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Population, Health, and Nutrition

Population and Human Resources
Department
The World Bank
June 1992
WPS 924

How Reduced Demand for Children and Access to Family Planning Accelerated the Fertility Decline in Colombia

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What happened in Colombia shows how a well-managed family planning program is more likely to succeed when the women in a country already want fewer children — so that women are motivated to control fertility. In such a country, introducing family planning services simply facilitates and speeds up a fertility decline that would tend to occur anyway, albeit more slowly.

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This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — was research funded by the World Bank's Research Support Budget under research project "Impediments to Contraceptive Use in Different Environments" (RPO 675-72). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Otilia Nadora, room S6-065, extension 31091 (June 1992, 69 pages).

By the early 1960s, Colombia was one of the fastest growing countries in the world. With a total fertility rate of seven children per woman and rapidly declining mortality, its population was growing 3.2 percent a year, a rate that would double the population every 22 years.

But that population growth rate slowed down dramatically in the years 1973-85: to 1.7 percent, or a doubling time of 41 years. This slowdown, caused by a dramatic decline in fertility, was one of the most rapid fertility transitions in the world. The causes and mechanisms for this phenomenon deserve to be carefully studied if the experience is to be replicated in other countries.

To analyze the fertility change in Colombia, Rofman uses a framework developed by Richard Easterlin — which considers how socioeconomic changes affect the supply of and demand for children and the costs of regulation.

Rofman concludes that family planning succeeded in Colombia chiefly because there was already relatively low demand for children when family planning was introduced — the average desired family size was already 11 percent below the fertility rate in the early 1970s. Surveys showed that urban women wanted fewer children than rural women, and more educated women wanted fewer children than less educated women.

So the psychic costs of fertility decline were already low — perhaps because the Catholic church did not have as much influence on personal behavior as expected. And cultural patterns did not oppose changing and modernizing behavior, but actually encouraged them. Whether or not the media promoted changes in social attitudes — Merrick proposes that soap operas promoted small families and women with fewer children — Colombian women's ideal number of children decreased rapidly.

Market costs, which were high in the early 1960s, decreased rapidly when Profamilia was created. Colombian women already wanted to limit the number of children they had, so psychic costs for family planning were low. The only thing needed to produce a rapid decline in fertility was inexpensive, easily available contraceptive devices. Profamilia and the government took responsibility for supplying the family planning services and did it efficiently.

Social processes are rarely created by policy, Rofman concludes. Profamilia's activities facilitated Colombia's fertility transition, but did not create the social, economic, and cultural forces behind the fertility decline. Governments or nongovernment organizations can encourage or slow down social processes, but if the social climate is unsupportive, individual behavior will not change.

The rates of urbanization and educational improvement have been similar in most other Latin American countries so Rofman concludes that there is no reason to expect other Latin American countries to resist family planning more than Colombia. Indeed, the Catholic church, a bastion of resistance to family planning, is generally stronger in Colombia than elsewhere. What places Colombia apart from the other Latin American countries is Profamilia and the attitude of the Colombian government, which — while not encouraging the use of contraceptives — did not obstruct the efforts of private organizations to do so.

Table of Contents

Tables

Figures

I.- Introduction

By the early 1960s, Colombia was one of the fastest growing countries in the world. With a total fertility rate of 7 children per woman and a rapidly declining mortality, its population was growing at 3.2% a year, a rate that would double the population size every 22 years. The growth rate was 1.7% for the years 1973-1985, a doubling time of 41 years. This slowdown in growth, caused by a dramatic decline in fertility, was one of the most rapid demographic transition processes in the world. The causes and mechanisms of this phenomena deserve to be carefully studied if the experience is to be replicated in other countries.

A framework developed by Richard Easterlin is used in this study to analyze the fertility change in Colombia. Considering the effects of socio-economic changes on supply of and demand for children, together with effects on regulation costs, this framework will allow us to understand the underlying causes and processes behind the fertility decline.

A combination of low demand for children and efficient family planning programs was the key to Colombia's fertility decline. Colombians have had a strong disposition to receive and use contraceptive methods for many years, their demand for children was low even before modern economic development and family planning services were present in their country. Also, the high levels of rural-urban migration and health and educational improvements reinforced the declining trend in demand for children. On the other hand, mortality decline, which could have increased the supply of children, was offset by changes in the marriage patterns of Colombian women, which ensured a continuing motivation to control fertility.

The motivation to control fertility was met efficiently by a growing family planning system, administered by an NGO called Profamilia and the government. Financed by funds collected internationally, Profamilia developed a strong structure since the late 1960s,including clinics, community distribution and social marketing programs. These programs supplied almost 50% of family planning services, mostly in the form of pills and sterilizations, for mostly nominal fees.

Colombia's fertility rates are still over replacement levels; by 1990 the total fertility rate was estimated at 3.1 children per woman. It is reasonable to expect that this value will continue to decrease as more women use contraceptives and as the younger generations of women who participate in the labor market and adopt modern contraceptive techniques reach child-bearing years. In short, the story of Colombia's fertility decline is an example of success in both guaranteeing the basic right of any household to decide when and how many children they will have and improving the economic perspectives of a developing country.

II.- A Framework for Analyzing Fertility Change

The analysis of fertility change and its effects can be traced to the late 18th and early 19th centuries, when Malthus published his theory relating economic well being and population growth. He believed that unchecked population growth would generate vice and misery, which in time would reduce the population size. The economic development of Europe and North America during the following decades obscured the role of the population issue, but after 1945, when accelerating population growth was observed in developing countries, social scientists and economists renewed their interest in population trends.

The Demographic Transition theory, first proposed by Frank Notestein in the 1930s, was developed during the post-World War II period. This approach to the analysis of fertility and mortality decline is based on the concept of modernization. In a first stage, population is mostly rural, educational levels, income and consumption are low, markets are not well developed and mortality and fertility are high. But at some point, for reasons beyond the scope of the theory, societies "modernize." Cities begin to grow, levels of education and income increase, industrial technologies are adopted, and mortality and fertility decline. Thus, the determinant factor in the demographic transition from a high to a low fertility and mortality state is modernization.

This rough deterministic model was improved with the "Intermediate Variables," introduced by Davis and Blake (1956). They identified a set of eleven intermediate variables organized in three groups. Any effect the social or economic factors would have on fertility should operate through these variables. They are:

I.- Factors affecting exposure to intercourse:

A.- Those governing the formation and dissolution of unions in the reproductive period:

1.- Age of entry into sexual unions,

2.- Permanent celibacy: proportion of women never entering sexual unions, and

3.- Amount of reproductive period spent after or between divorces.

B.- Those governing the exposure to intercourse within unions:

4.- Voluntary abstinence,

5.- Involuntary abstinence, and

6.- Coital frequency.

II.- Factors affecting exposure to conception:

7.- Fecundity or infecundity, as affected by involuntary causes,

8.- Use of contraception, and

9.- Fecundity or infecundity, as affected by voluntary causes.

III.- Factors affecting gestation and successful parturition:

10.- Fetal mortality from involuntary causes (spontaneous abortion), and

11.- Fetal mortality from voluntary causes (induced abortion).

While these intermediate variables cover every possible factor affecting fertility, they proved to be ineffective when analyzing empirical data, due to the difficulties involved in measuring them. Bongaarts and Potter (Bongaarts, 1978 and Bongaarts and Potter, 1983) reformulated them, using a set of seven "Proximate Determinants," today widely used as the basis for analyzing changes in fertility. They defined the Proximate Determinants for Natural Fertility and those for Regulated Fertility separately.

Natural fertility, defined as the number of children a woman would have in her life if no deliberated attempt to limit it is present, may be affected through five proximate determinants:

- The proportion of women married, when there are no marriage delays for family planning purposes,
- the duration of postpartum infecundability (linked with the duration of lactation),
- the natural fecundability, determined by biological factors and frequency of intercourse,
- the risk of intrauterine mortality, and
- the onset of permanent sterility.

Bongaarts (1978) estimated that if marriage is early and universal, periods of breastfeeding are reduced to a minimum, and no extraordinary levels of infecundability, intrauterine mortality, or sterility are present, the total fertility rate can reach 15 births per woman. Among observed populations, the highest levels of natural fertility is slightly lower than 10 births per woman.

The second set of proximate determinants defined by Bongaarts and Potter are the determinants of regulated fertility. These also include the age at marriage, when it is deliberately manipulated to affect the number of births, and the use of contraception and the prevalence of induced abortion. While these determinants have not had large effects in traditional societies, they have been the basis for fertility decline.

A.- The Easterlin Model

While the proximate determinants approach can be used for empirical analysis, it is not completely compatible with many of the theoretical models used to explain fertility decline. These theoretical models, based on the economic concepts of demand and supply of children, could not use the proximate determinants easily, since some of the determinants contain both demand and supply elements.

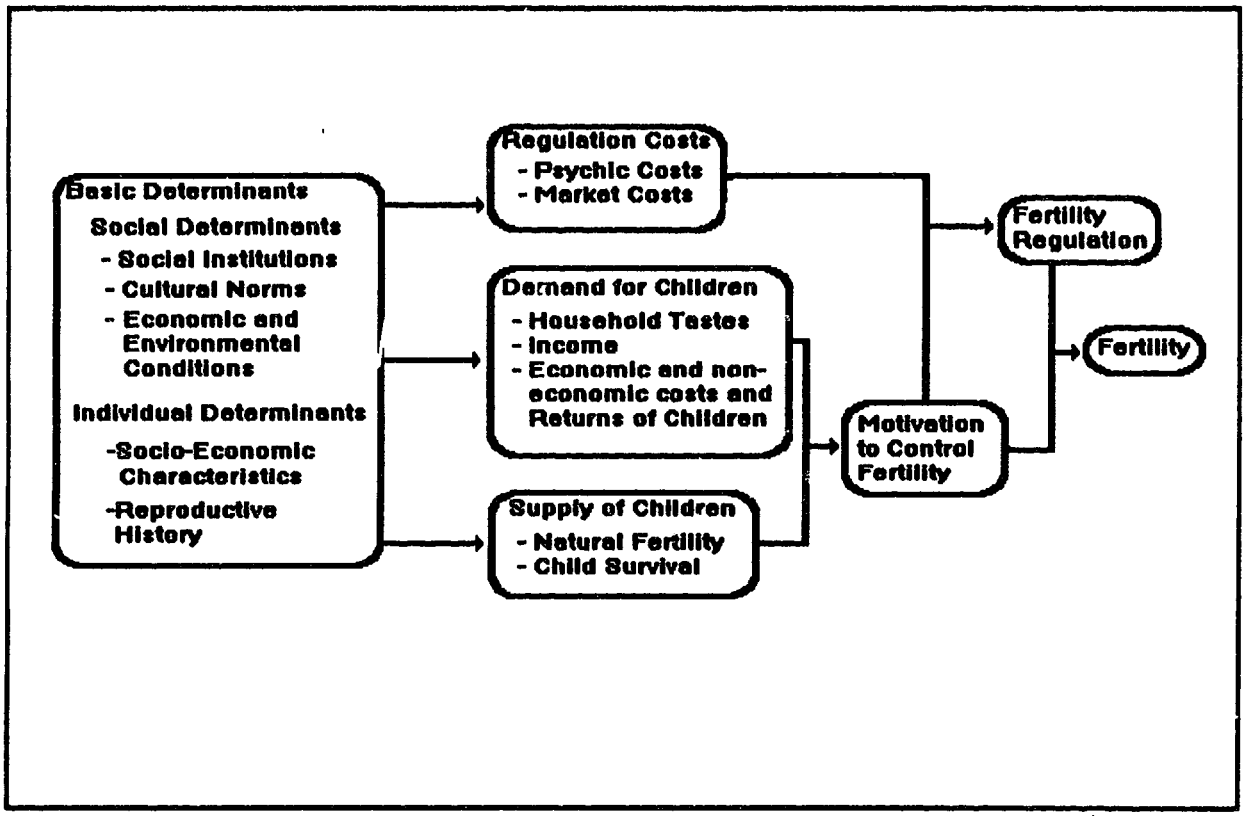
Richard Easterlin developed a framework adapting the proximate determinants idea to a demand-supply scheme (Easterlin, 1978 and Easterlin and Crimmins, 1985). His framework had the advantage of presenting an economic approach to the analysis of fertility while keeping enough flexibility to be used as an organizing system. This framework organizes the proximate determinants into three categories: demand for children, supply of children and regulation costs (Figure I).

On the demand side, social and individual conditions are thought to determine the demand for children through modifying parents' tastes, affecting their ability to support children and determining the levels of economic and non-economic costs and benefits. Economic costs and benefits include expenditures such as schooling and revenues such as income generated by children's labor. Examples of non-economic costs and benefits include leisure time lost to take care of children's needs and the psychological rewards of parenthood.

Supply of children is defined as the number of surviving children a woman would have if there is no deliberate effort to reduce fertility. This concept includes natural fertility, with its proximate determinants, and child mortality. Finally, Easterlin introduced regulation costs into the model. These are the costs involved in limiting fertility through contraception or induced abortion. There are two possible types of costs, the psychic costs and the market costs. Psychic costs include the emotional distress a person may suffer when obtaining or using a regulation method. This involves societal disapproval, religious belief or personal myths. Market costs include monetary costs of obtaining regulation methods.

Within this framework, when demand for children is larger than supply, no regulation is needed and the number of surviving children per women is identical to the supply of children. During the modernization process, infant mortality declines and the duration of breastfeeding is reduced, increasing the supply of children.

Figure I. Easterlin's Framework for Analysis of Fertility Change.



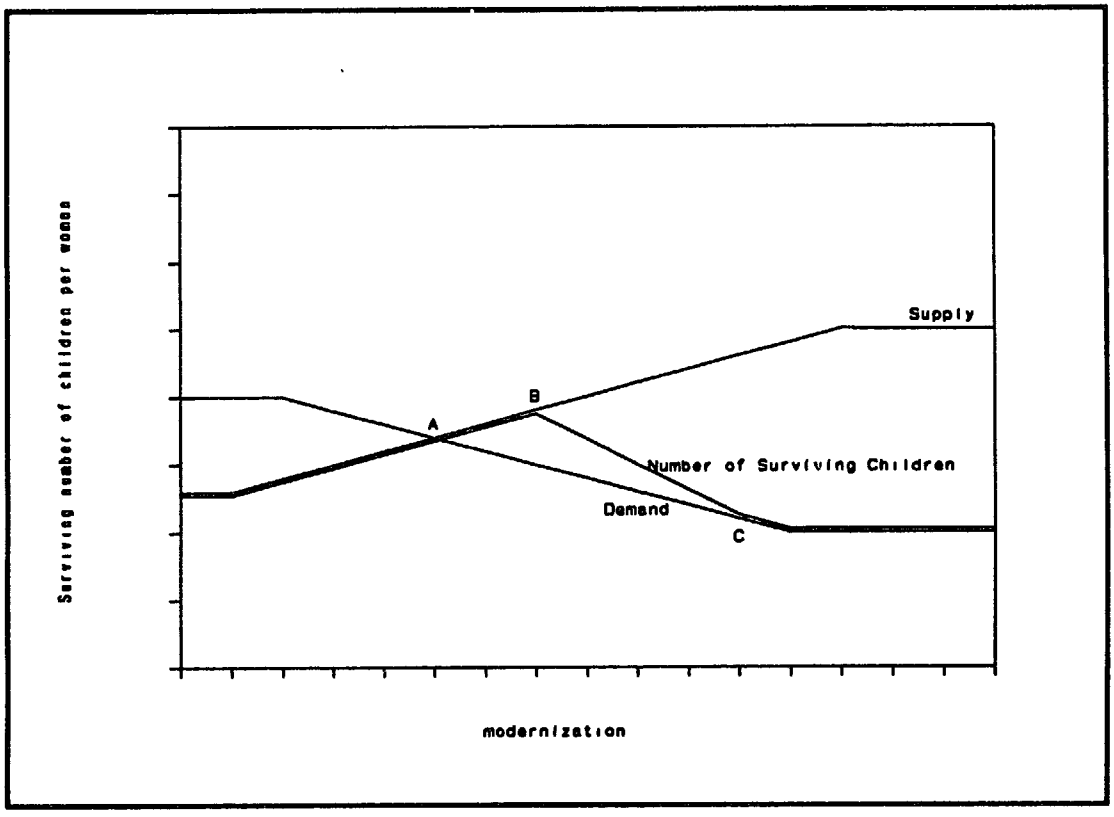
Source: Bulatao and Lee (1983) and Easterlin and Crimmins (1985).

Meanwhile, demand for children declines due to the lower benefits and larger costs of children in modern societies and, eventually, supply becomes larger than demand (point A in figure II). Final Family Size will still be determined by the increasing level of supply of children for some time, due to the high costs of regulation. Eventually, excess supply is large enough and regulation costs have fallen to a level in which regulation methods begin to be used (point B in figure II). Regulation costs continue to fall, with psychic costs disappearing and market costs becoming lower, until the number of surviving children per woman becomes almost identical to the demand of children (point C in figure II).

B.- Demand for Children

Among the three elements intrinsic to Easterlin's framework, the demand for children is the one which has attracted the most interest and research. The supply of children and the cost of regulation are critical aspects on the fertility determination process in traditional societies, but

Figure II. Modernization and Fertility Change.



their roles seem to be secondary at the onset of fertility decline. The supply of children by itself has a relatively low impact on fertility, especially during a modernization process. The regulation costs have a strong effect once demand has dropped enough to generate an excess supply of children. Demand for children can vary within a wide range and is the driving force behind fertility decline.

Why do people want children? The answer is critical for the work of planners and scholars. Gary Becker (1960) introduced the first approach to the economics of population through a simple model where children are treated as a normal good, the demand for them increasing with income. Since then, many scholars have contributed to a large debate. While neo-classical economists have attempted to explain fertility through microeconomic models, using theories such as the quantity-quality approach (Becker, 1981) or the value of time (Mincer, 1963), others have argued that although each birth is a unique and individual act, fertility is a social behavior and, therefore, sociological and anthropological approaches should be used to explain it (Lesthaeghe and Surkyn, 1988, Caldwell, 1982).

One conclusion we can obtain from this debate is that if demand for children is analyzed with the same criteria as the demand for other goods, a number of special assumptions and considerations must be drawn.

Empirical studies have not shown a direct positive correlation between income and fertility. People do not "buy" more children when they are richer, at least not as a rule. Regardless of the conceptual theory used, there is some agreement that in very low income societies the association between income and fertility tends to be positive and that this reflects a "rational" behavior for individual decision makers who probably perceive children as an medium term investment. Mead Cain (1977) estimated that in Bangladesh boys begin working in income-producing activities at a very young age. By age 12 they become net producers and, by age 15, they have produced as much as they have consumed during their lives.

Whether it is based in Becker's quantity-quality scheme or in Caldwell's wealth flow, it is clear that high fertility is not economically rational in a high income, developed society. In Becker's approach, increases in income generate larger demand for children, but also increase the desired "quality" of those children. Since the quality factor interacts with the price of children, increases in income generate more than proportional increases in children's cost. This discourages parents from "consuming" children, thus reducing fertility. In strictly economic terms, the substitution effect is larger than the income effect and the final number of children demanded is lower. For Caldwell, the wealth flow, which goes from younger to older generations in traditional societies, is reversed when, due to modernization, child labor is reduced, old age security is supplied by the state, familial work is less common and education becomes compulsory and more expensive. In both models, "rational" families will try to reduce their offspring and this lower demand would generate what we called in Figure I "Motivation to Control Fertility".

C.- Culture of Control

Fertility decline can only happen if both excess supply of children and relatively low-cost regulation methods are present. Reductions on demand induce an excess supply of children and generate a motivation to adopt regulatory methods. But the existence of such motivation does not guarantee that contraception will be adopted. Several factors affect the level of contraception use. A number of sociological and anthropological variables, such as the "culture" predominant in the community are very important. Different societies going through similar socio-economic circumstances do not present the same pattern of fertility decline. The difference could be explained by using the concept of ideational change (Cleland and Wilson, 1987). This concept (which can be considered part of the psychic costs in Easterlin's framework) is based on the idea that societies with different cultural settings have different attitudes toward birth control.

This approach has the advantage of including sociological elements in the analysis. The social and cultural differences between and within societies become essential in the analysis. Analyzing World Fertility Survey data, Cleland and Wilson mention that "....during transition, higher levels of parents' education are associated with greater use of birth control and lower marital fertility.... (The relationship) tends to be stronger than for the more pure economic characteristics of couples, such as income, husband's occupation, or standard of living...." (Cleland and Wilson, 1987:22). Of course, the relationship between education and the "pure economic characteristics" is very strong, although the direction of the causality is not clear at all.

Using data from the European Value Studies and the European Economic Community Eurobarometer, Lesthaeghe and Surkyn (1988) analyzed the cultural and ideational changes in Western Europe. They believe that the two most important ideational changes in post-World War II Western Europe have been the processes of secularization and individuation. They define secularization as the decreasing belief or adherence to traditional religion and individuation as the decreasing emphasis in institutional regulations and increasing support of individual decisions. Although their principal contribution is theoretical, their empirical analysis indicates a negative relationship between both secularization and individuation and the desired or actual family size. These findings are good examples of the possible sociological and anthropological analyses mentioned above.

Unfortunately, it is highly uncommon to find data of the European Value Studies type for developing countries. Information on values and beliefs is usually based on small scale anthropological studies. Thus, the cultural and religious variables are extremely difficult to identify and measure and they are often overlooked.

III.- The Background

A.- The Economic Situation in the Country over the last 25 Years

1.- Income

a.- Levels of Income and its Growth:

Colombia has one of the largest economies in Latin America. Its gross domestic production in 1989 was over 44 billion dollars at 1980 prices. This makes the Colombian economy the fifth largest in the region, behind Brazil, Mexico, Argentina and Venezuela. Its economic growth in the last twenty years has been the second fastest, behind Brazil.

The relatively positive situation of the Colombian economy during the 1970s and 1980s can be attributed partly to the high levels of coffee prices and the industrialization and export diversification policies applied by the government. Colombia was a member of the International Coffee Agreement, an organization formed in 1962 to stabilize the international market of coffee through a quota system. The Agreement was terminated in 1990.

Table I. GDP and GDP per capita. Colombia and Latin America.

Year	Colombia				Latin America			
	GDP		GDP per Capita		GDP		GDP per Capita	
	Million Dollars	Annual growth	Dollars	Annual growth	Million Dollars	Annual growth	Dollars	Annual Growth
1970	19149	5.6%	897	3.1%	402296	5.4%	1499	2.9%
1975	25162	5.2%	1049	2.8%	527996	5.4%	1732	3.0%
1980	32479	2.5%	1207	0.4%	690989	0.6%	2013	1.6%
1985	36821	4.8%	1232	2.9%	712532	2.3%	1855	0.2%
1989	44611		1379		783404		1872	

Sources: GDP: ECLA (1989) Table 114, World Bank (1991)
Population: Wilkie and Ochoa (1989) Table 605.

Thanks to the good performance of its external sector, Colombia has been able to control the growth of its external debt. By the end of 1989 the total external debt was around 16.2 billion dollars. Colombia has had, together with Chile, the highest standing in terms of reliability to foreign creditors during the 1980's crisis. Its external debt was negotiated in the secondary market at 58% of its nominal value at the end of 1989, a high rate if compared with the 40% of Brazil and Venezuela or the 20% of

Argentina. This situation encouraged a continuous flow of foreign investment which amounted to 3.7 billions of dollars for the period 1980-1987.

The goal of diversifying the economy was partially accomplished during the last 20 years. Table II presents the percent participation of agriculture in GDP and exports over time. Agricultural production decreased in importance since 1970, from 25.1% of the GDP, to 17.2% in 1987. Likewise, agricultural goods were more than 75% of all exports in 1970, and dropped to about 41% in 1989. The data about GDP reflects the increasing importance of manufacturing and services in the national economy. The large variation in the participation of agriculture on exports can be related to an increasing role of manufacturing and, especially, the boom of oil and coal exports in the eighties. Also, variations in international prices produced large changes in the value of coffee exports, modifying the overall importance of agricultural exports.

Table II. Participation of Agriculture in the Economy.

Year	% of Agriculture in GDP	% of Agriculture in Exports	% of Labor Force in Agriculture
1960	34.0%	75.0%	50.2%
1965	30.0%	71.8%	45.0%
1970	25.1%	76.1%	39.3%
1975	23.9%	59.1%	36.7%
1980	19.4%	69.0%	34.2%
1985	17.0%	65.0%	28.1%[1]
1987	17.2%	44.7%	26.0%
1989	17.9%	40.8%	NA

Note:[1] Estimate
Sources: ECLA (1989), World Bank (1987, 1991), DANE (1984) and Economic Intelligence Unit (1989)

The sustained economic growth of the last 25 years has been a major factor in the Colombian modernization process. As we will see later, deep social changes occurred during this period. Rapid urbanization and declines in mortality and fertility have been the demographic aspects of those social changes. While claiming that the economic growth has been the unique cause for these processes would be an overstatement, it is unlikely

that the social changes would have occurred so fast without a relatively successful economy.

b.- Major Economic Upheavals:

Colombia is the second largest producer of coffee in the world. Its economy is highly dependent on the performance of coffee exports. Coffee prices have varied tremendously due to weather conditions in Brazil, the largest coffee producer in the world. This external factor has had a negative effect on the Colombian economy.

Nevertheless, two major developments in the last 10 years have produced important changes in the Colombian economy. The large-scale exploitations of coal in the North Cerrejón area, begun in 1985, and petroleum in the eastern plains, begun in 1986, caused a dramatic increase in the size of the mining sector. In 1980, mining represented 1.1% of the GDP and the trade in mining products had a deficit of more than 600 million dollars, almost exactly the commercial deficit. In 1987, mining was 7.9% of the GDP and exports exceeded imports by almost 2 billion dollars, two and a half times the trade surplus of that year. These developments provided an important source of capital in a period when obtaining international credit was extremely difficult.

c.- The Role of Agriculture:

Agriculture has always had a major role in Colombian economy. Although the diversification process mentioned above, together with the expansion of mining and oil production, has decreased its importance, by 1989 it still represented 18% of the GDP and slightly more than a fourth of the economically active population was occupied in agriculture.

Coffee is the main agricultural product, but there are other crops, mostly used for direct internal consumption or as industrial inputs. Rice, maize, and sorghum among the cereals; cotton and soya among the oilseeds; and potatoes, yucca, and cane sugar among other industrial crops, are the largest. Meat production, mostly beef and pork, is directed to internal consumption.

The changes in agriculture had an important role in the social and demographic changes of the society. More intensive exploitation techniques and a decline in the participation of agricultural goods in the GDP and exports accelerated the massive migrations to urban areas. This process, as we will see later, was also characterized by lowering real income for rural workers, resulting in a decline of the percentage of labor force in agriculture from 50% to 26% in less than 30 years.

d.- The Informal Sector:

When economists use the concept of "informal sector", they are describing an area of the economy not fully associated with the capitalistic production techniques. Nevertheless, the concept is used for several different aspects of the economy, leading to a certain amount of confusion. The concept was developed as an effort to characterize a recurring phenomena in developing countries, associated with a dualistic economy. This phenomena includes the presence of noncapitalistic subsistence activities in a capitalistic environment, such as small businesses with no or minimum capital, unskilled self-employed workers and young women working as household employees. Other characteristics of the informal sector are a widespread tax avoidance among both capitalistic and non-capitalistic companies and a large proportion of the labor force receiving income below a subsistence level. Finally, this concept can include illegal activities, which in the Colombian case is especially important.

In any case, the concept of an informal sector is extremely difficult to handle and, by definition, almost impossible to measure. Attempts to assess its importance are usually based in household surveys and censuses. Since these secondary data sources are not designed to detect informality, only approximations can be made, usually based on the size of the firms or the prevalence of self-employment. Based on the National Household Survey of 1984, the National Employment Service estimated that 53% of the labor force of the four largest cities (Bogotá, Medellín, Cali and Barranquilla) is in the informal sector (SENALDE, 1986). In their calculation, they assumed that the informal sector consists of:

- all unremunerated family members,
- all household employees,
- all self-employed, except professionals,
- employees of the private sector in firms with less than 10 workers, and
- employers in firms with less than 10 workers.

While this definition seems rather arbitrary, it presents a disaggregation of this informal sector, from which it is possible to obtain some empirical information. The largest groups among the informal labor force are the self-employed and the employees in firms with less than 10 workers (Table III). When assessing the levels of informality by sector of economic activity, SENALDE found the largest concentrations of informal labor force are in agriculture, construction and services. The large proportion of the labor force in the informal sector is a major obstacle to the implementation of efficient public policies. If 50% of the labor force is not "legal," their situation will not be affected by changes in labor legislation. Their income levels

and working conditions are defined in a market where they have no bargaining power. Unions cannot protect them, and health services or social security cannot be provided through the traditional channels.

Table III. Labor Force, Formal, Informal and Total, by Category of Employment.

GROUP	Formal	Informal	Total	% Informal
Unremunerated Family Members	0.0	5.3	2.8	100.0
Private Employees	71.8	34.0	58.8	34.6
Public Employees	21.9	0.0	10.4	0.0
Household Employees	0.0	10.5	5.5	100.0
Self Employed	4.7	43.1	25.0	91.0
Employed	1.6	7.1	4.4	83.3
Total	100.0	100.0	100.0	52.8

Source: SENALDE (1986).

Another dimension of informality is related to the legal status of the activity. While in most countries illegal economic activities are relatively small, the case of Colombia is different. The production and distribution of cocaine has become one of the most successful businesses in Colombia. About 25,000 hectares are planted with coca in Southeast Colombia, not a very large area compared with the 50,000 hectares in Bolivia or the 100,000 hectares in Peru, and a very small area compared with the almost 1 million hectares planted with coffee. While coca crops are small, the processing and production of cocaine has become a major productive activity in Colombia. While data is logically imprecise, it has been estimated that about 200 tons of cocaine are produced and exported every year. The retail value of Colombian cocaine was estimated, for 1987, at $22 billion. Of this amount, between $1.5 and $2 billion were estimated to have returned to Colombia (The Economist, 1988a and 1988b).

This amount is small compared with a GDP of $41 billion, but it represents almost 30% of total legal exports, about the same value as coffee exports. These amounts have changed since the beginning of the "war on drugs," launched by the U.S. government. Although this initiative has depressed coca leaf and coca paste prices, its effect on cocaine prices and production is not clear and it could have increased Colombia's revenues from cocaine.

The magnitude of the informal sector is very important when analyzing demographic behaviors. In Colombia, as in most Latin American countries, mortality and fertility differentials by socio-economic status are large. At this point there are no available data to estimate total fertility rates or mortality rates for families whose main source of income comes from the informal sector. Nevertheless, it is reasonable to assume that most informal workers are low income, low educated individuals. The "Encuesta de Prevalencia, Demografía y Salud 1986" (CCRP, 1988), estimated that non-educated women had a total fertility rate two or three times larger than that of the more highly educated. We will consider these differentials more carefully later, but it appears that the groups which ought to be the target of most social policies are those most immersed in informality and, consequently, the most difficult to reach.

2.- Income Distribution

Data on income distribution has been collected and published in Colombia since the early 1960s. Personal income distribution worsened during the late sixties and did not change during the early seventies but slowly improved in the late seventies and early eighties. Considering that total income per capita increased substantially during that period, whether or not the good overall performance of the economy improved the standard of life of the poorest is an open question.

The first household survey including income and expenditure data was completed between 1967 and 1968 by CEDE/ECIEL in Bogotá, Medellín, Cali and Barranquilla. In 1970 DANE began its program of households surveys, including the cities mentioned above and Bucaramanga, Manizales and Pasto. Since 1976, the sampling and methodology of the surveys have been the same, allowing full comparability.

Gini's coefficient, an index of the level of inequality, shows a changing pattern during the period. Theoretically it may vary between 1, if all income goes to one individual, and 0, if the distribution is perfectly egalitarian. In Colombia, it had a value of 0.47 in the 1967-68 survey. As mentioned above, a regressive redistribution took place in those years, bringing the Gini's coefficient to 0.52 in 1970, although problems in comparability should be considered when assessing this change. Income distribution improved during the seventies, with the Gini coefficient going from a high 0.52 in 1970 to 0.43 in 1983. However, the coefficient declined to 0.45 in 1985.

Analyzing the 1976-1985 period, Reyes (1985) concluded that the main factor explaining the overall improvement in income distribution was

the change in educational level. The variation in income differentials by educational level accounts for 53% of the improvement of the distribution. Other factors, such as age structure and sex composition of the labor force explain about 20% of the total change in inequality.

Table IV. Distribution of Urban Income. 1967-1985

Year	DECILE				GINI COEFFICIENT
	1 to 5	6 to 8	9	10	
1967/68[12]	19.3	26.3	16.0	38.4	0.47
1970[2]	16.2	25.0	14.8	44.0	0.52
1976	16.9	25.5	15.5	42.1	0.51
1978	19.0	25.8	15.2	40.0	0.48
1980	21.2	26.5	15.2	37.1	0.45
1983	21.6	27.4	15.8	35.3	0.43
1985	21.8	26.5	15.3	36.4	0.45

Notes: (1) Data for 1967-68 are from the four largest cities.
(2) The methodology for the 1967-78 and 1970 surveys are different from those of the rest of the surveys. Thus, these data are not strictly comparable.

Sources: Berry and Soligo (1980) and Reyes (1988).

Overall, considering the changes of income distribution and the economy as a whole, the 1976-1985 period can be divided into three intervals: between 1976 and 1980, when the economy grew rapidly, with high employment and increasing wages, the distribution became more egalitarian. From 1980 to 1983 a moderate recession, which slowed the increase in wages and produced some unemployment, was accompanied by a slower but continuous improvement in the distribution, while the interval 1983-1985, when the GDP recovered while employment and real wages were depressed, was one of regression in the income distribution. In other words, no direct causality or even correlation between income distribution and economic growth can be established for Colombia in the last 15 years. Income distribution, strongly associated with real wages, was not affected by the level and pace of economic growth, but by the characteristics of the prevalent style of development.

Colombian income distribution has some characteristics in common with most Latin American countries. Latin America has the worst

income distribution among developed and developing regions. As we see in Table V, the income ratio of the highest 20% to the lowest 40% income groups is at least twice larger in Latin America countries than in any other region.

Table V. Income Distribution in Selected Countries

Country (year)	Decile						Upper 20% / Lower 40%
	1 to 2	3 to 4	5 to 6	7 to 8	9	10	
Japan (1979)	8.7	13.2	17.5	23.1	15.1	22.4	1.71
Bangladesh (1981-82)	9.3	13.1	16.8	21.8	14.1	24.9	1.74
Sweden (1981)	8.0	13.2	17.4	24.5	16.1	20.8	1.74
India (1983)	8.1	12.3	16.3	22.0	14.7	26.7	2.03
Guatemala (1979-81)	5.5	8.0	13.1	21.3	16.4	36.3	3.90
Colombia (1988)	**4.0**	**8.7**	**13.5**	**20.8**	**15.9**	**37.1**	**4.17**
Venezuela (1987)	4.7	9.2	14.0	21.5	16.4	34.2	6.34
Costa Rica (1986)	3.3	8.3	13.2	20.7	15.7	38.8	6.69
Brazil (1983)	2.4	5.7	10.7	18.6	12.4	46.2	7.23

Source: World Bank (1990)

Among Latin American countries, Colombia ranks fairly well, especially if compared with higher GDP countries such as Venezuela or Brazil.

3.- Employment

a.- Levels of Employment:

As a result of the high fertility prevalent until a few years ago, Colombia has a rapidly growing labor force. This phenomena, together with the increased participation of women in the labor force, has put a strain on the labor market. While adult males are the majority of the labor force, its

composition has been changing since the early sixties. In 1964 there were 398 males per hundred females in the labor force. This ratio declined to 282 by 1973 and 241 by 1978, showing the rapid process of incorporation of women into the labor force. This process is faster among the younger cohorts. Among those 15 to 29 years old, the sex ratio declined from 308 in 1964 to 159 in 1978. Finally, as it should be expected, the presence of women in the labor force is particularly important in the largest city, Bogotá, where the sex ratio in 1984 for the whole Economically Active Population (EAP) was 140 and for the 15-29 years old group was only 113.

Table VI. Sex Ratios for the Economically Active Population. Total EAP and EAP aged 15-29. Colombia and Bogota

Year	Total Country		Bogota	
	Total EAP	EAP 15-29 years	Total EAP	EAP 15-29 years
1964	398	308		
1973	282	209	164	126
1978	241	159	146	113
1984			140	113

Source: SENALDE (1986)

The participation of women in the economically active population is certainly larger than surveys and censuses estimate. Even if household chores are not considered jobs, there are many women working for non-household members. They cook, clean or take care of children without formal schedules or regular monetary wages, but in exchange for other services or goods. These women do not consider themselves as employed and they are shown as inactive in official statistics.

Several attempts have been made to measure the magnitude of this phenomena in Latin America, using special modules in surveys and experimental censuses. The resulting data have shown that real female rates of participation are about 100% larger than those officially measured, indicating the need to reformulate the approach to this issue.

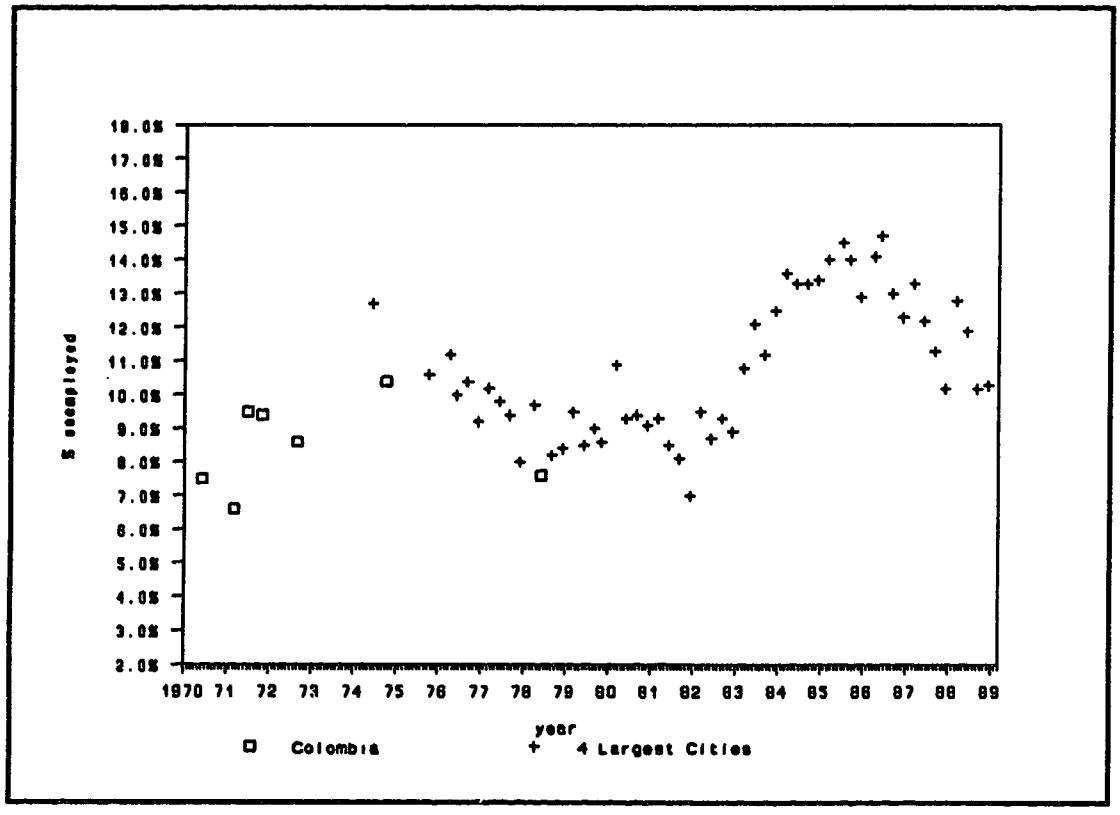
b.- Unemployment:

Urban unemployment has been regularly measured since 1970 in the largest four cities and its estimation is an important part of the quarterly household survey carried by DANE. The rates of urban unemployment

have been around 10% to 13% since the early 1970s, with a peak of 14.7% in June 1986 and a low of 7.0% in December 1981. At all times, the more dynamic economy of Bogota managed to keep the rate about 2 points under the average of the four largest cities.

Including national data from surveys in the early 1970s, unemployment rates have shown a cyclical behavior, with their best periods in the late 1970s and early 1980s and a declining tendency since mid 1986. Whether this trend will continue depends on the overall performance of the economy. Nevertheless, considering the large size of the cohorts that will enter the labor force in the near future, it is unlikely that unemployment rates will descend and stay low. Only a continuous and rapid growth of the economy will generate enough demand for labor to avoid unemployment in a context of rapidly increasing labor force, as is the case of Colombia.

Figure III. Unemployment Rates. 1970-1988.



Source: Dane (1985), Dane (1988), ECLA (1987) and ECLA (1989)

c.- Trends in Wages:

Real wages have been characterized by their stability over time. While industrial wages have steadily increased since 1975, agricultural wages have been depressed with almost no change over a 12 years period.

Table VII. Average Wages in Industry and Agriculture. Base: 1980=100

Year	Industry		Agriculture[1]
	Manual	Non-Manual	
1975	86.4	99.4	
1976	88.5	99.1	84.4
1977	83.5	93.2	98.6
1978	93.1	97.0	105.1
1979	99.2	98.6	98.0
1980	100.0	100.0	100.0
1981	101.4	102.5	97.5
1982	104.8	105.4	95.0
1983	110.3	110.1	97.1
1984	118.1	115.6	96.6
1985	114.6	113.7	94.6
1986	120.1	116.4	99.8
1987	119.2	116.5	98.8
1988	117.7	116.8	102.1

Note: [1] Wages in crop farming in lowlands without food.
Sources: Dane (1986) and ECLA (1989a)

No clear relationship between industrial real wages and urban unemployment rates can be found in the data. While, as mentioned above, unemployment rates have had a cyclical trend, industrial real wages do not show any significant decline over the period. Nevertheless, after a period of fast growth between 1977 and 1984, real wages have stabilized or slightly decreased.

Agricultural wages have had a different pattern. They are directly affected by the performance of agricultural production. In Colombia, this means that coffee prices have a major effect on agricultural real wages. The maximum level of agricultural real wages since 1976 was in 1978, the year after coffee prices reached their historic highest level. Following the same pattern, the lowest real wages since 1976 were paid in 1985, after five years of depressed coffee prices.

This long term depression in rural wages, together with the decline in importance of agriculture mentioned before and the improving conditions of life for urban dwellers, facilitated a rapid transformation of the urban-rural structure of Colombia. Rural-urban migration became one of the most significative processes in the last decades, encouraging changes in behavior by the former rural residents, adopting urban patterns in regard to fertility and family formation.

d.- Poverty:

Poverty is still a serious problem in Colombia. Measuring poverty levels is generally difficult, since the concept itself is subjective. Also, the poor are the sector of society most difficult to survey and study, making the problem more elusive. Colombia has officially adopted the concept of "Necesidades Básicas Insatisfechas" (NBI), an index used in most Latin American countries measuring the number of basic needs not met. Five indicators are used to assess poverty: a) adequacy of housing, b) occupation density, c) access to public utilities (such as electricity, potable water, or sewerage), d) economic dependency ratio, and e) number of school age children not attending school. Based on these criteria, a household is in absolute poverty if one of the five indicators is not satisfactory, and in misery if two or more indicators are deficient.

The NBI index has been criticized for its strong bias towards housing-related indicators, but no other comprehensive index could be built with data available currently, while it is possible to estimate NBI for most censuses and population surveys. Based on the 1985 census, it appears that 38.1% of households (or 43% of population) are living in absolute poverty, and 17.6% of households (or 21.4% of population) are in a state of misery.

Poverty appears to be concentrated in the northern areas of the country, specifically in the Atlantic region (see map in figure XX). Clearly, poverty is lower in departments with larger urban populations or stronger economic resources (such as the areas where coffee is produced). There is a striking correlation between levels of poverty and demographic indicators, fertility and mortality rates. Thus, it is in the Atlantic region where fertility and mortality were the highest in 1986. On the other hand, in Bogota, where only 4.5% of households were in a state of misery in 1985, the total

fertility rate was below 3 children per woman and mortality was the lowest in the country.

The causal relation between poverty and delays in demographic transition is strong, showing that economic and social development for all social sectors is a precondition for demographic transition.

B.- Population Levels, Trends and Distribution

1.- Size, Growth and Distribution

Colombia's population has gone through major transformations during the second half of the 20th century. The total population in 1985 was 27.8 million, almost 150% larger than that of 1951. The rate of growth reached a peak between 1951 and 1964, when the total population grew at 3.2% annually. After that, a rapid drop in fertility induced a decline in the annual growth rate to a level of 1.7% between 1973 and 1985.

Table VIII. Population and Growth Rates. Census Data and World Bank Projections, 1951-2025.

Year	Population	Annual Growth	Percent Urban
1951	11548000	3.2%	38.7%
1964	17485000	3.0%	52.0%
1973	22862000	1.7%	59.3%
1985	27867000	2.0%	67.2%
2000	36478000	1.0%	75.2%
2025	4777200	____	83.9%

Sources: CCRP (1988), UN (1986) and Bulatao et al (1989)

The growth was accompanied by fast urbanization and large internal migrations. While less than 39% of the population lived in cities (defined as conglomerations of 1500 or more inhabitants) in 1951, 67.2% did so in 1985. Between 1951 and 1985, the urban population grew at 4.2% per year, while rural population grew at 0.7% per year. Moreover, rural population declined between 1973 and 1985 by about 25,000 people.

Projections from the World Bank (Bulatao et al, 1989) estimate the growth rate at 0.85% in 2025. The population will reach 47.5 million by

2025, continuing the deceleration until the total population stabilizes at 57 million by the year 2100.

In a territory of more than 1.1 million square kilometers, 98% of the population lives in less than 50% of the country. The southeast area of the country, bordering Brazil and Peru, is almost uninhabited. This region, known as the National Territories, has 570,000 square kilometers and 550,000 inhabitants, a density of less than one person per square kilometer.

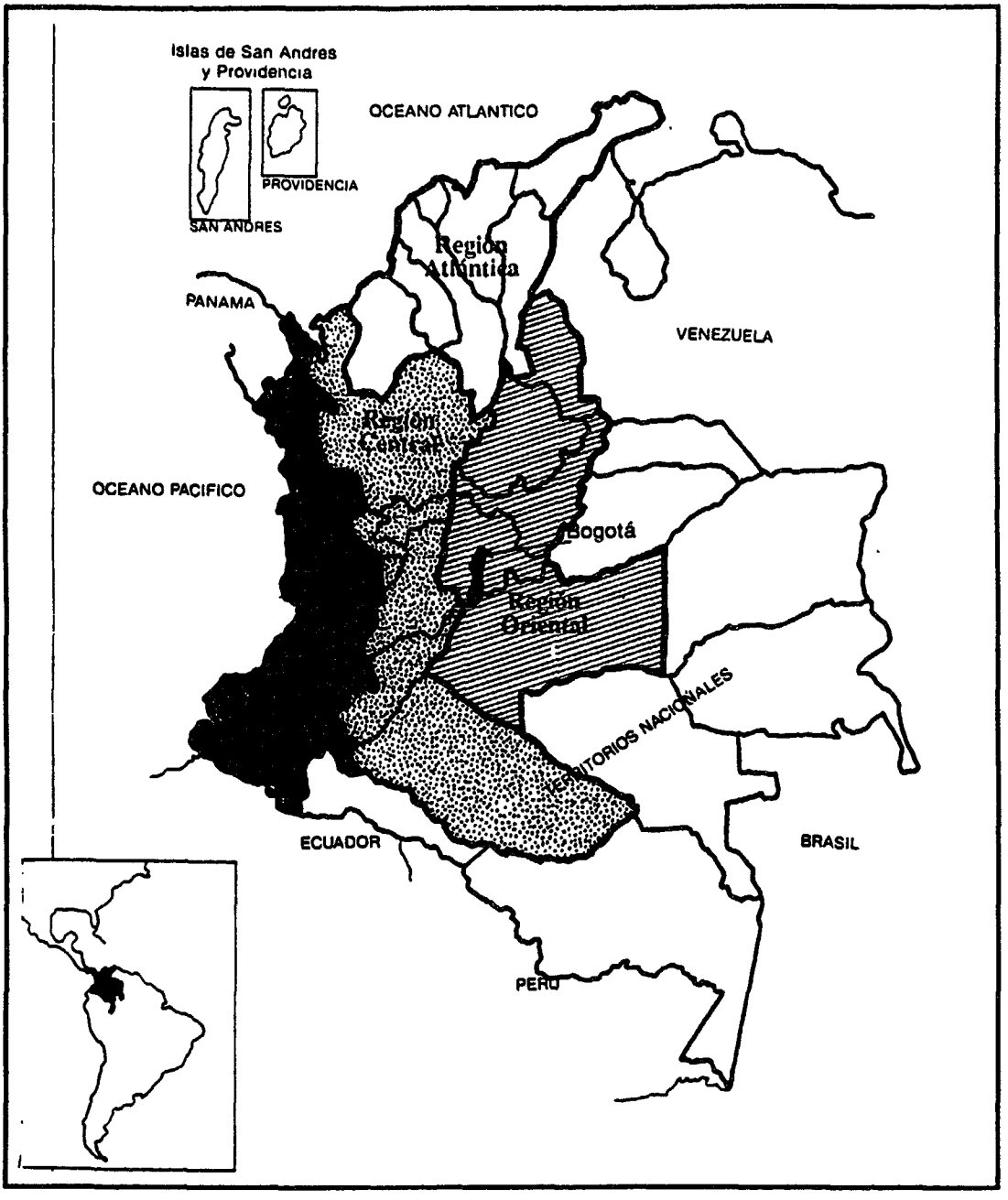
Colombia is divided in 23 Departments, 1 Special District and the National Territories. For analytical and policy purposes, the country is usually divided into five regions and the National Territories. The Atlantic region comprises six departments: Atlantico, Bolivar, Sucre, Cordoba, Magdalena, Cesar and Guajira. About 20% of the population lives here, in almost 10% of the national territory. Its population is mostly urban, with two major urban centers located in the region.

The Pacific region includes four departments: Valle del Cauca, Cauca, Nariño and Chocó. Almost 18% of the population lives in this region, in an area equivalent to 12% of the territory. This is the least developed region, where the highest poverty levels and the lowest urbanization rates have been observed.

The Central region is the largest in population, with 27% of the Colombians living there. Its area is nearly 10% of the country, including six departments: Antioquia, Caldas, Quindio, Risaralda, Tolima and Huila. While this is the area where most coffee is cultivated, Colombian industrial development began in its cities. Because of these two factors, this area is relatively affluent and its standard of living is high. The Eastern region is the largest in area, with 16% of the national territory and 19% of the population. Five departments are included in this region: Santander del Sur, Santander del Norte, Cundinamarca, Boyacá and Meta. Most oil and mineral production is located in this area. Due to its proximity to Bogotá, it has large rates of emigration. Finally, the capital, Bogotá, is a region by itself. It is the administrative, political, commercial and industrial center of the country, with more than 14% of the population in one thousandth of the territory.

The regions are not only economically and geographically different, but historic and cultural differences explain broad variations in their demographic characteristics. A large part of the population of the Atlantic region is of African origin, and families have what is known as a Caribbean pattern characterized by high marital instability and a large proportion of consensual marriages. Women have a major role in the family structure and the social life.

Figure IV. Colombia and its Regions.



Source: CCRP (1991)

The Central region is where most traditional values are maintained. Most population is of Spanish origin. Women have a minor role outside the family, Catholicism is widespread and most unions are legal,

Table IX. Population Distribution and Regional Growth Rates 1951-1985.

Year	Region					National Territories	Total
	Atlantic	Pacific	Central	Eastern	Bogota		
Distribution							
1951	16.7%	19.3%	31.6%	25.2%	6.2%	1.0%	100.0%
1964	18.6%	18.5%	29.7%	22.2%	9.7%	1.3%	100.0%
1973	20.1%	18.6%	27.2%	19.9%	12.5%	1.7%	100.0%
1985	20.4%	17.6%	26.7%	19.1%	14.3%	1.9%	100.0%
Density (Hab/km^2)							
1951	17.3	17.0	30.2	15.8	451.2	0.2	10.1
1964	29.2	24.6	42.9	21.1	1068.7	0.4	15.3
1973	41.2	32.4	51.4	24.8	1800.7	0.7	20.0
1985	51.0	37.4	61.5	29.0	2511.0	0.9	24.4
Population Growth (Annual Rates)							
1951-64	4.0%	2.8%	2.7%	2.2%	6.7%	5.4%	3.2%
1964-73	3.9%	3.0%	2.0%	1.8%	5.8%	4.9%	3.0%
1973-85	1.7%	1.2%	1.5%	1.3%	1.3%	3.1%	1.7%

Source: CCRP (1988).

with families characterized by their stability and extension. The Eastern region's population is, ethnically, the result of the mixing between Spanish immigrants and native Americans. The resulting culture generates families where almost all of the power is on the male side, but women have a role in economic activities. The Pacific region is the most ethnically and culturally heterogeneous and characteristics of the three other regions can be found in the area. Finally, in Bogotá the population is the result of large scale migration from all over the country. Although different migrants take their cultural values with them, the most typical family structure is the modern nuclear family.

Although Colombia is formally a centralist republic, its geographical and cultural characteristics have produced an unusually decentralized population for a Latin American country. The largest city, Bogotá, had only 14% of the total population in 1985. Six cities had more than 500,000 inhabitants, and altogether they had 36% of the population, a very low

number if compared with Argentina, where 35% of the population lived in Buenos Aires, or Chile, where 40% lived in Santiago[1].

The six largest cities are distributed among the five regions. In addition, with the exception of Bogotá, none of them concentrates more than 35% of the region's population, indicating that each region is also decentralized.

Table X. Population of the Six Largest Cities and Proportion of the Population of the Region.

City	Region	Population (thousands)			Percentage of Region		
		1964	1973	1985	1964	1973	1985
Bogota	Bogota	1697	2845	3957	100.0%	100.0%	100.0%
Medellin	Central	948	1476	1966	18.2%	23.7%	27.8%
Cali	Pacific	660	1002	1361	20.4%	23.6%	33.7%
Barranquilla	Atlantic	531	770	1108	16.4%	16.7%	19.7%
Bucaramanga	Eastern	225	388	519	5.8%	8.5%	10.2%
Cartagena	Atlantic	218	312	528	6.7%	6.8%	9.3%

Sources: DANE (1985b) and CCRP (1988)

2.- Social Environment

a.- Education:

Educational levels have rapidly improved since the early 1960s. Thirty five percent of the total adult population was illiterate in 1964. By 1985, the illiteracy rate had been reduced to 12 percent. School attainment increased during the 1960s, when the gross enrollment rate for primary schooling increased from slightly less than 80 per hundred in 1960 to about 120 per hundred in 1971, that is, there were 120 students per hundred children aged 6 to 10. The rate declined slightly after a peak in 1972 but it has been over 100 per hundred for the last twenty years, showing an almost universal school attainment among children 6 to 10 years old.

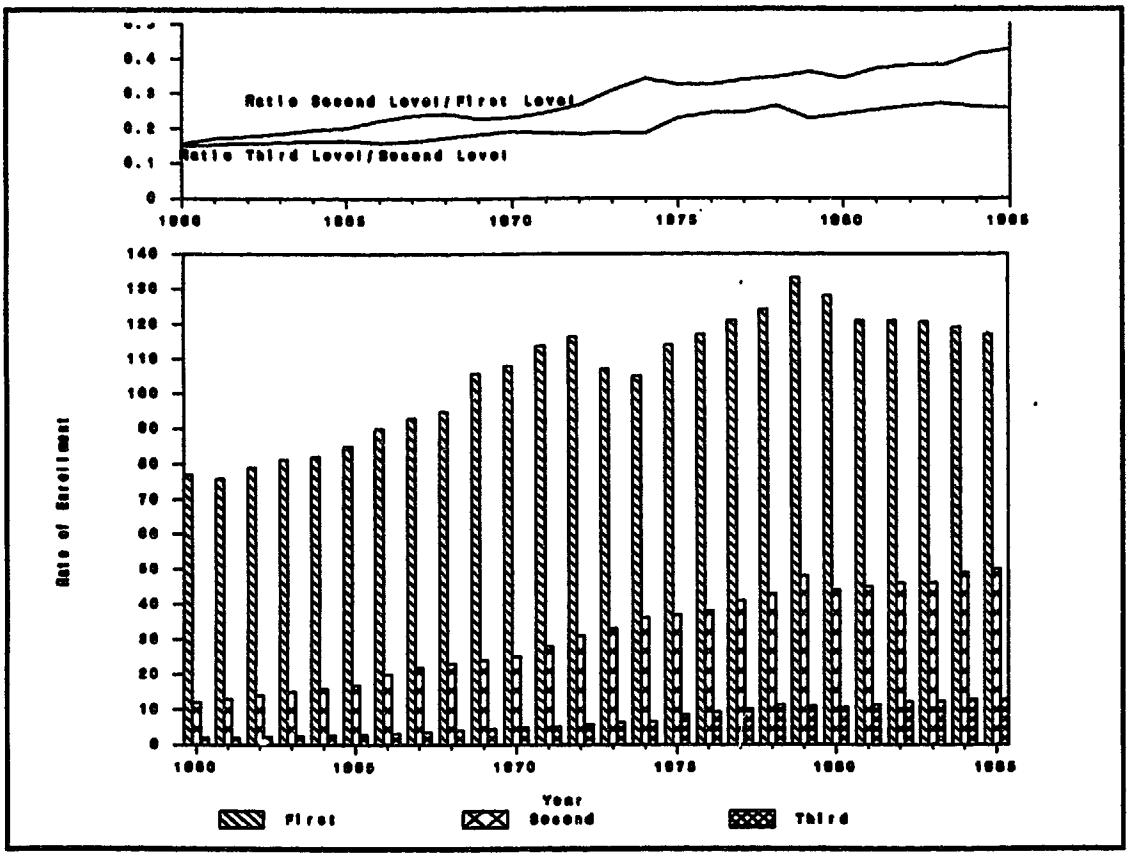
Secondary schooling also increased at a fast pace during the sixties and even faster during the seventies. Gross enrollment rates for secondary schools went up from slightly over 10% in 1960 to about 50% in

[1] Data estimated at 1985. Source: Wilkie and Ochoa (1989)

1985. This implies that the ratio of students in secondary school to students in primary school went up rapidly. In 1960 there were about 15 students in the second level per hundred in the first. By 1985, the ratio reached over 40.

The growth of tertiary schooling enrollment was the fastest. Only 2 people out of a hundred aged 20 to 24 were attending a third level educational institution in 1960. By 1985, 15% of those aged 20 to 24 were studying, with one student in higher education for every four in secondary school. The same ratio in 1960 was only one to seven.

Figure V. Gross Enrollment Ratios (GER) and Ratios Second Level GER/First Level GER and Third Level GER/Second Level GER.



Source: UNESCO (1970,1976,1980 and 1986)

Sex ratios among student in primary schools have been almost perfectly even since the early sixties. In secondary schools there were 127 male students per hundred female students in 1964. This ratio rapidly dropped to about 96 males per hundred females in 1973 and it has been stable since then. Finally, in the tertiary level, in 1964 the number of males per hundred females were 323 in 1964. This figure declined to 165 in 1973

and 103 in 1985, showing the rapid integration of women into the educational system.(DANE, 1967, 1975 and 1986).

There is a striking simultaneity between the increase in secondary enrollment and the decline of fertility, suggesting that the change in educational attainment was a major causal force behind the fertility transition in Colombia. The onset of fertility decline, around 1962, occurred when gross primary enrollment was already over 75 and the upward trend in secondary enrollment was accelerating. As Tan and Haines (1984) mention, this correspondence is characteristic of developing countries and is probably a main factor in the explanation of demographic transition.

b.- Health:

Colombia's health sector is divided into three major sub-sectors: (1) public health; (2) social insurance and (3) private. Data for 1985 show that 52% of the population utilizes the public sector, 15% has social insurance, 10% pays for services from the private sector and 23% has no health services at all. There are about 950 hospitals in the country, with a total of 45,000 beds. The population per physician has dropped from 2600 in 1960 to 1000 in 1984. There are about 3000 health care centers and posts, but more than 50% of them require remodeling and expansion (World Bank, 1985).

The social insurance and private sectors are mostly concentrated in large urban areas. Although the number of physicians seems to be fairly large, their distribution is unequal. About 70% of them practice in the largest cities, where only 40% of the population resides. This inequity, combined with inadequate maintenance of medical facilities and an inefficient bureaucratic structure,means that 23% of the Colombian population, about 6.5 million people, have no medical services at all (World Bank, 1982).

The health situation has improved in some aspects over the last few years. In 1977, gastro-intestinal and acute respiratory infections accounted for almost 40% of infant deaths. By 1981, the proportion was reduced to almost 30%, due mostly to a lower incidence of deaths caused by gastro-intestinal infections-related. Improvements in the environmental health situation, through provision of safe water and development of sewage systems, were partially responsible. The proportion of deaths of young women attributed to complications of maternity was 7% in 1986, a relatively high level. Nevertheless, the overall rate of mortality for this group was low, 85 per 100,000 thousand inhabitants. Thus, the mortality rate for causes related to maternity was only 6 per 100,000, a ver low rate.

The effect of health conditions on fertility is difficult to measure. While in the Colombian case the effect of diseases on fecundability is probably very low, there might be some relationship between the improvement on infant health and the parents' desired family size. In section IV.B

we further discuss the supply of children and the possible effects that a decreasing infant mortality has on the total fertility rate.

c.- Religion:

About 95% of Colombians are Catholic; 92% of them regularly attend to mass. Colombia had 19 Catholic priests per hundred thousand inhabitants in 1985, the largest number in Latin America, down from 28 per hundred thousand in 1960 (Wilkie and Ochoa, 1989). These numbers indicate that this is a society where the church's positions on social and political issues should affect individual behaviors.

Prior to the publication of the encyclical Humanae Vitae, in 1968, the Latin American Catholic church had no position concerning fertility or family planning. While family planning programs were promoted by the U.S. government and international agencies, the church had a contradictory message. Large sectors of the Colombian church supported or, at least, did not oppose family planning. Most of these priests refuted the neomalthusian ideas coming from the U.S., but supported family planning from a micro-sociological point of view. As Father Miguel Gonzalez, director of a Jesuit center for social research and activities, said, *"... The neomalthusians state: "The existence of a population explosion in our country justifies family planning; and the State even has the right to impose birth control in the nation...", ignoring the question of whether other kinds of reasons justify it morally from the personal or family point of view...."* (Stycos, 1971, p.81).

On the other side of the controversy, the church hierarchy actively opposed any form of contraception, declaring that *"... Every contraceptive method which tends directly to impede generation -pills, drugs, or mechanical instruments- is illicit and those who use them commit mortal sin..."* (Stycos, 1971, p.85). The controversy was decided by the Pope when the encyclical Humanae Vitae was published in 1968, in favor of the anti-family planning groups.

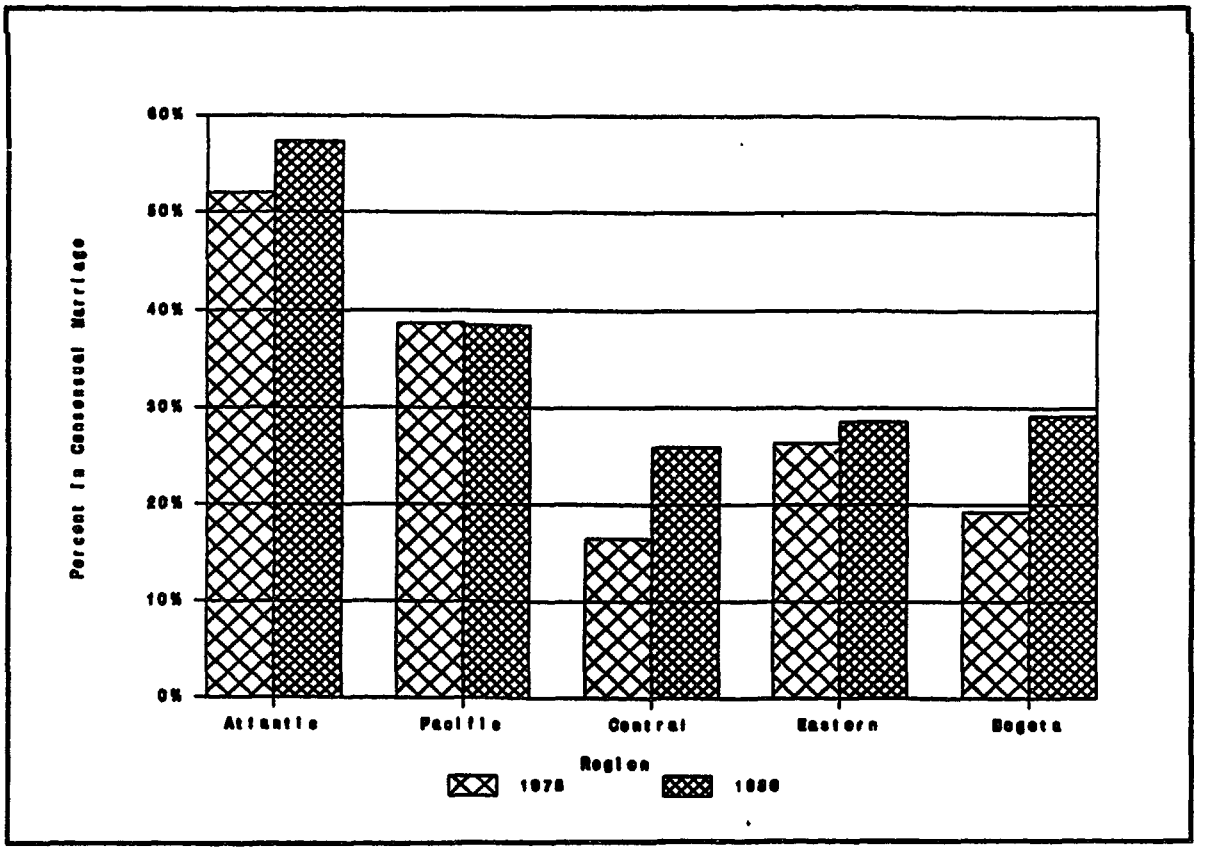
Catholic doctrine has not changed since then, but Colombians, 95% of whom consider themselves to be practicing Catholics, have reduced their fertility by more than 40% by using contraceptive methods. This apparent contradiction seems to indicate that either the church has not really tried to enforce its doctrine or that its power to do so is much smaller than it appears. This is an open issue and should be further investigated.

d.- Women's Status and Rights:

Family structure in Colombia varies widely from region to region. The Atlantic region has the largest number of consensual marriages, but almost 60% of the unions were not legally registered in 1986. At the other extreme, about 75% of unions are legal in the Central region.

On average, women from the Atlantic region enter their first union when they are 19 years old and have their first child one year later. In other regions, women enter their first union at 21 and have their first child at 22. This pattern has a direct effect on fertility rates. The total fertility rate for the Atlantic region has been about 30% higher than the average for the country for the last 20 years. Whereas these characteristics indicate that the family structure is considerably weaker in the Atlantic departments, it is difficult to derive any conclusion about the status of women. Clearly, women in consensual unions have less economic support from their partners than those legally married. However, weaker marital relationships give women a stronger position in their relation with their children and a more independent status in their relationship with the rest of the society.

Figure VI. Percentage of Women in Consensual Marriages Among Those Currently in Union by Region of Residence. Colombia 1978 and 1986.



Source: CCRP (1986).

As of 1990, the Colombian legal system does not discriminate against women in any form. Women have complete economic and legal independence from their husbands, most aspects of children's lives are

decided by both parents and marriages can be dissolved by divorce. These provisions are the result of reforms to Colombian family law during a period of almost sixty years, between 1922 and 1982, when the last major reform was done. In 1922, women were allowed to act as witnesses in legal processes. In 1954, voting right were granted. Family law has slowly evolved during this century, until in 1974 the government, by decree 2820/74, eliminated all legal inequalities originating gender differences. In 1976 a new law authorized divorce. Finally, in 1982, children born out of wedlock were granted the same legal rights as legitimate children.

Contraception use seems to be, to some extent, controlled by women. In 1986, 65% of married women were using some type of contraceptive method, and in 77% of the cases a female method. Among those not using contraception and not wanting to have children, only 4.5% mentioned their husband's opposition as the reason for this behavior.

In short, Colombian women have a relatively good status in the society. They are not completely emancipated nor is their relation with males egalitarian, but is clear that the society is not patriarchal and that women have a voice in decisions concerning family matters.

3.- Political Environment

a.- Form of Government:

Colombia is a Republic with a presidential democratic system, where authorities are renewed every four years. After the overthrow of Rojas Pinilla, a military dictator in the late 1950s, the country was managed by two parties. Liberals and Conservatives have governed under the "Frente Nacional", an agreement guaranteeing alternate presidencies and collaboration of the opposition with the government. While the formal agreement was abandoned in the 1970s, the democratic system has continued functioning.

b.- History:

Colombia was part of the viceroyalty of "Nueva Granada" under Spanish domination. In 1810 a declaration of independence was signed and after several years of war with Spain, the Great Colombia, including today's territories of Colombia, Ecuador, Venezuela and Panama, was created. By 1830 the Great Colombia was divided and Colombia began a slow process of organization, which concluded after several civil wars and the secession of Panama in 1903. During the first half of this century, the situation was stable, but the political system collapsed in 1948, when a popular Liberal leader, Jorge Gaitán, was killed. Violence erupted and the inability of the conservative government to control it led to a military dictatorship. In 1958 a new democratic president, Alberto Lleras Camargo, was elected and the

Frente Nacional pact began to function. The pact ended in 1974, and since then most presidents have been Liberals.

Since the early 1960s several guerrilla groups have been active in the country and the rapid development of a drug economy with its share of crime and violence have been threatening the democratic system. While some of the larger guerrilla groups have agreed to stop the war and participate in elections, the drug producers, associated in what is known as the Medellín cartel, have been seriously limiting the economic, social and political development of the country.

Colombia's economic organization is structured around a large public sector. A large proportion of basic services, such as education and health, are offered by the state. The government has control of the financial system, offering low interest loans for development projects. Also, several programs pointed to poverty alleviation have been applied since the mid-seventies, when the National Food and Nutrition Program (PAN) began distributing food. More recently, a major program oriented to supplement children's nutrition has been "Hogares de Bienestar Infantil". In this program, the Government provides food and offers home improvement loans to participants.

Another typically public-supplied good is low-income housing. The traditional policy had been oriented to developing highly subsidized low cost housing. This has been modified recently. The new program calls for improving the quality of current housing, through legalization of land tenure, infrastructure development and participation of beneficiaries to undertake self-help construction.

Colombia does not have regional conflicts. Although the country is formed by several regions with important topographic, economic, cultural and ethnic differences, there are not separatist movements.

IV.- The Demographic Situation

A.- Data Sources

Sources of basic demographic data, such as aggregate birth or mortality rates, are abundant and generally of high quality in Colombia for recent years. Unfortunately, data on more detailed characteristics, such as child mortality or indicators of the proximate determinants, have not been collected until the last few years and historical analyses are not possible. There are three basic types of demographic data sources: censuses, vital registration and surveys.

Colombia has a fairly long history of census taking. During this century, nine censuses have been carried out. These censuses were taken in 1905, 1912, 1918, 1928, 1938, 1951, 1964, 1973 and 1985. Data necessary to estimate mortality and fertility were first collected in 1973, when the census gathered information on parity, child survival and date of most recent birth.

Vital registration in Colombia has been based in parish records since colonial times. In 1938 a decree instituted a compulsory vital registration procedure, but it was never fully implemented. New legislation in 1968 initiated a second effort to build a national vital registration system. By 1978, the system was successfully operational in most of the country.

Seven national demographic surveys have been carried out during the last three decades. In 1965 a morbidity survey initiated the series, followed by national fertility surveys in 1969 and 1976. In 1978 and 1980 knowledge, attitude and practice of contraception (KAP) surveys were carried out. Finally, a nutrition survey was held in 1981 and the Demographic and Health Survey was completed in 1986. Additionally, an older antecedent exists with the 1963-64 Latin American metropolitan surveys, which covered nine Latin American cities including Bogotá.

Finally, the *Departamento Administrativo Nacional de Estadística*, DANE, has been carrying out a quarterly survey in seven cities since 1976. Although its focus is mainly on employment and other economic characteristics, some demographic indicators can be obtained from these surveys.

B.- Mortality

Though data for calculations of mortality rates were gathered for the first time in 1965, in the National Morbidity Survey, estimations of rates corresponding to previous years are available. Mortality has steadily declined during the second half of this century. Nevertheless, most indica-

tors for the last 25 years show that the pace of the decline has been slowing down. Infant mortality, estimated at 150 deaths per thousand births in 1950, declined to 81 by 1966 and 61 deaths per thousand in 1981, while it was estimated to be around 42 by 1990[2].

Table XI. Infant Mortality Rate and Expectation of Life at Birth. 1950-1990.

Year	Infant Mortality Rate $_1q_0$x 1000	Child Mortality Rate $_5q_0$x 1000	Expectation of Life at Birth e_0
1950	150.0	222.2	45.0
1966	81.0	113.3	58.6
1981	60.9	85.9	62.1
1990*	42.2	53.4	66.5

Note: * Projected.
Source: Zlotnik (1982), Ochoa, Ordoñez and Richardson (1983). and Bulatao et al (1989).

Adult mortality, measured in expectation of life at birth (e_0), also declined. The e_0 was 45 years in 1950. By 1966 it had increased to 58.6 years and by 1981 to 62.1 years. Bulatao et al estimated it at 66.5 years for 1990.

The changes between 1966 and 1981 are particularly well documented in Ochoa, Ordoñez and Richardson (1983). In an extended analysis of differentials in mortality decline, they have shown that most advances have been concentrated in the Central and Eastern regions, especially in Cali, where infant mortality declined by 60% in the period, while the decline in poorer regions, (as the Atlantic) was much slower. In general, differentials of mortality by socio-economic variables have increased. In rural areas infant mortality declined from 95.3 deaths per thousand in 1966 to 81 per thousand in 1981, a decline of 15%, while in urban areas the decline was from 76.4 to 53.5 per thousand, a decline of 30%. This resulted in a dramatic increase of the differential between urban and rural residents from 24.7%

[2] The 1986 Demographic and Health Survey (CCRP 1986) estimated infant mortality rates (IMR) at a much lower values and differentials. Table 6.1 of the report shows an IMR of 33.0 for the period 1981-1986, with almost no urban-rural differentials. DHS estimated that total IFR declined 47% in 10 years (between 1971-75 and 1981-86) and 30% in five years (between 1976-80 and 1981-86). These values are suspiciously low, considering other sources (such as the World Bank [1990], Bulatao et. al. [1989], or Ochoa et. al. [1983]), and the historic evolution of these rates. Thus, for the purpose of this study, they are disregarded.

Table XII. Infant Mortality Rate by Residence and Education.

Region, Area and Education	Infant Mortality Rate				1966-81 % Diff.
	1966	1971	1976	1981	
Region					
Atlantic	67.35	64.11	59.81	56.56	-16.0
Pacific	95.26	92.81	90.37	89.19	-6.4
Central	97.71	85.67	74.11	61.95	-36.6
Eastern	77.49	68.48	60.88	53.48	-31.0
Bogota[1]	45.26				----
Area of Residence					
Rural	95.26	91.59	85.67	80.97	-15.0
Urban	76.37	68.48	59.81	53.48	-30.0
Education					
None	103.86	100.15	95.26	91.59	-11.8
1 to 3 years	94.04	89.19	80.97	76.37	-18.8
4 to 5 years	75.24	66.27	54.51	46.28	-38.5
6 or more	54.51	47.31	39.11	34.19	-37.3
TOTAL	80.97	74.11	67.35	60.88	-24.8

Note: [1] Data for Bogota is only available for the whole period.
Source: Ochoa, Ordoñez & Richardson, 1983.

to 51%. The effect of educational attainment has been more dramatic. The mortality of children of those with no education at all declined by only 11.8%, while that of the children of women with 6 or more years of formal education declined by 37.3%, increasing the differential from an already large 90.5% in 1966 to an appalling 167.9% in 1981.

As a consequence of this trend in infant mortality, the differentials on expectation of life at birth also grew wider between 1966 and 1981. Most of the gain in years of expected life were concentrated among urban, high

income and educated individuals. While the rural, the uneducated and the poor gained between 2 and 3 years of expected life, the urban, the educated and the rich gained between 4 and 5.5 years of expected life.

Changes in child mortality, that is, in mortality of children under 5 years old, are important for this study, since their probability of surviving is a main factor in the supply of children. Child mortality declined even faster than infant mortality. From 1950 to 1990, child mortality rates declined by more than 75%. This means that 3 out of 4 children who would have died in the early 1950s survive in the 1990s. In the 1950s, every woman could expect that one fifth of her children would die before the age of 5. By 1990, only one twentieth of her children are at risk. No data are available for differentials on child mortality, but we can expect that they followed the same pattern that infant mortality did.

The increase in differentials seems odd considering that income distribution did not deteriorated but slightly improved and health services did not go through any particular deterioration. An inverse relationship between progressiveness in income distribution and differentials in expectation of life should be expected. Nevertheless, while distribution of income was becoming more progressive, the differentials in mortality increased. In analyzing this point, it is important to remember that the categories analyzed are no static but highly variable. That is, important "migration" processes took place in the period under study. People moved from rural to urban areas and from less educated to more educated status. These effects could explain part of the increase in differentials. It seems logical to assume that those who stayed in rural areas or were without education were negatively selected. If that was the case, the underlying process could have been that individuals more prone to improve their socio-economic and health status "migrated" to higher categories and rapidly improved their situation, while those who had insurmountable obstacles to overcome stayed in rural areas, with low education and poor health. This trend in differential is probably showing a failure by the health system to reach the most needy households. While the system improved on average, most of this improvement affected the urban and educated groups.

An additional element of importance is the rising role of violence in Colombia. While in 1973 violence explained 2.5% of deaths, for a rate of 18.3 per hundred thousand, the increase in political and drug-related violence has brought it to be, by 1986, the most important cause of death in Colombia. In that year, almost 10% of all deaths were attributed to "murder or violence inflicted by other person".

C.- Fertility

1.- Levels and Trends

In the last 30 years, Colombia has gone through one of the fastest processes of fertility decline in the world. The total fertility rate decreased from over 7 in 1960-64 to 2.9 in 1987-90.

This decline was achieved through reductions in fertility at all ages, but childbearing has been increasingly concentrated in younger ages. Age-specific fertility rates for women aged 35 to 45 years, declined by 70% in 30 years. On the other hand, fertility at younger ages presents a slower change. Age specific fertility rates for women younger than 25 declined from 165 births per thousand women in 1960-64 to 120 births per thousand in 1987-90, a reduction of only 27%.

Table XIII. Age-Specific Fertility Rates, Total Fertility Rate and Net Reproduction Rate. 1960-1990

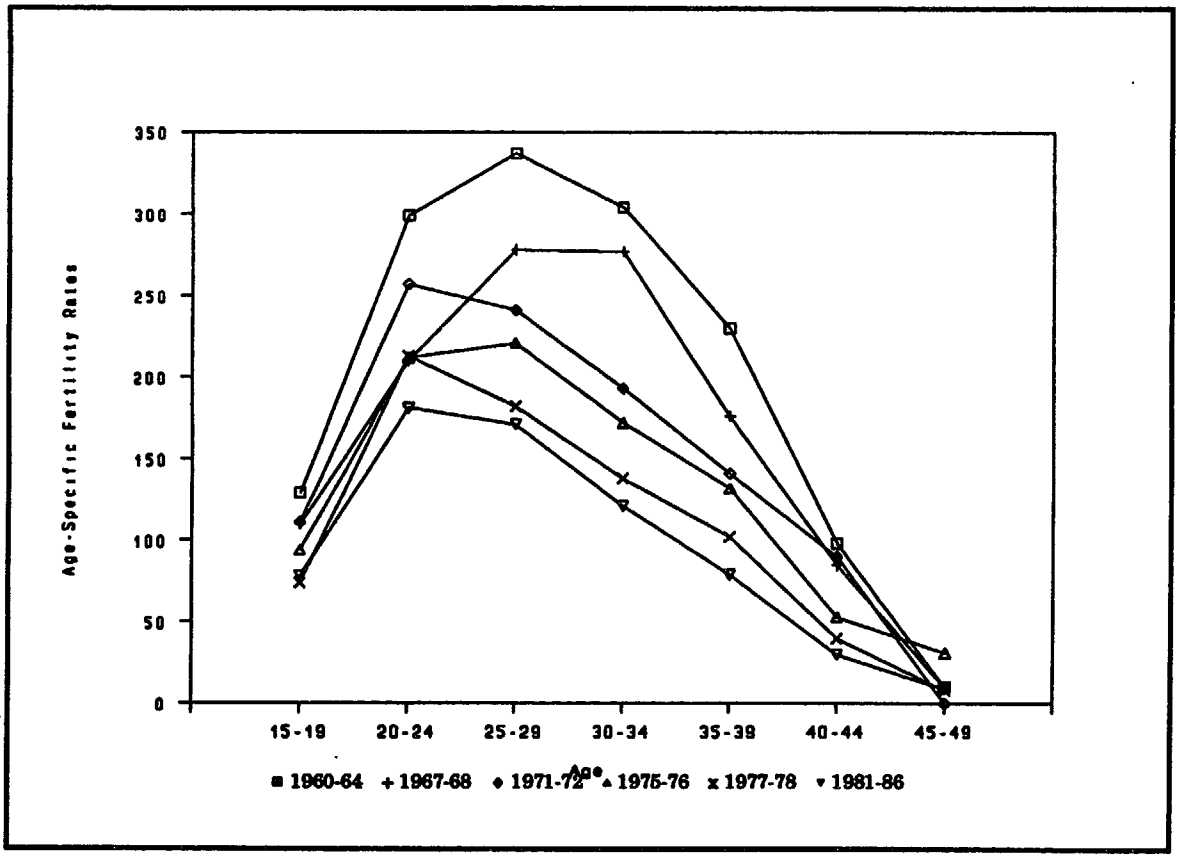
Age	YEAR						
	1960-64	1967-68	1971-72	1975-76	1977-78	1981-86	1987-90
15-19	129	110	111	94	74	78	70
20-24	299	210	257	212	213	181	166
25-29	337	278	241	221	182	171	148
30-34	304	277	193	172	138	121	99
35-39	230	176	141	132	102	79	63
40-44	98	85	90	53	40	30	22
45-49	10	10	0	31	8	9	3
TFR	7.04	5.73	5.17	4.58	3.79	3.35	2.90
NRR	3.43	2.80	2.52	2.23	1.85	1.63	1.41
Mach[1]	29.2	29.4	28.6	29.0	28.2	27.8	27.5

Note:[1] Mean Age at Childbearing.

Sources: CCRP (1977, 1986, 1990), Zlotnik (1982) and Ochoa, Ordoñez and Richardson (1983).

The change in the age pattern is clear in figure VII. The rapid decline in fertility for women older than 35 indicates that a new behavior was the main cause for the decline. Women now stop having children at a younger age. In 1960-64, as much as 25% of the TFR was due to women aged 35 or older. By 1987-90, this percentage had dropped to 15%.

Figure VII. Age-Specific Fertility Rates. Colombia 1960-1986.



Sources: CCRP (1977 and 1986) and Zlotnik (1982).

Colombia's fertility decline is even more impressive when compared with other developing countries. Venezuela and Ecuador, the two neighboring countries, had a smaller decline. Venezuela went from 6.1 children per woman in 1965 to 3.7 in 1988 while Ecuador decreased its TFR from 6.8 to 4.2 in the same period. The decline in both countries was about 39%, a small amount if compared with the 53% decrease in Colombia.

The DHS analyzed a number of differentials in fertility. As mentioned before, an important determinant of these differentials is region of residence. The total fertility rate for Atlantic Region's women was 4.39 in 1981-86, more than 1 over the national average. In contrast to this, those living in Bogota had a TFR of only 2.73. Once again, the role of poverty on demographic behavior is clear. The Atlantic region has the largest propor-

tion of poor households while Bogota has the smallest, as measured by the NBI index.

A more dramatic effect was produced by differentials in education. Women without any education at all had an average of 5.4 children in 1981-86, while women with tertiary education had only 1.47. Finally, rural-urban residence has also an effect, the total fertility rate of women living in cities was 2.76, while that of women living in rural areas was as much as 4.88.

In order to consider the role of differentials on the fertility decline process, we can compare the 1986 Total Fertility Rate with the number of children ever born to women aged 45 to 49 in that year. This last figure is a good indicator of the fertility levels about 20 years before the survey. As we see in table XII, the overall difference is almost 39%. The most remarkable differential is found in relation with the urban-rural dimension. Urban women reduced their fertility by 42%, to a low level of 2.7 children per women, while rural women's reduction was only 28%, broadening the differential from 31% to 44%. This figure has particular relevance because it indicates that the fertility transition is nearly complete in Colombian cities and most of the future effort should be directed toward rural areas.

Differences on the fertility decline by region do not appear to be high, the region with the largest decline was the Central region, with 45% and the one with the smaller decline was the Eastern region, with 32%. Since the highest fertility region, the Atlantic, reduced its fertility faster than the other regions, the differential between the highest and the lowest fertility regions declined from 76% to 61%.

Finally, education has played a determining role in the decline. With the exception of women with higher education, whose fertility rates had been under replacement levels for some time, the decline was faster among those with more education. Women with no education at all reduced their fertility by only 24%. Nevertheless, this figure may be misleading. Educational attainment of women has changed rapidly. While 45.5% of women aged 15-49 in 1986 had gone to a secondary school, only 14% of women aged 45-49 did so. In short, the effect of educational attainment has had two separate aspects. Differentials by educational level have declined, though the change was small (the ratio of non-educated to highly-educated women fertility changed from 3.9 to 3.6). On the other hand, the proportion of educated women among the younger generations has increased rapidly, making larger the groups with lower fertility.

Table XIV. Total Fertility Rates 1981-1986 and Children Ever Born to Women Aged 45-49.

Region, Area and Education	Total Fertility Rate 1981-86	Children ever Born to Women 45-49	Difference (%)
Region			
Atlantic	4.39	7.40	40.7
Pacific	3.09	4.99	38.1
Central	3.05	5.47	44.7
Eastern	3.68	5.38	31.6
Bogota	2.73	4.21	35.2
Area of Residence			
Urban	2.76	4.78	42.7
Rural	4.88	6.76	27.8
Education			
None	5.39	7.12	24.3
Primary	4.16	5.62	26.0
Secondary	2.48	3.55	30.2
Tertiary	1.47	1.81	18.8
TOTAL	3.34	5.46	38.9

Source: CCRP (1988:40)

2.- Proximate Determinants

The proximate determinants approach, presented in the introduction of the paper, lists the seven variables that can affect fertility levels. Availability of data for each determinant is far from being ideal. Bongaarts and Potter (1983) defined a "Standard Model" set of values of the proximate determinants of natural fertility. In this standard, women enter their first

union at about 22.5 years, have their last child at 40 years, go through an infecund period of 1 year after a birth, have a mean waiting time to conception of 0.6 years and the effect of spontaneous abortion is very small. Also, no contraception or induced abortion is in practice. Bongaarts and Potters estimated that the total fertility rate of a society with this standard will be around 7.

The importance of the standard model to this paper lies in the fact that the Colombian TFR was around 7 in the early 1960s. Thus, an analysis of the levels of the proximate determinants then and how they have changed since, could be an extremely useful tool in understanding fertility decline.

a.- Age at First Marriage and Marital Status of Women:

Data from the 1976 WFS, the 1986 DHS and the 1990 DHS show that the median age at first marriage was 17.9, 20.8, and 21 respectively[3]. Furthermore, the 1976 WFS allows one to estimate the median age of marriage of different marriage cohorts. That is, we can estimate the median age at marriage for women married between 1951 and 1955, and so on. In order to keep some degree of comparability between the different cohorts, we estimate the median age at marriage for those marrying before their 25th birthday.

The mean age at first marriage may be an important variable for the Colombian fertility decline. It was almost fixed between the early 1950s and late 1960s, but it began to increase since then. Table XV shows a difference of 3.1 years between the median in 1976 and 1990. This difference is indicating an increase in the age at marriage in the last 15 years.

Nobody can marry for the first time more than once. Thus, a change in the median age at first marriage must be a product of a change in the behavior of the younger cohorts, those who have not married yet. When considering the median age at first marriage by age in 1986 and 1990, no

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[3] These values are particularly impressive. A change of three years in the Median Age at First Marriage (MAFM) over a period of 10 years (1976-1986) is very fast. These data could be affected by differences in methodology between the 1976 and 1986 surveys although no differences are mentioned in the CCRP publications. Another possible source of this difference could be an error of measurement in one of the surveys. Nevertheless, both sources have independent indicators showing that some change occurred. The data on MAFM by marriage cohort, collected in 1976, indicates that the median age had been increasing since the mid-sixties, at least among those marrying at younger ages. Also, data on MAFM by age at the time of the survey, collected in 1986, show that the MAFM increased almost two years between the two younger cohorts surveyed. In both cases, the differences are underestimations of the actual changes occurring, since no data of younger generations marrying later are used for these estimations. Therefore, it seems that the amazingly rapid increase of three years in the MAFM, as reported by the WFS of 1976 and the DHS of 1986 has actually happened.

Table XV. Median Age at First Marriage (MAFM).

Median Age at First Marriage by Marriage Cohorts (1951-1975) of those married before Age 25					
YEAR	1951-55	1956-60	1961-65	1966-70	1971-75
MAFM	17.5	17.3	17.2	17.7	18.1

Median Age at First Marriage for Women 15-49 Years Old				
Year	1976	1980	1986	1990
MAFM	17.9	19.5	20.8	21.0

Median Age at First Marriage by Age in 1986 AND 1990						
Age	20-24	25-29	30-34	35-39	40-44	45-49
1986	22.7	20.9	21.3	21.0	20.1	20.2
1990	na	21.5	20.8	21.5	20.9	20.1

Sources: CCRP (1977, 1981, 1988, and 1991)

major differences are observed among the older cohorts. However, the median age, which fluctuates between 20 and 21 years for those older than 25, was 22.7 years among those aged 20 to 25 in 1986. Whether this is showing a significative change in Colombian marriage patterns is an open question and will have to be answered in future research. The median age at first marriage of almost the same cohort four years later was reported closer to that of other ages, suggesting that the high value observed in 1986 could be a measurement error.

The percentage of women currently married, either legally or consensually did not changed much. 54% of women aged 15 to 49 were married in 1964. This percentage dropped to 53% in 1976 and grew to 53.5% in 1986. On the other hand, the proportion of consensual marriages has grown rapidly. In 1964, only 19% of marriages were consensual. This proportion grew to 27% in 1976 and 35.5% in 1986. Fertility seems to be slightly larger among legally married women. Data from the 1973 census show that the number of children ever born to women age 15 or older is about 4.9 for legally married women and 4.5 for consensually married women. While this difference of 0.4 children is interesting for an analysis of family formation patterns, it is not very significative for a fertility decline

analysis. Other things equal, this could only explain decline in the TFR of about 0.1 children per woman.

Finally, an estimation of the proportion of women ever married can be obtained by observing the percentages of single women at age 45. The available data seems to indicate that marriage, legal or consensual, has been almost universal in Colombia for several decades[4]. In short, marital patterns have had some changes over the last 25 years in terms of the proportion legally married. However, this change should not have had any serious effect on fertility levels.

b.- Postpartum Infecundability:

The length of the postpartum infecundability period is the second most important determinant affecting natural fertility. Three factors affect this determinant: amenorrhoea, abstinence and breastfeeding.

Postpartum amenorrhoea was estimated to last an average of 5.7 months and abstinence about 5.6 months among Colombian women in 1990, with similar values in 1986. Although no comparable data is available from the 1976 WFS, it is reasonable to presume that these variables did not have major changes, especially in the case of amenorrhoea. Breastfeeding duration also seems to be very stable. The average number of months a baby was breastfed was 11.3 months in 1976, 11.1 in 1986, and 12.7 in 1990. Postpartum infecundability lasted an average of 8.5 months in 1986. Once again, since the three mentioned factors did not experience major changes, we can assume that this determinant did not experience any major modification and, therefore, did not induced changes in fertility levels. Differentials in length of the postpartum infecundability period by region of residence, urban-rural location or educational attainment were small. None of these subgroups showed a period shorter than 7.4 months, none of them showed a period longer than 9.8 months. Furthermore, the longer periods occurred among the lower fertility groups, as is the case of urban or higher educated women. In short, the available evidence suggests that neither the differentials nor the evolution of the postpartum infecundability period had a significant role in fertility decline.

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[4] The problem with this indicator resides in that the status of women "divorced" from a consensual union is not clear. They tend to appear as single or divorced, depending mostly on the way the question is posed. This problem is common in Latin American surveys and censuses, and the resultant data is, in general, very weak. About 15.7% of Colombian women aged 35 to 39 reported themselves as single in the 1976 WFS survey, while 4.8% reported themselves as separated or divorced. Ten years later, among women of the same cohort, 4.6% were single, 12.6% were divorced or separated. For these figures to be compatible, two thirds of the single women aged 35 to 39 in 1976 should have married during the following 10 years and almost exactly the same number should have divorced in that period. While that is not impossible, a most reasonable guess would indicate that most of the "single" women of 1976 were already separated or divorced but misclassified in the survey.

c.- Natural Fecundability, Spontaneous Abortion and Onset of Permanent Sterility:

The last three determinants of natural fertility are the least important in terms of potential effect on fertility.

Natural fecundability of Colombian women, measured through the waiting time to conception, has been very close to the standard value of Bongaarts and Potter. The average waiting time to conception was estimated to be about 7 months in 1976 (UN, 1985, p. 8). While no comparable data is available for any other date, there are no reasons to expect major changes in this variable.

Intrauterine natural death rates were estimated by Easterlin and Crimmins (1982) from 1976 WFS data. This survey indicates that about 7% of pregnancies ended in spontaneous abortion. Easterlin and Crimmins tried to estimate the effect of intrauterine natural deaths on the number of children ever born using multivariate analysis, but the parameter they obtained for this variable was non-significant. Nevertheless, we can assume that each pregnancy lost to spontaneous abortion took an average of 7 months of waiting time plus 4 months of pregnancy and 3 months of amenorrhea. If this simplistic estimation is correct, each lost pregnancy would take about 14 months. Thus, 7% of pregnancies lost implies that, on average, about 0.1 years are spent in this stage per successful birth interval. Again, this value is very close to Bongaarts and Potter's standard of 0.15 years.

Finally, natural sterility due to menopause is extremely difficult to measure and has a high variability from woman to woman. More than 48% of married women aged 35 to 44 not using contraception had their last child more than 4 years before the survey in 1976, a good indicator of sterility. The equivalent figure for women aged 45-49 reached 83%. Age-specific fertility rates of 1986 offer a good illustration of the fast decline in fecundity among women aged 40 and older. Fertility rates of women aged 35 to 40 were about three times larger than those of women 5 years older and ten times larger of those 10 years older. Of course, these figures could be affected by different rates of contraceptives use in older age, but considering that, as we will see later, rates of prevalence of contraception decrease with age for older women, this is a good indicator of the lower fecundity of women in their 40s. In 1990, about 74% of women aged 35 to 39 were terminally infertile, defined as women currently married not using contraception and without pregnancies for the last five years.

Although it is not possible to measure the mean age at end of childbearing with precision, it is possible to estimate the median age. We know that slightly less than 50 percent of Colombian women aged 40 to 45 and 80% to 90% of those aged 45 to 50 were not capable of conceiving due to

menopause. Thu .he median age at end of childbearing should be around 45 years old.

The measure of the five proximate determinants of natural fertility indicates that, following Bongaarts and Potter scheme, Colombian women should have an average reproductive life of about 24 years in 1976, from their first marriage at 18 to the onset of secondary sterility at 42, and of 21 years by 1986. However, Easterlin and Crimmins indicated that Colombian marriages tend to last less than those figures. They estimated that, by 1976, the mean duration of marriages was 19.4 years, reducing the actual time of exposure to childbearing by almost 5 years. An average birth interval would last 2.15 years, consisting of 0.75 years of pregnancy, 0.7 years of postpartum infecundability, 0.6 years of conception delay and 0.1 years added by intrauterine deaths. Thus, 19.4 years of reproductive life and 2.15 years-long birth intervals should result in an average of 9 children ever born per woman ever married.

Following the same logic, natural fertility by 1986 should have been around 7.7 children per woman. The decline would be explained mostly by the change in age at marriage, which should have reduced the mean duration of fertile unions from 19.4 to 16.5 years. No major changes in other proximate determinants were reported. Thus, a woman exposed 16.5 years to an average birth interval of 2.15 years, would have had 7.7 children. The actual total fertility rate, even during the early 1960s peak, was never much larger than 7 children per woman. The difference of 2 to 4 children in the 1960s and 1970s, and about 4.5 children in the 1980s can only be explained as the effect of fertility regulation.

d.- Proximate Determinants of Regulated Fertility:

The difference between natural fertility and actual fertility is the result of fertility regulation. Two forms of regulation are possible: contraception and induced abortion.

Data on induced abortion is scarce if not nonexistent. The 1976 WFS included a question on abortion prevalence, but its results were not published. A question about induced abortion approval was included in that survey. While the answers were overwhelmingly negative (84 percent of questioned women had a negative position towards it) this information does not refer to the prevalence of abortion but to the psychic cost of using it.

Contraception use is well reported in Colombia. Two KAP surveys, in 1963-64 and 1969-70, reported contraception prevalence in Bogota and rural areas, respectively. Also, the 1976 WFS and the 1986 and 1990 DHS included information about this issue.

The growth in prevalence rates has been dramatic. About 30% of married women in Bogota and 15% of married women in rural Colombia

Table XVI. Percentage of Currently Married Women, Currently Using Contraception, by Age.

Age	1963-64 Bogota	1978 Urban	1969-70 Rural	1978 Rural	1976 Total	1978 Total	1986 Total	1990 Total
15-19	NA	28.0	NA	22.0	38.0	21.0	29.4	36.9
20-24	28.0	51.0	12.5	NA	52.0	42.0	56.8	54.6
25-29	34.4	56.0	15.9	36.0	56.0	51.0	68.9	66.5
30-34	35.5	65.0	16.0	NA	65.0	55.0	73.7	74.7
35-39	28.3	70.0	12.7	NA	53.0	55.0	75.8	76.9
40-44	NA	59.0	NA	25.0	45.0	49.0	70.4	74.3
45-49	NA	35.0	NA	NA	31.0	28.0	47.6	54.0

Sources: UN (1979), CCRP (1977) and CCRP (1988, 1991).

were using contraceptives in the 1960s. These values grew to over 50% in 1976 and 65% in 1986 and 1990. The most rapid rise in use occurred among women aged 30 to 40 years. Contraceptive use more than doubled since the 1960s and increased about 25% between 1976 and 1986. Data from 1990 seems to indicate that a plateau may have been reached.

The most popular contraceptive methods in the 1960s were rhythm, withdrawal and douche. When questioned about the methods they were currently using, more than 90% of Bogotans and 70% of rural women using contraception reported to be using one of these three methods. This question admitted multiple answers, and the totals add to more than 100%. Nevertheless, all other methods together (including pills, IUD, sterilization, condoms and other) were reported by only 42% of Bogotans and 43% of rural Colombians (UN, 1979). By 1976, the preference had rapidly switched towards the pill. Almost 34% of those using contraception were using pills, and the second most popular method was the IUD, used by 19%. By 1986, the use of pills had been reduced to 25% of the contraception users. This was mainly caused by the increase in sterilization, used by almost 30% of the contracepting population.

The rapid changes in use of and preferences for contraception are the determining factors in explaining the decline in fertility. Contraception has not only become more widely used, but the method mix chosen is more efficient. Studies of contraceptive effectiveness show that, on average, the most widely used methods in the 1960s have a failure rate of between 23% and 40%, the most prevalent methods of 1976 have a failure rate of 2% to 5% and, among the most popular in 1986, the failure rate is between 0%

and 2% (Hatcher et al, 1984). Since these figures correspond to U.S. users, the actual effectiveness rates for Colombia may be somehow different. However, it is reasonable to assume that the relative effectiveness of the methods (that is, the fact that the most prevalent methods of 1986 are more effective than those of the 1960s) is the same in the U.S. and Colombia.

V.- Supply and Demand of Children

A.- The Supply of Children

The supply of children or potential family size in Easterlin's framework has two components: Natural Fertility and Child Survival. We analyzed the levels and trends of natural fertility in the previous section. The available data suggest that natural fertility has barely changed since the early 1960s. None of its proximate determinants (age at marriage, postpartum infecundability, natural fecundability, spontaneous intrauterine mortality and secondary sterility) have had changes large enough to affect the level of natural fertility. Overall, we estimated its level at about 9 children per woman ever married.

However, child survivorship has had major changes. The probability of losing a child before he or she is 5 years old was one in five in 1950. This meant that the final family size an average couple should have expected was about 20% lower than their natural fertility, that is, about 7.2 children. With the decrease in child mortality rates, the potential family size began to grow. By 1966, it was about 8 children per woman; by 1981, about 8.2 and, by 1990, slightly more that 8.5 children per woman. These values are very close to Easterlin and Crimmins' figures. Using their estimation method, based in a multivariate regression, they estimated that the potential family size in 1976 was 7.9 children per woman.

B.- The Demand For Children

1.- Costs and Benefits of Children

The cost and benefits of children are central aspects of the demand of children in Easterlin's model. A straightforward conclusion from observing the model is that a change in demand must occur at some point before fertility can decline. Several scholars have pointed out that the trigger that initiates fertility decline is a change in the cost of children, which has an impact on parents' behavior. (Caldwell, 1982; Tan and Haines, 1984).

There are two types of cost of children: Direct costs and opportunity cost. Education is one of the most important components of children's direct costs, while the missed potential income of both children and mothers are the most important opportunity costs.

Three factors, the introduction of compulsory schooling, a rise in social pressures to send children to school, and increases in cost of school

and school-related goods are usually linked with rapid changes in direct costs and, consequently, in fertility.

These factors have had different effects on Colombian fertility. Five years of schooling, the duration of the primary level, are compulsory in Colombia. While attendance was never enforced, social pressures and cultural change made primary schooling almost universal since the early seventies.

A major factor in the universalization of education has been the rapid urbanization of the country. As we will see, the urban proportion has been growing at almost one percentage point a year since the early 1950s. This dramatic change exposed a large number of former rural workers to the social pressures and needs of a urban environment, inducing them to increase their "investments" in children, by sending them to schools.

The material cost of primary education is borne largely by public expenditure. Public schools are free and about 85% of the children go to public schools. Nevertheless, there are costs related to schooling, such as books and writing supplies. Data for the largest four Colombian cities in the late 1970s show that families with children aged 8 to 18 years old spent between 4.2 and 7.8 percent of their total expenditure on education. (Tan and Haines, 1984)

Secondary schooling, though not compulsory, has also become common in Colombia, especially in urban areas. The proportion of students in private schools is much larger in this level, about 35% of the students attending secondary schools in 1984 were in private schools. Also, it is logical to expect that school supplies for this level will be more expensive, indicating that, overall, sending children to secondary school represents a larger cost for parents.

The opportunity costs of children have effects in both directions. One important dimension is the loss of potential income generated by universal schooling. Since children are able to participate in economic activities from a very early age, sending them to school limits the economic contribution they might make to the household.

Mead Cain (1977) showed that children in Bangladesh are economically active since they are six years old and that they produce net income to the family by age 12. No comparable data are available for Colombia. It is clear that the Colombian economic structure is different from that of Bangladesh, but as recently as the 1960s about 50% of the population was rural. Under such conditions, children played a measurable role in household production, but with the rural-urban migration process and the universalization of education, that role decreased in importance.

Statistics from censuses and surveys on participation in the labor force are only collected for those aged 12 or older. Only 5% of the population aged 12 to 14 was reported as active by 1978. This figure has been fluctuating between 5% and 10% since 1951, indicating that children have not been part of the labor force as a group in recent decades. Of course, the low percentages of participation could also indicate a cultural disapproval towards child labor, which would lead parents to conceal the fact that their children were working. Peruvian data for 1986 show much higher children's rates of participation. More than 60% of children aged 10 to 14 were working in rural areas. Among children living in cities, the lowest rate was for girls in Lima, where 13.8 participate in the labor force, and the largest one was for boys in other cities, with a figure slightly higher than 25% (Cochrane et al, 1989).

A second cost of opportunity affects the income the mother could earn if she spends the time used in childbearing and childrearing in the labor market. This cost has rapidly increased for Colombian women. By 1964, about 17% of them were economically active. This rate almost doubled in 20 years, to reach 31.6% in 1985. These values indicate than Colombian women are part of the production process and that retiring from this process, even temporarily, has become difficult and costly for them.

Finally, we should consider the benefits parents can receive from their children's education. Individual returns from education have been found to be positive almost everywhere. Empirical analyses show that return to primary education in developing countries are high. In societies where the families have strong links and parents are usually supported by their children in their old age, the advantages of educating children are clear in the long run.

The effects of the mentioned changes of costs and benefits of children are not clear. If parents do not expect to bear the full education costs, the rise in education will not necessarily decrease the demand for children. However, if educational goals increase beyond primary schooling, and family links are weak, cost of schooling will increase while benefits could decrease. This effects will reduce or make negative the net benefit of education for parents, and therefore, education will become an incentive to reduce fertility. Also, the increased economic activity of women has increased the cost of having children. In short, it seems that children have become a more expensive "good" and that social and economical changes have created incentives to reduce fertility.

2.- Evidence, Past and Present

There are four basic sources of information about demand for children: the 1963-1964 KAP survey of Bogota, the 1969-1970 KAP survey of Rural Colombia, both carried out by CELADE, the 1976 National Fertility Survey, a part of the World Fertility Survey, and the 1986 Demographic and Health Survey. Data on demand for children consist mainly of reports of the number of children women would like to have.

No information about male preferences has been reported in any of the surveys, and no information on the characteristics of the decision making process inside the families is available.This could be of particular relevance in a country with high differentials in family formation patterns. For example, it is highly probably that women's opinions have more weight in the Atlantic region, where they have a predominant role in the household, than in the Central region, where families have a more patriarchal structure. Since fertility rates are different between these regions by more than 1.3 children per woman, it is reasonable to assume that elements internal to the families have an important role in fertility decisions.

However, since the only available information refers to women's desires and preferences, this section will analyze them assuming that their desires reflect family desires.

a.- Levels of Demand:

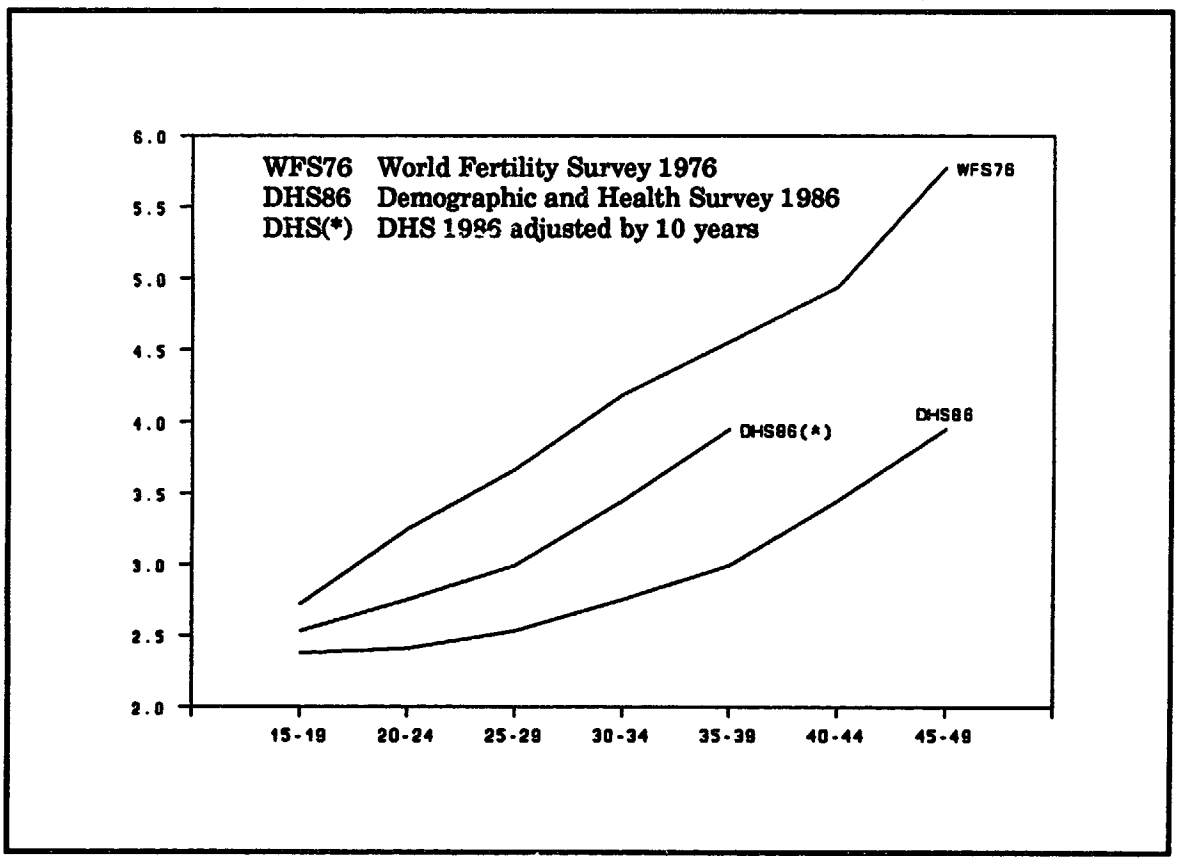
The total family size desired by Colombian women has rapidly changed over time. The mean ideal number of children in 1976 was 4.11. Ten years later, the number had dropped to 2.72, 33% lower. This decline accompanied the decline of the total fertility rate, which went, in the same period, from 4.6 to about 3.3 children per woman. This implies that the gap between ideal family size and total fertility rates has not been reduced, but it has increased from about 12% to almost 20%.

The decline in the demand of children, represented by the ideal family size, is the result of a combination of period and cohort effects. A young group of women -those aged 15 to 24 in 1986- entered the group of childbearing women, while those aged 40 to 49 in 1976 left the group. This "cohort" effect, that is, the replacement of one older cohort of women by other younger, produced a strong decrease in the mean ideal number of children. The women who finished their reproductive life had a desired family size of 5.3 children, while the youngest group in 1986 wanted just 2.4 children.

But an additional "period" effect was also present. Every single cohort included in both surveys reduced its mean ideal number of children during the ten-year period. In Figure VIII we can see that this reduction

was important; the largest change occurred among those aged 25-29 in 1976 and 35-39 in 1986, with a reduction of their desired number of children by 0.68, almost 20%.

Figure VIII. Desired number of Children by Age.



Source: CCRP (1977 and 1988)

These considerations have particular importance because they offer a hint of the mechanism of the decline in demand for children. Clearly, the Colombian process was determined by both cohort and period effects: Younger women have lower expected family sizes, and the desired family size of all women declined over time. Thus, policies and research should be oriented to all women, regardless of their ages.

Although the KAP surveys of the 1960s did not report mean ideal numbers of children, an estimation based on the proportion of women declaring that they do not want more children indicated that desired family sizes were even larger than in 1976.

The total percentage of women not wanting more children went from somewhere between 70% and 60% in the 1960s to 60% in 1976, up to

Table XVII. Percentage of Women not Wanting More Children, by Number of Surviving Children.

Survey	Number of Surviving Children						Total
	0	1	2	3	4	5 or +	
1963-64 KAP (Bogota)	NA	31.6%	51.9%	61.6%	83.7%	90.5%	70.6%
1969-70 KAP Rural	NA	13.0%	53.9%	64.9%	64.0%	77.3%	60.0%
1976 WFS							
Total	9.0%	19.0%	52.0%	65.0%	79.0%	78.0%	61.0%
Urban	10.0%	18.0%	52.0%	67.0%	81.0%	85.0%	60.0%
Rural	5.0%	19.0%	52.0%	59.0%	76.0%	70.0%	64.0%
1986 DHS							
Total	7.7%	27.4%	67.7%	82.6%	91.7%	91.3%	68.9%
Urban	8.4%	28.7%	68.5%	85.5%	94.0%	NA	68.8%
Rural	6.5%	23.9%	65.0%	74.4%	89.0%	NA	69.2%
1990 DHS							
Total	3.2%	23.1%	62.2%	85.9%	89.2%	94.0%	64.0%
Urban	2.2%	23.5%	64.8%	85.9%	89.8%	93.2%	62.1%
Rural	6.0%	21.7%	54.1%	85.7%	88.4%	96.0%	68.5%

Source: UN (1979), CCRP (1977, 1986, 1991)

69% in 1986, and down again to 64% in 1990. These erratic changes in the indicator have two possible explanations. First, the percentage of women not wanting more children in Bogota in 1963-1964 is suspiciously high, reflecting either a mistake in the survey or a very peculiar characteristic of Bogota's society by that time. Also, the change in the percentage of women not wanting more children has a clear trend if we analyze the answers of women with any specific number of surviving children. The proportion of women not wanting more children increased rapidly in each group, especially among those with one or two children and between 1976 and 1986. This is not reflected in the percentage for all women because the structure of the population changed. Women with smaller families tend to be more willing to have more children, and the proportion of women with small families has

increased over time in Colombia. Thus, the real change in desired family size is probably obscured by this compensating effect.

In general, demand for children has been declining in Colombia. Information for the decade between 1976 and 1986 documents this trend clearly. The period previous to 1976 is less clear, mostly due to the lack of adequate data. A very important point is that the number of women not wanting more children was already high during the 1960s. The reason for this early desire for smaller families is not clear, further sociological and anthropological analyses should be conducted.

b.- Socioeconomic Differentials in Demand for Children:

Several socio-economic variables have been shown to have a role in the determination of differentials in demand for children. Among those, education, rural-urban residence and region of residence are the most significant in Colombia. The 1976 WFS indicate that women with no education wanted about 1.8 more children than that of women who had gone to tertiary schools. This differential was reduced to about 0.7 children in 1990. A similar effect occurred with the differentials by region of residence. The largest difference in 1976 was of 1.3 children, between women living in the Atlantic region and women living in Bogota. This difference was reduced to 0.5 children in 1990. The differential by rural-urban residence is the only one that was not significantly reduced, it went from 0.64 to 0.4 children in the 14 year period.

These changes can be explained by considering the stage in the demographic transition each group was going through. Bogotans, urban women, and women with tertiary education had a desired family size of about or less than 2.5 children per woman in 1990. If we consider that not every woman has as many children as she wants, it becomes clear that these values will generate a near-replacement fertility if contraception is widely available.

We can say that ideal family sizes of 2.3 to 2.5 children are probably a "floor," further reductions are highly improbable in a developing country. Thus, differentials in desired family size will necessarily continue to reduce, as long as the ideal number of children among the groups that still have large demand continues its decline.

These findings have important implications for policy making. It is clear that different policies should be aimed to different groups. A large campaign handing out contraceptive devices to everyone would be wasting resources by trying to supply contraceptives to some social sectors, such as highly educated women, whose demand for family planning is already satisfied. On the other hand, spending on programs specifically designed to reach the uneducated and those living in rural areas or the Atlantic region, would produce more satisfactory results, utilizing the available resources

Table XVIII. Socio-Economic Differentials in Demand for Children.

Ideal Family Size by Region of Residence						
Year	Atlantic	Pacific	Central	Eastern	Bogota	Total
1976	4.64	4.26	4.23	3.74	3.32	4.11
1986	3.24	2.47	2.75	2.66	2.44	2.72
1990	2.90	2.40	2.60	2.70	2.40	2.60

Ideal Family Size by Rural-Urban Residence			
Year	Rural	Urban	Total
1976	4.52	3.88	4.11
1986	3.14	2.56	2.72
1990	2.50	2.90	2.60

Ideal Family Size by Educational Level					
Year	None	Primary	Secondary	Tertiary	Total
1976	4.92	3.71	3.36	3.07	4.11
1986	3.44	2.93	2.42	2.32	2.72
1990	3.10	2.80	2.40	2.40	2.60

Sources: CCRP (1977, 1988, and 1991)

more efficiently.

Easterlin and Crimmins (1982) estimated the effect of different socio-economic variables on the desired family size. They found that the most important variables were women's education, where each additional year of education produces a reduction on the desired family size of 0.15, and the region of residence, showing that those who live in the Atlantic region have a desired family size of 1.65 children larger than those living in Bogota.

C.- Unmet Need for Family Planning

We have already shown that, on average, demand for children is smaller than supply. This disequilibrium can only be balanced by the use of contraception. By simply comparing averages of children's demand and actual fertility from Tables XII and XVI, it is possible to see that Colombian women would like to have fewer children than they have now.

Even if women do not want to further reduce their final family size, they may want to increase the interval between births. Thus, they would need contraceptives for relatively short periods in order to avoid pregnancy.

1.- Unmet Needs for Limiting Fertility

Women with unmet needs of family planning for limiting fertility are those who, while being exposed to childbearing, do not want more children but are not using contraception. Almost 16% of Colombian women were in this situation in 1986. Of them, 75% (that is, 12% of all Colombian women) were planning to adopt contraception in the future, making them a particular target for any family planning policy. This group has the intention to use contraception but, for reasons that go from family opposition to lack of access to medical services, are unprotected.

Differentials in this matter are large. The percentage of the women with unmet need in the Atlantic region more than doubles that of the women residing in Bogota, where only 11% of women are in this category. Educational differentials are more marked. While 26% of women with no education at all have unmet needs for family planning, only 1.2% of women who went to the tertiary level are in that situation.

The unmet needs are, in general, larger among those groups with larger fertility. Again, this is indicating that targeting is critical for any program if it will succeed. An analysis of the reasons why as many as 25% of the women who said that they did not want more children neither use nor plan to use contraceptives is extremely important, especially when this percentage goes as high as 39% in some groups.

2.- Unmet Needs for Spacing Fertility

A second type of unmet needs exists when women want to space their children's births, but they do not use family planning. This indicator

presents the percentage of women who want to delay the birth of their next child for more than two years and are not using any family planning method, among all exposed women. The figures in this case are smaller, only 12% of Colombian women are in this situation, and the percentage who plan to use contraception in the future is also smaller, only 66%.

Table XIX. Percentage of Women With Unmet Need for Family Planning, by Region, Urban-Rural Residence and Education. Colombia 1986.

Region, Residence and Education	Percentage with unmet need			Percentage who plan to use among with unmet need		
	To Stop	To Space	Total	To Stop	To Space	Total
Region						
Atlantic	23.4	17.7	41.1	75.7	71.2	73.7
Pacific	15.5	10.6	26.1	69.9	60.4	65.9
Central	14.6	10.6	25.2	74.9	61.0	69.0
Eastern	14.1	13.3	27.4	74.6	70.0	72.3
Bogota	11.1	9.4	20.5	82.6	68.3	76.1
Residence						
Urban	13.3	10.4	23.7	73.7	64.6	69.6
Rural	21.3	16.2	37.5	76.9	68.7	73.6
Education						
None	26.2	8.6	34.8	61.4	60.9	61.5
Primary	17.4	12.1	29.5	74.0	62.6	69.2
Secondary	12.1	13.5	25.6	85.2	73.5	78.9
Tertiary	1.2	13.1	14.3	100.0	70.7	72.7
Total	15.9	12.3	28.2	75.3	66.4	71.3

Source: CCRP, 1988

While the differentials by region of residence and by rural-urban residence are basically identical to those of the unmet needs of family planning to limit fertility, they reverse in the case of education. The significance of this effect should be considered with caution. Indeed, 13.1% of all highly educated women have unmet needs for spacing, against only 8.6% of those with no education. But these percentages are determined by the

proportion of women wanting to space births. If we only consider this new reduced population, then we will find that 25% of highly educated and as many as 58% of uneducated women have unmet needs.

In conclusion, about 28% of Colombian women were in need of family planning services in 1986. More than 71% of them declared their willingness to use contraception in the future. Women in the Atlantic region and with no education were the groups with the highest needs, with 41% and 35% respectively. These indicators show that demand for children is clearly below the current level of fertility and that, in terms of the Easterlin-Crimmins framework, a strong motivation to control is present. The regulation costs, both psychic and market types, are a major variable in the determination of regulation use and, consequently, in the level of fertility.

VI.- Regulation Costs

According to Easterlin framework, when demand for children is smaller than supply, a motivation to control fertility is present. We had shown that this has been (and still is) the case for Colombia since the 1960s. Nevertheless, the existence of that motivation, or "unmet need" to control fertility, is not enough to guarantee that contraception will be used and fertility will decline. Availability of contraceptives is a critical aspect of this process. To adequately assess this availability, we will consider the "psychic" and "market" costs of fertility control. By psychic cost, we refer to the non-material obstacles women can find when attempting to use contraception. Among them, family pressures, community disapproval or religious beliefs are very important. By market costs, we refer to the material obstacles women have to confront. These includes items such as the cash cost of medical visits and contraceptive devices, and the cost of transportation to family planning clinics.

A.- Psychic Costs. The Culture of Control.

The estimation and assessment of psychic costs of fertility regulation in Colombia are open questions, worthy of detailed analysis. Colombia's case has been analyzed in many studies on the economics of fertility decline or the demographic processes, but, unfortunately, anthropological studies are practically nonexistent. A few studies on social and cultural attitudes towards contraception have been published.

Family planning programs have encountered resistance from opposite sides. As mentioned before, the Catholic hierarchy did have an active role resisting the introduction of family planning in the 1960s. On the other side, leftist groups strongly campaigned against the newly introduced programs. In a book called "Natality Control is: Violation of National Sovereignty and Colombian Families Rights", Celiano Padilla Céspedes, describes the attempts to lower fertility rates in Colombia as ". . . *A form of violence with fatal consequences for our marginal classes.* [Its promoters goals are] *to perpetuate their control and exploitation of the Colombian people and [. . .] the U.S. imperialism. . .*" [Padilla Céspedes, 1974:107].

The religious and political opposition does not seem to have affected acceptance. Table XX shows that frequency of attendance at mass, which could be regarded as a good proxy for religiosity, did not have the expected negative effect on the willingness to adopt contraception in the early sixties.

Data at individual, household and community levels are scarce and not informative. The 1986 DHS indicated that less than 5% of women with "unmet needs" said that their main reason to avoid contraception was their husband's opposition, while less than 4% claimed to be against family planning.

Table XX. Use of Contraception by Religious Practice. Bogota 1964.

Frequency of Attendance to Mass	Use of Contraception	
	Currently Using	Ever Used
Once a Week or more	31.6	40.0
Once a Month or more	29.5	36.0
Less than Once a Month	25.8	36.0

Source: Novoa, A. (1974:66)

Psychic costs seems to be negligible at this time and, more importantly, they never were a pivotal aspect of the decision to adopt family planning. This view questions the real power of the Catholic church in Colombia. Colombians consider themselves to be Catholics and they probably practice their religion more than in any other Latin American country. Nevertheless, for reasons that should be further studied, they were not influenced by the church's doctrine in regard to their reproductive behavior.

B.- Market Costs, Family Planning Programs and Policies

The market costs of family planning in Colombia have been directly linked to government policies and non-governmental organizations programs. Supply of contraceptive devices through private doctors or drugstores has been limited to less than 40% of the population, although it has increased over the last decade. The largest part of the supply of contraceptives has been covered by the government, directly through hospitals or indirectly through the social security system, and Profamilia, a non-profit, non-governmental organization.

Table XXI. Source of Contraceptive Device. Colombia 1978, 1980, 1986, and 1990.

Source	Year			
	1978	1980	1986	1990
Profamilia (NGO)	32.5	22.0	38.7	32.1
Public Hospitals	22.9	29.7	15.1	19.4
Social Security	4.5	4.6	3.9	5.7
Drugstores	34.5	35.6	33.3	28.6
Private Doctors	3.4	6.7	7.7	11.2
Other	2.4	1.4	1.3	3.1
TOTAL	100.0	100.0	100.0	100.0

Source: CCRP (1979, 1981, 1988, and 1991).

1.- History of Policy

Colombia was one of the first countries in Latin America to announce a national policy on population. In 1969, President Carlos Lleras Restrepo issued a three-year development plan, which included a chapter on population policy. This document declared that deciding the number and interval of children is a basic human right and, therefore, the government has to supply the people with the necessary means to exercise this right. A more conservative president, Misael Pastrana Borrero, created a National Council of Population in 1970. This council was required to propose population policies and assist the government on population issues, but its action was minimal and the role of the Colombian government during those years was passive, neither encouraging the expansion of family planning services nor limiting the action of private groups. It is important to recognize that even this noninterventionist attitude was uncommon in Latin American. During the late 1960s and early 1970s, most Latin American governments, pressured by the Catholic hierarchies and nationalist groups, had a strong position against family planning, making more difficult or directly impeding the distribution of contraceptives.

2.- History of Programs

Family planning programs in Colombia have been, since their early inception, almost exclusively monopolized by Profamilia. Profamilia is a non profit, non governmental organization created in 1965. Its main and explicit goal was to promote family planning. In 1966, it opened a pilot clinic in Bogota, from where IUDs and contraceptive pills were distributed.

As a member of the International Planned Parenthood Federation (IPPF), Profamilia has received a continuous flow of international assistance. Based on this financial support, the group began an expansion process, by 1990 its central program had 40 clinics around the country.

In order to reach rural residents, Profamilia developed its "Community Program." This concept involves the recruitment of community level leaders to distribute and administer contraceptives. This program has enrolled as many as 3800 distributors all over the country, including both rural and urban areas.

Profamilia's income is still mainly based on international donors, such as IPPF, USAID or UNFPA. Some local support is obtained through a specially organized committee, and the nominal fees Profamilia always charged for its services.

In 1973, with the aim of improving the financial situation, a new social marketing program, called "Mercadeo Social," was introduced. Through this system, Profamilia began to sell contraceptives at market prices. By 1974, the three programs (Clinics, Community and Mercadeo), distributed 65% of all contraceptive pills and almost 100% of condoms sold in Colombia. In 1986, the Community Distribution and Mercadeo Social programs were merged, consolidating both distribution structures.

a.- Methods Offered:

The Profamilia programs started offering contraceptive pills and IUDs. Early in 1970 Profamilia created a program of male sterilizations, but this program was canceled because of the low number of clients. A female sterilization program began in 1973 with a growing acceptance among the users. An additional program called "Programa Quirúrgico Móvil" was organized to reach isolated areas and offer sterilizations. A surgical team, completely equipped, would travel to this areas and perform the sterilizations in one or two days, leaving the patients to the care of local doctors or midwifes afterwards.

The increasing popularity of sterilizations relegated the use of IUDs to a third place in the mid 1970s and the pill to a second place around 1985. As of 1990, the most popular method was sterilization, followed by the

pills and IUDs. Other methods, such as the rhythm, withdrawal, condoms, or vaginal methods such as diaphragms had a much lower popularity, with less than 10% prevalence rate for any of them.

Table XXII. Women Contracepting by Type of Contraceptive Used. Colombia 1976 to 1990.

Method	Year					% Supplied by Profamilia (1990)
	1976	1978	1980	1986	1990	
Pill	37.6	36.8	35.4	25.4	21.2	53.0
Sterilization	11.6	17.5	21.6	29.0	32.7	70.0
IUD	13.2	16.8	17.0	17.2	18.6	18.0
Condom	----	2.9	2.3	2.5	4.3	43.0
Vaginal	----	4.8	4.4	4.1	2.5	25.0
Injectable	----	2.7	2.8	3.6	3.5	0.0
Rhythm	14.0	8.5	10.4	8.5	9.3	0.0
Withdrawal	11.6	8.6	5.2	8.2	7.0	0.0
Other	2.0	1.3	0.4	1.5	0.8	0.0
TOTAL	100.0	100.0	100.0	100.0	100.0	51.0

NOTE: [1] Estimated.
Sources: CCRP (1981, 1986, and 1991) and Trias (1990).

3.- Current Access to Family Planning

As of 1990, Profamilia estimates that 70% of women at risk are using some form of contraception, an increase of about five percentage points since the 1986 DHS. Of these, almost one third have been sterilized, while the pill is still preferred by 21%. Considering all modern family planning methods (that is, excluding rhythm and withdrawal), Profamilia provided services to 61% of all contracepting women.

Family planning is currently available to almost every Colombian woman. The number of women with unmet needs is still considerable, in 1986 about 28% of at risk women indicated that they were in need of some

kind of family planning service, but only 6.1% of them said that their were not using contraceptives because of high costs or accessibility problems, two reasons connected with the efficiency of the family planning programs. Thus, less than 2% of at risk women indicated that the Colombian family planning programs were not useful for them. In short, it is clear that the programs offered by Profamilia, together with the smaller governmental and private services can be considered as extremely successful attempts to supply a full nation with family planning services.

VII.- Conclusions

Colombian women had a relatively low demand for children early in the 1960s. This fact has been a critical element in the successful history of family planning in Colombia, as the opposite may have been a major cause of failure of programs in other countries. By 1976 the average desired final family size was of 4.11 children, about 11% lower than the actual total fertility rate. While no exact data are available for previous years, the rapid acceptance of family planning services in the early 1970s indicates that demand for children was low by that time. Actually, the total fertility rate declined by 10%, from 7.04 to 5.73, even before the Profamilia project was initiated, showing that Colombia was already in its fertility transition process.

Several economic and social processes accelerated the increase in demand to reduce fertility. Among them, urbanization and educational improvements were the most influential. The early CELADE KAP surveys indicated that urban residents wanted fewer children than their rural counterparts. This differential endured over almost 30 years, and it is reasonable to expect that it will not disappear in the near future. A similar effect can be observed with educational differentials, which have slightly decreased between 1976 and 1986. These persistent differentials had a critical role in the changes in children's demand, since dramatic changes in rural-urban distribution and educational attainment have been documented since 1960. Urban population grew from 38% in 1951 to 67% in 1985, and gross secondary enrollment went from under 15% in 1960 to almost 50% in 1985. Additionally, demand for children declined among urban and educated individuals, enhancing the effect of these differentials on fertility. While it is not possible to quantitatively determine the effect of these changes on the fertility decline, it does not seem to have been important.

Another major factor in the fertility decline was the low cost of regulation. Psychic costs were low even before the decline began. The causes of this are not clear, though a sensible hypothesis could be that the Catholic church did not have as much influence on personal behavior as it was expected. Also, cultural patterns did not oppose changing and modernizing behavior, but actually encouraged them. Thomas Merrick [1990] hypothesized that a major conduct for the ideational change mentioned by Cleland were the media, especially through soup operas promoting small families and female role models with fewer children. Whether this hypothesis is correct or not, Colombian women did decrease their ideal number of children rapidly. The deeper causes of this phenomenon should be further studied by anthropologists and sociologists.

Market costs, which were high in the early 1960s, decreased rapidly with the creation of Profamilia. The merits of Profamilia in making

contraception available to almost every woman in Colombia are undisputable. By the time Profamilia was created, Colombian women were confronted with a strong demand to limit the number of children and very low psychic costs. In other words, inexpensive, easily available contraceptive devices was the only ingredient missing to produce a rapid fertility decline. Profamilia and the government took the responsibility for supplying the family planning services, and did it efficiently, facilitating the decline of fertility. Its role in Colombia's fertility transition was very important, but not as much as both its supporters and detractors usually suggest. Fertility in Colombia was declining before Profamilia, and would have continued declining without Profamilia. The social, economic and cultural forces behind this decline were enhanced by Profamilia's activities, but they were not created by Profamilia.

A major conclusion from this study is that social processes are rarely created by policy. Governments or NGOs can try to encourage or slowdown them, but if the social climate is not supportive, there is no possible change in individual behavior (unless extreme penalties are imposed to those who deviate from the official policy, as was the case of China). In terms of fertility transition, a major lesson from the Colombian case is that the best managed family planning program will succeed only in a context where exists strong excess of supply of children and low psychic costs of fertility control.

In relation to the regional situation, it seems plausible to think that most Latin American countries have had a socio-economic and cultural evolution similar to that of Colombia. Rates of urbanization and educational improvement have been high in almost every country. There is no reason to expect higher psychic costs in other Latin American countries. In fact, it should not be surprising if other countries present even less individual resistance to adopt family planning, since the major opposition force in the region, the Catholic church, is generally stronger in Colombia than in any other Latin American country. Perhaps the most significant difference between Colombia and other countries has been the presence of Profamilia and the attitude of the government, which, while not encouraging the use of contraceptives, did not obstruct the labor of private organizations.

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