,245	2.70
60-64	27,225	3.06	10,850	2.10	6,790	2.55	44,865	2.75
65+	55,185	3.95	25,790	2.58	13,770	3.17	94,745	3.46
Total	472,840	2.61	158,700	2.20	101,335	2.22	732,880	2.46

Source: 1971 Census of Canada, unpublished data.

age groups show that up to age 40, the difference is negligible, but for older ages, the fertility of French women in Montréal is greater than their counterparts in Toronto. The differences in fertility for English and Other mother-tongue groups between Toronto and Montréal are much smaller. As in all other cases, the high past fertility of the French and the closing of the gap between French and English among the younger age cohorts is also readily observable for the two largest metropolitan areas of Canada.

In Table 2.26, we present the relationship between mother tongue and fertility for Canada as a whole, introducing age, average age at first marriage and average duration of marriage. The data are obtained from a special tabulation of the complete census file rather than from the Public Use Sample Tape. It is clear that the differences between mother-tongue groups on fertility for Canada cannot be totally attributed to age at first marriage or marriage duration. Differences on these variables are not large enough to account for the differences in fertility among the three language groups.

If one adds together the average age at first marriage and the average duration of marriage, the result is not significantly different for the three language groups within the different age categories. However, the fertility levels as we have seen above are significantly different. The average age at first marriage for the different age cohorts across the three language groups are very similar. The average marriage durations are not far apart either, yet we obtain differences among the language groups with respect to fertility. Age, age at marriage and marriage duration do not account for the fertility differences among our three language groupings. Other factors of a socio-cultural nature are at work giving rise to the documented fertility variations.

The relationship between mother tongue and fertility becomes less consistent when religion is introduced as an independent variable (table not shown). One should note that the number of women in certain categories are small due to the fact that French seldom report any other religion but Catholic. There is a great deal of overlap between ethnicity, mother tongue, language spoken in the home, and religion in the case of French mother tongue. In the age group 15-24, English-mother-tongue Protestants have lower fertility (0.875) than French (1.000) or Other-mother-tongue Protestants (1.000). Among Catholics the French-mother-tongue

TABLE 2.26. Mean Age at First Marriage, Mean Marriage Duration, and Mean Number of Children Ever Born by Wife's Age and Mother Tongue

Mother tongue: French

Age in 1971	Number of women	Average age at first marriage	Average marriage duration	Average number of live born children
15-19	12,130	17.6	0.5	0.60
20-24	124,615	20.2	2.0	0.82
25-29	175,990	21.4	5.2	1.62
30-34	146,190	21.9	9.7	2.63
35-39	141,420	22.5	14.2	3.39
30-44	136,885	23.0	18.6	3.90
45-49	126,125	23.7	23.0	4.19
50-54	100,700	24.6	27.0	4.21
55-59	80,975	25.7	30.9	4.12
60-64	57,835	25.9	35.7	4.35
65+	74,855	25.7	44.4	5.15
Total	1,177,720	22.9	17.5	3.15

Mother tongue: English

Age in 1971	Number of women	Average age at first marriage	Average marriage duration	Average number of live born children
15-19	47,490	17.5	0.6	0.62
20-24	315,650	19.8	2.3	0.90
25-29	357,320	20.9	5.8	1.74
30-34	298,520	21.2	10.5	2.68
35-39	284,785	21.7	15.0	3.17
40-44	285,205	22.4	19.3	3.25
45-49	291,250	23.1	23.7	3.11
50-54	248,340	24.0	27.5	2.88
55-59	203,305	25.2	31.4	2.64
60-64	140,570	25.7	35.8	2.51
65+	201,870	26.3	44.7	2.70
Total	2,674,305	22.5	18.7	2.48

Mother tongue: All other

Age in 1971	Number of women	Average age at first marriage	Average marriage duration	Average number of live born children
15-19	7,830	17.3	0.7	0.63
20-24	56,405	19.7	2.5	1.00
25-29	80,230	21.1	5.7	1.72
30-34	95,175	21.8	9.9	2.46
35-39	99,505	22.5	14.2	2.88
40-44	96,470	23.2	18.5	2.99
45-49	91,210	23.9	22.7	2.92
50-54	61,540	24.2	27.3	2.95
55-59	53,865	24.4	32.3	3.02
60-64	45,345	24.0	37.6	3.15
65+	61,020	24.5	45.5	3.60
Total	748,595	22.8	19.7	2.65

Mother tongue: All

Age in 1971	Number of women	Average age at first marriage	Average marriage duration	Average number of live born children
15-19	67,445	17.5	0.6	0.62
20-24	496,675	19.9	2.3	0.89
25-29	613,535	21.1	5.6	1.70
30-34	539,885	21.5	10.2	2.63
35-39	525,705	22.0	14.7	3.17
40-44	518,565	22.7	19.0	3.37
45-49	508,585	23.4	23.3	3.34
50-54	410,585	24.2	27.4	3.22
55-59	338,155	25.2	31.4	3.05
60-64	243,750	25.5	36.1	3.07
65+	337,745	25.8	44.8	3.41
Total	4,600,620	22.7	18.5	2.68

Source: 1971 Census of Canada, unpublished data.

group has the lowest fertility (0.803). The lowest fertility in this age group for any subcell of more than 100 women is that of No Religion/English mother tongue (0.733) and the next lowest is French Catholic (0.803). This low level of fertility among young French Catholic women is most likely related to the increasing secularization within the province of Quebec.

In the age group 25-34, the French Catholic women have a fertility level (2.096) just slightly higher than the Other Catholic group (2.079). The English Protestants have lower fertility (2.122) than the English Catholics (2.396) but both of these groups have higher fertility than any other Protestant or Catholic subgroups with number of women over 100. Again, considering only subgroups of 100 or larger, the English/No Religion group has the lowest fertility (1.741) followed by the Other and French Catholic subgroups.

Turning to the age group 35-44, the French women have lower fertility levels than the English for all religious categories. For the Protestant group, French fertility is 2.841 as compared to 3.015 for English and for the Catholic group the figures are 3.649 and 3.764. But in spite of the lower fertility of French within each religious category, the overall French fertility (3.619) is substantially higher than English fertility (3.178). This apparent anamoly is to be explained by the fact that almost all the French are Catholic while less than a fourth of the English are Catholic. This religious distribution has more effect on the higher fertility of French. The Other Catholics and Protestants have lower fertility levels than their corresponding French and English counterparts. In fact, considering only cells of 100 or more, the Other Protestants have the lowest fertility but they are followed closely by the English/No Religion group. The highest fertility is found among the English Catholics followed closely by the French Catholics. Thus, in this age group, it is clear that it is the religious factor of Catholicism that is more closely associated with high fertility than the mother tongue variable.

Among women who have completed their childbearing (age 45 and over) the French have the highest fertility levels within each of the religious groups. The English/No Religion group has the lowest completed fertility and the French Catholics have the highest. In general, taking religion into consideration, the previously established relationships between fertility and mother tongue controlling for age, are less stable.

The relationship between fertility and mother tongue controlling for birthplace is examined next (table not shown). In the two younger age groups, the English women born outside of Canada have the smallest number of children ever born. The French, whether they were born within or outside Canada, have low fertility levels. In the age group 35-44, the French-mother-tongue women who were born outside Canada have the lowest fertility (2.564) but their Canadian-born counterparts have the highest (3.654). This finding is tempered by the fact that the number of French women born outside of Canada is very small. Among women 45 years of age and above, the English born outside Canada have the lowest fertility (2.661) and the French Canadian born have the highest (4.450). In general, for all age groups, and for all mother tongues, those women who were born outside Canada have lower fertility than those born within the country. The migration process being both selective and disruptive to fertility could account for the lower fertility of immigrants.

Controlling for age and level of education we find that, generally, English-speaking women in the two younger age groups (15-24 and 25-34) have higher numbers of children ever born than those with French as their mother tongue (table not shown). All those women with mother tongue other than French and English show no consistent pattern when compared to the two official language groups. In the age group 35-44 and for all educational categories, we find only slight differences in fertility between English and French, with the French slightly higher than the English. Among women who have completed their childbearing, the English women have an average of 2.9 live births, French an average of 4.4 and all others an average of 3.2. This general pattern is also manifested in each of the educational categories. Thus when education is controlled, women with French mother tongue have higher fertility than English if they are older than 35, and lower than English if younger than 35. The reversal of the pattern is present in all the educational categories.

The consistent pattern between English and French mother tongue one notices with respect to women 15-24 controlling for education, is less stable when controlling for family income (table not shown). It is the case that French women 15-24 have lower fertility than the English (0.804 versus 0.879) but when we introduce

family income their fertility pattern is somewhat erratic. For women aged 25-34, fertility of French women is slightly lower than English women when family income is controlled. The dominant trend for women over 35 is that French ever-married women have, on the average, higher numbers of live births than the English for almost all categories of income. When examining fertility controlling for age and family income we find that ever-married women other than those of French or English mother tongue behave inconsistently when compared with these latter two groups.

In general, within the two first age categories (15-24 and 25-34) and within the three categories of period last worked (worked in 1970 and 1971, worked before 1970, and never worked) the French have the lowest fertility, the Other mother tongue the next lowest, and the English the highest fertility levels (table not shown). In the two oldest age categories (35-44 and 45 and over) with few exceptions, the French have the highest fertility and the English and Other hold no consistent position when period last worked is controlled. The pattern of higher French fertility in the older women and high English fertility in the younger cohorts generally holds true within each of the work status categories.

In Table 2.27 an examination is made of husband and wife combinations with respect to mother tongue. It can be seen that, in the two youngest age groups (ever-married women under age 35) the French husband-wife couples have the lowest fertility, ignoring sample sizes under 100. Couples for which the husband is English and the wife French also have relatively low fertility in these two young age groups. When the husband is French and the wife is English, their fertility is highest. English husband-wife couples and Other husband-wife couples have intermediate levels of fertility in these two primary childbearing age groups.

Above age 34, the English husband-wife couples have, in general, the lowest fertility. If the husband is English and the wife French, the couples have relatively low fertility. French couples and French husband/English wife couples have relatively high fertility in these age groups (35 and over). The Other couples have fertility levels of an intermediate nature.

Looking at the same relationships as above, but with the number of years since the first marriage substituted for age as the control variable, it is seen that basically the relationships remain unchanged. The one exception seems to be

TABLE 2.27. Children Ever Born per 1,000 Presently-married Women by Mother Tongue of Husband and Wife and by Age of Wife, Canada 1971

Mother tongue	Age of wife				
	15-24	25-34	35-44	45-64	65+
Husband: French Wife: French	741 (1,180)	2,071 (2,845)	3,712 (2,383)	4,279 (3,205)	4,825 (681)
Husband: English Wife: English	849 (3,132)	2,177 (5,409)	3,265 (4,754)	2,914 (7,352)	2,834 (1,858)
Husband: French Wife: English	941 (119)	2,395 (186)	3,872 (137)	3,386 (170)	3,550 (20)
Husband: English Wife: French	663 (92)	2,099 (173)	3,386 (157)	3,000 (195)	3,522 (23)
Husband: Other Wife: Other	931 (821)	2,138 (2,124)	2,926 (219)	3,032 (2,590)	3,626 (601)
Total N of women: 42,397					

Source: Public Use Sample Tape.

that, excluding the very first time category (married four years or less), the Other couples tend to have low fertility levels (see Table 2.28).

Overall, we find that in considering couples the relationships previously established by considering only the women remain. The same rationales for these relationships still hold. The mother tongue variable reflects the changing patterns of fertility in Canada. Under the impact of modernism, old patterns are giving way to new ones and there are overall convergences in fertility differentials. This is as should be expected. In a modern industrial society such as Canada, there is a strong tendency to internalize a more or less common ideal number of children and, with the availability of contraceptives and abortion, to make this a reality. Convergence toward this norm tends to erode cultural and social differentials with respect to fertility.

The relationship between mother tongue and fertility is a complex one reflecting cultural differences and trends within the Canadian population. There are fertility differences by mother tongue, but these differences are age-specific, reflecting longitudinal variations. The French have lower fertility than English in the age groups under 35 and higher than the English in the age groups 35 and over. The introduction of a fourth variable in the analysis does not eliminate the overall relationship between mother tongue and fertility even though this relationship becomes blurred from variable to variable and also within certain categories of the variables. Some of the variance in fertility which on the surface seems to be associated with mother tongue can be accounted for by other cultural and social variables which are themselves associated with mother tongue.

2.8. Language Most Often Spoken at Home

The language most often spoken at home has considerable overlap with mother tongue (see Collishaw, 1976, Table 7). Because of this overlap the relationship documented between fertility and mother tongue holds between fertility and language most often spoken at home. Given this almost identical pattern, the relationship will not be explored in detail. Indians and Inuit have the highest fertility levels. The Polish and Other have low fertility while the Dutch and French have high fertility. The English fertility is higher than that of the French up to the age group 30-34 and lower for those 35 and above. The Other group has fertility levels near

TABLE 2.28. Children Ever Born per 1,000 Presently-married Women by Mother Tongue of Husband and Wife and by Years Since First Marriage of Wife, Canada, 1971

Mother tongue	Years since first marriage of wife					
	≤4	5-9	10-14	15-19	20-24	25+
Husband: French Wife: French	723 (1,890)	2,013 (1,531)	2,849 (1,366)	3,782 (1,318)	4,266 (1,214)	4,742 (2,975)
Husband: English Wife: English	769 (4,079)	2,010 (2,853)	2,831 (2,731)	3,186 (2,653)	3,225 (2,736)	3,054 (7,453)
Husband: French Wife: English	783 (157)	2,147 (95)	3,377 (87)	3,555 (76)	3,718 (79)	3,984 (138)
Husband: English Wife: French	730 (137)	1,904 (103)	2,968 (95)	3,714 (72)	3,492 (71)	3,261 (162)
Husband: Other Wife: Other	851 (1,253)	1,997 (1,153)	2,622 (1,278)	3,000 (1,174)	2,956 (1,060)	3,476 (2,408)
Total N of women:	42,397					

Source: Public Use Sample Tape.

to the bottom in almost all age categories. In fact, the lowest fertility within each age group is for Other in the two youngest and the oldest age groups, and in all other age categories Other is second from the bottom. Such language groups as Chinese, Japanese, Hebrew (Yiddish), Spanish and Portuguese, among others are included in this Other category. Other is likely to represent a disproportionately high number of first generation Canadian residents, and therefore, because of selectivity in immigration, is expected to have low levels of fertility. The Polish have the lowest fertility in the majority of age groups, while the Italians have relatively low fertility in the childbearing years and about average levels of fertility in the age groups 45 and above.

Women who speak an Indian or Inuit language have very high fertility, and there is no visible sign of a reduction. In the case of most other language groups one can observe reductions in fertility by comparing age groups 40-49 with the higher age categories.

As stated before, the language most often spoken in the home has the same bearing on fertility as mother tongue. The patterns of the relationships are very similar.

2.9. Ethnicity

The relationship of ethnic origin and fertility has often been examined and documented historically in North America. In the past, the various ethnic groups which form the Canadian population have varied significantly in fertility behaviour (Hurd, 1937; Henripin, 1972; Kalbach and McVey, 1973). Currently, there are two conflicting orientations as to the relevance of ethnicity for fertility in modern-day Canada. The first of these positions argues that, with increasing urbanization and modernization, the ethnic origin concept is a relic with little behavioural significance (Beaujot, 1974; Sly, 1970; Goldscheider and Uhlenberg, 1969). The second position admits to a decrease in importance, but continues to put forth the ethnic origin variable as one that continues to have an impact on behaviour generally and fertility specifically (Beaujot, 1974; Kalbach, 1971). One of the difficulties relates to the definition of ethnicity – is it an historical ancestry or is it more a personal identification, regardless of the ancestry or passage of time? This is a question that has never been satisfactorily examined in relationship to behaviour manifestations.

Ethnicity or ethnic group identification may be losing its significance for the vast majority of Canadians. For a tenth- or, for that matter, fifth-generation Canadian identification with any particular ethnic group is almost meaningless insofar as its bearing on fertility is concerned. Even though we expect to find some fertility differentials with ethnicity, we also hypothesize that under thorough investigation in a multivariate analysis most of these differentials may disappear. Ethnic group identification is made by association with ancestry traced through the father's side and does not really have an emotional or personal identification component. For recent arrivals ethnicity may be meaningful as an explanatory variable. The variable may also be important with respect to Indians and Inuit, who are relatively insulated within the country. We proceed with the analysis of fertility and ethnicity since it is traditional to do so in a study of this type but bearing in mind overlaps between such other cultural variables as mother tongue, language first spoken in the home and, to a lesser degree, religion.

Overall, it can be seen that the Jewish people have the lowest fertility, followed by the Asians, Other and Unknown, Italians and Poles (Table 2.29). All four identifiable groups in the above list are primarily urban and metropolitan residents. The educational levels of the Jews and Asians are very high and many Asians are recently arrived professionals. The two middle groups in term of overall fertility are those identified as originally coming from the British Isles and Scandinavia. These are followed by the Ukrainians, Germans, Dutch (Netherlands), French, and Indians and Inuit. The fertility of the highest (Indian and Inuit) group is more than double that of the lowest (Jewish) group. This is the same kind of diffrential evidenced in the case of mother tongue and language most often spoken in the home. Indians and Inuit are low on the socio-economic scale and the Jews are high. The former are mainly rural dwellers, and latter live in urban centres. The French overall high fertility level, reflects more the distant past fertility than the current levels of childbearing.

Looking at the fertility of these ethnic groups in terms of those in the childbearing ages (15-44) and those who have completed their fertility (45 and over), other patterns of differentials emerge. In the first age segment (15-44), the order remains the same for the five lowest fertility groups mentioned above.

TABLE 2.29. Children Born per 1,000 Ever-married Women, Showing Age Groups and Ethnic Groups, for Canada, 1971

Ethnic group	Total women ever married	Age group 15-44							Age group 45 and over					
		Total	15-19	20-24	25-29	30-34	35-39	40-44	Total	45-49	50-54	55-59	60-64	65+
Canada	2,775	2,307	634	910	1,706	2,601	3,158	3,348	3,293	3,315	3,189	3,039	3,061	3,565
British Isles	2,565	2,264	638	919	1,731	2,663	3,149	3,228	2,846	3,093	2,874	2,640	2,533	2,902
French	3,294	2,447	628	870	1,667	2,671	3,393	3,858	4,387	4,093	4,098	3,998	4,177	5,154
German	2,704	2,271	645	894	1,725	2,563	3,012	3,070	3,256	2,947	2,956	2,973	3,135	3,889
Italian	2,509	2,111	531	996	1,755	2,342	2,642	2,750	3,258	2,817	2,873	3,173	3,564	4,078
Jewish	2,103	1,843	332	505	1,335	2,272	2,498	2,513	2,283	2,360	2,070	1,964	1,876	2,711
Netherlands	3,109	2,618	524	917	1,882	2,900	3,464	3,745	3,817	3,699	3,546	3,676	4,056	4,175
Polish	2,531	2,122	590	821	1,607	2,429	2,838	2,833	2,910	2,709	2,526	2,524	2,677	3,656
Scandinavian	2,627	2,276	570	933	1,757	2,680	3,148	3,230	3,018	3,085	2,860	2,679	2,680	3,378
Ukrainian	2,656	2,133	591	843	1,620	2,425	2,826	2,827	3,127	2,692	2,636	2,649	2,990	4,179
Indian and Inuit	4,686	3,955	1,050	1,889	3,190	4,809	5,696	6,344	6,155	6,440	6,297	6,109	5,973	5,922
Asian	2,278	1,843	508	810	1,338	2,022	2,646	3,023	3,507	3,162	3,228	3,458	3,257	4,113
Other and unknown	2,314	1,978	556	863	1,478	2,185	2,600	2,688	2,782	2,661	2,594	2,567	2,635	3,156

Source: Collishaw, Table 5, p. 42.

However, there are changes with respect to the two middle positions. The French have dropped down one rank from the top and the British have moved up, thus narrowing the gap in terms of their relative positions compared to their overall status. Indians and Inuit continue to display the highest levels of fertility.

Among the ever-married women who have completed their childbearing (45 and over), the patterns of ranks with respect to fertility levels depart from the above two cases in some rather dramatic fashions. Here, as before, the Jews have the lowest fertiltiy. The next lowest is that of the Other and Unknown category and then comes the British. The French are back in their overall eleventh position but the British are now third and the gap between their ranks has widened. The Inuit and Indians are still the most fertile and the Jews the least fertile. The fertility of the former is now more than two and one half times that of the latter. Of special note also is the high fertility levels of Asians in these ages, reflecting the partial influence of the longer resident Asians against the low fertility of the recently arrived, highly educated professional group. The older Italian women have high fertility in comparison to the younger, more mobile group of Italians.

The relative positions described to this point change when five-year age groupings are considered. For the first three age groups, the French have lower fertility than the British. For all other age groups the British have lower fertility. This further evidenced the changing relative position of the French vis-a-vis the British. The Jews have the lowest fertility in all except one five-year age group. The Indians and Inuit have the highest fertility within all the five-year cohorts. Asians have the second lowest fertility up to the age 30-34, but thereafter their fertility increases. The Dutch have relatively large numbers of children while the Other and Unknown maintain their low fertility rating. The Italians occupy relatively low fertility under age 45 except in the 20-24 and 25-29 age groups. Thus, fertility differentials by ethnicity are evidenced but they are not drastically different from those seen in the case of mother tongue or language most often spoken at home.

Further analysis with ethnicity will utilize the Public Use Sample Tape with a different categorization of ethnicity. British and French are retained, all those of European ancestry are grouped together and all others are combined into a single category. Again, we work with the four age groups.

Introducing religion into the analysis seems to disturb the relationship between ethnicity and fertility (Table 2.30). The relationships between ethnic groups and fertility still exist but the patterns are less definite. French Catholic fertility is still relatively low in the first two age groups, while French with any other religious combination generally yields higher fertility in these two childbearing categories. British Protestants also have relatively low fertility and British Catholics relatively high rates. For the young ever-married women, Catholicism among the English ethnic group is associated with relatively high fertility, while among the women of French ancestry the opposite relationship is true.

Ever-married women in the two highest age groups have high fertility levels if they are French Protestants or French Catholics. British Protestants have low fertility relative to all other British religious subgroups. The British/No Religion women in all age groups generally have the lowest fertility. Overall, in all religious groups, the Other Europeans have low fertility and the Other ethnic group women have high fertility. In general for all ethnic groups, the No Religion classification has low fertility and the Other Religion groups vary. British Catholic subgroups generally have higher fertility than French Catholic. The one exception occurs at the very oldest ages.

The relationship between ethnicity and fertility controlling for birthplace shows some variations by nativity (table not shown). In the age groups 15-24, French Canadian-born women have lower fertility levels (0.832) than the women of the three other Canadian-born ethnic groupings. The French born outside of Canada in these two age groups are small in numbers, reflecting the small numbers of French immigrating in recent years; though they have a higher fertility (1.071) than other groups, the small sample size makes it unreliable. The British born outside Canada have relatively lower fertility than other ethnic groups in all the age categories. The Other ethnic group born outside Canada has also as low fertility as the British (reflecting primarily the low fertility of Asians) in all age groups. British women in the two highest age groups (35-44 and 45 and over) have low fertility and French women have high fertility whether they are Canadian-born or not. With few exceptions, within the four age categories and for the four ethnic groups, women born outside Canada have lower fertility than those who are Canadian-born.

TABLE 2.30. Mean Number of Children Ever Born for Ever-married Women, by Age, by Ethnicity and by Religion

Age by ethnicity	Religion								Total	
	Protestant		Catholic		No religion		Other			
15-24									0.861	(6,073)
British	0.861	(1,832)	0.979	(629)	0.724	(174)	0.911	(158)	0.882	(2,793)
French	0.963	(135)	0.826	(1,474)	0.667	(27)	1.083	(12)	0.836	(1,648)
Other Eur.	0.887	(443)	0.789	(535)	0.561	(66)	0.864	(132)	0.821	(1,176)
Other	1.221	(86)	0.977	(173)	0.828	(29)	0.744	(168)	0.928	(456)
25-34									2.137	(12,625)
British	2.115	(3,543)	2.328	(1,137)	1.668	(286)	2.392	(265)	2.151	(5,231)
French	2.201	(179)	2.139	(3,404)	1.920	(50)	2.425	(40)	2.142	(3,673)
Other Eur.	2.071	(985)	2.089	(1,182)	1.652	(115)	2.303	(333)	2.090	(2,615)
Other	2.370	(249)	2.375	(395)	2.156	(77)	1.823	(385)	2.166	(1,106)
35-44									3.254	(11,526)
British	3.002	(3,580)	3.938	(899)	2.792	(211)	3.635	(244)	3.195	(4,934)
French	3.162	(154)	3.644	(3,051)	2.704	(27)	2.773	(22)	3.608	(3,254)
Other Eur.	2.835	(958)	2.921	(1,166)	2.535	(99)	3.507	(290)	2.941	(2,513)
Other	3.345	(171)	3.538	(301)	2.969	(64)	2.716	(289)	3.166	(825)
45+									3.285	(26,849)
British	2.682	(10,825)	3.648	(1,908)	2.371	(342)	3.287	(652)	2.837	(13,727)
French	3.364	(261)	4.432	(6,163)	2.600	(35)	3.303	(33)	4.373	(6,492)
Other Eur.	2.909	(2,079)	3.310	(1,975)	2.473	(165)	3.615	(790)	3.164	(5,009)
Other	3.352	(398)	4.033	(398)	2.643	(70)	2.493	(755)	3.088	(1,621)

Source: Public Use Sample Tape.

The differences in fertility by nativity are lowest for other European women (about 10%), much higher for British (20% to 25%), and highest for Other women (about 30% to 40%), a pattern evident across the age categories.

In general, regardless of age group, among the four ethnic classes, the non-movers have higher mean numbers of live births than the movers and migrants over the period 1966-71 (table not shown). Women in the age group 15-44 who did not move since 1966 had an average 3.07 children compared to 1.90 for those who move. About one third of the women have not moved and the other two thirds have moved. One reason for the much lower fertility of movers is that of age distribution; they are relatively younger and hence married for a shorter period of time. However, even among narrower age limits, the differences persist. Movers in age group 25-34 had 1.93 children compared to 2.70 for non-movers and in the age group 35-44, the figures were 3.03 and 3.42 respectively. For older women 45 and over, movers had 3.18 children while non-movers had 3.33. Among the migrants within Canada there is no clear relationship between the kind of move and the number of children ever born. It would seem that moving within a province and moving between provinces have the same implications for fertility, for all ethnic groups. One important difference is between migrants within Canada and those who were living abroad in 1966 and living in Canada in 1971. For all ethnic groups and all age groups, women who were living outside of Canada in June 1966 have a lower mean number of live births than the migrants within Canada between 1966 and 1971. These women from outside of Canada include Canadian residents (previous to 1966) who were living abroad in June 1966, and immigrants who have entered since June 1966. One can conclude that the recent immigrants have lower fertility than Canadians even when we take into consideration age, ethnicity and the fact that it is likely that those Canadian residents who sometimes reside overseas have lower mean numbers of children. Ethnic differences within classes of mobility status remain the same for each age category. Thus while fertility differences by mover status exist they do not explain ethnic fertility differences.

The main area of interest in controlling for education is the comparison between British and French, even though there are two Other ethnic groups (table not shown). In the age group 15-24, except for those with some university education, the British are more fertile than the French. Other European and Other women display erratic fertility behaviour vis-à-vis the French and British. The

same situation partially exists in the case of women 25-34, but by age 35-44 the French women have the highest fertility levels and this is the same for women 45 years of age and over. In general, then, within each educational level we find the British more fertile in the two youngest age groups and the French in the oldest two age classes. This reflects a phenomenon that is now well known in Canada. In the past, French fertility was higher than British but in recent years the French have been lagging behind. The Other Europeans, with few exceptions, regardless of age and education, have lower fertility than the French and this is also true when they are compared with the British and the Other ethnic groups. In general then, the Other European has the lowest fertility taking into consideration age and education.

Within the various family income categories for the two youngest age groups we again detect the tendency, though not a very stable one, for the British to have slightly higher average numbers of live births than the French (Table 2.31). The relationship is reversed and much more stable among women in the two oldest age groups. There is evidence of the non-linearity of the relationship between total family income and fertility. The relationship tends to be linear up to a point and then changes direction. Even though the fertility of the women with the highest family income is not as high as that of those with the lowest, it is invariably higher than that of women with family incomes between $15,000 and $25,000. This is the predominant trend within all ethnic groups and for all four age categories. In the lowest income group, except at age 45 and over, the Other ethnic group (which includes Indians and Inuit) has the highest fertility. In the age group 45 and over, the French have higher fertility in this low income class. The Other European fertility levels vis-à-vis the remaining ethnic groupings remain consistent with that discussed using education as the fourth variable. Other Europeans in general, for all total family income groups and age groups, have the lowest fertility levels.

Among women who have never worked, the British have the highest fertility except among those women 45 years and over where they have the fewest numbers of children (Table 2.32). In this age group (45 and over) the French have the highest fertility, followed by Other and then the Other European and British in that order. Among those women who have worked (the other two categories) the relationship between French and British fertility is maintained within the four age groups. The French have lower fertility than the British in the two younger age groups, but in

TABLE 2.31. Mean Number of Children Ever Born for Ever-married Women, by Age, by Ethnicity and by Total Family Income

Age by ethnicity	Total family income										Total	
	Less than $5,000		$5,000-9,999		$10,000-14,999		$15,000-24,999		$25,000+			
15-24											0.861	(6,073)
British	1.149	(564)	0.956	(1,356)	0.510	(607)	0.473	(110)	0.654	(156)	0.882	(2,793)
French	1.141	(368)	0.821	(907)	0.482	(278)	0.482	(27)	0.971	(68)	0.836	(1,648)
Other Eur.	1.088	(194)	0.908	(585)	0.624	(277)	0.100	(50)	0.657	(70)	0.821	(1,176)
Other	1.215	(121)	0.970	(197)	0.632	(76)	0.696	(23)	0.538	(39)	0.928	(456)
25-34											2.137	(12,625)
British	2.704	(693)	2.360	(2,178)	1.870	(1,556)	1.530	(549)	1.914	(255)	2.151	(5,231)
French	2.571	(559)	2.247	(1,860)	1.821	(856)	1.696	(237)	1.801	(161)	2.142	(3,673)
Other Eur.	2.557	(332)	2.270	(1,184)	1.854	(755)	1.491	(222)	1.623	(122)	2.090	(2,615)
Other	2.942	(226)	2.095	(432)	1.776	(272)	1.646	(99)	2.338	(77)	2.166	(1,106)
35-44											3.254	(11,526)
British	3.816	(534)	3.344	(1,586)	3.086	(1,611)	2.993	(825)	2.590	(378)	3.195	(4,934)
French	3.775	(525)	3.586	(1,411)	3.644	(804)	3.690	(332)	2.978	(182)	3.608	(3,254)
Other Eur.	3.312	(311)	2.974	(1,009)	2.812	(741)	2.955	(313)	2.518	(139)	2.941	(2,513)
Other	4.030	(135)	3.189	(291)	2.756	(201)	2.815	(108)	3.133	(90)	3.166	(825)
45+											3.285	(26,849)
British	3.275	(2,233)	2.839	(3,585)	2.706	(2,265)	2.788	(1,399)	2.691	(4,245)	2.837	(13,727)
French	4.757	(1,439)	4.140	(1,929)	4.392	(999)	4.730	(600)	4.153	(1,525)	4.373	(6,492)
Other Eur.	3.480	(1,049)	3.001	(1,404)	2.900	(817)	3.029	(421)	3.294	(1,318)	3.164	(5,009)
Other	3.946	(298)	2.849	(398)	2.804	(235)	2.651	(166)	3.048	(524)	3.088	(1,621)

Source: Public Use Sample Tape.

TABLE 2.32. Mean Number of Children Ever Born for Ever-married Women, by Age, by Ethnicity and by Period Last Worked

Age by ethnicity	Period last worked						Total	
	In 1970 and 1971		Before 1970		Never worked			
15-24							0.861	(6,073)
British	0.616	(1,977)	1.542	(600)	1.486	(216)	0.882	(2,793)
French	0.543	(980)	1.219	(439)	1.358	(229)	0.836	(1,648)
Other European	0.600	(856)	1.452	(219)	1.327	(101)	0.821	(1,176)
Other	0.670	(288)	1.412	(85)	1.325	(83)	0.928	(456)
25-34							2.137	(12,625)
British	1.747	(2,912)	2.529	(1,956)	3.358	(363)	2.151	(5,231)
French	1.554	(1,503)	2.342	(1,365)	2.899	(805)	2.142	(3,673)
Other European	1.754	(1,446)	2.448	(905)	2.708	(264)	2.090	(2,615)
Other	1.676	(584)	2.429	(331)	3.209	(191)	2.116	(1,106)
35-44							3.254	(11,526)
British	2.940	(2,682)	3.242	(1,829)	4.605	(423)	3.195	(4,934)
French	3.209	(1,230)	3.370	(961)	5.283	(1,063)	3.608	(3,254)
Other European	2.743	(1,435)	3.095	(740)	3.444	(338)	2.941	(2,513)
Other	2.690	(448)	3.151	(218)	4.528	(159)	3.166	(825)
45+							3.285	(26,849)
British	2.574	(5,017)	2.693	(5,659)	3.536	(3,051)	2.837	(13,727)
French	3.600	(1,632)	4.025	(1,752)	4.976	(3,108)	4.373	(6,492)
Other European	2.738	(2,033)	3.065	(1,626)	3.926	(1,350)	3.164	(5,009)
Other	2.402	(604)	2.942	(516)	4.066	(501)	3.088	(1,621)

Source: Public Use Sample Tape.

the age groups 35-44 and 45 and over the reverse is true. In general, in the three groupings of period last worked, the Other European women are low in fertility across the four age categories, as compared with the French and British. There is the overall tendency for the Other ethnic group to have fewer children than the Other European among women who have worked, but higher among those who have never worked.

For all four age categories and within all four ethnic groupings generally, women who have never worked have the highest fertility, followed by those who worked before 1970 and finally by those who were employed in 1970-71.

Table 2.33 provides information on fertility of presently-married women, controlling for the ethnic ancestry of the husband and the wife. In cases where the woman is under age 35, the highest levels of fertility are found where the husband is French and the wife is from a different ethnic background. However, overall, the differences and the sample sizes are small and unimportant. The lowest cumulative fertility in this age group is observed where the wife is of French origin, regardless of her husband's ancestry. From this finding, it would appear that in relationship to French couples, it is the woman who is primarily responsible for the low levels of childbearing. While such a statement cannot be made conclusively, the evidence in this table points in that direction.

Generally, at ages over 35 for the wife, both husbands and wives of French origin have the largest families, no matter what the ethnic background of their partners. In the comparisons in this table, the historically high fertility of both women and men of French origin can easily be documented. The number of children is especially large where the husband and wife are both French. The fertility of British husbands and/or wives is relatively low across all the age groups, especially at the older ages where both spouses are of British origin. The Other ethnic groups show few consistent patterns, and the sample sizes are usually small.

2.9.1. Regional Analysis

Table 2.34 examines nine categories of ethnic groups and relates them to fertility, controlling for age and region of the country. The total figures (women 15 years of age and over) show clearly that even within the regions, the relative

TABLE 2.33. Children Ever Born per 1,000 Presently-married Women by Ethnic Group of Husband and Ethnic Group of Wife, by Age of Wife, Canada, 1971

Ethnic group	Age of wife				
	15-24	25-34	35-44	45-64	65+
Husband-British Wife-British	839 (1,815)	2,145 (3,192)	3,287 (3,135)	2,882 (5,427)	2,805 (1,603)
Husband-British Wife-French	893 (187)	2,228 (320)	3,452 (274)	3,433 (324)	3,270 (37)
Husband-British Wife-Other European	868 (257)	2,207 (468)	3,250 (369)	3,011 (481)	3,155 (58)
Husband-British Wife-'Other'	731 (130)	1,976 (205)	2,923 (176)	2,711 (178)	2,522 (23)
Husband-French Wife-British	876 (194)	2,385 (341)	3,637 (231)	3,613 (295)	3,698 (43)
Husband-French Wife-French	754 (1,154)	2,091 (2,739)	3,756 (2,301)	4,243 (3,126)	4,806 (660)
Husband-French Wife-Other European	1,016 (62)	2,131 (70)	3,914 (63)	2,914 (63)	5,077 (13)
Husband-French Wife-'Other'	794 (34)	2,134 (62)	3,590 (40)	3,512 (25)	1,750 (4)
Husband-Other European Wife-British	731 (323)	2,192 (568)	3,083 (404)	2,788 (530)	3,000 (84)
Husband-Other European Wife-French	636 (66)	2,079 (113)	3,539 (85)	3,317 (84)	3,818 (11)
Husband-Other European Wife-Other European	993 (429)	2,201 (1,058)	3,061 (1,128)	3,363 (1,313)	3,990 (291)
Husband-Other European Wife-'Other'	784 (74)	1,811 (149)	2,661 (127)	2,934 (128)	2,353 (17)
Husband-'Other' Wife-British	853 (136)	2,051 (298)	2,764 (204)	2,948 (168)	2,250 (16)
Husband-'Other' Wife-French	510 (49)	2,097 (99)	2,973 (45)	3,658 (36)	2,750 (4)
Husband-'Other' Wife-Other European	950 (80)	2,190 (157)	3,043 (122)	2,775 (130)	2,857 (14)
Husband-'Other' Wife-'Other'	994 (354)	2,177 (898)	2,828 (917)	2,768 (1,204)	3,403 (305)

Source: Public Use Sample Tape.

TABLE 2.34. Children Born per 1,000 Ever-married Women, Showing Age Groups and Ethnic Groups, for Regions of Canada, 1971

Region	15+	15-44	45+
Atlantic Provinces			
Total	3,453	2,812	4,132
British	3,341	2,787	3,903
French	4,181	3,044	5,484
Other N.W. European	2,682	2,289	3,213
All other European	3,005	2,506	3,713
Jewish	1,974	1,738	2,152
Asian	2,639	2,193	3,517
Native Indian	5,057	4,367	6,388
Inuit	5,225	4,899	5,944
Other and unknown	3,972	3,221	4,970
Ontario			
Total	2,469	2,175	2,793
British	2,403	2,158	2,633
French	3,135	2,532	4,054
Other N.W. European	2,367	2,115	2,671
All other European	2,423	2,084	2,913
Jewish	2,112	1,832	2,321
Asian	2,227	1,786	3,242
Native Indian	4,164	3,539	5,340
Inuit	2,616	2,411	3,150
Other and unknown	2,173	1,885	2,767
British Columbia			
Total	2,412	2,178	2,645
British	2,291	2,102	2,447
French	2,715	2,352	3,279
Other N.W. European	2,494	2,191	2,864
All other European	2,489	2,160	2,919
Jewish	1,883	1,568	2,154
Asian	2,666	2,274	3,311
Native Indian	4,450	3,692	6,246
Inuit	2,328	2,273	2,382
Other and unknown	2,220	1,989	2,579
Quebec			
Total	3,058	2,306	3,962
British	2,475	2,141	2,766
French	3,261	2,378	4,369
Other N.W. European	2,150	1,900	2,472
All other European	2,268	1,911	2,821
Jewish	2,097	1,873	2,241
Asian	2,357	1,867	3,134
Native Indian	3,983	3,246	5,319
Inuit	4,824	4,143	6,132
Other and unknown	2,219	1,788	3,151
Prairie Provinces			
Total	2,892	2,414	3,401
British	2,635	2,273	2,979
French	3,477	2,720	4,552
Other N.W. European	3,009	2,437	3,676
All other European	2,948	2,319	3,593
Jewish	2,198	1,940	2,348
Asian	2,554	2,172	3,317
Native Indian	5,218	4,429	6,807
Inuit	3,383	3,281	3,541
Other and unknown	2,568	2,208	3,136

Source: 1971 Census of Canada, unpublished data.

rankings of the ethnic groups in terms of the magnitude of their fertility remain the same as those developed for the country as a whole. In every province and region Native peoples have the highest levels of children ever born. The French-origin women are generally next in order, with other groups varying in position from these two highest figures. The English and Other European origin groups usually comprise the middle positions relative to fertility, and the Jewish and Asian population have the lowest rates, but there are individual exceptions by region.

Perhaps the most significant finding in this section relates to the fertility of young women (15-29) of French ethnic origin. (Detailed figures by five-year age groups not presented here.) In Quebec and the Maritimes, where the vast majority of women of French ancestry live (over 80% of the total), their fertility is on a par or lower in comparison to the British women in the same age categories. Historically in this age group, French fertility was always substantially higher. Henripin (1972) argues that this change may be more a function of different nuptiality patterns with French women marrying later. While there is some evidence for this explanation, it is unlikely that all of the variation can be explained by this strictly demographic occurrence. Rather, it would appear that the French in these Eastern regions are responding to the same set of variables as the other groups in the total Canadian society — industrialization, secularization, and improved contraceptive technology and practice. In other regions the fertility of women of French origin is slightly higher than their British counterparts, but not significantly so.

Concentrating on women in the childbearing ages (15-44), in nearly every comparison of ethnic groups across the regions the Atlantic provinces have the highest fertility levels. The lowest rates vary substantially by region with no clear patterns emerging. For those women who have completed their family size (45 and over) the Atlantic provinces again display the highest levels of all ethnic fertility, while the British Columbia figures are lowest for the two founding groups, the British and French. In every age group, young or old, the fertility of Native people is always highest, and often 50% to 100% higher. For example, the fertility of Native women aged 40-44 in the Prairies is 7.306 children born per women, twice the rate of any other group except the French. This high level of fertility undoubtedly reflects the cultural, economic and

residential (rural) patterns of people of native ancestry. In a non-evaluative sense, in many ways the Native people of Canada are a preindustrial people within the boundaries of an industrial society.

Again, to illustrate the change in the French-British relationship, the over-45 age group of French ever-married women have 50% or more children than the British and most of the other ethnic classifications, and this generally holds across all of the regions. At the oldest ages (70 plus) French ethnic group fertility is higher than other groups by two children on the average. In the younger ages, where family size is relatively complete (women 35-44) the French-British differences are much smaller, but the women of French ethnic origin still have 10% to 20% larger families. In the youngest age groupings, the differences are insignificant, with French fertility often being lower. While this change may be a function of different timing and spacing of children for French in comparison to British women, the likelihood is that the similar relationship observed between the groups will remain in the years to come. For example, Henripin's (1972) data show that for ever-married women aged 20-24 in 1961, these two ethnic groups had similar fertility levels, British 1.347 and French 1.371. The data we present for women aged 30-34 in 1971, 10 years later (Table 2.29), show that levels for British and French ethnic origin women are still substantially the same, 2.663 and 2.671 respectively. While there are some new women in the 1971 group that were not present in 1961, and vice-versa (relating to more marriages, migration and mortality) it is clear that the pattern of similarity has continued and seems to indicate that timing and spacing of children is not particularly relevant in the comparison.

The province of Ontario has the smallest overall average number of children (2.469) and there is less variation in fertility levels between the various ethnic groups in this geographical area. In the Prairies, where there is a relatively large Native population, the family size of Native women aged 40-44 is 7.306 children and this is one of the highest fertility rates of any variable we have examined in this monograph.

In the analysis of ethnic fertility in Canada, we have also taken each of the other 10 variables in the study and, one at a time, examined the relationship of age, ethnic group and regions to that particular factor. This four variable

cross-tabulation will provide some basic tabular information relating the importance of ethnicity when taking other variables into account. Generally speaking, across all of the possible combinations, the ethnic variable still relates to the explanation of fertility variation in an important way. Even when controlling for ethnicity, however, most of the other variables also provide some explanatory power. For example, the foreign-born have lower fertility than those women born in Canada, and this pattern is consistent both across the country and across the breakdown of ethnic categories. There are some exceptions that should be noted, for instance foreign-born people of Italian ancestry in Ontario have higher rates of children ever born than their native-born counterparts in all age groups except 25-34. This is a departure from the overall relationship and perhaps is accounted for by the relatively recent influx of Italian populations into the province of Ontario.

Home language and mother tongue data indicate that outside of Quebec there are relatively few women who indicate a French home language or mother tongue. Employing a 1% sample results in many empty cells for the French language (table not shown); that is, a cross-tabulation that has fewer than 10 cases when analyzed across the four ethnic and four age categories, controlling for residence. As an illustration, in the Prairies there were only five French language fertility data cells (out of a possible 20), and four of these were related to women of French ethnic origin. What this means is that only in Quebec is the French language effectively employed outside of the French ethnic group and, even in Quebec, the "Other European" and "Other" ethnic group women are more likely to indicate that their home language is English. In the young age groups (under 35), those women with a French language background tend to have the lowest fertility across the various ethnic groups. In the ages over 35, the reverse is true – French language is associated with higher levels of fertility for every ethnic group. The women over 45 years of age depict this association particularly well.

The patterns of fertility associated with migration and ethnic groups, controlling for age, are clear in every region. Migrants and movers have lower fertility than non-movers, and among young women, movement between provinces or from outside of Canada is associated with the lowest levels of fertility. This most likely relates to the hypothesis that married couples with fewer children find it easier to move. The Maritimes had the largest differences in fertility between movers and non-movers, while British Columbia showed the smallest differentials.

But the patterns of fertility controlling for migration and ethnic groups are the same in these regions as for the rest of Canada – only the magnitude of the difference changes. Again, among the older women, fertility is highest in the French group regardless of the migration pattern, while among the two youngest age categories, the fertility appears more or less random across the ethnic groups.

Religion interacts with ethnicity in a particularly interesting way in regard to children ever born. For women under 35 years of age, Catholics and Protestants have the highest and approximately equal levels of fertility, particularly among the women of English and French ancestry. Somewhat surprisingly, among the very youngest women, there are no significant fertility variations by Catholic-Protestant religious affiliation, and often the lowest rates are in fact among the Catholics. Once more these differences are not just duration of marriage (see Chapter 4). Young Catholic women seem to be approaching fertility with generally the same set of norms and values as Protestants. The lowest rates of fertility can be observed among those women expressing no religion, and there is no general relationship observable by ethnic group in this religious category. In the Prairies, a special analysis was made of Mennonite-Hutterite fertility (the Hutterite population was too small to examine by itself in the 1% sample); among the women who had completed their families the group had from one to two more children than any other religion – and these women were only represented among the Other European ethnic category. The younger Mennonite-Hutterite women do not display important fertility differences from other women in their age groups. It may be that a once very high fertility group is coming more in line with the total society, but it may also relate to the definitional problem of combining the two religious groups. Hutterites by themselves, even though small in number, may exhibit much higher rates of children ever born.

Once again, Native women have the highest levels of fertility in all of the age groups (analysis was made for the Prairies only) with completed average family sizes of more than six children. This finding varies by religion among the oldest women, with Protestant and Catholic Natives exhibiting similarly high fertility, but with Catholics having 7.237 children while Protestant Indians had on the average 5.694. Among the young Native women, Protestants and Catholics have the same levels of fertility – about twice that of any other group. Regional differences by religion, controlling for the various ethnic groups, is similar to the

overall regional pattern observed earlier; the Maritimes have the highest fertility levels and Ontario and British Columbia the lowest.

Among the women under 35, the general trend for all the ethnic groups is for Catholic and Protestant fertility to be very similar. In the case of British Columbia for example, British Catholic women and British Protestant women aged 25-34 show 2.3 and 2.0 children ever born, respectively. For Ontario the corresponding figures are 2.2 and 2.0.

The socio-economic variables of income and education show different relationships by age and by ethnic group. For all of the women under the age of 35 in the various ethnic groups, the higher the education and income, the lower the fertility. These findings are most pronounced in the Maritimes and British Columbia, but they are evident all over the country. Over the age of 35, this pattern remains reliably consistent for education, but not so for income. In these age groups, the income patterns become more curvilinear for all four ethnic groups. This perhaps indicates that differential fertility by income is timing- and spacing-specific and that women with higher incomes, who early in their childbearing years have relatively few children, "catch up" in their fertility behaviour. In the completed fertility age groups, childbearing associated with variations in income is not significantly differentiated by ethnic group.

On the whole, the lowest fertility is found among the middle income groups, although an emerging pattern is fairly flat with relatively equal fertility across the income categories for all the ethnic groups. Seemingly, the older the woman, the less important the income factor in determining levels of fertility.

Residence relates to fertility through the various ethnic groups in a traditional way. That is, the smaller and more rural the place of residence, the higher the fertility rate of the women living there. This finding generally carries across all of the regions and all of the groups. However, in using a 1% sample, there are relatively few rural farm classifications in the country. Out of approximately 80 possible cells in the five regions, 43 are empty in the rural farm designation (contains fewer than 10 cases). French rural fertility is among the highest rates observable and there are no definitively clear patterns by ethnic-residence fertility among younger women in any of the regions. The married

women who are of French origin, rural, living in Quebec and over 45 years of age have a completed family size of 6.185 children one of the highest rates observed in Canada for any particular group.

As has been true with other analyses in this chapter, the key variables associated with ethnic fertility relate to female participation in the labour force. This relationship is especially noticeable among the younger women. The more recent and full-time the work experience, the lower the fertility. Where women have never worked, their fertiltiy within the same ethnic-age group is as much as 50% higher than women who have worked recently. At the same time there are variations by ethnic group controlling for work experience, with the women of French origin generally having slightly higher numbers of children ever born while the women of "Other European" origin have the lowest numbers.

The variations seem to be greater for women of British and French origin in comparison to women from the other two ethnic groups. In general, the above relationships hold at higher ages, but the patterns are not as pronounced. Among women who have completed their childbearing, the major difference is between women who "never worked" and those who have.

The fertility of the women of French ancestry is relatively high regardless of their working experience. This is a typical finding for the older women of French background across the country. For the youngest women (15-24 years of age) no such findings are evident; the fertility variation by ethnic group in relation to period last worked is more or less random. This is significant in the sense that either ethnicity is becoming less and less important, or the younger women have not yet been exposed to those factors associated with differential ethnic fertility. The overall thrust of this section on ethnicity seems to point to the first possibility – that ethnic group status is less of an explanatory variable in the current fertility situation.

Weeks worked in 1970 is also analyzed in relationship to ethnicity, age and fertility. The older cohorts all across the country display some fertility differentials by weeks worked in 1970, but the major findings relate to the younger women. The longer the period of time worked in 1970, the fewer children the women had given birth to, regardless of ethnicity.

It is obvious that working at the present time is related in a negative manner to both cumulative and completed fertility. The causal relationship is not clear – do women work because they do not have children, or do they not have children because they work – but the association is one of the major findings of this study. Labour force participation, especially among young women, and somewhat independent of ethnic background, is the key factor relating to fertility bahaviour. We will have more to say on this issue in the chapter relating to multivariate analysis.

In summary, across all of the regions employing the 10 variables, the ethnic findings are similar to those discussed earlier in the regional analysis. That is, among young women there is not a great deal of fertility difference by ethnic origin, and often what differences there are have little pattern to them. The major ethnic-fertility differentials are historical, with women of French origin having the highest rates and other Europeans displaying the lowest. The major exception to these conclusions relates to native people. Fertility does vary according to several background characteristics, but overall, the levels are uniformly high among the Indian population.

Ethnicity, as Henripin (1972) rightly points out, is, within the content of the Canadian census, many things to many people and groups of people. As defined within the census it is, for the majority of Canadians, "scarcely more than a memento kept alive by surname. It is merely a reminder of a paternal ancestor who emigrated to America, sometimes many centuries ago..." (Henripin, 1972:181). Therefore, one might hope that in the future fertility researchers might lay the ethnic variables to rest. Our grouping of ethnic origin into British, French, Other European and Other recognizes the crudeness of this variable as a fertility differential.

Among the age group 15-24, the Other group has the highest average number of children, and the British group is higher than the French and the French is higher than the Other European. However, among women 25-34 there is little difference among the ethnic groups in terms of mean number of live births. Within the age group 35-44 the French are the most fertile, followed by the British and Other which are equal, and the Other European which has the lowest average number of children. The French women in the age group 45 and over have the highest

fertility, followed by the Other European and Other, and the British group has the lowest mean number of children. Overall, there is no very clear or consistent pattern of fertility among the ethnic groups, taking age into consideration. However, it is true that, except for the younger age groups, the French are more fertile than the British. This is consistent with Henripin's (1972) findings based on the 1961 Census. It is also reflecting the past higher fertility of the French and their recent and current lower fertility. Also, generally, the Other European group tends to be low in terms of fertility and the Other ethnic grouping tends to be higher than the Other European.

The introduction of any one of the above variables as a second control modifies the above relationships somewhat, but the overall associations between ethnicity and fertility are maintained among older women but have little relevance for the younger cohorts.

2.10. Residential Mobility

Considering all ever-married women 15 years of age and older, it is clear that mobility during the previous five years is related to fertility (Table 2.35). Those who lived in the same dwelling in 1966 and 1971 had an average of 3.232 children, as against 2.425 for those who moved within the same municipality. Those who migrated between counties in the same province had an average of only 2.183 and those who were residents in a different province had 2.142 mean children. Those who were residents outside of Canada had the lowest fertiltiy, 1.872 children. Thus, apart from a clear dichotomy between movers and non-movers, there also seems to be an inverse relationship between fertility and distance moved.

As the distribution of women by migration status varies a great deal, the above relationship could be a result of age distribution and a re-examination controlling for age is necessary. The pattern generally holds but with some minor modifications. Movers are a younger population and hence the fertility differential decreases somewhat within age categories.

Among ever-married women under 35 years of age, those women who were living in the same dwelling in 1971 as they were in 1966 have higher mean numbers of live births than any of the migration categories. Women who were 35 years old and above

TABLE 2.35. Mean Number of Children Ever Born for Ever-married Women by Age and by Place of Residence in June 1966

Age cohort	Place of residence in June 1966																	
	Same dwelling		Same city, town, village or municipality		Different municipality, same county		Different county, same province		Different province		Outside Canada		Not stated		Overseas households (1)		Total	
	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.
15-19	0.657	102	0.627	322	0.585	82	0.592	152	0.625	48	0.436	39	0.769	26	--	--	0.615	771
20-24	1.316	396	0.901	2,169	0.908	524	0.796	1,143	0.877	465	0.815	417	0.810	174	0.357	14	0.897	5,302
25-29	2.281	1,198	1.649	2,428	1.690	494	1.539	1,168	1.502	490	1.226	647	1.626	147	1.567	30	1.694	6,602
30-34	2.923	2,270	2.468	1,773	2.581	320	2.512	791	2.544	298	2.007	434	2.609	115	2.045	22	2.623	6,023
35-39	3.312	2,994	2.988	1,377	3.096	239	3.091	539	2.849	258	2.505	277	3.338	68	3.000	19	3.145	5,771
40-44	3.508	3,510	3.144	1,165	3.409	193	3.216	398	3.070	214	2.770	187	3.054	74	2.714	14	3.363	5,755
45-49	3.398	3,714	3.138	1.021	3.330	188	3.175	348	2.938	176	2.699	123	3.146	48	3.000	5	3.303	5,623
50-54	3.253	3,376	2.899	879	3.491	167	3.090	288	2.896	115	2.658	114	3.231	52	2.000	1	3.167	4,992
55-59	3.082	2,918	2.980	784	2.937	159	2.729	229	2.653	75	2.986	69	2.903	31	2.000	2	3.028	4,267
60-64	3.023	2,344	3.109	669	2.808	104	2.994	159	2.607	61	2.453	75	3.424	33	1.000	1	3.015	3,446
65-69	3.183	1,944	3.387	532	4.365	74	3.187	150	2.942	52	2.958	72	2.333	24	8.000	1	3.236	2,849
70-74	3.560	1,453	3.621	419	3.843	70	3.238	105	3.000	37	2.789	38	2.882	17	--	--	3.537	2,139
75+	3.878	2,349	3.834	733	4.276	134	4.057	159	4.111	54	3.723	47	3.140	57	--	--	3.882	3,533
15+	3.232	28568	2.425	14271	2.444	2748	2.183	5629	2.142	2343	1.872	2539	2.262	866	2.037	109	2.767	57073

(1) Pertains to members of the Armed Forces overseas, Canadian diplomats and other officials outside Canada who were not to report "Place of residence in June 1966".

Source: Public Use Sample Tape.

in 1971 display a somewhat erratic pattern with a few of the categories of the migrants showing higher average numbers of live births than those women who had not moved in the five-year period. However, in general one can conclude that the non-movers between 1966-71 are likely to have had higher fertility (average number of live births) than the migrants for the same time span. Placed in a slightly different perspective, the higher the fertility the lower the probability of moving. Larger families, especially if they are comprised mainly of young and school age children, tend to restrict their geographic mobility.

Women who did move during the period 1966-71 within the same city, town or municipality of the same province have the highest fertility among those who changed residence at all ages. Those who move to a different city or town within the same province have lower mean numbers of live births than those intra-municipal movers, taking into consideration age and place of birth (outside or within Canada). However, the differences between these women and those who move between provinces over the time period (1966-71), in terms of mean number of live births, are often blurred. For example, in the age group 15-24 among Canadian-born women, those who moved between provinces have higher fertility than those who made inter-city or inter-town moves within the same province, and the same is true of the foreign-born women. This pattern does not hold in the age group 25-34, and for the other two age groups the average numbers of live births for these two types of migrants are almost equal. One can only conclude that moving between cities or towns in the same province is the same as moving between provinces, whether as a result or as a determinant of fertility.

Except among women 15-24 years of age, one can safely say that those who were living outside of Canada in 1966 had by 1971 fewer live births than either the non-movers or the within-Canada migrants.

The relationship between mobility and fertility is still the same when education is controlled (Table 2.36). Within each age and educational category, non-movers have higher fertility than movers, and at younger ages long-distance movers have lower fertility than short-distance movers, a pattern not so clear among older women. Small numbers in the university educated categories make the trends tenuous.

The relationship between mobility status and fertility, taking age and family income as controls, is the same as when education was considered, probably

TABLE 2.36. Mean Number of Children Ever Born for Ever-married Women, by Age, by Level of Education and by Place of Residence in June 1966

Age by level of education	Place of residence in June 1966																	
	Same dwelling		Same city, town, village or municipality		Different municipality, same county		Different county, same province		Different province		Outside Canada		Not stated		Overseas households (1)		Total	
	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.
15-24																	.86	6,073
Below Grade 9	1.67	147	1.24	376	1.28	87	1.36	131	1.26	50	.95	133	.95	38	-	-	1.27	962
Grade 9 - Grade 11	1.13	218	1.00	1,126	.98	290	.91	519	1.03	218	.93	101	1.06	77	.57	7	.99	2,556
Grade 12 - Grade 13	.72	107	.60	796	.60	193	.60	473	.72	167	.73	147	.58	72	.17	6	.62	1,961
University	.73	26	.44	193	.39	36	.38	172	.40	78	.39	75	.08	13	.00	1	.41	594
25-34																	2.14	12,625
Below Grade 9	3.01	1,047	2.51	1,020	2.43	178	2.53	321	2.52	89	1.91	234	2.49	55	1.62	8	2.64	2,952
Grade 9 - Grade 11	2.68	1,511	2.01	1,719	2.17	351	2.12	799	2.21	340	1.77	249	2.10	96	2.38	16	2.24	5,081
Grade 12 - Grade 13	2.44	723	1.67	1,081	1.73	215	1.60	597	1.63	222	1.38	339	1.86	86	1.67	21	1.80	3,284
University	2.15	187	1.46	381	1.34	70	1.37	242	1.15	137	1.18	259	1.60	25	.86	7	1.45	1,308
35-44																	3.25	11,526
Below Grade 9	3.82	2,338	3.53	972	3.85	145	3.77	237	3.55	85	2.91	141	3.05	39	2.57	7	3.70	3,964
Grade 9 - Grade 11	3.33	2,532	2.96	925	3.15	178	3.10	393	2.99	211	2.84	106	3.49	63	2.78	14	3.20	4,422
Grade 12 - Grade 13	2.98	1,209	2.64	475	2.54	72	2.73	218	2.54	109	2.29	134	2.63	30	3.25	8	2.81	2,255
University	2.93	425	2.10	170	2.62	37	2.68	89	2.72	67	2.32	83	3.50	10	3.00	4	2.67	885
45+																	3.28	26,849
Below Grade 9	3.89	9,174	3.79	2,641	4.18	465	3.70	635	3.77	189	3.23	260	3.52	119	-	-	3.86	13,483
Grade 9 - Grade 11	2.89	5,367	2.78	1,420	2.91	263	2.97	467	2.79	219	2.53	118	2.86	85	3.50	6	2.87	7,945
Grade 12 - Grade 13	2.54	2,758	2.45	751	2.57	135	2.47	254	2.39	117	2.30	121	2.64	47	2.50	2	2.51	4,185
University	2.42	799	2.21	225	2.27	33	2.38	82	2.00	45	3.56	39	1.82	11	2.00	2	2.36	1,236

(1) See Table 2.35, Footnote 1.

Source: Public Use Sample Tape.

because of the high correlation between education and income (table not shown). Within each income category, fertility decreases for movers and especially for long-distance movers in the younger ages. For example, in the age group 25-34, for the modal category $5,000 to $9,999, non-movers had an average of 2.77 children, while movers within the same municipality had 2.16, migrants from different provinces, 2.11, and those from abroad, 1.68 children. The causal relationship between mobility and fertility cannot, however, be established. Mobility can decrease fertility or vice versa, or both can be the result of other factors.

Family income is negatively correlated with fertility, taking into consideration the age of the women as well as geographical mobility between 1966-71. For women in the age group 15-24 there is a tendency for those in families with incomes of $25,000 or more to have higher fertility than those women in families with incomes of between $10,000 and $25,000, but lower fertility than those women in families with incomes below $10,000. This pattern is the same for all those women who were residents of Canada in June 1966, except those who did not move or change residence between 1966-71, but is not true of those who were living outside Canada in 1966. For those who were non-residents in 1966, the relationship seems to be the higher the income the lower the fertility. For this age group, however, the numbers are small for some income categories and must therefore be interpreted with caution.

Women in the age group 25-34, with family incomes in the range $15,000-$25,000, have lower fertility than any other income group, regardless of migration status between 1966-71. For the four income groups below $25,000 the relationship between income and fertility is negative. The small group of women with family incomes above $25,000 have higher fertility than those with incomes between $15,000 and $25,000.

In the age group 35-44, the relationship between family income and fertility within the various categories of mobility between 1966-71 is in general a negative one. There are a few exceptions to this overall pattern, but these exceptions seem to occur where the number of women is small. In the case of women who were living outside Canada in 1966, we find only slight differences in fertility with respect to income except that those with the highest family incomes have the lowest number of children ever born.

In general, among women 45 years and over, we find little or no relationship between family income and fertility, except that the very lowest incomes are usually associated with the highest level of fertility. All those women with family incomes of $5,000 and above have an average of 3.1 to 3.3 live births, while those with incomes below $5,000 have an average of 3.8 live births. Within the different mobility categories this overall relationship becomes less determinate. The association remains for those who did not change residence and those who changed residence but not locality (movers) between 1966-71. No regular pattern results for those in the other mobility groups.

Overall, we find some negative relationships between family income and fertility, but the relationship shifts somewhat from one age category to another when examined within the various mobility categories. Ignoring mobility patterns, the relationship between family income and fertility is in general a negative one within each of the different age categories.

Looking at fertility with respect to mobility status between 1966-71, it is clear that within each age group women who did not change residence have a higher average number of live births than those who did, regardless of the nature of the change of residence. This difference is more pronounced within the two younger age groups than within the two older ones. The fertility differences among the various mover categories is slight and depict no consistent pattern. In fact, one can conclude that there are no important differences in fertility among the movers or migrants within Canada. However, there are differences between these internal movers and those who move from outside Canada to within the country. These international migrants (Canadian citizens and residents) have lower average numbers of live births than either the non-movers or the internal migrants.

Place of residence in June, 1966 is examined, within the context of age and period last worked (Table 2.37). In general, with some exceptions, within the different age groups and period last worked combinations, women who did not change their dwelling have the highest fertility and those who changed residence within a local (municipal) area had slightly lower rates. Those who moved to a different county within the same province have lower fertility than those who moved between provinces in the age groups 15-34, but higher fertility in the age groups 35 and above. Those who were residing outside of Canada in 1966 have the lowest fertility levels.

TABLE 2.37. Mean Number of Children Ever Born for Ever-married Women by Age, by Period Last Worked and by Place of Residence in June 1966

Age by period last worked	Place of residence in June 1966																Total	
	Same dwelling		Same city, town, village or municipality		Different municipality, same county		Different county, same province		Different province		Outside Canada		Not stated		Overseas households (1)			
	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.
15-24																	.86	6,073
Worked in 1970 & 1971	.82	275	.63	1,750	.56	373	.49	900	.61	361	.59	309	.59	125	.12	8	.60	4,101
Worked before 1970	1.62	113	1.44	511	1.35	158	1.41	300	1.44	122	1.28	81	1.15	54	.75	4	1.41	1,343
Never worked	1.62	110	1.40	230	1.37	75	1.41	95	1.43	30	1.08	66	1.19	21	.50	2	1.39	629
25-34																	2.14	12,625
Worked in 1970 & 1971	2.37	1,495	1.55	2,295	1.57	418	1.51	991	1.44	436	1.21	659	1.75	142	2.33	9	1.70	6,455
Worked before 1970	2.76	1,326	2.42	1,426	2.36	314	2.24	781	2.33	293	2.06	289	2.33	87	1.64	39	2.45	4,557
Never worked	3.34	647	2.86	478	3.21	82	2.92	187	3.10	59	2.01	133	2.67	33	1.75	4	3.01	1,623
35-44																	3.25	11,526
Worked in 1970 & 1971	3.11	3,130	2.68	1,371	2.88	216	2.85	485	2.66	245	2.46	275	3.19	64	2.89	9	2.93	5,795
Worked before 1970	3.32	2,113	3.18	770	3.37	140	3.20	333	3.16	191	2.54	125	3.00	57	2.84	19	3.24	3,748
Never worked	4.34	1,261	4.12	401	4.01	76	4.21	119	3.83	36	3.41	64	3.71	21	3.00	5	4.23	1,983
45+																	3.28	26,849
Worked in 1970 & 1971	2.81	6,128	2.68	1,869	2.99	289	2.76	485	2.73	211	2.54	198	2.79	101	2.20	5	2.78	9,286
Worked before 1970	3.02	6,286	3.10	1,819	3.33	363	2.84	581	2.75	237	2.41	157	2.60	105	3.80	5	3.01	9,553
Never worked	4.22	5,684	4.18	1,349	4.35	244	4.21	372	3.81	122	3.48	183	4.48	56	-	-	4.19	8,010

(1) See Table 2.35, Footnote 1.

Source: Public Use Sample Tape.

When religion is used as a control variable, the conclusions above change only slightly and the overall relationships remain (table not shown). Women who did not move again have the highest fertility, irrespective of their religious affiliation. This overall trend is disrupted only by the higher fertility of women in the migrant categories within the highest age group. Fertility differences by mobility are as pronounced among Catholics as among Protestants. It is still the case that those who were living abroad in 1966 have the lowest fertility. The relationship between different county, same province and different province migrants becomes less stable.

Overall, the non-movers are the highest in fertility and among those who changed residences, there are no completely consistent patterns, with only small variations in fertility across the migrant groups. This randomness is maintained even when age and any one other independent variable are introduced as controls.

2.10.1. Regional Analysis

Table 2.38 provides data on residence-migration patterns, controlling for age and region. Before examining the relationship to fertility, it is worth noting that the older the woman, the less likely she was to move during the five-year period. In the 15-24 age group, the largest proportion of movers was in Ontario, with over 93% of the women having moved between 1966-71. On the other hand, nearly 80% of the women aged 45 and over in the Maritimes were non-movers. While these are the extremes, the other regions followed the trends rather closely.

Generally, throughout the migration data, there are few consistent trends observable in relationship to fertility behaviour. Perhaps the only reliable and consistent finding is that those women who did not change their residence between 1966-71 had slightly higher fertility than those women who had been migrants, and the lowest fertility was for women who had moved into Canada from outside the country. However, even these findings are not totally consistent, varying somewhat by both age and region. The lowest rates of fertility in the country relating to migration in each age group are found in British Columbia for the international migrants. The highest rates are for non-movers in the Maritimes, and again this

TABLE 2.38. Mean Number of Children Ever Born for Ever-married Women by Age and Migration Behaviour, for Regions/Census Metropolitan Areas

	15-24		25-34		35-44		45+	
	No.	Mean	No.	Mean	No.	Mean	No.	Mean
Atlantic Provinces								
Total	580	1.116	1,038	2.613	904	4.290	2,285	4.169
Non-movers	90	1.278	403	3.171	617	4.455	1,752	4.236
Same city	246	1.207	290	2.283	148	4.223	293	4.123
Intra-province	155	1.039	163	2.282	62	3.871	131	4.275
Inter-province	53	.887	113	2.177	46	3.457	64	3.156
Outside Canada	13	.846	28	2.143	15	3.533	24	2.667
Quebec								
Total	1,399	.776	3,621	2.007	3,219	3.318	6,762	3.948
Non-movers	126	1.116	1,045	2.558	1,953	3.549	4,577	4.040
Same city	611	.737	1,320	1.829	729	3.018	1,359	3.775
Intra-province	506	.741	925	1.741	405	2.998	630	3.916
Inter-province	29	.931	84	1.857	37	2.622	43	3.465
Outside Canada	65	.785	158	1.576	61	2.262	90	2.600
Ontario								
Total	2,326	.824	4,662	2.057	4,410	3.025	10,187	2.794
Non-movers	153	1.098	1,148	2.647	2,403	3.100	6,799	2.784
Same city	959	.847	1,577	1.960	1,015	2.874	1,974	2.837
Intra-province	705	.766	1,018	1.988	522	3.155	885	2.697
Inter-province	177	.802	217	1.627	159	3.063	143	2.825
Outside Canada	264	.742	605	1.499	242	2.653	284	2.912
Prairies								
Total	1,077	.927	2,068	2.351	1,797	3.349	4,525	3.395
Non-movers	88	1.398	603	2.846	1,022	3.448	3,161	3.340
Same city	438	.904	671	2.236	385	3.234	810	3.431
Intra-province	323	.842	380	2.295	190	3.363	339	3.938
Inter-province	142	.972	223	1.955	109	3.018	124	3.258
Outside Canada	55	.891	147	1.646	59	2.763	52	3.212

TABLE 2.38. Mean Number of Children Ever Born for Ever-married Women by Age and Migration Behaviour, for Regions/Census Metropolitan Areas - Concluded

	15-24		25-34		35-44		45+	
	No.	Mean	No.	Mean	No.	Mean	No.	Mean
British Columbia								
Total	691	.842	1,236	2.063	1,196	3.000	3,090	2.634
Non-movers	41	1.000	269	2.461	509	3.098	1,809	2.629
Same city	237	.852	343	2.073	265	2.985	601	2.627
Intra-province	212	.830	287	1.979	190	3.179	349	2.702
Inter-province	112	.750	151	2.007	121	2.645	196	2.730
Outside Canada	59	.848	143	1.441	87	2.483	88	2.580
Montréal								
Total	683	.694	1,712	1.838	1,615	2.874	3,390	2.942
Non-movers	47	.681	402	2.152	838	2.958	2,165	2.868
Same city	322	.708	627	1,772	423	2.884	792	2.936
Intra-province	197	.645	463	1.758	215	2.916	296	3.277
Inter-province	29	.690	49	1.735	42	2.571	29	3.138
Outside Canada	62	.758	137	1.533	74	2.108	77	3.533
Toronto								
Total	831	.755	1,648	1.814	1,605	2.615	3,485	2.421
Non-movers	70	.871	365	2.359	833	2.704	2,209	2.373
Same city	367	.785	607	1.745	433	2.409	826	2.446
Intra-province	148	.649	235	1.723	149	2.671	215	2.451
Inter-province	56	.589	65	1.815	42	3.429	52	2.654
Outside Canada	173	.786	340	1.491	135	2.459	169	2.842

Source: Public Use Sample Tape.

is true at every age level. In between these two general patterns, there is little that can be determined from the data.

In controlling for the other 10 variables, one at a time in a two variable classification, there are only random relationships to migration and fertility, other than those already described above. Size of the place of residence (rural-urban) and language had negligible impact on fertility in relation to migration patterns. In the Prairies, English-speaking women do show a consistent pattern by migration (the longer the move, the fewer the children), but other regions had no such distinctive association.

Often, in the total analysis, the migration-fertility relationship is totally flat, meaning that migration is not explaining any variation. There are no systematic differences in migration when controlling for religion or place of birth. At high levels of income, the fertility is relatively high in all migration categories in all regions for the older age groups. However, there are no real correlations across the migration groups. There is the same lack of association when controlling for ethnic groups and education. Work experience on the part of women does not illuminate any patterns, and the migration aspect is, by and large, irrelevant.

Overall, the analysis in this section shows that, other than for non-movers, who have the highest rates of fertility, there is no systematic correlation between types of migrants as defined in this study and fertility. It would appear that while there are fertility variations between movers and non-movers, the distance of the move responds to other sets of variables, and fertility is not an important factor in the decision.

2.11. Age at Marriage and Marriage Duration

Table 2.39 shows mean age at first marriage, marriage duration and children ever born controlling for current age and examining four selected socio-demographic characteristics – religion, education, labour force participation, and residence.

For women under 35, there is little significant difference in age at marriage or duration of marriages between Catholics and Protestants, although overall

TABLE 2.39. Mean Age at First Marriage, Mean Marriage Duration, Mean Number of Children Ever Born, by Wife's Current Age, Religion, Education, Labour Force Participation and Residence, Canada, 1971

	15-24				25-34				35-44			
	Number	Mean at 1st marr.	Mean duration	Mean children	Number	Mean at 1st marr.	Mean duration	Mean children	Number	Mean at 1st marr.	Mean duration	Mean children
Religion												
Catholic	265,500	19.7	2.0	.87	580,175	21.5	7.5	2.16	511,755	22.7	16.4	3.48
Protestant	253,100	19.5	2.2	.87	483,490	20.9	8.1	2.14	462,330	22.0	17.3	3.08
Education												
Less than Grade 9	86,050	18.8	2.8	1.33	262,015	20.7	8.8	2.66	361,915	22.0	17.4	3.74
Grades 9-11	242,125	19.2	2.3	.98	463,800	20.8	8.2	2.24	400,270	22.0	17.1	3.19
Grades 12-13	181,755	20.1	1.7	.62	302,155	21.8	6.9	1.81	206,940	23.1	16.0	2.85
Some university	34,965	20.6	1.4	.49	74,880	22.5	6.3	1.61	48,300	23.8	15.2	2.82
University degree	19,220	21.6	1.2	.23	50,570	23.7	4.8	1.14	26,840	25.1	13.9	2.59
Labour force participation												
Never worked	61,200	18.3	2.5	1.43	145,265	20.3	9.1	2.99	183,530	21.9	17.4	4.17
Worked before 1970	123,100	19.1	2.9	1.44	423,400	21.6	8.1	2.43	353,970	22.8	16.2	3.25
1970 or 1971	379,820	19.9	1.8	.58	584,750	21.6	7.2	1.72	506,760	22.2	17.0	2.97
Residence												
Large urban $\geq$ 30,000	333,840	19.8	1.9	.73	674,690	21.6	7.4	1.88	609,325	22.8	16.4	2.88
Small urban	115,970	19.5	2.1	.93	233,565	21.0	8.0	2.25	201,750	22.1	17.1	3.48
Rural non-farm	97,780	19.1	2.4	1.16	190,560	20.5	8.4	2.68	156,565	21.6	17.5	4.09
Rural farm	16,705	19.3	2.4	1.13	54,605	20.6	8.9	2.82	76,640	21.6	17.8	4.17
Total N=4,600,620	546,115	19.6	2.1	.86	1,153,420	21.3	7.8	2.14	1,040,270	22.4	16.9	3.28

TABLE 2.39. Mean Age at First Marriage, Mean Marriage Duration, Mean Number of Children Ever Born, by Wife's Current Age, Religion, Education, Labour Force Participation and Residence, Canada, 1971 - Concluded

	45-64				65+			
	Number	Mean at 1st marr.	Mean dura-tion	Mean chil-dren	Number	Mean at 1st marr.	Mean dura-tion	Mean chil-dren
Religion								
Catholic	641,165	24.6	27.8	3.82	126,550	25.6	44.5	4.54
Protestant	762,370	24.2	28.7	2.72	190,285	26.0	45.0	2.69
Education								
Less than Grade 9	658,515	23.7	29.6	3.77	205,840	24.9	45.9	3.95
Grades 9-11	500,900	24.3	27.9	2.90	77,305	26.7	43.6	2.82
Grades 12-13	258,195	25.3	26.7	2.52	42,535	27.8	43.0	2.22
Some university	56,495	26.1	26.2	2.62	8,585	28.9	41.1	2.23
University degree	26,955	27.4	24.8	2.46	3,475	30.8	38.8	1.90
Labour force participation								
Never worked	386,420	23.6	30.2	4.10	139,905	24.7	46.1	4.07
Worked before 1970	478,160	24.9	28.1	2.88	160,900	26.4	44.5	2.94
1970 or 1971	636,720	24.4	27.3	2.89	36,935	27.7	41.1	2.90
Residence								
Large urban $\geq$ 30,000	847,365	24.8	27.7	2.72	175,235	26.4	44.2	2.81
Small urban	285,240	24.0	28.8	3.49	73,260	24.4	45.4	3.77
Rural non-farm	244,710	23.6	29.6	4.02	71,960	24.9	45.8	4.26
Rural farm	123,745	23.6	28.8	4.20	13,300	25.1	44.7	4.37
Total N=4,600,620	1,501,075	24.4	28.3	3.20	337,745	25.8	44.8	3.41

Source: Public Use Sample Tape.

Catholics tend to marry somewhat later. The mean number of children born to the women of these two religious groups is identical. For women over 35 years of age, the marriage patterns are similar but Catholic women have substantially larger fertility. Thus, for Catholic and Protestant comparisons of children ever born, age at first marriage and marriage duration are not particularly important.

The higher the level of education completed for these women, the older the average age at marriage, the shorter the marriage duration and the fewer number of children ever born. This finding is consistent for the five age groups under consideration. Generally, up to age 35, the least educated women are married about twice as long and have twice as many children as women who have been to university. Most probably, women who plan to go on to higher levels of education purposely delay marriage and childbearing, while the less educated people may have this situation curtailed by marriage and/or childbearing. Among the women over 35, age at marriage and marriage duration are not as crucial, but still there is an influence; at these age levels, education per se seems to be more important, with the more educated women having fewer children on the average even when marriage duration is more than 15 years. However, even for these women, the age at marriage is later for the highly educated, and thus the potential number of years for childbearing is lessened. Generally, education and duration of marriage are negatively related in a linear way and both are correlated to childbearing in the predicted manner.

Among women aged 15-24, current labour force participation is associated with smaller family size and shorter marriage duration. Those who never worked or had worked prior to 1970 have the same number of children, and marriage patterns are inconsistent. That is, the average age of marriage for women who never worked is 18.3 and their marriage duration is 2.5 years. Those women who worked before 1970 in this age group have an average age at marriage of 19.1 (about one year older) but a longer marriage duration, 2.9 years. This relates to the relatively large sample size of the latter category. At the older ages, there are relatively minor differences in the marital patterns by labour force participation, but fertility is lower for the working women. Generally, once the woman reaches 25 years of age, marriage duration does not vary according to labour force participation, but low levels of childbearing remain associated with period last worked.

Across the five age groups, women in the large urban areas tend to marry later, have shorter marriage durations, and have fewer children than those women

who live in rural areas. Even where the differences in marriage patterns are slight, rural women have larger families. Thus, there is an interaction between residence, age at marriage, and marriage duration, and they in turn affect fertility both singly and in combination.

2.12. Mean Interval from Marriage to First Child

Table 2.40 presents data on the interval between marriage and the birth of the first child for all women and for women who were married at age 21-22, the median age at marriage for women in the Canadian population in 1971. The number of women examined in this section is restricted to those who have been married less than 15 years and had no children before marriage in order to increase the probability that the first born child is still at home. The variables analyzed include education, religion, labour force participation, and residence of the wife.

As expected, the older the woman, the longer the mean interval to the birth of the first child. This is reasonable in that more and more women married at age X will ultimately have a first birth the longer they are married, simply due to longer exposure. The interval between marriage and the birth of the first child is important for several reasons. Research has shown that the shorter the interval to the first child, the smaller the intervals to subsequent children and the lower the chances for economic well-being. At the aggregate level of analysis, the economic consequences are negative for women whose birth spacing is relatively short (Freedman & Coombs, 1966).

Table 2.40 shows that, in general, the more education a woman has, the longer the interval between marriage and the birth of the first child. This finding is associated both with women who were married at age 21-22 and women who were married at any age. The widest differences are at current age 25-34, where the interval between marriage and first birth is 18 and 19 months for those women who had completed less than a Grade 9 education and 26 and 27 months where the woman had some university training. This eight-month difference is a significant one, and indirectly has a bearing on achieved education, subsequent childbearing, and economic solvency. The more educated women have longer intervals to the birth of their first child.

TABLE 2.40. Length of First Interval (Months Between Date of First Marriage and Date of Birth of Oldest Child in Census Family), Showing Average, for Presently Married Women 15 or Over in Household Head-wife Families Whose Date of First Marriage is the Same as Their Husband's, Who Have Been Married Less than 15 Years, for Whom the Number of Children Present in the Household Equals the Number of Live-born Children, and for Whom the Census Family Contains No Children Born Before the Date of the First Marriage, but at Least One Child Born Afterwards, by Age, by Age at First Marriage, by Education, by Religion, by Residence, and by Labour Force Participation, Canada, 1971

Age at first marriage	Current age									
	15-24		25-34		35-44		45-64		65+	
	N	Avg. Int.	N	Avg. Int.	N	Avg. Int.	N	Avg. Int.	N	Avg. Int.
					Education					
21-22										
Education										
Less than Grade 9	4,585	15	40,560	19	9,465	21				
Grades 9-11	14,655	14	78,330	21	12,800	24				
Grades 12-13	14,755	14	58,510	24	9,385	25				
Some university	5,260	15	25,715	27	2,190	27				
Total	39,255	14	213,115	22	34,835	24				
All ages										
Education										
Less than Grade 9	41,810	13	161,270	18	55,330	22	4,910	22	80	20
Grades 9-11	114,430	13	294,855	19	63,790	23	3,850	23	105	24
Grades 12-13	65,550	15	195,440	22	47,615	25	2,540	24	45	25
Some university	13,695	14	72,830	26	22,930	25	1,290	22	20	40
Total	235,485	13	724,405	21	189,665	24	12,590	23	240	25
					Religion					
21-22										
Religion										
Catholic	22,085	14	111,000	19	17,845	20				
Protestant	14,090	14	77,065	23	13,210	25				
Other	1,405	17	7,495	24	1,240	23				
None	1,350	14	6,705	25	965	24				
Total	38,935	14	202,260	22	33,260	22				
All ages										
Religion										
Catholic	111,390	14	366,535	18	105,455	21	7,070	21	140	21
Protestant	101,975	13	276,980	21	64,230	25	4,320	23	60	26
Other	7,150	16	25,370	22	6,320	22	435	22	10	37
None	9,030	12	23,780	21	5,265	25	225	25	5	5
Total	229,550	13	692,670	19	181,270	22	12,045	22	230	22

TABLE 2.40. Length of First Interval (Months Between Date of First Marriage and Date of Birth of Oldest Child in Census Family), Showing Average, for Presently Married Women 15 or Over in Household Head-wife Families Whose Date of First Marriage is the Same as their Husband's, Who Have Been Married Less than 15 Years, for Whom the Number of Children Present in the Household Equals the Number of Live-born Children, and for Whom the Census Family Contains No Children Born Before the Date of the First Marriage, but at Least One Child Born Afterwards, by Age, by Age at First Marriage, by Education, by Religion, by Residence, and by Labour Force Participation, Canada, 1971 - Concluded

Age at first marriage	Current age									
	15-24		25-34		35-44		45-65		65+	
	N	Avg. Int.	N	Avg. Int.	N	Avg. Int.	N	Avg. Int.	N	Avg. Int.
					Residence					
21-22										
Residence										
Rural farm	1,285	14	10,080	19	2,115	21				
Rural non-farm	6,130	14	30,935	20	4,670	21				
Urban <30,000	8,700	13	45,400	21	7,155	22				
Urban >30,000	23,140	14	126,695	23	20,895	25				
Total	39,255	14	213,110	22	34,835	24				
All ages										
Residence										
Rural farm	8,545	14	37,045	18	10,135	21	905	19	15	15
Rural non-farm	48,340	13	91,935	18	21,115	22	1,380	22	40	31
Urban <30,000	53,695	14	154,170	19	35,200	22	2,035	23	55	19
Urban >30,000	124,915	15	414,260	22	123,215	23	8,240	24	140	25
Total	235,485	14	697,415	21	189,665	23	12,560	24	250	24
					Labour force participation					
21-22										
Labour force										
Never	2,340	12	22,740	18	5,395	20				
Before 1970	11,915	13	95,870	22	14,010	26				
1970-71	24,675	15	93,810	23	15,275	23				
Total	38,930	14	212,420	22	34,680	24				
All ages										
Labour force										
Never	31,950	13	93,385	17	29,755	20	2,620	22	30	31
Before 1970	81,055	14	309,925	21	84,465	25	5,450	24	90	26
1970-71	119,340	15	318,535	21	74,830	23	4,480	23	120	20
Total	232,345	14	720,845	21	189,050	24	12,550	23	245	24

Source: Public Use Sample Tape.

The data presented in Table 2.40, controlling for religion, show that under the age of 25, Catholic and Protestant women have a similar spacing interval to the birth of their first child, about 14 months. Among women over 25 years of age, Catholics have a shorter interval, about four months less on the average. This differential by age may relate to the relative lack of contraceptive usage among Catholics in the recent past, but there is probably little difference between young Catholics and Protestants currently. The other group and no religion group generally have the largest intervals, but there is no uniformally consistent pattern displayed.

The differences in the length of the interval to the first born child, controlling for residence, is small and insignificant. The only consistent finding is that those women who live in the largest urban areas (30,000+) have slightly larger intervals, especially at the older ages, and those on rural farms have the shortest spacings. However, the maximum variation for women in the childbearing ages is four months.

The differences in first child spacing are clear when controlling for labour force participation in that those who have worked in the past or in 1970-71 have longer intervals from marriage to first birth and the magnitude of the differential is usually between four to six months. The association between working women and delayed childbearing is apparent but the causal factors involved cannot be determined.

Spacing for subsequent children these women may have had cannot be accurately determined from the census data due to the methods of coding the birth questions about children which could result in errors of up to one year in the calculation of intervals. However, the marriage-first birth interval shows that better educated working women have larger intervals in this analysis, and it is probably true that subsequent children are spaced further apart for these women.

CHAPTER 3

MODELS AND METHODS

3.1. Introduction

The preceding chapter concentrated on a tabular analysis of fertility. Demographic factors such as age at the time of census and age at first marriage have obviously significant effect on children ever-born, primarily because they directly determine the duration of exposure to childbearing, in that older women have had a longer reproductive period. Similarly, women who were married early are likely to have been married for a longer period when age is controlled and consequently exposed for a longer period to the risk of conception.

The inverse relationship of age at marriage to fertility is probably also influenced by other factors besides marriage duration. Women with a higher education or higher social class are not only likely to marry at a later age but also to desire a smaller family and to practise contraception more effectively. Thus part of the observed relation between age at marriage and fertility may be due to common antecedent factors, making the investigation of this relationship more difficult.

Of more importance than the demographic factors of age, age at first marriage and marriage duration is the fact that a large number of socio-economic characteristics and geographical locations bear relationships to fertility behaviour. Differences in fertility are present by type of residence, religion, education, ethnic background, mother tongue, and labour force participation of women. Meaningful interpretations of these differentials are difficult due to the interrelations between these variables. Thus, religious differences in fertility may be due to other factors such as education, social class and type of residence rather than because of religious affiliation *per se*. For example, Jewish women are more educated and highly urbanized, factors which probably motivate them to smaller family sizes. Similarly the incidence of higher fertility among women in the Maritime provinces may be due to a lower educational and social class level and to a more rural way of life. Preliminary tabular analysis soon makes it clear that the nature of relationship among the various factors presents problems in trying to explain fertility. A theoretical framework and methodology to handle many variables simultaneously are needed.

3.2. Theoretical Considerations

The complex nature of causation in reproductive behaviour, and the large number of antecedent factors led to major attempts almost two decades ago at developing frameworks which encompass all relevant variables (Davis & Blake, 1956; Freedman, 1962). These have served as starting points for the derivation and testing of various specific hypotheses by researchers later on. Davis and Blake (1956) provided a useful classification of "intermediate variables" which stand between social organization and social norms on the one hand and fertility on the other. These include variables such as age at entry into unions, extent of celibacy and periods of exposure to risk, contraceptive use, extent of infecundity and the practice of abortion. In their model the fertility of any social collectivity tends to correspond with a level prescribed by social norms. The effect of the "intermediate variables" is to produce the normative reproductive level.

In a transitional society many of these variables take on a dynamic character. Freedman (1962) extended the taxonomy to variables which influence the intermediate variables. These included stratification variables such as occupation, income and education, family structure variables, technological factors, non-familial institutions and other characteristics of social and economic organizations.

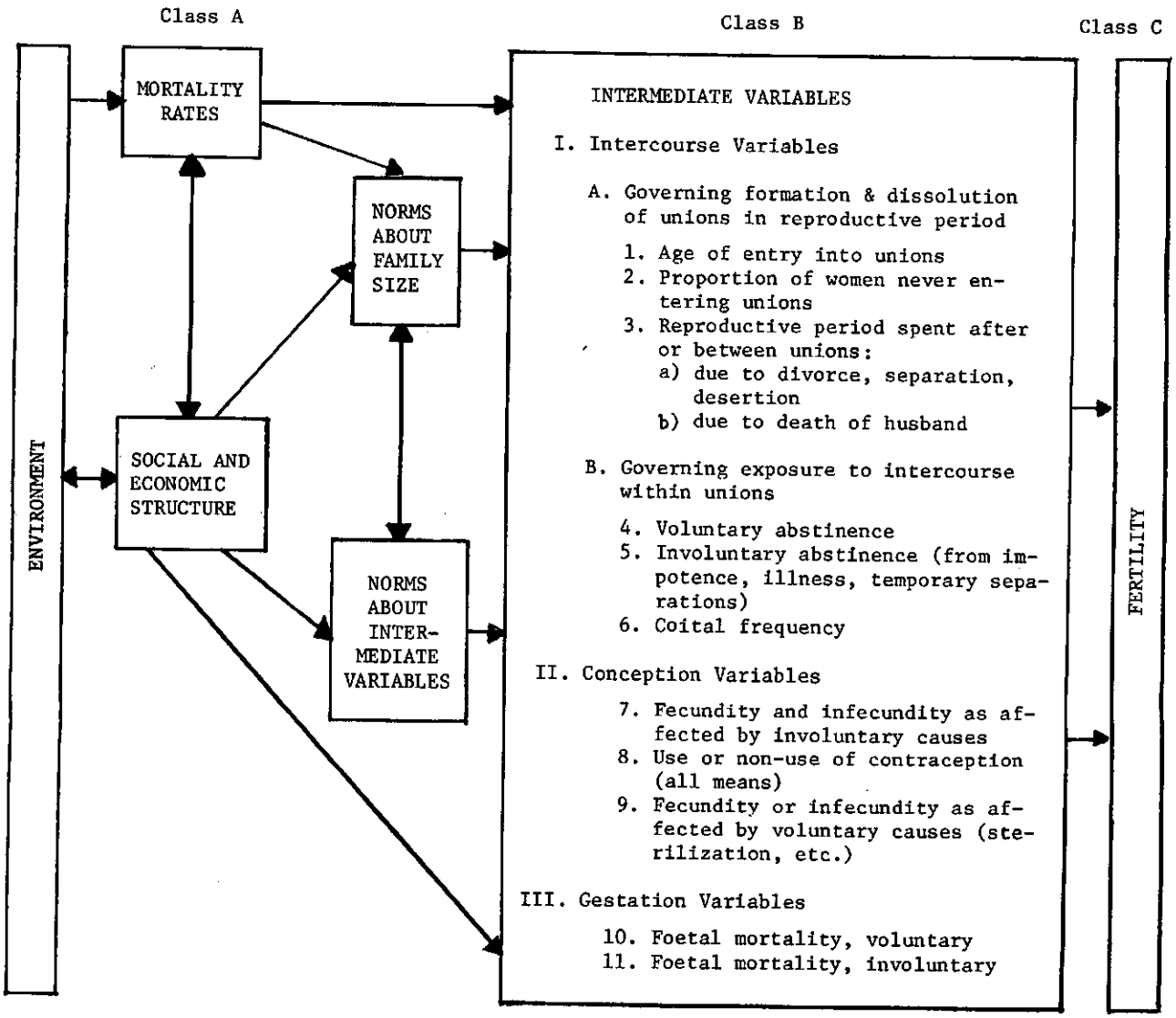
A convenient visual representation of the taxonomy of determinants is provided by Yaukey (1969) and reproduced here (Chart 3.1). It is clear that the variables in the taxonomy consist of (a) demographic and biological factors, (b) psychological factors, (c) contraceptive factors, and (d) socio-economic structural factors. While recognizing the influence of this large number of factors, most research studies understandably have concentrated on a very small part of the whole.

Our own attempt will be determined on the basis of variables available in the censuses. Before presenting the variables themselves and the model we intend to use, it may be worthwhile to look briefly at some of the theoretical approaches that have emerged from the various studies done in the last 20 years.

The many studies conducted in North America, ranging from the Indianapolis project to the five-year fertility surveys extending into the 1970's, show one very

Chart 3.1

Determinants of Fertility



Source: Yaukey (1969), page 101.

clear development: there is no unified body of explanatory factors that can be called a theory of fertility. Westoff et al. said in 1961

> It soon became apparent, however, that there existed no single sociological or psychological theory that would encompass all the factors relevant to fertility. First and perhaps most significant is the fact that research into the social and psychological factors affecting fertility is still at a stage where the primary needs are for gaining more information...Secondly, the level of fertility is a complex result of many events. The antecedents to these events can be approached from the perspective of several sciences and, even excluding the biological sciences, there remains the wide diversity of orientations represented among the behavioural disciplines of sociology, social psychology, and psychology (Westoff, et al., 1961).

What was said then is still true today to a considerable extent, though the number of studies done and the insights gained in fertility behaviour are indeed impressive. Broadly, attempts at explanations in the various studies have been influenced not only by the type of data but also the theoretical orientations of the investigators.

Sociologists dealing with census data have concentrated on the relationship between socio-economic or structural variables and fertility. Societies differ in group structural characteristics such as religion, ethnicity, mother tongue, rural-urban composition, educational and labour force composition, and occupational and income distributions. Membership along these characteristics place people in distinct social groups with different motives, aspirations, family size ideals and desires, norms, and abilities to control fertility. While contraception is a means to an end and many psychological factors are intermediate variables, these ascribed and achieved characteristics arising from membership in a society may well be treated as the basic independent or antecedent factors of reproductive behaviour. Where sociologists have relied on survey data from in-depth personal interviews there have been attempts to gather information on norms about family size and norms on many of the intermediate variables. Consequent explanation of fertility has depended on how these norms influence actual behaviour in terms of intermediate variables and final cumulative fertility.

Psychologists and social psychologists have stressed the futility of trying to explain fertility by looking at the relationship between structural variables and childbearing. While such relationships exist, a theoretical explanation would need to explore the actual decision-making processes in childbearing.

These decisions depend on personality and psychological variables, such as need for ego support, communication between spouses, need for nurturance, marital adjustment and husband-wife dominance, emotional satisfaction from having children or not having them and even general manifest anxiety. Though intellectually satisfying, the psychological approach has not been very productive in explaining fertility variations. This is at least partly due to serious methodological problems in measurement of personality and psychological characteristics.

A more recent approach to the study of fertility is that of the micro-economists. Based on the assumption of classical economics that individuals try to maximize utility, fertility behaviour is explained in terms of costs and benefits derived in having a specified number of children (Becker, 1960; Becker & Tomes, 1976). The desired number of children by a couple will be determined by their preferences for children as compared to other goods and services under the constraints imposed by costs and available income. This type of utility analysis has been criticized, primarily by sociologists. That children are different from consumer durable goods and the non-economic dimensions of family and kinship relations are of such import that they are not amenable to the usual utility analysis was stressed by such people as Blake (1967, 1968) and Ryder (1973). Social norms play an important role in childbearing decisions and the couple really do not have all the options implied in the "rational" man in economics. Easterlin (1969) has partly tried to dampen this criticism by saying that tastes for children are largely influenced by norms and further that a couple's fertility should be seen as a result of a sequence of decisions made at each parity depending on the situations prevalent at that time. The merit of the economic approach lies in the fact that instead of dealing with a large number of socio-economic and psychological variables seemingly related to fertility, one has to handle only a limited number of variables such as price or cost of children, their utility and tastes or preferences. However, the operationalization of these conceptual variables poses considerable problems and to date the promise of this approach has not been met with pragmatic success.

3.3. General Study Model

The model to be used in the current study is determined mainly by the type of data available on individual women in the 1% Public Use Sample Tapes of the 1971 Census. These are basically socio-economic characteristics and demographic variables such as age at time of census and age at first marriage. The nature of

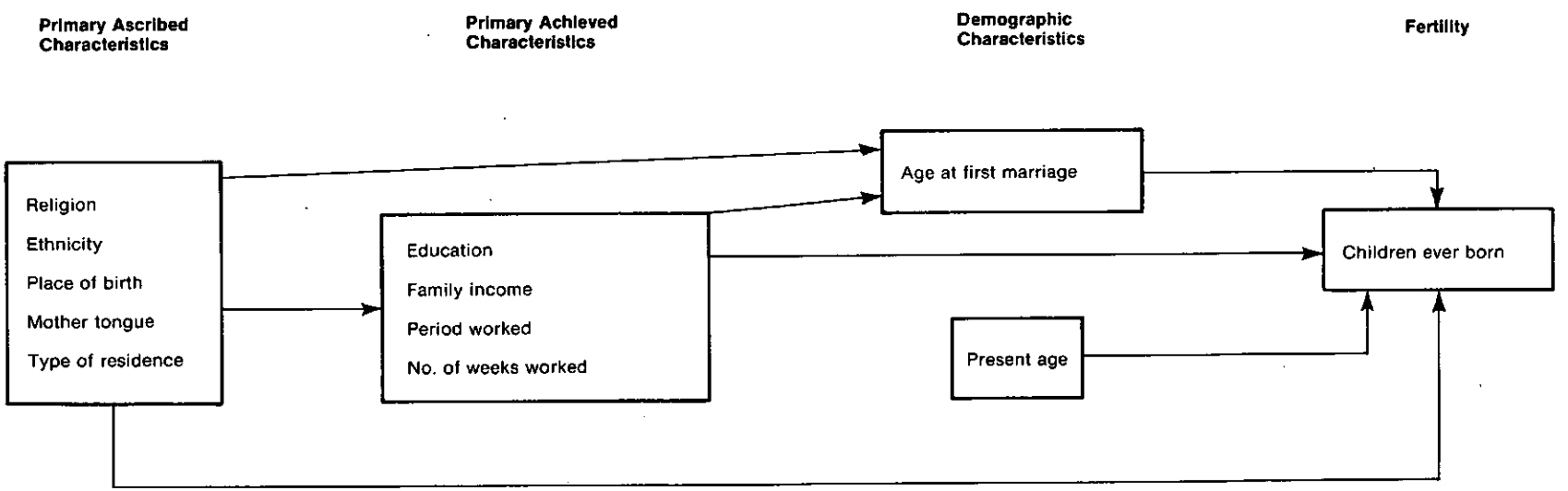
census data does not enable one to test a complete causal model adequately. Most of the variables are measured at the time of the census only and do not refer to retrospective periods necessarily. Thus type of residence, income and extent of work are specific to the time of census taking, whereas retrospective information on these variables would have been more important in establishing a cause-effect relation with fertility behaviour. In contrast, religious or ethnic background rarely changes over one's lifetime.

Chart 3.2 is a schematic representation of the variables in a loosely arranged causal sequence using the information available from the census. The arrangement is based on the following logic. The exogenous variables on the left are largely ascribed characteristics determined mainly before the beginning of adult life. While this is true of ethnicity, place of birth and mother tongue, religious affiliation may change though the probability is rather small. Type of residence is measured as of the census date and is only a crude approximation of lifetime or childhood experience of a rural or urban way of living. The model specifies that these ascribed variables not only influence achieved characteristics shown in the next box, but also age at marriage, and children ever born directly. For example, a woman's religious background can influence her education and age at marriage and also have a direct effect on her fertility behaviour. Chapter 2 revealed fertility differences by ethnicity, place of birth, mother tongue and type of residence, even when some of the other factors were controlled.

The achieved characteristics should not be strictly seen as "intermediate" variables comparable to the ones specified in the earlier conceptual schemes. They are rather seen as at least partially influenced by the designated exogenous variables. Our preliminary analysis has shown that these factors have strong relationships to fertility. Education and work experience are the two most important correlated variables with fertility. Of course their relationships to childbearing are complex and operate in turn through other "intermediate" variables such as norms about family size, non-family centred activities, life expectations and conflicting roles, variables that cannot be investigated with the census data. Thus these variables in the causal chain are missing. It is hypothesized that the achieved characteristics of education, income and work status will have an independent effect on fertility beyond that which can be attributed to the ascribed characteristics such as religion, ethnicity and mother tongue. One should, however, emphasize that

Chart 3.2

Schematic Representation of Determinants of Fertility



our interest is in explaining variations in fertility and not so much the variations in the so called achieved characteristics.

Age at marriage is shown as an "intervening" variable between the above mentioned variables and fertility. When present age is controlled, age at marriage has a very strong relationship to number of children ever born. The later the age at marriage the lower the fertility in general. This is not only due to shortened duration and such biological factors as lower fecundity at later ages, but also to common causal factors with fertility such as education, type of residence or work status.

Present age (age at time of census) is an important independent variable, as it has the highest association with fertility. It obviously is not dependent on any of the other characteristics. Its importance is more as a control variable in assessing the influence of other factors on fertility.

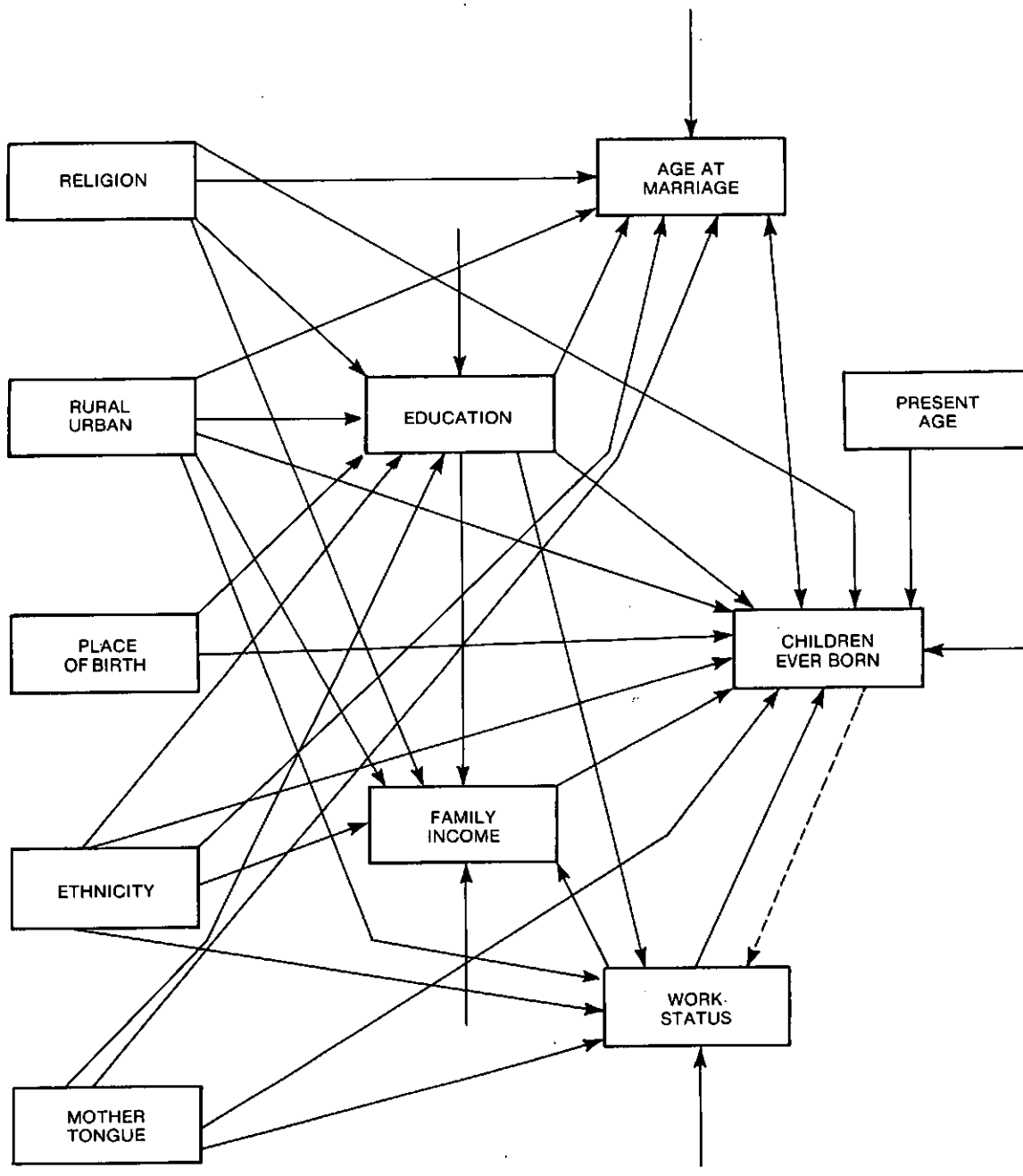
3.3.1. Specific Path Models

From the general schematic representation presented in Chart 3.2, more specific path models can be formulated. A more inclusive model is shown in Chart 3.3. This model is tested and altered slightly when applied separately to various age cohorts and regions. These variations appear in the detailed sections that follow. The paths were hypothesized not only from what we already know from various other studies done in Canada and elsewhere but also from the insights gained from tabular analysis presented in the previous chapter. The direction of expected causations is indicated by the arrows. Thus, age at first marriage is hypothesized to be influenced by religion, type of residence, ethnicity, mother tongue and education. Catholics marry at a slightly higher age than Protestants. Education is positively related to age at marriage. Rural persons marry somewhat earlier than their urban counterparts and French Canadians traditionally marry at a slightly later age than English Canadians.

All of the five ascribed characteristics are hypothesized to influence education. Certain religious groups may put a greater emphasis on education, such as certain Protestant sects or Jews. Education, especially at university level, may not have the same appeal to rural residents as to urban residents. Nativity may be related because of differences in emphasis on the value of education in

Chart 3.3

Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics



various cultures across the world. Ethnicity and mother tongue has also been found to be related to educational aspirations and achievement.

In the case of family income, wife's labour force participation, education and type of residence clearly should have a strong influence and to a lesser extent, it is hypothesized that religion and ethnicity may also influence family income. Wife's work experience is hypothesized to be largely influenced by type of residence and education and to a lesser degree by ethnicity and mother tongue.

Though present age may be correlated with some of the other variables it is obviously not dependent on them in any causal sequence. However, since its influence on fertility is overwhelming, it is important to introduce it into the model. The model is also tested separately for each age cohort. All the variables are hypothesized to affect children ever born with varying degrees of importance.

For simplicity we have treated the model as non-recursive, something that can be questioned especially in the case of work status. Older women may go back to work after childbearing. While we are aware of this problem, which is due to the lack of specific work and reproductive history, it is impossible to investigate work-fertility relationship in a cause-effect framework. The arrow in one direction only, from work status to children ever born, is justified under the assumption that work experience in 1970 or 1971 is likely to be correlated highly with earlier work experience. It is also felt that the path from work status to children ever born is more important than the reverse path. Our analysis is deficient to the extent this and other feedback loops are significant.

3.4. Methods of Analysis

If children ever born is treated as the final dependent variable, all the other variables form the independent or antecedent variables. Tabular analyses in the preceding chapter show that various levels of relationship exist between these independent variables and fertility. Our prime concern is in the assessment of the relative importance of these variables in the explanation of fertility. This is not an easy task, as many of the independent variables are clearly correlated and may interact in ways that are not immediately obvious. Thus, spurious relationships may exist.

Routine multiple regression and partial correlation techniques useful in such situations are not really applicable because of the nature of our data. Very few variables are of an interval level measurement. Most are only nominal categories. Dummy variable regression is a partial solution at best. We have relied on some special techniques which, to some extent, surmount the problems in the measurement and still enable simultaneous control.

3.4.1. Multiple Classification Analysis

Extensive use of a technique called Multiple Classification Analysis (MCA) is made as a substitute to regression techniques. Basically, this is an extension of Multiple Regression Analysis to situations where the independent variables can be in either subclasses or discontinuous variables. An advantage of MCA is that no assumptions about linearity of the subclasses are required. The tethnique provides adjusted mean values on the dependent variable for each subclass of an independent variable after controlling for all other independent variables. In addition, as in regression, it provides standardized beta coefficients and multiple correlation coefficients.

Pelz (cited in Sonquist, 1970) describes the Multiple Classification Analysis technique as follows:

> Multiple Classification Analysis (MCA) assesses how several predictive factors simultaneously determine a dependent variable. As in conventional analysis of variance, from which it is adapted, the program accepts a series of categorical independent variables (predictors), and one dependent variable (criterion). As in the analysis of variance, the model assumed is that each person's criterion score is composed of a series of additive coefficients, or main effects (deviations from the grand mean), corresponding to the particular category or class in which he stands on each predictor. Let a_i = the coefficient corresponding to the i th category of predictor A; let b_j = the coefficient corresponding to the j th category of predictor B, etc: e_{ijk} = a random error term, Y_{ijk} = the observed score of a particular individual who falls in the i th category of A, and j th category of B, etc. It is then assumed that
>
> $$Y_{ijk} = \overline{Y} + a_i + b_j + \ldots + e_{ijk}$$
>
> The problem is to find a set of values for a_i, b_j, etc., which, when introduced into this model reproduce the observed scores with a minimum of error (by least squares criteria). In a typical use of the analysis of variance, it is usual to make the number of cases in all cells equal (or at least proportional), so that the predictors are orthogonal, this is, non-correlated.

> Under these conditions, the values of a_i, b_j, etc., are simply the observed ("raw") deviations of their respective category means from the grand mean. But, with nonorthogonal (correlated) predictors, part of the raw deviations associated with each predictor are, in fact, contributed by the factor's correlations with other predictors. There will be a "surplus" explanation of the variance. To compensate, Yates (1934) described a method of "fitting constants" to obtain a set of values for a_i, b_j, etc., ...which would fit the least squares model. The program generates a series of fitted coefficients, expressed in deviation form, which correspond to the necessary a_i, b_j, etc. and have this meaning.
>
> > The coefficients generated for a particular predictor may be considered an estimate of the effects of that predictor alone, taking into account all other predictors that are entered.
>
> With the output of the MCA program, it is possible to construct a measure analogous to a multiple R^2, indicating the amount of the total variance which is explained by, or is attributable to the combined main effects of the various predictors.

In brief, the technique reveals the nature of the effects of (a) each predictor taken by itself and (b) each predictor after adjustment for its intercorrelations with other predictors in the analysis - that is, in a population where all of the predictors are uncorrelated (Sonquist, 1970).

MCA is not without its own limitations. Though the assumptions are less rigid compared to regression, it is still basically an additive model and interactions are ignored, unless specifically introduced. High multicollinearity may distort the results to some extent. It is also sensitive to a number of categories and sample sizes, and one has to be cautious in handling variables where non-response categories are high. However, given the various problems associated with census data, MCA may be one of the better methods available to us.

Our general approach is to use MCA (a) to estimate per cent of variance expl ined in children ever born and other "intermediate" variables, (b) to partition variance explained and attribute them to the independent or predictor variables and (c) to calculate the effect of each predictor variable on the mean of the dependent variable when other predictor variables are controlled. These methods will be applied in the next chapter.

Some of the methodologies used in Chapter 4 are explained below in the same sequence as they appear there.

3.4.2. Combinational Analysis

Essentially the purpose of combinational analysis is to identify the combination of characteristics which maximizes variation in fertility for any age cohort of women. It is no more than a parsimonious use of extensive cross-tabulations. For want of a better word, we have used "combinational" analysis, which is nothing but the analysis of data using the program AID (Automatic Interaction Detector) developed at the University of Michigan. The program starts with the whole sample and successively splits into two groups at a time through stepwise application of one-way analysis of variance techniques. The splits are so made as to maximize the sum of squares explained by the two groups. In our analysis, we have selected four independent variables found to be most highly related to fertility: religion, type of residence, education, and period last worked for combinational analysis. For each group, AID provides about 25-30 groups of 100 or more cases which can be ordered in terms of their fertility levels. The branching process also identifies the sequential importance of the variables and the interaction between them.

3.4.3. Elements Analysis

When there is more than one independent variable, elements analysis involves partitioning the total variance explained in the dependent variable by the predictor variables, independently and in combination with other predictor variables. Primary elements refer to the unique contributions of the predictor variables, namely the proportion of variance explained by them, without taking their joint effects. Thus, for example, the primary contribution of religion is algebraically obtained as the excess of variance explained by all variables including religion over that explained by all the variables excluding religion. A secondary or second order element refers to the unique contribution of the joint effect of any two variables. Third- and higher-order elements can be similarly defined. Second- or higher-order elements are analogous to interaction terms.

Elements analysis in the present study is restricted to the same four most important independent variables covered above. Though more than four variables increase the number of higher-order terms enormously, many of these are often very

small. Interaction beyond the third order is not only rare but conceptually difficult to explain (see Stone, 1975).

Calculation of the various elements is nothing more than carrying out a series of regression (MCA runs in our case) with various combinations of independent variables. The formulae are given below:

Let y = children ever born
Variable 1 = religion of wife
Variable 2 = type of residence
Variable 3 = education
Variable 4 = labour force participation

$R^2_{y.1234}$ = variance explained in y by variables 1, 2, 3, and 4, etc.

u_{123} = third order element or the joint contribution of variables 1, 2 and 3 taken together on variable y, etc.

Then $u_1 = R^2_{y.1234} - R^2_{y.234}$, and similar expressions for u_2, u_3, and u_4

$u_{12} = R^2_{y.134} - R^2_{y.34} - u_1$ and similar expressions for u_{13}, u_{23}, etc.

$u_{123} = R^2_{y.14} - R^2_{y.4} - u_{12} - u_{13} - u_1$, etc.

and $u_{1234} = r^2_{y1} - u_{134} - u_{124} - u_{123} - u_{14} - u_{13} - u_{12} - u_1$

In interpreting the results of elements analysis, some important points must be remembered. Partitioning of variance does not imply any cause-effect relationship. While the total of all the elements will add exactly to the total variance explained, some higher-order elements can be negative. This presents a peculiar problem in interpretation, of a negative contribution to a factor which is always positive by definition. This happens rarely and the probable explanation is that, while a factor may be positively related to a dependent variable, its joint effect may be in the negative direction. Because of these serious limitations, elements analysis while useful in elaborating explained variance is no substitute to a theoretical formulation of a causal model which specifies cause-effect relationships.

3.4.4. Analysis of Variance and Covariance

A limited amount of analysis is done through usual analysis of variance and covariance techniques. Since age and marriage duration are interval measure

variables and explain a large part of variance in fertility, it is only appropriate to treat them as covariates and controls before looking at the influence of the other factors on fertility. Since a large number of factors will increase interaction terms to a great extent, this type of analysis is restricted to cases where there are only a few independent variables to be considered.

3.4.5. Fitting of Coefficients in Path Models

The MCA technique is used to fit the path models. The beta coefficients which are analogous to standardized regression coefficients are used as path coefficients. R^2, which represents the proportion of variance explained in the MCA technique, is used in the calculation of residual paths ($\sqrt{1-R^2}$). To apply MCA technique we had to assume that the intermediate variables are measured at the level of an interval scale. As education, family income and work status are all ordinal in nature, with five or more categories it is assumed that the condition is not seriously violated. We are not able to calculate the coefficients among the five exogenous variables, because they are categorical data. To this extent our path model is incomplete. However, it is not too consequential for our analysis, which is basically focused on explaining variance in children ever born. Unlike those used in multiple regression, all the beta coefficients in MCA are positive. Hence, while they are good in comparing the relative importance of the predictors, they do not indicate their direction. Direction however is not meaningful for most of our categorical variables, and for the others it can be determined by looking at other features of the MCA, such as adjusted deviations. It can be clearly seen that MCA is only a reasonable substitute in path analysis, which strictly requires that all variables be of an interval scale level of measurement.

CHAPTER 4

MULTIVARIATE ANALYSIS OF FERTILITY

4.1. Introduction

This Chapter is an attempt to look at fertility behaviour in Canada in a multivariate framework using the 1971 Public Use Sample Tapes. Given the cross-sectional nature of the data collection, sequential analyses of events are not possible. Therefore, the correlational and regression analyses used here should be interpreted with caution as to the causal directions involved.

The analysis in this Chapter is based primarily on the 1% sample tapes on individuals, and hence is naturally restricted to the variables available in these tapes to the limitations of these sample tapes. The variables selected are: age of woman, age at first marriage, children ever born, type of residence in 1971, place of birth, nativity or birthplace, ethnic background, mother tongue, religion, education, family income, and labour force participation. The average marriage duration is included in the initial tables in recognition of its importance for fertility. From the individual sample tapes, all the ever-married women 15 years or older were selected for study. There are 57,073 such women, a number large enough for most detailed analysis. Some limitations of the sample tapes are that they do not include Prince Edward Island, the Yukon Territory or the North-west Territories; little information on the husband is identifiable; and data on child spacing are not available. The first section presents the analysis on fertility and four selected independent variables and the later section on a more inclusive model, taking a larger number of independent variables into account.

4.2. Findings

4.2.1. Four-variable Case

From an examination of the relationship of fertility to various socio-economic characteristics, four variables were chosen as somewhat more important than others. Because of the interaction of these selected variables with others, they probably include some of the indirect effects of other variables such as income and occupation. A more complex model encompassing additional factors is

contained in the later part of this Chapter. These four variables were selected because together they explain a considerable part of the variation in fertility and in addition make possible an examination of various configurations with an adequate sample size. These variables are religion of wife, type of residence in 1971, period last worked (labour force status) and education of the wife. (See Chapter 2 for justification of choice.)

The above four variables influence fertility directly and indirectly through other intermediate variables (Yaukey, 1969). However, this indirect link is ignored in the analysis here, as the nature of the census data makes such a study impossible. The emphasis is therefore on the relationship between these four variables and fertility without systematic attention to the mechanisms through which their influences are felt.

4.2.1.1. Combinational Analysis

Using the 1% sample of women ever-married, the combination of characteristics which maximizes variation in fertility is isolated. Tables 4.1 through 4.5 present, for select age groups, the mean marriage duration and the mean number of children for the various groups of women with the combination of characteristics indicated in the tables. (Tables for the other age groups are examined but not included.) The groups were formed so as to contain at least 100 women and are arranged in increasing order of their fertility. The groups were generated through the program AID (Automatic Interaction Detector) developed at the University of Michigan. The program begins with the whole sample and successively splits itself into two groups at a time through stepwise application of one-way analysis of variance techniques. The splits are made so as to maximize the sum of squares explained by the two groups. The information in the tables is derived from the application of this technique to the sample data. The analysis is done for each of the five-year age cohorts, 15-19 to 75 and over, but tables for the cohorts 15-19, 20-24, 30-34, 40-44 and 50-54 are the only ones shown. These are illustrative and adequately represent the picture for those not shown.

For the 15-19 age cohort the range in mean number of children is from .353 for women with greater than or equal to Grade 12 education and who worked in 1970 and/or 1971 to .965 for women with less than Grade 12 education who worked

TABLE 4.1. Mean Number of Children per Ever-married Women Aged 15-19 by Selected Combinations of Religion, Residence, Period Last Worked, and Education

Combinations of characteristics				Number of women	Mean number of children	Mean marriage duration
Religion	Type of residence	Period last worked	Education			
All	All	1970-71	≥Grade 12	150	.353	.420
Catholic	All	1970-71	≤Grade 11	167	.455	.760
Non-Catholic	All	1970-71	≤Grade 11	138	.529	.768
All	All	Never	All	202	.802	.782
All	All	Before 1970	All	114	.965	1.175
			Total	771	.615	.763

Source: Public Use Sample Tape.

TABLE 4.2. Mean Number of Children per Ever-married Women Aged 20-24 by Selected Combinations of Religion, Residence, Period Last Worked, and Education

Combinations of characteristics				Number	Mean number	Mean marriage
Religion	Type of residence	Period last worked	Education	of women	of children	duration
Non-Catholic	All	1970-71	Some university	317	.265	1.56
Catholic	All	1970-71	Some university	194	.392	1.68
Non-Catholic	Large urban	1970-71	Grades 12-13	523	.415	2.05
Catholic	Large urban	1970-71	Grades 12-13	423	.449	1.90
Catholic	Small urban	1970-71	Grades 12-13	144	.451	1.64
Catholic	Large urban	1970-71	Grades 9-11	467	.587	2.21
Non-Catholic	Small urban	1970-71	Grades 12-13	144	.597	2.13
All	Rural	1970-71	Grades 12-13	205	.634	2.14
Catholic	Small urban	1970-71	Grades 9-11	156	.635	2.09
Non-Catholic	Large urban	1970-71	Grades 9-11	367	.869	3.06
Catholic	Rural	1970-71	Grades 9-11	101	.911	2.58
Catholic	All	1970-71	≤Grade 8	244	.947	2.71
Non-Catholic	Small urban	1970-71	Grades 9-11	135	.978	3.00
Non-Catholic	Rural	1970-71	Grades 9-11	119	1.084	3.00
Catholic	Urban	Before 1970	≥Grade 12	126	1.206	3.02
Non-Catholic	All	1970-71	≤Grade 8	107	1.215	3.16
Catholic	Small urban	Before 1970	≤Grade 11	144	1.271	3.16
Catholic	Large urban	Before 1970	≤Grade 11	271	1.314	3.30
Non-Catholic	Large urban	Before 1970/never	≥Grade 12	125	1.336	3.10
Non-Catholic	Small urban/rural	Before 1970/never	≥Grade 12	108	1.398	2.37
Catholic	Urban	Never	All	188	1.489	3.64
Catholic	Rural	Before 1970/never	≥Grade 9	148	1.493	3.20
Non-Catholic	All	Before 1970/never	Grades 9-11	312	1.747	3.85
Catholic	Rural	Before 1970/never	≤Grade 8	102	1.833	3.49
Non-Catholic	All	Before 1970/never	≤Grade 8	132	1.970	4.14
			Total	5,302	.897	2.62

Source: Public Use Sample Tape.

TABLE 4.3. Mean Number of Children per Ever-married Women Aged 30-34 by Selected Combinations of Religion, Residence, Period Last Worked, and Education

Combinations of characteristics				Number of women	Mean number of children	Mean marriage duration
Religion	Type of residence	Period last worked	Education			
All	Large urban	1970-71	Some university	222	1.522	8.31
Non-Catholic	Large urban	1970-71	Grades 12-13	286	1.790	9.51
Catholic	Large urban	1970-71	Grades 12-13	205	1.902	9.34
Catholic	Large urban	1970-71	Grades 9-11	335	1.985	9.92
Catholic	Large urban	1970-71	≤Grade 8	265	2.083	10.77
Non-Catholic	Small urban/rural NF	1970-71	≥Grade 12	226	2.150	10.22
Non-Catholic	Large urban	1970-71	≤Grade 11	428	2.299	11.46
Catholic	Small urban/rural NF	1970-71	≥Grade 12	125	2.312	8.98
Non-Catholic	Large urban	Before 1970	≥Grade 12	258	2.384	9.44
Catholic	Small urban	1970-71	Grades 9-11	117	2.402	10.58
Catholic	Large urban	Before 1970	Grades 9-11	328	2.537	9.93
Non-Catholic	Small urban	1970-71	Grades 9-11	105	2.552	12.76
Catholic	Large urban	Before 1970	≥Grade 12	254	2.587	9.33
All	Small urban	Before 1970	≥Grade 12	130	2.715	9.88
Catholic	Large urban	Before 1970	≤Grade 8	245	2.727	10.60
Non-Catholic	Rural	Before 1970	All	207	2.739	10.72
Non-Catholic	Large urban	Before 1970	≤Grade 11	337	2.792	11.25
Catholic	Large urban	Never	≥Grade 9	144	2.889	10.61
All	Rural non-farm	1970-71	Grades 9-11	168	2.899	12.00
Catholic	Large urban	Never	≤Grade 8	251	2.936	10.71
All	Small urban	Before 1970	≤Grade 11	302	2.944	10.97
All	Rural farm	1970-71	≥Grade 9	151	3.020	11.42
Catholic	Small urban	Never	All	131	3.282	10.96
All	Small urban/rural	1970-71	≤Grade 8	202	3.302	11.66
Non-Catholic	Large/small urban	Never	All	121	3.521	12.21
Catholic	Rural	Before 1970	All	222	3.608	10.49
All	Rural	Never	All	258	4.225	12.10
			Total	6,023	2.623	10.55

Source: Public Use Sample Tape.

TABLE 4.4. Mean Number of Children per Ever-married Women Aged 40-44 by Selected Combinations of Religion, Residence, Period Last Worked, and Education

Combinations of characteristics				Number of women	Mean number of children	Mean marriage duration
Religion	Type of residence	Period last worked	Education			
Non-Catholic	Large urban	1970-71	Grades 12-13	269	2.138	18.64
Non-Catholic	Large urban	1970-71	Some university	122	2.402	17.23
Non-Catholic	Large urban	1970-71	Grades 9-11	445	2.589	20.19
Non-Catholic	Large urban	Before 1970	≥Grade 12	256	2.715	17.83
Non-Catholic	Large urban	1970-71	≤Grade 8	159	2.730	20.06
Catholic	Large urban	1970-71	≥Grade 11	219	2.731	17.26
Non-Catholic	Small urban	1970-71/before 1970	≥Grade 11	141	2.766	19.05
Non-Catholic	Large urban	Before 1970	≤Grade 11	354	2.876	19.44
Catholic	Large urban	1970-71	≤Grade 11	639	2.987	19.61
Non-Catholic	Small urban	Before 1970	≤Grade 12	139	2.993	19.78
Non-Catholic	Small urban	1970-71	≤Grade 12	176	3.068	20.52
Non-Catholic	Rural non-farm	1970-71/before 1970	≥Grade 9	248	3.165	19.60
Catholic	Large urban	Before 1970	Grades 9-11	188	3.202	17.37
Catholic	Small urban/rural	1970-71/before 1970	≥Grade 12	134	3.410	18.53
All	Large urban	Never	≥Grade 9	181	3.448	19.15
Catholic	Large urban	Before 1970	≥Grade 12	107	3.570	18.38
Non-Catholic	Rural farm	1970-71/before 1970	≥Grade 11	127	3.598	17.38
Catholic	Large urban	Before 1970	≤Grade 8	228	3.689	17.57
Catholic	Small urban/rural	Before 1970	Grades 9-11	113	3.726	17.63
All	Large urban	Never	≤Grade 8	308	3.815	19.76
Non-Catholic	Rural	1970-71/before 1970	≤Grade 8	161	3.870	21.40
Catholic	Small urban	1970-71/before 1970	≤Grade 8	158	4.032	17.93
Catholic	Small urban/rural	1970-71	Grades 9-11	153	4.105	19.88
Non-Catholic	Small urban/rural	Never	All	143	4.301	20.74
Catholic	Rural	1970-71/before 1970	≤Grade 8	199	4.804	18.59
Catholic	Small urban	Never	All	188	4.894	20.17
Catholic	Rural	Never	All(76%≤Grade 8)	200	6.055	21.07
			Total	5,755	3.363	19.42

Source: Public Use Sample Tape.

TABLE 4.5. Mean Number of Children per Ever-married Women Aged 50-54 by Selected Combinations of Religion, Residence, Period Last Worked, and Education

Combinations of characteristics				Number of women	Mean number of children	Mean marriage duration
Religion	Type of residence	Period last worked	Education			
Non-Catholic	Large urban	1970-71	>Grade 12	384	2.141	26.00
Catholic	Large urban	1970-71	>Grade 12	101	2.248	26.13
Other(1)	Large urban	1970-71/before 1970	<Grade 11	136	2.257	27.54
Non-Catholic	Large urban	Before 1970	>Grade 12	213	2.296	26.00
Non-Catholic	Large urban	1970-71/before 1970	Grades 9-11	523	2.398	27.90
Non-Catholic	Small urban	1970-71/before 1970	>Grade 12	136	2.426	26.92
Non-Catholic	Large urban	1970-71	<Grade 8	142	2.549	29.08
Non-Catholic	Small urban	1970-71/before 1970	Grades 9-11	197	2.594	28.14
Catholic	Large urban	1970-71	Grades 9-11	202	2.658	27.24
Non-Catholic	Large urban	Never	All	173	2.717	28.94
Non-Catholic	Large urban	Before 1970	<Grade 8	101	2.762	28.09
Catholic	Large urban	1970-71	<Grade 8	239	2.812	27.87
Non-Catholic	Rural	1970-71/before 1970	>Grade 9	325	2.895	27.67
Catholic	Large urban	Before 1970	>Grade 9	160	3.038	24.68
Non-Catholic	Small urban/rural farm	1970-71/before 1970	<Grade 8	216	3.157	29.24
Catholic	Large urban	Before 1970	<Grade 8	181	3.171	26.70
Non-Catholic	Small urban/rural	Never	>Grade 9	103	3.320	30.38
Catholic	Large urban	Never	>Grade 9	120	3.575	27.54
Catholic	Small urban	All	>Grade 9	159	3.887	27.21
Non-Catholic	Rural non-farm	1970-71/before 1970	<Grade 8	110	3.918	29.74
Catholic	Large urban	Never	<Grade 8	244	3.951	28.52
Catholic	Rural	All	>Grade 9	119	4.050	27.47
Non-Catholic	Small urban/rural	Never	<Grade 8	135	4.400	29.32
Catholic	Small urban	1970-71/before 1970	<Grade 8	130	4.523	29.11
Catholic	Small urban	Never	<Grade 8	115	4.878	28.48
Catholic	Rural	1970-71/before 1970	<Grade 8	181	5.320	28.81
Catholic	Rural	Never	<Grade 8	147	6.082	28.73
			Total	4,992	3.167	27.78

(1) Neither Protestant nor Catholic.
Source: Public Use Sample Tape.

before 1970 (Table 4.1). The most important factor seems to be work status and the least important, type of residence. Because of their youth these women cannot have been married for a long period of time (.4 to 1.2 years). Consequently, one would expect their work status to be a major factor related to their fertility. Of second importance should be education. Working for this young age cohort should, in general, mean that there is no infant child at home. A high level of education is probably indicative of non-interruption of education by childbirth. Type of residence and religion are not expected to be as important explanatory variables as the two mentioned above at this early stage in the childbearing process. Their significance is generally manifested in later years as the variation in fertility widens. However, the Catholic non-Catholic fertility differential should make its appearance even among these young women. For this group the association between work status in 1970-71 and fertility has to be interpreted with caution. Most probably, the fact of getting pregnant and having a child immediately after marriage could have prevented them from working in 1970-71, although they might have worked prior to 1970. In other words, it is not too surprising that labour force participation has the strongest relationship to fertility in this youngest age group. The differences in mean average duration for the five groups is an important factor with respect to the fertility differences observed.

Marriage durations which range from 0.42 to 1.18 years for the five groups of women are in the same direction as the mean number of children of these women, which range from 0.35 to 0.97 live births. Marriage duration, which is positively related to fertility among women 15-44, explains some of the fertility differentials among the five groups of women, but other factors are also operating. Some of these factors are shown in Table 4.1. It can be seen that, for the three age groups in the middle, the average marriage duration is about the same (.76, .77 and .78) and the respective mean numbers of live births are 0.46, 0.53 and 0.80. Marriage duration, although important for an explanation of fertility, does not explain all of the difference.

This conclusion is justified by observing that all low splits (in terms of level of fertility) occur with respect to women who worked in the period 1970-71. The two high fertility levels occur for women who have never worked and those who worked prior to 1970. With residence we should note that there is no split. All types of residence are included in all five splits. Residence is not an important fertility differentiating variable at this early stage in family formation, but

labour force involvement is. Working women are either postponing child-bearing or are experiencing difficulties in conceiving. Non-working young married women are likely to be those who are not in the labour force because of infants at home.

For the 20-24 age cohort, the mean number of children varies from .265, for university-educated working women of non-Catholic background, to 1.970 for women with less than Grade 8 education and little work experience. Mean marriage duration ranges from 1.56 to 4.14 years and again has a significant bearing on fertility. Education and labour force participation seem to be far more important than religion or type of residence among these ever-married women 20-24 years of age.

For this young age cohort of ever-married women, it can be seen that religion is playing a role when we compare the fertility of Catholic women with that of non-Catholic. With period last worked and education controlled, there is a difference between Catholic and non-Catholic (.455 vs .529) fertility. As was seen in Chapter 2, in the younger age groups, Catholic fertility is lower than non-Catholic, a trend which has recently developed. This is manifested here also. There is no doubt that the younger Catholic women are less fertile than their non-Catholic counterparts. However, it remains to be seen whether they will eventually close the gap. It is our opinion that religious differentials will disappear in the not too distant future.

The impact of education on fertility seems minimal in this young age group, as should be expected. The real influence of education on fertility manifests itself among older women at higher levels of education. Here the combined effects of spacing of births, delaying the first childbirth, greater and more effective contraceptive use and lower desired number of children are manifested in the completed fertility of the better educated older women.

For this young age, as for the earlier one, we observe increasing mean marriage duration with increasing numbers of live births. Again we must conclude that mean age at marriage accounts for some, but not all, of the observed fertility differences. We find significant fertility differences between groups that are similar with respect to marriage duration.

Labour force participation remains of primary importance, as was seen for the 15-19 age cohort. Education has now assumed an important role. Women who are

pursuing education are doing so by postponing childbearing, or they are those who are having difficulties in having children. The high fertility women are having children to the neglect of the achievement of high levels of education. Women with small children are less likely to be in the labour force than those with none.

The influences of religion and residence on fertility are less marked than for the two above variables. However, careful comparisons among Catholics and non-Catholics, controlling for the other factors, bear out the findings of Chapter 2. Young Catholics are on the whole a little more likely to have lower fertility levels than young non-Catholics. Urban dwellers are now more likely to have low fertility than rural residents. These urban dwellers are also more likely to have worked in 1970-71 and to have had Grade 12 and above education. In general, combinational analysis enables us to support the findings of Chapter 2 and to do so in a much clearer and decisive manner.

Similar patterns can be observed for the next two age cohorts (25-29 and 30-34) with children ever born ranging from .660 to 2.881, and 1.522 to 4.225 per ever-married woman. (Table for ages 25-29 not shown; see Table 4.3 for ages 30-34.) The combination of rural residence, no work experience and lowest education is consistently associated with the highest fertility rates, with Catholicism being of lesser significance.

The mean number of live births for age group 30-34 increases as the mean marriage duration increases. However, the neam number of live births ranges from 1.5 to 4.2, while the range in mean number of years since first marriage is from 8.3 to 12.2 years. However, among these it can be seen that for the same marriage duration, there are significant fertility differences. We also find that in some cases there are no fertility differences, yet there are sizeable differences in years since first marriage. There is a positive relationship between fertility and marriage duration but marriage duration accounts for only a part of the variation in fertility. The other factors employed in Table 4.3 are also important explanatory factors for fertility.

For the cohorts 35 or older (tables not shown except for age groups 40-44 and 50-54), the pattern changes somewhat, mainly in religious background. Low fertility is found in those combinations of characteristics where the woman is non-

Catholic. Catholics have lower fertility only if they live in large urban areas, have worked recently (1970-71), and had medium or high education. For example, for women aged 40-44, the mean number of children was 2.138 for non-Catholic women living in larger urban areas, working and with Grade 12 or 13 education, as compared to 6.055 for Catholic women living in rural areas and having never worked. All of this is in support of the findings presented in Chapter 2. Religion and residence increase in importance as age increases.

For women 40-44 years of age (Table 4.4) the mean number of years since first marriage ranges from 17.2 to 21.4 years, a difference of 4.2 years. The mean number of live births goes from 2.2 to 6.1, a difference of 3.9. However, again we find the same mean marriage duration associated with greatly different fertility levels. Approximately equal fertility levels are also seen to occur with different lengths of time since first marriage, again documenting the less than perfect association between fertility and marriage duration. What is true for women aged 40-44 is generally true for those aged 50-54 (Table 4.5). However, this latter cohort gives us, certainly, completed fertility. The duration of time since first marriage is increasing yearly while fertility remains constant.

While the data presented with respect to the above show the fertility of the various categories, the characteristics of extreme groups are shown for each cohort in Table 4.6. These show the polar types, with others falling in between. This is a table summarizing and highlighting what has been said before. The changing patterns of groupings with age become manifest.

For two selected age groups, 25-29 and 45-49, the actual stepwise splits are shown in Charts 4.1 and 4.2. These are symbolic of the process and are presented in order to familiarize the reader with the methodology. Though the program continues the splitting process until the group sizes reach 100, the splits in the figures presented are curtailed somewhat prematurely for purposes of clarity and simplicity. The dichotomies are made in order of importance in explaining variation in fertility and in such a way that between group variation is maximum. For the younger age cohort (25-29) the earlier splits are on work status and education. The third level splits occur mostly on type of residence, with religious breakdowns occurring later. For the 45-49 age cohort, the pattern is somewhat different. The initial split is on type of residence, with the next level partitioned on work

TABLE 4.6. Lowest and Highest Mean Number of Children in the Various Groupings of Women in Age Groups 15-19 to 75+

Age cohort	Number of women	Mean number of children	Combinations of characteristics
15-19			
Lowest	150	0.353	Last worked 1970-71; Grade 12 education.
Highest	114	0.965	Last worked before 1970.
20-24			
Lowest	317	0.265	Non-Catholic; last worked 1970-71; university education.
Highest	132	1.970	Non-Catholic; never worked or worked before 1970; less than Grade 8 education.
25-29			
Lowest	238	0.660	Non-Catholic; large urban; last worked 1970-71; some university.
Highest	226	2.881	Rural; never worked; Grade 11 or less.
30-34			
Lowest	222	1.522	Large urban; last worked 1970-71; some university education.
Highest	258	4.225	Rural; never worked.
35-39			
Lowest	120	2.067	Non-Catholic; large urban; last worked 1970-71; some university.
Highest	308	4.750	Rural; never worked.
40-44			
Lowest	269	2.138	Non-Catholic; large urban; last worked 1970-71; Grades 12-13 education.
Highest	200	6.055	Catholic; rural; never worked.
45-49			
Lowest	116	2.043	Neither Protestant nor Catholic; large urban; last worked 1970-71.
Highest	190	6.168	Catholic, rural, never worked.

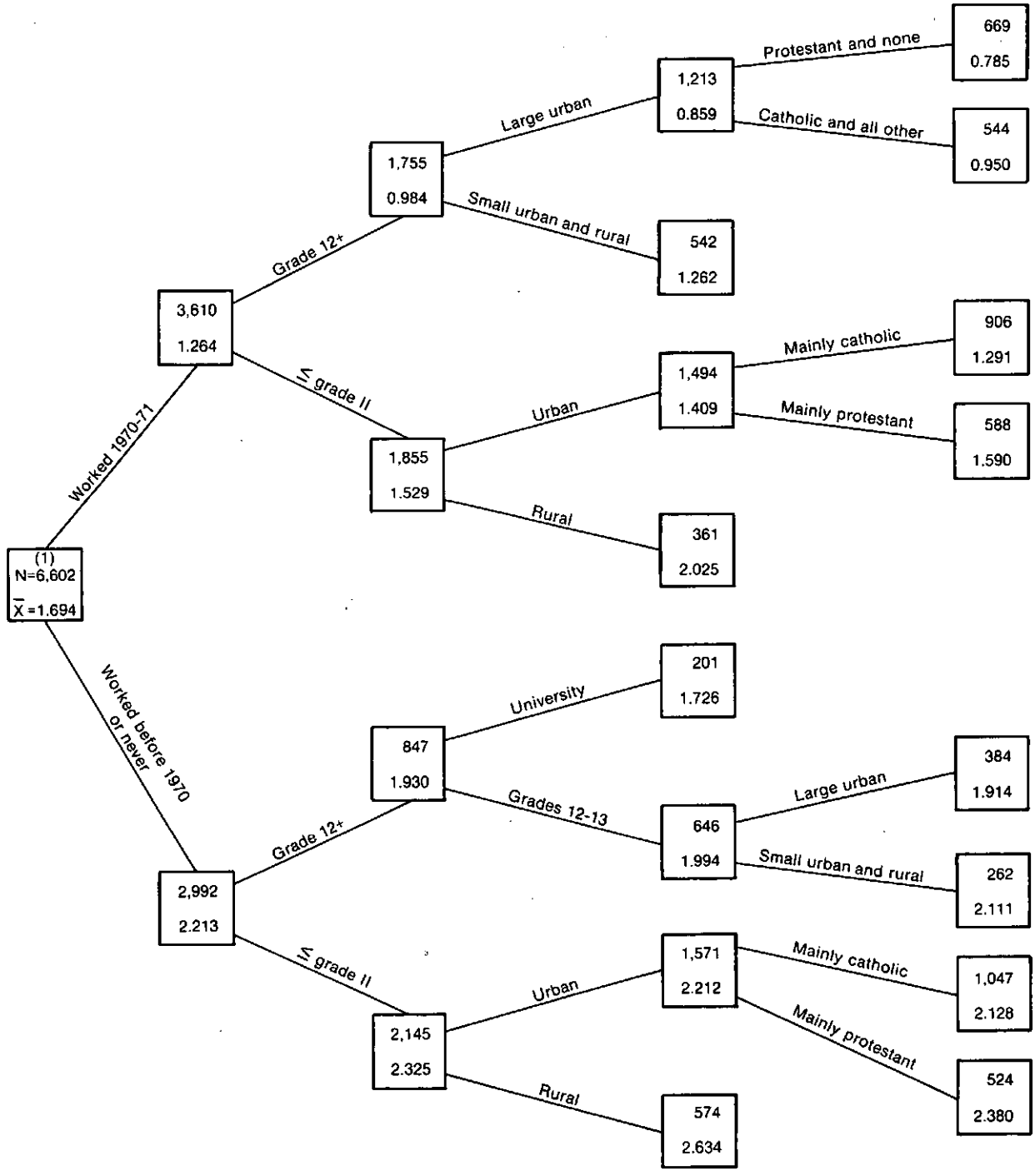
TABLE 4.6. Lowest and Highest Mean Number of Children in the Various Groupings of Women in Age Groups 15-19 to 75+ -Concluded

Age cohort	Number of women	Mean number of children	Combinations of characteristics
50-54			
Lowest	384	2.141	Non-Catholic; large urban; last worked 1970-71; Grade 12+ education.
Highest	147	6.082	Catholic; rural; never worked; Grade 8 or less education.
55-59			
Lowest	229	1.965	Non-Catholic; large urban; last worked 1970-71; Grade 12+ education.
Highest	150	6.167	Catholic; rural; never worked; Grade 8 or less education.
60-64			
Lowest	186	1.715	Non-Catholic; urban; last worked 1970-71; Grade 12+ education.
Highest	141	5.738	Catholic; small urban/rural farm; never worked; Grade 8 or less education.
65-69			
Lowest	394	1.835	Non-Catholic; large urban; last worked 1970-71/before 1970; Grade 9+.
Highest	161	5.683	Catholic; small urban; never worked.
70-74			
Lowest	113	1.832	Non-Catholic; large urban; last worked before 1970; Grade 12+ education.
Highest	174	6.241	Catholic; rural.
75+			
Lowest	270	2.367	Non-Catholic; last worked before 1970; Grade 12+ education.
Highest	152	6.855	Catholic; small urban/rural farm; never worked.

Source: Public Use Sample Tape.

Chart 4.1

Stepwise Split of 25-29 Age Cohort of Women on Four Characteristics Showing Number of Women and Children Ever Born, Canada, 1971

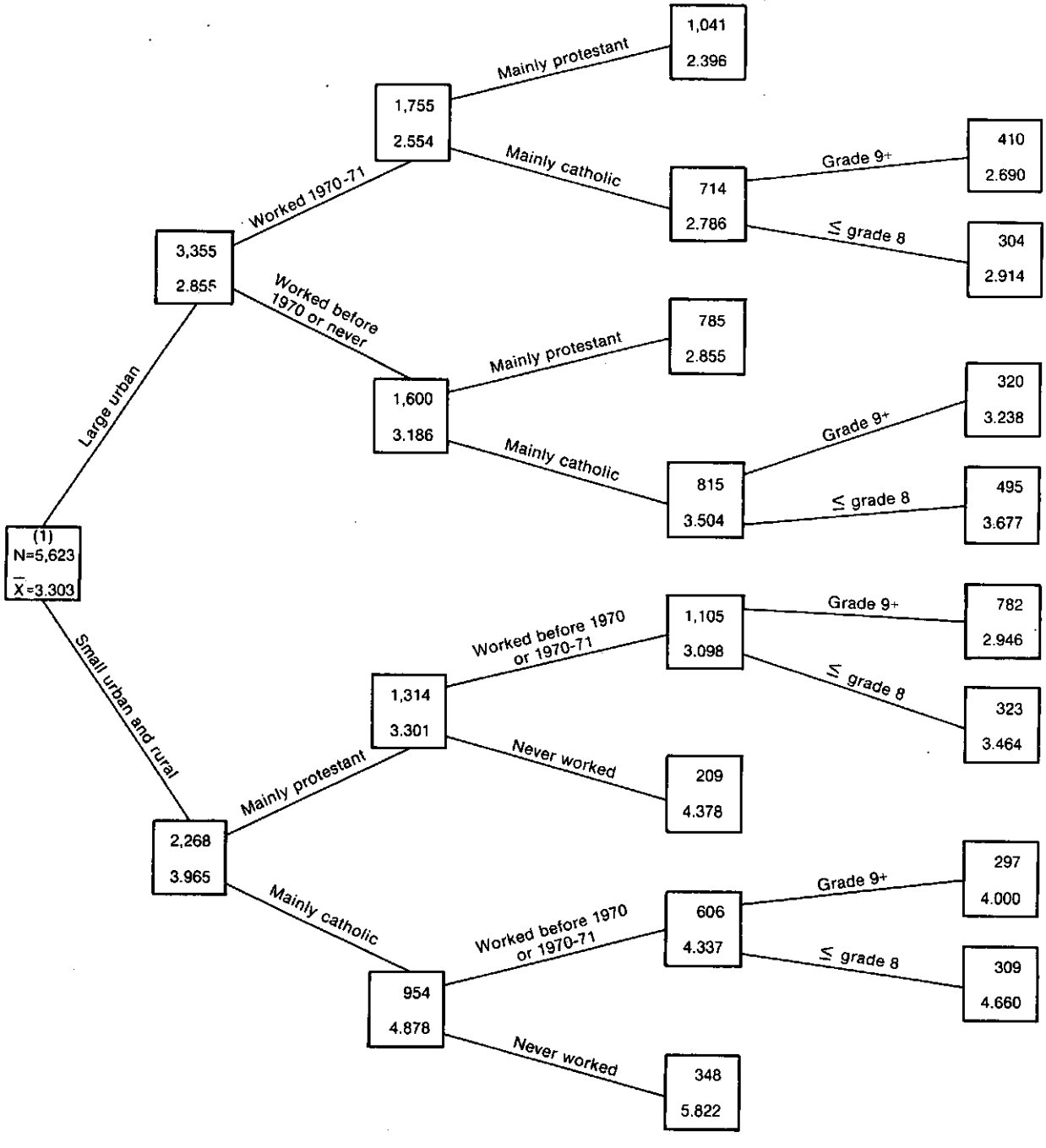


(1) In every box on this chart and Chart 4.2 the upper number indicates the number of women and the lower number indicates the mean number of children ever born.

Source: 1971 Census of Canada, Public Use Sample Tape.

Chart 4.2

Stepwise Split of 45-49 Age Cohort of Women on Four Characteristics Showing Number of Women and Children Ever Born, Canada, 1971



(1) See Chart 4.1, footnote 1.

Source: 1971 Census of Canada, Public Use Sample Tape.

status for large urban areas and on religion for the small urban and rural areas. Splits on education occur only at a much later level. These figures and the earlier tables, based on the AID program, help in identifying the structural differences in fertility behaviour and support the earlier findings presented in Chapter 2. Labour force participation and education are important explanatory factors for fertility at every age. Religion and residence are less important among the younger women and gain in importance among older women.

4.2.1.1.1. Regional Analysis

The AID technique is applied to the five regions in Canada with results similar to those already discussed for the country as a whole. In this section, the age categories are combined into four groups: 15-29, 30-44, 45-64 and 65 and over. The reason for these groupings is to maximize the cell size (N must equal at least 100) and to group the women into various stages of childbearing, as follows: (a) 15-29, 80% of all children born in the 1970's are born to women in these ages; (b) 30-44, while there are some children born to women in this age group, the women, for the most part, have completed their family size. In the U.S., the most prevalent form of birth control for couples where the woman is aged 30-44 is sterilization, and this is an indication that childbearing is completed (Bumpass & Presser, 1972). This age group can be labelled as early completed fertility; (c) 45-64, completed childbearing; and (d) 65+, historical fertility.

1. Women aged 15-29. Across the five regions, the first dichotomous variable split that maximizes fertility variation is on labour force participation, with those women who worked in 1970-71 having the lowest rates and those who never worked or worked prior to 1970 showing the highest (table not shown). The lowest rate in this first split was .774 children for women in Quebec who worked in 1970-71. The higest rate was in the Maritimes, 2.170 children for women who had never worked or who had participated prior to 1970.

The second stepwise split occurs on education in nine out of the possible 10 additional dichotomies (in the Maritimes this breakdown occurs again in labour force participation, with those never having worked being separated from those who were employed before 1970). At this stage of the one-way analysis of variance, the lowest number of children ever born is in British Columbia for women who had worked in 1970-71 and had either university or Grades 12-13 secondary education. The

largest number of children is 2.111, in the Prairies for those not currently in the labour force and having less than Grade 12 education.

The final stepwise application results in a fairly mixed outcome, with religion emerging in some combinations and type of residence in others. Out of the 20 possible distributions, 12 relate to residence (urban showing lowest levels of fertility and rural highest), three relate to religion, one further split on education, and four blank cells due to a small sample size (two of these occur in the Maritimes).

Table 4.7 shows lowest and highest mean number of children in the various groupings in the region and the combination of characteristics associated with the widest differentials. It should be noted that the magnitude of the differences is often as large as 1.5 to 2 children, which is important given that most of the women are currently in their prime fertility period. Quebec is the only region in which Catholicism by itself is correlated with low fertility and university education is not. In the Maritimes, religion and residence are not factors in the high and low comparisons, with labour force participation being the key variable in this region. The lowest overall rate is in British Columbia, .330 children, and the highest is in the Maritimes, 2.475 children. The widest gap between low and high is Ontario, with a two-child difference. Generally, the regional comparisons are not dissimilar in the differences between lowest and highest levels.

2. Women aged 30-44. The same general patterns observed above apply to these women who are in the final stages of their childbearing, and the differences between the highest and lowest levels of fertility are as great within the region (see Table 4.8). For example, women in Quebec, Ontario and the Prairies have a difference of approximately three children depending on the characteristics associated with those women. Labour force participation and residence appear to be the major distinguishing characteristics, operating in the expected directions. Across the regions, the lowest levels of childbearing are around two children per woman, although in the Maritimes the smallest family size is 2.770. The highest is over five children per woman (again in the Maritimes) but all the other regions except British Columbia approach the family size of five children at the highest levels of fertility. Quebec and Ontario have quite similar patterns, with fertility in Quebec being somewhat lower at the extremes than Ontario.

TABLE 4.7. Lowest and Highest Mean Number of Children in the Various Groupings of Women, Aged 15-29, for the Five Regions of Canada

Region	Number of women	Mean number of children	Combinations of characteristics
Ontario			
Lowest	248	.480	Non-Catholic; urban; university; last worked 1970-71.
Highest	106	2.472	Catholic; rural; never worked or worked before 1970; Grade 11 or less.
Quebec			
Lowest	209	.598	Catholic; urban; worked 1970-71; Grades 12-13.
Highest	172	2.122	Rural; worked before 1970 or never; less than Grade 9.
Maritimes			
Lowest	238	.810	Worked 1970-71; Grade 12+.
Highest	160	2.475	Never worked.
Prairies			
Lowest	114	.491	Non-Catholic; large urban; worked 1970-71; university.
Highest	220	2.232	Catholic; worked before 1970 or never; Grade 11 or less.
British Columbia			
Lowest	112	.330	Large urban; worked 1970-71; university.
Highest	103	2.301	Rural; worked before 1970 or never; Grade 11 or less.

Source: Public Use Sample Tape.

TABLE 4.8. Lowest and Highest Mean Number of Children in the Various Groupings of Women, Aged 30-44, for the Five Regions of Canada

Region	Number of women	Mean number of children	Combinations of characteristics
Ontario			
Lowest	203	2.054	Non-Catholic; large urban; worked 1970-71; university.
Highest	106	4.991	Catholic; small urban and rural; never worked.
Quebec			
Lowest	147	1.857	Large urban; worked 1970-71; university.
Highest	341	4.783	Catholic; rural; never worked.
Maritimes			
Lowest	148	2,770	Non-Catholic; worked 1970-71 or before 1970; Grade 12+.
Highest	166	5.440	Rural; never worked.
Prairies			
Lowest	132	2.136	Non-Catholic; urban; worked 1970-71 or before 1970; university.
Highest	128	4.984	Small urban or rural non-farm; never worked.
British Columbia			
Lowest	331	1.997	Large urban; worked 1970-71; Grade 12+.
Highest	149	3.940	Never worked; Grade 11 or less.

Source: Public Use Sample Tape.

Across the regions, four of the first five splits related to labour force participation (education accounts for the other in British Columbia) and the lowest fertility is associated with working either in 1970-71 or before 1970. Place of residence accounts for seven of the next 10 dichotomies, with large urban residence related to the lower fertility levels. It is clear from Table 4.8 that the same combination of variables relates to lowest and highest fertility for women aged 30-44 as was the case for the youngest women. Urban, working, non-Catholic, university women have the lowest levels of fertility, and the rural non-working women have the highest.

3. Women aged 45-64. A comparison of Tables 4.8 and 4.9 shows that the lowest fertility across the regions is similar for the age groups 30-44 and 45-64, around two children. However, the older women on the high side of the fertility comparison have nearly two more children on the average than the younger women. For example, in Quebec those older women with the largest number of children have 6.503, while in the same province the highest level of fertility for any group of women in the 30-44 age classification is 4.783. Table 4.9 shows that the combination of characteristics associated with low fertility is changed somewhat for these women. The non-Catholic women have the fewest children, and religion generally takes on more importance as an explanatory variable in fertility differentials. Again, these findings illustrate the historical importance of religious affiliation in relationship to childbearing.

Education is not one of the major variables in distinguishing between women who had low or high fertility. This undoubtedly relates to the fact that historically few women went beyond the beginnings of secondary schooling. While not shown in the tables, the middle range of fertility for this age group is around three children in all the regions (2.5 in British Columbia) and is associated with the non-Catholic working women.

The importance of religion and labour force participation in relation to fertility can also be documented by examining the stepwise splits. The first 15 breakdowns on the maximum fertility variation between groups show that religion accounts for seven and labour force participation for four of the partialing factors. Non-Catholic working women have the lowest levels of fertility and

TABLE 4.9. Lowest and Highest Mean Number of Children in the Various Groupings of Women, Aged 45-64, for the Five Regions of Canada

Region	Number of women	Mean number of children	Combinations of characteristics
Ontario			
Lowest	236	2.021	Non-Catholic; worked 1970-71 or before 1970; Grade 9+.
Highest	102	4.912	Catholic; rural, never worked.
Quebec			
Lowest	131	1.878	Non-Catholic; large urban; worked 1970-71.
Highest	181	6.503	Rural; less than Grade 9.
Maritimes			
Lowest	161	2.460	Non-Catholic; large urban; Grade 9+; worked 1970-71 or before 1970.
Highest	118	6.763	Catholic; rural.
Prairies			
Lowest	430	2.337	Non-Catholic; large urban; worked 1970-71; Grade 9+.
Highest	132	5.326	Catholic; small urban or rural; never worked.
British Columbia			
Lowest	108	1.907	Non-Catholic; large urban; worked 1970-71 or before 1970.
Highest	103	4.214	Catholic; never worked.

Source: Public Use Sample Tape.

Catholic never-working women the highest numbers of children. Education and residence are less important, and the residence variable is difficult to analyze in that among these women, their current residence may not be of the same type as when they were in the process of having their children.

4. Women aged 65+. These women had all completed their childbearing before 1951 and most of them had their children in the 1920's and 1930's. The overall fertility is at approximately the same levels as that for all the women aged 30 and over. For this oldest group of ever-married women, religion is the major factor differentiating low and high fertility, with Catholic/non-Catholic the crucial dichotomy. The other three variables do not show a consistent pattern in regards to children ever born in terms of the importance they have on the fertility. The trends are the same, in that those who worked and had high levels of education have fewer children, but the importance of the factors across the five regions varies. One problem in the analysis of this age group concerns number of women; there are relatively few women left in the sample after two variables are controlled, and thus there are many empty cells after two splits have been accomplished.

In spite of this problem, Table 4.10 clearly shows the importance of religion for those women who had the lowest and highest fertility in each of the five regions. In nearly every case, Catholicism was associated with high fertility and non-Catholic affiliation with the lowest levels. Women 65+ had the smallest number of children in British Columbia (1.868) and the largest number in Quebec (6.748). These women, whose reproductive behaviour represents historical fertility, show the traditional pattern of frequent childbearing in Quebec and relatively low numbers of children in Ontario and British Columbia. It is clear that the unique effect of any single variable is not as important as a combination of several variables in their joint contribution to fertility. While any single variable may no longer explain wide variations in fertility, a combination of selected categories within variables often explains a difference of two to three children among various groups of women, even when age is controlled.

Montréal and Toronto are tabulated separately for each age group in the same stepwise application of AID. In general, the fertility patterns and variable

TABLE 4.10. Lowest and Highest Mean Number of Children in the Various Groupings of Women, Aged 65 + for the Five Regions of Canada

Region	Number of women	Mean number of children	Combinations of characteristics
Ontario			
Lowest	305	2.013	Non-Catholic; large urban or rural non-farm; worked 1970-71 or before 1970; Grades 9-11.
Highest	105	5.057	Catholic; small urban or rural non-farm; never worked.
Quebec			
Lowest	179	2.196	Non-Catholic; large urban; worked 1970-71 or before 1970.
Highest	206	6.748	Catholic; small urban or rural farm; never worked; less than Grade 9.
Maritimes			
Lowest	210	2.957	Worked 1970-71 or before 1970; Grade 9 +.
Highest	205	6.063	Never worked; less than Grade 9.
Prairies			
Lowest	266	2.609	Non-Catholic; large urban or rural farm; Grade 9 +.
Highest	175	5.537	Catholic; small urban or rural farm.
British Columbia			
Lowest	174	1.868	Non-Catholic; worked 1970-71 or before 1970; Grade 12+.
Highest	107	4.692	Catholic; worked 1970-71 or never.

Source: Public Use Sample Tape.

characteristics of the women in each age compare closely with those observed for Quebec and Ontario. This is not unusual since these two CMA's account for such a large proportion of the population of the two provinces. The only major difference occurs among the high fertility women, where these women in the CMA's have fewer children than the provincial average in the same categories. This shows the importance of urban residence in relation to high parity women.

The characteristics associated with highest and lowest fertility in Montréal and Toronto are also similar to the respective provinces. Labour force participation and education all correlated at the younger ages and religion at the completed childbearing stage. There are few differences between Montréal and Toronto on these four independent variables, on levels of fertility or on any associations between the variables and fertility. In this stepwise application of four independent variables and their influence on fertility, Montréal and Toronto are practically interchangeable, except in the over 45 category where Montréal women have on the average .5 more children, reflecting the higher fertility of Quebec in the past. The urban process and the cosmopolitan nature of these two megalopolises account for their similarities on the issues of concern in this book.

A special tabulation was completed on Quebec ever-married women who were of French ancestry and Catholic. As we have noted, this group of women historically had the highest fertility in the country, and we wanted to evaluate any difference among these women varying by residence, labour force participation, education and income, while controlling for ethnicity and religion.

Not all French Catholic women had similar fertility - not even those women who had completed their childbearing prior to the present time. The key variable in this total picture is labour force participation.[1] Invariably, current employment is associated with the lowest levels of fertility, and for those women who have never worked, their childbearing is always high. The variable of next importance is residence; the more urban the residence generally, the smaller the number of children. This is true for all age groups, even women aged 45 and over. With all of these factors controlled simultaneously, the differences in average number of children from

See footnote(s) on page 232.

lowest to highest in the 45 and over group are five children, with the highest level being a completed family size of 7.5. Thus, it would appear that the alternative role for women provided by employment is the essential feature relating to smaller family size, even among French Catholic women. Again, the "cause" operating in the association is not clear. Do women work because they do not have children, or do they not have children because they work? Would the relationship be even stronger were we able to exclude those who work because their high fertility makes working a necessity? While the available data cannot answer these questions, they do document in a complete way the compelling relationship between the two variables.

4.2.1.2. Analysis of Covariance

As age and marriage duration have an overwhelming effect on children ever born, the influence of the four socio-economic factors is examined after controlling for these demographic variables through analysis of covariance techniques (see Table 4.11). Sum of squares are partitioned by source of variation, denoting covariates, main effects and second and higher order interactions. For all ever-married women aged 15 years and older, 25.71% of the sum of squares was explained, of which 16.79 was due to age and marriage duration, 7.40 due to main effects and only 1.52 by interaction terms, though all the two-way interaction terms were significant. Higher order interaction terms were not significant.

As considerable differences were found earlier by age cohorts, the analysis was done separately for four broad age categories, 15-29, 30-44, 45-64 and 65 and over. After removing the effect of the covariates of age and marriage duration, the main effects explained 6.94%, 8.00%, 10.28% and 11.61% of the total sum of squares respectively in the four age groups. Interactions, especially of higher orders, were largely insignificant. The relative importance of the four main effects varies with age group. Labour force status and education decrease in importance with age, while type of residence and religion show an increase. These patterns are examined in greater detail in the next section by considering five-year age groups.

TABLE 4.11. Analysis of Covariance of Children Ever Born, by Age and Marriage Duration and Four Selected Factors

Source of variation	15 and over			15-29			30-44		
	Sum of squares	DF(1)	F	Sum of squares	DF	F	Sum of squares	DF	F
Covariates	57067.968	2	6431.345(2)	7585.348	2	4484.208(2)	10692.368	2	1729.869(2)
Age	25726.996	1	5798.671(2)	2729.932	1	3227.692(2)	1915.689	1	619.861(2)
Mar Dur(1)	31340.972	1	7064.018(2)	4855.416	1	5740.724(2)	8776.679	1	2839.877(2)
Main effects	25146.477	10	566.783(2)	1336.539	10	158.024(2)	5687.007	10	184.015(2)
LF(1)	9245.117	2	1041.890(2)	1072.947	2	634.291(2)	3014.305	2	487.670(2)
ED(1)	3936.447	3	295.748(2)	121.115	3	47.733(2)	340.135	3	36.686(2)
REL(1)	4338.789	2	488.965(2)	1.470	2	.869(2)	476.462	2	77.085(2)
RES(1)	7626.124	3	572.957(2)	141.008	3	55.573(2)	1856.106	3	200.194(2)
2-Way interaction	4711.368	37	28.700(2)	81.992	37	2.620(2)	542.344	37	4.743(2)
LF X ED	550.939	6	20.696(2)	11.223	6	2.212(3)	20.083	6	1.083
LF X REL	1072.942	4	60.458(2)	2.566	4	.758	56.689	4	4.586(2)
LF X RES	207.571	6	7.797(2)	9.539	6	1.880	93.794	6	5.058(2)
ED X REL	447.566	6	16.813(2)	24.810	6	4.889(2)	31.893	6	1.720
ED X RES	716.897	9	17.954(2)	11.694	9	1.536	79.724	9	2.866(2)
REL X RES	411.070	6	15.442(2)	13.051	6	2.572(3)	112.342	6	6.058(2)
3-Way interaction	313.093	60	1.176	67.352	59	1.350(3)	274.680	60	1.481(3)
LF X ED X REL	47.528	12	.893	13.094	12	1.290	29.129	12	.785
LF X ED X RES	50.463	18	.632	25.759	17	1.791(3)	93.482	18	1.680(3)
LF X REL X RES	56.349	12	1.058	12.155	12	1.198	81.301	12	2.192(3)
ED X REL X RES	160.557	18	2.010(2)	19.222	18	1.263	51.151	18	.920
4-Way interaction	175.380	36	1.098	26.582	33	.952	120.809	33	1.185
LF X ED X REL X RES	175.380	36	1.098	26.582	33	.952	120.809	33	1.185
Explained	87414.286	145	135.879(2)	9097.813	141	76.288	17317.208	142	39.460
Residual	252568.355	56927		10600.218	12533		53793.494	17406	
Total	339982.641	57072		19698.032	12674		71110.702	17548	

See footnote(s) at end of table

TAFLE 4.11. Analysis of Covariance of Children Ever Born, by Age and Marriage Duration and Four Selected Factors - Concluded

Source of variation	45-64			65+		
	Sum of squares	DF(1)	F	Sum of squares	DF	F
Covariates	12254.114	2	1134.899(2)	10292.006	2	665.395(2)
Age	270.199	1	50.048(2)	588.304	1	76.070(2)
Mar Dur(1)	11983.914	1	2219.749(2)	9703.702	1	1254.721(2)
Main effects	12894.605	10	238.843(2)	10063.039	10	130.118(2)
LF(1)	4474.625	2	414.412(2)	2121.316	2	137.147(2)
ED(1)	2063.960	3	127.434(2)	1254.245	3	54.059(2)
REL(1)	3234.009	2	299.513(2)	4805.094	2	310.657(2)
RES(1)	3122.011	3	192.761(2)	1882.384	3	81.133(2)
2-Way interaction	1636.583	37	8.193(2)	918.864	37	3.211(2)
LF X ED	96.249	6	2.971(2)	88.053	6	1.898
LF X REL	77.488	4	3.588(2)	119.735	4	3.871(2)
LF X RES	47.282	6	1.460	89.422	6	1.927
ED X REL	39.139	6	1.208	99.485	6	2.144(3)
ED X RES	235.456	9	4.846(2)	87.806	9	1.262
REL X RES	650.848	6	20.092(2)	287.317	6	6.192(2)
3-Way interaction	375.548	60	1.159	368.815	60	.795
LF X ED X REL	47.228	12	.729	91.133	12	.982
LF X ED X RES	98.321	18	1.012	93.728	18	.673
LF X REL X RES	121.305	12	1.872(3)	59.840	12	.645
ED X REL X RES	132.852	18	1.367	104.006	18	.747
4-Way interaction	159.097	34	.867	183.922	28	.849
LF X ED X REL X RES	159.097	34	.867	183.922	28	.849
Explained	27319.947	143	35.387	21826.646	137	20.600
Residual	98171.236	18184		64832.053	8383	
Total	125491.183	18327		86658.700	8520	

(1) DF = Degrees of freedom; Mar Dur = Marriage duration; LF = Labour force status; ED = Education; REL = Religion; and RES = Type of residence in 1971.
(2) Significant at the .01 level.
(3) Significant at the .05 level.

Source: Public Use Sample Tape.

4.2.1.3. Elements Analysis

The explanatory importance of the four variables of religion, education, labour force status (period last worked) and type of residence on fertility are examined through elements analysis. This technique involves partitioning among the four factors, with the total variance explained. This total explained variance can be divided among the four factors, showing the unique contribution of each and also the contribution of each in union with the others singly, in pairs and all three together. Table 4.12 presents the per cent of variance explained in children born to ever-married women by the four factors in the various age groups. Since detailed five-year age categories are used, it was considered unnecessary to control for marriage duration also. The primary elements represent the unique effect of the factors, namely the proportion of variance explained by the factors without taking into account their joint effects with the other factors. Thus, for example, the primary contribution of religion is algebraically obtained as the difference between the variance explained by all four variables including religion and that explained by the other three variables excluding religion. The secondary variance explained by religion and education is the variance explained by the combination of these two variables. The tertiary variance explained is the variance accounted for by the combination of the three variables.

The total variance explained is highest for the age groups 20-24 and 25-29, 23.478% and 18.506% respectively. These are women currently in the high childbearing years and for whom current labour force status, residence, education and religion are likely to have the greatest impact, especially labour force status and education. The variance explained is lowest for the 15-19 age cohort, at 9.280%. These women are a special group, because of their small numbers and due to the fact that their marriage duration is likely to be very short. For the baby-boom cohorts of women (35-39 and 40-44) the variance explained was lower than for the other age groups. The rather high fertility of the post-war years was probably influenced more by factors not considered here than by the four under examination. For the other age groups, the consistency in total variance explained is rather remarkable. For six of the eight age cohorts they range between 12% and 13% and

TABLE 4.12. Elements Analysis of Variance Explained in Children Ever Born, by Religion, Education, Labour Force Status and Type of Residence

Elements	Age												
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
Number of women	771	5302	6602	6023	5771	5755	5623	4992	4267	3446	2849	2139	3533
Primary													
Religion	.467	.753	.486	.280	.447	1.489	1.725	2.226	2.871	2.339	5.197	7.175	5.013
Education	1.026	3.760	2.754	1.539	.686	.531	.691	.944	1.041	1.898	1.113	1.145	1.174
Labour force status	5.628	11.143	8.286	4.077	2.320	2.154	2.255	1.204	1.684	1.652	1.910	.838	1.307
Type of residence	.136	.673	1.786	3.790	3.567	3.922	4.059	3.538	2.785	2.295	2.889	2.415	2.347
Total	7.257	16.329	13.312	9.686	7.020	8.096	8.730	7.912	8.381	8.184	11.109	11.573	9.841
Secondary													
Rel. X Edu.	- .012	- .398	- .162	- .075	.165	.596	.728	1.067	1.068	1.366	1.153	1.607	1.112
Rel. X L.F.S.	.029	- .119	- .112	.088	.190	.654	.786	.553	.887	.684	1.554	.968	.727
Rel. X Res.	- .010	.119	.315	.302	.175	- .144	- .233	- .145	- .116	.044	- .131	- .272	- .250
Edu. X L.F.S.	1.661	5.206	3.014	1.545	.632	.545	.705	.508	.497	.865	.575	.266	.200
Edu. X Res.	.045	.286	.443	.393	.301	.410	.441	.681	.393	.334	.145	.443	.340
L.F.S. X Res.	.018	1.121	.866	.311	.549	.529	.358	.381	.301	.361	.535	.279	.230
Total	1.731	6.215	4.364	2.564	2.012	2.590	2.785	3.045	3.030	3.654	3.831	3.291	2.359
Tertiary													
Rel. X. Edu. X. L.F.S.	.058	.018	.133	.195	.325	.710	.896	.748	.787	1.015	.868	.561	.277
Rel. X. Edu. X. Res.	.009	- .024	- .017	- .057	- .009	.064	.038	.156	.069	.001	.010	.082	.104
Rel. X. L.F.S. X Res.	.054	.044	- .005	- .069	- .030	- .031	- .023	.010	- .008	- .028	.080	.076	.060
Edu. X. L.F.S. X Res.	.162	.984	.731	.350	.322	.334	.337	.338	.169	.209	.120	.122	.071
Total	.283	1.022	.842	.419	.608	1.077	1.248	1.252	1.017	1.197	1.078	.841	.512
Highest Order													
Rel. X Edu. X L.F.S. X. Res.	.009	- .088	- .012	- .043	.051	.124	.108	.140	.090	.043	.080	.091	.052
Total	9.280	23.478	18.506	12.626	9.691	11.886	12.871	12.349	12.518	13.078	16.098	15.796	12.764

Source: Public Use Sample Tape.

for the other two cohorts only slightly higher. This is all the more interesting as the relative importance of the four factors themselves change drastically over time. Primary elements denote unique effects of the factors. Thus, the sum of the primary elements is the sum of the unique effects of the factors and the rest of the variance explained is due to joint effects. The data in Table 4.12 show that while joint effects are important, the sum of the unique effects amounts to more than two thirds of the total.

The data in Table 4.12 are rearranged in Table 4.13 for easier interpretation. For each of the four variables, the unique contribution to the variance as well as the sum of its joint contributions are given. Because joint contributions, by their very definition are not mutually exclusive, the total of the various contributions will exceed the total variance explained. The importance of religion both in itself and jointly with other variables has consistently increased as we go from the low to the high age groups. For age cohorts over 65 years of age, religion by itself and in combination with others was by far the single most important factor, explaining well over half the variance. Among women aged 70-74, 7.175% of the 15.796% of the variance explained, was explained by religion in itself, and another 3.113% jointly with others. In contrast, for the younger cohorts less than one tenth of the variance explained is attributable to religion. The influence of religion is best seen on completed fertility. Its effect on current fertility is not too clear and is related to timing and spacing of births. The pattern for education is not too clear. In terms of unique effect it is most important in the ages 20-29, somewhat lower in the older age cohorts and least important in the middle age cohorts 35-54. In all the age groups, its joint effects with other factors are greater than its unique effects. The joint effects are greatest in the age groups 20-29 and overall, with slight deviations follows the pattern of the unique effects. Labour force participation of the women has a very clear relationship to fertility, but the pattern is opposite to that observed for religion. For the younger cohorts of women, the predominant part of the variance explained is due to the labour force status of women. Among women aged 20-24, 11.143% of the total explained variance of 23.478% is due to the unique effect of labour force status of women, and another 7.166% to its joint effects with other factors. The importance of the labour force status decreases as age increases, but even in the highest age groups its contribution is still sizeable. The pattern in type of rural-urban residence in 1971 in its relation to fertility seems different. The absolute size of the unique effect increases with age up to age 45-59, then

TABLE 4.13. Per Cent of Variance Explained in Children Ever Born, Uniquely and Jointly, by Religion, Education, Labour Force Status and Type of Residence

Age	Religion		Education		Labour force status		Type of residence		Total(1)
	Unique	Joint	Unique	Joint	Unique	Joint	Unique	Joint	
15-19	.467	.137	1.026	1.822	5.628	1.991	.136	.287	9.280
20-24	.753	- .448	3.760	5.984	11.143	7.166	.673	2.478	23.478
25-29	.486	.140	2.754	4.130	8.286	4.615	1.786	2.321	18.506
30-34	.280	.341	1.539	2.308	4.077	2.377	3.790	1.187	12.626
35-39	.447	.867	.686	1.787	2.320	2.039	3.567	1.359	9.691
40-44	1.489	1.973	.531	2.783	2.154	2.865	3.922	1.286	11.886
45-49	1.725	2.300	.691	3.253	2.255	3.167	4.059	1.026	12.871
50-54	2.226	2.529	.944	1.988	1.204	2.678	3.538	1.561	12.349
55-59	2.871	2.777	1.041	3.073	1.684	2.723	2.785	.898	12.518
60-64	2.339	3.125	1.898	3.833	1.652	3.149	2.295	.964	13.078
65-69	5.197	3.614	1.113	3.213	1.910	3.812	2.889	.839	16.098
70-74	7.175	3.113	1.145	3.172	.838	2.363	2.415	.821	15.796
75+	5.013	2.082	1.174	2.156	1.306	1.617	2.347	.607	12.764

(1) Sum of unique and joint effects will add to more than the total as joint effects are not mutually exclusive.

Source: Public Use Sample Tape.

decreases gradually with increase in age. Excluding the youngest age cohort, the joint effect of residence in absolute terms decreases with increases in age. For the first time we find that in general the joint effects are smaller than the unique effects. The combined effects of residence (joint plus unique) are relatively smaller as age increases.

Nationally, we find through the use of elements analysis, that education and labour force status are the two major explanatory variables, of the four considered, for fertility among younger women. Their relationship to fertility can still be seen among older women, but not to the same extent. These are the two variables at work in the delaying and the spacing of children. Some women postpone their childbearing for the pursuit of education and careers. For some women childbearing is delayed and children are spaced in order that they may work. For still others there is a combination of education followed by work, thereby delaying and spacing births. However, in a society such as Canada where fertility is low and generally planned the women eventually have the desired number of children. Therefore when we examine completed fertility the delaying and spacing of children in the early childbearing years are not as obvious. When the population is having the number of children desired and it is within the range of one to four, then childbearing patterns in the reproductive years lose their significance when the focus is on completed fertility.

Religion and residence within the Canadian context still have a bearing on fertility, but we expect them to lose their relevance so far as childbearing is concerned. During this transition period their relationships to fertility seem indeterminate. Religion (Catholics vs. non-Catholics) and fertility have a different pattern among younger Canadian women than among older ones. This is seen when we use elements analysis or any other technique. Residence seems to assume added significance up to age 50 and declining significance thereafter. The relationship of residence and fertility is that of both residence per se and geographic mobility. Rural couples have higher fertility than urban ones. Mobility discourages childbearing and vice versa.

Elements analysis seems to be a good tool for explaining relationships of the type under examination and is now applied to regional-level analysis.

4.2.1.3.1. Regional Analysis

At the regional level, in order to ensure adequate cell sizes, the current age (1971) of the women was grouped into four age categories: 15-29, 30-44, 45-64, and 65 and over (Table 4.14). (See the earlier justification for this grouping.) For the Maritimes we find that the four factors have their greatest impact in terms of percentage variance explained in fertility among the women in the age cohort 15-29 (18.3%). In Ontario the percentage of the variance explained in fertility in the age group 15-29 is 20.7. The patterns for the Prairies and British Columbia are very similar to that of Ontario. In general the four factors have their greatest influence on regional fertility in the early childbearing ages and significantly less in the other age cohorts, but the oldest age cohort in general occupies the second place in order of variance explained. The regrouping of the data is perhaps the major reason for this change in pattern.

Taking the age group 15-29, we find that for all regions, the primary effects of the labour force status far outweigh the importance of the other three factors. Education occupies second place in importance, but generally far behind labour force status. Residence comes third, but again behind education, and religion is fourth in importance. Education and labour force status combine to have the greatest effect in terms of explained variance in fertility at the secondary level. At the tertiary level in this age group, the most important combination of factors is education, labour force status and residence. The four factors in union have little or no importance in terms of the additional variance explained (data on above not presented).

In the age group 30-44, looking at primary effects, it is found that in the case of the Maritimes, religion and residence are the most important factors in terms of variance explained. In the provinces of Quebec and Ontario, residence and labour force status occupy first and second positions of importance respectively and religion is last in importance. The pattern is the same in the Prairies as for Ontario and Quebec, but the differences in the percentage of the variance explained are much smaller among the four factors. In British Columbia, the period last worked has a slightly higher primary effect than education, education slightly higher than residence and religion least.

In the two highest age cohorts (45-64 and 65 and over) the unique effects

TABLE 4.14. Per Cent of Variance Explained in Children Ever Born, Uniquely and Jointly, by Religion, Education, Labour Force Status and Type of Residence, for the Five Regions of Canada

Age	Religion		Education		Labour force participation		Residence type		Total[1]
	Unique	Joint	Unique	Joint	Unique	Joint	Unique	Joint	
Ontario									
15-29 (4,756)	.143	.282	3.359	4.076	11.136	4.215	1.238	1.407	20.674
30-44 (6,642)	.596	.723	1.169	1.632	2.301	1.223	2.367	.337	8.253
45-64 (6,891)	1.805	.722	.609	1.393	1.369	1.058	1.158	.289	6.513
65+ (3,296)	4.257	1.062	1.140	1.368	1.388	1.168	.636	.011	9.133
Quebec									
15-29 (3,272)	.062	.166	1.765	4.679	10.553	5.021	.372	1.285	17.969
30-44 (4,967)	.218	.820	.881	2.655	3.881	2.956	4.255	2.250	13.026
45-64 (4,799)	.643	2.237	.775	2.765	1.080	2.358	7.380	3.292	14.336
65+ (1,963)	1.921	2.802	.589	1.719	1.513	1.779	4.998	2.205	12.751
Maritimes									
15-29 (1,146)	.564	.380	1.146	5.277	9.640	5.774	.786	2.439	18.294
30-44 (1,376)	2.677	.638	1.500	2.710	1.644	2.677	2.036	1.539	11.176
45-64 (1,534)	2.899	1.241	2.997	4.089	1.917	2.794	1.362	1.180	13.383
65+ (751)	4.402	2.053	3.351	3.939	2.224	2.654	1.428	.955	15.855
Prairies									
15-29 (2,148)	.541	.578	5.614	3.937	9.010	4.314	.792	1.874	20.833
30-44 (2,794)	1.671	1.128	1.764	2.539	2.372	2.583	2.676	2.166	12.132
45-64 (3,024)	2.175	1.609	.734	2.039	.863	1.216	2.050	1.151	8.449
65+ (1,501)	3.362	2.028	1.702	2.543	1.029	1.021	2.306	1.363	11.517
British Columbia									
15-29 (1,353)	.473	.462	3.985	6.520	10.157	6.812	1.832	2.401	23.855
30-44 (1,770)	.819	1.036	2.226	1.925	2.497	1.981	1.855	.803	9.938
45-64 (2,080)	2.700	1.554	1.100	1.768	1.320	1.148	1.605	.781	9.093
65+ (1,010)	3.714	1.909	2.978	2.421	2.481	1.446	1.115	.935	13.439

(1) See Table 4.13, Footnote 1.

Source: Public Use Sample Tape.

for the Maritimes are, in order of importance, religion, education, labour force status and residence. For Quebec the order is reversed, with residence of foremost importance. We find that, except for Quebec, religion is the most important explanatory factor with respect to completed fertility. Quebec's digression may be explained by the fact that there is less variability in religion in that province than in the others.

The secondary effects are small relative to the primary effects, and the tertiary small relative to the secondary ones. In general, in all regions, for the age groups 30-44, education and labour force status combine for the greatest secondary effects. Also for this age group (30-44) education, labour force status and residence combine to have the highest tertiary effect in all regions. The combined effects of all four factors are quite small for all age groups and all regions.

In the two oldest age groups (45-64 and 65 and over) the patterns of secondary and tertiary effects vary from region to region. These effects are small and the differences among them are insignificant.

Table 4.14 shows the unique and joint effects of the four factors for the five regions, within the four age cohorts. This table summarizes the discussion already presented on the regions. However, it can be seen in this table that the unique effects of religion are lower than the joint effects for the two young age cohorts and higher for the two older ones. For Quebec, the joint effects of religion are higher than the unique one. In the Maritimes the unique effects are significantly higher than the joint ones. For the Prairies and British Columbia the unique effects are in general lower than the joint ones. With respect to religion the regional differences, again, are clearly observable.

The overall contributions of the four factors can be easily seen in Table 4.14. Generally, the joint effects of education are higher than the unique effects for all age groups and all regions. In the case of the labour force status, the unique effects are higher than the joint effects in the age group 15-29 for all five regions. This is true for all age groups in British Columbia and Ontario. In the other regions within the higher age groups in general the joint effects are higher than the unique ones.

In the case of residence, in the age group 15-29 for all regions, the joint effects are higher than the unique ones, while for all other age groups generally the unique effects are higher than the joint ones.

4.2.1.3.2. Montréal and Toronto Analysis

Only Montréal and Toronto are dealt with here because of space limitations and small sample sizes for the other metropolitan areas. In the cases of Montréal and Toronto three factors are considered, since residence is no longer a variable.

Looking first at Montréal (Table 4.15) it can be seen that the percentage of the variance in fertility explained by the three factors in the age group 15-29 is high (26.396). In contrast, for the Province of Quebec with four factors, the corresponding figure is 17.969%. However, the percentages of the variance explained by the three factors for the other three age groups in the case of Montréal are smaller, and smaller than that explained by the four factors in the case of the Province of Quebec. In the age group 15-29 the labour force status accounts for a very large percentage of the variance explained. Education is next in importance in terms of the variance explained in the lowest age group. In the next age group (30-44) labour force status remains of primary importance, but religion is second. In the two highest age groups the three factors are not too dissimilar with respect to their contributions to the explained variance.

Toronto (Table 4.15) is very similar to the Province of Ontario. The greatest percentage of the variance explained by the three factors occurs with respect to the age group 15-29, followed very far behind by the percentage explained for the age groups 30-44, 65 and over and 45-64, in that order and all three very close to each other (6.2, 5.8 and 4.6% respectively). The labour force status is of primary importance in the age groups 15-29 and 30-44. In these two age groups also education accounts for the next highest amount of explained variance. In the next two age groups (45-64 and 65 and over) religion plays a more important role in the variance explained, but there is not much difference among the three factors.

For Toronto and, to a lesser extent for Montréal, the unique effects are in general higher than the joint effects. In the case of both metropolitan areas we see the prime importance of the labour force status as an explanatory variable with respect to fertility. Education is next in importance but of much less

TABLE 4.15. Per Cent of Variance Explained in Children Ever Born, Uniquely and Jointly, by Religion, Education and Labour Force Status, for Toronto and Montréal

Age	Religion		Education		Labour force participation		Total
	Unique	Joint	Unique	Joint	Unique	Joint	
Toronto							
15-29 (1,705)	.310	1.676	5.141	4.157	10.323	2.917	20.014
30-44 (2,379)	.378	-.024	1.122	.681	3.948	.809	6.187
45-64 (2,410)	1.554	.902	.705	.970	1.112	.811	4.575
65+ (1,075)	1.697	1.064	1.976	.882	.897	.536	5.760
Montréal							
15-29 (1,557)	.152	.332	2.524	4.706	18.773	4.799	26.396
30-44 (2,453)	.591	.599	.293	.933	4.574	1.027	6.627
45-64 (2,441)	1.103	.991	.570	1.115	1.556	1.045	4.640
65+ (949)	1.576	1.156	.873	1.010	1.544	.700	5.339

Source: Public Use Sample Tape.

significance than labour force status. The role of religion is small in the younger age groups, but near the top in the older age cohorts. These three factors explain a very sizeable proportion of the variance in fertility in the prime childbearing ages and much less in the other three higher age groupings where family size is nearly or totally complete.

4.2.2. Multiple Classification Analysis

4.2.2.1. Analysis for Ever-married Women

The combined effect of the different variables on fertility is analyzed through a technique called Multiple Classification Analysis (MCA). The development and use of this technique have been discussed in some detail in Chapter 3. Basically, MCA is an extension of Multiple Regression Analysis to situations where the independent variable can be either in sub-classes or discontinuous variables. The assumptions in regression relating to interval variables are not necessary in MCA. One difficulty with MCA is that, while it develops a multiple correlation coefficient (R) and a proportion of variance explained (R^2), it does not allow for a partialling out of interaction effects between the independent variables.

The MCA technique provides adjusted mean values on the dependent variable after controlling for all other variables in the relationship. Table 4.16 shows the MCA analysis for all of Canada, with mean number of children ever born as the dependent variable and 10 independent variables that have been employed throughout the study. The age of the ever-married woman is categorized into five-year age groups.

The beta coefficients for each variable, controlling for age, are also presented in Table 4.16. The magnitude of the coefficients indicates their relative importance in the explanation of variance on children ever born. As expected, age at first marriage explained more of the variance on fertility than any other factor in nearly every age group. Obviously, the length of time for which one has been married is positively associated with fertility, in that 90% of all children born occur within a marital union. Except for age 15-19, where the correlation is small due to the fact that these women cannot be married very long, the amount of variance explained in every age group is higher than any other single variable. The highest single beta is for women 25-29 (.3990) and the lowest is for women 45-59 (.2259).

TABLE 4.16. Multiple Classification Analysis of Children Ever Born for Ever-married Women, for All Canada[1]

Age	Beta coefficient										Mean No. children ever born	Multiple corr. coeff. R	Prop. of variance explained R^2
	Religion	Level of education	Age at first marriage	Birth place	Area of residence	Total family income	Ethnic back-ground	Mother tongue	No. of weeks worked	Last worked			
15-19 (771)	.0956	.0806	.1463[2]	.0398	.0627	.1047	.1338[3]	.0834[3]	.2481[2]	.0683	.6148	.3545	.1256
20-24 (5,302)	.0360	.1108[2]	.3085[2]	.0136	.0538[2]	.0369	.0720[2]	.0855[2]	.2804[2]	.0671[2]	.8970	.5981	.3578
25-29 (6,602)	.0754[2]	.0660[2]	.3990[2]	.0148	.0824[2]	.0555[2]	.0815[2]	.0860[2]	.1740[2]	.1228[2]	1.6940	.6041	.3649
30-34 (6,023)	.1087[2]	.0600[2]	.3715[2]	.0354[2]	.1384[2]	.0567[2]	.1239[2]	.1074[2]	.1465[2]	.0960[2]	2.6228	.5395	.2911
35-39 (5,771)	.1516[2]	.0493[2]	.3333[2]	.0605[2]	.1424[2]	.0547[2]	.1437[2]	.0449[2]	.1060[2]	.1021[2]	3.1449	.4803	.2307
40-44 (5,755)	.1834[2]	.0726[2]	.2762[2]	.0596[2]	.1677[2]	.0704[2]	.1057[2]	.0211	.0999[2]	.0983[2]	3.3630	.4626	.2140
45-49 (5,623)	.1678[2]	.0862[2]	.2259[2]	.0399[2]	.1890[2]	.1097[2]	.1380[2]	.0342[3]	.1099[2]	.0768[2]	3.3029	.4545	.2066
50-54 (4,992)	.1503[2]	.0805[2]	.2896[2]	.0131	.1771[2]	.1043[2]	.1066[2]	.1139[2]	.1211[2]	.0574[2]	3.1669	.4779	.2284
55-59 (4,267)	.1420[2]	.0763[2]	.3153[2]	.0148	.1664[2]	.1346[2]	.1246[2]	.0636[2]	.1047[2]	.1000[2]	3.0279	.4904	.2405
60-64 (3,446)	.1935[2]	.1034[2]	.3578[2]	.0344[3]	.1405[2]	.1142[2]	.1549[2]	.1128[2]	.0076	.0853[2]	3.0151	.5134	.2636
65-69 (2,849)	.1754[2]	.0512[3]	.3415[2]	.0346[3]	.1559[2]	.0505	.0661[3]	.0791[2]	.0035	.1067[2]	3.2362	.5152	.2654
70-74 (2,139)	.1937[2]	.0494	.3377[2]	.0487[2]	.1441[2]	.0461	.0634	.1211[2]	.0627[2]	.0773[2]	3.5367	.5191	.2695
75+ (3,533)	.1292[2]	.0573[2]	.3240[2]	.0035	.1410[2]	.0458	.1485[2]	.0531[2]	.0147	.0826[2]	3.8817	.4855	.2357

(1) Canada excludes Yukon, Northwest Territories, and Prince Edward Island.
(2) Significant at 1% level of significance.
(3) Significant at 5% level of significance.

Source: Public Use Sample Tape.

Religion is an important explanatory variable, especially for women over the age of 35. For example, the beta coefficient for women 60-64 is .1935, and after age at marriage, that is the highest coefficient on any variable. For women aged 20-24, however, the beta associated with religion and number of children born is only .0360, one of the lowest coefficients in the study. Recent studies in the U.S. have also shown that religious differentials are disappearing (Westoff, 1978; Rindfuss & Sweet, 1977) and the factors associated with that disappearance seem to be an increase in the secularization of society. There have been declines in the proportion of people involved in religious functions and the religious organizations themselves have become more secular. Thus, the influence of religious groups has probably lessened and this is reflected in behaviour patterns such as levels of fertility.

Area of residence shows the same type of relationship, with more variation being explained by this variable in older age groups. The beta coefficients range from a high of .1890 for women 45-49 to a low of .0538 for women 20-24. The relatively low betas found on the residence variable for young women undoubtedly related to the high overall proportion of Canada's population that was urban in 1971, approximately 80%. Such a high percentage is an indicator that the norm and values associated with urban life are widespread in the society and communicated to all of the Canadian population through the various mass media of newspapers, radio and T.V. Thus, even though some young women may live in rural areas, the norms and values into which they have been socialized are urban ones. In this context, we would expect to find relatively little explanatory power in terms of differentials by place of residence, and indeed such is the case. Religion and residence are, approximately, of equal importance with beta values ranging from .14 to .19 for women over 35. In the younger age group, 15-29, these variables are of less importance, with beta coefficients less than .09.

Income level, as measured by total family income, and number of years of education completed have similar effects on fertility, but there are no consistent trends across the age groups. The two highest coefficients for education occur at ages 20-24 (.1108) and 60-64 (.1034), with ranges between .05 and .08 between these ages. Income patterns are similar in terms of magnitude (the highest beta is .1346 for the age group 55-59), but there are generally higher coefficients at the level of completed family size for women 45-64. Generally, the amount of variance explained by each of these independent factors at every age group is small.

The reasons for the relative lack of contribution to fertility on the part of the education and income variables at various ages are not all clear. Seemingly, these factors would be important in the number of children born to ever-married women while controlling for age. It is certain that age at first marriage is the most important factor in predicting fertility and may, within the high betas associated with marriage duration, include some of the education and income impact. That is, both high educational attainment and large family incomes are associated with later age at marriage and these women may in fact "catch up" in their fertility as their marriage duration increases.

Place of birth has almost no effect on fertility when combined with all of the other factors. It shows the lowest levels of association of all the variables under consideration. Ethnic background displays a fairly high and consistent correlation to fertility in every age group, with a beta generally between .12 and .15 (seven of the 13 coefficients). In Chapter 2 when examining cross-tabulations, it was indicated that ethnicity was relatively unimportant in explaining fertility variation among younger women (those under 30). While that finding is also demonstrated to some extent in the MCA, it is also indicated that ethnicity has a fairly high beta score even among women under 30, although not of as great a magnitude as that for women between 30 and 50. In this analysis, the ethnic factor remains a viable one and indicates, at least to some extent, a retention of traditional cultural values that differentiate fertility behaviour. Mother tongue is not as important a variable as ethnicity, and the association controlling for age does not follow any pattern.

Labour force participation is represented by two variables, number of weeks worked in 1970 and period last worked. For the young women in the analysis, the variation in fertility explained by number of weeks worked is very high - almost as great as age at first marriage. Young women who participate in the labour force may delay or even permanently reject childbearing in favour of a career outside the home. On the other hand, the absence of children may allow these women to continue in the labour force. Whatever the causal chain, some of the highest betas in the study are that on labour force participation. For women under 30, the coefficients average over .20. However, this variable is of less and less importance as the age of the woman increases until, by age 60, the coefficients are no longer significant. Period last worked is not as important a labour force variable as

number of weeks worked, and there is not a great deal of difference among the betas across the age groups.

The greatest amount of variance explained for all the variables taken together occurs in the main childbearing ages of 20-34 years. Generally, for women in these ages, about one third of the variance is accounted for by the factors under study and, in comparison to other major fertility findings, this is very high. The total amount of difference explained in fertility is less for women over 35, but still averages about 25%.

Since age at first marriage has one of the strongest relationships with children ever born, a limited analysis is made controlling for age at marriage for two selected age cohorts, 30-34 and 45-59. The results of these MCA are presented in Table 4.17. Birthplace was dropped because if its consistently low beta values for all age groups and a single variable was created for labour force participation.

For women in the age group 30-34, the proportion of variance explained decreases with age at marriage up to age 25, and shows a substantial increase for those who married between 25 and 29. According to the beta weights, it is work status that accounts for the increase and this factor is undoubtedly a reason for the relatively late age at marriage of these women. Generally, throughout the age group, the most important variable for all age categories of women is their work status. Ethnic background seems to be fairly important for all groups of women, but the patterns in the other variables are not so consistent.

Proportion of variance explained is generally lower for older women (45-49) irrespective of their age at marriage. The relative importance of the variables changes somewhat for this older group compared to the younger women (30-34). Religion and type of residence have the two highest betas in all the age-at-marriage categories except the first. Work status is much lower in importance than among younger women.

Tables 4.18 and 4.19 provide data on Canada, the five regions of the country, and Toronto and Montréal. To maximize the sample size, the ages of the women were combined into four groups, 15-29, 30-44, 45-64 and 65 and over. The findings for Canada under these age groupings are similar to those discussed previously. Age at first marriage is important for explaining fertility differences

TABLE 4.17. Multiple Classification Analysis of Children Ever Born for Two Selected Age Cohorts, by Age at Marriage, All Canada

Age and age at marriage	Religion	Level of education	Type of residence	Total family income	Ethnic background	Mother tongue	Work[1] status	No. of women	Mean No. child. ever born	Mul. corr. coeff. R	Prop. var. expl. R^2
30-34											
19-20	.131	.020	.178	.054	.191	.050	.220	1535	2.96	.394	.155
21-22	.240	.077	.144	.084	.143	.271	.224	1422	2.56	.384	.148
23-24	.125	.085	.168	.123	.081	.066	.223	889	2.23	.358	.128
25-29	.077	.081	.100	.127	.182	.119	.313	862	1.61	.467	.218
45-59											
19-20	.153	.093	.185	.102	.106	.204	.132	2337	3.83	.432	.187
21-22	.168	.108	.193	.123	.135	.125	.140	2904	3.49	.437	.191
23-24	.181	.054	.214	.142	.133	.038	.147	2634	3.24	.411	.169
25-29	.180	.062	.196	.179	.131	.035	.096	3436	2.71	.353	.125

(1) Work status is a combined variable of period last worked and number of weeks worked in 1970.

Source: Public Use Sample Tape.

TABLE 4.18. Multiple Classification Analysis of Children Ever Born for Ever-married Women, for All Canada(1) and Regions

Age	Beta coefficient										Mean No. children ever born	Multiple corr. coeff. R	Prop. of variance explained R^2
	Religion	Level of education	Age at first marriage	Birth place	Area of residence	Total family income	Ethnic back-ground	Mother tongue	No. of weeks worked	Last worked			
All Canada													
15-29 (12,675)	.0366(2)	.1253(2)	.2157(2)	.0090	.0873(2)	.0687(2)	.0699(2)	.0595(2)	.2542(2)	.1143(2)	1.2950	.5111(2)	.2612
30-44 (17,549)	.1358(2)	.0930(2)	.2910(2)	.0495(2)	.1525(2)	.0644(2)	.1159(2)	.0551(2)	.1123(2)	.1004(2)	3.0372	.4638(2)	.2151
45-64 (18,328)	.1435(2)	.0847(2)	.2954(2)	.0168(2)	.1696(2)	.1100(2)	.1150(2)	.0702(2)	.0723(2)	.0735(2)	3.1477	.4810(2)	.2313
65+ (8,521)	.1513(2)	.0538(2)	.3217(2)	.0163	.1416(2)	.0344	.0943(2)	.0570(2)	.0187	.0822(2)	3.5793	.4962(2)	.2462
Maritimes													
15-29 (1,146)	.0461	.0675	.2366(2)	.0429	.0816(3)	.0810(3)	.0492	.0751(3)	.1124(2)	.2465(2)	1.6038	.4748(2)	.2254
30-44 (1,376)	.2039(2)	.1213(2)	.2868(2)	.0100	.1294(2)	.0858(3)	.0711(3)	.0510	.0886(2)	.1019(2)	3.9237	.4345(2)	.1888
45-64 (1,534)	.1929(2)	.1626(2)	.3294(2)	.0362	.1149(2)	.1246(2)	.0383	.0351	.1845(2)	.0777(2)	4.0919	.4908(2)	.2409
65+ (751)	.1791(2)	.1020(3)	.3710(2)	.0420	.1074(2)	.0701	.0922(3)	.1026(2)	.0120	.1224(2)	4.3262	.5357(2)	.2870
Quebec													
15-29 (3,272)	.0373(3)	.1061(2)	.2340(2)	.0073	.0556(2)	.0391	.0546(2)	.0426(2)	.2336(2)	.1278(2)	1.2252	.4964(2)	.2465
30-44 (4,967)	.0573(2)	.0808(2)	.3076(2)	.0252(3)	.1960(2)	.0856(2)	.0531(2)	.0211	.1351(2)	.1133(2)	3.0246	.4823(2)	.2326
45-64 (4,799)	.0384(2)	.0784(2)	.3044(2)	.0255(3)	.2594(2)	.1557(2)	.0212	.0979(2)	.0282(2)	.0802(2)	3.7214	.5102(2)	.2603
65+ (1,963)	.0773(2)	.0350	.3813(2)	.0325	.2080(2)	.0558	.0795(2)	.0352	.0331	.0962(2)	4.5033	.5132(2)	.2634

See footnote(s) at the end of table.

TABLE 4.18. Multiple Classification Analysis of Children Ever Born for Ever-married Women, for All Canada and Regions —Concluded

Age	Beta coefficient										Mean No. children ever born	Multiple corr. coeff. R	Prop. of variance explained R^2
	Religion	Level of education	Age at first marriage	Birth place	Area of residence	Total family income	Ethnic back-ground	Mother tongue	No. of weeks worked	Last worked			
Ontario													
15-29													
(4,756)	.0073	.1396(2)	.1959(2)	.0223	.1024(2)	.0683(2)	.0209	.0320(3)	.3062(2)	.0910(2)	1.2437	.5161(2)	.2664
30-44													
(6,642)	.1075(2)	.1004(2)	.2990(2)	.0526(2)	.1235(2)	.0689(2)	.0319(3)	.0692(2)	.1128(2)	.1026(2)	2.8503	.4380(2)	.1919
45-64													
(6,891)	.1209(2)	.0652(2)	.2995(2)	.0242(3)	.1113(2)	.0895(2)	.0418(2)	.0675(2)	.0411(2)	.1152(2)	2.7156	.4059(2)	.1647
65+													
(3,296)	.1468(2)	.0639(2)	.2917(2)	.0229	.0782(2)	.0332	.0598(2)	.0520(2)	.0754(2)	.0921(2)	2.9593	.4159(2)	.1730
Prairies													
15-29													
(2,148)	.0177	.1841(2)	.1923(2)	.0240	.0927(2)	.0618(3)	.0477	.0324	.2082(2)	.1470(2)	1.3845	.4968(2)	.2468
30-44													
(2,794)	.1035(2)	.1194(2)	.2534(2)	.0899(2)	.1335(2)	.0508	.1024(2)	.0502(3)	.0688(2)	.0993(2)	3.1868	.4392(2)	.1929
45-64													
(3,024)	.0929(2)	.0776(2)	.2986(2)	.0020	.1470(2)	.0776(2)	.0853(2)	.0853(2)	.1318(2)	.0769(2)	3.1743	.4221(2)	.1782
65+													
(1,501)	.0822(2)	.0635	.3007(2)	.0056	.1361(2)	.0713(3)	.0359	.0896(2)	.1059(2)	.0695(3)	3.8381	.4525(2)	.2048
British Columbia													
15-29													
(1,353)	.0501	.1525(2)	.1872(2)	.0019	.1114(2)	.0660	.0549	.0220	.2702(2)	.1124(2)	1.2402	.5305(2)	.2814
30-44													
(1,770)	.0965(2)	.1003(2)	.2950(2)	.0678(2)	.1245(2)	.0707(3)	.1086(2)	.0256	.1103(2)	.1064(2)	2.8486	.4424(2)	.1957
45-64													
(2,080)	.1147(2)	.0868(2)	.2849(2)	.0364	.1366(2)	.0746(2)	.0406	.0115	.0567(3)	.0788(2)	2.5207	.3879(2)	.1504
65+													
(1,010)	.0953(2)	.1031(2)	.3229(2)	.0480	.1028(2)	.0645	.1013(2)	.0935(2)	.0558	.1223(2)	2.8663	.4872(2)	.2374

(1) Canada excludes Yukon, Northwest Territories, and Prince Edward Island.
(2) Significant at 1% level of significance.
(3) Significant at 5% level of significance.

Source: Public Use Sample Tape.

TABLE 4.19. Per Cent of Variance Explained in Children Ever Born, by Demographic and Socio-economic Variables, Canada, Regions, and Toronto and Montréal

	Canada		Ontario		Quebec		Maritimes		Prairies		British Columbia		Toronto		Montréal	
15-29																
1. Age at first marriage, present age	.3164		.3171		.3011		.3449		.3271		.3072		.2999		.3219	
2. Age at first marriage, present age, education, family income, last worked, number of weeks worked	.4104		.4237		.3833		.4154		.4347		.4321		.4310		.4650	
Add. variance explained		.0940		.1066		.0822		.0705		.1076		.1249		.1311		.1431
3. Age at first marriage, present age, education, family income, last worked, number of weeks worked, religion, area of residence, ethnicity, other tongue, place of birth	.4233		.4311		.3886		.4252		.4391		.4482		.4379		.4706	
Add. variance explained		.1069		.1140		.0875		.0803		.1120		.1410		.1380		.1487
30-44																
1. Age at first marriage, present age	.1432		.1393		.1851		.1560		.1058		.1365		.1004		.1565	
2. Age at first marriage, present age, education, family income, last worked, number of weeks worked	.1998		.1878		.2429		.1932		.1747		.1993		.1746		.2045	
Add. variance explained		.0566		.0485		.0578		.0372		.0689		.0628		.0742		.0480
3. Age at first marriage, present age, education, family income, last worked, number of weeks worked, religion, area of residence, ethnicity, other tongue, place of birth	.2505		.2242		.2867		.2454		.2216		.2359		.1889		.2203	
Add. variance explained		.1073		.0849		.1016		.0894		.1158		.0994		.0885		.0638

TABLE 4.19. Per Cent of Variance Explained in Children Ever Born, by Demographic and Socio-economic Variables, Canada, Regions, and Toronto and Montréal -Concluded

	Canada		Ontario		Quebec		Maritimes		Prairies		British Columbia		Toronto		Montréal	
45-59																
1. Age at first marriage, present age	.0883		.0900		.1140		.1061		.0879		.0946		.1070		.0946	
2. Age at first marriage, present age, education, family income, last worked, number of weeks worked	.1485		.1219		.1663		.2014		.1187		.1240		.1463		.1369	
Add. variance explained		.0602		.0319		.0523		.0953		.0308		.0294		.0393		.0423
3. Age at first marriage, present age, education, family income, last worked, number of weeks worked, religion, area of residence, ethnicity, other tongue, place of birth	.2261		.1636		.2613		.2583		.1690		.1587		.1608		.1559	
Add. variance explained		.1378		.0736		.1473		.1522		.0811		.0641		.0538		.0613
15-59																
1. Age at first marriage, present age	.2503		.2515		.2866		.2808		.2582		.2518		.2345		.2408	
2. Age at first marriage, present age, education, family income, last worked, number of weeks worked	.2984		.2886		.3263		.3273		.2984		.2938		.2857		.2825	
Add. variance explained		.0481		.0371		.0397		.0465		.0402		.0420		.0512		.0417
3. Age at first marriage, present age, education, family income, last worked, number of weeks worked, religion, area of residence, ethnicity, other tongue, place of birth	.3363		.3123		.3691		.3600		.3240		.3189		.2930		.2920	
Add. variance explained		.0860		.0608		.0825		.0792		.0658		.0671		.0585		.0512

Source: Public Use Sample Tape.

for all four age groups; labour force participation is especially relevant at the young ages; religion and area of residence account for some variation in fertility for the older women; and income, education and ethnic background account for less of the difference, but the variation explained is fairly consistent at each age level.

The regions display the same general patterns as all Canada, but there are some interesting dimensions. For example, at the youngest ages, the fertility of women in the Maritimes and Quebec is less affected by education and residence in comparison to the other regions, and this may reflect some of the economic difficulties that are especially evident in the eastern region of Canada. Labour force participation and the importance of this factor on the fertility of young women is clear in every region, but there are some significant differences in the pattern observed. In Ontario, the number of weeks worked in 1970 has a coefficient to fertility of .3062, while in the Maritimes it is only .1124. However, when examining period last worked, these coefficients are .0910 and .2465 respectively, just the opposite in importance. The explanation of such differences is difficult at best, but again most likely relates to the economic situation of these two regions, and the possible employment peculiarities of any single year (i.e., 1970). The amount of total fertility variance explained by the 10 factors of these women aged 15-24 is consistent across the regions, ranging from a low of .2254 in the Maritimes to a maximum of .2814 in British Columbia.

In the age groups 30-44, level of education, age at first marriage, area of residence and income show consistent coefficients with fertility in each region. Religion has a particularly high beta in the Maritimes, while birth place and ethnic background are more important in the Prairies and British Columbia. This may relate to the relatively high proportion of immigrants in the West. The total variance explained in this age group is smaller than for women aged 15-29, with a range of from .1888 in the Maritimes to .2326 in Quebec. Generally, the most important variable in explaining fertility difference for ages 30-44 is place of residence (not including age at marriage). This is true in four of the five regions.

For those women who have completed their childbearing in the past 20 years (45-64) the importance of any independent variable to fertility is not consistent among the regions. That is, other than age at marriage, no one factor explained a large proportion of fertility variation in each region. The most important factor

in British Columbia, the Prairies and Quebec, is area of residence, and in the Maritimes and Ontario it is religion. Mother tongue, birthplace and ethnic background make only a small contribution in most regions, while religion, education, residence, income and labour force participation are the main explanatory factors. The amount of total variance explained is high in this age group for the Maritimes and Quebec (approximately 25%) but fairly low in the other regions (about 16% or 17%). This may relate to the relatively large mean number of children in the former two regions.

The oldest group of women (65+) seem to have more variables, making relatively similar contributions in the explanation of fertility. No one variable stands out (other than age at marriage) with the highest beta in British Columbia being .1223 for period last worked, .1361 for area of residence in the Prairies, .1791 for religion in the Maritimes, .2080 for area of residence in Quebec and in Ontario a coefficient of .1468 for religion. The total variance explained is fairly high, above 20% in all regions except Ontario. Overall, while recognizing that there are exceptions by region and age, the most important variables coming out of the MCA are, in a rough order: 1. Age at first marriage; 2. Area of residence; 3. Religion; 4. Number of weeks worked (especially important for young women); 5. Period last worked; 6. Education; 7. Ethnicity; 8. Family income; 9. Mother tongue; and 10. Birthplace.

Table 4.19 shows the summary of all the variables by age, with variance explained. The key finding is the similarity between the regions (although the Maritimes do not fit the overall pattern so well) on almost all of the comparisons. In combination, for the youngest women, education, income and labour force participation account for almost all of the variance in each region. For the older women, the other factors such as religion and residence increase the variance explained substantially. The older the women, the more variables necessary to explain fertility variations. For example, labour force participation and education bear a very substantial relationship to timing and spacing of children and once childbearing is completed, these variables, while still important, no longer account for the large amount of the variance.

The two CMA's of Toronto and Montréal show similar patterns with respect to the variables under discussion as were seen for the provinces of Ontario and Quebec (data not presented). The women in Montréal have more children and the

factors explain more of fertility variation in the age groups there than in Toronto. The order of importance of the variables in regard to fertility is similar, with labour force participation significant, especially at the younger ages,and religion more important among the older women. Ethnic background is generally more important in Montréal, while education explains more variance in Toronto. Income, mother tongue and birthplace account for the same amount of fertility difference in the two cities. By and large, in comparison with Canada, the total variance explained is greater for young women in Toronto and Montréal but less for the older cohorts. This undoubtedly relates to the importance of labour force participation for the young women, especially in the major metropolitan areas.

4.2.2.1.1. Adjusted Mean Number of Children Ever Born

A byproduct of Multiple Classification Analysis is adjusted means on the dependent variable for each category of each independent variable. These can be viewed as the expected values if distribution on all the factors are the same, in other words controlled. The category means and means adjusted for age, age at marriage and all the other factors are presented in Table 4.20. For type of residence in 1971, the unadjusted mean number of children ranges from 2.27 for urban areas of 30,000 or more population, to 3.61 for rural-farm areas. When adjusted for all other factors (their influences removed) the range was not too different, 2.38 and 3.37, indicating the relatively independent influence of rural-urban residence on fertility. For educational categories, there is a relatively greater narrowing in the means (2.47 to 2.83). The strong inverse relationship of fertility to education is still evident when other factors are controlled, but narrowed somewhat. The only noticeable difference is between the below Grade 8 and above Grade 8 groups. The lower fertility among university and Grades 12-13 women is probably not due to education per se but to other correlated factors. Similarly the differences by religion and ethnicity are attenuated when controlling for other factors. It is of special interest to observe the pattern by mother tongue. Mean number for the English mother tongue group was 2.45, compared to 2.98 for the French. However, when adjusted for all the other factors, the difference nearly disappears, with adjusted means of 2.63 and 2.57 respectively.

The inverse relationship between labour force participation, as measured by work status and fertility is maintained in the adjusted means, although the magnitude of the difference is somewhat smaller. Those women who never worked have

TABLE 4.20. Unadjusted and Adjusted Mean Number of Children per Ever-married Women (Aged 15-59) for Canada

Category	Number of women	Unadjusted mean	Adjusted mean(1)
Area of residence in 1971			
Urban 30,000+	26,868	2.274	2.384
Urban -30,000	8,668	2.780	2.712
Rural non-farm	7,000	3.220	2.972
Rural farm	2,570	3.614	3.365
Education			
Below Grade 9	14,221	3.341	2.828
Grades 9-11	17,140	2.495	2.509
Grades 12-13	10,129	1.994	2.452
University	3,616	1.810	2.473
Religion			
Catholic-Ukrainian	20,499	2.844	2.854
Jewish	602	2.000	2.067
Mennonite-Hutterite	329	3.310	3.096
Greek Orthodox	696	2.043	2.493
Other Christian	19,454	2.403	2.346
None	1,641	1.990	2.299
Other	1,885	2.648	2.695
Place of birth			
Born in Canada	36,277	2.679	2.624
Foreign-born	8,829	2.246	2.471
Mother tongue			
English	26,205	2.454	2.634
French	11,793	2.984	2.574
Other	7,108	2.463	2.478
Ethnic origin			
British	20,172	2.476	2.615
French	12,447	2.955	2.602
Jewish	642	1.984	2.671
Native Indian	473	4.510	4.090
Negro-West Indian	116	2.224	3.332
Chinese-Japanese	322	2.485	2.905
N.W. European	5,032	2.519	2.614
Other European	4,152	2.271	2.253
Other/unknown	1,750	2.125	2.512
Family income			
Under $3,000	5,151	2.715	2.355
$3,000-4,999	4,754	2.832	2.603
$5,000-7,999	10,046	2.553	2.532
$8,000-9,999	7,279	2.443	2.558
$10,000-11,999	5,949	2.498	2.662
$12,000-14,999	5,638	2.433	2.634
$15,000-19,999	3,840	2.693	2.776
$20,000+	2,449	2.946	2.896
Work status			
Never worked	7,616	3.698	3.170
Worked before 1970	13,994	2.741	2.744
Wkd 1-26 wks in 70	5,817	2.287	2.584
Wkd 27-52 wks in 70	16,241	2.047	2.186
Wkd 1971, not 1970	1,438	2.738	2.736

(1) Controlled for all the factors as well as age and age at first marriage.

Source: Public Use Sample Tape.

an adjusted mean of 3.17 children, while those who worked part-time and full-time in 1970 have 2.58 and 2.19 children respectively. Family income shows no real pattern in the unadjusted means, but when all other factors that inter-relate with family income are removed, we find that those women with the highest income have the largest number of children, while the women with the fewest number of children are in the lowest income bracket.

In comparing the adjusted means, the variables in which the major fertility differences occur are residence (1.0 children), education (.04 children), and ethnicity (1.8 children, but when the Native population is removed, the maximum difference reduces to 1.0 children), labour force participation (1.0 children) and income (0.5 children). Of course, the maximum variation relates to age at first marriage, which is linear in pattern. The younger the age at first marriage, the more children.

4.2.2.2. Analysis of Once-married, Currently-married Women

MCA is done separately in this section for once-married, currently-married women derived from the family file. It is further restricted to women in the reproductive years of 15-49. There were 30,302 women in this group. The purpose of this analysis is primarily to determine whether the inclusion of characteristics on the husband aids in the explanation of variance on the fertility of the wife.

Table 4.21 presents the beta coefficients and variance explained in the MCA. Variance explained by the nine wife variables on children ever born is 39.9%. The addition of five husband variables adds practically nothing to the total variance explained (.402). This is because of the very high correlations between the wife and husband variables. The correspondence between wife and husband on religion, ethnicity, mother tongue, and education, is extremely high, more than 90%. Only in labour force participation does one find a greater disparity between husband and wife. Though one cannot necessarily conclude that characteristics of husbands are not important in explaining fertility, the multivariate analysis implies that much of their influence is already contained in the association of characteristics of wives with children ever born.

The beta coefficients for husband variables are worthy of comment. They are not insignificant and, except for labour force participation, are fairly close

TABLE 4.21. Multiple Classification Analysis of Children Ever Born for Once-married, Currently-married Women Aged 15-49, for All Canada

	Beta coefficients		
	Two Variables	Wife variables only	Wife and husband variables
Age of wife	.592	.548	.539
Age at marriage of wife	.339	.306	.301
Religion of wife		.097	.062
Education of wife		.060	.043
Ethnicity of wife		.008	.014
Mother tongue of wife		.056	.056
Labour force participation of wife		.145	.143
Type of residence		.124	.121
Family income		.030	.037
Religion of husband			.045
Education of husband			.052
Ethnicity of husband			.021
Mother tongue of husband			.025
Labour force participation of husband			.031
Variance explained (R^2)	.340	.399	.402

Source: Public Use Sample Tape.

to the values for corresponding wife variables. This means that, even though no additional variance is explained by husband variables, it is only because their effect is included in the wife variables due to high correlation.

4.2.3. Path Models

4.2.3.1. All Canada Analysis

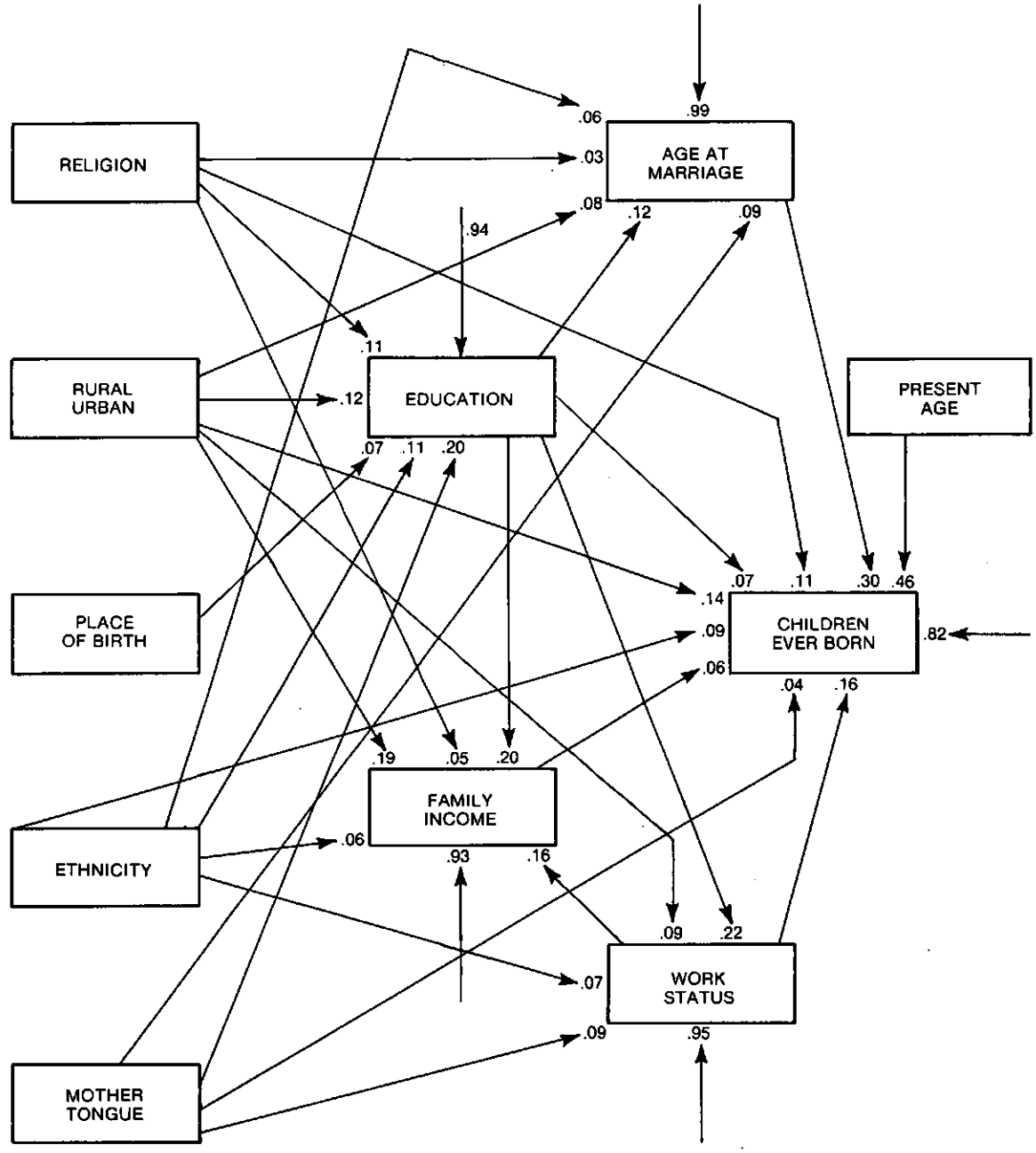
A path diagram is shown as Chart 4.3 extending the MCA analysis to include education, family income, work status and age at marriage as intervening variables. The rationale for the model has been explained in Chapter 3. The initial analysis is for all ever-married women in the ages 15-59. Thus, they include women in the reproductive ages as well as those who have completed their fertility as long ago as 15 years. Women above 60 years of age were excluded, as their fertility took place in a much earlier period and some of the variables may not be too relevant for them. Work status in the path model is a newly constructed variable, combining the two variables, period last worked and number of weeks worked in 1970. Present age was introduced as a separate variable because of its overwhelming importance on children ever born.

Total variance explained for children ever born was 33.5%. However, the beta coefficients show that most of this variance explained is due to age at marriage and present age. Among the other variables, the beta coefficients are relatively high for work status, religion and type of residence. Ethnicity and education were less important and mother tongue the least.

Among the intervening variables we were able to explain only a small portion of variance, 13.7% for family income, 9% for work status and only 2.8% for age at marriage. The inability to explain age at marriage is a surprising finding. This is due to the fact that only slight differences in mean age at marriage exist by socio-economic characteristics, and the within-group variance is far more important than between group variance. Thus, while age at marriage is important for fertility, trying to explain age at marriage by the so-called structural variables is futile. When dealing with micro-data we find that variance explained is much lower than if we were dealing with aggregate data, a common finding in social science research. Because of the small percentage of variance explained in the intermediate variables we have to conclude that the path model is not a major improvement over

Chart 4.3

Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics (Ever-married Women Aged 15-59), Canada, 1971



Source: 1971 Census of Canada, Public Use Sample Tape.

the earlier MCA analysis treating them all as independent variables. It is possible that the weakness of the model may be due to the fact that all the age cohorts are taken together, and the beta coefficients and variance explained may vary for the different age groups.

Since it was seen that the explanatory power of the independent variables changes by age of women, the path model was separately applied for the different age cohorts. Path diagrams were drawn for all five-year age groups between 15 and 59, but only a sample is presented here (Charts 4.4 to 4.8). Those presented are similar to those omitted. Before commenting on the models, it may be useful to look at variance explained in the intermediate variables and children ever born in these age specific models. Within each age category, except for 15-19, the percentage of variance explained in children ever born is greater than that explained in the intermediate variables. Between the ages of 20-35, 30% or more of the variance is explained, whereas for the older age groups, the figure is in the low 20's. Variance explained in age at marriage decreases with age.[2]

Up to age 30 we are able to explain more than 10% of the variance in age at marriage, whereas it is very low among the older women. Per cent of variance explained in education varies within a narrow range of 11-15% among all the age groups except the youngest ages (15-19). This is understandable as in this age group fewer women are likely to have more than high school education. Variance explained in family income is somewhat higher in the younger age categories, around 20%, than among the older women. We are unable to explain much of the variance in work status, generally lower then 10%. Differences among age categories are small.

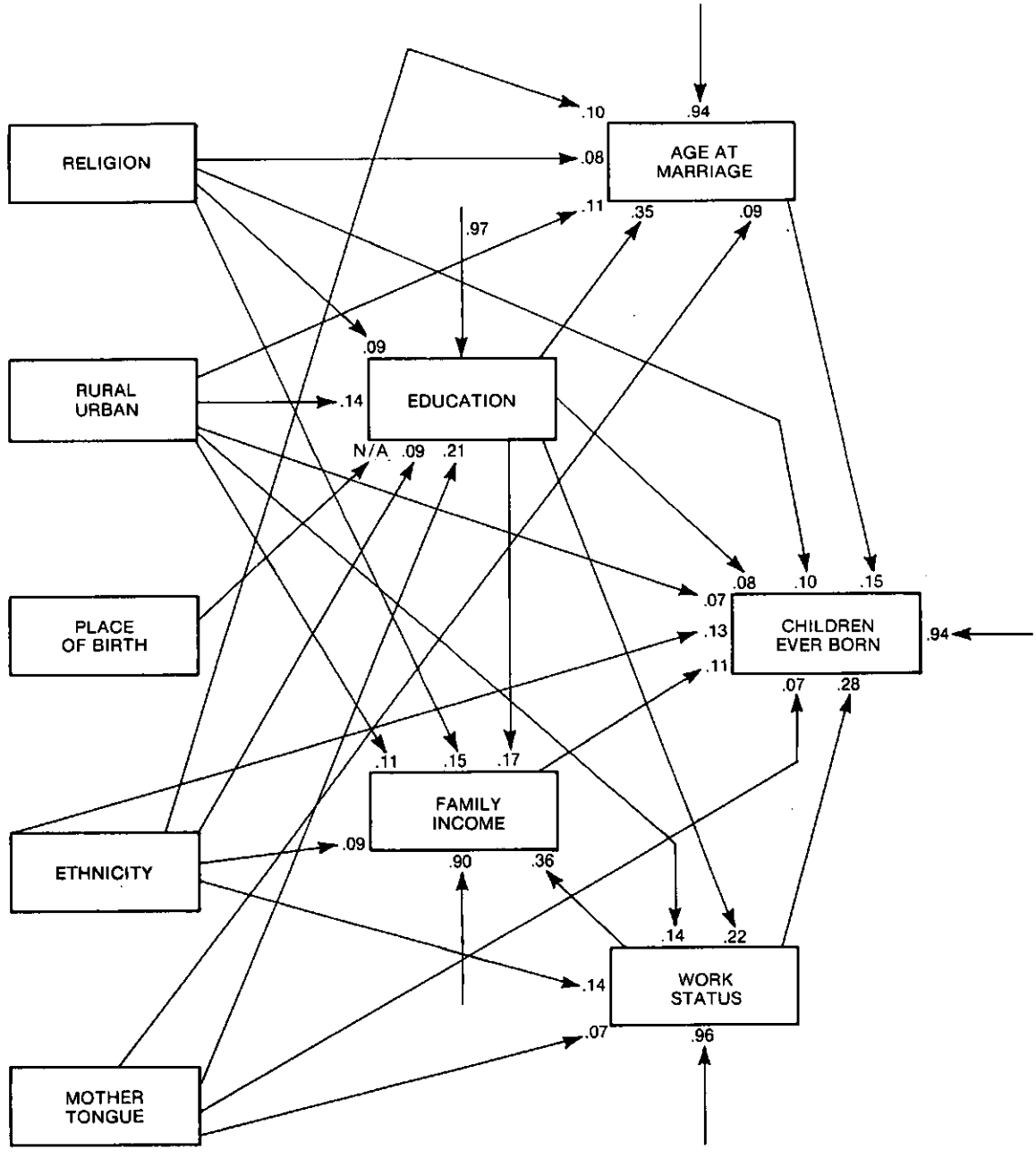
The path diagrams for the selected age cohorts shown in Charts 4.4 through 4.8 reveal certain salient features. The overall explanatory power of the path model is weakest for the youngest age group of women (15-19). This is to be expected since, apart from a small sample size, these women are likely to be married very recently and have only a small number of children. The mean number of children is only .61, with a high proportion childless. The residual path is high at .94. Work status has the highest beta coefficient of .28, with age at marriage second at .15.

For the next two age groups, 20-24 and 25-29, the beta coefficients and variance explained are higher in comparison to all other ages. Work status and age

See footnote(s) on page 232.

Chart 4.4

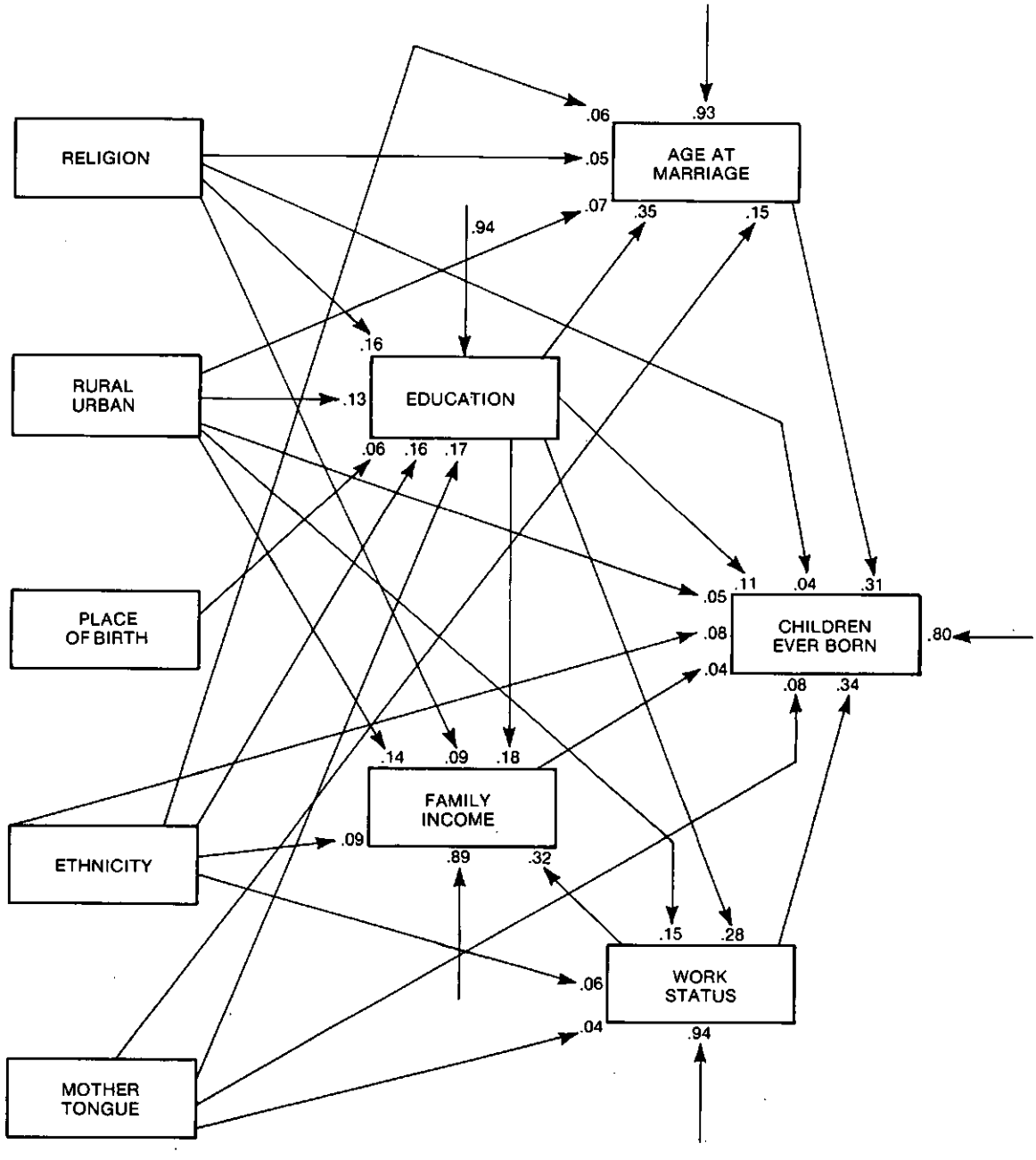
Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics (Ever-married Women Aged 15-19), Canada, 1971



Source: 1971 Census of Canada, Public Use Sample Tape.

Chart 4.5

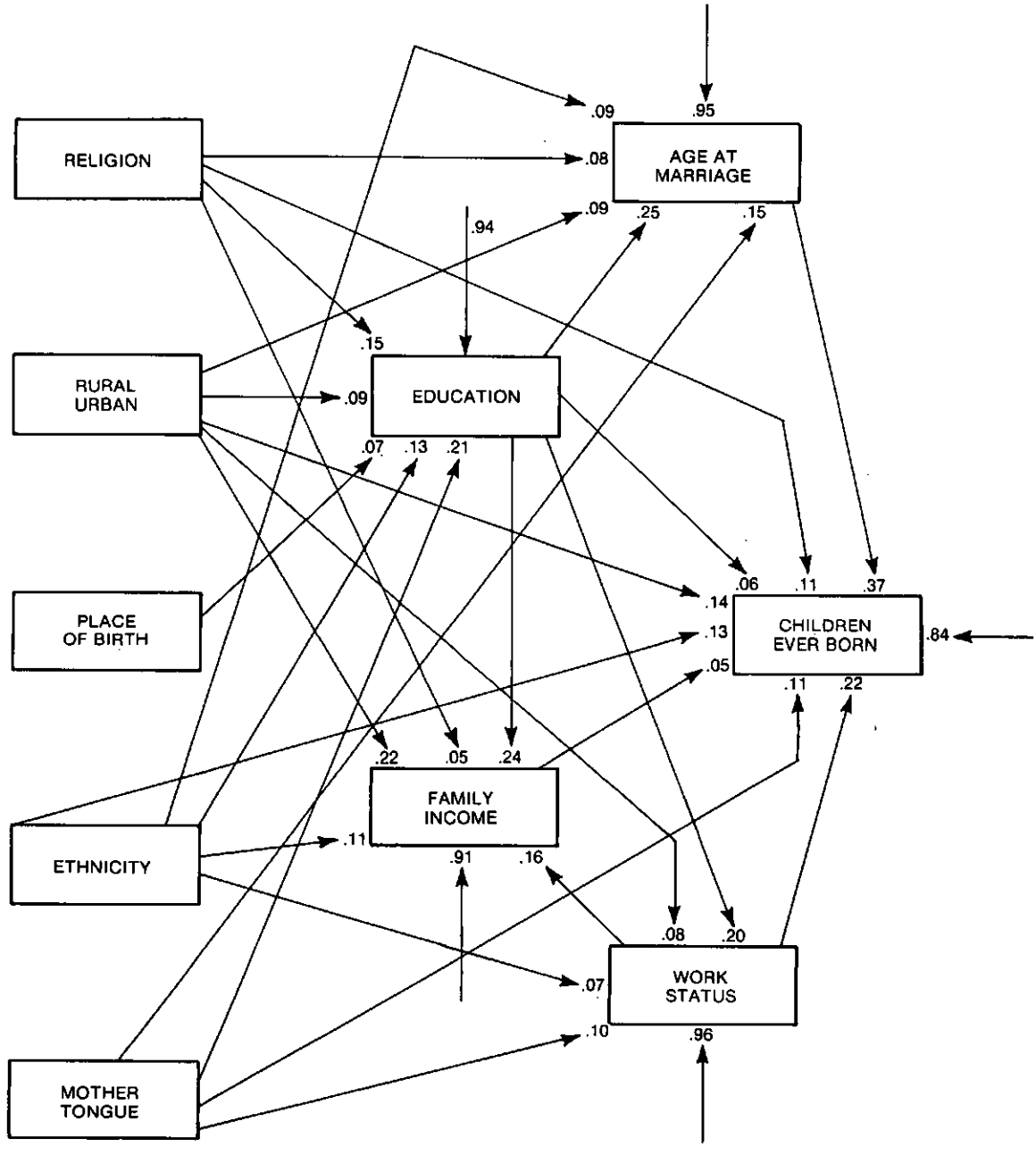
Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics (Ever-married Women Aged 20-24), Canada, 1971



Source: 1971 Census of Canada, Public Use Sample Tape.

Chart 4.6

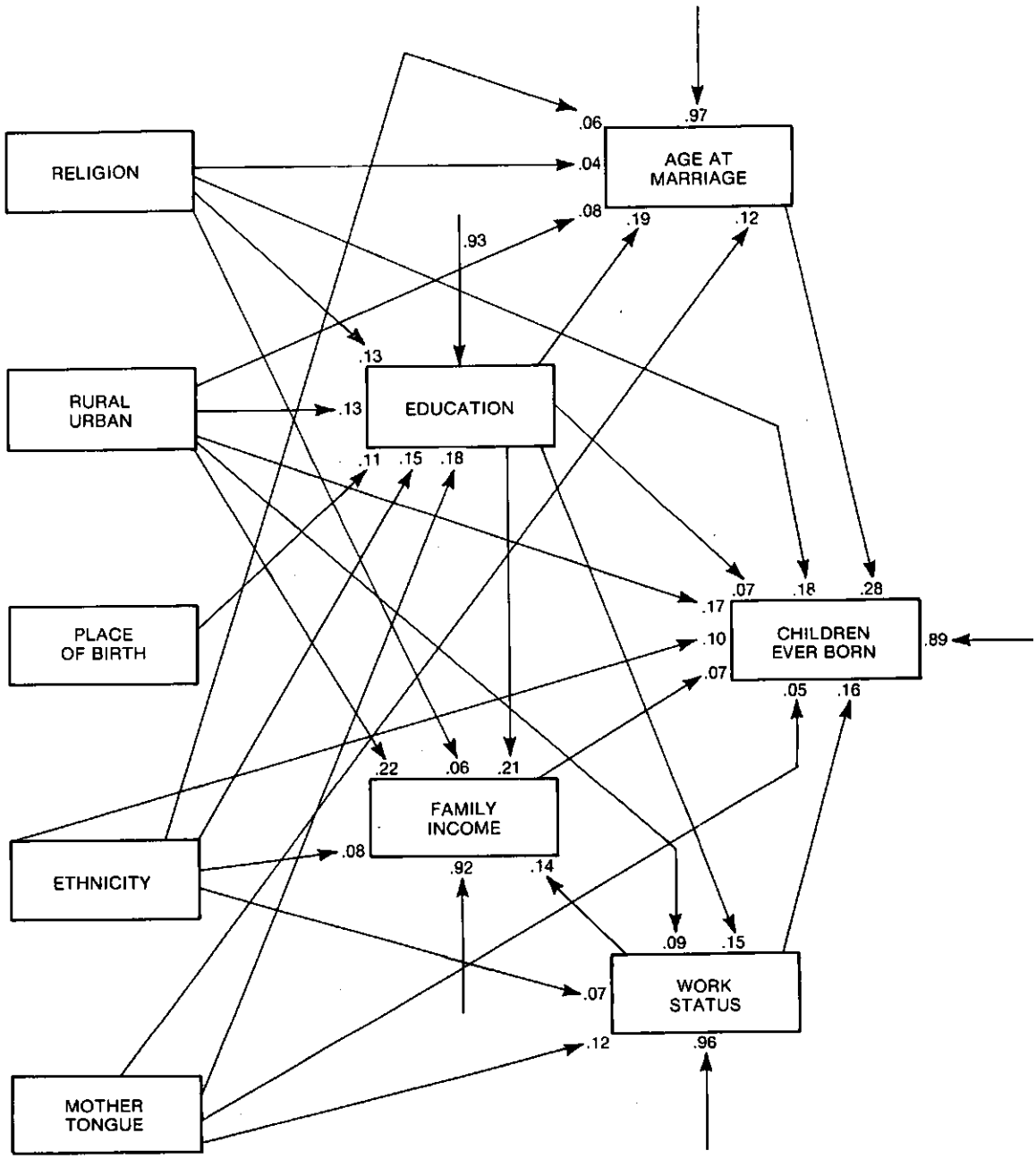
Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics (Ever-married Women Aged 30-34), Canada, 1971



Source: 1971 Census of Canada, Public Use Sample Tape.

Chart 4.7

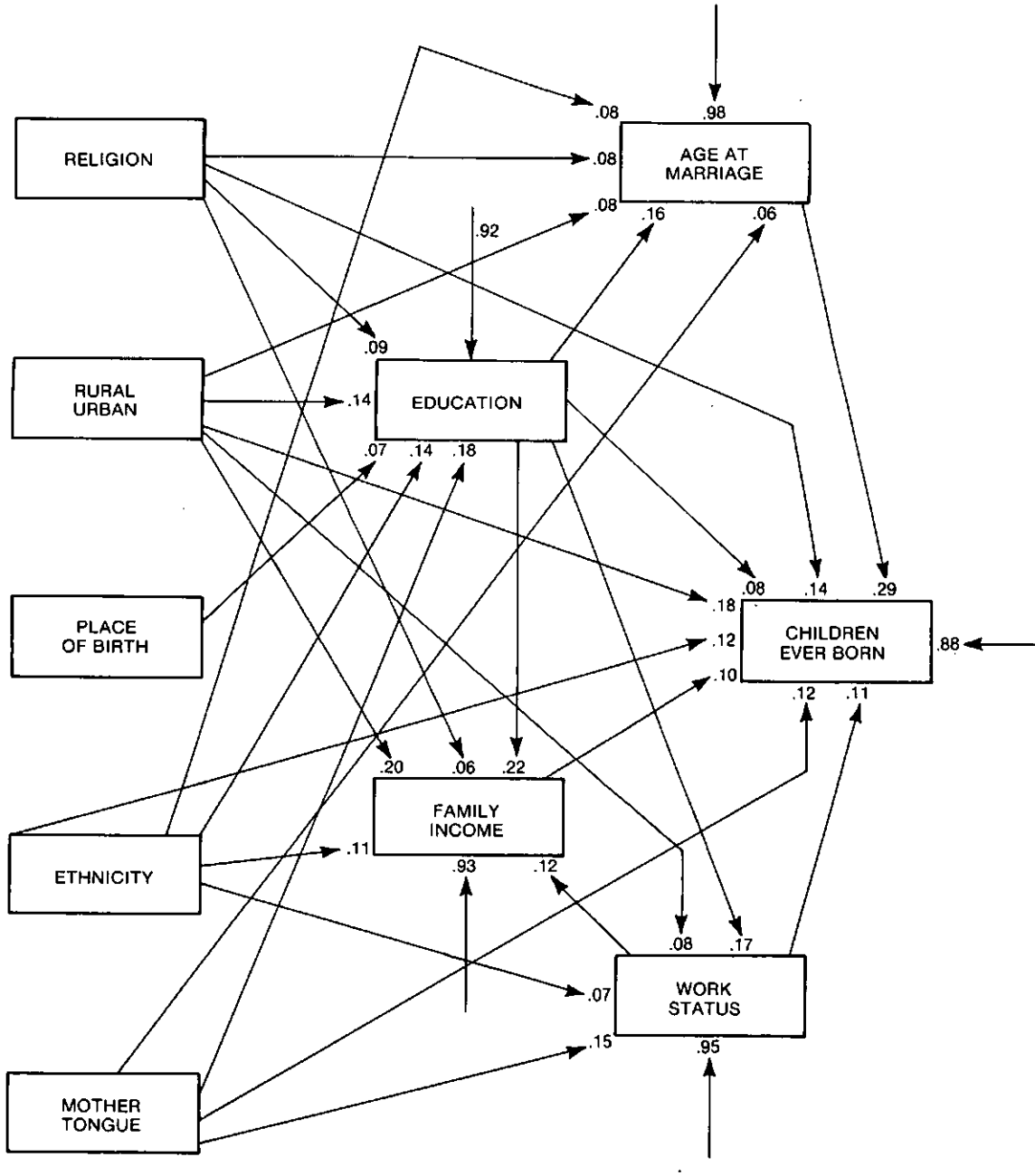
Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics (Ever-married Women Aged 40-44), Canada, 1971



Source: 1971 Census of Canada Public Use Sample Tape.

Chart 4.8

Path Diagram of Children Ever Born and Other Socio-economic and Demographic Characteristics (Ever-married Women Aged 50-54), Canada, 1971



Source: 1971 Census of Canada, Public Use Sample Tape.

at marriage have the two highest beta coefficients on children ever born. Path coefficients for age at marriage are consistently high for all the age groups, though a slight decrease for the older age cohorts can be noticed. Path coefficients from work status to children ever born decrease in a linear fashion from a high of .34 for the 20-24 age category to a low of .11 for the 55-59 age class. Path ceofficient from education to children ever born decreases with age. Educational level among older women is generally lower and probably did not have the same effect on fertility in the past when most of their children were born. Among younger women, not only is there a greater variation by education, but education influences their family size norms, contraceptive use and work experience in such a way as to affect their reproductive behaviour as never before.

Path coefficients from religion to children ever born are significant and increase with age. From a low of .04 for the 20-24 age group it increases to .18 for the 40-44 age group, and seems to indicate the decreasing influence of religion in fertility. It is somewhat higher for the 15-19 age group at .10, but we are discounting its importance due to the small size and the very short fertility experience of this group.

Path coefficients from type of residence to children ever born are significant for all the age cohorts, emphasizing the relative importance of this variable. The values however increase with age, from .07 for the age group 15-19 and .05 for 20-24 to .19 for the 45-49 age category. A conclusion is that fertility differentials purely attributable to rural-urban residence are probably lower for the younger women compared to older women who had completed their childbearing by 1971. The pattern of ethnicity to fertility is similar to that of type of residence, with decreasing importance for younger women.

In spite of considering a large number of variables, we are able to explain only about 25 to 30% of the variance in children ever born. In summary, the amount of variance explained is as much as could be expected based on past experience in working with this kind of data and this particular methodology. This low proportion of explained variance is due to a plethora of factors, some of which are the following: fertility is a complex variable; there are many explanatory factors not included; we are dealing with individual rather than aggregate data.

4.2.3.2. Regional Analysis

As was the case nationally, the regional path analysis first examines the path models for the five regions for all the women in the age group 15-59 and then separately for women in age groups 15-29, 30-44 and 45-59 (path charts not shown). Per cent of variance explained in the intervening variables and in children ever born are presented in Table 4.22. Per cent of variance explained in children ever born does not vary too much between provinces, when all women 15-59 are considered. It is highest in Quebec at 34.384%, and lowest in Ontario at 27.945%. Age and age at marriage explain more variance than the other variables, among which work status is the most important.

Considering age cohorts separately, certain differences can be noticed. For the category aged 15-29, the amount of variance explained in children ever born is somewhat lower and ranges between 22.466% in the Maritimes and 28.219% in British Columbia. For the age group 30-44, variance explained in fertility is still lower, ranging from 18.652% to 23.259%. The greatest regional differences in per cent of variance explained in children ever born are found among the older women (45-59). It is highest in Quebec at 25.450%, while in British Columbia it is only 14.172%. It is interesting to note that while variance explained in fertility is fairly constant across the three age groups for Quebec and the Maritimes, it decreases considerably with age for the other provinces.

Though not central to the main interest of this study, the variance explained in the intervening variables is also examined (Table 4.22). One surprising finding is that, except in the young age group (15-29), very little of the variance in age at marriage can be explained. For women over 45, the range is from 2.676 to 3.913%, and for those aged 30-44, 3.482 to 7.025%. For the younger women (15-29), excepting Quebec, the per cent of variance is around 13%. A large part is due to education. Higher education delays marriage, and its impact is likely to be more evident in the younger cohorts.

Variance explained in education is not too different across regions and the age groups, about 8% to 9%. Regional differences in variance explained in family income are more pronounced. Much higher variance is explained in the Maritimes and the Prairies than in the other provinces in all the age groups. A closer look at the path models shows that this is because both rural-urban residence and education result in income differences a good deal more in these provinces.

TABLE 4.22. Per Cent of Variance Explained in Children Ever Born and the Intervening Variables in the Regional Path Models

Age and region	Age at marriage	Education	Family income	Work status	Children ever born
15-59					
Maritimes	3.095	7.267	17.990	10.414	32.420
Quebec	1.331	8.265	10.433	9.020	34.384
Ontario	3.243	8.055	10.132	4.146	27.945
Prairies	2.190	9.704	21.452	3.646	29.076
B.C.	3.481	6.462	8.192	5.407	28.182
15-29					
Maritimes	12.717	8.833	22.029	15.849	22.466
Quebec	5.533	8.877	19.453	10.962	24.668
Ontario	13.862	7.124	14.762	6.635	26.641
Prairies	12.698	6.308	25.114	7.015	24.680
B.C.	12.148	7.300	11.630	10.842	28.219
30-44					
Maritimes	6.156	8.230	19.148	7.312	18.943
Quebec	3.482	8.482	13.724	6.923	23.259
Ontario	6.174	10.088	12.058	3.053	19.056
Prairies	4.944	8.484	23.712	2.163	18.652
B.C.	7.025	8.167	8.153	3.485	19.299
45-59					
Maritimes	2.734	7.829	19.428	7.748	23.813
Quebec	2.676	11.535	7.583	7.280	25.450
Ontario	2.954	7.545	9.951	3.445	15.817
Prairies	3.913	13.721	22.762	3.651	15.692
B.C.	3.849	7.134	8.825	3.990	14.172

Source: Public Use Sample Tape.

Proportion of variance explained in work status is somewhat lower than in the case of income, but substantial regional differences can be observed. Generally, greater variance can be explained in the Maritimes and Quebec across all age categories. Education, which affects work status more than other variables, has greater influence in labour force participation in these regions. In Ontario and the Prairies, working or not working does not seem to depend too much on the variables considered here.

There are some differences among the regions and between each of them and the country, with respect to the relative importance of the variables in the model in terms of their contributions to variance explained in fertility (Table 4.23). In general, the present age of the women is less important regionally than nationally. This is also true of age at marriage. Regionally, the differences in the contribution of age are almost non-existent and the same is true of age at marriage. This is to be expected, in that age and age at marriage are primarily demographic variables with little social, cultural, or regional variation.

After age and age at marriage, work status is more important in terms of its relative contribution with respect to fertility (children ever born) regionally and nationally than any of the other factors. The differences among regions range from non-existent to quite small. Mother tongue and ethnicity as well as family income are relatively unimportant nationally and this is also true regionally. Religion, education and residence in 1971 (rural-urban) make some contribution to the variance explained in fertility. Nationally, there is little difference between the contributions of religion and residence (.11 and .14 respectively). Regionally, the differences between the standardized beta coefficients of religion and residence with respect to children ever born are substantial. In the Maritimes, religion is more important than residence (.15 versus .10), in Quebec residence is more important (.19 versus .04). In Ontario, the Prairies and British Columbia residence is also more important, but not as great as seen in Quebec. The Maritimes are different from the other regions and being more rural than the others, residence explains less of the variations in fertility. Rural Quebec is so different from urban Quebec, as examplified by Montréal and Quebec City, that residence is an important explanatory variable with respect to fertility. Quebec's rural fertility is greatly different from its urban fertility. There is also more religious homogeneity in Quebec than in any of the other regions, which may account for the lower explanatory power of religion in this province.

TABLE 4.23. Path Coefficients of Children Ever Born for Ever-married Women, for All Canada and Regions

Region and age	Religion	Area of residence	Ethnicity	Mother tongue	Age at marriage	Education	Family income	Work status	Present age	Residual
All Canada										
15-59	.11	.14	.09	.04	.30	.07	.06	.16	.46	.82
15-19	.10	.07	.14	.07	.15	.08	.11	.28	---	.94
20-24	.04	.05	.08	.08	.31	.11	.04	.34	---	.80
25-29	.07	.08	.08	.08	.40	.07	.05	.27	---	.80
30-34	.11	.14	.13	.11	.37	.06	.05	.22	---	.84
35-39	.15	.15	.15	.06	.34	.05	.05	.18	---	.88
40-44	.18	.17	.10	.05	.28	.07	.07	.16	---	.89
45-49	.16	.19	.13	.05	.23	.09	.11	.15	---	.89
50-54	.14	.18	.12	.12	.29	.08	.10	.11	---	.88
55-59	.14	.17	.14	.06	.32	.08	.13	.11	---	.87
Maritimes										
15-59	.15	.10	.04	.03	.28	.12	.09	.16	.44	.82
15-29	.05	.08	.04	.07	.24	.06	.09	.34	---	.88
30-44	.20	.13	.07	.05	.29	.12	.08	.14	---	.90
45-59	.20	.13	.02	.05	.30	.18	.14	.19	---	.87
Quebec										
15-59	.04	.19	.03	.04	.28	.08	.10	.16	.42	.81
15-29	.04	.05	.05	.04	.23	.11	.04	.35	---	.86
30-44	.06	.20	.05	.03	.31	.08	.09	.21	---	.88
45-59	.04	.28	.02	.10	.28	.08	.15	.11	---	.87
Ontario										
15-59	.08	.11	.03	.07	.28	.08	.07	.17	.41	.85
15-29	.01	.10	.02	.02	.20	.14	.07	.38	---	.86
30-44	.11	.13	.04	.10	.30	.10	.07	.19	---	.90
45-59	.13	.12	.04	.08	.29	.06	.10	.12	---	.92
Prairies										
15-59	.06	.13	.06	.06	.25	.09	.04	.14	.43	.84
15-29	.02	.09	.05	.04	.19	.18	.06	.33	---	.87
30-44	.11	.15	.09	.05	.26	.12	.06	.15	---	.90
45-59	.07	.16	.10	.08	.27	.07	.08	.12	---	.92
British Columbia										
15-59	.08	.12	.06	.02	.27	.10	.05	.16	.41	.85
15-29	.05	.11	.05	.02	.19	.15	.06	.36	---	.85
30-44	.09	.13	.10	.02	.30	.10	.08	.19	---	.90
45-59	.12	.13	.06	.04	.28	.08	.06	.10	---	.93

Source: Public Use Sample Tape.

Education, when cast in the role of an intervening variable, made only a small contribution to the variance explained in fertility. Education's contribution nationally (.07) is similar to that at the regional level except in the case of the Maritimes (.12). In the Maritimes, education plays a slightly more important role than in the other regions and nationally. Again we find more variation in education in the Maritimes; hence its greater explanatory power there.

Age accounts for the largest proportion of the variance in children ever born when we consider ever-married women between the ages of 15 and 59. In order to somewhat remove the influence of age we examine three age groups and remove age from the path model. Looking first at age 15-29, we find that for all regions, labour force participation in 1971 (work status) has increased in importance relative in its contribution to explained variance in fertility for women 15 to 59. For all regions, the beta coefficient exceeds .33 in the 15-29 age groups, and this figure is twice that observed for women 15 to 59. This has not totally compensated for the removal of age, and so we find that the explained overall variance in fertility is smaller in the 15-29 age group than the 15 to 59 in all regions except British Columbia. (Higher residuals mean less variance explained, since per cent of variance explained is equal to one minus the square of the residual.) One would expect work status to be important as an explanatory factor in this age group, since if they are working in 1970 chances are there were no births in 1970 and no small children at home. The variance in fertility explained for any region is not much different from that of any other region.

Let us now examine the path diagrams (not shown) for the age group 30-44 for the regions (see Table 4.23). Compared with the age group 15-29 the following observations can be made. The amount of variance explained in fertility is less in this age group compared to the younger cohort. Work status decreased as an explanatory factor for fertility but its influence is still substantial. Age at marriage, religion and residence have increased in importance as fertility explanatory variables, while education has in general declined. Religion is an ascribed variable which had more importance historically, while education is an achieved characteristic that applies more to young women.

In this age group (30-44) education and work status are not as important as they were for the younger age group with respect to fertility. The influence of

education in terms of postponed marriage and delayed childbearing is declining. These women are most likely having children at a slightly older age. Since many of the young children of women in this age group are in school, some of the mothers may not be in the labour force irrespective of the number of children they have. Thus, in relation to fertility, work status shows a weaker relationship for this age group in that nearly all the women have some children.

The completed fertility of the age group 45-59 is next examined. Except for the Maritimes, the amount of variance explained in fertility by the model is less than was the case for the age group 30-44. Also, except in the case of the Maritimes, work status has decreased in importance as an explanatory factor for fertility. The contribution of age at marriage at the two oldest age groups is similar, due to the long marriage duration of nearly all women over the age of 30. In advanced societies with high levels of contraceptive use and normative small family sizes, age at marriage is not crucially related to completed fertility. In general (some exceptions exist) religion has increased in importance and education has decreased. In the Maritimes, the variance explained has increased slightly. Education has increased in importance as an explanatory variable and so has work status, but religion's contribution is the same. Because of its diversity as a region and its level of development relative to the rest of Canada, the Maritimes in many ways depart from the situation evidenced elsewhere in the country.

Rural-urban residence is an important contributor to the variation in completed fertility in all the regions, but it is much more sizeable in Quebec than in any of the other geographic areas. Once again we find the greater diversity in terms of urban-rural residence in Quebec showing up in its impact on fertility. Rural Quebec is quite different in fertility and life styles from urban Quebec.

4.3. Summary

This chapter is in many ways the heart of the book, while Chapter 2 must be viewed as only slightly less central. This chapter extends the analysis presented in Chapter 2 by way of multivariate statistical techniques. The findings in these two chapters are mutually supportive and overall in line with general theoretical and research developments in Canada with respect to correlates of fertility. The application of the different techniques results in comparable findings. Fertility patterns in Canada are slowly evolving. The determinants of fertility

vary in importance from age group to age group and from region to region. Studies of this nature, in spite of the use of varied techniques, leave a great deal of variance in fertility as unexplained. The multivariate statistical techniques support the findings based on cross-tabular analyses and present the findings much more definitively. There is much to be gained from the use of multivariate analyses, but their true potentials are severely limited by available data, especially those within censuses.

FOOTNOTES

[1]Fertility data for French-Catholic women in Quebec

Age	Lowest		Major factor	Highest		Major factor
	A	B		C	D	
15-29	.558	(190)	Worked 70-71	2.083	(108)	Never worked
30-44	2.067	(163)	Worked 70-71	4.989	(187)	Never worked
45+	2.404	(114)	Worked 70-71	7.455	(132)	Never worked

Columns A and C show the mean number of children ever born per woman. Columns B and D show the sample size.

[2]Percentage of variance explained

Age cohort	Age at marriage	Education	Family income	Work status	Children ever born
15-19	12.2	5.6	19.0	7.0	12.6
20-24	14.2	11.3	20.6	11.5	35.8
25-29	11.1	11.3	19.7	10.0	36.5
30-34	9.0	11.5	16.7	8.0	29.0
35-39	6.0	13.6	18.0	8.0	22.9
40-44	5.2	13.6	14.7	7.2	21.2
45-49	3.6	14.6	12.7	10.0	20.6
50-54	3.8	14.9	13.0	8.7	22.9
55-59	4.4	12.6	13.5	8.2	24.1

CHAPTER 5

CURRENT FERTILITY (OWN-CHILDREN RATIOS)

5.1. Introduction

The analysis until now has been on children ever-born data. This is because the data are the only information directly obtained on fertility in the census. They are basically cohort data, as they refer to the lifetime or cumulative fertility of a group of women. Thus, the major portion of this study has naturally focused on children ever-born data. However, though census data are essentially unsuitable for period fertility analysis, by adopting certain procedures, approximate fertility levels in periods immediately preceding the census date can be made. Obviously, for the study of current fertility patterns one should rely on Vital Statistics. They are more complete and reliable for estimating current fertility. But socio-economic and demographic information on mothers are very limited or non-existent on vital statistics records, and usually not published. Thus, estimates of current fertility from censuses because of correlated information on women, can be beneficial, even though they are subject to serious limitations. In this chapter we will analyze period fertility for one year and five years preceding the census date.

5.2. Method

One should be able to estimate current fertility for the year preceding the census date, by ascertaining at the time of the census, the number of children born between June 1970 and May 1971, and, for the preceding five years, the number born between June 1966 and May 1971. By relating the number of children in a household under one year and five years of age with the age of the mother, the fertility of women in these specific previous periods can be derived. (For detailed methodology and uses of own-children ratios, see Grabill and Cho, 1965; Cho, Grabill and Bogue, 1970; Retherford and Cho, 1974; Cho 1974.)

Unfortunately, this rather simple procedure becomes difficult to apply to Canadian census data. The dates of birth are collected for all the children in the household, and therefore the matching of children to their own mother is sometimes impossible. To reduce such errors, only women currently married, aged 15 to 44, who were married once only are selected for analysis. In addition, if the number of children in the household is greater than the children ever born reported by the

woman, that case is excluded. Children under one year and under five years of age are then linked with the number of currently married women and ratios per thousand women calculated. The own-children ratios thus calculated are still subject to the assumptions that all children reside with their mothers and that mortality is negligible for women and children. An important difference between our method and the one used by Statistics Canada, in general, is the treatment of childless women. These women are included in the calculation of our ratios, whereas in Statistics Canada Bulletins, the calculation is based only on women who had at least one live birth (Special Bulletin, 92-777, 1971). This is an important difference, which will soon become clear.

5.3. Findings

Number of own children per 1,000 women is presented in Table 5.1 by age of mother and marriage duration. Where the women are very young (15-19) and married for less than four years, the own-children ratio (less than one year) is highest, at 312 per 1,000 women. This is to some extent due to higher premarital conceptions in this group. For the same age group (15-19), the own-children ratio (less than five years of age) is 562. Excluding childless women, the census reports a ratio of 1093, since approximately half the women in this age group were childless. Though excluding childless women reduces certain methodological problems, it presents an exaggerated picture of fertility levels.

The figures decrease with age and marriage duration as is to be expected. Since our data are based on currently married women only, they are comparable to age specific marital fertility rates. Unfortunately, age specific rates published in Vital Statistics Bulletins are for all women and not for currently married women. As such, current fertility estimated from the census cannot be checked against Vital Statistics data for the comparable period.

5.3.1. Education

Own-children ratios by age and education of women are presented in Table 5.2. These figures must be interpreted with much caution. For all currently married women 15-44 years old, own children per 1,000 women show an increase with education: 97 for less than eight years of education, 116 for 9-11 years and 130 for women with a university degree. Thus, the relationship between education and fertility seems to be direct, contradictory to the inverse relationship found

TABLE 5.1. Number of Own Children Less Than One Year and Less Than Five Years per 1,000 Currently-married, Once-married Women Aged 15-44 Years by Wife's Age and Wife's Marriage Duration, Calculated by Two Different Methods

Age and marriage duration	Including childless women			Excluding childless women	
	Number[1] of women	Own children per 1,000 women		Number[1] of women	Own Children per 1,000 women
		less than 1yr	less than 5yr		less than 5yr
15 - 44	2,407,030	116	586	1,955,810	690
15 - 19					
0 - 4 years	54,535	312	562	26,860	1093
20 - 24	438,890	214	763	238,460	1319
0 - 4 years	379,630	218	675	185,310	1293
5 - 9 years	59,260	186	1329	53,145	1409
25 - 29	539,025	177	921	413,090	1134
0 - 4 years	197,405	219	762	103,190	1299
5 - 9 years	288,780	164	1082	257,300	1167
10 -14 years	52,840	90	636	52,600	648
30 - 34	468,285	96	655	422,970	701
0 - 4 years	36,435	214	772	18,415	1238
5 - 9 years	140,875	132	955	122,635	1043
10 -14 years	247,500	65	515	238,340	540
15 -19 years	43,475	51	387	43,585	397
35 - 39	455,615	44	365	429,815	385
0 - 4 years	11,020	163	646	5,435	1095
5 - 9 years	33,265	97	817	27,575	940
10 -14 years	147,200	48	418	138,095	452
15 -19 years	226,315	30	269	221,260	281
20 -24 years	37,815	35	252	37,455	246
40 - 44	450,695	16	168	424,620	177
0 - 4 years	4,825	81	353	1,930	757
5 - 9 years	11,735	39	503	8,565	679
10 -14 years	42,870	22	267	38,120	309
15 -19 years	153,885	14	164	146,775	178
20 -24 years	206,205	14	133	200,835	132
25 + years	31,175	14	134	28,400	120

(1) The numbers of women are not strictly comparable due to slight differences in the selection of women. However, these differences are minor and the 'own-children ratios' should reflect the effect of excluding childless women in the calculation.

Because of random rounding the totals might not exactly match.

Source: 1971 Census of Canada, Special Bulletin 92-777 and unpublished data.

TABLE 5.2. Ratio of Own Children Less Than One Year and Five Years of Age per 1,000 Currently-married, Once-married Women Aged 15-44 Years by Wife's Age and by Wife's Education

Age	Education											
	Less than 9 years		9 to 11 years		12 to 13 years		Some university		University degree		Total	
	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women
	Under one year of age											
15 - 19	9,625	344	30,385	334	13,110	245	1,370	233	45	163	54.535	312
20 - 24	60,305	259	181,060	231	149,880	196	30,000	170	17,635	107	438,890	214
25 - 29	102,770	167	217,395	164	152,215	193	38,260	197	28,385	197	539,020	177
30 - 34	125,490	95	185,850	83	111,855	100	27,890	118	17,200	165	468,285	96
35 - 39	151,635	53	177,710	37	92,630	40	21,780	49	11,855	62	455,615	44
40 - 44	167,610	22	167,440	13	85,295	11	19,320	13	11,030	15	450,690	16
15 - 44	617,440	97	959,845	116	604,980	129	138,615	127	86,150	130	2,407,030	116
Total marital fertility rate		4700		4310		3925		3900		3545		4295
Current fertility index		109		100		91		91		83		100
	Under five years of age											
15 - 19	9,625	774	30,385	603	13,110	338	1,370	317	45	233	54,535	562
20 - 24	60,305	1149	181,060	890	149,880	579	30,000	461	17,635	213	438,890	763
25 - 29	102,770	1021	217,395	918	152,215	926	38,260	846	28,385	653	539,020	921
30 - 34	125,490	680	185,850	588	111,855	676	27.890	757	17,200	906	468,285	655
35 - 39	151,635	425	177,710	313	92,630	344	21,780	381	11,855	492	455,615	365
40 - 44	167,610	210	167,440	144	85,295	137	19,320	156	11,030	172	450,690	168
15 - 44	617,440	595	959,845	592	604,980	581	138,615	570	86,150	530	2,407,030	586
Total marital fertility rate		4259		3456		3000		2918		2669		3434
Current fertility index		124		101		87		85		78		100

Source: 1971 Census of Canada, unpublished data.

earlier for children ever born and generally in most other studies. On closer examination it is clear that this is due largely to wide differences in age distributions. Among women with less than eight years education, only 26.4% of the women are in the most productive childbearing years of 20-29, while among women with a university degree, 53.4% were in this group, obviously the result of increasing education among younger women. The age specific rates, however, show the normal pattern of decrease with education except in age groups 25-29 and 30-34, where it is reversed. This is most probably due to timing. Women with higher education marry later and postpone births for a longer period after marriage. Thus, the higher fertility in these age groups (25-34) is due to a catching-up process.

For women with less than 13 years of education, the pattern is one of steadily decreasing own-children ratios (less than one year) with age. However, for women with at least some university education, the ratio decreases from 15-19 to 20-24 groups and then increases for the 25-29 age category. This has to be attributed to greater premarital pregnancy in the 15-19 age group.

It is clear from the data that, while current fertility provides insights into timing, it is no substitute for cohort fertility. "Cohort fertility represents what happens in reality" (Henripin, 1972:34). In understanding overall fertility differentials between socio-economic subgroups one should rely primarily on cohort fertility and less on current fertility. This is, however, not so true for status such as income and occupation, which can change over time and comparisons of differentials in completed cohort fertility may be inappropriate (Rindfuss & Sweet, 1977).

The relationship between education and fertility becomes clearer when the reference period is five years instead of one year, as some of the effects of timing are dampened. In the younger age groups (below 30) the number of own children decreases substantially with increase in education. For the 20-24 age category the number of children under five years of age per 1,000 women was 1,149 if their education was less than or equal to eight years, while it was only 461 for women with some university and 213 for those with a university degree. The much lower fertility for more educated women is clearly due to a later age at marriage and hence a smaller marriage duration and cannot be attributed to education per se. There is a slight reversal in this trend after age 30, but not enough to compensate for the earlier ages.

Since overall ratios are influenced by differences in age distribution, an index of current fertility is constructed which standardizes on age. It involves calculating a rate similar to total fertility rate and then expressing this as an index where the national rate is 100. For example, the total marital fertility rate based on number of children under one year of age for women with eight years of schooling or less is calculated as 4,700 (see Table 5.2). It is derived by adding the own-children ratios and multiplying by five. It can be interpreted as the number of children that a hypothetical cohort of 1,000 women can be expected to have if they married at age 15 and experienced the fertility implied by the ratios. Since we are ignoring mortality among children under one year of age this will slightly underestimate the true fertility rate. This so called total marital fertility rate is not too useful in itself. It is used here more to compare groups and, as such, greater stress is placed on the indices of current fertility. The index is 109 for the lowest educational category and decreases to 83 for those with a university degree.

When number of own children under five years is considered, the total marital fertility rate is obtained by simply adding the numbers for the various age groups. As these are based on the past five-year period they will be different from those calculated on a one-year experience. When converted to current fertility indices, they range from 124 to 78 as we move from low to high educational categories. This index is to be preferred to the one based on one-year ratios, as it is more stable. Indices for one-year ratios assume uniform fertility within any five-year group, a very crude approximation.

5.3.2. Religion

An advantage of own-children ratios under one year of age is that they give some idea of the distribution of fertility by age, not available in cohort fertility measures. Own-children ratios by religion show interesting differences (see Table 5.3). Jewish fertility is only 80 per 1,000 in the 15-19 age group, about a fourth of most other religious groups. It reaches a maximum in the 25-29 age category, denoting possibly delayed childbearing. It is also lower after age 35. Jewish women have not only the lowest fertility but probably have their children closer together than other religious groups. The distributions have the greatest spread among the high fertility groups of Mennonites, Hutterites and Mormons. The age patterns are fairly close for the two largest religious groups,

TABLE 5.3. Ratio of Own Children Less Than One Year of Age and Less Than Five Years of Age per 1,000 Currently-married, Once-married Women Aged 15-44 Years by Wife's Age and by Wife's Religion

Age	Religion								
	Roman or Ukrainian Catholic	Greek Ortho-dox	Prot-estant	Jewish	Mennonite and Hutterite	Mormon	No religion	Other religion	Total
	Under one year of age								
15 - 19	317	274	313	80	292	333	286	285	312
20 - 24	223	230	208	159	273	315	167	229	214
25 - 29	175	170	179	224	237	238	150	202	177
30 - 34	100	106	88	87	162	126	82	125	96
35 - 39	50	46	38	22	74	62	34	57	44
40 - 44	19	14	13	3	30	22	13	28	16
15 - 44	118	110	112	98	159	171	108	138	116
Total marital fertility rate	4420	4200	4195	2875	5340	5480	3660	4630	4295
Current fertility index	103	98	98	67	124	128	85	108	100
	Under five years of age								
15 - 19	565	427	571	124	511	554	547	499	562
20 - 24	788	792	757	439	810	949	634	694	763
25 - 29	951	872	898	980	1184	1206	714	941	921
30 - 34	682	699	615	686	998	845	577	772	655
35 - 39	410	363	314	224	561	423	286	445	365
40 - 44	204	150	135	63	276	165	120	216	168
15 - 44	619	562	552	474	768	750	514	644	586
Total marital fertility rate	3600	3303	3290	2516	4340	4142	2878	3567	3434
Current fertility index	105	96	96	73	126	121	84	104	100
Number of women	1,167,330	37,775	1,027,235	27,530	18,955	7,350	88,570	32,290	2,407,030

Source: 1971 Census of Canada, unpublished data.

and Protestants, with the Catholic levels being slightly higher. Five-year patterns are similar to one-year trends.

Current fertility indices based on a one-year reference period show a range from 67 for Jews, 98 for Protestants, 103 for Catholics, to slightly greater than 120 for Mennonites, Hutterites and Mormons. Five-year indices are very close to one-year figures, indicating that in the case of religious groups, the effect of reference periods or differences in age distribution are minimal.

5.3.3. Type of Residence

The number of own children under one year of age and under five years of age per 1,000 women by type of residence are presented in Table 5.4. Except for a few exceptions, the pattern of decreasing fertility with increasing urbanization holds true when age of woman is controlled. Rural areas have highest rates and urban areas over 100,000 population have the lowest rates across all the categories, the differences being in the order of 20%. The importance of type of residence observed earlier in cohort fertility is also evident in current fertility.

As in the case of education, age distribution has a significant effect on overall ratios for all married women aged 15-44. The ratio of own children under one year of age is only 105 for rural farm women. It increases to 139 for rural non-farm women and it is 107 for women in urban areas of 100,000+ population. However, among rural farm women, only 27% are below age 30, whereas the corresponding percentages are 45 and 43 among rural non-farm and 100,000+ categories of women. This is largely due to out-migration of young females from rural farm areas. The lower overall rural fertility is a function of smaller numbers of women in the most fertile years rather than lower age-specific rates. Current fertility indices which remove age effects are a better indicator of the relationships. They decrease from 115 to 92 for one-year and from 124 to 89 for five-year reference periods.

5.3.4. Mother Tongue

Number of own children under one year and under five years by mother tongue show that the French have somewhat lower fertility than the English and other mother tongue groups until the age of 30 (see Table 5.5). After age 30 the French have slightly higher fertility than the English. This pattern is the same as found earlier for children ever born. The fact that for older women current fertility in

TABLE 5.4. Ratio of Own Children Less Than One Year and Five Years of Age per 1,000 Currently-married, Once-married Women Aged 15-44 Years by Wife's Age and by Wife's Type of Residence

Age	Type of residence											
	Rural farm		Rural non-farm		Urban 1,000 - 29,999		Urban 30,000 - 99,999		Urban 100,000 or over		Total	
	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women
	Under one year of age											
15 - 19	1,375	325	11,275	360	12,955	333	5,570	291	23,355	280	54,530	312
20 - 24	12,280	273	71,995	262	89,935	232	42,925	211	221,745	188	438,890	214
25 - 29	21,505	201	89,520	185	110,820	178	49,685	172	267,490	172	539,020	177
30 - 34	26,330	105	76,755	103	95,865	89	41,085	94	228,250	95	468,285	96
35 - 39	32,055	59	69,525	60	90,100	44	40,385	37	223,545	39	455,615	44
40 - 44	36,365	23	66,155	27	85,405	17	41,170	14	221,600	12	450,695	16
15 - 44	129,920	105	385,220	139	485,090	122	220,810	114	1,185,990	107	2,407,030	116
Total marital fertility rate		4930		4985		4465		4095		3930		4295
Current fertility index		115		116		104		95		92		100
	Under five years of age											
15 - 19	1,375	585	11,275	696	12,955	594	5,570	514	23,355	490	54,530	562
20 - 24	12,280	1052	71,995	1043	89,935	839	42,925	707	221,745	636	438,890	763
25 - 29	21,505	1173	89,520	1062	110,820	963	49,685	908	267,490	838	539,020	921
30 - 34	26,330	755	76,755	708	95,865	642	41,085	634	228,250	636	468,285	655
35 - 39	32,055	457	69,525	450	90,100	357	40,385	341	223,545	333	455,615	365
40 - 44	36,365	242	66,155	236	85,405	175	41,170	149	221,600	137	450,695	168
15 - 44	129,920	633	385,220	725	485,090	615	220,810	563	1185,990	528	2,407,030	586
Total marital fertility rate		4264		4195		3570		3253		3070		3434
Current fertility index		124		122		104		95		89		100

Source: 1971 Census of Canada, unpublished data.

TABLE 5.5. Ratio of Own Children Less Than One Year and Less Than Five Years per 1,000 Currently-married, Once-married Women Aged 15-44 Years by Wife's Age and by Wife's Mother Tongue

Age	Mother tongue							
	French		English		All other		Total	
	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women
	Under one year of age							
15 - 19	10,175	298	38,920	315	5,430	313	54,530	312
20 - 24	113,595	210	280,065	211	45,225	245	438,885	214
25 - 29	160,695	167	310,405	181	67,925	184	539,020	177
30 - 34	132,310	96	253,425	91	82,550	107	468,285	96
35 - 39	127,155	47	241,075	39	87,385	19	455,615	44
40 - 44	123,035	17	242,565	14	85,095	19	450,690	16
15 - 44	666,965	112	1,366,450	120	373,615	108	2,407,030	116
Total marital fertility rate		4175		4255		4610		4295
Current fertility index		97		99		107		100
	Under five years of age							
15 - 19	10,175	521	38,920	573	5,430	561	54,530	562
20 - 24	113,595	723	280,065	760	45,225	879	438,885	763
25 - 29	160,695	915	310,405	915	67,925	963	539,020	921
30 - 34	132,310	658	253,425	634	82,550	716	468,285	655
35 - 39	127,155	394	241,075	330	87,385	418	455,615	365
40 - 44	123,035	194	242,565	147	85,095	192	450,690	168
15 - 44	666,965	593	1,366,450	582	373,615	589	2,407,030	586
Total marital fertility rate		3405		3359		3729		3434
Current fertility index		99		98		109		100

Source: 1971 Census of Canada, unpublished data.

the last year is higher for French than English seems to suggest that changing from traditional high fertility norms is more difficult for this group as compared to younger French women. Moreover, factors for declining fertility such as higher education, increased urbanization, changing role of women, adoption of efficient contraception such as oral pills and incidence of abortion are likely to have greater impact on younger French women than older women. Comparison of current fertility indices show that mother tongue differences are much less than some of the other variables.

5.3.5. Labour Force Participation

As in the case of cohort fertility, the strongest relationship to current fertility is found with woman's work status (see Table 5.6). Since the reference period for own-children ratios is June 1970 to May 1971, work in 1970 and/or 1971 has been treated as one category. Women who worked in 1970 and/or 1971 had much lower current fertility compared to those who never worked or worked before 1970. For women less than 25 years of age, the number of children under age five is less than half the number among those who worked in 1970 or 1971, as against those who did not work. However, unlike cohort fertility, women who never worked and are under age 35 have actually lower current fertility than those who worked before 1970. The index of current fertility was 122 for those who never worked and 135 for those who worked before 1970, but only 80 for those who worked in 1970 or 1971. The differences are somewhat greater if a five-year period was used.

Interpretation of current fertility with regard to labour force participation, especially for younger women, is subject to a serious limitation. The higher current fertility of those who worked before 1970 may be due to the fact that they had a recent birth and had to stop working. Thus it is only natural that among these younger women we would expect a higher fertility. It is probably a statistical artifact, and the comparisons between women who never worked and those who worked before 1970 are perhaps not valid.

5.4. Summary

Because census data are basically cohort data and the problems associated with constructing current fertility are enormous, the discussion on own-children ratios has been brief. However, the limited analysis for once-married, currently-married women shows that some insights may be gained into timing and current fertility

TABLE 5.6. Ratio of Own Children Less Than One Year and Less Than Five Years per 1,000 Currently-married, Once-married Women Aged 15-44 Years by Wife's Age and by Wife's Labour Force Participation

Age	Labour force participation							
	Never worked		Worked before 1970		Worked 1970/1971		Total	
	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women	Number of women	Own children per 1,000 women
	Under one year of age							
15 - 19	11,880	407	8,290	448	34,370	246	54,535	312
20 - 24	37,940	281	99,515	317	301,430	171	438,890	214
25 - 29	58,900	178	189,235	210	290,885	155	539,025	177
30 - 34	69,170	101	181,855	115	217,255	77	468,285	96
35 - 39	79,185	59	161,110	55	215,315	31	455,615	44
40 - 44	85,205	26	143,505	18	221,980	11	450,695	16
15 - 44	342,275	117	783,515	137	1,281,240	102	2,407,035	116
Total marital fertility rate		5260		5815		3455		4295
Current fertility index		122		135		80		100
	Under five years of age							
15 - 19	11,880	795	8,290	900	34,370	400	54,535	562
20 - 24	37,940	1342	99,515	1325	301,430	504	438,890	763
25 - 29	58,900	1118	189,235	1240	290,885	673	539,025	921
30 - 34	69,170	736	181,855	830	217,155	484	468,285	655
35 - 39	79,185	484	161,110	471	215,315	241	455,615	365
40 - 44	85,205	255	143,505	215	221,980	105	450,695	168
15 - 44	342,275	693	783,515	806	1,281,240	423	2,407,030	586
Total marital fertility rate		4730		4981		2407		3434
Current fertility index		138		145		70		100

Source: 1971 Census of Canada, unpublished data.

differences by socio-economic characteristics of women, something not possible with Vital Statistics data. For example, education seems to result not only in reduced fertility but in delayed childbearing. Certain groups such as Jews seem to have a concentrated childbearing pattern, as opposed to Mormons or Mennonites whose childbearing extends to the whole reproductive period.

CHAPTER 6

LIFE STYLE AND FERTILITY

The style of life of an individual or a couple is too broad a concept to adequately define and measure. The difficulty arises because of its many dimensions. It is reflected in the type of accommodation, material possessions, kinship and family relations, leisure time, and social and cultural activities. Though difficult to investigate empirically, it is the thesis of this section that fairly distinct styles of life can be identified in a population and that these are likely to be correlated to fertility. Causal links between life style and fertility are however, hard to establish. One can, however, speculate about them.

Large families require more accommodation in terms of rooms and are more likely to occupy single family dwellings. The number of children inhibit mobility and put constraints on certain types of expenditure and activities. Thus, fertility can be a determinant of life style. On the other hand, a couple's desire for a certain life style may determine their fertility. A desire for travel, luxury goods, leisure and extra-familial activities may cause a delay or avoidance of childbearing. To the extent that variables such as occupation, education and income can simultaneously influence life style and fertility, causal paths become even more difficult to discern.

Census data are grossly deficient to adequately investigate the association between life style and fertility. This, along with the conceptual difficulties, makes the present analysis highly exploratory. Four indices measuring various dimensions of life style are looked at with respect to three indices of fertility for possible associations. These indices are constructed from items included in the household and individual Public Use Sample Tapes.

Two measures of fertility are used from the household file: children under six years of age and children under 18 years age, as surrogates for recent and lifetime fertility. A third measure, children ever born, from the individual file is also used to a limited extent. In that the life style indices and measures of fertility were not totally satisfactory, only the general findings are presented here. Additional information and tables can be obtained from the authors.

6.1. Indices of Life Style and Fertility

1. The household index: This index captures some aspects of the housing situation and is constructed from five items in the household sample tape, namely (a) "type of dwelling"; (b) "ownership of vacation homes"; (c) "number of bedrooms"; (d) "number of rooms"; and (e) the "tenure", defined as "owned" or "rented". In general, it is hypothesized that living space both within and outside the residence is positively related to number of children.

Overall, regardless of the sex and age of the household head, occupants of single houses have higher average numbers of children under six years of age and under 18 years of age living in the household with them, than do the household heads of semi-detached, duplex, row houses, etc., and these have higher average numbers of children than apartment dwellers. This seems to support the point of view that the size of the family and the stage of the family life cycle determine the housing needs. There is a positive relationship between the number of bedrooms and the number of rooms and the number of children under six years of age and under 18 years of age. Controlling for age, those who owned their own homes had significantly larger numbers of children.

2. Household facilities index: This index could be loosely termed a modernization index. It classifies households by taking into consideration their access to the following: hot and cold running water, municipally supplied water, exclusive use of bath facilities, exclusive use of flush toilet, public sewage disposal, central heating (oil, gas or electric), source of cooking fuel (oil, gas or electric), and water heating (oil, gas or electric).

It should be noted that, since most Canadians have ready access to almost all of these facilities, this index is less useful in explaining fertility than might otherwise be the case in an earlier period of modernization. Generally, households with more access to modern conveniences and facilities enjoy a higher style of life and are likely to contain fewer children than those with less access to the trappings of modernity. The data support this hypothesis. Very few Canadian households exist without most of these facilities, but those with fewer facilities do have large numbers of children in the households.

TABLE 6.1. Indices of Life Style and Number of Children Under 18 Years of Age per 1,000 Households, by Age of Head of Household

Index	Current age (1971) of household head							
	≤24		25-34		35-44		45-54	
Housing index(1)								
1	391	(867)	553	(1,315)	712	(518)	259	(555)
2	752	(504)	1,189	(1,219)	1,580	(510)	774	(424)
3	806	(346)	1,361	(999)	1,673	(477)	759	(399)
4	864	(251)	1,729	(915)	2,240	(537)	1,235	(494)
5	957	(258)	1,853	(1,212)	2,414	(940)	1,158	(828)
6	1,037	(162)	1,963	(1,098)	2,528	(962)	1,193	(958)
7	1,150	(167)	2,095	(1,446)	2,727	(1,856)	1,560	(1,606)
8	1,062	(112)	2,019	(1,320)	2,733	(1,726)	1,515	(1,570)
9	1,226	(62)	2,186	(897)	2,876	(1,644)	1,716	(1,607)
10	1,151	(33)	2,410	(662)	3,158	(1,372)	2,084	(1,371)
11	1,000	(20)	2,518	(353)	3,704	(1,141)	2,651	(1,279)
Household facilities index(2)								
0-1	1,412	(17)	3,045	(110)	4,447	(123)	3,013	(151)
2-3	1,101	(69)	2,507	(215)	3,458	(227)	2,630	(246)
4-6	975	(79)	2,125	(329)	3,505	(447)	2,548	(482)
7-8	966	(413)	2,040	(1,788)	2,973	(1,998)	1,823	(2,065)
9	796	(511)	1,796	(2,796)	2,679	(3,405)	1,567	(3,156)
10	644	(1,693)	1,514	(6,159)	2,368	(5,483)	1,269	(4,991)
Total	745	(2,782)	1,717	(11,396)	2,694	(11,683)	1,567	(11,091)
Possessions index(3)								
1	858	(569)	1,584	(1,315)	2,336	(980)	1,230	(1,113)
2	675	(1,289)	1,450	(3,416)	2,265	(2,365)	1,285	(2,345)
3	730	(675)	1,711	(3,464)	2,601	(3,155)	1,592	(2,937)
4	917	(192)	2,004	(2,186)	2,888	(2,987)	1,709	(2,652)
5	833	(54)	2,167	(862)	2,910	(1,690)	1,840	(1,581)
6	667	(3)	2,301	(153)	3,071	(495)	1,892	(463)

(1) Index value increases with ownership of home, vacation house, larger number of rooms and type of dwelling.
(2) Index value increases with more and better facilities.
(3) Index value increases with number of possessions.

Source: Public Use Sample Tape.

3. Possessions index: This index is constructed based on the possession of five items in a household, namely a clothes dryer, a television (black and white), an automobile, a dishwasher and a freezer. Many of these items are found in the majority of the Canadian households and are seen more as necessities than luxuries. It is hypothesized that these are more likely to be related to family size than to income, and in a positive direction. The purchase costs of items such as clothes dryers, dishwashers and freezers are more than likely to be offset by the savings and conveniences in the long run, especially for a family with more children. This index therefore tends to tell us more about life cycle requirements than about life style *per se* as a determinant of fertility. The possession of these items is influenced by the need for them, which is associated with the number of children under six years of age and also under 18 years of age.

The household index and the possessions index are positively correlated (r=.48). The relationship between the household index and the household facilities index is almost non-existent (r=-.03). The correlation between the possessions index and the household facilities index is positive (r=.11). The low correlations seem to indicate that the three indices represent rather different aspects of style of living.

The correlation between the two measures of fertility, children under six years of age and under 18 years of age is only .50 and justifies the use of both measures. One measures recent fertility and the other close to lifetime fertility; and, given the changing patterns of fertility in the last two decades it is not surprising that the correlation is not higher.

4. Conveniences index: While the above three indices are calculated from the household tapes, this index is based on the data in the Public Use Sample Tape individual file. The items which together are considered as having a bearing on life style and are included in this file are colour television, refrigerator, heating, sewage, water source, toilet, bath and water.

Since we are using the individual file, children ever born can be used as the measure of fertility. Also, one can relate the index to ever-married women. Only limited use is made of the individual file in constructing our indices of life style, since so few life style items are available on this file. The conveniences

TABLE 6.2. Conveniences Index and Number of Children Ever Born per 1,000 Ever-married Women

Conveniences index	Age of women in 1971											
	≤24		25-29		30-34		35-39		40-49		50+	
0-1	1,316	(310)	2,706	(235)	4,463	(175)	4,699	(173)	4,719	(413)	4,108	(1,609)
2-3	1,229	(153)	2,428	(168)	3,599	(162)	4,421	(140)	5,072	(250)	4,670	(631)
4	1,152	(210)	2,200	(225)	3,307	(189)	4,239	(205)	4,743	(408)	4,740	(951)
5	1,053	(608)	2,018	(671)	2,970	(672)	3,700	(633)	3,956	(1,338)	3,644	(2,331)
6	933	(900)	1,772	(929)	2,676	(793)	3,146	(765)	3,428	(1,523)	3,568	(2,924)
7	768	(3,365)	1,529	(3,585)	2,426	(3,189)	2,908	(3,061)	3,024	(5,742)	2,912	(10,004)
8	632	(513)	1,473	(759)	2,324	(821)	2,761	(775)	2,875	(1,685)	2,700	(2,771)

Source: Public Use Sample Tape.

index makes use of all the appropriate life style items. In spite of the apparent shortcomings of the conveniences index, because of the better fertility measure, a strong consistent pattern of decreasing numbers of children ever born with increasing position on the index was observed. This is true for all age categories. Employing this conveniences index as a measure of life style, it may be concluded that the higher the life style the lower the fertility. This is true of women who have completed childbearing as well as for women in the childbearing ages.

The superiority of children ever born as a fertility measure is demonstrated here. The conveniences index, which shares many of the drawbacks of the other three indices, as a measure of life style is associated with fertility in a manner that was hypothesized. Had a complete list of household items been available on the individual file, our efforts would have been undoubtedly better rewarded, in terms of explaining variation in fertility.

6.2. Conclusion

The life style of an individual or a couple is on the one hand a determinant of fertility and, on the other hand, a result of fertility. One cannot hope to untangle the causal links between the two in a study of this kind. Our only aim here is to establish associations. The constructed indices portray some life style characteristics, and hence we found some degree of relationship between them and the indicators of fertility.

The four indices aimed at portraying some aspects of life styles in Canada and the relationship of these aspects to fertility have been presented in this chapter. We worked with less than adequate indicators of life style and with relatively poor measures of fertility due to data constraints in the census. Special tabulations from the census were ruled out because of costs and since the work was of such an exploratory nature.

The concept of life styles being related to fertility is a sound one and has been explored under such headings as the micro-economic theory of fertility and the value of children. The problem in this analysis was in the nature of the available data. Several methodologies and approaches were investigated and in the final analysis we selected simple cumulative indices. We have shown that some of these are in fact related to fertility in the expected manner and that fertility may be both a cause and an effect of different life styles.

CHAPTER 7

SUMMARY AND CONCLUSIONS

7.1. Summary of Findings for Major Variables

Jacques Henripin's 1961 Census monograph Trends and Factors of Fertility in Canada discussed the variables associated with fertility in 1961 and also traced the historical patterns of childbearing in the country. Our Fertility in Canada monograph begins with an analysis of fertility in Canada since Henripin's study, and we have focused on data collected in the 1971 Census.

Since 1961 there has been a rapid, linear decline in the number of children born in Canada. In each successive year, the period rates are lower than the year before, and the cohort rates follow the same pattern. In 1961, the crude birth rate in Canada was 26.1. In 1977, the rate was 15.7, an overall decrease of approximately 40%. However, the crude birth rate does not take age distribution into account. The total fertility rate is a more sophisticated measure of period fertility, and these data show that the total fertility has been falling even more drastically, from a level of 3.935 children per woman in 1959 to 1.875 in 1974 (the latest available Vital Statistics data). This is a decrease of over 50%.

This rapid decline is observed at all age levels and in all regions of the country. Quebec, historically the region where fertility was highest in Canada, is today among the provinces with the lowest fertility, fundamentally at the same level with Ontario. At this point in time, the Maritimes display the highest levels of fertility in the regions under analysis in this study, but even in the Atlantic provinces the fertility decline since 1961 has been substantial.

In examining the 1961 and 1971 Census data relating to fertility, one of the major differences is the higher rate of childlessness among younger women (ages 20-30) – a more than 50% increase. This change probably relates to more effective contraception and abortion availability (since 1969), but also to social and structural factors concerning the economic situation and the changing role of women in the society. Women who completed their family size in the last 25 years showed a preference for two or three children. It may be that in the future the parity will fall even lower, given the patterns of parity distribution observed in the younger ages in 1971. Of course, the current low levels of fertility among younger women

may reflect timing and spacing changes, and these women can "catch up" later on. The evidence, however, indicates that the overwhelming proportion of women in 1971 have completed their family size by the time they are 30 years of age. If this pattern continues, the number of children ever born will remain at their current low levels, the lowest in the history of the nation.

The factors associated with the overall decline undoubtedly relate to economic considerations, the role of women, contraceptive effectiveness and practice, increasing age at marriage, abortion, changed norms and values on childbearing, and the different structural components of the society (education, residence, labour force participation, nativity, ethnicity, etc.). Due to limitation of information collected by the census, our study by necessity focuses on the structural components.

It should not be overlooked that the other factors cited above would have important influences on fertility behaviour. What Canada ultimately requires is a national fertility survey in order to evaluate the total complex of variables relating to childbearing. Our analysis provides the basic demographic and structural framework for analysis of fertility and variations between women on this variable.

In Chapter 2, we developed a fairly standard, historically comparable approach to fertility. We provided basic cross-tabulations for all of the variables in combination with children ever born. We tabulated and controlled for up to four variables at a time, always including age in the analysis and, to a lesser extent, marriage duration. This was done for Canada and all of the regions in the country where data were available from the census. The following is a list of the major findings relating each independent variable to fertility.

7.1.1. Residence

The overall rural-urban differences are substantial, with rural women having larger numbers of children. This association is of a greater magnitude among the women who have largely completed their family size, while young women (under age 30) who live in rural areas have more children than urban women, the differences are relatively small. One problem relates to N size in some regions of Canada — there are few young women living in rural areas. An accurate summary statement in

describing the relationship of residence to fertility is that as size of place increases, the levels of fertility decrease.

Fertility is in general highest in the rural farm areas, with the rural non-farm areas having levels of fertility slightly lower but still considerably higher than urban areas. Type of residence is indeed confounded by other factors such as education, income and occupation, which themselves influence fertility. But even when these are taken into account, the type of residence still has a considerable influence. Within the provinces the above relationships are also in evidence.

The three largest metropolitan areas, Toronto, Montréal and Vancouver, have the lowest fertility rates among the various major urban centres. Among the other metropolitan areas, those situated in the Atlantic provinces and Québec City have somewhat higher fertility than the others. There are also substantial differences in family sizes between those who live in the urban core and the urban fringe areas. In all metropolitan areas, the number of children ever born per 1,000 ever-married women in the fringe areas exceeded that found in the city core.

7.1.2. Religion

Historically, religion was one of the most important variables in explaining fertility differentiation. It is still a significant factor, but more so for older women in comparison to women under thirty. The major classification of religion is Protestant and Catholic, and while Catholics still have more children, the differences for the young women are very small and insignificant. There is a convergence across the age groups, and this is true for all regions, even Quebec. In the age groups over 45 the Catholics on the average often had one to two more children than Protestants, but the younger the women, the smaller the proportionate variation.

Mennonite and Hutterite women have the highest fertility and Jewish women the lowest. Overall, the differences among the various religious groups seem to be narrowing. In general, couples of mixed religious background have lower fertility than couples of the same religious backgrounds. Among foreign-born women, Catholics have higher fertility than Protestants. Among native-born women, older Catholics have higher fertility than older Protestants while younger native-born Catholics have lower fertility than their Protestant counterparts. Canadian Catholics who are French-speaking have lower fertility than non-French immigrant

Catholics. Among English-speaking women, Catholic fertility is higher than that of Protestants even in the younger cohorts. It is among the French-speaking women that Catholic fertility has shown the most substantial decrease.

7.1.3. Education

This variable is one of the more important in the study, showing a consistent inverse relationship to fertility. This is particularly evident among the younger cohorts in all regions, especially in the economically poorer areas of the Maritimes. This finding is undoubtedly associated with the potential for women's participation in the labour force, and where modernization is less complete, the potential for women outside the pattern of motherhood and home is smaller in these regions. The more education women complete, the smaller the family size. Obviously, this variable is also correlated with marriage duration, contraceptive knowledge, and practice.

Controlling for ethnicity and age, the inverse relationship between education and fertility remains. This is also true when age and family income are taken into account. The education of the husband, like that of the wife, is also inversely related to fertility.

7.1.4. Nativity

With few exceptions, foreign-born women have fewer children than those women who are born in Canada. This is a reversal from historical patterns. An examination of the younger cohorts show this finding to be less consistent for them than for the older women, but overall the pattern of lower fertility for foreign-born women is stable. Period of immigration does not appear to affect the relationship to any important degree.

Within the different ethnic groups the foreign-born have lower fertility than the native-born. The inverse relationship between education and fertility is more pronounced among the native-born than among foreign-born women. Controlling for other variables, it still remains that foreign-born ever-married women of all age groups have lower fertility than native-born ever-married women. The fertility of native-born women is greater nationally and regionally.

7.1.5. Labour Force Participation

From nearly every analytical perspective (cross-tabulations, MCA, elements analysis, path analysis) this is the most important variable in the study, especially for women currently in the major childbearing years (under age 35). Whether the variable described labour force participation, period last worked or number of weeks worked, the women who are involved in the labour force have substantially fewer children than those women who are not economically active. Often, in each region, the average number of children born to women in the labour force (again, especially to young women in the prime fertility ages) is about half that of women who are not participating in work outside the home. The differential is proportionately smaller for older women, but even at these ages the variance is significant.

Women who worked in 1970 and/or 1971 have had lower fertility to date than those who have never worked. For younger women (under 30 years of age) those who never worked had almost twice the number of children as those who worked in 1970 and/or 1971. For the older cohorts, the fertility of those who have never worked is about 50% higher than for those who worked in 1970 and/or 1971. Women who worked between 27 and 52 weeks in 1970 had the lowest number of children ever born in all the age groups, followed by those who worked fewer weeks. Those who did not work in 1970 had the highest number of children. The relationship between labour force participation and fertility persists even when education and income are controlled.

7.1.6. Mother Tongue and Home Language

These cultural variables are similar to one another in the relationship to fertility. The basic classification is English and French and, for young women, there is no difference between different mother tongue or home language and fertility. For older women (35 and over) the women who speak French have substantially more children. Thus, these variables seem to be important only in an historical sense, with little relevance for fertility in the current period.

English mother tongue groups have the lowest fertility, followed by Italian, Polish, German, Ukrainian, French, Dutch, Indian and Inuit, in that order. Examining this relationship within the different age groups, we find many cases of

shifting in rankings, but the Indians and Inuit are always the highest. This shifting in ranks is an indication of the differential rates of fertility declines among the different mother tongue groups. French fertility is often lower than English in the age range of 15-34 and higher for the age groups above. This is an indication of the rapidly changing French fertility.

When religion and age are both controlled for, the relationship between mother tongue and fertility becomes less consistent. Among Catholics aged 15-24, the French mother tongue group has the lowest fertility. In fact, in all age groups under age 44, this group has lower fertility than the other mother tongue Catholics and Protestants of whatever mother tongue. Above age 45, the French mother tongue Catholics have high fertility.

Mother tongue as a fertility explanatory variable remains important, but changes in pattern when other socio-cultural and economic variables are introduced as controls. Some of the variance in fertility which on the surface seems to be associated with mother tongue can be accounted for by other cultural and social variables themselves associated with mother tongue.

7.1.7. Ethnicity

This cultural variable remained important for fertility analysis, although there are some difficult problems with definition and identification. Generally, fertility patterns associated with ethnic ancestry vary by age and regions. For young women fertility is low for Jewish and Asian groups, intermediate for French, English and other European groups, and very high for Native Indian women. The women over 45 years of age display different patterns, with the Asian and French women having high fertility (although still lower than Indians). The English and Jewish women have among the lowest levels. Relatively, the overall fertility of all these groups is high in the Maritimes in comparison to the rest of the country and Quebec women across these ethnic groups have some of the lowest levels, especially among younger women. Comparisons of the two major groups, French and English, show a now familiar pattern surrounding the cultural variables. For young women there is no difference in fertility behaviour between French and English ancestry. The older French women have significantly more children than their English counterparts. Thus, while there are still some current differentials in childbearing among several ethnic groups, the major variations are historical.

Ethnicity, as Henripin (1972) rightly points out, is, within the context of the Canadian census, many things to many people. Among ever-married women in Canada in 1971, the Jewish women had the lowest fertility, followed by the Asians as a group and then the Italians and Poles. After these come the British, Scandinavians, Ukrainians, Germans, Dutch, French and Indians and Inuit. The fertility of the highest (Indians and Inuit) is more than double that of the lowest (Jewish). Indians and Inuit are low on the socio-economic scale and Jews are high.

Grouping ethnicity into four categories (British, French, Other European and Other) it is found that among the age group 15-24 the Other group has the highest average number of children, the British group is higher than the French and the French higher than the Other European. In the age group 25-34 the differences among these groups all but disappear. Within the age group 35-44, the French are the most fertile, followed by the British and Other which are equal, and the Other European the lowest average number of children. Above age 45 the French group has the highest fertility and the British group the lowest. Controlling for other variables changes the picture somewhat, but in general the above patterns persist. These patterns exist regionally and nationally. The ethnic groups in the Maritimes are highest in fertility and those in Québec are the lowest.

7.1.8. Migration

Those women who did not move between 1966 and 1971 have the largest number of children, regardless of age or region. Those women who came into Canada from outside the country have the smallest family size, while the internal movers and migrants have intermediate numbers of children ever born, with no consistent pattern evident by the type of migration within the country.

7.1.9. Income and Occupation

We do not usually include occupation or income in these tabular analyses as independent variables. There is relatively little variation among the younger women in occupational categories and for older women there are small numbers in the labour force. Income is measured on a family basis and does not relate to the individual woman. We performed some tabulations relating family income to fertility in combination with other independent variables and, in the process, it appears that family income is not an important predictor of fertility variation.

Many of the independent variables in this study are intercorrelated and, as a result, we subjected them to every possible combination in association to fertility through several forms of multivariate analysis. The major conclusions derived from these analyses are presented below.

7.2. Multivariate Analysis

Multivariate techniques are found to be a distinct advantage over cross-tabulations in trying to explain fertility. Since many of the socio-economic variables are highly correlated, such an analysis enables us to assess the relative importance of the variables. Some of the major findings of the several multivariate techniques employed are presented below. In general, the major variables in both the tabular and multivariate cases are similar.

1. Taking all the socio-economic variables into account at the same time, the variance explained on fertility ranged from 25%-35% for all the age groups except the 15-19 year age group, where it is low due to small sample size and where fertility is low because of a lack of exposure to possible childbearing.
2. The variance explained in the intermediate variables such as age at marriage, labour force participation, education and income is generally low. However, our prime concern is not explanation of this variation, but rather the explanation of these variations on fertility.
3. We find that ascribed characteristics (religion, ethnicity, mother tongue, place of birth) have a considerable direct influence on children ever born as well as an indirect effect through the intermediate variables cited above. This varies somewhat by age, where the ascribed characteristics seem to have more of an influence on the fertility of women who have completed their family size.
4. In specific findings, the beta coefficients on religion decreased systematically for younger age cohorts. Education and work status account for a greater proportion of variance explained in the younger age cohorts and are the most important factors in accounting for fertility differences, excluding the demographic variable of age at marriage.
5. Type of residence is more important as an explanatory variable at the older ages, but it also has an important influence on the fertility of the younger women. Mother tongue and ethnicity explain less of the

variance across the age groups in a multivariate analysis, and place of birth is rendered insignificant. The regional analysis patterns are similar to the national findings described above. There are some differences in magnitude among the regions, but the trends are comparable.

7.3. Own-children Ratios

Though census data are not appropriate for analysis of current fertility, an attempt is made to construct this measure of fertility by matching young children under one year and five years of age to ever-married women in the household. The merit of these current fertility measures is that it enables one to look at the socio-economic correlates of these women, something not possible with Vital Statistics.

The data provide some insights into differences in age-specific rates. The overall patterns were not too dissimilar from those found in cohort fertility trends. Own-children ratios provide some insight into timing of childbearing and show the importance of age distribution effects in calculating overall rates of fertility. It is therefore necessary to examine age-specific fertility rates in analyzing current levels of childbearing.

7.4. Life Styles

We constructed four indices which capture different aspects of Canadian life styles and relate these to three measures (indicators) of fertility, viz. children ever born, children under six years of age and children under 18 years of age. We had only limited success in relating life styles to fertility. Though there is much to be gained in pursuing this line of research the census is inadequate in providing the appropriate data.

Ultimately fertility is influenced by and influences life styles. Other socio-economic factors can at most be perceived as indicators of life styles. The time has come to move directly to the measurement of these living patterns. Efforts in this endeavour will be rewarded in terms of explaining more of the variation in fertility. We have found that the crude life style indices are somewhat related to fertility, but one needs more systematic and complete variables associated with life style. With more refined indices we may be able to explain as much of the variation in fertility as with the traditional socio-economic variables.

We recognize that because of the crudity of our data and our index construction methodology, we may be observing life styles determined by fertility, rather than the reverse. However, some of our indices are measures of life styles which are perhaps the result of choice between children and the expenditures on items of consumption (Becker & Tomes, 1976).

7.5. Implications

What are the levels of fertility likely to be in the future? Will Canada return to a baby-boom era or is low fertility here to stay with only minor period fluctuations? The evidence examined in this monograph relating the independent structural variables to fertility, the life style index, the importance of labour force participation, all indicate that low fertility will continue to be with us in the near future.

Such predictions are risky at best and assume whole sets of "if...then" statements. However, for the women under 30, the major variables associated with fertility differences are high educational levels and labour force participation. These achievements are correlated with low fertility and they are areas where more and more women over time are becoming involved. Thus, it would appear that this increasing involvement on the part of women will be reflected in continuing low fertility.

Among the older women, the key factors in explaining fertility variation are residence, religion and ethnicity. These "traditional" variables no longer seem to play an important role. Now, those factors that relate to economics and modernization seem to be of more importance in distinguishing fertility patterns. More and more, women are having their children in a shorter time span, with fertility being concentrated in the reproductive ages of 20-30 years. Data from the United States (not available in Canada due to the fact that we have never taken a national fertility survey) indicate that the most prevalent form of birth control employed by couples, where the woman is between 30-44 years of age, is sterilization. It is obvious that these women will be having no more children. If this pattern is true for Canada, it is just another indication that trends of low fertility will continue into the future.

The implications of all of the material presented in this monograph are that structural variables explain a great deal of differentials in fertility behaviour, and that this behaviour will probably continue to interact most with those modernization variables which account for the most variation. It is likely that low levels of fertility will be the norm across Canada and larger numbers of women will be engaged in roles other than motherhood.

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