Contraceptive Use in Canada: A Competing Choice Analysis

by

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ABSTRACT

Contraceptive behaviour has important implications for fertility as well as the control of the transmission of sexually transmitted diseases (STD's) Using data from the 1984 Canadian Fertility Survey (CFS) and the 1995 General Social Survey (GSS), this study examines the changes in contraceptive use among women over the past decade, as well as the differences in the contraceptive behaviour of women and men in 1995 Among Canadian women in their childbearing ages (18-49), the overall use of contraception declined from 69% to 60% between 1984 and 1995 Pill and IUD use declined while condom use increased from 6% to 10% Female tubal ligation declined from 24% to 17% over the time period, and male vasectomy and medical sterilization increased The pill is the preferred contraceptive method among women, while condoms are more popular among men The analysis identified several high risk factors associated with the lack of condom use in the unmarried and non-cohabiting population, including mid-age, low-income, non-student, non-Catholic, church going, and residing in the province of Quebec Contraceptive behaviour in Canada is rather unique within the developed world In 1995, the overall level of contraceptive use was among the lowest in industrialized countries, and yet the rate of sterilization was among the highest For the most part, sterilization, the pill, and the condom have remained the primary methods for contraception in Canada since the 1960's These findings have implications in the planning of the social and health needs of Canadians, particularly policy decisions focusing on reducing STD infections

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Contents

List of Tables

List of Tables, cont.

List of Figures

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Chapter 1 Introduction

Unless completely abstaining from sexual activity for an entire lifetime, all individuals at some point in their lives have to make a contraceptive decision For most, this decision is a moving target, multifaceted, and constantly changing throughout the reproductive career Added to the mix, individuals now have to consider their risks of contracting sexually transmitted diseases

Recognizing the new challenges facing women during their reproductive years, in the late 1980's the World Health Organization (WHO) advocated a new approach in the area of fertility research This new approach focuses on "reproductive health" rather than the previously narrow and potentially coercive approach of "population control" (Fathalla, 1989) According to the WHO, the term reproductive health means that "people have the ability to reproduce, the ability to regulate their fertility, and the ability to practice and enjoy sexual relationships in a state of complete physical, mental and social well-being" (Fathalla, 1989 153) A reproductive health approach to fertility encompasses the reproductive career of an individual and all aspects related to reproduction, including fertility, infertility, contraception, abortion, childbearing, maternal morbidity and mortality, sexuality, sexually transmitted diseases, menstruation, and menopause (Lane, 1994, United Nations, 1996a)

Contraceptive choice as an aspect of reproductive health is a complex area of research Contraceptive goals are now two-fold Contraception must meet the fertility control needs of individuals, as well as provide protection from sexually transmitted diseases (STD's), including HIV/AIDS Contraception should meet the individuals'

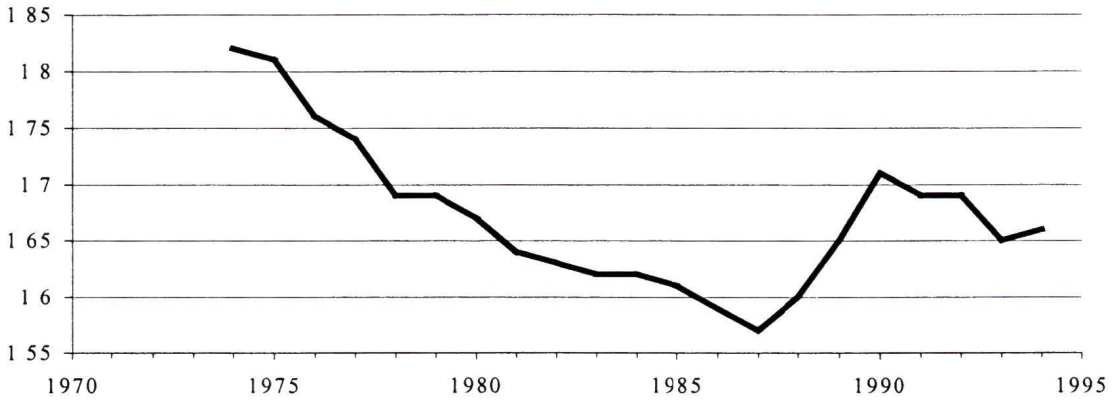
physical, mental, and social health requirements that constantly change over a lifetime (Matteson and Hawkins, 1997) Therefore, contraception must be now be examined in terms of the implications to fertility levels as well as preventing the spread of sexually transmitted diseases

1 1 Contraception and Fertility

As a proximate determinant of fertility, contraception is considered to be the most important factor responsible for declining fertility rates worldwide (Shah, 1994) While world population grew from 2 5 billion people in 1950 to 5 5 billion by mid-1992, and population growth continued at a steady growth rate of 1 7% per annum since 1975, world fertility levels have been on a steady decline since 1965 Had it not been for the expansion of contraceptive technologies, world population figures would have been considerably greater Since the late 1960's the "contraceptive revolution" has contributed most significantly to the lowered fertility rates in developing nations, and has also had a significant impact on the fertility levels of developed nations (Shah, 1994)

While the most dramatic fertility decreases have been experienced in developing countries, many developed nations have experienced lowered fertility levels, to the point of being below the replacement level of 2 1 births per woman During the period 1985 to 1990, the average total fertility rate in developed nations was 1 9 births per woman (Shah, 1994) As illustrated in Figure 1, Canada's total fertility rate has remained under the replacement level for the last two decades, declining from 1 82 in 1974 to 1 66 in 1994 (Ford and Nault, 1996)

Figure 1 Total Fertility Rate (per Woman), Canada, 1974 - 1994



Source Ford and Nault, 1996 43

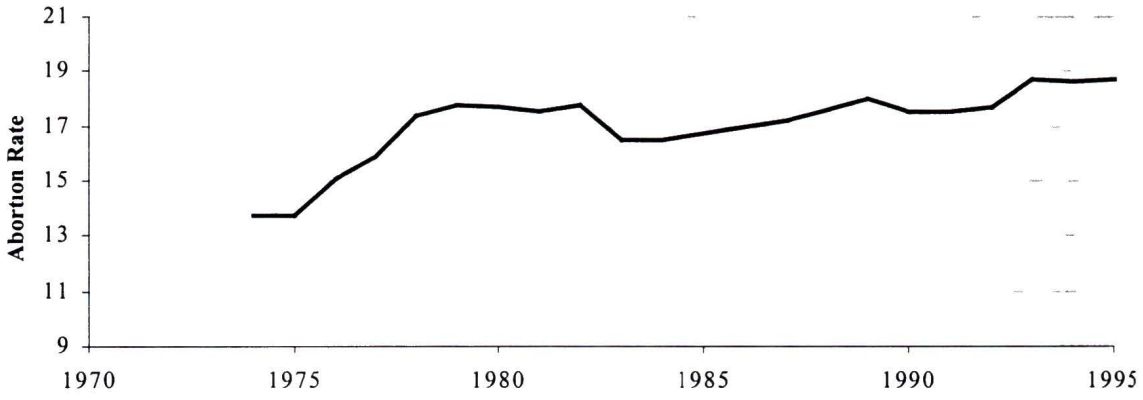
Prior to the late 1960's, the sale and advertisement of contraceptives was illegal in Canada While the birth control pill was available to many Canadians by 1961, it was not until 1969 that the Criminal Code was actually amended (McLaren and McLaren, 1997) The contraceptive revolution of the 1960's and 1970's, with the introduction of the birth control pill and advances in sterilization and contraceptive technologies, provided Canadians with more contraceptive options than ever before Owing largely to Canada's universal health care system, implemented in the 1970's, most contraceptive options are readily available, with little or no monetary cost to the individual

In 1984, the Canadian Fertility Survey (CFS) reported that 68% of all women in their reproductive years (aged 18-49) used some form of contraception As with many industrial countries, sterilization and the pill were the most frequently used contraceptive methods (Balakrishnan Krotki & Lapierre-Adamcyk, 1993, Piccinino & Mosher, 1998, Toulemon & Leridon, 1998, United Nations, 1996) The extensive use of these modern

methods has significantly contributed to declining fertility rates in Canada over the past two decades (Ford and Nault, 1996)

Abortion is also considered a proximate determinant of fertility and is an indication of unmet contraceptive need As illustrated in Figure 2, since 1974 abortion in Canada has significantly increased from a rate of 13 7 per 100 births, to 18 7 in 1995 (Statistics Canada, 1997) While some of this increase may be attributed to improved reporting methods and the inclusion of clinic reporting since 1985 (Statistics Canada, 1996), it is also suggestive of unmet contraceptive need Whether this increase in abortion is indicative of a rise in risk behaviour, dissatisfaction with modern methods, or an increase in use of less effective contraceptive methods, such as the condom, rhythm method, or withdrawl, it warrants investigation

Figure 2 Abortion Rate per 100 Live Births, Canada, 1974 - 1995



Source Statistics Canada, 1997

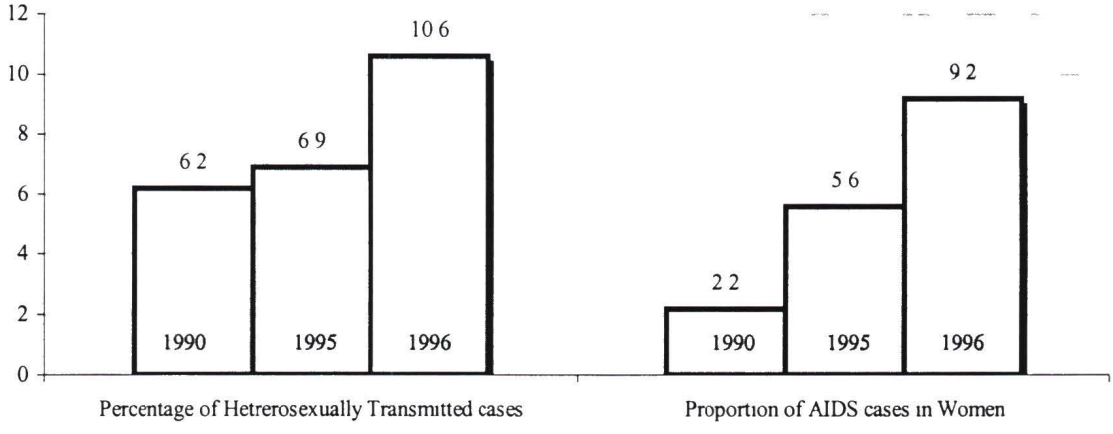
1 2 Contraception and Sexually Transmitted Disease

Canadians have become very knowledgeable on the subject of contraception and most obtain their information from a health care professional (Delbanco, et al , 1997)

However, recent concerns over the possibility of contracting STD's, including HIV/AIDS, have made the contraceptive decision ever more complicated

Canadians' concerns with contracting STD's are not unwarranted While homosexual and bisexual transmission of HIV/AIDS in men has been decreasing over the past 5 years, heterosexually transmitted cases rose from 6 2% in 1990 to 10 6% in 1996 As shown in Figure 3, for women, the proportion of AIDS cases has risen to 9 2% in 1996, up from 2 2% in 1990 (Health Canada, 1997) Women are twice as likely as men to contract HIV during heterosexual contact and are often identified as HIV positive during pre-natal check-ups, which puts another generation at risk of HIV infection (Murray, 1996, Health Canada, 1998)

Figure 3 AIDS in Canada, 1990, 1995, and 1996



Source Health Canada, 1997

A significant number of Canadians who do not perceive themselves at risk of contracting HIV may well be at such risk Indeed, a recent report of Health Canada suggests that in 1996 alone, as many as 15,000 Canadians with HIV infections may not have been diagnosed (Health Canada, 1999a)

Other STD's can have a significant impact on fertility For instance, genital chlamydia and gonorrhea are associated with pelvic inflammatory disease (PID), tubal infertility, and ectopic pregnancy Approximately 20% of infertility is traced to damage to fallopian tubes from PID caused by an STD (Health Canada, 1998b, 1999b) Syphilis infection during pregnancy can lead to miscarriage, stillbirth, prematurity, and congenital syphilis Syphilis also increases the sexual transmission of HIV by six to seven fold and becomes very difficult to treat in HIV infected patients While syphilis has been on the decline in Canada since the 1940's due to treatment with penicillin, recent outbreaks in parts of Canada have become cause for concern (Health Canada, 1999c) All STD's have been on the decline in the past decade, due in large part to mass media condom promotion campaigns However, the majority of new infections occur among very young women (under 19), and can be asymptomatic, resulting in future infertility (Health Canada, 1999c, 1999d, 1999e) Presently, it is estimated that approximately 7% of Canadian couples are afflicted with infertility, and approximately 20% of that infertility is deemed a result of PID caused by sexually transmitted disease (Health Canada, 1999b)

With the exception of Balakrishnan et al (1993), few studies have focused on the socio-demographic and economic factors that influence contraceptive choice The 1984 CFS was the first national study of fertility of women in their childbearing years (aged 18-49) Up to that time, contraception patterns had not been extensively researched in Canada, nor had the issue of HIV/AIDS been brought to public attention While Balakrishnan et al (1993) provided the most comprehensive account of contraceptive behaviour in Canada to date, contraception was allotted only one small aspect of their research which focused more broadly on the "change in the institution of the family as

the primary determinant of recent reproductive behaviour" (Balakrishnan et al , 1993 15) As with other fertility studies, the 1984 CFS focused solely on the contraceptive behaviour of women And while it provided an extensive account of women's contraceptive use in the mid 1980s, we know virtually nothing about contraceptive use among Canadians in an era of HIV/AIDS, nor about men's contraceptive behaviour (Balakrishnan Krotki, and Lapierre-Adamcyk, 1985, Balakrishnan et al , 1993)

The 1995 General Social Survey (GSS) collected detailed information on contraceptive use as well as fertility and union histories from a large nationally representative sample of Canadian women and men aged 15 and over The 1995 GSS provides an opportunity to update our knowledge of contraceptive behaviour in the 1990's and to examine the contraceptive behaviour of men for the first time

Using the 1984 CFS and 1995 GSS data, this research has three main objectives

1) to provide a descriptive, comparative analysis of the contraceptive use of women between 1984 and 1995,
2) to compare the contraceptive behaviour of men and women in 1995, and
3) to examine the demographic, socio-economic, and cultural determinants that influence the contraceptive choice of women and men in 1995

Chapter 2 will review the existing literature on the prevalence of contraceptive usage in Canada and other developed countries and the literature addressing the determinants of contraceptive method choice, focusing on sterilization methods, the birth

control pill, and the condom This will be followed by a discussion of the limitations of the previous literature and the intended contributions of this study

Chapter 3 will discuss the theoretical framework to be used in this study, the relevance of applying rational choice theory, and will identify the groups of determinants to be examined Chapter 4 will detail the data and methods applied, and Chapter 5 will present the results of this research Finally, a discussion of the findings and conclusions will be presented in Chapter 6

Chapter 2 Literature Review

This chapter reviews the existing literature on contraceptive use in developed nations over the past decade The first section discusses the development of world fertility surveys and the determinants of contraceptive use to be examined in this study The second, third, and fourth sections examine contraceptive prevalence and determinants of use within European countries, the United States, and Canada The limitations of previous Canadian studies are discussed in the fifth section and the final section summarizes the main findings discussed in this chapter

2 1 Fertility Surveys and Contraception in Developed Nations

World Fertility Surveys (WFS) conducted in the late 1970's and early 1980's were the first systematic surveys conducted providing comparable data on contraceptive behaviour The 1987 update to these surveys provided coverage of 85% of the world's population (Shah, 1994) Since that time, the statistics from national surveys in developed countries are often more recent for developing nations and are often collected on different segments of the population Recent surveys sponsored by the International Health Foundation (IHF) and the UN Economic Commission for Europe (ECE) are working to ensure more continuity in questions and tabulations (United Nations, 1996b)

Until recently, most fertility surveys focused on women, and originally early surveys only addressed married women's contraceptive behaviour In time, as it became apparent that a number of fertility issues (i e , contraception, abortion) occurred outside of traditional marriages, most surveys began to include women of all marital statuses Quite recently, there has been a movement to include men in fertility surveys At the

1994 International Conference on Population and Development (ICPD) the emphasis on fertility studies shifted from a focus on family planning programs to reproductive health, a perspective which is inclusive of male rights and responsibilities in the area of reproductive behaviour More than 40 of the Demographic and Health Surveys (DHS) conducted in mid-1997 included both men and women (Greene and Biddlecom, 1997) The results from these studies are just beginning to be available Therefore, the following discussion is based primarily on studies of women's contraceptive use

There are many factors that may influence a woman's contraceptive choice over the course of her life As a proximate determinant of fertility, the same factors which influence fertility, also influence contraceptive choice (Bongaarts, 1978) The determinants which are known to be most influential in women's contraceptive choice or in affecting fertility, and which will be examined in this chapter are age, marital status, the number of children an individual has or intends to have, education, income, religious affiliation or religious attendance, and ethnicity (Balakrishnan et al , 1993, Balakrishnan and Chen, 1990, Piccinino and Mosher, 1998) Where possible, an examination of studies including men's contraceptive behaviour are also discussed

2 2 Contraception in European Countries

In most developed nations, marital fertility levels had been steadily declining to very low levels before the invention and consequent adoption of modern contraceptive methods (i e , sterilization, oral pill, injectables, IUDs, condoms and vaginal barrier methods) in the 1960's As illustrated in the following table, overall levels of

contraceptive use in Europe in the past two decades have been relatively high However, the use of modern methods has been slow to be accepted in much of Eastern and Southern Europe

Table 1 Contraceptive Use Among Currently Married Women, European Countries, Various Years

Country	Year	Age	All Methods	Modern Methods
Austria	1981/82	†	71 4	56 3
Belgium	1991	20-44	79 4	75 2
Czech Republic	1991	15-44	78 0	53 0
Denmark	1988	15-44	78 0	72 0
Finland	1977	<45	80 0	78 0
France	1988	20-44	81 2	66 6
Germany	1992	20-39	74 7	71 8
Hungary	1986	15-39	73 1	62 3
Italy	1979	18-44	78 0	32 0
Netherlands	1988	18-37	76 0	71 0
Norway	1988	††	75 5	71 1
Poland	1977	<45	75 0	26 0
Portugal	1979/80	15-49	66 3	32 8
Romania	1993	15-44	57 3	14 5
Slovakia	1991	15-44	74 0	41 0
Spain	1985	18-49	59 4	38 0
Sweden	1981	20-44	78 0	72 0
Switzerland	1980	‡	71 2	64 9
United Kingdom	1986	16-49	81 0	78 0
Yugoslavia	1976	<45	55 0	12 0

† Married in the years 1974 or 1977 †† Five year cohort sample born between years 1945-1968 ‡ Husbands and wives married between 1970-1979 Source United Nations, 1996b 134-135

In Northern and Western Europe, modern methods were adopted relatively quickly In the UK, since the 1970's, the main change in contraceptive behaviour has been the increase in sterilization rates and decrease in use of traditional methods, such as douching, withdrawl and the rhythm method As illustrated in Table 1, the majority of married women in Northern and Western Europe were relying on modern methods

While most of the data available for the Eastern and Southern European nations is dated (late 1970's to early 1980's), it is apparent that women in these countries have been slow to accept modern methods, with much of these populations continuing to rely on the rhythm or withdrawal method (United Nations, 1996b)

More recently, the 1984/1985 International Health Foundation (IHF) surveys of several Western and Southern European countries collected data on contraceptive use and perceptions of women of all marital statuses, aged 15-44 These countries included Italy, Spain, France, Great Britain, and West Germany Of the women considered to be at risk of unintended pregnancy (i e , needed contraception), the authors found that 70% of women in Italy reported using some contraceptive method, 74% in Spain, 76% in France, 81% in West Germany, and 90% in Great Britain (Riphagen and Lehert, 1989) Table 2 illustrates the differences in the European countries' contraceptive use patterns

Table 2 Use of Contraceptive Methods (%) by Exposed Women, Aged 15-44, European Countries, Various Years

	Italy 1984	Spain 1985	France 1984	Great Britain 1984	West Germany 1985
Sterilization	>1	3	5	23	7
Pill	6	19	31	38	33
IUD	15	13	19	8	10
Barrier Methods	23	23	9	17	7
Withdrawal	14	9	6	3	10
Rhythm	12	7	6	1	14
No Method	30	26	24	10	19

Source Riphagen and Lehert, 1989 28

Only in Great Britain was sterilization a popular choice (23%) Even then, it was a distant second to the birth control pill (38%) Pill use was highest in Great Britain, then West Germany and France, while the condom and other barrier methods were the most

popular methods utilized in Italy and Spain The authors of this European study contend that significant proportions of women were exposed to unplanned pregnancy, which also correlates with the induced abortion rates of these countries Italy, which had both a high percentage of respondents reporting no method or reliance on less dependable methods such as rhythm and withdrawal, had very high rates of induced abortions (28 per 100 live births) during that same period (Riphagen and Lehert, 1989)

2 2 1 Determinants of Contraceptive Use

Age is probably the most significant determinant in contraceptive choice As women age, average parity and marital duration also increase Young, single women, not in monogamous unions are more likely to consider themselves at higher risk of STD's than older, married or cohabitating women Older women in monogamous unions may be more concerned with contraceptive efficacy to ensure the timing and spacing of children Women over the age of 35 may be more concerned with health risks, may have achieved their desired family size and require a more absolute effective contraceptive measure (Balakrishnan et al , 1985, Piccinino and Mosher, 1998)

For women over the age of 35, few methods are well suited to their needs as they approach menopause Pre-menopausal irregularities of women's cycles make the rhythm method and withdrawl much less reliable Barrier methods also have their disadvantages at this age, even though older women are more likely to be more adept with barrier methods, have lower failure rates, and have reduced fertility concerns due to lowered fecundity than younger women For instance, the condom may worsen problems of impotence or ejaculatory difficulties associated with age, and the diaphragm may be a

less efficient method due to vaginal laxity and cervical deformities resulting from childbirth (Riphagen, Fortney, and Koelb, 1988)

The IUD can have more side-effects for women in this age category, especially if fibroids are present or if there is perimenopausal menorrhagia (excessive bleeding), or if women have had prior cervical surgery The birth control pill, now with lowered concentrations of estrogen, is being considered by some to be safe for this age group, if medically supervised and used by women with no other risk factors such as smoking, obesity and hypertension (Riphagen, et al , 1988, Volpe, Silferi, and Genazzani, 1993)

In the IHF surveys of the five European countries previously mentioned, the contraceptive use patterns of pre-menopausal women in the 41 to 45 age category were also examined (Riphagen, et al , 1988) The results are presented in Table 3

Table 3 Use of Contraceptive Methods (%) by Exposed Women, Aged 41-45, European Countries, Various Years

	Italy 1984	Spain 1985	France 1984	Great Britain 1984	West Germany 1985
Sterilization	0	3	12	54	36
Pill	0	8	10	3	19
IUD	4	14	23	7	7
Barrier Methods	12	23	9	23	13
Rhythm, Withdrawal, No Method	84	52	46	13	25

Source Riphagen, et al , 1988 133

Of the women in the 41 to 45 age category, in Italy, Spain, and France, there was a high percentage of women reporting either no method, or use of less effective methods such as rhythm and withdrawl (84%, 52% and 46% respectively) This may be due in part to the influence of religion as women get older and the perception of lowered risk by this age group due to reduced fecundity (Riphagen, et al , 1988)

Sterilization rates were again highest in Great Britain and West Germany and lowest in Italy, Spain, and France In Italy sterilization is illegal (Riphagen et al , 1988) This would seemingly account for the high reliance on higher risk methods such as rhythm and withdrawal As noted by Riphagen et al , (1988), "Where the use of high risk methods is common, use of sterilization is rare" (p 134) However, voluntary sterilization is also not commonly practiced in France, as it is deemed a form of mutilation (Toulemon and Leridon, 1998) Yet in France there is a much higher reliance on other modern methods, such as the pill and IUD These differences may be related to levels of religious conviction, as well as differing perceptions of health safety related to the pill and IUD Overall, these older women were more concerned with health safety than with a method's reliability, with a high proportion considering both the pill and the IUD unsafe (Riphagen, et al , 1988)

Marital status is interrelated with age and life-cycle stages Married women are more likely to be older and in their family planning years or to have completed their childbearing Single women, who tend to have more sexual partners, are more likely to be concerned primarily with delaying childbearing and/or protecting themselves from sexually transmitted disease (Piccinino and Mosher, 1998)

Parity and birth intentions are also indicators of women's stages in their childbearing years For instance, women's contraceptive needs are very different if they intend never tohave children versus women who plan to have children in the future For women who plan to have children, their contraceptive needs are different during three reproductive stages before the first birth, between births, and upon expected completion of childbearing (Balakrishnan et al , 1993)

In order to assess the influence of age, marital status, and parity on contraceptive habits, a Swedish longitudinal study of women at three different ages (aged 19, 24, and 29), examined the various factors which influence contraceptive choice over the course of a woman's reproductive years (Larsson et al , 1997) As illustrated in Table 4, women aged 19 in 1981, reported the lowest levels of contraceptive use (61%) As these women aged, and a higher proportion were married or cohabitating, and had children, contraceptive use increased to approximately 75% in 1986 and 1991

Table 4 Use of Contraceptive Methods (%), Women, Sweden, for the Years 1981, 1986, and 1991

	1981 Age 19	1986 Age 24	1991 Age 29
Single	93 8	65 5	44 5
Married/Cohabitating	5 8	25 6	42 3
Separated/Divorced	0 4	8 9	13 2
1-2 Children	5%		
1-3 Children		27%	
1-5 Children			59%
Oral Contraception	47	51	22
IUD	3	11	19
Barrier Methods	12	12	20
No Method	39	26	25

Source Larsson, et al , 1997 9, 11

The results also indicate that 47% of women in 1981 (at 19 years of age) reported using the pill In 1986, this increased slightly to 51%, and then reduced to 22% in 1991, when the women were 29 years old Oral contraceptives had been taken at some time by 93% of the women The high rates of oral contraceptives at the ages 19 and 24 suggest that these women were concerned with birth timing and spacing At ages 24 to 29, the

desire to become pregnant was the most common reason (80%) for cessation However, as these women aged, and had children, health risks became a higher priority than contraceptive efficacy (Larsson et al , 1997)

Barrier methods, primarily the condom, were used by 12% of the women at the ages of 19 and 24, and then increased to 20% in 1991 among 29 year olds Combined pill and condom use was negligible at 1 2% in 1981, 0 2% in 1986, and 7% in 1991 (Larsson, et al , 1997) The authors suggest that the mass media STD campaigns of the 1980's were most likely responsible for the increase in condom use (Larsson et al , 1997)

Education and income are socio-economic indicators of a woman's status that influence childbearing decisions For instance, increased education and income often facilitate women's decisions to delay childbearing in lieu of completing school, establishing or advancing a career, or purchasing a first home Education is also a factor in women's understanding of health related information on contraception (Piccinino and Mosher, 1998)

Higher socio-economic status was found to be a factor in contraceptive choice in a study of 35 year old women in West Scotland The findings indicate that women of higher socio-economic status, who were predominantly pill users in the 1970's, reported a higher reliance on barrier methods in 1987 Women of higher socio-economic status also had fewer pregnancies, lower parity, and had delayed motherhood longer According to the authors, perceptions of health risks associated with the pill have contributed to its decline among this cohort As well, the desire for contraceptive efficacy once the desired family size had been reached, resulted in greater numbers choosing sterilization (male and female) Over half (53%) of the women who reported

using a contraceptive method relied on sterilization Sterilized women had the lowest levels of socio-economic status (Hunt and Annandale, 1990)

Until very recently, sex of respondent has not been considered as a determinant in contraceptive method choice As stated previously, the inclusion of men in fertility studies is a relatively new phenomenon From the few surveys that have been conducted, there appears to be patterns in contraceptive choice that may be determined by the sex of the respondent As illustrated in Table 5, in the Switzerland survey of married couples the responses varied by no more than 5% However, when there was a difference, it was usually men reporting higher levels of contraceptive use

Table 5 Current Contraceptive Users (%), Men and Women, by Method, Various Countries, Various Years

	Switzerland 1980		Belgium 1991		Germany 1992	
	Husband	Wife	Men	Women	Men	Women
Any Method	73 4	70 9	73 2	78 7	57 6	72 5
Female Sterilization	15 5	14 9	5 9	10 4	0 6	0 8
Pill	26 8	27 4	44 9	48 7	36 7	58 3
Condom	8 8	7 4	8 8	4 8	15 1	4 1
IUD	9 6	10 8	3 9	4 5	2 0	4 9
Barrier	2 3	1 8	0 1	0 0	1 0	1 2
Rhythm	4 0	4 1	1 6	1 9	0 3	0 5
Withdrawal	1 8	1 6	1 2	1 8	0 2	0 3
Other	4 6	2 9	0 2	0 2	1 5	2 6

Source United Nations, 1996b 145

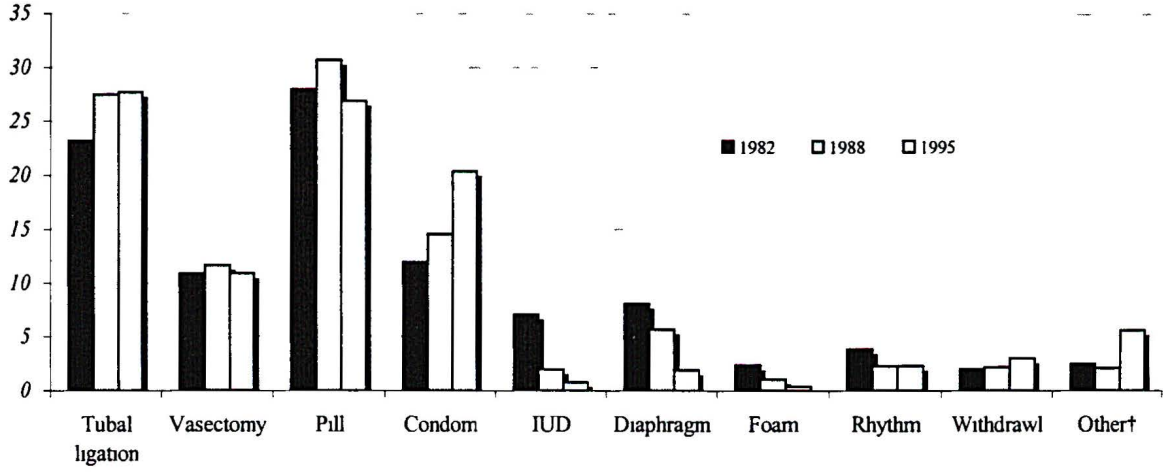
Differences between men and women tended to be higher in samples where all marital statuses were included (Belgium and Germany) Men reported higher levels of condom use than women, women reported higher reliance on the pill This may reflect the use of condoms as protection against STD's as well as for contraceptive purposes among single men (United Nations, 1996b)

2 3 Contraception in the United States

The United States is one of the few developed nations which has regularly conducted national fertility surveys since the 1950's However, only the 1982, 1988, and 1995 National Surveys of Family Growth (NSFG's) included women of all marital statuses, aged 15-44 The data show that overall contraceptive use was consistently lower than in many Western and Northern European countries In 1982 only 56% of American women reported using some form of contraception, 60% in 1988, and 64% in 1995 (Piccinino and Mosher, 1998) It must be noted, however, that these figures are based on relatively young samples (aged 15 to 44), while many European surveys included women aged 18 and older

There were significant changes in women's contraceptive patterns between the years 1982 and 1995 As illustrated in Figure 4, among contraceptive users, total sterilization (tubal ligation and vasectomy) prevalence increased from 34% in 1982, to 39% in 1988, then dropped slightly to 38% in 1995 In 1982 and 1988 reliance on the pill (28% and 31%, respectively) was more prevalent than tubal ligations (23% and 27%, respectively) In 1995, the reverse was true Tubal ligations had increased to 28%, slightly higher than pill use (27%) Pill use increased in prevalence in 1988 to 30%, up from 28% in 1982, and then declined to 27% in 1995

Figure 4 Current Contraceptive Users (%), Women, Aged 15 – 44, United States, 1982, 1988, and 1995



† Includes hormonal implant and injectable in 1995
Source Piccinino and Mosher, 1998 5

Condom use increased from 12% in 1982 to 14% in 1988, and then again to 20% in 1995 IUD, diaphragm, and foam use declined over the period, while rhythm and withdrawal remained relatively stable under 5% The availability of hormonal implants and injectables in 1995 accounts for most of the increase in use of other methods (Piccinino and Mosher, 1998) Growing concern and awareness of sexually transmitted diseases, particularly HIV/AIDS, resulted in increased favourable opinion of the condom by the late 1980's (Forest and Fordyce, 1988)

2 3 1 Determinants of Contraceptive Use

In 1995, as in the previous years, reliance on voluntary sterilization (both female and male) was primarily among women in their 30's and 40's, married and formerly married women, women who did not intend to have any more children, and those with the least education and income As there was very little change in patterns of voluntary

sterilization over the time period, the following discussion on determinants influencing American's contraceptive choice is primarily concerned with pill and condom use

Age patterns of contraceptive method choice varied considerably between 1988 and 1995 among women aged 15 to 44 While reliance on tubal ligations reduced slightly among all ages, vasectomies remained stable at all ages Pill use decreased among women younger than 29, and increased among those aged 30 to 44 Condom use increased among all age-groups, with the most significant increase occurring among women in their 20's, from 15% to 26% (Piccinino and Mosher, 1998)

Another U S study of younger men and women (aged 14-22) suggests that the condom is the preferred contraceptive method in this age group, again higher among men The data from the 1992 National Health Interview Study indicate that the condom was the primary method used to prevent pregnancy by 37% of the women and 52% of the men Of the women who used the pill, 21% reported also using a condom at last intercourse For men, 25% reported using the condom with a partner who relied on the pill Younger men and women were more likely than older men and women to have used a condom at last intercourse, even among pill users (Santelli, et al , 1997)

Between 1988 and 1995, among women aged 15 to 44, the largest decreases in pill use and increases in condom occurred among never-married women The decline in pill use was the highest among never-married women (from 59% to 44%) Condom use increased sharply among both never married (20% to 30%) and formerly married women (6% to 15%) The changes among currently married were negligible from 14% to 17% (Piccinino and Mosher, 1998)

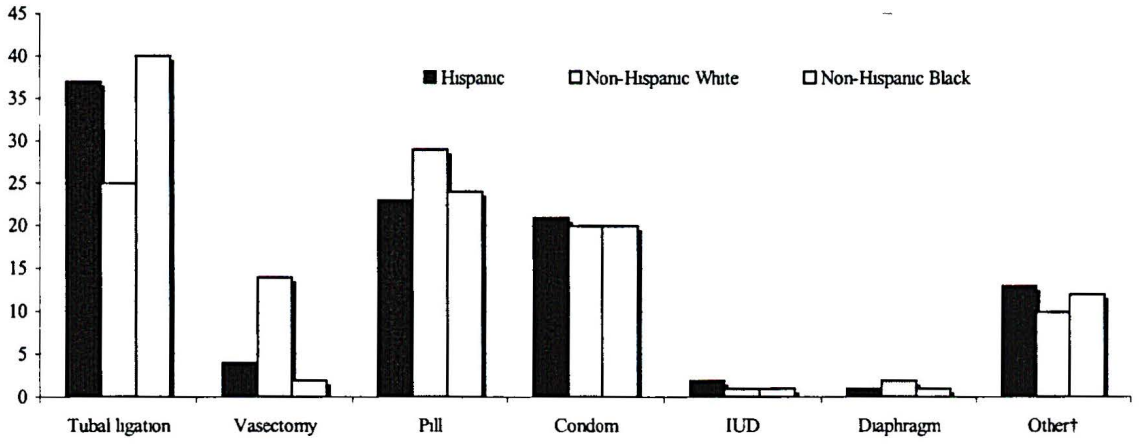
For women who intended to have more children in the future, there was a significant decline in pill use (from 59% in 1988 to 51% in 1995) and increase in condom use (from 22% to 32%) (Piccinino and Mosher, 1998)

Among those with high school education or less pill use declined between 1988 and 1995 In contrast, condom use increased among all education levels College educated women reported the highest level of diaphragm use in 1988 (10%) This dropped to 3% in 1995 With regards to income, the authors found that the most significant decline in pill use occurred among lower income (less than $14,900) women, from 36% to 24% (Piccinino and Mosher, 1998)

In the US, race and ethnicity are significant indicators of socio-economic status Average levels of income and education are considerably lower for black and Hispanic women than for white women These disparities are apparent in contraceptive behaviour as well As illustrated in Figure 5, black women were reliant primarily on tubal ligation, than on the pill and condom Hispanic women had much lower levels of tubal ligation than either black or white women, the highest proportion of vasectomy and pill use, and similar levels of condom use

The 1995 NSFG survey provided data regarding multiple use, providing an insight into women's concerns regarding STD's Approximately 10% of all users were using two or more methods However, women relying on both the pill and condom represented only 3% of all contraceptive users (Piccinino and Mosher, 1998)

Figure 5 Contraceptive Users (%), Women, According to Race and Ethnicity, United States, 1995



† Includes hormonal implant and injectable
Source Piccinino and Mosher, 1998 6

These data from the NSFG surveys must be considered within the changing population age structure in the United States since 1982 The aging of the baby boomers has resulted in the increase of women over the age of 30 In 1995 for example, women aged 30-44 accounted for 54% of the respondents, compared with only 44% in 1982 (Abma, et al , 1997)

To further understand the trend in declining pill use, and increasing condom use, a sub-sample of the 1988 survey was re-questioned regarding their reasons for using the pill or the condom The results indicate that overall 14% of the respondents were using the condom for contraceptive purposes, while 41% were using this method for disease prevention (Anderson, et al , 1996)

The factors which were associated with condom use for disease prevention were age, marital status, income, parity, and frequency of intercourse Young women between the ages of 17-24 were more likely to use the condom to prevent disease (38%) than older

women (23-25%) Never-married women were also more likely to use the condom as a measure of safe sex than previously married women (32% vs 24%) Women whose reported income was three times the poverty level were more likely than women with lower incomes to use the condom as a measure of disease prevention (34% vs 25%) (Anderson, et al , 1996)

With regards to multiple-method use, 20% of the women who were sterilized or who were using the pill reported using condoms to prevent disease Condom use for disease prevention was also higher among women who reported having sexual intercourse less than twice a week (33 3%), than women who reported having sex two or more times a week (18%) Interestingly, indicators of HIV knowledge and awareness were not associated with condom use for disease prevention (Anderson, et al , 1996)

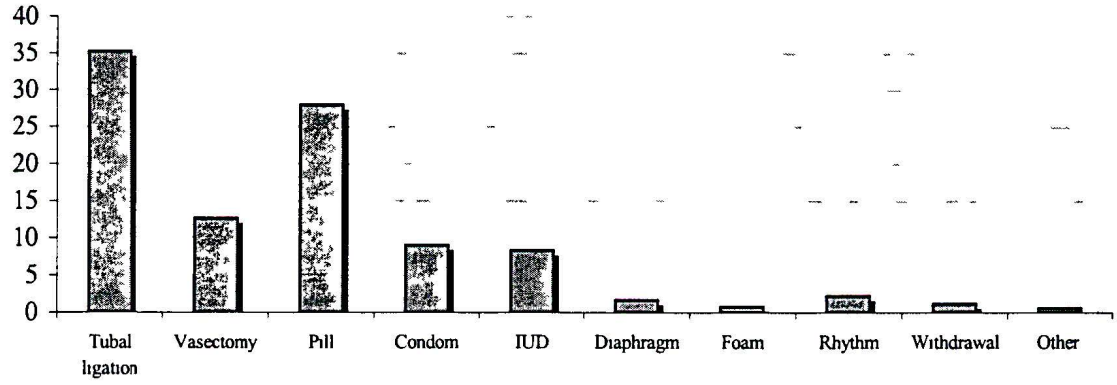
2 4 Contraception in Canada

In Canada, the1984 Canadian Fertility Survey (CFS) was the first comprehensive fertility survey ever conducted Sixty-eight per cent of all the women in their reproductive years (18-49) reported using some form of contraception at the time of the interview Of the currently married women, 73% reported using contraception, 69% of previously married women, and 57% of single women (Balakrishnan et al , 1985)

During the 1970's and 1980's, worldwide sterilization rates increased dramatically, particularly in developed countries (Hunt and Annandale, 1990) Canada's levels of contraceptive sterilization (women or their partners) were amongst the highest in the world (United Nations, 1996b) In 1984, sterilization was the most popular contraceptive method choice, accounting for almost half of all contraceptive method

options As illustrated in Figure 6, of those using a contraceptive method, 48% relied on sterilization (female and male), 28% used the pill, 9 1% relied on the condom, 8 3% the IUD, and 6 6% were using other methods, such as the diaphragm, foam, rhythm and withdrawal (Balakrishnan et al , 1993 201)

Figure 6 Contraceptive Users (%), All Women, Aged 18 – 49, Canada, 1984



Source Balakrishnan et al , 1993 201

Recent Statistics Canada reports using the 1995 GSS data combined men and women who were married or in a common-law union into a one couple sample (Dumas and Belanger, 1998, Belanger, 1998) Approximately 31% of couples were not using any contraceptive methods Of those couples who reported using a method, 56% were sterilized contraceptively (tubal ligation or vasectomy), 25% were using the pill or IUD, 16% were using the condom, and approximately 3% were using other methods such as the diaphragm, rhythm and withdrawl (Dumas and Belanger, 1998, Bélanger, 1998)

The Canadian Contraceptive Study (CCS) conducted in 1993, 1995, and 1998 collected contraceptive information from women aged 15 to 44 using self-reporting, mail out surveys These surveys asked questions regarding contraceptive practice, knowledge, and opinions of contraception, as well as questions about sexual behaviour and

reproductive health Basic demographic information was also retained age, sex, marital status, level of education, and province of residence As this study used the same methodology and same aged sample (15 to 44) for all three surveys, it is possible to make meaningful comparisons over the three time periods However, the relatively younger sample used in the CSS, compared with that of the 1984 CFS and the 1995 GSS, does not allow for simple comparison with the 1984 or 1995 data As well, the CSS studies allowed for respondents to report more than one contraceptive method, while both the 1984 CFS and the 1995 GSS allowed for only one method to be recorded as the current contraceptive method

The findings of the CSS indicate that of all women, reliance on tubal ligation had declined from 16% in 1993 to 10% in 1998 Male vasectomies remained stable at 14% over the time period, and the pill was the most popular method in all three years 27% in 1993, 30% in 1995, and 28% in 1998 Condom use had increased slightly from 21% in 1993 to 25% in 1995 (Boroditsky, Fisher, and Sand, 1999)

2 4 1 Determinants of Contraceptive Use

In the 1984 CFS analysis, Balakrishnan et al (1993) found that among all women the proportion who were sterilized increased dramatically after age 30, while women's reliance on the pill declined after this age The IUD and condom were relatively important methods, with the IUD being most popular among the 25 and over age group The condom was most popular in the 25 to 34 age category (Balakrishnan et al , 1985)

Among single women, the pill was the most reported method (71%), while for married or previously married women, pill use declined after age 30, with sterilization

increasing after this age (Balakrishnan et al , 1985) Balakrishnan et al (1985) speculated that as divorce and remarriage continue to increase in Canada, and as education and knowledge of contraception increases, sterilization levels may decline in future years Indeed, the 1995 couple sample revealed that there was a substantial decline in tubal ligations since 1984 However, this was offset by an increase in vasectomies (Dumas and Belanger, 1998, Belanger, 1998)

In 1984, women with eight years or less education had the lowest levels of contraceptive use (62%) and the highest incidence of tubal ligation (69%) As education levels increased, women's reliance on sterilization decreased (26%) for those with some university education Pill, IUD, and condom use increased with women's education (Balakrishnan et al , 1993)

Contraceptive use was higher between the first and second birth than prior to the first birth The authors also found that 68% of the women who did not want more children had opted for contraceptive sterilization (Balakrishnan et al , 1993)

Other factors influencing contraceptive use examined in the 1984 CFS by Balakrishnan et al (1993) included religious affiliation, religious attendance and country of birth origin The authors found that any past differences in contraceptive use observed between Catholics and Protestants had all but disappeared in Canada by 1984 (Balakrishnan et al , 1993) Utilization rates of contraception were virtually identical for Catholics and Protestants, with Catholics having slightly higher levels of sterilization (39% vs 35%), and lower levels relying on the rhythm method (1% vs 3%) Religiosity, however, seemed to have some influence on contraceptive choice in that regular church attendees (at least once a week) had lower overall contraceptive use, higher rates of

sterilization, and lower levels of pill use than all others (Balakrishnan et al , 1993) The influence of religiosity on contraceptive behaviour has been suggested to be due in part to the aging of the baby boom generation According to Balakrishnan and Chen (1990), the baby boomers at the time of this survey were entering middle age, a time when many individuals begin to attend church more regularly This may also have contributed to the higher levels of female sterilization, regardless of religious affiliation or religious attendance levels

Demographic behaviour is known to differ between the province of Quebec and the rest of Canada (Beaujot and McQuillan, 1982, Balakrishnan and Wu, 1992, Pollard and Wu, 1998) Dramatic social changes in the past four decades have fundamentally transformed Quebec from a rural conservative society to the most liberal part of Canada As a result, levels of sterilization and contraceptive use increased rapidly in Quebec during the 1970's and 1980's to levels higher than those seen throughout Canada, thus, fertility levels in Quebec have become among the lowest in the country (Marcil-Gratton and Lapierre-Adamcyk, 1983, De Guibert-Lantoine, 1990) Differences in contraceptive use between Quebec, a predominantly Catholic province, and the rest of the country, had become minimal by 1984 Catholics in Quebec had slightly higher levels of sterilization than Catholics outside of Quebec, and slightly lower levels of barrier methods (Balakrishnan et al , 1993)

Balakrishnan et al (1993) suggested that immigrant status may influence contraceptive practice, in that some immigrants may be less comfortable with practices in the receiving country and may continue the contraceptive behaviour that was common in their native country In 1984, of those born outside Canada, pill use was lower than those

born in Canada (14% vs 30%), condom use was higher (16% vs 8%), and sterilization rates were similar (38 7% and 34 8% respectively)

In a recent study of attitudes of men and women towards contraception in Canada, the United States and the Netherlands, Canadians were more likely to view both the pill and the condom as "very effective" than Americans (Delbanco et al 1997) More Canadians than Americans also viewed the condom, sterilization, and the pill as very effective contraceptive methods In the Netherlands, adults were more likely than Canadians and Americans to consider all methods both effective and safe All three countries reported a high reliance on health care professionals for information regarding contraception (64% in the U S , 68% in Canada, and 79% in the Netherlands) However, in all three countries, how men and women obtained this information was very different Women were 1 5 times as likely as men to seek contraceptive information from health care professionals Men were 2 5 times as likely as women to rely on the television for contraceptive information Women were 2 3 times as likely as men to have discussed contraception with a health care professional at least once This was congruent with the findings that in all three countries women were more likely to be considered responsible for both choosing and ensuring that a method was used (Delbanco et al , 1997)

As with the U S , Canada's population age structure has dramatically changed in the past two decades As the baby boomers age, and in light of recent concerns with STD's, including HIV/AIDS, Canadians contraceptive preferences are sure to change

2 5 Limitations of Prior Canadian Research

The limited literature available on Canadian contraceptive use reflects the thoroughness of the 1984 survey in its ability to provide comprehensive information on Canadian reproductive behaviour The Canadian contraceptive analysis provided by Balakrishnan et al (1985 and 1993) was primarily descriptive, providing extensive data on the prevalence of use by numerous factors Since that time, there have been few comparable studies Both the recent analyses on Canadian contraceptive behaviour utilizing the 1995 GSS survey data combined married and cohabitating men and women into one couple sample, making trend analysis impractical

The Canadian Contraceptive Study provides insightful trend data of the 1990's However, the survey methodology was different enough from the 1984 CFS (mail-out questionnaires vs telephone interviews) to warrant caution in comparing results In the 1984 CFS only one method of contraception was sought, whereas the CCS allowed for multiple method reporting While this provides for a more accurate measure of contraceptive behaviour, it makes comparison with the CFS difficult Also, the CCS surveys were restricted to very young samples (women aged 15 to 44), making comparison with the 1984 CFS (with an older sample aged 18 to 49) misleading As well, the CSS did not provide an analysis of choice of method by a range of determinants, aside from age and marital status, again making meaningful connections with 1984 contraceptive behaviour troublesome

2 6 Summary

Since the contraceptive revolution of the 1970's, few developed countries have continued to rely on traditional contraceptive methods Sterilization, the birth control pill, and the IUD were very popular methods among women throughout the 1970's and the 1980's However, population aging and growing health and safety concerns are presenting a trend toward more reliance on barrier methods in the 1990's than in the previous two decades

Contraceptive use in Canada is relatively unique in the Western world While the levels of contraceptive use were slightly lower than most other developed nations for the same period, the acceptance of sterilization, the pill and the IUD were nonetheless substantial The 1984 CFS allows us to see how readily Canadian women have adopted modern contraceptive methods Determinants of contraceptive choice, including age, marital status, education, income, parity, and religiosity, are all important factors in the contraceptive decision throughout the reproductive lives of men and women More research is needed to ascertain the influences of the determinants on men and women's contraceptive decisions in the decade of middle age and HIV/AIDS, in North America particularly

The purpose of this research is to provide a descriptive comparative analysis of the contraceptive use of women in Canada in 1984 and 1995, to compare the contraceptive practices of men and women in 1995, and to examine the demographic, socio-economic, and cultural factors which influence the contraceptive choice of Canadians in 1995 This research provides an opportunity to update our knowledge of the contraceptive behaviour of women in the 1990's, as well as examine for the first time,

the contraceptive behaviour of men in Canada on a national basis Changes in contraceptive behaviour in the 1990's are important to discern for social and health planning, particularly policy decisions aimed at reducing STD infections

The next chapter will examine the theoretical frameworks utilized in the study of fertility and contraception This will include the application of the theoretical framework used in this research, as well as identification of the determinants to be examined in relation to contraceptive use in Canada

Chapter 3 Theoretical Perspective

This chapter presents the theoretical framework guiding this analysis of contraceptive choice in Canada As contraception has a direct impact on fertility and is considered a proximate determinant of fertility (Bongaarts, 1978), it is appropriate to study contraceptive behaviour within the paradigm of fertility theory This chapter provides a review of fertility theories, both sociological and economic, and the role of contraception within these frameworks This will focus on the sociological theories which emerged from the World Fertility Surveys and the Princeton European Fertility Project The second section will provide a discussion of Easterlin's (1975) economic supply and demand theory and the development of Hermalin's (1983) cost of contraception typology The third section will provide a discussion of Becker's (1960) rational choice theory and the new home economics model of fertility This will be followed by the main concepts of rational choice theory and its use as the guiding framework for this study, including a discussion of the costs and benefits of each of the contraceptive methods examined and the rationale behind the use of the independent variables Finally, I will present the hypotheses to be examined in this study, and a summary of the chapter

3 1 Sociological Fertility Theories and Contraception

Presently, most demographers draw on the works from two main camps within the field of fertility studies normative, sociological theories and the "new home" or micro-economic theories An overview of the predominant models within these two

areas of fertility theory will illustrate the development of economic theory in the study of fertility and contraceptive use

Fertility theories begin with the study of the demographic transition That is, the period of transition from high to low fertility levels experienced in modernized societies during the 19th century Notestein (1945) prescribed a number of factors contributing to fertility decline in modernized societies new ideology unimpeded by traditional pressures in determining family size, education and rational choice in the decision process, the cost-benefit analysis of child-rearing, and women's new economic roles Notestein (1945) contended that while contraception had been widely used for centuries throughout the world, it was modernization that imposed the strong incentive for birth restriction

Davis' (1955, 1963) theory of 'multiphasic change and response' linked population change with household economic strain Thus, when families experience economic strain as a result of decreasing mortality rates, they are motivated to reduce family size in order to take advantage of the opportunities that modernization affords These opportunities include education, or the division of property to fewer children to improve their future economic situation Types of multiphasic responses include delayed marriage, celibacy, contraception, abortion, and migration Both Notestein and Davis' theories emphasize parents' forethought and anticipation of economic betterment as influencing their demand for children

In 1978, Bongaarts developed a framework separating the social and individual fertility factors into direct and indirect determinants Indirect determinants are those socio-economic, cultural, and environmental variables (such as education and religion)

which impact on the direct determinants (intermediate fertility variables) The direct fertility-inhibiting effects of these intermediate variables accords their use as proximate determinants in the study of fertility These proximate determinants are marriage, postpartum infecundability (i e , the biological inability to conceive for a period after giving birth), abortion, pathological sterility, and contraception (Bongaarts, 1978, Bongaarts and Potter, 1983) Contraceptive prevalence has been found to be strongly related to fertility levels in approximately 80% of the world's developed and less developed countries and while the other fertility determinants are considered to be important in the examination of fertility trends, "no country has approached replacement-level fertility without reaching a level of contraceptive prevalence of at least 50%" (Weinberger, 1991 556)

But does economic development drive the use of contraception, or are there other factors behind the motivation to control or regulate fertility? Caldwell (1976) proposed that fertility behaviour is rational, and fertility decline is related to the emotional and economic nucleation of the family and only loosely connected to economic development or modernization According to Caldwell, in traditional societies with high fertility, there is little reason for parents to control fertility as the flow of wealth is from children to parents That is, children as a resource provide services, status, and the likelihood of security for parents in their elder years In contrast, in modern societies parents contribute time, money, services, and support to their children with little expectation of reciprocity In modern, child-centered societies, there is little economic reason for having children Caldwell (1976) views the diffusion of Western culture and values,

through mass media and community school projects as contributing to reduced fertility rates in other parts of the world

Coale (1973) suggested that fertility decline requires that family planning be within the realm of conscious choice (beliefs, norms), information regarding fertility control be readily available, and there must be social as well as economic advantages to couples controlling fertility According to Coale, economic explanations of the transition to lowered fertility view the availability of contraception as an element affecting the cost of achieving reduced fertility Coale treated contraceptive behaviour (knowledge and use of) as regulated by or steeped in cultural values and of equal, if not greater, importance than socio-economic factors affecting fertility decline

World Fertility Surveys (WFS) conducted in the late '70's and early '80's to some extent supported the assumptions that the transition to lowered fertility was not determined solely by socio-economic factors Cleland's (1985, Cleland & Wilson, 1987) interpretation of the WFS suggested that with the exception of female education, socio-economic factors were rarely associated with fertility decline

The findings from the Princeton European Fertility Project (EFP) again substantiated the sociological, normative theories The EFP examined age-specific marital fertility rates of European localities during the late eighteenth and early-nineteenth centuries, relying upon aggregate data (national censuses and vital registration data) The findings suggested that in Europe, between 1870 and 1930 fertility rates had dramatically declined by approximately 50 percent due to "stopping behaviour", such as late female marriage, spinsterhood, extended breastfeeding, induced abortion, and withdrawal (Pollak and Watkins, 1993) Socio-economic factors were not found solely to

explain the transition to lower fertility among less developed rural regions Knodel and van de Wall (1979) emphasized the role of diffusion of cultural values in the reduction of fertility levels among European countries that were at different levels of socio-economic development Strong linguistic and/or ethnic differences among neighbouring localities were considered to act as a firewall to the spread of the concept of fertility control within marriage (Lesthaeghe, 1977)

Lesthaeghe's (1980, 1983, Lesthaeghe and Surkyn, 1988) ideational theory proposes that the variations in European fertility patterns over time and across national boundaries can be better explained by differences in national religious beliefs, levels of individualism, and secularism The basic principles of ideational theory hold that individuals' actions are guided by societal norms, rooted in cultural and religious belief systems These group ideologies are not static, however, the process of change can be gradual as a new behaviour or belief becomes normalized In the case of fertility, most societies at any given time have a standard parity level based on gender roles, the nucleation of the family, and its representation of society For instance, presently in a secularized Canada, a two-child family is the norm, whereas a couple choosing not to have any children would no doubt receive social sanctions in some form or another, especially if the decision to remain childless contravened personal religious beliefs When we consider that following World War II, large families were the norm, it is easy to see the role of secularism and individualism in slowly changing Canadian values regarding appropriate family size

While few of the normative fertility theories have placed much emphasis on the role of contraception or incorporated a model for measurement of its impact and

relationship with fertility, cultural concepts affecting fertility should indeed affect contraceptive behaviour In this study, cultural indicators will be utilized to examine the role of social values in the contraceptive decision process If ideational theory holds true, then the behaviours of individuals with differing cultural indicators should exhibit different contraceptive behaviour

3 2 Easterlin's Supply and Demand Fertility Theory and the Cost of Contraception

Easterlin's (1975) micro-economic model proposes that supply, demand, and the regulation costs of having children influence fertility behaviour Demand for children in this model is considered the number of children parents would want if birth control were costless This is based on "tastes" for children such as norms regarding family size This is the point where Easterlin considers sociology and economics to meet Supply of children is considered to be affected by biological and cultural factors, which affect coital frequency, fecundity, or fetal mortality Jointly, supply and demand motivate birth control measures If supply were less than demand, there would be no need to regulate fertility

Costs also need to be taken into consideration These costs include "psychic" costs such as attitudes towards contraceptive practice, "objective" costs, such as time and money, and access to contraceptive methods Easterlin has given equal weight to the supply and cost functions, stressing the link with policy and family planning programs

Extrapolating on Easterlin's economic supply and demand model which affords equal consideration to contraceptive costs, a framework for analyzing the role of family planning programs was developed by a study group of the National Academy of Sciences (NAS) presented in two volumes (Bulatao and Lee, 1983) This model has been

extensively used in studies of developing nations and international family planning programs (Bulatao et al , 1983)

The most commonly used categorization of contraceptive costs is loosely based on Hermalin's (1983) typology which combines monetary, normative, and psychic costs Economic costs include time and monetary costs associated with obtaining contraceptives Normative costs are those perceived social costs to the individual for the violation of behavioural norms, such as when the use of a contraceptive contravenes the principles of an individual's religion, or the use of methods which require communication between partners Psychic costs are those which affect physical and mental health, such as a reduction in sexual pleasure or the perceived or experienced side-effects from contraceptives (Hermalin, 1983, Bogue, 1983, Schearer, 1983, Robinson, 1997)

Easterlin's supply and demand model requires sexual and biological measures (such as coital frequency, fecundity, and fetal mortality) as well as perceptions of costs which are not collected in Canadian national surveys Thus, aside from the use of Hermalin's typology of costs, the supply and demand model will not be considered in this study

3 3 Becker's Rational Choice Theory/ New Home Economics

The economic demand model has been the dominant explanatory paradigm in fertility and family planning studies for the past 15 to 20 years (Robinson, 1997) Considered to be a simplistic model of conscious decision making and deliberate action, the economic demand model was first applied to fertility studies by Leibenstein (1957) in an attempt to understand the decision process of couples choosing whether or not have

more children Becker's (1960, 1993) reformulated economic demand model of the early 1960's, termed "new home economics", examines the micro social setting of the household to further the understanding of macro social patterns of fertility

Becker (1960, 1981,1993) has been a strong voice in the integration of the social into the traditional cost/benefit economic demand approach to human behaviour Becker (1993) posits that individuals attempt to maximize their welfare as they conceive of it Individuals are considered to be rational and as such, their decisions, which are goal seeking, are optimally achieved given preferences, opportunities, and constraints Their decisions are forward looking in that individuals try to anticipate the consequences of their actions According to Becker (1993), the cost/benefit decision process is considered to be consistent over time However, the past can influence present attitudes and values, thus affecting present decisions Individuals' perceived opportunities are determined by the collective actions of other individuals, and organizations of individuals Perceived constraints include income, time, memory, calculating capacities and limited resources According to Becker (1993), the most crucial constraint facing individuals is limited time There are only 24 hours in a day and individuals with insatiable wants are limited by time to consume everything they can acquire, especially in wealthier countries In these countries, goods become more copiously available and attainable, and as a result, time becomes an even more precious and valuable commodity (Becker, 1993)

Applied to fertility, Becker (1960) contends that the demand for children is actually a demand for child services The household considers the costs and benefits of applying its resources to maximize the utility of the preferred goal, in this case, the demand for child services These household resources include time as well as money

More importantly, they include the costs of women's time or opportunities regarding childbearing and child rearing The value of children is considered by the costs of raising quality children to adulthood, such as educational, emotional, and women's opportunity costs As income or household resources rise, the demand for higher quality children also rises, thus producing the 'elasticity' of demand

According to Becker (1960), knowledge of contraceptive methods is crucial to understanding fertility decline In industrialized societies in particular, differences in contraceptive knowledge explain the relationship between income and family size That is, as income rises we do not see an increase in the number of children desired In his original work on fertility, Becker stated that preferences (in this case, for children) are fixed and exogenous (1960) In his recent work he has expanded preferences to include feelings of duty and obligations, as well as to include altruistic, selfish, loyal, spiteful and masochistic preferences Within the family, Becker (1993) asserts that individuals' preferences are formed in childhood where parental values and attitudes become ingrained, which then affects their decisions in adulthood

3 3 1 The Rational Choice Theory of Behaviour Applied to Contraceptive Choice

The theory that I will be using as a guiding framework for the study of contraceptive choice is Becker's (1993) rational choice theory of behaviour, with the inclusion of cultural concepts of ideational theory, and the economic, normative, and psychic categorizations of the costs of contraception

The main premise of rational choice theory is that people make conscious decisions in the attainment of certain goals or preferences Their decisions are based on

weighing the costs and benefits in attaining these goals Viewed from this perspective, the consideration of contraceptive method choice means that men and women take into account the utility of each method and the constraints associated with them To use contraception is considered to be a deliberate act to prevent conception and/or disease As such, the utility of a particular contraceptive method becomes its ability to enable sexual satisfaction while providing protection from unwanted pregnancy and STD's

3 3 2 The Costs and Benefits of Contraceptive Methods

According to the rational choice model, people engage in "forward looking" behavior to maximize the utility of the particular commodity – in this case, contraceptive method (Becker, 1993) However, as the costs associated with the different methods increase, their value and ultimately the demand for these methods will decrease While monetary costs can be considered in terms of the price of the contraceptive methods, there is relatively little concern over price in Canada, as the universal health care system ("Health Care") makes the availability and dollar cost of contraception relatively affordable for most people The economic model of behavior proposes that costs can also be considered in terms of intangible "shadow costs" of a particular commodity (Becker, 1993), such as health concerns, the inability to discuss contraception with a partner, discomfort with genital touching, or incongruence with religious values

In this study, costs will be based upon Hermalin's (1983) standard categorizations of monetary, normative, and psychic contraceptive costs as defined in Table 6

Table 6 Typology of Contraceptive Costs

Economic Costs	Normative Costs	Psychic Costs
Monetary	Nonconformity to religious and moral	Physical side-effects
Time	beliefs	Reduction in sexual pleasure
	Unconventional conversation about sex	Threat to sexual adjustment
	between partners	Anxiety over contraceptive
	Disharmony in extended family	failure
	Discord between partners	Shyness towards gynaecological
	Undermining family status or security	exam
		Perceived availability
		Adoption of 'inner control or
		efficacy'

Sources Hermalin, 1983, Bogue, 1983, Schearer, 1983

Voluntary sterilization, either by tubal ligation or vasectomy is the most effective contraceptive measure against unwanted pregnancy and both procedures are entirely free under Health Care Tubal ligations are approximately 97% effective, and vasectomies are close to 100% effective (Marcelis, 1995) Annual failure rates for tubal ligation and vasectomy have been estimated at approximately 0 4% and 0 1% respectively (Ross, 1989) The procedure for tubal ligation requires hospitalization, general anesthetic, and approximately one week of recuperative time, depending on the type of procedure Most tubal ligation procedures prior to early 1990's involved the cutting and blocking of the fallopian tubes using rings, elastic bands, or clips Since that time, laparoscopic tubal ligations became available In this procedure, the tubes are burned using laser technology This procedure is the least surgically intrusive, requires less recuperative time, and is considered highly irreversible (Marcelis, 1995)

While vasectomies are performed in a doctor's office and require very little recuperative time, some men may be reluctant to seek this method due to psychological

concerns with virility Both vasectomy and tubal ligation procedures are covered by Health Care While these procedures are considered permanent, some types are reversible Reversals of tubal ligations and vasectomies are possible in approximately 50% of cases, but are expensive and not covered under Health Care Neither of these procedures protect against STD's (Marcelis, 1995)

The utility value of the pill is its ability to act as a highly effective measure against unwanted pregnancy with an annual failure rate of approximately 6 2%, as well as its ease of use (Ross, 1989, Marcelis, 1995, Trussell and Vaughan, 1999) For women, the pill affords them the autonomy to control the risk of unwanted pregnancy The costs associated with the pill are the concern over health risks associated with its use over prolonged periods of time or after certain ages, and lack of protection from contracting sexually transmitted diseases Pills are obtained following a gynecological examination covered under Health Care Most women pay for the monthly pills, but they can be obtained freely from community clinics

The utility value of the condom is its ability to reduce the risk of contracting STD's as well as its shield against unwanted pregnancy Also, the condom allows women to share the responsibility of contraception with men However, compared with the pill, the condom is less effective as a birth control measure, having an annual failure rate of 14 2% (Ross, 1989, Marcelis, 1995, Trussell and Vaughan, 1999) The normative and psychic costs of condom use may be the reluctance to discuss "safe" sex and previous sexual histories with partners, discomfort with genital touching, reduction in sexual pleasure, complication with impotency, or difficulty in expressing the need for condom use as protection from STD's when in a long-term, supposedly monogamous

relationship Condoms may be purchased over the counter at any drug store for a minimal cost, but may also be obtained free from community clinics

The IUD is considered a highly effective, long-lasting contraceptive, with a one year failure rate close to that of the pill (Marcelis, 1995, Trussell and Vaughan, 1999, Ross, 1989) However, there has been considerable concern over the health risks associated with this method During the mid-1980's, two types of IUD's were found to cause serious complications and were withdrawn from the market While the new versions are considered safe, there are numerous possible side-effects associated with this method, such as high risk of expulsion in the first year, increased risk of excessive bleeding, infection, and ectopic pregnancy (Marcelis, 1995) The IUD requires a gynecological examination and insertion by a physician, which is covered under Health Care The monetary cost of the IUD to the individual is approximately $40 This cost can also be deferred if obtained at a community clinic

Other methods, including the diaphragm, foam, rhythm, and withdrawal are the least effective methods in protecting against unwanted pregnancy or STD's, with failure rates ranging between 16% and 22% annually (Ross, 1989) While the risk of unwanted pregnancy associated with each of these methods is high, their price costs are minimal or non-existent, and only the diaphragm requires a gynecological visit (Marcelis, 1995) In the case of the rhythm and withdrawal methods, the psychological costs associated with the violation of religious values may be perceived of as minimal, as these are the least *actively contracepting* methods That is, they do not involve the use of a technological intervention

3 4 Hypotheses

All of the costs and benefits of the contraceptive methods interact differently by varying factors Table 7 presents the demographic, socio-economic, and cultural factors which reflect the cost/benefit decision process of contraceptive choice will be examined using a synthesis of rational choice and ideational theories as the guiding framework

Table 7 Factors of Contraceptive Choice

Demographic	Socio-Economic	Cultural
Age	Education	Religious Affiliation
Marital Status	School Attendance	Religious Attendance
Parity	Income	Country of Birth Origin
Childbearing Intentions	Work Status	Quebec Residence

As there are two parts to the decision process regarding contraception, that of making the decision to use a contraceptive method, and then making the choice of which method to use, two sets of hypotheses are investigated The following hypotheses are developed within the rational choice and ideational framework and based on the established determinants of contraceptive choice from previous research However, as these studies focused solely on women, the rationale for these determinants will also be based primarily on *women's* past reproductive behaviour For clarification, a list of the hypotheses is included as Appendix I

This study examines the demographic, socio-economic, and cultural determinants which influence the decision to use a contraceptive measure, and the choice of method As voluntary sterilization, the birth control pill, and the condom were the primary

methods of contraception of in the 1984 CFS, these methods will be the main focus of this study

3 4 1 Demographic Determinants

Women and men have different levels of demand for contraception at different times in their lives At the beginning of their reproductive careers, individuals are not likely to be in long-term, stable relationships, or in the family planning process As men and women age, and are married or in cohabitating relationships, they are more likely to be planning a family The demand for regulating family size generally declines in the late 30's as women's fecundity begins to decline rapidly As individuals approach middle age, they are more likely to have achieved their desired family size or made the decision to not have children entirely Therefore, it is expected that contraceptive use will be lower at the beginning and later stages of individuals reproductive lives The relationship between age and contraceptive use is expected to be curvilinear (with a non-zero quadratic term of age)

At different ages, women and men view the costs and benefits of contraceptive methods differently As mentioned previously, younger women have traditionally relied on the birth control pill as their main contraceptive method However, young women and men, now exposed to mass media campaigns promoting "safe sex" practices during most of their sexual career are more likely to perceive the risk of contracting STD's as more immediate, and therefore are more likely to use condoms Also, younger individuals have more sexual partners, and are therefore at higher risk of contracting STD's For women over 30, their main concern in contraceptive method choice prior to the mid-

1980s has been controlling the risk of unwanted pregnancy However, older women have more pronounced concerns with the health risks associated with the pill, and for them, this outweighs the benefits of its use In this regard, Balakrishnan et al (1993) found that of the female respondents in the 1984 CFS survey, young women were most likely to report using the pill, while for older women the health risks associated with the pill were considered more costly Thus, a greater proportion of older women used condoms It is expected that this trend has shifted since the early 1980's due to increased public awareness of the risks of contracting STD's, and that younger men and women are now more likely than older men and women to use condoms as their main form of contraception Based on this reasoning, the relationship with condom use will be curvilinear, being higher in the younger and later years, pill use will decline with age, and voluntary sterilization will increase

While single individuals are more likely to have more partners than married or cohabitating couples, couples tend to have more sexual activity While couples are also more likely to bear children than single individuals, this is usually within the context of family planning As a result of the increased opportunity for an unplanned pregnancy, it is expected that married and cohabitating individuals will be more likely to use contraception than single individuals

Single men and women on average have more sexual partners than married individuals, and therefore have increased risk of contracting sexually transmitted disease As for married women, Balakrishnan et al (1993) found that while women early in their marriage most commonly used the pill, its use dropped off after four to eight years of marriage For men and women early in their marriage, controlling the risk of pregnancy

may be perceived of more importance than concern over the risk of contracting STD's Therefore, it is expected that single and previously married individuals will have higher rates of condom use and lower rates of birth control pill use than presently married or cohabitating individuals, and previously married individuals will likely be older and be more reliant upon voluntary sterilization methods

With respect to reproductive activity, it is expected that contraceptive use will increase with parity and for those individuals who do not wish to have any or more children Previous findings indicate that contraceptive use is higher among women after their first birth than before This illustrates the fact that women are more concerned with the timing of the second birth than the first, and are concerned with controlling the size of their family (Balakrishnan et al , 1993) For men and women whose main expectation of their contraceptive method is to control the size of their family, the condom's higher failure rate would be considered as more costly than the risk of contracting STD's Therefore, it is expected that as the number of children increases, condom use will decrease and levels of pill use and reliance on voluntary sterilization methods will increase

The choice of contraception is strongly influenced by the number of children an individual has or plans to have It is expected then that for men and women who have attained their intended number of children, the costs associated with the condom (lower efficacy) would be perceived as higher than those with the pill Therefore, individuals who do not intend to have any, or additional, children will more likely rely on voluntary sterilization methods or the pill

3 4 2 Socio-Economic Determinants

As stated earlier, education and income, as indicators of socio-economic status (SES), have been found to be related to lowered fertility levels and contraceptive use (e g , Balakrishnan et al , 1993) It is expected that as individuals' socio-economic status rises, contraceptive use will increase Increased education often facilitates women's decisions to delay marriage and childbearing Education levels also influence understanding of health information regarding different contraceptive methods, as well as the risks of contracting STD's While the costs of unwanted pregnancy impeding potential education and earning opportunities would be considered higher for individuals with higher education and income levels, the costs of contracting STD's, particularly HIV/AIDS would be considered just as crucial It is also expected that both pill and condom use will rise with SES As the costs of unwanted pregnancy would be perceived of as higher for individuals with lower SES, they would be more likely to choose voluntary sterilization methods than individuals with higher SES levels Therefore, it is expected that there will be a negative relationship between SES indicators and voluntary sterilization

3 4 3 Cultural Determinants

As a strong cultural indicator, religion is influential in the cost/benefit decision process of contraceptive method choice While the Catholic Church's stance on contraception has not relaxed in recent years, Canadian Catholic women's contraceptive behaviour has According to Balakrishnan et al , (1993) religious affiliation is no longer strongly influential in predicting fertility behaviour in Canada The cost then of using

contraceptives would no longer be perceived as higher for Catholic women Based on previous research, is not expected that religious affiliation will influence the contraceptive method choice, either However, individuals who attend church more often (not exclusively those of the Catholic faith) are more likely to follow more fundamentalist religious values and may therefore view the use of contraceptives as a violation of those values Consequently, it is expected that as religious attendance increases, contraceptive use will decrease

Individuals born outside of Canada are likely to have retained cultural values native to their homeland Depending on the country of birth origin, individuals may be unfamiliar with modern contraceptives such as the pill or the IUD As well, modern methods may violate religious or cultural values, or be considered more complicated to obtain (requiring a doctor's appointment, internal exam, and/or prescription) and to use than the condom In the 1984 CFS, it was found that pill use was lower for women born outside Canada and condom use was much higher (Balakrishnan et al , 1993) Based on this previous research, it is expected that individuals born outside of Canada will have lower levels of contraceptive use, and of those who are using a method, they will more likely choose the condom

As mentioned previously, it was found that by 1984 levels of contraceptive use in Quebec were similar to those for the rest of the country (Balakrishnan et al , 1993) Even considering the high level of Catholicism within the province, it is not expected that levels of contraceptive use will be different than those for the rest of Canada

3 5 Summary

This chapter reviewed the dominant fertility theories and the role of contraception within them While few theories have applications specifically dealing with contraception, Easterlin's model provides for the examination of the costs of contraception to the individual A synthesis of the rational choice model of cost/benefit decision making, with the inclusion of cultural indicators from ideational theory, is an appropriate framework for the study of contraceptive choice in Canada Using this framework as a guide, several hypothesis were developed to examine the influence of demographic, socio-economic, and cultural factors on contraceptive behaviour

The following chapter provides a description of the methodology employed in this study, including the data used, the selection of the samples, and the independent variables utilized The analytical strategies employed, the dependent variables, and the data limitations will be detailed

Chapter 4 Methodology

This chapter is presented in 5 sections Section 1 describes the date utilized in this study Section 2 identifies the independent variables used, and includes a detailed description on how these variables were measured Section 3 presents the measurements of the dependent variables and the analytical strategies employed in the analysis In Section 4, the limitations of the data are discussed, and the final section provides a brief summary of the chapter

4 1 Data

Using data from the 1984 Canadian Fertility Survey and the 10th cycle of the 1995 General Social Survey, the empirical analysis proceeds in two stages The first stage of the analysis provides a descriptive and comparative presentation of women's contraceptive use in Canada in 1984 and 1995, and of women and men in 1995 The second stage of the analysis focuses on the contraceptive choice of men and women in 1995 using explanatory variables selected on the basis of the conceptual framework

The CFS was the first and only in-depth national fertility survey conducted in Canada The target population for the survey was all women in their reproductive ages of 18 to 49 irrespective of their marital status, excluding women living in the Yukon and Northwest Territories, women in institutions, women without telephones, and those unable to speak English or French The exclusion of women in the Yukon and Northwest Territories was estimated to be minimal, as only 0 2 percent of women over the age of 18 were in these areas according to the 1981 census Telephone survey methods were used

exclusively to collect the data A total of 5,315 women aged 18-49 completed interviews The overall response rate was 70%

In the CFS, the respondents were asked to provide detailed information about childbearing intentions and experiences, contraceptive practice and other socio-economic characteristics Information regarding sexual activity was not collected, as it was deemed too sensitive for telephone interviews (Balakrishnan 1985)

The 1995 GSS was the 10th cycle of the General Social Survey conducted by Statistics Canada The survey was based on a national probability sample of 5,914 women and 4,835 men aged 15 and older (N = 10,749), excluding residents of the Yukon and Northwest Territories, and institutionalized residents As with the CFS, telephone interview techniques were used to collect the data, with an overall response rate of 81% The GSS focused on the family, collecting detailed information on marital and childbearing histories, reproductive intentions, contraceptive practices and the socio-economic characteristics that are commonly included in social surveys

While both surveys collected data on contraceptive use, the CFS has a more restricted sample selection by limiting the survey to women aged 18-49 In stage 1 of my analysis, the 1995 GSS sample was restricted to individuals in a comparable age group With these restrictions, the 1995 GSS sample included 3220 women between the ages of 18 and 49, and 3,449 men, aged 18 and older

For stage 2 of my analysis, the comparison of contraceptive choice among men and women in 1995, the GSS sample included 3,529 women between the ages of 15 and 49, and 4,490 men aged 15 to 65

4 2 Analytical Strategies

As noted, the empirical analysis proceeded in two stages In stage 1, a descriptive account of contraceptive use among women over the two time periods, 1984 and 1995, is presented Descriptive statistics comparing the contraceptive usage of men and women in 1995 is also presented Stage 2 of the analysis involved the examination of contraceptive method choice among women and men using the 1995 GSS data The following sections discuss the methods employed and the dependent variables used for each stage of the analysis

4 2 1 Stage 1

In the first stage, a series of percentage distributions were calculated, examining the patterns of contraceptive behaviour by the demographic, socio-economic, and cultural factors

The information on contraceptive use was collected by asking respondents what contraceptive method(s) they and/or their partner were currently using, and how long they had been using it The CFS collected the information for multiple-method use, however, only the current (and the most effective) birth control method was retained in the data set released for public use The hierarchy of effectiveness used was tubal ligation, vasectomy, pill, IUD, condom, diaphragm, foam, rhythm, withdrawal, douche, and other methods In the 1995 GSS, this was derived from the survey question "Which contraceptive method are you currently using?" Responses to this question included

birth control pill, IUD, sponge, diaphragm, condom, foam and/or jelly, periodic abstinence, rhythm, safe period, withdrawal and any other method

As the 1995 GSS did not collect information on multiple-method use and sexual activity, it was not possible to assess how many individuals are protected from unwanted pregnancy as well as STD's However, previous research has suggested that the use of a condom with another contraceptive method remains under 10% (Larsson, et al, 1997, Piccinino and Mosher, 1998)

In this stage of the analysis, the dependent variable, contraceptive method choice, was coded into 10 categories, including tubal ligation, vasectomy, pill, condom, IUD, diaphragm, foam, rhythm, withdrawal, and other For the 1984 CFS data, other method included douche For the 1995 GSS data, rhythm included periodic abstinence and safe period, and other method included the sponge

In the 1995 GSS, individuals who had had an operation to prevent pregnancy, either contraceptively or medically, were not asked the contraceptive method question In the 1984 CFS, women were asked what their current contraceptive status was This included all reversable and non-reversable contraceptive measures, as well as sterilization for medical purposes (i e hysterectomy or other medical procedures) For both dependent variables, medical sterilizations (not for contraceptive purposes) were not included as contraceptive measures

In an attempt to be comparable with previous research employing the 1984 CFS data (Balakrishnan et al , 1985, 1993), the same classification scheme for contraceptive status was used in this study With the CFS data, women who reported having a tubal ligation were categorized as such, and were considered contraceptive users Those who

reported having had a hysterectomy following a tubal ligation were categorized as having had a tubal ligation, and were considered contraceptive users Those who had only a hysterectomy (or some other medical procedure) were classified as medically sterilized, non-contraceptive users

While the GSS did not use the same wording as the CFS, the classification scheme was followed as closely as possible In the GSS sample, respondents who reported that they had a medical operation for contraceptive reasons were classified as having had a tubal ligation Those who reported that the operation was for medical reasons were classified as medically sterilized, non-contraceptive users Those who reported that the operation was for both reasons were classified as having had a tubal ligation, and, therefore, contraceptive users Also, with the GSS, where both the respondent and his/her partner reported having been sterilized for contraceptive and/or medical purposes, only the information for the respondent's sterilization was considered

A second dependent variable was also considered in the first stage of the analysis to examine the differences of contraceptive users and non-users In this case the dependent variable had two response categories contraceptive users (including all of the above mentioned contraceptive methods) and non-contraceptive users

4 2 2 Stage 2

In the second stage of the analysis, a series of multinominal logit models were estimated, contrasting the contraceptive choices of men and women in 1995 by demographic, socio-economic, and cultural factors

4 2 2 1 The Dependent Variables

For the second stage of the analysis, the primary dependent variable is a 4-level multinominal variable indicating whether the respondent and/or his/her partner was currently using a) condom, b) the pill, c) other method(s), or 4) no method Other methods include the tubal ligation, vasectomy, IUD, diaphragm, foam, rhythm, withdrawal, sponge and 'others' While sterilized individuals (for both contraceptive and medical purposes) would normally be excluded from a contraceptive decision analysis, those who were contraceptively sterilized by choice (i e tubal ligation or vasectomy) were included in this analysis While much prior research focuses on pregnancy prevention as the predominant goal of contraception, this research models contraceptive choice as a function of two distinctive elements the prevention of (unwanted) pregnancy, and STD infection Although sterilization may exclude individuals from the decision process regarding birth control, it does not preclude them from contracting STD's

A second dependent variable was also utilized in this stage of the analysis, that of users only, with the reference category being users of the birth control pill

4 2 2 2 The Multinominal Logistic Regression Model

In stage 2, a series of multinominal logit models were estimated, contrasting selected contraceptive choices of men and women in 1995 The focus was on condom, pill, and use of other methods versus no method, with particular interest placed on identifying non-users The first series of models examines the effects of individual-level characteristics on the dependent variable, which measures three competing contrasts

1) condom use versus non-use, 2) pill use versus non-use, and 3) other methods versus non-use

The second series of models estimate the characteristics on contraceptive users only Two competing contrasts were modeled 1) condom use versus pill use, and 2) other methods versus pill use The third series of models are intended to identify those most likely to be at risk of contracting STD infections As single, non-cohabitating individuals are more likely to have multiple partners and engage in unprotected sex, the sample is restricted to single (never married) and previously married individuals The dependent variable in this model is the same as in the first model, intending to identify non-users of contraceptive methods

As the dependent variable was categorical, the following multinominal logistic (also referred to as logit) model, a maximum likelihood technique, was applied to estimate the effects of the independent variables on contraceptive method choice

$$\Pr(y_i = m \mid x_i) = \frac{\exp(x_i\beta_m),}{1 + \Sigma_{J=2}^{J} \exp(x_i\beta_J)} \qquad m = 1, \quad , 4$$

In this equation, the dependent variable y, is a categorical variable with 4 categories pill users, condom users, users of other methods, and non-users X represents the set of explanatory variables previously discussed, and β is a vector of regression coefficients associated with x

Logistic models estimate the log-odds that a change in the independent variable is associated with the dependent variable, holding all other variables constant The

multinominal logistic model can be conceptualized as a set of linked binary logits However, rather than deriving the results for separate binary logits, (i e the logit of A versus B, the logit of B versus C, and the logit of A versus C), the multinominal model estimates the logits simultaneously (Long, 1997, Allison, 1998) While the coefficients can be easily interpreted by transformation to odds ratios, $100(e^{\beta_1}-1)$, the resultant odds can be misleading if the probability coefficients are near 1 and 0 For the logit model, the coefficients can be interpreted as the estimate that every unit change in the log-odds of the independent variable relates to a unit change in the dependent variable, holding all other variables constant (Allison, 1998)

4 3 Independent Variables

The independent variables used in this study are age, marital status, parity, number of intended children, education, income, work status, school enrollment, religious affiliation, religiosity, nativity, and Quebec residence Table 8 presents the percentage distribution of the sample characteristics of women in 1984 and 1995, and men and women in 1995 The definitions and descriptive statistics for the independent variables used in stage 2 are presented in Table 9 For the most part, the independent variables utilized in both stages were measured in a similar fashion, with the exception of school enrollment School enrollment was not included in stage 1, as this information was not collected in the 1984 CFS

Table 8 Stage 1 Sample Characteristics Used in the Analysis of Contraceptive Use, Women and Men, Aged 18 - 49, 1984 CFS and 1995 GSS

	1984 Women %	1995 Women %	1995 Men %
Demographic Variables			
Age			
18-24	24 8	18 6	19 2
25-29	18 6	15 2	14 1
30-34	17 4	18 1	16 8
35-39	15 9	17 8	16 4
40-44	12 1	16 1	14 4
45-49	11 2	14 1	19 1
Marital status			
Married	61 8	54 5	51 2
Cohabitating	8 5	12 4	12 3
Formerly married	8 3	9 6	5 0
Never married	21 5	23 4	31 5
No of children			
No children	35 2	34 1	41 6
One child	15 7	15 6	15 1
Two or more	49 1	50 3	43 3
Intend to have more children			
Yes	36 5	33 0	40 7
No	63 5	67 0	59 3
Socio-Economic Status			
Education			
Elementary	31 0	17 3	19 6
High school	32 5	20 7	17 8
Some college/university	36 5	62 0	62 5
Income			
Q1	27 1	31 6	25 4
Q2	17 6	24 2	24 0
Q3	31 8	20 6	21 6
Q4	23 5	23 6	28 9
Currently working			
Yes	59 1	57 1	78 3
No	40 9	42 9	21 7
Cultural Background			
Religious affiliation			
Catholic	49 0	47 1	44 7
Protestant	40 1	31 0	29 0
Other	2 7	4 0	4 3
None	8 2	17 9	22 1
Religious attendance			
Weekly	25 7	18 3	15 0
Sometimes	38 5	30 3	26 2
Rarely/Never	35 7	51 4	58 8

Table 8 Stage 1 Sample Characteristics Used in the Analysis of Contraceptive Use, Women and Men, Aged 18 - 49, 1984 CFS and 1995 GSS

Continued	1984 Women %	1995 Women %	1995 Men %
Nativity			
Foreign-born	13 9	19 0	17 3
Canadian-born	86 1	81 0	82 7
Region			
Quebec	27 1	25 3	26 2
Rest of Canada	72 9	74 7	73 8
N	5,315	3,220	3,449

Note Weighted percentages, unweighted N

Table 9 Stage 2 Definitions and Descriptive Statistics for Independent Variables Used in the Analysis of Contraceptive Choice, Women and Men, Aged 15 - 49, 1995 GSS

Variable	Definition	Women Mean or %	Men Mean or %
Demographic Variables			
Age	Age of respondent	32 93	37 68
Age square		1,179 0	1,592 0
Marital Status	Current marital status		
Cohabiting	Dummy indicator (1 = yes, 2 = no)	11 8%	10 2%
Formerly married	Dummy indicator (1 = yes, 2 = no)	8 7%	6 0%
Single/Never married	Dummy indicator (1 = yes, 2 = no)	29 5%	30 9%
Married	Reference category	50 0%	52 9%
Number of children	Number of children respondent ever raised (0 = 0, , 4 = 4 or more)	1 31	1 38
Childbearing intentions	Dummy Indicator of intention to have one or more children (1 = yes, 2 = no)	45 8%	59 5%
Socio-Economic Status			
Educational status	Educational attainment in 10 levels (1 = elementary schooling or less, , 10 = bachelor degree or higher)	6 27	6 17
Family Income	Family income in 20 levels (0 = none, , 20 = $100,000 or more)	6 07	8 54
Income missing	Dummy indicator (1 = yes, 2 = no)	7 2%	7 2%
School enrollment	Dummy Indicator of currently enrolled as a full-time student (1 = yes, 2 = no)	31 6%	27 0%
Currently working	Dummy indicator of current employment status (1 = yes, 2 = no)	52 6%	71 5%

Table 9 Stage 2 Definitions and Descriptive Statistics for Independent Variables Used in the Analysis of Contraceptive Choice, Women and Men, Aged 15 - 49, 1995 GSS

Continued

Variable	Definition	Women Mean or %	Men Mean or %
Cultural Background			
Religion			
Protestant	Dummy indicator (1 = yes, 2 = no)	30 4%	29 9%
Other religions	Dummy indicator (1 = yes, 2 = no)	4 0%	4 3%
No religious affiliation	Dummy indicator (1 = yes, 2 = no)	15 6%	17 6%
Catholic	Reference category	46 0%	43 5%
Church attendance	Church attendance in 5 levels (1 = never, , 5 = once a week)	2 13	2 3
Nativity			
Canadian born	Dummy indicator (1 = yes, 0 = no)	80 3%	79 3%
Foreign born	Reference category		
Region			
Quebec	Dummy indicator (1 = yes, 2 = no)	24 8%	25 2%
Rest of Canada	Reference category		
N		3,529	4,490

Note Weighted means or percentages, unweighted N

4 3 1 Demographic Factors

The demographic variables included age, marital status, parity, and number of intended children In stage one of the analysis, age was measured in six five-year groupings In stage 2, age measures the individual's age in years, starting at age 15 A quadratic term of age was included to capture the non-linear function of age

Marital status was included as a categorical variable in four levels married, cohabitating, formerly married (i e separated, divorced, or widowed), and never married (single) In the multivariate analysis, marital status was included as a set of dummy variables indicating whether the respondent was cohabitating (1 = yes, 2 = no), formerly married (1 = yes, 2 = no), or never married (1 = yes, 2 = no), with currently married as the reference category

Parity measures the number of children the respondent reported having raised (which may include step and/or adopted children) For stage one of the analysis, this variable was measured in 3 levels no children, one child, or two or more children In stage 2, this number of children was treated as a continuous variable (0 thru 4 or more) Childbearing intentions was treated as a dummy indicator (1 = yes, 2 = no)

4 3 2 Socio-Economic Status

Education, income, employment outside the home, and school enrollment are all indicators of socio-economic status In stage 1 of the analysis, education was measured in 3 levels elementary school or less, high school completion, and some post-secondary education such as college or university In stage 2, education was treated as a continuous

variable, measured in 10 levels (1 = elementary school or less, thru 10 = bachelor degree or higher) In order to make meaningful comparisons across time, income was measured as an ordinal variable in four quartiles Thus, for example, Q1 includes the respondents whose family income falls under the 25th percentile In stage 2, family year income was measured in 20 levels (0 = none, thru 20 = $100,000 or more) A dummy indicator was included to indicate whether the respondent failed to report their income Employment and school enrollment were both included as dummy indicators (1 = yes, 2 = no) As mentioned previously, school enrollment was not included in stage 1

4 3 3 Cultural Background

Cultural background variables utilized in this research included religious affiliation, church attendance, foreign-born status, and residence in the province of Quebec

In stage 1, religious affiliation was measured as Catholic, Protestant, other, and none In stage 2, religious affiliation was measured as a set of three dummy indicators for Protestant (1 = yes, 2 = no), other religions (1 = yes, 2 = no), and no religious affiliation (1 = yes, 2 = no), with Catholic affiliation as the reference category

Religiosity was measured by the frequency with which the respondent reported attending church services In stage 1, religious attendance was measured as weekly, sometimes (once a month to a few times a year), and rarely/never (once a year to never attending) In stage 2 of the analysis, religious attendance was treated as a continuous variable (1 = never, thru 5 = once a week)

Nativity was measured as a dummy indicator (1 = Canadian born), with foreign born status as the reference category Region was also measured as a dummy indicator (1 = Quebec residence), with residence in the rest of Canada as the reference category

4 4 Data Limitations

While both the 1984 CFS and 1995 GSS collected data on contraceptive use, the nature and intent of these studies were different enough to warrant caution in the comparative interpretation of these results As previously mentioned, the CFS was a study focusing on the fertility of Canadian women, whereas the GSS was a broader social study with a section attending to fertility and contraceptive issues It has been suggested that the structure of the questionnaire in the CFS which asked questions regarding past contraceptive practices, as well as the wording and the order of questions, may have affected the respondents' state of mind, producing more accurate responses (Dumas and Belanger, 1998) As such, the findings of overall contraceptive use should be considered with care

As this study is based on the analysis of variables from an existing data set (the 1984 CFS and the 1995 GSS), it is limited in that no questions were asked regarding the respondent's perceptions or attitudes towards contraceptive methods Nor is there information regarding knowledge of STD's and/or the side effects of contraceptive methods The respondents were also not asked if they were using a method for contraceptive purposes or for protection from STD's As such, we are unable to assume that condom use is intended solely for the purpose of protecting from STD's

The use of this data set also precludes the examination of contraceptive mixing or switching practices, as the measures of contraceptive methods were static There are also no direct measures of access, motivation, or costs of contraception Therefore, using the rational choice theoretical framework and the costs typology, these measures will be indicated using existing variables that are indirectly related

Most contraceptives are gender specific Aside from when a couple uses a condom during sexual intercourse, it is possible that without discussion, one or the other may not be aware of the method their partner is using In this analysis, I reported the method the respondent reported as the method they were relying upon While most contraceptive methods are specific to gender (i e women take the pill, have tubal ligations, men use condoms, have vasectomies), the method the respondent reported as relying upon, not necessarily the method they were physically using themselves, was considered as the current contraceptive method Without in-depth survey questions regarding sexual activity and contraceptive use, it is not possible to ascertain the degree to which the respondents were accurately reporting their contraceptive methods We have to rely on their knowledge of the method they know themselves to be using

There has not been a great deal of research into the area of contraceptive method choice in Canada Despite these limitations, this study is of significance in that it focuses on the demographic, socio-economic, and cultural factors that influence individuals' contraceptive choice This study affords the opportunity to examine contraceptive trends, builds on previous research, provides new information regarding men's contraceptive behaviour, and contributes new insights into contraceptive practices in Canada

4 5 Summary

The data used in this analysis were obtained from the 1984 CFS and the 1995 GSS The analysis of differentials in contraceptive behaviour among women over the two time periods, and between men and women was conducted in the first stage, considering demographic, socio-economic and cultural indicators In the second stage of the analysis, contraceptive choice of women and men in 1995 is examined in a series of multinominal logistic regression models These models are intended to measure the impact of the indicators on contraceptive choice in an era of HIV/AIDS where unplanned pregnancy and STD's are of equal concern

The next chapter presents the results of this analysis, including the trends in contraceptive behaviour of women between 1984 and 1995, and a comparison of men and women's contraceptive use in 1995 This is followed by reporting the results of the multinominal logit analysis of contraceptive choice in 1995, examining the impact of selected indicators

Chapter 5 Results

This chapter presents the findings of the analysis and is comprised of 5 sections The first section includes the descriptive analysis of stage 1, comparing the overall levels of contraceptive use of women and men, aged 18 to 49 between the periods 1984 and 1995 Section 2 is also part of stage 1 analysis, comparing the demographic, socio-economic, and cultural characteristics of contraceptive users against non-users Section 3 is the final portion of the stage 1, and describes the descriptive characteristics of contraceptive users of women in 1984 and 1995, and men in 1995 Section 4 consists of the second stage of the analysis, examining the contraceptive choices of men and women in 1995 The final section provides a brief summary of the chapter

5 1 Trends in Contraceptive Use

This analysis begins with an overview of aggregate trends of contraceptive use in Canada between 1984 and 1995 Table 10 presents the results of the current contraceptive status for women in 1984 and 1995, and for men in 1995 Women in their childbearing years in 1984, were more likely to use non-reversible methods than reversible ones Approximately 36% of women were using reversible contraceptive methods, compared to 40% using non-reversible methods Nearly 21% of these women were not using contraception In 1984, the level of overall contraceptive practice (including tubal ligation and vasectomy) was among the highest in the world, and the level of sterilization for contraceptive purposes was also among the highest among industrialized countries (United Nations, 1996b)

Table 10 Percentage Distribution of Women and Men, Aged 18 - 49, Current Contraceptive Use, 1984 CFS and 1995 GSS

	1984 CFS Women		1995 GSS Women		1995 GSS Men	
	Total	*N*	Total	*N*	Total	*N*
Using a reversible method	**35 5**		**32 0**		**35 1**	
Pill	19 2	1,018	17 0	546	9 1	315
Condom	6 2	331	9 5	305	22 4	773
IUD	5 7	301	2 6	84	1 3	45
Diaphragm	1 1	61	0 2	8	0 1	3
Foam	0 5	29	0 3	9	0 3	10
Rhythm	1 6	85	0 7	23	0 6	21
Withdrawal	0 8	42	0 5	16	0 1	4
Other†	0 4	21	1 2	39	1 2	42
Using non-reversable methods	**39 9**		**40 5**		**31 1**	
Female sterilization (tubal ligatio	24 2	1,285	17 4	559	10 3	355
Male Sterilization (vasectomy)	8 7	462	10 6	342	13 2	454
Medical Sterilization	7 0	371	12 5	402	7 7	265
Other	**24 6**		**27 5**		**33 8**	
Pregnant	3 8	202	2 4	78	4 0	137
No method	20 8	1,105	25 1	807	29 8	1,027
	100 0	5,313	100 0	3,218	100 0	3,451

† The CFS includes douche, the GSS includes sponge Note all percentages are weighted, all Ns are unweighted

An examination of women in 1995 reveals that the overall picture is similar to that of women in 1984 In both years, non-reversible methods were more common than reversible ones, with "no method" being the least common However, the overall contraceptive practice has changed somewhat since 1984 For women in their reproductive ages, the proportion of reversible-method users declined to 32% in 1995, whereas the share of non-reversible users remained virtually unchanged It is worth noting that Canada's levels of voluntary sterilization remains high in comparison with other developed countries (Dumas and Belanger, 1998, United Nations, 1996b)

Table 10 illustrates the increase in non-contraceptive use among women from 21% in 1984 to 25% in 1995 Correspondingly, the overall level of contraceptive use (including tubal ligation and vasectomy) also declined from 68% to 60% It should be noted that while the overall decline in contraceptive use is consistent with previous research (Dumas and Belanger, 1998), it should be interpreted with caution due to the differences in the surveys

Table 10 also shows that of all the reversible methods, the pill and condom have remained the most popular contraceptive choices among women While pill use declined from 19% to 17% between 1984 and 1995, condom use increased from 6% to 9% The use of all other reversible methods declined somewhat during this time period The level of reliance on sterilization changed little, but the type of sterilization for women changed dramatically, there was a substantial decline in female tubal ligation and an increase in male vasectomy and female medical sterilization

Turning to men's contraceptive behaviour, it is apparent that condom use is a considerably more popular method for men than for women However, the reverse is true

for pill use One explanation for this discrepancy is that women who rely on the pill for contraception may continue its use even while they are not sexually active The same could be said for men's condom use (Toulemon and Leridon, 1998) However, the lack of sexual activity information precludes testing this assumption Also, without information on multiple method use, we are unable to assess to what extent these responses represent contraceptive overlap

Finally, there were gender differences in sterilization as well The level of sterilization (including their own or partners' sterilization) was generally lower for men (31%) than for women (40%) While the incidence of female tubal ligation reported by women is higher than that reported by men, the reverse is true for male vasectomy As would be expected, the level of medical sterilization is also higher when reported by women than men

Men's overall levels of non-contraceptive use were also higher (30%) than women's (25%) These differences are fairly consistent with previous research While recent studies of women and men living in either a marital or non-marital union have suggested that couples tend to make a joint decision on the method of contraception, with little variation of reporting contraceptive practice when asked separately, non-couple studies of women and men of all marital statuses have shown a discrepancy of approximately 5% when reporting contraceptive choice (United Nations, 1996b)

5 1 1 Age Patterns

As with the age-dependency of fertility behaviour, age is one of the most important factors determining contraceptive behaviour Family planning decisions center

around women's reproductive ages During this period, as contraceptive needs change, the choice of contraceptive method may also change accordingly For example, young people may choose a contraceptive method that not only allows them to delay childbearing but also reduces the risk of contracting STD's Older contraceptive users, particularly those who are living as a couple, are perhaps more concerned with pregnancy control and birth spacing As women age, and fecundity declines, concerns may become more health related (e g , the side-effects of some contraceptives) than contraception related (Balakrishnan et al , 1993, Piccinino and Mosher, 1998, Menken, 1985)

Table 11 shows age patterns of women's contraceptive use in 1984 and 1995 It is clear that in 1984 pill use was much less prevalent among women after age 29, but did not decline in prevalence by women in 1995 until after age 35 This may be attributable to the more recent development of birth control pills with lower estrogen levels that are safer for older women (Riphagen et al , 1988, Volpe et al , 1993)

Condom use was higher among all age groups in 1995, with the exception of those aged 45-49 In this age group, the prevalence rate declined from 6% in 1984 to 1% in 1995 IUD use declined among all age groups, with the exception of women aged 45-49 The use of some less reliable methods (e g , diaphragm and foam) also declined in prevalence during this period

As would be expected, reversible methods are predominant among women under age 30 After that age, sterilization becomes more prevalent While the rate of tubal ligation declined substantially among all age groups between 1984 and 1995, the rate of male vasectomy, as reported by women aged 30-49, increased somewhat The rate of medical sterilization also increased in all age groups up to age 45

Table 11 Percentage Distribution of Women, by Age, Current Contraceptive Use 1984 CFS and 1995 GSS

	1984 CFS							1995 GSS						
	18-24	25-29	30-34	35-39	40-44	45-49	*N*	18-24	25-29	30-34	35-39	40-44	45-49	*N*
Reversable methods														
Pill	43 7	26 7	13 1	5 1	2 2	0 2	1,019	38 0	29 7	20 9	6 1	1 2	2 0	546
Condom	4 6	9 8	7 5	5 7	3 6	5 6	331	12 5	11 4	11 8	11 0	6 8	1 3	304
IUD	3 6	8 2	10 1	6 7	2 8	1 0	302	0 8	4 1	2 9	3 8	1 9	2 4	85
Diaphragm	0 4	2 6	1 1	1 4	0 9	0 5	62	0 0	0 4	0 2	0 0	1 0	0 0	8
Foam	0 2	0 7	0 8	0 5	0 6	0 7	28	0 3	0 4	0 5	0 2	0 0	0 0	8
Rhythm	1 0	1 6	2 2	1 8	2 0	1 7	87	0 3	0 6	1 2	1 2	0 6	0 4	24
Withdrawal	0 8	1 4	0 6	0 5	0 5	0 7	42	0 2	1 0	0 7	0 5	0 4	0 2	16
Other†	0 5	0 4	0 4	0 4	0 2	0 5	21	1 0	1 8	2 2	0 7	1 4	0 2	40
Non-reversable methods														
Tubal ligation	1 3	11 1	26 6	42 3	46 7	42 8	1,286	0 5	4 9	11 7	25 7	29 5	36 0	559
Vasectomy	0 8	5 3	12 6	13 9	16 5	9 8	461	0 5	4 1	13 4	16 1	17 6	12 7	342
Medically sterilized	0 5	1 9	3 6	8 8	14 3	24 7	372	2 5	5 9	7 9	13 1	23 6	25 3	402
No method‡	42 8	30 2	21 5	13 1	9 7	12 0	1,306	43 3	35 6	26 6	21 6	16 2	19 3	886
Total	100 0	100 0	100 0	100 0	100 0	100 0	5,317	100 0	100 0	100 0	100 0	100 0	100 0	3 220

† The CFS includes douche, the Gss includes sponge ‡ Includes pregnant women Note all percentages are weighted, all Ns are unweighted

An age pattern of non-users is also evident In all age groups, there was an increase in the proportion of non-users between 1984 and 1995 The rate of increase is particularly apparent in older age groups These findings may again suggest an overall decline in contraceptive use between 1984 and 1995 While the increase in the rate of non-users could reflect an increased demand for children, the stable fertility during this period (with total fertility rate of about 1 6) lends little support to this premise (Ford and Nault, 1996)

5 2 Characteristics of Contraceptive Users vs Non-Users

While there may have been an overall decline in contraceptive use in Canada, the majority of Canadian women in their childbearing ages and adult men of all ages were using some form of contraception This section examines the individual-level characteristics of contraceptive users and non-users "Users" are defined as those who reported using one or more reversible method, or have had a surgical procedure for contraceptive purposes "Non-users" are those who reported that, at the time of the interview, either they or their partners were not currently using any contraceptive method, were pregnant, had been sterilized for medical purposes (such as hysterectomy), or were naturally sterile Table 12 provides a descriptive account of users and non-users by selected individual-level characteristics With few exceptions, most observed differences in contraceptive use between social groups are statistically significant based on *chi-square* tests of statistical independence

Table 12 Percentage Distribution, Contraceptive Use or Non-Use, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1984 CFS and 1995 GSS

	1984 Women				1995 Women				1995 Men			
	Users	Non-users†	Total	*N*	Users	Non-users†	Total	*N*	Users	Non-users†	Total	*N*
Age												
18-24	56 8	43 2	100 0	1,318	54 2	45 8	100 0	600	54 3	45 7	0 0	661
25 29	67 8	32 2	100 0	989	58 5	41 5	100 0	492	56 2	43 8	0 0	486
30-34	74 9	25 1	100 0	924	65 5	34 5	100 0	583	57 3	42 7	0 0	579
35-39	78 0	22 0	100 0	847	65 2	34 8	100 0	574	63 1	36 9	0 0	567
40-44	75 9	24 1	100 0	643	60 2	39 8	100 0	518	59 6	40 4	0 0	495
45-49	63 2	36 8	100 0	593	55 4	44 6	100 0	455	60 9	39 1	0 0	660
Chi-square (df=5)	*160 3* ***				*26 7* ***				*13 0* *			
Marital status												
Married	73 1	26 9	100 0	3,283	66 6	33 4	100 0	1,755	63 3	36 7	100 0	1 767
Cohabitating	82 0	18 0	100 0	450	67 5	32 5	100 0	400	65 1	34 9	100 0	424
Formerly married	65 1	34 9	100 0	439	49 2	50 8	100 0	309	49 7	50 3	100 0	173
Never married	50 9	49 1	100 0	1,142	45 2	54 8	100 0	755	49 7	50 3	100 0	1,086
Chi-square (df=3)	*237 1* ***				*125 0* ***				*64 1* ***			
No of children												
No children	54 9	45 1	100 0	1,870	49 9	50 1	100 0	1,097	49 9	50 1	100 0	1,436
One child	62 8	37 2	100 0	833	50 8	49 2	100 0	502	47 9	52 1	100 0	520
Two or more	79 9	20 1	100 0	2,612	69 8	30 2	100 0	1,620	70 6	29 4	100 0	1,493
Chi-square (df=2)	*330 5* ***				*128 9* ***				*157 6* ***			
Intend to have more children												
Yes	56 4	43 6	100 0	1,938	52 1	47 9	100 0	1,062	49 0	51 0	100 0	1,405
No	75 3	24 7	100 0	3,377	63 9	36 1	100 0	2,158	65 2	34 8	100 0	2,044
Chi-square (df=1)	*204 3* ***				*41 5* ***				*90 0* ***			
Education												
Elementary	68 4	31 6	100 0	1,647	53 5	46 5	100 0	557	52 0	48 0	100 0	677
High school	67 1	32 9	100 0	1,726	60 1	39 9	100 0	666	57 5	42 5	100 0	616
Some college/university	69 6	30 4	100 0	1,940	61 8	38 2	100 0	1,997	60 9	39 1	100 0	2,156
Chi-square (df=2)	*2 6*				*12 4* **				*17 2* ***			

Table 12 Percentage Distribution, Contraceptive Use or Non-Use, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1984 CFS and 1995 GSS

Continued	1984 Women				1995 Women				1995 Men			
	Users	Non-users†	Total	*N*	Users	Non-users†	Total	*N*	Users	Non-users†	Total	*N*
Income												
Q1	67 3	32 7	100 0	1,441	58 2	41 8	100 0	1,018	56 5	43 5	100 0	876
Q2	73 2	26 8	100 0	933	53 5	46 5	100 0	778	52 1	47 9	100 0	829
Q3	62 9	37 1	100 0	1,692	60 8	39 2	100 0	665	62 6	37 4	100 0	746
Q4	73 6	26 4	100 0	1,248	68 5	31 5	100 0	759	62 6	37 4	100 0	998
Chi-square (df=3)	*50 4* ***				*38 3* ***				27 5 ***			
Currently working												
Yes	70 3	29 7	100 0	3,141	60 2	39 8	100 0	1,840	60 5	39 5	100 0	2,702
No	65 8	34 2	100 0	2,174	59 7	40 3	100 0	1,380	51 3	48 7	100 0	747
Chi-square (df=1)	*12 0* ***				*0 1*				*20 7* ***			
Religious affiliation												
Catholic	66 9	33 1	100 0	2,602	58 1	41 9	100 0	1,516	58 1	41 9	100 0	1,540
Protestant	69 8	30 2	100 0	2,134	61 2	38 8	100 0	999	57 4	42 6	100 0	1,001
Other	62 7	37 3	100 0	142	56 6	43 4	100 0	129	42 9	57 1	100 0	147
None	72 3	27 7	100 0	437	63 6	36 4	100 0	577	64 0	36 0	100 0	762
Chi-square (df=3)	*9 8* *				*6 5* *				*25 1* ***			
Religious attendance												
Weekly	61 1	38 9	100 0	1,367	54 7	45 3	100 0	590	50 3	49 7	100 0	519
Sometimes	70 2	29 8	100 0	2,048	59 4	40 6	100 0	975	55 9	44 1	100 0	903
Rarely/never	71 8	28 2	100 0	1,900	62 2	37 8	100 0	1,655	61 9	38 1	100 0	2,027
Chi-square (df=2)	*47 3* ***				*10 3* **				*26 3* ***			
Nativity												
Foreign-born	66 3	33 7	100 0	736	50 9	49 1	100 0	611	51 9	48 1	100 0	595
Canadian-born	68 8	31 2	100 0	4,579	62 1	37 9	100 0	2,609	59 9	40 1	100 0	2855
Chi-square (df=1)	*1 8*				*26 0* ***				*13 0* ***			
Region												
Quebec	70 5	29 5	100 0	1,443	61 6	38 4	100 0	816	57 1	42 9	100 0	902
Rest of Canada	67 6	32 4	100 0	3,872	59 4	40 6	100 0	2,404	59 0	41 0	100 0	2,547
Chi-square (df=1)	*4 1* *				*1 2*				*1 0*			

*p<10 **p< 01 *** p< 001 † Includes pregnant and medically sterilized women Note All percentages are weighted, all Ns are unweighted

An examination of the demographic variables in Table 12 illustrates that for both genders the rate of contraceptive use increases with age until the late 30's and declines thereafter While the rate of contraceptive use decreased among women of all age groups between 1984 and 1995, the largest decrease occurred among women between the ages of 30 and 44 The highest proportion of non-users in 1995 was among women aged 18-24 (46%), and women aged 45 and over (45%) For men, non-use was fairly evenly distributed among the selected age groups, with the highest proportion among the 18 to 24 year olds (46%) While there is no discernible gender pattern in contraceptive use until age 44, the elevated rate of contraception for older men (age 45+) may reflect the increased level of vasectomy reported in 1995

As would be expected, contraceptive users are more likely to be married or living with a cohabiting partner than unattached individuals This partly reflects a generally higher level of sexual activity among married/cohabiting couples The higher rate of contraception use among married and cohabiting couples may also reflect a higher proportion of older married women in their family planning years, or women who have reached their desired family size (Balakrishnan et al , 1993, Piccinino and Mosher, 1998) However, between 1984 and 1995, there was a reduction in contraceptive use for women in all marital statuses The most conspicuous reduction occurred among previously married women (from 65% to 49%) This may be due in part to the increased level of medical sterilization (i e hysterectomy) reported by women in 1995

Table 12 shows that in 1984, contraceptive use increases with parity (number of children) and is high among individuals who do not desire (more) children For both women and men in 1995, there is little difference in use between those with no children

and those with one child However, contraceptive use does increase considerably for those with two or more children While there is no marked gender difference in contraceptive use across parities, a reduction in contraceptive use (for women) occurred at all parities between 1984 and 1995 The reduction is particularly evident for women with one or more children Prior research has shown that birth spacing between the first and second birth is relatively short for Canadian women (Balakrishnan et al , 1993, Rao and Balakrishnan 1989) The increase in non-use among these women may reflect an increased desire to have more children sooner Indeed, recent Canadian data have shown an increase in fertility among women in their 30's (Ford and Nault, 1996, Wadhera and Miller, 1991) In other words, women who have delayed childbearing into their 30's may not want a long interval between the birth of the first child and the second

Turning to SES, while contraceptive use does not vary much with education ($p< 10$) for women in the 1984 CFS sample, there is a positive association with education and contraceptive use for both genders in the 1995 GSS sample Consistent with the well-known negative effect of education on fertility, contraceptive use increased with education This may also be due to an increase in knowledge of contraceptive options and better understanding of the health implications of contraceptive use and non-use This stronger association in 1995, may be due in part to the differences in the education levels of the samples In the 1984 sample only 36% of the women had some post-secondary education, compared with 62% of the women in the 1995 sample

The influence of family income is less evident, although the 1995 data does tend to suggest a positive association of income with contraceptive use Moreover, the rate of contraceptive use varies with men's employment status, with an increased use among

men working outside their home Taken together, an increase in SES tends to be associated with an increased level of contraceptive use This supports the notion that " socioeconomic status may affect the opportunity cost of children and preference for children compared with attaining other goals " (Piccinino and Mosher, 1998 7) For example, individuals may delay marriage and children until their education is complete and/or their careers are fully established, or they have purchased their first home (Balakrishnan et al , 1993, Rahim and Ram, 1993)

Cultural variables are considered next, including religion, church attendance, region, and nativity (immigrant status) While recent research has suggested a weakened role of religious affiliation in childbearing decisions, church attendance was considered an influential determinant of Canadian fertility in 1984 (Balakrishnan et al , 1993, Balakrishnan and Chen, 1990) As illustrated in Table 12 these findings are consistent with earlier studies which suggest that contraceptive use decreases with religious attendance Also, while contraceptive practice does not seem to vary much with religious denomination, contraceptive use is most prevalent among people with no religious orientations Further, between 1984 and 1995, the rate of contraceptive use declined in all religious groups, as well as in all levels of church attendance

It has been suggested by some researchers that immigrant status may influence contraceptive practice because some immigrants may continue the contraceptive behaviour that was prevalent in their home country and may be less comfortable with the medical practices associated with access to contraception in the receiving country (Balakrishnan et al , 1993) While the CFS data do not suggest a significant association between contraceptive use and immigrant status, the GSS data show that only half of

immigrant women were using contraception, compared with 62% of non-immigrant women Similar patterns are observed for men

Demographic behaviour is known to differ between the province of Quebec and the rest of Canada (Balakrishnan and Wu, 1992, Beaujot and McQuillan, 1982, Pollard and Wu, 1998) Dramatic social changes in the past four decades have fundamentally transformed Quebec from a rural conservative society to the most liberal part of Canada (Lipset, 1990) As a result, sterilization and contraceptive levels in Quebec have increased rapidly over the past two decades and are now equivalent to that of the rest of the country, driving down the province's fertility to be among the lowest in the country (Balakrishnan et al , 1993, Marcil-Gratton and Lapierre-Adamcyk, 1983, De Guibert-Lantoine, 1990) It should not be surprising then, that any difference in contraceptive use between the Quebec residents and the rest of Canadians in 1984 disappears in 1995

In summary, among women aged 18 to 49, there has been an overall decline in contraceptive use over the last decade The largest decline occurred among women aged 35-44, previously married women, those with two or more children, and women of lower socio-economic status Similar patterns of contraceptive practice were observed for men in 1995

5 3 Characteristics of Contraceptive Users

At this point, a socio-economic and demographic profile of contraceptive users and non-users has been developed In this section, the focus is on contraceptive users only, examining which contraceptive methods were used and whether the choice of method varied by demographic, socio-economic and cultural factors Tables 13, 14, and

15 present percentage distributions of selected contraceptive methods using the 1984 CFS data for women and the 1995 GSS data, for women and men, respectively To conserve space and avoid small sample cell problems, the five most popular methods (i e , tubal ligation, vasectomy, the pill, condom, and IUD) were examined, combining all other methods (e g , rhythm, diaphragm, foam, withdrawal) into one category Again, with few exceptions, observed differences in contraceptive use between social groups are statistically significant based on *chi-square* tests of statistical independence

Table 13 Percentage Distribution of Female Contraceptive Users, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1984 CFS

	Tubal ligation	Vasectomy	Pill	Condom	IUD	Others†	Total	*N*
Age								
18-24	2 3	1 5	76 9	8 1	6 3	4 9	100 0	749
25-29	16 4	7 7	39 3	14 5	12 1	10 0	100 0	671
30-34	35 5	16 8	17 5	10 0	13 4	6 8	100 0	692
35-39	54 2	17 8	6 5	7 3	8 6	5 6	100 0	662
40-44	61 5	21 7	2 9	4 7	3 7	5 5	100 0	488
45-49	67 7	15 5	0 3	8 8	1 6	6 1	100 0	375
Chi-square (df=25)	*1 858 0* ***							
Marital status								
Married	41 7	17 6	15 0	10 7	8 0	6 9	100 0	2,401
Cohabitating	21 5	6 0	48 9	6 5	10 1	7 1	100 0	368
Formerly married	62 6	4 2	17 8	2 1	10 5	2 8	100 0	286
Never married	4 3	1 0	73 3	7 4	7 2	6 7	100 0	581
Chi-square (df=15)	*1,079 2* ***							
No of children								
No children	4 5	2 8	66 6	9 6	7 9	8 6	100 0	1,026
One child	22 6	7 6	32 1	14 5	15 7	7 5	100 0	523
Two or more	53 7	18 8	8 0	7 5	6 6	5 4	100 0	2,088
Chi-square (df=10)	*1 573 7* ***							
Intend to have more children								
Yes	0 6	0 1	65 4	14 3	10 1	9 5	100 0	1,093
No	50 2	18 2	11 9	6 9	7 5	5 3	100 0	2,544
Chi-square (df=5)	*1 582 7* ***							
Education								
Elementary	52 0	14 7	19 2	4 9	5 5	3 8	100 0	1,126
High school	28 7	12 7	36 3	7 9	8 3	6 2	100 0	1,161
Some college/university	27 1	11 1	28 3	13 7	10 7	9 2	100 0	1,352
Chi-square (df=10)	*295 6* ***							
Income								
Q1	34 8	6 6	37 2	7 8	7 4	6 1	100 0	970
Q2	32 0	15 4	27 2	9 9	7 9	7 6	100 0	684
Q3	36 1	13 2	27 4	10 1	7 8	5 5	100 0	1,064
Q4	37 4	16 7	19 6	8 8	10 0	7 5	100 0	920
Chi-square (df=15)	*113 3* ***							
Currently working								
Yes	33 8	11 5	30 8	8 1	9 0	6 8	100 0	2,208
No	37 6	14 6	23 7	10 7	7 2	6 2	100 0	1,429
Chi-square (df=5)	*35 6* ***							
Religious affiliation								
Catholic	34 4	12 0	30 3	7 9	8 0	7 3	100 0	1,743
Protestant	38 9	14 4	24 8	8 7	7 6	5 6	100 0	1,490
Other	23 6	3 4	23 6	28 1	15 7	5 6	100 0	89
None	26 9	11 1	31 0	12 7	11 1	7 3	100 0	316
Chi-square (df=15)	*92 9* ***							

Table 13 Percentage Distribution of Female Contraceptive Users, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1984 CFS

	Tubal ligation	Vasectomy	Pill	Condom	IUD	Others†	Total	*N*
Continued								
Religious attendance								
Weekly	43 7	14 7	15 3	9 7	5 9	10 7	100 0	835
Sometimes	33 1	12 3	31 9	9 1	8 1	5 4	100 0	1,436
Rarely/never	32 5	11 9	31 7	8 7	9 9	5 3	100 0	1,365
Chi-square (df=10)	*125 9* ***							
Nativity								
Foreign-born	38 9	11 7	13 7	16 4	8 0	11 3	100 0	488
Canadian-born	34 8	12 9	30 2	8 0	8 3	5 8	100 0	3,148
Chi-square (df=5)	*95 3* ***							
Region								
Quebec	33 9	12 5	30 7	8 5	8 2	6 2	100 0	1,018
Rest of Canada	35 9	12 8	26 9	9 4	8 3	6 7	100 0	2,619
Chi-square (df=5)	*5 6*							

*p<10 **p< 01 *** p< 001 †Includes diaphragm, foam, rhythm, withdrawal, douche and other contraceptive methods Notes categories may not add to 100% due to rounding Percentages are weighted, all Ns are unweighted

Table 14 Percentage Distribution of Female Contraceptive Users, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1995 GSS

	Tubal ligation	Vasectomy	Pill	Condom	IUD	Others†	Total	*N*
Age								
18-24	0 9	0 9	70 2	23 1	1 5	3 4	100 0	325
25-29	8 4	7 0	50 9	19 5	7 0	7 3	100 0	287
30-34	17 8	20 4	31 9	18 1	4 5	7 3	100 0	382
35-39	39 2	24 5	9 3	16 8	5 9	4 3	100 0	375
40-44	49 0	29 2	1 9	11 2	3 2	5 4	100 0	312
45-49	65 1	23 0	3 6	2 4	4 4	1 6	100 0	252
Chi-square (df=25)	*937 5* ***							
Marital status								
Married	33 7	27 0	14 9	14 4	4 5	5 6	100 0	1,168
Cohabitating	17 0	10 0	46 7	16 7	5 2	4 4	100 0	270
Formerly married	62 5	0 0	16 4	10 5	5 9	4 6	100 0	152
Never married	7 0	0 0	64 6	22 2	2 6	3 5	100 0	342
Chi-square (df=15)	*584 7* ***							
No of children								
No children	2 9	2 6	63 5	24 5	1 5	5 1	100 0	548
One child	18 4	9 0	35 2	24 6	4 3	8 6	100 0	256
Two or more	43 9	27 1	9 6	9 6	5 8	4 2	100 0	1,130
Chi-square (df=10)	*839 4* ***							
Intend to have more children								
Yes	0 4	0 2	65 3	24 4	3 4	6 3	100 0	553
No	40 3	24 8	13 4	12 3	4 7	4 4	100 0	1,378
Chi-square (df=5)	*769 9* ***							
Education								
Elementary	48 7	12 8	22 1	7 4	3 7	5 4	100 0	298
High school	36 3	21 3	22 3	14 0	4 8	1 5	100 0	400
Some college/university	21 8	17 8	31 7	18 3	4 4	6 1	100 0	1,235
Chi-square (df=10)	*122 7* ***							
Income								
Q1	30 9	11 8	30 9	17 4	5 6	3 4	100 0	592
Q2	25 0	11 5	34 4	16 1	5 5	7 5	100 0	416
Q3	30 1	24 7	26 2	13 1	2 2	3 7	100 0	405
Q4	28 7	24 0	22 1	15 8	3 7	5 8	100 0	520
Chi-square (df=15)	*82 3* ***							
Currently working								
Yes	29 2	18 1	29 6	14 1	4 1	5 0	100 0	1,108
No	28 5	17 2	26 5	18 0	4 7	5 1	100 0	824
Chi-square (df=5)	*7 0*							
Religious affiliation								
Catholic	28 5	19 3	29 3	15 7	4 1	3 2	100 0	881
Protestant	32 5	19 5	24 9	13 6	3 6	5 9	100 0	610
Other	29 2	5 6	22 2	20 8	13 9	8 3	100 0	72
None	24 0	13 7	32 5	18 6	4 1	7 1	100 0	366
Chi-square (df=15)	*56 2* ***							

Table 14 Percentage Distribution of Female Contraceptive Users, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1995 GSS

	Tubal ligation	Vasectomy	Pill	Condom	IUD	Others†	Total	*N*
Continued								
Religious attendance								
Weekly	35 8	24 1	19 1	12 7	2 8	5 6	100 0	324
Sometimes	30 4	19 9	26 8	14 9	4 3	3 8	100 0	579
Rarely/never	25 8	14 6	31 9	17 3	4 9	5 5	100 0	1,030
Chi-square (df=10)	*47 5* ***							
Nativity								
Foreign-born	25 8	14 5	16 5	25 5	7 7	10 0	100 0	310
Canadian-born	29 5	18 3	30 5	13 9	3 7	4 0	100 0	1,621
Chi-square (df=5)	*72 5* ***							
Region								
Quebec	27 8	18 8	30 4	14 9	6 0	2 2	100 0	504
Rest of Canada	29 3	17 4	27 5	16 1	3 8	5 9	100 0	1,429
Chi-square (df=5)	*16 9* **							

*p<10 **p< 01 *** p< 001 †Includes diaphragm, foam, rhythm, withdrawal, douche and other contraceptive methods Notes categories may not add to 100% due to rounding Percentages are weighted, all Ns are unweighted

5 3 1 Women in 1984-95

The following discussion will examine the demographic, socio-economic, and cultural variations in contraceptive use, among women aged 18 to 49, over the two time periods

5 3 1 1 Demographic Variations

Tables 13 and 14 show that female tubal ligation increases with age At almost every age, this method of contraception is more common among women than (their partners') vasectomy This was expected because the data on sterilization were retained only for the respondents' own sterilization procedure and not their partners' In both years, less than 3% of women in their childbearing ages have had a tubal ligation by age 24 This percentage rises to over 65% for women over age 45 Between 1984 and 1995, the rate of tubal ligation declined in all age groups, particularly among women over age 30, but the rate of vasectomy increased substantially after age 30 The pill is the preferred method among women under age 30 at both time points Between 1984 and 1995, pill use increased for women over age 25, particularly among women aged 30-34 Condom use was also higher for women under age 45 During this period, the use of IUD declined for women under age 40

The most favoured method among women of all marital statuses remained unchanged between 1984 and 1995 Tubal ligation remains the most common contraceptive choice among married and previously married women, while the pill remains the preferred method by single women For married women, the rate of tubal

ligation declined from 42% to 34%, whereas the rate of (their partners') vasectomy rose from 18% to 27% For single women, while pill use declined somewhat, the rate of condom use tripled during this period

As would be expected, the pill is the predominant method used for childless women Among women with two or more children, tubal ligation and (partners') vasectomy become predominant Similar patterns are also observed for women who desire no (more) children Further, a decline in tubal ligation and an increase in (partners') vasectomy (except for childless women) are observed among women in all parities There was also an increase in condom use for women in all parities

5 3 1 2 Socio-Economic Variations

Tubal ligation and the pill were the predominant contraceptive choices among women of all educational levels While there was an overall decline in tubal ligation, the rate of tubal ligation actually increased among women with high school education between 1984 and 1995 In both years, tubal ligation was the most popular method among women with elementary education, while the pill remained most popular among those with some college or university education The decline in (partners') vasectomy observed among women in the lowest educational status is inconsistent with the overall increase in vasectomy Moreover, an increase in (partners') condom use occurred in all educational levels, while the rate of IUD use declined

As with education, tubal ligation and the pill were the most popular methods among women of all income levels The pill was most common among women with less income While tubal ligation appears to vary little with income, (partners') vasectomy is

more common for women with higher family income Condom use was higher in 1995 at all income levels and IUD use was lower In 1984, other methods are highest among women with higher education, while in 1995 other methods are highest among those with elementary education and those with some college or university

5 3 1 3 Cultural Variations

Consistent with earlier findings, religious affiliation does not appear to have much influence on contraceptive choice While there is little difference between the contraceptive preferences of Catholic and Protestant women in both years, there are some differences between these two affiliations and women of other religious faiths Tubal ligation and the pill were the predominant contraceptive methods used by women of all religious faiths With the exception of women of other religious affiliations, tubal ligation declined in all religious groups between 1984 and 1995, while (partners') vasectomy increased in all groups including those with other religious orientations Condom use also increased in all groups, except those with other religious orientations IUD use declined in all groups

While tubal ligation and the pill are predominant among women in all levels of church attendance, the incidence of tubal ligation appears to increase with church attendance The reverse is true for pill use Further, between 1984 and 1995, tubal ligation declined, and (partners') vasectomy increased in all levels of church attendance While pill use changed little, condom use increased and IUD use decreased in all groups It is also interesting to note that regular church goers are most likely to have had tubal ligation procedure but are least likely to use the pill for contraception

Turning to immigrant status, the findings indicate that immigrant women are less likely to use the pill than Canadian-born women The reverse holds for (partners') condom use A decrease in tubal ligation and an increase in (partners') vasectomy and condom use are observed in both groups Finally, regional differences between Quebec and the rest of the country were generally small and non-significant (in 1984)

5 3 2 Men in 1995

Turning to men's contraceptive choices, Table 15 presents the demographic, socio-economic, and cultural variations for men in 1995

Table 15 Percentage Distribution of Male Contraceptive Users, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1995 GSS

	Tubal ligations	Vasectomy	Pill	Condom	IUD	Others†	Total	*N*
Age								
18-24	0 3	0 6	17 5	75 6	0 6	5 6	100 0	360
25-29	2 6	3 7	26 4	63 4	0 4	3 7	100 0	273
30-34	9 3	19 5	25 8	38 1	2 4	4 8	100 0	333
35-39	20 3	31 2	16 2	26 5	2 2	3 6	100 0	359
40-44	27 5	38 3	5 8	21 0	4 1	3 4	100 0	295
45-49	40 4	38 0	5 0	10 9	3 7	2 0	100 0	403
Chi-square (df=25)	*862 3* ***							
Marital status								
Married	26 9	33 4	15 6	17 7	3 1	3 2	100 0	1,117
Cohabitating	19 6	17 1	35 3	23 3	2 2	2 5	100 0	275
Formerly married	0 0	35 6	1 1	51 7	2 3	9 2	100 0	87
Never married	0 0	0 6	7 9	86 1	0 4	5 0	100 0	541
Chi-square (df=15)	*942 7* ***							
No of children								
No children	1 8	1 9	20 6	70 5	0 4	4 7	100 0	718
One child	12 9	10 8	26 5	41 4	2 0	6 4	100 0	249
Two or more	29 5	39 1	9 6	15 6	3 5	2 8	100 0	1,054
Chi-square (df=10)	*889 2* ***							
Intend to have more children								
Yes	0 0	0 7	24 2	69 4	0 9	4 8	100 0	687
No	26 7	33 6	11 2	22 2	2 9	3 4	100 0	1,330
Chi-square (df=5)	*725 9* ***							
Education								
Elementary	25 7	24 6	14 4	32 8	0 6	2 0	100 0	354
High school	21 8	21 2	11 3	38 5	1 7	5 4	100 0	353
Some college/university	14 2	22 1	17 1	39 6	2 9	4 0	100 0	1,314
Chi-square (df=10)	*48 8* ***							
Income								
Q1	14 3	15 4	20 6	44 8	1 2	3 6	100 0	495
Q2	16 9	15 7	9 7	50 2	1 2	6 3	100 0	432
Q3	16 9	27 2	17 3	33 0	2 1	3 4	100 0	467
Q4	21 1	29 1	14 4	28 6	4 0	2 7	100 0	625
Chi-square (df=15)	*125 6* ***							
Currently working								
Yes	19 7	25 1	16 3	33 1	2 3	3 4	100 0	1,636
No	8 4	11 0	12 8	60 3	1 8	5 7	100 0	383
Chi-square (df=5)	*117 5* ***							
Religious affiliation								
Catholic	18 0	24 7	15 4	36 6	1 8	3 5	100 0	894
Protestant	17 9	26 3	14 6	35 3	2 6	3 3	100 0	575
Other	10 9	14 1	6 3	56 3	6 3	6 3	100 0	64
None	17 4	14 5	18 4	42 4	2 3	4 9	100 0	488
Chi-square (df=15)	*48 1* ***							

Table 15 Percentage Distribution of Male Contraceptive Users, According to Selected Demographic, Socio-Economic, and Cultural Characteristics, 1995 GSS

	Tubal ligation	Vasectomy	Pill	Condom	IUD	Others†	Total	*N*
Continued								
Religious attendance								
Weekly	15 7	29 9	13 8	31 0	0 8	8 8	100 0	261
Sometimes	19 6	23 9	16 2	34 8	3 0	2 6	100 0	506
Rarely/never	17 2	20 3	15 8	41 1	2 3	3 3	100 0	1,254
Chi-square (df=10)	*43 1* ***							
Nativity								
Foreign-born	16 9	10 7	16 9	48 1	4 2	3 2	100 0	308
Canadian-born	17 7	24 6	15 4	36 5	1 9	4 0	100 0	1,710
Chi-square (df=5)	*38 7* ***							
Region								
Quebec	16 3	25 6	15 9	37 7	1 6	2 9	100 0	515
Rest of Canada	18 0	21 3	15 5	38 4	2 5	4 3	100 0	1,504
Chi-square (df=5)	*7 1*							

*p<10 **p< 01 *** p< 001 †Includes diaphragm, foam, rhythm, withdrawal, douche and other contraceptive methods Notes categories may not add to 100% due to rounding Percentages are weighted all Ns are unweighted

5 3 2 1 Demographic Variations

For men in 1995, an age pattern of contraceptive use is evident Unlike women, condom use is predominant until age 35, peaking in the early 20's However, similar to the findings for women, the rates of vasectomy and (partners') tubal ligation become prevalent after the late 30's Male vasectomy is more common than (their partners') tubal ligation, which is consistent with the finding of women's tubal ligation Also, as would be expected, (their partners') pill use is more prevalent in younger ages than in older ages

The pattern of contraceptive choices by marital status is comparable to that of women Like women, sterilization is less common among single men than men in other marital statuses Condom use is predominant among single and previously married men, whereas the pill and sterilization are more common among married/cohabiting men It is worth noting that among those previously married, only 36% of men are sterilized, compared to 63% of the previously married women Also, 86% of single men are condom users, compared to 22% of single women, with 65% relying on the pill (see Tables 14 and 15) This pattern of findings may suggest that among single people, women users are more concerned with fertility control, while men users are more concerned with the prevention of contracting STD's

The patterns of parity and childbearing intentions are also similar between men and women Childless men are primarily condom users (71%), compared to 64% of childless women being pill users At parity one, the proportion of condom use for men is reduced to 42%, while the proportion of sterilization increases to 24% At higher parities, the corresponding figures are 16% and 69%, respectively Moreover, men who

desire (more) children are more likely to rely on condom and the pill for contraception than men who do not

5 3 2 2 Socio-Economic Variations

The effect of education is more evident in tubal ligation than vasectomy Like women, the rate of (partners') tubal ligation decreases with education, and condom use rises with education In all levels of education, the condom is the most preferred choice of contraception The same is true for family income Also, condom use declines with income, which may reflect an aging effect as family income generally rises with age until at least middle age Further, both (partners') tubal ligation and vasectomy generally increase with family income Finally, while work status was not associated with contraceptive choice for women, the same cannot be said for men Men working outside the home tend to have higher rates of sterilization and (partners') pill use but a lower rate of condom use

5 3 2 3 Cultural Variations

The effect of religion on contraceptive choice is similar between men and women The rate of sterilization is higher for Catholics and Protestants than others Condom use is predominant in all religious groups, particularly among men with non-Christian backgrounds Church attendance also shows some influence, the rate of vasectomy increases with church attendance The reverse is true for condom use These findings are generally consistent with those reported for women

As with religious influences, there is little gender difference in the effect of immigration status Vasectomy is less common among immigrants than non-immigrants The opposite is true for condom use There are, however, few variations in (partners') tubal ligation and pill use Finally, the differences in contraceptive choice are small and non-significant between the Quebecois and the rest of Canadians

In summary, among contraceptive users in 1995, there are few variations by gender Men's age pattern of condom use is similar to women's pill use, condom use is predominant until age 35, peaking around age 20 Unlike women, men's work status is associated with contraceptive use Men working outside the home have higher rates of reliance on sterilization and their partners' pill use

5 4 Contraceptive Choice in 1995

This section presents the results of the multivariate analysis of contraceptive choice of women and men in 1995 As noted, a series of multinomial logit models were estimated to examine a set of individual-level characteristics that may influence contraceptive choice

5 4 1 Choice of Methods versus No Method

To ascertain the determinants of choice of method versus no method, 3 probability contrasts for each gender were modeled 1) condom use versus non-use, 2) pill use versus non-use, and 3) other method versus non-use Table 16 presents parameter estimates for these models

Table 16 Multinomial Logit Models of Contraceptive Use, 1995 GSS

	Women			Men		
Independent Variable	Condom v None	Pill v None	Other v None	Condom v None	Pill v None	Other v None
Demographic Variables						
Age	0 367 ***	0 464 ***	0 113 *	0 212 ***	0 182 ***	0 238 ***
Age2	-0 006 ***	-0 009 ***	-0 001 *	-0 004 ***	-0 004 ***	-0 003 ***
Marital Status						
Cohabiting	0 344 *	0 451 ***	0 328 **	-0 188	1 245 ***	0 914 ***
Previously married	-0 715 ***	-0 379 *	0 267 **	0 010	-1 145 ***	-0 666 ***
Single/Never married	-0 218	-0 138	-0 659 ***	0 479 ***	-0 655 ***	-1 132 ***
Married†						
Number of Children	0 039	-0 104	0 537 ***	0 104	0 011	0 458 ***
Childbearing Intentions						
Yes	-0 112	-0 165 *	1 051 ***	-0 201 ***	-0 231 **	-1 435 ***
No†						
Socio-Economic Status						
Education	0 137 ***	0 051 *	0 019	0 045 *	0 076 **	0 014
Family income	0 029	0 017	0 137	0 016	0 022	0 014
School Enrollment						
Yes	0 129	0 103	0 065	0 029	0 032	0 054
No†						
Currently Working						
Yes	-0 236 **	0 085	0 036	0 079	-0 010	0 033
No†						
Cultural Background						
Religion						
Protestant	-0 231	-0 525	-0 086	-0 424	-0 220	-0 209
Other religions	-0 224	-0 791 *	-0 048	-0 303	-1 391 **	-0 707 *
No religious affiliation	0 393	1 905 *	0 289	1 110 **	1 786 **	1 006 **
Catholic†						
Church Attendance	-0 179 ***	-0 126 **	-0 114 ***	-0 169 ***	-0 092	-0 174 ***

Table 16 Multinomial Logit Models of Contraceptive Use, 1995 GSS

	Women			Men		
Independent Variable	Condom v None	Pill v None	Other v None	Condom v None	Pill v None	Other v None
Continued						
Canadian Born						
Yes	-0 126	0 414 ***	0 274 ***	-0 077	0 114	0 216 **
No†						
Quebec						
Yes	0 629	0 100	0 152 *	0 098	-0 049	0 037
No†						
Intercept	-7 484 ***	-6 502 ***	3 700 ***	-3 663 ***	-4 073 ***	-6 752 ***
Likelihood Ratio			7,109 0			7,094 6

Note Dummy indicators for missing values of church attendance and income are included in all models
† Reference category
* $p < 05$ ** $p < 01$ *** $p < 001$

Examining the demographic determinants first, Table 16 illustrates that age has a significant effect on contraceptive choice in all models and the effect is clearly non-linear Contraceptive use rises initially with age and declines after it peaks presumably around middle ages, which is consistent with the descriptive findings and the first hypothesis While there is little variation between the choice of condom and pill over that of no method, other method use is less significant, confirming that women are more likely to chose voluntary sterilization as they age Marital status also has a significant influence on use As expected, the rate of contraceptive use is lower among single (never married) and previously married people than married and cohabiting people It is also interesting to observe that the rate of contraceptive use is higher among cohabitors than married people, reflecting increased demand for fertility regulation among cohabitors

Two fertility variables are also significant As anticipated, an increase in parity raises the rate of contraceptive use, although the effect is only significant for one probability contrast (i e , other method vs non-use) This is probably because other method(s) includes surgical sterilization which is often chosen once the desired family size has been achieved Also as expected, the rate of contraception is significantly lower among people who desire to have any (more) children

Economic status has considerably less influence over contraceptive decisions For women, two economic indicators, namely education and employment status, are significant Consistent with fertility studies, condom and pill use increase with education levels However, working outside the home appears to deter condom use For men, there is a similar positive effect of education Family income and school enrollment have no significant effects for either gender

Cultural indicators have more explanatory power than economic indicators Catholics are less likely to use contraception than individuals with no religious orientation, however, people of other religious orientations are least likely to use contraception As expected, church attendance deters contraceptive use Moreover, individuals born outside of Canada appear to use less contraception than Canadian born individuals However, there is no difference in condom use between the two groups Finally, there is no difference in levels of contraception between Quebec women and men and other Canadians, aside from increased use of other methods This may indicate a higher rate of sterilization in Quebec than elsewhere in Canada

5 4 2 Contraceptive Method Choice of Users Only

To examine contraceptive choice, two conditional probability models were estimated, conditional upon individuals being users The focus is on 2 contrasts 1) condom use vs pill use, and 2) other method vs pill use Table 17 presents the parameter estimates for these model specifications

Again, the demographic variables are examined first Table 17 shows that age is only significant in the second contrast (other method vs the pill) for women, and not significant for men Marital status has a considerably less significant effect for women than for men The findings indicate that single/never married women are more likely to choose the pill over other methods than married women Further, compared to married men, cohabiting men are less likely to be condom users Previously married and single men are most likely to be condom users than any other marital groups

Table 17 Multinomial Logit Models of Contraceptive Choice, Users Only, 1995 GSS

	Women		Men	
Independent Variable	Condom v Pill	Other v Pill	Condom v Pill	Other v Pill
Demographic Variables				
Age	0 000	-0 251 *	0 024	0 150
Age^2	0 001	0 006 ***	0 000	-0 001
Marital Status				
Cohabiting	-0 160	-0 221	-1 433 ***	-0 524 **
Previously married	-0 336	0 291	1 207 ***	0 669 *
Single/Never married	-0 011	-0 485 **	1 190 ***	-0 131
Married†				
Number of Children	0 182	0 811 ***	0 094	0 548 ***
Childbearing Intentions				
Yes	0 140	-0 770 ***	-0 105	-1 034 ***
No†				
Socio-Economic Status				
Education	0 083 *	-0 049	-0 034	-0 070 *
Family income	0 007	-0 003	-0 018	-0 012
School Enrollment				
Yes	0 068	0 061	0 008	0 027
No†				
Currently Working				
Yes	-0 303 **	0 003	0 113	0 100
No†				
Cultural Background				
Religion				
Protestant	0 141	0 461	-0 247	-0 003
Other religions	0 356	0 430	1 010 *	0 651
No religious affiliation	-1 082	-1 394	-0 468	-0 879
Catholic†				
Church Attendance	-0 109	-0 076	-0 052	-0 087

Table 17 Multinomial Logit Models of Contraceptive Choice, Users Only, 1995 GSS

	Women		Men	
Independent Variable	**Condom v Pill**	**Other v Pill**	**Condom v Pill**	**Other v Pill**
Continued				
Canadian Born				
Yes	-0 509 ***	-0 021	-0 260 *	0 029
No†				
Quebec				
Yes	-0 038	0 037	0 128	-0 008
No†				
Intercept	-2 564	1 161	0 586	-4 182 *
Likelihood Ratio		2,578 4		2,620 6

Note Dummy indicators for missing values of church attendance and income are included in all models
† Reference category
* $p < 05$ ** $p < 01$ *** $p < 001$

Both fertility variables are significant As parity increases, the use of other methods (primarily voluntary sterilization methods) increases for both women and men The opposite is true for reproductive intentions As expected, individuals who do not intend to have any, or additional children were more likely to choose other methods These findings may reflect an increased rate of sterilization among people who have achieved their desired family size Interestingly, neither parity nor childbearing intentions, has a significant effect on the choice of pill over condom use as was expected

As in Table 16, the effects of the economic indicators remain weak and generally non-significant with a few notable exceptions The positive effect of education remains significant for condom use (women only), and a similar effect is found for pill use (men only) Working outside the home also has a positive effect on pill use for women

The influences of the cultural variables also abate in 'user' models The effect of religion is generally non-significant for both genders with the exception that condom use appears to be more common among men of other religions Church attendance has no significant effect across models probably because the most religious people tend to be non-users who are not included in the model As expected, individuals born outside of Canada are more likely to use condom than the pill for contraception Finally, there is no significant difference in the choices of Quebec men and women and the rest of Canadians

5 4 3 Method Choice of Single Men and Women

To identify those who are most likely to be at risk of STD infections, the following models focus on the unmarried and non-cohabiting population, as they are

more likely to have multiple sexual partners and engage in unprotected sexual activities As noted, condom use is the most effective measure against STD's and that the pill and sterilization methods are the most reliable measure against unwanted pregnancy Table 18 provides parameter estimates for models of unmarried and non-cohabiting population

As illustrated in Table 18, age has a similar negative curvilinear effect across all models as in Table 16 Marital status has a significant effect for only one contrast other method vs non-use As would be expected, previously married people are more likely rely upon 'other' methods (primarily voluntary sterilization) for contraception than single/never married individuals The effects of fertility variables are also consistent with earlier findings The use of other methods rises with parity but declines with desire for children Pill use also increases with parity for men

Several economic indicators also have significant effects The findings indicate that while school attendance increases both condom and pill use for single women, there is no significant effect for education, income or work status For men, education increases (partners') pill use Income also has a positive effect on condom and (partners') pill use for men Employment status has no significant effect for men

Turning to cultural variables, the findings indicate that condom use is increased among Catholic men Consistent with earlier results, church attendance has a negative influence on contraceptive use Immigrants are less likely to use the pill or other methods (men) than Canadian born individuals Moreover, Quebec women are more likely to be pill users and unmarried Quebec men to be condom users than their non-Quebec counterparts

Table 18 Multinomial Logit Models of Exposure to STDs, Unmarried Men and Women, 1995 GSS

	Women			Men		
Independent Variable	Condom v None	Pill v None	Other v None	Condom v None	Pill v None	Other v None
Demographic Variables						
Age	0 480 ***	0 668 ***	0 156 *	0 256 ***	0 234 *	0 334 *
Age^2	-0 008 ***	-0 013 ***	-0 002 *	-0 004 ***	-0 005 **	-0 005 **
Marital Status						
Single/Never married	-0 014	0 057	-0 240 *	0 004	0 332	-0 549 **
Previously married†						
Number of Children	-0 332	-0 141	0 512 ***	-0 048	0 415 *	0 503 ***
Childbearing Intentions						
Yes	0 065	-0 062	-0 655 ***	0 110	0 209	-0 616 ***
No†						
Socio-Economic Status						
Education	-0 022	0 009	-0 037	0 026	0 204 ***	0 103
Family income	0 073	0 014	-0 006	0 043 *	0 086 *	0 025
School Enrollment						
Yes	0 341 **	0 182 *	0 048	-0 012	0 179	0 296
No†						
Currently Working						
Yes	0 017	0 164	0 100	0 021	-0 140	0 210
No†						
Cultural Background						
Religion						
Catholic	0 348 **	0 040	0 013	0 024	-0 082	-0 011
Non-Catholic†						
Church Attendance	-0 178 *	-0 159 ***	-0 173 ***	-0 172 ***	-0 232 **	0 004
Canadian Born						
Yes	0 001	0 473 ***	0 520 ***	0 045	0 420 *	0 461
No†						
Quebec						
Yes	0 133	0 208 *	0 115	0 146 *	0 242	0 165
No†						
Intercept	-8 466 ***	-8 410 ***	-4 673 ***	-3 821 ***	-6 605 ***	-8 946 ***
Likelihood Ratio			2,887 2			2,783 7

Note Dummy indicators for missing values of church attendance and income are included in all models
† Reference category
* $p < 05$ ** $p < 01$ *** $p < 001$

5 6 Summary

There have been significant changes in contraceptive patterns of use since 1984 The findings from the descriptive analysis revealed that overall reliance on contraceptive use reduced from 68% to 60% in 1995 Pill use declined slightly However, there were higher proportions of women in 1995 using the pill at older ages (between 30 and 39) Condom use increased in 1995, nearly tripling in use among single women Sterilization methods continued to be the predominant method of contraception in 1995, with a slight decline in tubal ligations being offset by the increase in vasectomies Women's medical sterilization levels also increased For men, the high reliance and increased vasectomies indicate increased sharing of contraceptive responsibility between men and women

For both genders, the profile of the non-user is fairly consistent Those choosing not to use contraception tend to be at the beginning or end of their reproductive years, single or previously married, those with 2 or more children, women and men of lower socio-economic status, of religious faiths other than Christian, those who attend church frequently, and those who were foreign born

The regression results of the demographic, socio-economic, and cultural characteristics associated with contraceptive choice based on rational choice and ideational theory were also presented The results indicated that for women education and working outside the home were significant economic indicators of contraceptive use Pill and condom use increased with education levels, while condom use was negatively associated with working outside the home Only education was associated with contraceptive use for men Cultural indicators had more explanatory power than SES Non-Christian individuals were least likely to use contraception, and increased church

attendance reduced contraceptive use While individuals born outside of Canada were less likely to chose contraception than other Canadians, there was no difference in the behaviour of Quebeckers

Further analysis of contraceptive users revealed that once the decision to use a contraceptive measure was taken, demographic factors were most important in terms of the choice between methods, while economic and cultural effects were generally weak Among single individuals who are more at risk for STD's, the findings revealed that economic indicators had little influence on the choice to use contraception, while cultural indicators were significant

The following chapter provides a discussion of the findings of this research, and the limitations and implications of this study

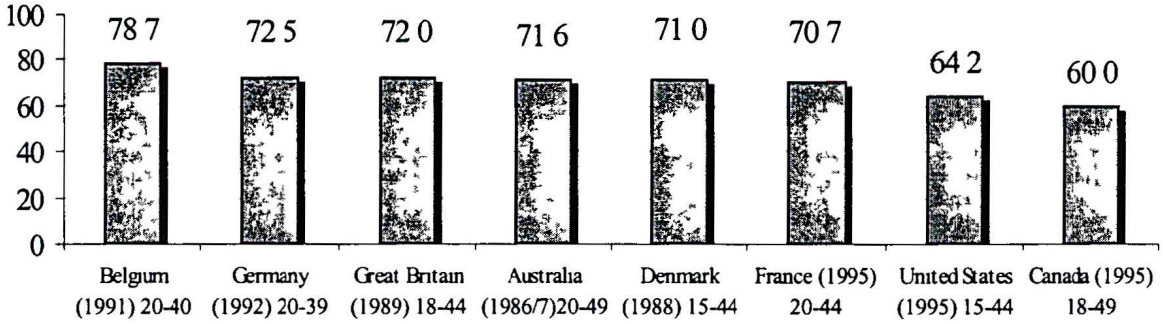
Chapter 6 Discussion

This chapter provides a discussion of the findings of this research and is presented in 5 sections The first section discusses the trends in contraceptive use since 1984 The second section provides a discussion of the differences in contraceptive behaviour between the sexes, followed by the contraceptive choices of Canadians in 1995 This will be followed by a discussion of the policy implications of this study and the summary to this chapter

6 1 Trends in Contraceptive Use

This examination of the recent trends in contraceptive behaviour in Canada reveals that sterilization, the pill, and the condom have remained Canadians' primary contraceptive choices since the 1960's, when the contraceptive revolution began The analysis further suggests that between 1984 and 1995, there was a decline in contraceptive use from a prevalence rate of 69% to 60% among women in their reproductive ages While not at an alarming level, the decline in the use of contraception is cause for concern As illustrated in Figure 7, among industrialized countries, Canada is now among the lowest in contraceptive use The prevalence rate is even lower than that of the United States, where there is no universal health care system (United Nations, 1996b, Piccinino and Mosher, 1998)

Figure 7 Contraceptive Users (%), Women of Reproductive Age, Selected Countries, Various Years



Sources United Nations (1996b 140) with the exceptions of the French data from Toulemon and Leridon (1998), the US data from Piccinino and Mosher (1998), and the Canada data from the 1995 GSS

The decline in contraception is most evident in female tubal ligation, pill use, IUD use, and other less reliable methods such as diaphragm and rhythm methods One possible explanation for the overall decline in contraceptive use is the changing age structure of the Canadian population Canada's fertility level has been below replacement level since the mid-1970's As the post-war baby boom cohort ages, the segment of the sexually active population in their reproductive years has declined For example, between 1984 and 1995, the number of women aged 15-34 as a percentage of the population declined from 17 7% to 14 8% (Statistics Canada, 1999) Representative of the aging of the Canadian population over the past decade, the 1995 sample had a higher proportion of women over the age of 34 than the 1984 sample (48% and 39% respectively) While the rate of non-contraceptive use tends to be higher among younger women than among older women, the largest decline in contraceptive use over the past decade occurred among women over age 30 These findings suggest that the overall

decline in contraceptive use may be a result of a larger segment of the reproductive population (women over 30) not practicing contraception

Why would older women not be practicing contraception? The substantial decline in tubal ligation and increase in medical sterilization among women suggests that while some women were not practicing contraception, they may nonetheless have been contraceptively protected, contributing to the overall decline in contraceptive use Also, the substantial decline in contraception among formerly married women (from 65% to 49%) may indicate that these women were either sexually inactive or medically sterilized as well

These results also suggest a substantial increase in condom use between 1984 and 1995 (from 6% to 10%), although the rise in condom use did not offset the overall decline in contraceptive use The most predominant increase in condom use occurred among women under age 30 The increase in condom use does not appear to be at the expense of women's reliance on the pill Rather, it is the decline in other methods, particularly the IUD, which accounts for much of this shift The rise in condom use may be indicative of increased concerns and awareness of STD's including HIV/AIDS, and is consistent with prior research (Piccinino and Mosher, 1998, Toulemon and Leridon, 1998) The finding that the increase is most dramatic among young women is particularly encouraging However, without knowledge of multiple-method use or sexual activity (and history), it is not possible to ascertain what proportion of young Canadian women are actually protected from both STD's and unwanted pregnancies

Consistent with previous fertility and contraceptive research, socio-economic status continues to be a factor in contraceptive behaviour (Balakrishnan et al , 1993) For

example, the 1995 GSS data suggest that 47% of women and 48% of men with less than high school education were not using contraception Whereas, for women, only 40% of those with high school education were not using any contraception, and the comparable figure for men is 43% Lower levels of contraceptive use were also associated with lower (family) income These results are consistent with prior research that the incidences of STD's, including HIV/AIDS, and unwanted pregnancies are more widespread among people in the lowest socio-economic stratum (Westoff, 1988, Goldstein and Manlowe, 1997) The positive effect of SES on contraceptive use may suggest that some Canadian women are delaying childbearing until they are further along in their education or career development and/or have attained other goals These demographic and social trends may have contributed to the decline in first births to women under age 25, and the increase in first births to women over age 30 (Wadhera, et al , 1991, Rahim, et al , 1993) This later average age of childbearing may be pushing back the preferred age of sterilization (Murphy, 1995) A positive effect of education on contraceptive use is also consistent with the view that education is one most effective means for the prevention and treatment of STD's (Maticka-Tyndale, 1997)

Ironically, education levels may be in part responsible for the overall decline in the proportion of women using contraception Education has been found to be negatively related to tubal ligation and positively related men's choice of vasectomy (Balakrishnan et al , 1993, Forste, Tanfer, and Tedrow, 1995) The reduction in tubal ligation and increase in vasectomy levels may have been a result of women's increased education levels in the 1990's In the 1995 sample, 62% of the women had some post secondary education, while only 36% of the 1984 sample had more than high school education

While vasectomy levels increased over the time period, this increase was not substantial enough to compensate for the reduction in tubal ligation and increase in medical sterilization levels

6 2 Contraceptive Behaviour of Women and Men in 1995

The 1995 GSS is the first Canadian national study to include men's contraceptive behaviour Unlike most other demographic patterns, gender patterns of contraceptive use are less pronounced than expected Following sterilization, the pill is often the preferred method for women, while for men the condom is the most popular non-surgical method The increase in condom use is particularly evident among single people For example, condom use tripled among single women between 1984 and 1995 Among single men, 86% reported the condom as being their primary contraceptive method While the GSS did not collect information on multiple-method use, these results suggest that among single people, women's contraceptive choice is more responsive to contraceptive needs, whereas men's is more to protection from STD's This pattern of findings may indicate an increased sharing of contraceptive responsibilities, as concerns of STD's have become more dominant in sexual relationships Increased levels of women's reliance on their partners' vasectomy between 1984 and 1995 also suggest more sharing of contraceptive responsibility Indeed, consistent with this view, a recent study shows that 78% of American men say that they share the responsibility of contraceptive decisions with their (female) partners (Grady, Tanfer, Billy, and Lincoln-Hanson, 1996)

6 3 Contraceptive Choice in 1995

In this analysis I attempted to identify the demographic, economic and cultural factors influential in contraceptive use and contraceptive method choice The demographic factors were standard indicators previously identified as influential in fertility and contraceptive research, such as age, marital status, parity, and childbearing intentions The standard socio-economic status indicators were intended to evaluate Becker's position that fertility (and contraception by proxy) decisions are based on a cost /benefit analysis, and related to individuals' economic position The cultural indicators used in this study were intended to ascertain to what extent individuals' contraceptive decisions are guided by social or cultural norms as posited by Lesthaeghe's ideational theory

6 3 1 Demographic Factors and Contraceptive Choice

Demographic factors are perhaps the most important determinants of contraceptive use As expected and consistent with previous research, contraceptive use rises with age and declines around mid-age, suggesting that women at the beginning and end of their reproductive years are least likely to use contraception (Balakrishnan 1993, Piccinino and Mosher, 1998, Thorneycroft, 1993) Marital status is also a significant factor The findings support the hypothesis that married and cohabitating individuals would be more likely to use contraception than single or previously married individuals Cohabitating couples were more likely to choose contraception than married individuals, particularly the birth control pill, thus, supporting previous research that the costs for an unplanned pregnancy would be perceived of as lower for married couples than

cohabitating couples (Forste and Morgan, 1998) The findings of this study did not support the hypothesis that parity and childbearing intentions would increase contraceptive use While contraceptive use did increase with these factors the relationship was only significant in the choice to use sterilization methods

As expected, the men and women in this study choosing sterilization methods were more likely to be older, married and/or cohabitating, had a higher number of children, and were not intending to have any more children These results are consistent with the 1984 CFS findings of Balakrishnan et al (1993) wherein parity was a strong correlate of sterilization among women at every age

The findings of this study support the hypothesis that pill use would be lower among previously married individuals than presently married or cohabitating couples It did not, however, support the assertion that single individuals would be more likely than married to rely on the pill Pill use was also found to be higher among cohabitating individuals than those married These findings are consistent with previous analysis of pill use in 1984 by Balakrishnan et al (1993), wherein the regression coefficients of pill use by ever married women explained 16 9% of the variance, but for single women only 8 3% The authors found that other factors such as age, nativity and religiosity were also influential in the choice of pill as a primary birth control method These findings are inconsistent with recent research which found that the odds of pill use were significantly higher for previously married, single, or living in a common-law relationship than for married women (Wilkins, Johansen, Beaudet and Neutel, 2000)

This study found that neither pill use nor condom use varies with reproductive intentions This suggests that some individuals may use the condom as a contraceptive

measure for birth spacing, which is consistent with some earlier research (Balakrishnan et al , 1993, Santelli et al , 1996) The 1984 CFS found that condom was primarily used as a 'couple' item for child-spacing or for couples who were not concerned with the risk of a mistimed pregnancy (Balakrishnan et al , 1993) While some research shows that condom use is more common among couples than unattached individuals (Santelli et al , 1996), this research is consistent with the finding that couples, particularly cohabiting couples, prefer the pill over condom (Toulemon and Leridon, 1998, Balakrishnan et al , 1993)

This analysis suggests few gender differences in contraceptive patterns The condom is the preferred contraceptive method among men, particularly unmarried men Higher educated men are more likely to be condom users, which is consistent with earlier studies (Toulemon and Leridon, 1998) Moreover, for men living in couple relationships, their patterns of contraceptive use are similar to those of comparable women However, among unattached individuals, it seems that men rely primarily on condom, while women on the pill These findings imply that much of the protection from STD's is attributable to the high level of men's condom use, suggesting increased sharing of contraceptive responsibility between men and women and increased concerns of STD's and unwanted pregnancy

6 3 2 Socio-Economic Factors and Contraceptive Choice

With the exception of education, socio-economic indicators were not strong predictors of contraceptive use Consistent with Becker's (1960) assertion that

knowledge of contraception is crucial to understanding fertility decline, education was a significant factor in the choice to use contraception for both men and women The positive effect of education is also consistent with the well-known negative impact of education on fertility and delaying of childbearing (Rahim and Ram, 1993, Jejeebhoy, 1996) However, education's influence was only instrumental in the decision to use the pill or the condom, and not a significant factor in the choice of sterilization as was expected That education increases condom and pill use suggests that education may increase risk awareness of unwanted pregnancy and STD's Women's education enhances couple communication (Kritz and Gurak, 1991) and has been found to have a stronger effect on contraceptive use than either husbands' characteristics or socio-economic status (United Nations, 1987) Education is considered to "enable women to overcome a range of social, psychological, and economic barriers to the use of contraception" (Jejeebhoy, 1996 21)

The findings of this study did not support the assertion that socio-economic factors would be influential in the sterilization decision While Balakrishnan et al (1993) found that education was negatively related to sterilization among women aged 25 to 39 and positively related to women aged 40 to 44 in 1984, this research shows no relationship between education and sterilization for women These findings suggest that age is the predominant predicator of women's sterilization decision, and once controlled for, the relationship between education and sterilization disappears For men, however, education does appear to have a slight negative influence on the decision This is consistent with previous research which found that wives' education levels were not influential in men's choice of sterilization and that men with the lowest and highest levels

of education were the least likely to chose sterilization (Forste et al , 1995) If economic status were to account for individuals' decisions to limit family size, we would expect a stronger association between these indicators If as Becker asserts, that individuals with higher incomes demand higher quality children, we would expect to see a relationship between socio-economic status and the assurance that fertility was restricted This does not appear to be the case Indeed, it would seem that the health costs associated with sterilization, as well as demographic factors, outweigh economic considerations

Very few socio-economic indicators were found to be associated with pill use among women in this research Education level was mildly influential in women's decision to use the pill Women were more likely to choose the pill over the condom if they were working outside the home, consistent with the view that women may delay childbearing in lieu of establishing their careers (Rahim and Ram, 1993, Wadhera and Millar, 1991) School enrollment was also a consideration among single women in their choice to use the birth control pill However, this relationship was not as strong as the relationship between school enrollment and condom use These findings are fairly consistent with other Canadian research where the odds were higher for women using the pill among those with higher education Previous research also found that women's employment, student status and income were not associated with pill use (Wilkins, et al , 2000) These results suggest that women's consideration of opportunity costs are restricted to achieving an education, and once that is achieved other socio-economic factors are not influential in the decision to use the pill to avoid unwanted or unplanned pregnancies

Unfortunately education was not influential in single women's decision to use contraception at all Among single individuals, only for men education was a factor and then only in the decision to chose the pill That education was not a factor for single men and women in choosing to use the condom is rather discouraging This population is the most at risk for contracting sexually transmitted diseases, and previous research has shown that education is more effective in preventing STD's than is reducing the number of partners (Maticka-Tyndale, 1997) It would appear then that the type of education is perhaps more important than the level of education achieved Recent research has shown that health education specific to STD and HIV prevention, as well as increased family communication, is associated with condom use among youth aged 14 to 22 (Santelli et al , 1997)

6 3 3 Cultural Factors and Contraceptive Choice

Ideation theory posits that cultural values are influential in the normalization of fertility levels In this study, religious affiliation and religious attendance were used to determine the extent to which religious values affect contraceptive behaviour The findings revealed that the effects of religion and church attendance are consistent with prior research While Catholics and Protestants make up the majority of the Canadian population, Catholic fertility and contraceptive behaviour have not proven to be very different from other Canadians (Balakrishnan et al , 1993, Balakrishnan et al , 1985) In this research, Catholics were found to be slightly less likely to use contraception, but only in comparison to people of no religious orientation Women of no religious orientation are more likely to be pill users, and among unmarried women, Catholics are more likely

to be condom users Consistent with previous research (Balakrishnan & Chen, 1990), church attendance is an influential factor determining whether to use contraception However, once the decision to use contraception is made, neither religious denomination nor attendance matters much with respect to the choice of method

The findings from this study supported the hypotheses that individuals born outside of Canada would have lower levels of contraceptive use, and once the decision to use a contraceptive measure was made, would choose the condom over the pill These findings are consistent with those of Balakrishnan et al (1993) in 1984 who suggested that this pattern of behaviour is likely due to the large numbers of new immigrants to Canada from Asia and less developed countries in recent years That these individuals are at risk of unwanted pregnancy or of contracting STD's is speculation without knowledge of sexual activity

As expected, there are few differences in contraceptive choice between Quebeckers and non-Quebeckers, which is inconsistent with most other demographic behaviours observed in recent years (Pollard and Wu, 1998) However, they are consistent with the results of the 1984 CFS (Balakrishnan et al , 1993) Whether this signals the disappearance of Quebec's distinct demographic regime remains to be seen

This research supports ideational theory that individual behaviours', particularly in the area of fertility, are rooted in cultural concepts and norms These findings suggest that in Canada religion, religiosity and immigration status do play a role in the decision to use contraception As for differences between Quebec and the rest of Canada, this research has shown that in the area of contraception, Quebec and Canadian values are fairly homogeneous

6 4 Contraception and Canadian Policy

At present Canada has no nationally established policy on reproductive health Since the International Conference on Population and Development (ICPD) held in Cairo in 1994, and the 4th World Conference on Women held in Beijing in 1995, Canada has made a commitment to address the issue of reproductive health and rights (Action Canada for Population and Development, 1998) Some of the initiatives to arise since that time have included the establishment of the Centres of Excellence in Women's Health program in 1996, activities to ensure the safety and efficacy of products related to reproductive health and technologies at the Health Protection Branch of Health Canada, and the development of adolescent sexuality education programs in partnership with Planned Parenthood Federation of Canada (PPFC) National consultations on sexual and reproductive health issues have been conducted, which culminated in the recently released *Report From Consultations on a Framework for Sexual and Reproductive Health* ("the Framework") (Health Canada, 1999f)

The Framework, responding to the Royal Commission on New Reproductive Technologies (1993) recommendation for "a coherent, coordinated approach for promoting sexual and reproductive health", does not establish policy, rather it identifies directions for policies and actions (Health Canada, 1999f 1) Eight principles outlined in this report are intended to guide actions to maintain, protect, and promote the sexual and reproductive health of all people in Canada While it is noted that Canada has "unacceptably high levels of sexual and reproductive health problems" (eg high levels of teen pregnancy, high rates of STD's, infertility resulting from untreated STD's), there

remains no national policy or strategy to address these problems (Health Canada 1999f 2)

Canada has established a national strategy for HIV/AIDS The policies include enhanced sustainability and integration to sustain national action in the long term, increased focus on those most at risk, and increased public accountability to ensure that the Strategy responds to the changing realities of HIV/AIDS (Health Canada 1998c) One of the primary strategies, prevention of the spread of HIV, targets hard to reach populations such as injection drug users, Aboriginal peoples, gay youth, socially and economically vulnerable women Other strategies include supporting new research that examines HIV risk factors and widely share the knowledge gained from this research, funding projects targeting high-risk populations, increasing the public's understanding of HIV/AIDS, and encouraging the creation of prevention initiatives by health, social service, and education professionals (Health Canada, 1998c)

This research has shown that condom use has increased over the past decade and identifies several important individual characteristics that are associated with condom use Among contraceptive users, demographic variables such as age and marital status are generally irrelevant when it comes to the choice between condom and the pill Research has shown that for women, limiting the total number of lifetime sexual partners or not having multiple partners is not nearly as effective (or a realistic objective) to reducing the risk of HIV/AIDS than the consistent use of condoms (Reiss & Leike, 1989) While unmarried and single women are more likely to report using the condom as their current contraceptive method than married women, when the number of partners is

controlled for, there is no difference between unmarried and married women using a condom at last intercourse (Kost and Forrest, 1992)

Recent research in other industrial countries generally suggests an increase in condom use as well, particularly among single women and men But this increase may not be entirely attributable to STD protection There is evidence that some young people who are concerned with health implications of other contraceptive methods are now part of a trend towards more 'natural' forms of contraception (Piccinino and Mosher, 1998, Toulemon and Leridon, 1998) This research supports the call for established sexual and reproductive health policy in Canada (Pentick and Johnson, 1999) The reduction in overall contraceptive use, particularly among young, single individuals, signals a dangerous trend which will require the initiation of targeted sexual and reproductive health programs if we are to avoid increases in unwanted pregnancies and in levels of STD cases

6 5 Summary

Women and men have different contraceptive needs at different stages of their life cycles While no one method may ever be suitable for an entire life-span, for the most part, Canadians have relied on the same methods since the 1960's This study has provided an update of contraceptive use in Canada since the mid-1980's and a first look at men's contraceptive behaviour

This research indicates that demographic factors such as age, marital status and the number of children individuals desire are the most important determinants of contraceptive use and contraceptive choice Younger, single and previously married

individuals are most at risk of being unprotected from STD's or unwanted pregnancies Given the trend toward delaying marriage and the increase in second marriages, more attention needs to be given to targeting contraceptive information to these individuals As economic factors, with the exception of education levels, did not prove to be very influential in the decision to use contraception, it is apparent that emphasis on reproductive health education is called for Cultural factors also need to be considered in the provision of reproductive health education and other family planning initiatives

As mentioned previously, this analysis of contraceptive use is unfortunately limited to an "either/or" method scenario Without information of multiple-method use and sexual exposure (activity), we cannot know to what extent Canadian women and men are vulnerable to contracting STD's and/or at risk of unwanted pregnancy Equally important, without perception information, we are also unable definitively to construe individuals rationale for choosing to use contraception or their choice in method Nevertheless, this study has provided an in-depth trend analysis of contraceptive use since 1984 and has identified individuals at risk for unwanted pregnancy and sexually transmitted diseases These findings could help policy makers and health care workers with family planning initiatives that target individuals at risk

References

Abama, J C , A Chandra, W D Mosher, L S Peterson, and L J Piccinino (1997) Fertility, Family Planning, and Women's Health New Data From the 1995 National Survey of Family Growth *Vital and Health Statistics*, Series 23, No 19 1-58

Action Canada for Population and Development (1998) Strategic Issues Paper #1 Reproductive Health and Reproductive Rights *Cairo+5 Cross-Canada Forums Assessing Canada's Commitment and Achievements* Ottawa

Allison, Paul D (1998) *Logit and Loglinear Analysis Using the SAS System* Pennsylvania University of Pennsylvania

Anderson, J E , R Brackbill, and W D Mosher (1996) Condom Use for Disease Prevention Among Unmarried U S Women *Family Planning Perspectives,* Vol 28(1) 25-28 & 39

Balakrishnan T R and Jianjian Chen (1990) Religiosity, Nuptuality and Reproduction in Canada *Canadian Review Sociology and Anthropology*, Vol 27, No 3 316-340

Balakrishnan T R , K Krotki and E Laperre-Adamcyk (1993) *Family and ChildbearingIn Canada A Demographic Analysis* Toronto University of Toronto Press

Balakrishnan T R , K Krotki and E Laperre-Adamcyk (1985) Contraceptive Use in Canada, 1984 *Family Planning Perspectives,* Vol 17, No 5 209-215

Balakrishnan T R and Z Wu (1992) Regional Patterns of Nuptiality and Fertility in

Canada 1921-1986 *Genus*, 48(3-4) 151-171

Beaujot, R and K McQillan (1982) *Growth and Dualism The Demographic Development of Canadian Society* Toronto Gage

Becker, Gary S (1960) An Economic Analysis of Fertility In, *Demograpic and Economic Change in Developed Countries*, pp 209-231 *NBER Conference Series 11* Princeton Princeton University Press

Becker, Gary S (1981) A Treatise on the Family Cambridge Harvard University Press

Becker, Gary S (1993) Nobel Lecture The Economic Way of Looking at Behavior *Journal of Political Economy,* Vol 101(3) 385-409

Belanger, A (1998) *Trends in Contraceptive Sterilization* Canadian Social Trends Vol 50 17-19

Bogue, Donald J (1983) Normative and Psychic Costs of Contraception In *Determinants of Fertility in Developing Countries* Vol 2 151-192 R Buatao and R Lee (eds) New York Academic Press

Bongaarts, J (1978) A Framework for Analyzing the Proximate Determinants of Fertility *Population Development Review,* Vol 4, No 1 105-132

Bongaarts J and R G Potter (1983*) Fertility, Biology, and Behavior An Analysis of the Proximate Determinats* New York Academic

Boroditsky, R , W Fisher and m Sand (1999) The Canadian Contraceptive Study A Comprehensive Survey of Canadian Women's Contraceptive Attitudes and Practices *Canadian Journal of Human Sexuality*, Vol 8(3) 163-227

Bulatao, R A and R D Lee (Eds) (1983) *Determinants of Fertility in Developing Countries* Volumes 1 and 2 New York Academic Press

Caldwell, J C (1976) Toward a Restatement of Demographic Transition Theory *Population and Development Review* Vol 2 225-234

Cleland, J (1985) Marital Fertility Decline in Developing Countries Theories and the Evidence In, *Reproductive Change in Developing Countries Insights from the World Fertility Survey* Cleland J and Hobcraft, J (eds) New York Oxford University Press Pp 223-242

Cleland, J and C Wilson (1987) Demand Theories of Fertility Transition An Iconoclastic View *Population Studies* Vol 4 5-30

Coale, A J (1973) The Demographic Transition Reconsidered In, *Proceedings International Population Conference*, Liege, 1973 Pp 53-72 Liege International Union for the Scientific Study of Population

Davis, K (1955) Institutional Patterns Favoring High Fertility in Underdeveloped Areas *Eugenics Quarterly* Vol 2 33-39

Davis, K (1963) The Theory of Change and Response in Mondern Demographic History *Population Index* Vol 29 345-366

De Guibert-Lantoine, C (1990) Revolutions Contraceptives Au Canada *Population*, Vol 45(2) 361-398

Dumas, J and A Belanger (1998) *Report on the Demographic Situation in Canada, 1997* Ottawa Statistics Canada

Delbanco, S , J Lundy, T Hoff, M Parker and M D Smith (1997) Public Knowledge and Perceptions About Unplanned Pregnancy and Contraception in Three Countries *Family Planning Perspectives,* Vol 29(2) 70 75

Easterlin, R A (1975) An Economic Framework for Fertility Analysis *Studies in Family Planning* Vol 6 54-63

Easterlin, R A and E M Crimmins (1985) *The Fertility Revolution* Chicago The University of Chicago Press

Fathalla, Mahmoud F (1989) New Contraceptive Methods and Reproductive Health In *Demographic and Programmatic Consequences of Contraceptive Innovations* Sheldon J Segal, Amy O Tsui, and Susan M Rogers, Eds New York Plenum Press

Ford, David and Francois Nault (1996) Changing Fertility Patterns, 1974 to 1994 *Health Reports*, Winter, Vol 8(3) 39-46

Forest, J and R Fordyce (1988) US Women's Contraceptive Attitudes and Practice How Have They Changed in the 1980's? *Family Planning Perspectives,* Vol 20 112-118

Forste, R and J Morgan (1998) How Relationships of U S Men Affect Contraceptive Use and Efforts to Prevent Sexually Transmitted Diseases *Family Planning Perspectives,* Vol 30(2) 56-62

Forste, R , K Tanfer, and L Tedrow (1995) Sterilization Among Currently Married Men in the United States, 1991 *Family Planning Perspectives,* Vol 27 100-107 & 122

Goldstein, N and J L Manlowe (1997) *The Gender Politics of HIV/AIDS in Women Perspectives on the Pandemic in the United States* New York New York University Press

Grady, W R , K Tanfer, J O G Billy, and J Lincoln-Hanson (1996) Men's Perceptions of Their Roles and Responsibilities Regarding Sex, Contraception and Childbearing *Family Planning Perspectives*, Vol 28 221-226

Green, Margaret E and Ann E Biddlecom (1997) Absent and Problematic Men Demographic Accounts of Male Reproductive Roles *Policy Research Division Working Paper No 103* New York Population Council

Health Canada (1997) AIDS and HIV in Canada *HIV/AIDS Epi Update* November Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1998a) Perinatally Acquired HIV Infection *HIV/AIDS Epi Update,* May Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1998b) Trends of Bacterial Sexually Transmitted Diseases (STD) in Canada STD Epi Update April Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1998c) *The Canadian Strategy on HIV/AIDS* Ottawa HIV/AIDS Policy, Coordination and Programs Division, Strategies and Systems for health Directate, Health Promotions and Programs Branch, Health Canada http //www hc-sc gc ca

Health Canada (1999a) HIV Testing Among Canadians An Estimated 15,000 Current HIV Infections May Not be Diagnosed *HIV/AIDS Epi Update* May Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1999b) Women and Sexual and Reproductive Health *Women's Health Bureau Series* March Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1999c) Syphilis in Canada Elimination on the Horizon? *STD Epi Update* May Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1999d) Gonorrhea in Canada *STD Epi Update* May Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1999e) Genital Chlamydia in Canada *STD Epi Update* May Bureau of HIV/AIDS and STD Update Series, Laboratory Centre for Disease Control Ottawa Health Canada http //www hc-sc gc ca

Health Canada (1999f) *Report from Consultations on a Framework for Sexual and Reproductive Health* Ottawa Health Canada http //www hc-sc gc ca

Hermalin, Albert I (1983) Fertility Regulation and Its Costs A Critical Essay In *Determinants of Fertility in Developing Countries*, Vol 2 1-53 R Bulatao and R D Lee (eds) New York Academic Press

Hunt, Kate and Ellen Annandale (1990) Predicting Contraceptive Method Usage Among Women in West Scotland *Journal of Biosocial Science*, Vol 22 405-421

Hunter, David J and Japheth K Mati (1991) Contraception, Family Planning, and HIV In *AIDS and Women's Reproductive Health* Chen, L C , J S Amor and S J Segal (eds) New York Plenum Press Pp 93-107

Jejeebhoy, S (1996) Women's Education, Autonomy and Reproductive Behaviour Assessing What We Have Learned Prepared for conference *The Status of Women and Demographic Change Assessing What We Have Learned* December 18-20, 1995 Honolou Rockefeller Foundation and The East-West Center

Knodel J and E van de Wall (1979) Lessons from the Past Policy Implications of Historical Fertility Studies *Population and Development Review* Vol 5 217-45

Kritz, M M and D T Gurak (1991*)* *Women's Economic Independence and Fertility Among the Yoruba* Paper presented at the Demographic and Health Surveys World Conference (August) Washington, DC

Lane, Sandra D (1994) From Population Control to Reproductive Health An Emerging Policy Agenda *Social Science Medicine,* Vol 39(9) 1303-1314

Larsson, Gerd, F Blohm, G Sundell, B Andersch, and I Milsom (1997) A Longitudinal Study of Birth Control and Pregnancy Outcome Among Women in a Swedish Population *Contraception,* Vol 56 9-16

Leibenstein, H (1957) *Economic Backwardness and Economic Growth* New York Wiley

Lesthaeghe, R (1977) *The Decline of Belgian Fertility, 1800-1970* Princeton princeton University Press

Lesthaeghe, R (1980) On the Social Control of Human Reproduction *Population and Development Review* Vol 6 527-548

Lesthaeghe, R (1983) A Century of Demographic Change in Western Europe An Exploration of Underlying Dimensions *Population and Development Review* Vol 9 411-436

Lesthaeghe, R and J Surkyn (1988) Cultural Dynamics and Economic Theories of Fertility Change *Population and Development Review* Vol 14 1-46

Lipset, S M (1990) *The Continental Divide The Values and Institutes of the United States and Canada* New York Routledge

Marcelis, Carla (Ed) (1995) *Uncommon Knowledge A Critical Guide to Contraception and Reproductive Technologies* Ottawa Women's Health Interaction (WHI) and Inter Pares

Marcil-Gratton, N and E Lapierre-Adamcyk (1983) Sterilization in Quebec *Family Planning Perspectives*, 15(2) 73-78

Maticka-Tyndale, Eleanor (1997) Reducing the Incidence of Sexually Transmitted Disease Through Behavioural and Social Change *The Canadian Journal of Human Sexuality,* 6(2) 1-26

Matteson, Peggy S and Joellen W Hawkins (1997) Women's Patterns of Contraceptive Use *Health Care for Women International,* Vol 18 455-466

McLaren, Angus and Arlene Tigar McLaren (1997) *The Bedroom and the State The Changing Practices and Politics of Contraception and Abortion in Canada, 1880 – 1997* Second Edition Toronto Oxford University Press

Menken, J (1985) Age and Fertility How Late Can You Wait? *Demography*, 23 469-483

Murphy, M (1995) Sterilization as a Method of Contraception Recent Trends in Great Britain and their Implications *Journal of Biosocial Science,* Vol 27 31-46

Murray, William (1996) *Heterosexual AIDS* Science and Technology Division, Research Branch, Library of Parliament Ottawa Canada Communication Group—Publishing

Notestein, F (1945) Population – the Long View In, *Food for the World* TW Shultz (ed) Chicago University of Chicago Press Pp 36-57

Pentick, J and B Johnson (1999) A Perspective from the Front Lines Commentary on the 1998 Canadian Contraceptive Study *The Canadian Journal of Human Sexuality*, Vol 8(3) 217-220

Piccinino, Linda J and William D Mosher (1998) Trends in Contraceptive Use in the United States 1982-1995 *Family Planning Perspectives,* Vol 30(1) 4-10 &46

Pollard, M S and Z Wu (1998) Divergence of Marriage Patterns in Quebec and Elsewhere in Canada *Population and Development Review*, 24(2) 329-356

Pollak, Robert A and Susan C Watkins (1993) Cultural and Economic Approaches to Fertility Proper Marriage or *Messaliance*? *Population and Development Review*, 19 466-496

Rahim, A and B Ram (1993) Emerging Patterns of Child-Spacing in Canada *Journal of Biosocial Science,* Vol 25 155-167

Rao, K V and T R Balakrishnan (1989) Timing of First Birth and Second Birth Spacing in Canada *Journal of Biosocial Science,* Vol 21 293-300

Riphagen, F E , J A Fortney, and S Koelb (1988) Contraception in Women Over Forty *Journal of Biosocial Science,* 20(2) 143-146

Riphagen, F E and P Lehert (1989) A Survey of Contraception in Five West European Countries *Journal of Biosocial Science,* Vol 21 23-46

Robinson, Warren C (1997) The Economic Theory of Fertility Over Three Decades *Population Studies,* Vol 51 63-74

Ross, John A (1989) Contraception Short-Term vx Long-Term Failure Rates *Family Planning Perspectives*, 21(6) 275-277

Royal Commission on New Reproductive Technologies (1993) *Proceed with Care Final Report of the Royal Commission on New Reproductive Technologies*, Vol 1 & 2 Ottawa Minister of Government Services Canada

Santelli, J S , A C Kouzis, D R Hoover, M Polacsek, L G Burwell and D D Celentano (1996) Stage of Behavior Change for Condom Use The Influence of Partner Type, Relationship and Pregnancy Factors *Family Planning Perspectives,* Vol 28(3) 101-107

Santelli, J S , C W Warren, R Lowry, E Sogolow, J Collins, L Kann, R B Kaufmann, and D D Celentano (1997) The Use of Condoms with Other Contraceptive Methods Among Young Men and Women *Family Planning Perspectives,* Vol 29(6) 261-267

Schearer, Bruce S (1983) Monetary and Health Costs of Contraception In *Determinants of Fertility in Developing Countries* Vol 2 89-150 R Buatao and R Lee, Eds New York Academic Press

Shah, Iqbal H (1994) The Advance of the Contraceptive Revolution *World Health Statistics Quarterly* Vol 47(1) 9-15

Statistics Canada (1995) *1995 General Social Survey, Cycle 10 Family and Friends* Ottawa Statistics Canada

Statistics Canada (1996) *Report on the Demographic Situation in Canada, 1995 Current Demographic Analysis* Ottawa Statistics Canada

Statistics Canada (1997) *Therapeutic Abortions, 1995* November Ottawa Statistics Canada

Statistics Canada (1999) *Population by Age and Sex, Canada* Period 1971-1998 Demography Division Update 23 February http //www statscan ca

Thorneycroft, Ian H (1993) Contrecption in Women Older than 40 Years of Age *Perimenopausal Health Care* Vol 20(2) 273-278

Toulemon, L and H Leridon (1998) Contraceptive Practices and Trends in France *Family Planning Perspectives*, Vol 30(3) 114-120

Trussell J and B Vaughan (1999) Contraceptive Failure, Method-Related Discontinuation and Resumption of Use Results from the 1995 National Survey of Family Growth *Family Planning Perspectives*, Vol 31(2) 64-72 & 93

United Nations (1987) *Fertility Behaviour in the Context of Development Evidence from the World Fertility Survey* Population Studies No 100, Department of International Economic and Social Affairs New York United Nations Publications

United Nations (1996a) *Reproductive Rights and Reproductive Health A Concise Report* Department for Economic and Social Information and Policy Analysis Population Division New York United Nations Publications

United Nations (1996b) *Levels and Trends of Contraceptive Use as Assessed in 1994* Department for Economic and Social Information and Policy Analysis Population Division New York United Nations Publications

Volpe, A , M Silferi and A D Genazzani (1993) Contraception in Older Women *Contraception,* Mar 01, Vol 47(3) 229

Wadhera, S and W J Millar (1991) Patterns and Change in Canadian Fertility 1971-1988 First Births After Age 30 *Health Reports*, 3(2) 149-161

Weinberger, Mary Beth (1991) *Recent Trends in Contraceptive Behavior Demographic and Health Surveys World Conference Proceedings*, Vol 1 555-573 Columbia, MD Institute for Resource Development

Westoff, C F (1988) Unintended Pregnancy in America and Abroad *Family Planning Perspectives*, 20 254-261

Wilins, K , H Johansen , M P Beaudet, and C I Neutel (2000) Oral Contraceptive Use *Health Reports,* Vol (4) 25-37

1984 Canadian Fertility Survey (1988) Population Studies Center September London, Ontario The University of Western Ontario

APPENDIX I

HYPOTHESES LIST

1 Contraceptive use will be lower at the beginning and later stages of individuals reproductive lives The relationship between age and contraceptive use is expected to be curvilinear (with a non-zero quadratic term of age)

2 The relationship with condom use will be curvilinear, being higher in the younger and later years, pill use will decline with age, and voluntary sterilization will increase

3 Married and cohabitating individuals will be more likely to use contraception than single individuals

4 Single and previously married individuals will have higher rates of condom use and lower rates of birth control pill use than presently married or cohabitating individuals, and previously married individuals will likely be older and be more reliant upon voluntary sterilization methods

5 Contraceptive use will increase with parity and for those individuals who do not wish to have any or more children

6 As the number of children increases, condom use will decrease and levels of pill use and reliance on voluntary sterilization methods will increase

7 Individuals who do not intend to have any, or additional, children will more likely rely on voluntary sterilization methods or the pill

8 As individuals' socio-economic status rises, contraceptive use will increase

9 Pill and condom use will rise with SES

10 The relationship between SES indicators and voluntary sterilization will be negative

11 Religious affiliation will not influence the contraceptive method choice

12 As religious attendance increases, contraceptive use will decrease

13 Individuals born outside of Canada will have lower levels of contraceptive use, and of those who are using a method, they will more likely choose the condom

14 There will be no difference in levels of contraceptive use between Quebec and the rest of Canada

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Publications

Kelly Martin and Zheng Wu (2000) Has Canadian Contraceptive Use Really Declined? Authors Reply *Family Planning Perspectives*, Vol 32, No 4 192-194

Kelly Martin and Zheng Wu (2000) Contraceptive Use in Canada 1984-1995 *Family Planning Perspectives*, Vol 31, No 2 65 – 73

Krishnan, Vijaya and Kelly Martin *Sterilization in Canada* Paper presented at the British Sociological Association, Medical Sociology Conference, York University, York, England, September, 1999

Zheng Wu and Kelly Martin *Contraceptive Choice in Canada* Paper presented at the annual meetings of Canadian Population Society, Lennoxville, Quebec, June 1999

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