

Some Causes of Fertility Rates Movements

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ABSTRACT

Fertility patterns are different between countries and over time. Many different factors can affect the fertility rate. This paper will discuss the different factors that have an effect on the fertility rate. Some are economic while some are social. The economic factors will be based in the theories of Richard Easterlin, Diane Macunovich, Butz & Ward, and John Ermisch. The social factors that will be developed here are related to race, education, religion, contraceptive use, abortion, immigration, marriage, cohabitation, divorce, age of marriage, female participation in the labor force, teenage fertility and government programs.

1. INTRODUCTION

A fertility rate is a measure of the average number of children a woman will have during her childbearing years. The fertility patterns are different between countries and over time. Many different factors can affect fertility rates. Many of these factors are difficult to measure because they involve subjectivity and some of them may not apply across cultures. This makes it especially difficult to find variables that can be used to predict future fertility rates.

During the peak years of the baby boom (in the late 1950's), the fertility rate was 3.91 in Canada and 3.77 in the U.S.. By the 1970's it had fallen below 2 in both countries. While the U.S. rate went back up to 2.08, Canada's rate kept falling to 1.52 in 1999. Such differences in fertility exist even in countries as similar as Canada and the U.S.. Many developed countries in Europe are also below the replacement level of 2.1, but the U.S. is still near this rate. This is a huge gap, which raises the question: "Why this big difference?".

Fertility rates are still at very high levels in Africa and some Arabic countries, followed next by the countries of Central and South America. Lower rates are found in Europe and other industrialized countries like Canada and Japan.

This paper will analyze the changing attitudes of societies throughout the world that have an influence on fertility rates. Characteristics that influence changes in fertility rates are related either with the economic situation or with social patterns. Some of the social factors that can influence fertility rates are: race, level of education, religion, use of contraceptive methods, abortion, impact of immigration, children as a source of labor (on family farms), children as support for couples at older ages, costs of raising children, female labor force participation, government programs to encourage or discourage childbearing, postponement of marriage, age of first birth and divorce rates.

2. DEMOGRAPHIC TRENDS AND FERTILITY RATES AROUND THE WORLD

Demographic trends

There has been a shift in behaviour in many societies. This can be seen in many factors such as: postponement of marriage, increasing age of first birth, increasing divorce rates, lower marriage rates, more births outside marriage, an increasing number of women in the labor force, greater levels of education for women, a decreasing need for children to support elderly parents, a shift from rural to urban societies and government programs to encourage or discourage having children. Together with these factors, general mortality rates have declined, leading to improvements in life expectancy which continue in most countries. Also, many advances in medical technologies are being realized including improvements in birth control methods and progress in the cure or successful treatment of many diseases.

A combination of all of these factors has resulted in three main demographic trends: reductions in infant mortality, increasing life expectancy and decreasing fertility rates. These trends contribute to an altered age structure, resulting in an aging population throughout many developed countries.

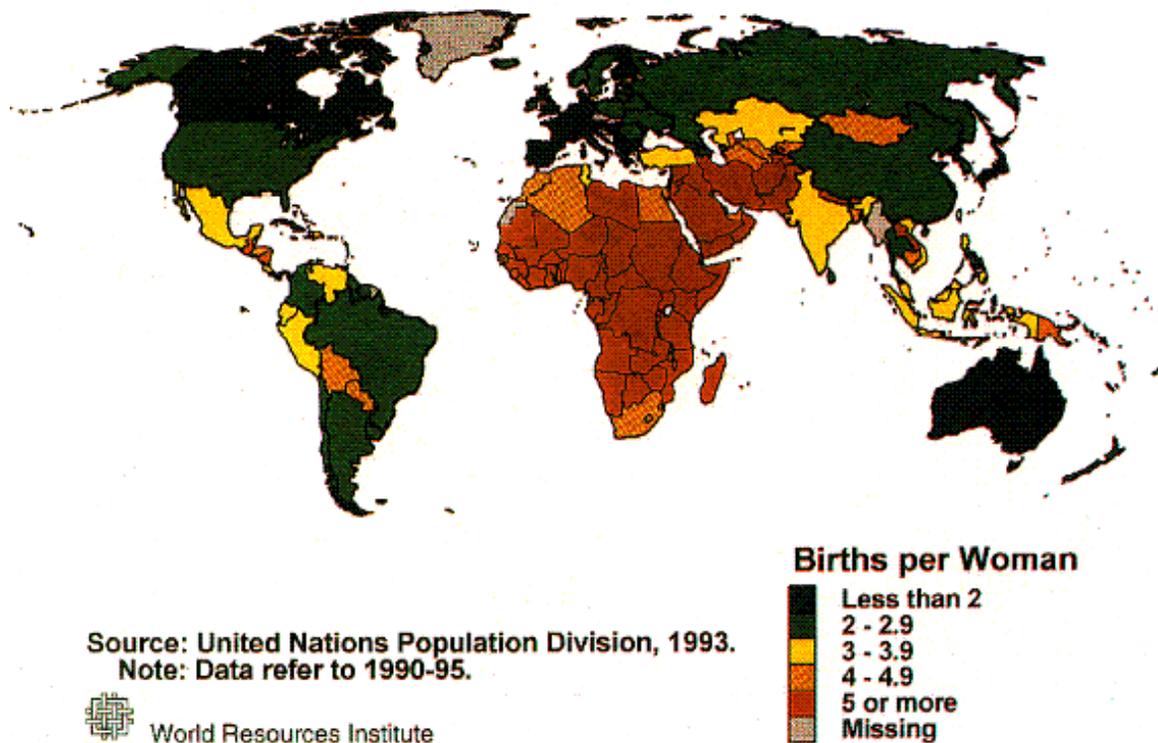
In contrast, "Middle Eastern culture, religion and politics tend to encourage large families and, on average, Middle Eastern women give birth to five children by age 45" (Khayat, 1994). This is about three more children than women in developed countries and one or two more than the average for women in all developing countries. As a result of decades of high birth rates, the Middle Eastern populations are extraordinarily young, according to the statistics presented in Omran and Roudi (1993). More than 40 percent of the region's population is under age 15, while only 4 percent is over age 65. In industrial countries, about 21 percent of the population is under age 15 and 12 percent is 65 or older.

Fertility Rates

Fertility rates are very high in developing regions such as Africa and the Middle East with five or more children per woman (see Figure 1). It is low in most industrialized regions, especially Europe, Canada, Australia, and Japan where fertility rates are below the replacement level. Asia and some countries of South America maintain a rate between 2 and 2.9. Fertility rates vary considerably from country to country. Even in the same country they can differ by culture and by region.

Figure 1

Total Fertility Rate



Fertility rates are declining in almost all countries. Over the last decade, total fertility fell by more than one birth per woman in 30 developing countries, including twelve nations of the Middle East and North Africa, and seven in Sub-Saharan Africa (Khayat, 1994).

Table 1 shows the fertility rate for several countries of the world and changes from the period 1990-1995 to 1995-2000. It can be observed that while some countries maintain high fertility rates (like Nigeria at 5.2 or Pakistan at 5.3); Italy and Germany have fertility rates of 1.2 and 1.3 respectively.

Table 1. FERTILITY RATE ON SELECTED COUNTRIES, 1990-1995 AND 1995-2000

Country	1990-1995	1995-2000	Country	1990-1995	1995-2000
Argentina	2.8	2.6	Japan	1.5	1.4
Australia	1.9	1.8	Mexico	3.1	2.8
Brazil	2.5	2.3	New Zealand	2.1	2.0
Canada	1.7	1.6	Nigeria	5.7	5.2
Chile	2.5	2.4	Pakistan	6.0	5.3
China	1.9	1.8	Singapore	1.8	1.7
Costa Rica	3.0	2.8	South Africa	3.6	3.3
France	1.7	1.7	South Korea	1.7	1.7
Germany	1.3	1.3	Spain	1.3	1.2
Holland	1.6	1.5	Switzerland	1.5	1.5
Israel	2.9	2.7	United Kingdom	1.8	1.7
Italy	1.3	1.2	USA	2.1	2.0

Source: United Nations. World Population Prospects.

Over the past 30 years, the average number of children born to women in the less developed countries fell from 6.2 to 3.0, which is an enormous and rapid decline. Although a fertility rate of 2.1 children per woman is needed just to replace current population, Europe's fertility rate has dropped to 1.42, in Japan to 1.43, in Australia to 1.8, and in Canada to 1.6. Spain has the world's lowest fertility rate at 1.15. Experts state that never have fertility rates fallen so far, so low, so fast, for so long, all over the world. They predict that Europe will lose at least 100 million people by middle of the century. (Watenberg, 1998).

Additionally, Table 2 considers the changes in the fertility rates from the period 1990-2000 by region. One can compare the rate of change in developing, least developed, and industrialized countries. It is noticeable that there are regions in Africa with fertility rates of 5.7 in contrast with the industrialized countries with rates of 1.6. Even so, in every region, the fertility rate has declined from 1990 to the year 2000.

Table 2. Total fertility: the decade's progress worldwide, 1990 to 2000

UNICEF region	Total fertility rate (lifetime births per woman at current fertility rates)		% Change 1990-2000
	1990	2000	
Sub-Saharan Africa	6.3	5.7	-10
Middle East/North Africa	5.0	3.7	-26
South Asia	4.2	3.5	-17
East Asia/Pacific	2.5	2.0	-20
Latin America/Caribbean	3.2	2.6	-19
CEE/CIS and Baltic States	2.3	1.6	-30
Developing countries	3.6	3.0	-17
Least developed countries	5.9	5.4	-8
Industrialized countries	1.7	1.6	-6
World	3.2	2.7	-16

Sources: UN Population Division database, data available as of 1 March 2001.

Fertility rates in the United States

The case of the United States is remarkable. Estimates indicate that since the late 1980's the U.S. has averaged about 2.1 births per woman. Between 1960 and 1985, the fertility rate in the U.S. fell faster than Europe's to 1.8 (just below European levels), far from the replacement level of 2.1. However, by the 1990's the U.S. fertility rate increased to almost 2.1, while Europe's fertility rates continued to fall. In Europe the rate is now less than 1.4 and it is projected to continue declining for at least another ten years. In some countries like Spain, Italy and Greece the fertility rate has fallen to between 1.1 and 1.3. "However, it is not easy to say whether this level will continue, increase or decrease" (The Economist. Aug 22, 2002).

Canada and the U.S. are similar in many ways, but there is a measurable gap between their fertility rates. This is of special interest because their economies are highly integrated; the

two countries have a highly educated labor force; female participation in the labor market of both Canada and the U.S. is high; and both receive a large number of immigrants. In spite of this, there are also major differences between the two countries. The economic, political and military power of the U.S. is unequalled; Americans are wealthier than Canadians (measured by per capita gross domestic product); social security programs are generally more widespread and more generous in Canada; American religious attendance is higher, families are bigger and the marriage rate is higher. As a result, fertility rates for U.S. women are already more than 30% higher than that of Canadian women. (Bélanger and Ouellet, 2001).

Even though the U.S. has similar characteristics to most industrialized countries, it maintains a higher fertility rate. This is due to many different social attitudes that distinguish the U.S. from the other industrialized countries. Some of these characteristics are analyzed further in this paper.

3. - CAUSES OF SHIFTS IN FERTILITY RATES

A) Economic causes

There are several theories that attempt to explain the movements in fertility rates due to the economic situation. Some of these theories are presented below.

Richard Easterlin (1987)

One of the most important theories was formulated by Richard Easterlin. He believes that fertility rates follow a cycle of forty years, which depends on the economic situation of the cohorts. He explains that persons who are born in a cohort with low fertility rates will have less competition in the job market, which means that they will be more likely to have good wages and fast career advancement. In contrast, persons of large birth cohorts will face a less favorable economic situation.

This theory is composed of two parts: the effect of the birth rates on the relative number of young adults to older adults and the effect of relative numbers on earnings and unemployment.

That is, if there is a lack of young workers, they will probably obtain good jobs and will improve their standard of living; this will result in a rise in marriage rates and childbearing. Twenty years later the opposite effect will be seen because of a great quantity of younger workers and consequently a decrease in marriage and fertility. The relationship between the number of young workers and unemployment can be explained by supply and demand. When there is a high supply of young workers, it will mean competition and it will be more difficult to find a job. However, if there is low supply of young workers, it will be easier to find jobs and with higher wages.

The second part of Easterlin's theory is the relative income theory. He explains that the factors that influence marriage and fertility are the potential earning power of a couple, their material desires and their socialization experience. As relative income increases, there will be less economic pressure on the couple and therefore they will not feel restricted to marry and have children.

The couple's relative income is the ratio of their earnings potential to their material aspirations. However, these factors are difficult to obtain. Therefore, relative income can be approximated by the ratio of recent income of the male to the past income of the male's parents. This approximation is due to the fact that the past income of the male's parents represents the environment in which he was raised, and therefore is a good measure to indicate the level of the couple's material aspirations.

Easterlin's theory fits very well for the baby boom and baby bust generations. On the other hand, comparisons with actual fertility rates show that Easterlin was incorrect in his predictions for the future since neither Canada nor the U.S. has experienced the next baby boom predicted by Easterlin's theory.

Diane Macunovich (1996)

Diane Macunovich formulated another theory for shifts in fertility rates. This model measures the interaction between relative income and the female wage. The theory of Easterlin assumes that the female plays a passive role; so Macunovich added the factor of females' wages to her model.

During the 1960's to 1980's women began to achieve their own desired standard of living with their own resources, rather than with the male's earnings. They entered the labor force and started obtaining higher levels of education. With this trend, marriage is deferred and fertility rates have decreased. Therefore, the increase in female participation in the labor force must be included when analyzing fertility rates.

Macunovich measured the relation between relative income and the female wage. She believes that an increase in the male's relative income will cause a rise in fertility while an increase in female wages will produce downward pressure on fertility. That is, a rising female wage will have a negative effect on fertility and vice versa.

It is important to notice that this model has a one year lag between the relative income and fertility. This lag occurs because couples do not immediately adjust their fertility levels when there is a change in their financial situation.

She concludes that the common movements in relative earnings, marriage, female labor force participation and fertility provide strong evidence supporting the relative cohort size theory.

Butz & Ward (1977)

Another theory that explains the reasons for changes in fertility rates is the Butz and Ward model. Butz and Ward state that there are three factors that affect the timing of fertility decisions: the proportion of women in the labor force, women's earnings and men's earnings. While the demand for children increases with an increase in the husband's wages, the wife's wages will have the opposite effect. Increases in women's wages serve to lower fertility.

In the period of time following the baby boom, the labor force participation rate of women and their earnings increased significantly. In fact, the most common status for American mothers in the eighties was to be both married and employed outside the home. The increasing number of females participating in the labor force and rising wages, contributed to a decline in fertility. However, many other changes contributed to this decline as well.

Youth unemployment rates were similar in both Canada and the U.S. in the early 1980's, but have remained consistently higher in Canada. The differences were substantial in the 1990's, when the jobless rate in Canada for those in their early 20's was 50% to 66% higher than the comparable U.S. rate. The result was lower income for young Canadian adults and less confidence in the future (which is usually needed to take on the responsibilities of parenthood).

The Butz and Ward model implies that times of economic prosperity are the most expensive times for employed women to have children. Fertility rates move in the opposite direction to those of the business cycle. During recessions, family income is lower and therefore couples decide not to have children because of the high costs associated with childbearing.

However, with more women working, the business cycles will now generate cycles for both men and women's salaries and job opportunities. Therefore, as more women are employed, times of economic prosperity do not imply an increase in fertility. Instead, they will tend to delay childbirth and fertility rates can actually decrease.

The variables that affect the female labor force participation rate also affect females' decisions to have children. This model fits the fertility rate of younger age groups (ages 20-34) but is less accurate for the group aged 35-39. These results are mainly because young women have more reproductive years to adjust their family size. However, Butz and Ward concluded that the overall result for the entire population is a negative relationship between female employment and fertility.

In summary, Butz and Ward explain that fertility rates are positively related to family income, and negatively associated with women's employment and wages. The correlation between women's wages and fertility is stronger, the larger the proportion of women employed.

John Ermisch (1983)

John Ermisch's theory explains that the main cause of fertility movements is the increasing demand for female workers. The factors which can permanently influence a female's decision to work include: her husband's expected future earnings, her earning potential and changes in preferences in the household.

Usually, female labor force participation is interrupted for short intervals during which they bear children. So, Ermisch's theory distinguished two groups of women: "workers" and "non-workers".

The opportunity cost of having children is high. A child would demand more of the couples' time and lower the family's present income due to the loss of the wife's earnings. When the number of females in the labor force increases, fertility tends to decrease during times of economic growth.

Ermisch explains in his theory that as more females choose to work most of their lives, the average age at first birth increases and the intervals between births decreases. Women

employed in professional positions tend to wait long periods between marriage and the birth of their first child.

He also identifies the inter-generational influences on females' labor force participation. The daughters of working mothers are more likely to work during their childbearing years. Thus, there is an indirect effect on a woman's fertility from her mother being employed.

Ermisch believes that changing economic conditions will cause couples to adjust their desired family size. During economic growth the proportion of two earner families with the minimum desired family size would increase. Simultaneously, economic growth has the effect of increasing the desired family size of single earner families.

B) Non-economic causes

I. Race

A recent study by Bélanger and Ouellet (2001) posed some interesting reasons as to the differences in Canadian and U.S. fertility rates. The first one is an ethno-racial difference. However, these differences explain only about 40 percent of the Canada-U.S. gap observed in 1999 (ibid).

The U.S. has large ethno-racial minorities that traditionally have higher fertility rates. The fertility rate of Hispanic women in the U.S. is about three, and black women are still slightly above the U.S. average, although their rate has declined sharply since 1990. Table 3 shows the total fertility rate in the U.S. divided by race.

Table 3

RACE	U.S. FERTILITY RATE 1995
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Hispanic	2.90
Black	2.39
Non-Hispanic white	1.83
American Indian, Eskimo	2.10
Asian and Pacific Islander	1.90
TOTAL U.S.	2.05

Source: "Population Projection of the United States by Age, Sex, Race and Hispanic Origin: 1995-2050"

Analyzing these rates, it can be observed that even the lowest sub-rate (non-Hispanic white women at 1.83), is higher than that for developed countries in Europe or Canada.

The current population report from the U.S. Department of Commerce (1996, page 23) projects that by the middle of the 21st century, 2 of every 5 births would be non-Hispanic White, 1 in 3 would be Hispanic, 1 in 5 would be Black and 1 in 11 would be Asian. This shows the impact of race on the fertility rate of a country.

U.S. historical data show that the major difference between white and black fertility is timing; that is, blacks tend to have their children at earlier ages than whites. (Current U.S. Population Reports, 1996, page 27)

II. Education

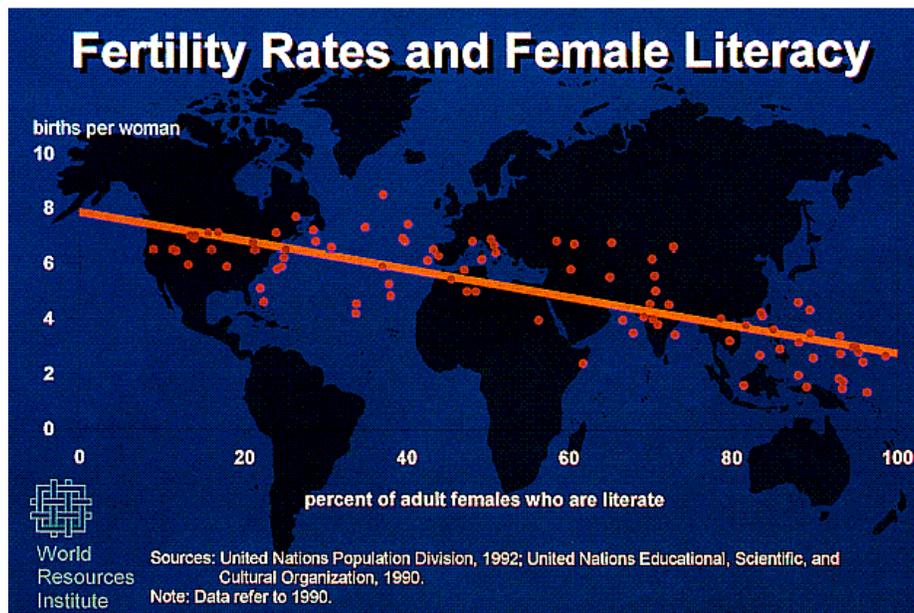
A woman's level of education is essential to explain fertility movements. Higher educational attainment has been shown to be associated with more prenatal care. Thus, fewer lifestyle and health behaviours during pregnancy are detrimental to the birth outcome. Many studies have documented the strong relationship between a mother's pattern of fertility and the survival chances of her children. Infants have a higher risk of dying if they are born to very young mothers or much older mothers, if they are born shortly after a previous birth, or if their mothers already have many children. In total, higher female education is universally associated with lower and delayed fertility

Moreover, significant differences in fertility are usually found between women in urban and rural areas. These differences reflect fertility preferences as well as differential access to family planning.

Although the overall trend in educational attainment has been up, variations by race and ethnicity persist.

Figure 2 shows a graph of the relationship between the fertility rates and the level of education of women. This graph illustrates a striking correlation between female literacy and fertility rates. On average, women who are more educated will tend to have fewer children than women who are not. In this way, programs that stress education, training, and higher status for women could act as methods of birth control.

Figure 2



Sources: United Nations Population Division (UNPD), Demographic Indicators 1950-2025 (The 1992 Revision); and United Nations Educational, Scientific, and Cultural Organization (UNESCO), Compendium of Statistics on Illiteracy, 1990 (UNESCO, Paris, 1990).

Despite current high fertility levels throughout many regions, there is evidence that the rates are falling. Evidence gathered throughout the world indicates that fertility declines as a country's population becomes more urban and as women become more highly educated.

In the Middle East, these trends have also recently become apparent. In Yemen, a 1991-92 survey measured a total fertility rate of 5.6 for urban women and 8.1 for rural women. In Egypt, where the government has been heavily engaged in family planning activities for a generation, urban women had a fertility rate of 2.9 compared to 4.9 for rural women (U.N. 1992 survey). In Jordan, a 1990 survey showed urban women had 4.8 children on average while rural women had 6.9 children. Similar differentials exist among women at different educational levels. In Jordan, women with no formal education had 6.9 children per woman, while those with secondary school or higher education had, on average, only 4.1 children. (Khayat, A., 1994).

In some Middle East countries, high levels of education, urbanization and female employment are major factors in reducing birthrates, as in Lebanon, with an actual rate of 2.2. But in other countries, such as Saudi Arabia, Kuwait and the United Arab Emirates, fertility rates of 6.8, 6.5, and 5.9 respectively persist (Omran and Roudi, 1993).

III. Religion

In the past, religion has had a very strong influence in the internal relationships of a family and played an important role on shifts in fertility rates. For example, the protestant religion accepts the idea that the marriage could end in divorce. On the other hand, Catholics do not accept it. Therefore, Catholics are more likely to have larger families than Protestants because they expect that their marriage will last forever.

Religion used to be a very important factor on changes in habits. In the case of Italy, it has the lowest female labor force participation rate in Europe, but high marital instability and as a consequence, higher divorce rates. Thus, with these factors, the fertility rates decrease, and in this case, Italy had a fertility rate of 1.2 in 2000.

Canada is a more secular society than the U.S.. Religious attendance is much higher in the U.S. than in Canada; about 34 percent of American women of childbearing age practice their religion on a weekly basis, almost double the 18 percent proportion for Canadian women. Greater religious observance tends to go along with higher marriage rates and

lower divorce rates. Therefore, a more religious culture tends to go with higher fertility rates because people expect to stay in a more stable relationship and are more likely to have more children. (Bélanger and Ouellet, 2001; pages 128-129).

It can be said that religion indirectly influences an individual's fertility, especially in that it affects the choice of marriage as the mode of conjugal life and the stability of the union. "In Canada, individuals who do not practice their religion are nearly three times as likely to form a common-law union as those who participate in religious practices on a weekly basis" (*ibid*; page 128). This leads to lower fertility rates.

Furthermore, there is a slightly higher proportion of contraceptive use among couples and among those who never participate in religious practice (81%) than among those practising either occasionally or weekly (75%) (*ibid*; pages 128).

For the Islamic religion there is no religious prohibition against family planning. In spite of this, Muslim communities throughout the world tend to have large families. Albania, with a Muslim majority, has the highest fertility level in Europe with a fertility rate of 2.4 in 2000. In Malaysia, where Muslim Malays are one of three major religious communities, they tend to have higher fertility rates than their compatriots of Indian or Chinese descent. (Khayat, 1994).

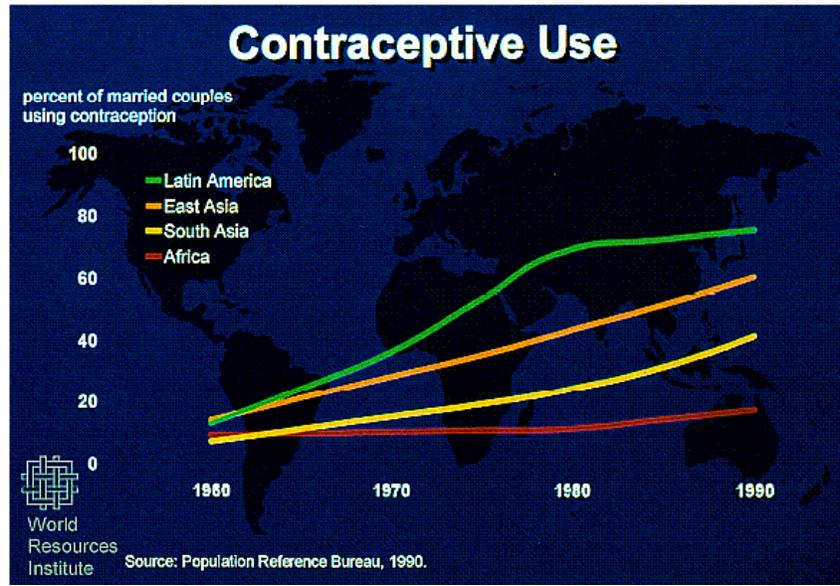
In summary, religion plays an important role on the movements of fertility rates. However, it depends on the religion practiced by each society and many other factors linked with this like the use of contraceptives.

IV. Contraceptive Use

Since 1960, there has been a dramatic increase in the percentage of married couples using contraception in many developing countries, especially in Latin America, East Asia, and South Asia. Figure 3, shows the percent of married couples using contraception from the

period 1960-1990 in Latin America, East Asia, South Asia and Africa. Contraceptive use is still relatively limited in Africa. Methods of contraception have changed and are more effective. More reliable forms include the pill, the intrauterine device (IUD), and sterilization; all of which became more readily available beginning in the 1970's.

Figure 3



Sources: United Nations Population Division (UNPD), Demographic Indicators 1950-2025 (The 1992 Revision); and United Nations Educational, Scientific, and Cultural Organization (UNESCO), Compendium of Statistics on Illiteracy, 1990 (UNESCO, Paris, 1990).

In order for couples to be able to plan their births, it is essential that there exist high-quality family planning services and access to a range of contraceptive methods and information. During the late 1990's, the goal of many family planning programs was to help couples achieve their reproductive intentions and to create comprehensive reproductive health care, including treatment for sexually transmitted diseases.

Worldwide, fertility rates have been declining and contraceptive use has been increasing in the last few decades. Nevertheless, many women who want to stop having children or to delay their next birth do not use contraception. For example, less than half of the demand for family planning is being met in sub-Saharan Africa (UNICEF, 2000). For couples who wish to delay or avoid a birth, the obstacles to contraceptive use often include a lack of knowledge about methods or where to obtain services.

More than 700 million women (two thirds of the world's women of reproductive age who are married or in a union) are using a method of contraception (UNICEF, 2000). The developing regions show wide variations in contraceptive use, ranging from 23% of married women in Sub-Saharan Africa to 84% in East Asia and the Pacific; the figure for the industrialized countries is 78% (Table 4). Female sterilization predominates in the less developed regions, while the pill is the most popular method in the more developed regions (United Nations, 1998).

Table 4. Contraceptive use and fertility: current status worldwide

UNICEF region	Births (millions) 1999	<u>Contraceptive prevalence</u> (% of women in union aged 15-49 who are using contraception) 2000	<u>Total fertility rate</u> (lifetime births per woman at current fertility rates) 2000
Sub-Saharan Africa	23.0	23	5.7
Middle East/North Africa	9.3	54	3.7
South Asia	35.7	48	3.5
East Asia/Pacific	32.6	84	2.0
Latin America/Caribbean	11.5	73	2.6
CEE/CIS and Baltic States	6.4	66	1.6
Developing countries	116.3	65	3.0
Least developed countries	24.0	32	5.4
Industrialized countries	9.8	78	1.6
World	129.3	67	2.7

Sources: Contraceptive prevalence: UN Population Division database, data available as of 1 March 2001.
Total fertility rate: UN Population Division, *Population Estimates and Projections*, 2000 Revision.

Contraceptive use by married women in the entire world increased by ten percent over the past decade, from 57% in 1990 to 67% in 2000 (Table 5). The developing world, in general, registered similar increases. The rate increased by 25% in South Asia, and by 45-46% in Sub-Saharan Africa, the Middle East, and North Africa. In the least

developed countries, the progress was especially high since contraceptive use almost doubled during the 1990s, growing from 18% in 1990 to 32% in 2000.

Table 5 Contraceptive use: the decade's progress worldwide, 1990 to 2000

UNICEF region	<u>Contraceptive prevalence</u>		% Increase 1990-2000
	(% of women in union aged 15-49 who are using contraception)		
	1990	2000	
Sub-Saharan Africa	16	23	+46
Middle East/North Africa	37	54	+45
South Asia	39	48	+25
East Asia/Pacific	71	84	+20
Latin America/Caribbean	62	73	+19
CEE/CIS and Baltic States	63	66	+4
Developing countries	54	65	+20
Least developed countries	18	32	+80
Industrialized countries	71	78	+9
World	57	67	+18

Sources: UN Population Division database, data available as of 1 March 2001.

Tsui, Bogue and Hogan (1978) formulated a theory where they hypothesized that there is an inverse relationship between a couple's level of contraceptive knowledge and their desired family size. Couples with small desired family sizes tend to be very knowledgeable in fertility-regulating practices. This allows them to achieve their desired family size.

Keyfitz (1970) studied the effect of abortion and contraception on the number of births. His research indicates that females using contraception tend to have all their children within a few years during their period of fecundity. Therefore, instead of the mother being out of the labor force on several occasions to take care of each child, she instead leaves on one longer occasion.

When comparing Canada and the U.S., a greater proportion of American women use some form of contraception than Canadian women; but Canadians use methods, like the pill and

sterilization, that are more effective. These methods are less expensive and more accessible in Canada than the U.S., because Medicare makes it cheaper to get the medical attention required. Moreover, family planning services are more prevalent in Canada, especially for high-school students (Bélanger and Ouellet, 2001; page 121).

There is no generally accepted prohibition of family planning under Islamic law. Some Islamic countries, like Jordan, neither discourage nor encourage large families. However, they had a fertility rate of 4.5 in the year 2000. In Yemen and Oman, fewer than 10 percent of married women practice a modern method of family planning, according to recent estimates. Physicians in Yemen report, however, that abortion is extremely common (Khayat, 1994).

In other Islamic countries, like Egypt, 45 percent of women of reproductive age used a modern contraceptive method in 1992, compared to 23 percent in 1980. Similarly, in Turkey, 31 percent of married women used a modern contraceptive method (Khayat, 1994).

There also exist differences in contraceptive use between educated-urban women and uneducated-rural women. Urban women use contraception more than rural women. The fact that there are more people living in rural areas, with no formal education, in the least developed countries explains the enormous discrepancy between total fertility rates in those countries than those with higher levels of urbanization and female education.

V. Abortion

The use of contraception and abortion facilitates the prevention of unwanted pregnancies and the planning of desired births. Therefore, a less effective contraceptive method implies a higher risk of unwanted or unplanned pregnancy. This in turn means greater use of abortion or more unwanted births. Also, abortion and the choice of one mode of conjugal life instead of another may be influenced by an individual's religious practice.

Abortion became legal in the U.S. in 1973. Even though access to abortion has been a controversial political issue in the U.S., the total abortion rate has consistently been higher in the U.S. than in Canada over the past 20 years. Nearly half of all pregnancies (49%) in the U.S. in the first half of 1990's were unwanted. Approximately half of those ended in

abortion. The proportion of unplanned or unwanted pregnancies was much larger in the U.S. than in other countries – approximately 60% higher than in Canada, Belgium or Sweden, more than double the proportion in the United Kingdom and five times higher than in the Netherlands (Bélanger and Ouellet, 2001).

VI. Immigration

In June 1994, 10.4 percent of women in the childbearing ages (15 to 44 years old) in the U.S. were foreign-born. These women had 1.5 children in contrast with 1.2 for native born women. Women who became naturalized citizens had an average of 1.5 children. “U.S. immigrant population is reproducing faster than native-born Americans”. (The Economist. Aug 22, 2002)

Fertility rates are much higher for immigrant Hispanics than for U.S. born, even though these rates exceed the overall state average. For Asians, rates are relatively low for immigrants but extremely low for U.S. born mothers. Among whites, fertility rates for immigrants are slightly higher than those for the U.S. born, and among African-Americans, there is almost no difference between the two groups. These results indicate that immigration is strongly associated with fertility outcomes especially for states with large immigrant populations.

The difference between the U.S. and the rest of the industrialized countries is difficult to explain. However, some of the rise in the U.S. fertility rate is the result of higher fertility among immigrants.

VII. Marriage, Cohabitation and Divorce

The family model is now very different compared to past decades. The relationships between men and women have changed.

A. Romaniuc (1984) explains in his theory that there appears to be an increase in the number of young couples that are deliberately choosing childlessness. This trend is supported by an increasing use of contraception, family planning and social equality in sex roles. Another factor that makes fertility rates fall is the decrease in marriages and the rise in divorce rates.

It is estimated that in the United Kingdom, 40 percent of marriages will end in divorce (Bélanger and Ouellet, 2001). Another feature of the higher divorce rates is remarriage which is higher among men than women. Fertility is affected by the increase in divorce and separation, since time spent between marriages is usually time lost for reproduction for most women.

Even though, in both Canada and the U.S., an increase can be observed in the non-marital fertility rate, the majority of births still take place within marriages. While the fertility rates of common-law couples are increasing over time, the fertility rates of married women are nevertheless much higher than those of women in common-law unions. Compared to Canadian women, U.S. women tend to marry in greater proportions and to do so earlier in life (*ibid*).

As stated, voluntary childlessness is increasing. Some couples simply do not want children or at least want fewer than in the past. The effect of childlessness and the change in families' inclination to have only one child has contributed to the changes in overall fertility rates.

VIII. Postponement of age of marriage

Another trend is that the average age at marriage is increasing; couples are getting married at older ages. The postponement of marriage is related to the increased popularity of living

together without marrying, which, in some cases, replaces marriage. Even catholic societies are moving toward this reality (e.g. Italy and Spain).

The typical age at marriage has increased over the last few decades. With the combination of delayed marriage and the biological clock, women simply do not have as much time to have their children. This leads to a decline in subsequent births.

A theory that explains the effect of this trend on the fertility rate is the one developed by John Ermish (1983). He explains in his theory that as more females choose to work, the average age at first birth increases and the intervals between births decrease.

Considering the U.S. and Canadian cases, it is found that Canadian women postpone having their first child more than U.S. women. Canadians also marry later than their U.S. counterparts, partly because of a growing trend toward common-law marriages, in which the fertility rate is typically lower than it is for formally-married couples.

In Canada, the mean age of first birth has been rising since 1974. It was 28.7 years in 1999 while in the U.S. was 24.7. The change over time is also consistent with a mothers' age at subsequent births. In Canada, the mean age at childbearing is 29.5 years for a second birth and 30.7 for third births (1999). In the U.S., the mean age at second birth was 27.6 years (1997) and 29.1 years at the third birth (Bélanger and Ouellet, 2001).

IX. Women in the labor force

Over the last few decades, one of the most important demographic changes has been the constant increase in female labor force participation, which has been a generalized tendency around the world.

The changing role of women has produced several transformations of the family structure. Their increased propensity to enter the labor force, and thus increased independence, imply changes in childbearing practices. This, in turn, results in changes in marital patterns

(including increased divorce and separation rates), more effective contraception, abortion, and voluntary childlessness. All of these factors lead to a decreased fertility rate.

This is reflected by Macunovich (1996). She based her theory on previous work developed by Easterlin (1987), but she added another factor. She believes that females also have material aspirations. Therefore as they began to project that they would need to enter the labor force, they started obtaining higher levels of education. This resulted in marriage being deferred until later in life and, therefore, decreased fertility rates.

X. Teenagers' Fertility Rates

A teenager's fertility rate is measured among girls aged 15-19. Births to teenagers are more likely to be unintended and premature, and adolescent childbirth is associated with greater risks of dying in pregnancy and complications during delivery. Having a child during one's teenage years also limits girls' opportunities for better education, jobs and income, and increases the likelihood of divorce and separation. As a consequence of these and other factors, babies born to teenagers run a higher risk of low weight of newborns, serious long-term disability, and dying during infancy. Moreover, in many countries, the children born to adolescent mothers are more likely to be undernourished than the children of older mothers.

The adolescent fertility rate is estimated at 50 per 1,000 worldwide for the period 2000-2005 (Table 6). As in the case of total fertility, teenage fertility is highest in Sub-Saharan Africa. Adolescent fertility is also relatively high in Latin America and the Caribbean at 71 per 1,000 and lowest in East Asia and the Pacific at 18 per 1,000, primarily because of very low adolescent fertility in China (United Nations, 1998).

Table 6. Adolescent fertility: current status worldwide

UNICEF region	Annual number of births to girls aged 15-19 (millions)	Age-specific fertility rate (15-19 years) (Annual births per 1000 girls aged 15-19)

	2000-2005	2000-2005
Sub-Saharan Africa	4.3	127
Middle East/North Africa	0.7	39
South Asia	3.7	56
East Asia/Pacific	1.4	18
Latin America/Caribbean	1.8	71
CEE/CIS and Baltic States	0.7	35
Developing countries	12.8	Xx
Least developed countries	4.4	127
Industrialized countries	0.7	24
World	13.4	50

Source: UN Population Division, *Population Estimates and Projections*, 2000 Revision.

Therefore, with the increase in teenager fertility rates, there is a linked increase in the number of single mothers and births out of marriage.

It can be calculated that approximately 30 percent of the gap observed between the total fertility rates of Canadian and U.S. women in 1999 results from the higher fertility of U.S. teenage girls (Bélanger and Ouellet, 2001). No other industrialized country has teenager fertility rates as high as those observed in the U.S.. The fertility rate of U.S. teenage girls is more than double that in other industrialized countries, including Canada, and ten times greater than in Japan and the Netherlands. The vast majority (87 percent) of teenage pregnancies in the U.S. are unwanted (*ibid*). U.S. teenage girls are twice as likely as Canadian teenagers to have a baby.

Nearly two-thirds (60 percent) of the difference observed between Canadian and U.S. fertility rates is due to the lower fertility of Canadian women aged 20 to 29. Also, in the U.S., the number of births per 1,000 for 20 to 24 year olds is about 110, but only 60 in Canada. Two decades ago, the numbers for both countries were similar.

XI. Government programs

It is very difficult to think that governments could start programs to reverse the decline in fertility. Although there had been programs in Europe to encourage couples to have more children through money incentives, there has been little or no response.

In countries like China, where their society is very different from occidental countries, there have been government programs to decrease the fertility rate. A vigorous implementation of China's birth planning policy during the 1970's produced a phenomenal decline in the country's fertility rate, which fell from about 3.1 in 1971 to 1.8 in 1979.

4. CONCLUSION

There exist many factors that affect the decision to have children or not. These factors include: the increased cost of raising a child or the change in the attitude of women towards work. Linked to these are technological changes that have made it easier to work and run a household. It is a fact that women have increasingly altered their reproductive behaviour; they can control their fertility with improved birth control methods. The decision to have children is related to the size of family they want. Now, couples are able to decide whether to have children, when to start, and the space between children.

Variables such as income level, desired standard of living, age of the couple, marital status, expected duration of marriage, size of desired family, race, ethnicity, language, urban-rural origin, the female's education level, professional careers, and a person's occupation should be included and controlled in any fertility analysis in order to understand fertility outcomes.

“Low fertility is probably on the rise because more of the decisions to delay starting families, perhaps due to economic difficulties of young households, or the growing fragility of conjugal relationships, which are often dissolved through divorce or separation before the desired number of children are born. Couples may then tend to postpone having a child

and delaying childbearing often results in a smaller number of children than desired, if only because of the decrease in fecundity that affects both men and women as they advance in years.” (Bélanger and Ouellet, 2001; page 133).

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